

Policy response to UPSAG request for a formal request to work on Unstable Slopes Proposal

Determined by consensus at the January 5, 2017, TFW Policy Meeting

Policy direction to UPSAG (in italics), UPSAG responses bulleted below:

UPSAG responses discussed at February 7, 2017 meeting with written edits accepted through 12:00pm on February 10, 2017.

- *For Topic #1, Potential Instability and Failure Mechanisms of Deep Seated Landslides (DSL): by June 2017 at the latest*
 - UPSAG has the results of the literature review regarding potential effects of forest practices on glacial deep-seated landslides. UPSAG expects to have the results of a literature review on the potential effects of timber harvest on non-glacial deep-seated landslides by June 30, 2017. These two literature reviews will form the basis for answering the Topic 1 questions. UPSAG anticipates being able to provide feedback to Policy at the August Policy meeting.

- *For Topic #2, Terminology related to Reactivation Potential of Relict v. Dormant DSL: next UPSAG meeting discussion (report back to March Policy meeting with written document or presentation)*

- Should the BM define relict v. dormant more precisely?
 - There is disagreement on this issue.
 - Conservation Caucus members Kara Whittaker and Chris Mendoza request time to get feedback from Dr. Dave Montgomery whose definition of relict, based on his letter to the FP Board (November 9, 2015), is fundamentally different from that of QEs present in this conversation.
 - UPSAG requested additional feedback from Conservation Caucus members to be provided by Friday, February 17. No additional feedback was provided as of Monday, February 21.
 - Casey Hanell (DNR, QE), Rian Skov (DNR, QE), Ted Turner (Weyerhaeuser, QE), Julie Dieu (Rayonier, QE), Joe Murray (Merrill & Ring, Forester), (Netra Regmi, CMER

Geomorphologist) think the table and definitions in BM16 are adequate, useful, and do not need further clarification.

- Should the reactivation potential of relict landslides be included in the BM 16 Section 6.2 bullets?
 - There is disagreement on this issue as it relates to the previous bullet.
 - The basic assumption in the current board manual is that deep-seated landslides meeting the definitions of relict or dormant-indistinct as evidenced by geomorphic and other features described in Table 2 of the BM were driven by conditions (e.g. climate, former river erosion, former glacial erosion, seismic) that have not been present on the landscape for hundreds to thousands of years. These landslides have been exposed to periodic cataclysmic forest replacement events such as wildfires and windstorms, and to large rainfall events. For the last 100 years, they have been exposed to clear-cut harvest practices that removed much greater areas of timber on the deep-seated landslides and within their recharge areas than current forest practices activities (i.e., smaller regeneration harvest sizes, more buffers and leave trees, and green-up rules all mean smaller hydrologic impacts than the previous harvest rotations). Qualified experts have been making air photo and field observations on deep-seated landslides looking for a reactivation response to earlier harvests and are finding no evidence to support this occurrence. Additionally, through watershed analysis and landslide hazard zonation, geomorphologists have been looking for this response and have not found it. To our knowledge, there is no published literature that supports the hypothesis that timber harvest leads to reactivation of relict or dormant-indistinct deep-seated landslides (the first literature review did not find published literature; the second literature review is ongoing and is looking for any such literature). This leads practitioners to the conclusion that there is a low probability that future harvest will reactivate landslides that have not been active for more than 100 years. This conclusion is modified on a site-specific basis depending on the geomorphic setting. For instance, if a river is on the opposite side of a valley, but still has an active CMZ adjacent to a GDSL, it may be assumed that at some point the

river may meander back to potentially trigger additional movement assuming river erosion was a likely trigger during prior period(s) of instability.

- *For Topic #3, Scope potential for empirically-based runout risk screening tools for Shallow Rapid RIL Identification and Analysis: come back to Policy with timeframe (at March Policy meeting)*
 - *Consider all tools referred to in BM Section 16 plus other potential tools not currently in the BM.*
 - Currently, there are 11 options for assessing runout potential for shallow-rapid landslides in BM16, the majority of which are empirically-based. In the group, there was no knowledge of additional published resources available that would provide superior screening or would supersede methods currently described in the Board Manual.
 - An unpublished method is the unfinished work on a coarse shallow-rapid screening tool that was developed with cooperation from all stakeholders (DNR, WFPA, Ecology, and Conservation) during the second BM16 re-write requested by the Board. The Conservation Caucus members would like to see this effort continued where it left off since it had cooperation from all stakeholders before coming to UPSAG. At the same time Conservation members will be looking for potential overlap with the Unstable Slopes Criteria TWIG currently under review at CMER. If the goals and objectives are similar, there may be a viable alternative pathway that provides a similar tool.
 - There is disagreement in UPSAG about the utility of the coarse shallow-rapid screen.
 - The Unstable Slopes Criteria TWIG has scoped a project to address this question and potentially update the state of the knowledge on shallow-rapid landslide runout potential.
 - Conservation Caucus will review Unstable Slopes Criteria TWIG project scoping for shallow-landslide runout and provide feedback on whether it meets similar goals and objectives of the unfinished coarse

shallow-rapid screen prior to March 2 Policy meeting for discussion at March 2 Policy meeting.

- It is estimated that it would take a contractor approximately two months to develop a coarse screening tool that is based on existing runoff assessment tools. This is completely dependent on scope. For instance, it may take much longer if significant validation of the screening tool is desired.

Documents for UPSAG to reference:

- *Board motion (which controls the task)*
- *Policy recommendations for a subset of Unstable Slopes PI*
- *Unstable Slopes PI*
- *AMPA's recommendations to Unstable Slopes PI*