

Frequently Asked Questions

Recent Bay Area tree mortality of Acacia, Eucalyptus and other plants

Question 1. The recent tree mortality seems to be on public properties. Are we seeing the same problems on private properties?

Answer: For the fading acacias, most of the trees were not planted, they seeded in as invasive species. So, most of the affected areas are places with openings that weren't being actively managed. Examples include cleared areas under powerlines, along freeway edges, etc. The affected areas are on lands of all ownerships that are, in general, not tended. Some of the areas with the most acacia dieback are privately owned properties, and some mortality has been observed on street trees in urban settings as well.

Question 2. How best to remove the dead trees that are contributing to the increasing fuel load in the East Bay Hills?

Answer: It is difficult to answer this question, but some general guidance and precautions follow. First, especially for the acacia, the trees may not be totally dead; their roots may remain healthy and the trees may resprout. But that consideration aside, until we learn more about the cause and extent of the dieback, Matteo Garbelotto, UC Berkeley is recommending chipping the material and composting or burning the chips. He recommends against chipping and leaving the materials on site, since the chips may harbor plant pathogens. Most importantly, to prevent potential pest movement, firewood, chips or debris should not be transported long distances.

Question 3. Could the acacia susceptibility be somehow related to its clonal propagation?

Answer: Basic biological principles would dictate that any population that reproduced clonally would have less genetic variation so be less resilient to disturbance. It is early in our understanding of what is driving this problem and its distribution pattern; we don't fully understand the importance of drought, heat stress and interactions with the *Diaporthe* and *Dothiorella* fungi that have been most frequently associated with the acacia dieback. And, we also don't understand the level of genetic variability in the populations.

Question 4. What is the plan for research going forward?

Answer: We're trying to acquire funding to answer the following key questions:

- What is the distribution and extent of the tree decline?
- Is it a new problem or has it been seen in past years?
- What species are impacted?
- What is the role of climate or climate change in the dieback?
- Is a new invasive fungus causing the dieback?

- Will the trees recover?
- How can the fuels created by the dieback be managed to reduce fire risk and also prevent a potential pathogen from being inadvertently spread?
- If trees are removed, is there any guidance as to replanting or vegetation management?
- Any special guidance for utility arborists, park managers or homeowners?

There are many other important unknowns and needs, this is just a partial list.

Question 5. Should we assume that the affected tree species already live on the 'edge' and are therefore the first to show stress due to environmental condition? Are shrubs experiencing the same problem?

Answer: In general, the acacia and eucalyptus stands are unmanaged and very dense. They are not native to the Bay Area. We don't understand why they are showing more distress than some other species. Many Monterey pines are also dying; they often die due to beetle attack when experiencing drought stress or other adverse conditions. We don't know much about how the shrub species are faring.

Question 6. What's the relationship between the affected areas and fire?

Answer: The areas showing unusual patterns of tree decline did not burn in recent fires.

Question 7. There was a bad California oak moth outbreak on the UC Berkeley campus in 2019. Was that more widespread and contributed to the canopy loss in coast live oaks?

Answer: California oak moth, *Phryganidia californica*, is a common insect in coastal forests. It can be identified by frass, silks, worms and other signs of insect activity that are typically present beneath the defoliated trees. Most trees infested by oak moth will recover. We have not seen signs of California oak moth contributing to the current tree mortality in the Bay Area. On the acacia, there is no indication that any insects are contributing to the decline.

Question 8. Some have suggested that acacias and eucalyptus have been infected by the same pathogens. Do you think this is the case, or is even possible?

Answer: It is possible that several tree species could be infected by the same fungi, but we do not know what fungi are associated with the fading eucalyptus. Matteo Garbelotto, UC Berkeley has found *Diaporthe* and *Dothierella* fungi on the acacias.

Question 9. Are most of the observed mortality pockets multispecies or single species?

Answer: We don't have a complete answer to this question. In some areas, only the acacias appear to be declining. In others, a mix of Monterey pine and eucalyptus are fading. And in some spots, other mixes of declining species are seen.

Question 10. Is the mortality due to the trees being near the end of their lifespans?

Answer: As of now, we can't authoritatively comment on the influence of tree age as a contributing factor in these declines. However, many dying acacias are very small, so mortality does not seem to be restricted to older trees.

Answers to these questions provided by:

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