Description of CAL FIRE's High Hazard Zone Determination
Pursuant to Governor Brown's October 30, 2015
Proclamation of a State of Emergency

Background: Several consecutive years of drought between 2012 and 2015 in California precipitated a large outbreak of insects that attacked and killed large areas of conifer and hardwood trees in the Southern Sierra Nevada mountains, and along the coast range in Southern and Northern California (figure 1). With prolonged drought conditions areas of elevated tree mortality are likely to increase. The millions of recently dead trees have created locally increased hazards related to fire and potential falling trees, and greatly impacts public safety and forest health. In addition, the buildup in fuel loadings from higher tree mortality has the potential to increase emissions when wildfires occur. In response to the current and expanding areas impacted by elevated tree mortality, Governor Brown declared a State of Emergency on October 30, 2015. As part of the emergency declaration, Governor Brown has articulated the need to protect life and property by mitigating the risk from falling trees and increased fire hazard by removing dead trees in the vicinity of roads, communities, powerlines and other critical infrastructure.

Supporting Data: The USDA Forest Service Forest Health Protection program monitors forest health using annual Aerial Detection Surveys to map out the extent of dead trees on public and private lands. CAL FIRE, working with other State, Local and Federal cooperators will compile and analyze this information and provide it to local field personnel through web mapping technologies to begin their inspection of high hazards and to identify and implement projects that reduce the public safety risks. CAL FIRE will deploy web-based mapping tools for agencies to view high hazard zones and record their planned, in-progress and completed projects. To the extent possible, CAL FIRE will incorporate other monitoring information into the web mapping tools for improving detection of tree mortality and delineating hazard zones.

Method: Within high hazard zones, CAL FIRE and its partner agencies will identify projects which may be undertaken based on jurisdiction and available funding. CAL FIRE will utilize geospatial technologies in a coordinated approach to support identification of high hazard zones, to assist agencies in tracking dead tree removal and to monitor mitigation efforts and new mortality that emerges. CAL FIRE will develop web based map viewers to assist in agency coordination and to provide transparency to the public.

The process will include the following elements:

- **Identify High hazard zones:** Areas with elevated tree mortality and high fire threat that are a hazard to public safety, community assets and related infrastructure represent the primary focus of these zones. Where appropriate broader watershed protection and other important environmental services (i.e. water resources, carbon storage, wildlife habitat) will also be considered.

- **Map Dead Trees:** Use Aerial Detection Surveys to map areas with high mortality and high fire threat.
- **Map Community Protection Zones:** Identify communities, powerlines, roads and other critical infrastructure near high mortality and having a high fire threat (approximately 200 feet for roads, powerlines, communication sites and water storage and delivery features; approximately 1000 feet around Communities).
- **Map Fire Threat –** Use statewide fire threat data; updated for recent wildfires.
- **High Hazard Zone Footprint (HHZF)** – Using GIS overlays, identify hazard areas that represent the intersection of elevated tree mortality, high fire threat, community assets, and watershed level assets.
- **Field Review and Revision:** Provide HHZF map information to CAL FIRE Units for validation and updates. CAL FIRE and its partner agencies will further refine and finalize high hazard zone areas at the local level.
- **Evaluate Watersheds:** Aggregate information on the extent of threats and hazards within a watershed to support landscape level planning. Watersheds will be further categorized to evaluate if it is a target for community protection, fire threat reduction and forest health or a combination. Priority will be given to projects that address community protection, but may also consider broader forest health, watershed protection, fire threat and climate related issues.
- **Revise and Refine:** It is envisioned that high hazard zones will be revised periodically with monitoring information on tree mortality and related asset information.

- **Coordination:** Develop a web based data entry tool to map project boundaries and communicate the status of projects being implemented.
  - **CAL MAPPER:** Use existing data entry tools at CAL FIRE to map tree removal projects and communicate planned activities to the public and cooperating agencies.
  - **FACTS:** Use existing data entry tools at USFS to map tree removal projects and communicate planned activities to the public and cooperating agencies.
  - **Inter-Agency Project Mapping**: Develop a web based viewer to capture other agency projects and communicate planned activities to the public and cooperating agencies.
  - **Planning:** CAL FIRE and partner agencies will make high hazard zones and project level information available to the joint CAL FIRE/OES Task Force to coordinate response.

- **Monitor new mortality:** Work with US Forest Service and other agencies and private citizens to identify additional areas of dead trees that may have emerged and that are not captured in the aerial detection survey data. Evaluate other monitor data as possible.

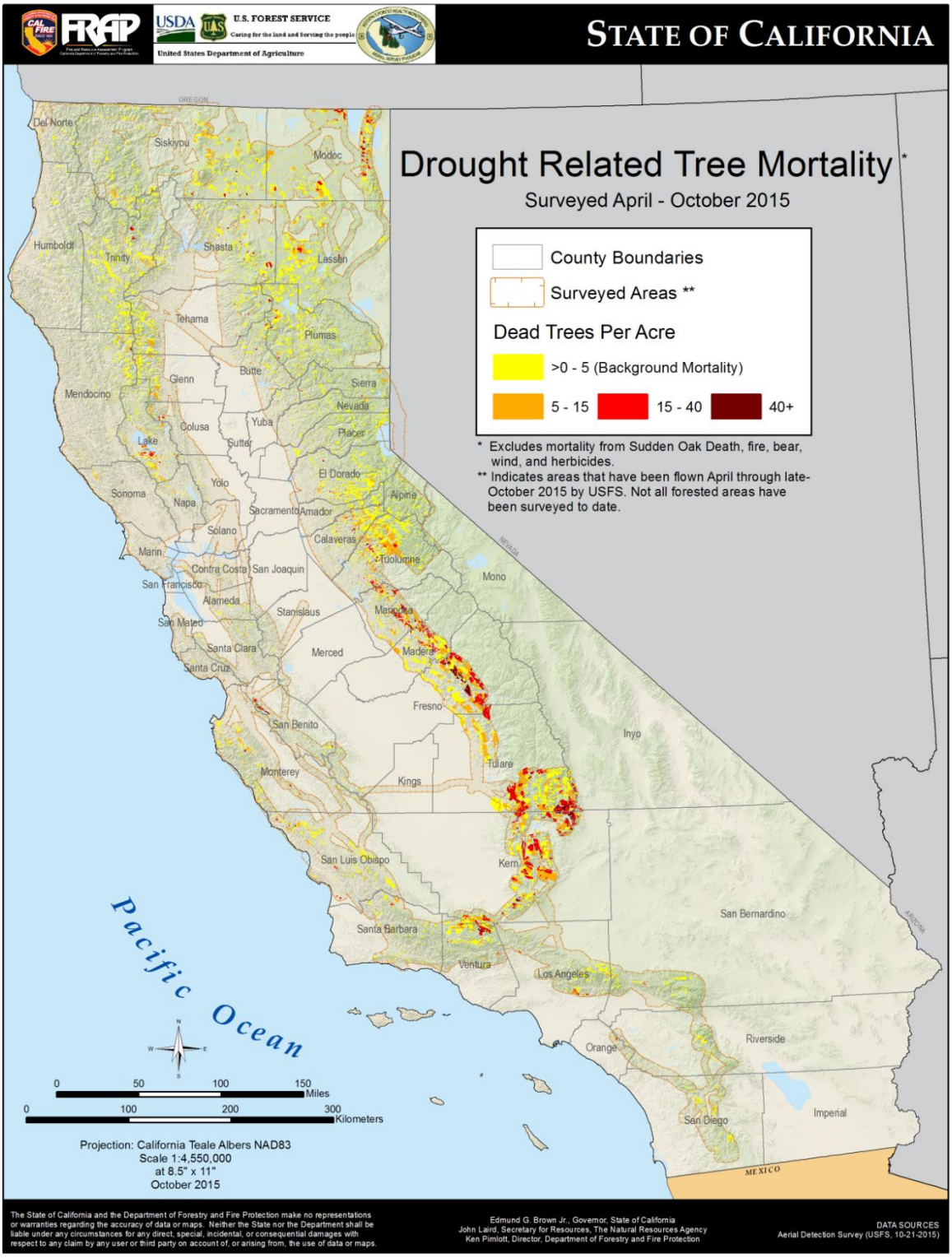

Figure 1. The USFS aerial detection survey of tree mortality is an ongoing monitoring program. The surveyed area has gaps in coverage that will be updated as newer survey data becomes available. New survey data will be used to revise hazard zone delineation as needed.