MARCH 3, 2017

EFFECTIVENESS MONITORING COMMITTEE

Update on EMC-2016-003 (Effectiveness of the FPR's for Unstable Areas)

1. Engaged CGS staff support
    a. Dave Longstreth and Mike Fuller
    b. Briefed on preliminary scope and objectives (Feb. 10)
    c. Provided perspective on adapting Washington DNR approach to this project and consideration of elements of Cal. FPR's (Feb. 24)
    d. Further work pending
2. Drew Coe (CALFIRE) agreed to form an EMC sub-committee with Dr. O'Connor on Feb. 24; formal recognition of this is requested from the EMC.
3. Preliminary contacts made with two qualified statistical consultants regarding the project.
4. Consideration of alternatives for the broad objectives of this study are requested of the EMC during its March 3 meeting if the agenda allows. The discussion will include reference to the following Exhibits.

EXHIBITS

A. Summary of Washington study forest harvest and road treatments.
B. Example forest harvest strata in a sample block.
C. Aerial photograph example of stratification in a sample block.
D. Regional map of Washington DNR sample blocks for 2008 study

EXHIBIT A

Harvest treatments

***No Buffer* — Harvest units from 0-20 years old with no buffering of RIL, if present;**

Partial Buffer — Harvest units and associated buffers from 0-20 years old in which some but not all RIL are buffered with mature timber;

***Full Buffer* — Harvest units and associated buffers from 0-20 years old in which all RIL, if present, are completely buffered with mature timber;**

Submature — Previously harvested forest stands from 21 to 40 years old;

***Mature* — Previously harvested forest stands greater than 40 years old. Note that virtually the entire study area had been harvested within the previous 100 years.**

Road treatments

***Substandard* — Forest roads that did not meet current Forest Practices Rule standards for construction, maintenance, and design;**

Orphaned — Roads that did not appear to have had any Forest Practices use since 1974 (per Washington Administrative Code 222-24-052 (4)), and were typically in an overgrown and undriveable condition;

***Standard* — Roads that met current Forest Practices Rule standards with respect to water management and tread conditions, but did not qualify as Mitigated, as defined below;**

Abandoned — Roads that had been deconstructed to the extent specified in Washington Administrative Code 222-24-052 (3)), including all culverts removed and vehicle access blocked;

***Mitigated* — Roads that met current Forest Practices Rule standards with evidence of additional mass wasting stability treatments (e.g., sidecast pullback) that indicate the highest level of road improvement effort.**

EXHIBIT B

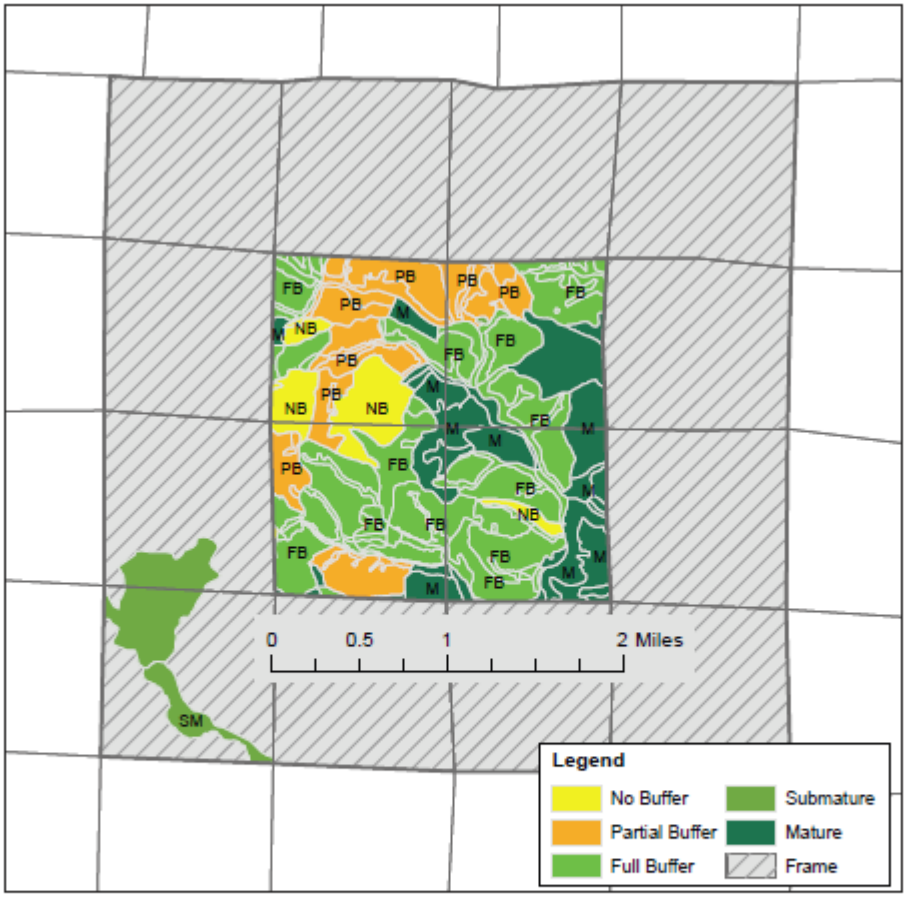

Figure 2-2: Example of harvest stratification in a four-square-mile cluster with under-represented harvest units augmented by sampling sections in the frame (i.e., 12 gray sections surrounding the cluster).
Blocks are composed of the initial cluster and sample units augmented from within the frame. Note that the Sub-mature (SM) polygon in the lower left corner of the frame was added because none of that treatment was present within the cluster boundary.

EXHIBIT C

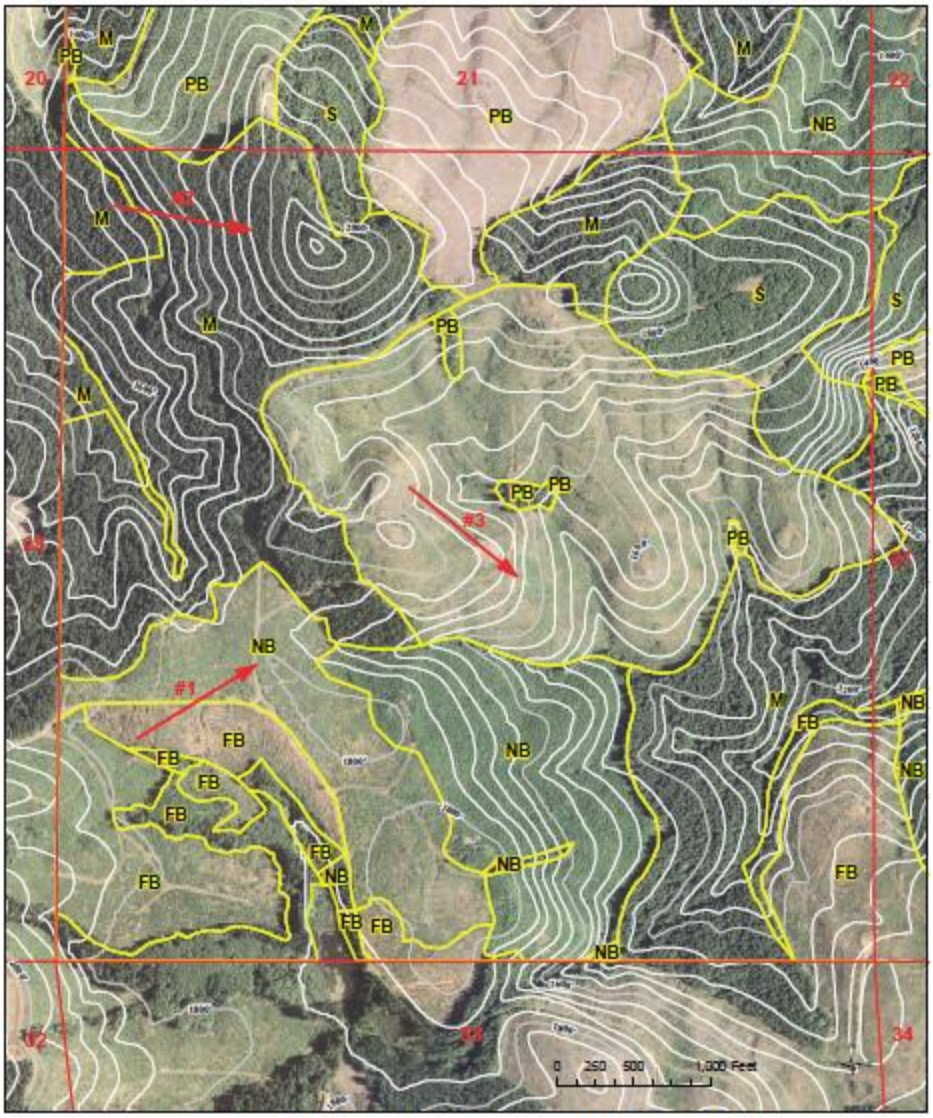

Figure 3-3: An example of harvest treatment delineation over ortho-photography and 10-m DEM topography from Cluster 82 (Township 12 N, Range 4 W, Section 28), showing the spatial scale of treatment polygons and distribution of relevant landforms. Although buffers and leave areas within 0-20-year-old harvest treatments (NB, PB and FB) are outlined, each was incorporated into the adjacent treatment polygon for analysis. In Mature and Sub-Mature polygons, streams and RIL that would be buffered are also present and were similarly included with the stand, though are not delineated on this map. Numbered red arrows point to broadly convex, undissected areas with no apparent RIL; these areas were observed within polygons of all treatments. Because photography was taken in 2006 before the Post-Mortem storm, no landslides are evident. Work was done to evaluate stand age as a covariate (Section 6.1.1).

EXHIBIT D

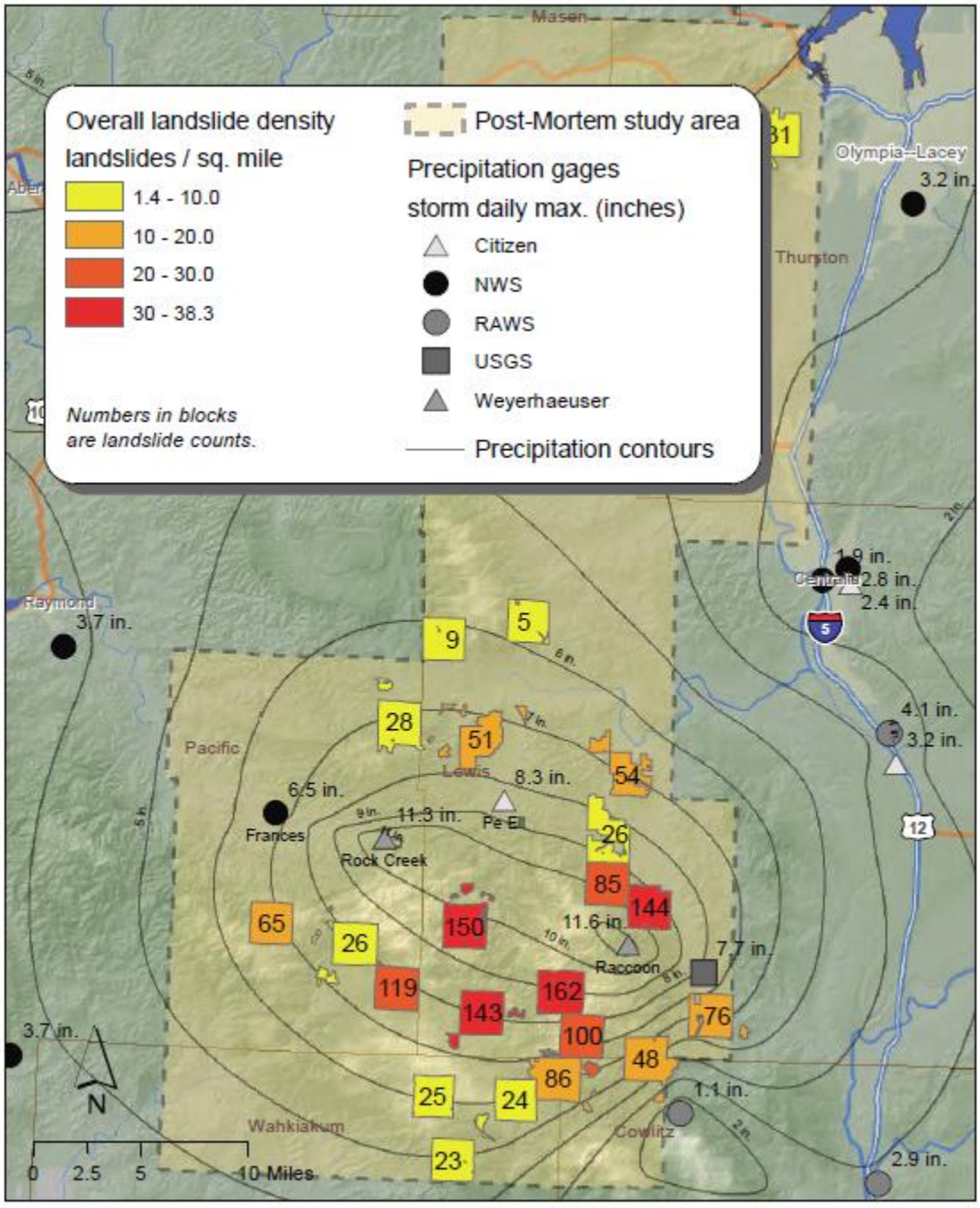

Figure 5-5: Landslide density and count using all landslides identified in the study. Colors denote landslide density while the number within each block indicates the landslide count. Precipitation contours are based on a nearest neighbor interpolation of gage station readings.