Tree Mortality Task Force
Forest Health and Resilience Working Group Minutes

May 2, 2018

California Natural Resources Agency
1416 9th Street, Sacramento, CA

I. **FHRWG Member Roll Call**: Stewart McMorrow (CAL FIRE), Dr. Tom Smith (CAL FIRE), Dr. Chris Keithley (CAL FIRE-FRAP), Dr. Russ Henly (CNRA), Dr. Jodi Axelson (UCB), Rich Wade (BOF), Kelly Larvie (CAL FIRE-FRAP), Tadashi Moody (CAL FIRE-FRAP), Mark Rosenberg (CAL FIRE-FRAP), Liz van Wagtendonk (SNC/UW), Coreen Francis (BLM), Emily Meriam (CAL FIRE-FRAP), Margarita Gordus (CDFW), Kevin Conway (CAL FIRE), Kristen Merrill (CAL FIRE), and Pete Cafferata (CAL FIRE).

FHRWG Participant: Lisa Worthington (Caltrans)

Note that the TMTF Mapping and Monitoring Working Group (Chair-Mark Rosenberg) merged with the Forest Health and Resilience Working Group, effective April 9, 2018.

II. **Approval of April 2018 Meeting Minutes**: The April 2018 meeting minutes were approved. Minutes from past FHRWG meetings are posted on the TMTF website: http://www.fire.ca.gov/treetaskforce/workinggroups

III. **Update on the Third White Paper on the Long-Term Outlook for the Sierra Nevada**

The status of the third FHRWG white paper titled "Synthesis of Relevant Studies Exploring the Long-Term Outlook for Sierra Nevada Forests following the Current Bark Beetle Epidemic" was briefly summarized. Kelly Larvie and Tadashi Moody provided a PowerPoint presentation on their modeling work for determining areas most likely to experience type conversions from mixed-conifer forest to shrub lands (long-term view—one century in the future). The original GIS layers used for this analysis included very high fire threat, southern aspect (S, SE, SW), $\geq$ 40 dead trees/ac, shallow soil depth, non-commercial forestland, and 2,000-5,000 foot elevation range. The recent modeling work has (1) replaced the soil data layer (inadequate due to inability to account for weathered regolith depth) with topographic positions favoring shallow regolith/low water storage (i.e., slope position classification = upper slopes and ridges), and (2) added climatic exposure (Dr. Jim Thorne's dataset for WHR types and future climate modeling projections). The new model assigns a factor of one to each parameter (i.e., no weighting for any of the variables):

(Mortality) + (Aspect) + (Fire Threat) + (Slope Position Classification) + (Climatic Exposure) = Most Likely for Type Conversion

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Modeling for the Sierra National Forest (SNF) was displayed for both the original model and the revised model. The Shaver Lake area was used for observation of finer scale modeling results. The revised model results for the SNF are generally similar to those for the original model, but they are considerably more fine-grained, reducing the area in the highest risk class. The total area for the SNF is approximately 1,300,000 acres. With the revised model, 904,962 acres were evaluated (non-commercial forestlands, elevation range 2,000 to 5,000 feet), or approximately 70% of the SNF. The percentages of this area in four risk categories for type conversion were: lowest risk—51.3%, 2nd lowest risk—33.2%, 3rd lowest risk—13.2%, and highest risk—2.3%. Combining risk categories 3 and 4, approximately 15% of the SNF was modeled at a relatively high risk of type conversion over an extended period of time.

Suggestions for improvements included (1) using a stand density layer, (2) adding a forest type layer, (3) investigating collinearity between the aspect and climatic exposure parameters, (4) reviewing the modeling parameters included in the Paz-Kagen et al. (2017) paper, (5) using high resolution LiDAR data for the Dinkey Creek Landscape Restoration Project available from NEON as a finer scale test, and (6) using the National Insect and Disease Risk Map GIS layer.

The end result of this GIS modeling will help inform landowners regarding the general locations where successful reforestation will be most challenging, as well as describing the scale of concern for the Sierra Nevada. **Kelly Larvie and Tadashi Moody will (1) use the revised model, with likely further refinements, for evaluating type conversion risk for the 10 high hazard counties in the Sierra Nevada, and (2) write a summary description of the work for the third white paper prior to the next FHRWG meeting.**

IV. Discussion on Development of a Reforestation Strategy for California

Stewart McMorrow stated that he modified the reforestation strategy based on the limited number of comments he received since the April FHRWG meeting, and that he has submitted the document to the TMTF leaders for their approval. One component of the Reforestation Strategy is the production of a Forest Restoration Guidebook directed at forestland owners implementing reforestation and management projects on their lands in the Sierra Nevada. CAL FIRE Executive Staff are currently reviewing the revised proposal for the guidebook from Dr. Steve Ostoja, California Climate Hub. This proposal will produce a 40-50 page user-friendly handbook, a tri-fold summary of the guidebook, and a two page summary for basic forest inventory/assessment methods. The plan is to have Dr. Peter Stine, retired Research Ecologist from the USFS Pacific Southwest Research Station, write the document (completing it by the end of 2018). **The FHRWG suggested that it would be appropriate to include a web component for these documents, in addition to the printed products.**

V. Progress Made by the Seed Zone Map Update Group (FHRWG Subcommittee)

Stewart McMorrow informed the group that the Seed Zone Map Update Group will meet in Davis on May 29th. The agenda for the meeting includes having (1) Dr. Sarah Bisbing, Univ. of Nevada, review her recently funded project with CAL FIRE; (2) Drs. Jessica Wright and Jim Thorne discuss their project to create provisional climate based seed transfer guidelines; and (3) a discussion on the coming cone season and further work to coordinate data collection and storage efforts across the USFS and CAL FIRE seed banks. **The entire FHRWG is invited to participate; Pete Cafferata will email the agenda to the group.**

VI. Update on Progress Made by the Sierra Nevada Forest Science Coordination Group (FHRWG Subcommittee)

Pete Cafferata briefly summarized the history and goals of the Sierra Nevada Forest Science Coordination Group, which was formed to identify ongoing research and focused monitoring projects related to tree mortality in the Sierra Nevada. A web-based survey tool was developed to allow researchers to delineate a polygon(s) around their research or monitoring project area; they are then prompted to enter information about the project: http://calfire-forestry.maps.arcgis.com/apps/webappviewer/index.html?id=3d9ca2f2bc524d40a1ecedf078b6f5bc.

Currently, we have received input from 25 researchers who have input data for 110 polygons. In April, a list of 37 researchers that potentially have data that should be entered in the database was developed; many of these scientists have been contacted by phone by FHRWG participants, with new data inputs occurring the week of April 30th. **The remainder of the people on the list are to be called within one week**. **When the SNFSCG determines that sufficient data have been received, the subcommittee will (1) work to identify additional research needs/gaps, and (2) determine how to best summarize the data to benefit current field researchers.**

Additional suggestions included (1) determining if these data can be combined with the data hub concept described by Drs. Jodi Axelson and John Battles, UC Berkeley, at the McClellan workshop held on March 12th; and (2) investigating whether a Box account could be produced for compiling a library for the research information that has been gathered to date.

VII. Future Direction for the FHRWG

Due to limited time available, no discussion was held on possible new ideas and prioritization of topics for the FHRWG listed during the February 2018 meeting. **FHRWG members were directed to email Stewart McMorrow and Pete Cafferata their ideas regarding future directions for the group.**

VIII. New Business and Announcements

Mark Rosenberg updated the group for ongoing Mapping and Monitoring tasks, including (1) the updated TMTF Facts and Figures document is ready for the CAL FIRE Executive Staff "green sheet" review process, (2) updates to project data on the tree mortality mapper have occurred, and (3) staff are working to develop local validation process for Tier 1 High Hazard Zone (HHZ) areas as a companion to the current process for Tier 2 HHZ areas.

Russ Henly announced that preliminary planning work continues on Governor Brown's new task force dealing with forest health issues. More details are expected in the near future, possibly during the week of May 7th.

Kelly Larvie stated that CAL FIRE-FRAP has provided funding to Dr. Kristen Shive, UC Berkeley/Yosemite NP, to modify her post-fire regeneration model for post-tree mortality in the Sierra Nevada (see notes on Dr. Shive's presentation to the FHRWG provided at the January 2018 meeting posted at: http://www.fire.ca.gov/treetaskforce/workinggroups). Funding is through the existing FRAP contract with UC Berkeley and Dr. Jodi Axelson.

Lisa Worthington, Caltrans Tree Mortality Program Manager, described the GIS analysis CAL FIRE-FRAP conducted to determine the number of dead trees along State highways in all California counties. A total of 87 highways in 43 counties (out of all 58 in the state) had at least 40 dead trees per acre within 100 feet on each side of the highway centerline (hazard area defined by Cal OES), using the 2017 USFS ADS dataset. Dead tree counts were provided in tables for each State highway in each county. This information will allow Caltrans to prioritize hazard tree removal projects. Lisa stated that due to this work, many counties in addition to the designated 10 high hazard counties are now on Caltrans "radar screen." Mark Rosenberg and Kayana Warren, USFS, will coordinate with Lisa so that Caltrans can align its public messaging with the TMTF FHRWG spatial data communication plan. Lisa would like to establish additional criteria to be used when prioritizing tree removal along State highways that also supports FHRWG management objectives going forward.

IX. Next FHRWG Meeting

The next meeting will be held on *Tuesday, June 12th*, 2:00 p.m. in Sacramento (note that this is the second Tuesday in June). The location will be the California Natural Resources Agency conference room (Room 1305).