

Primer on forming research question(s) for the research topic: Literature review for eastern Oregon steep slopes

Relevant excerpts from the PFA Report

CHAPTER 3. TIMBER HARVEST ON STEEP SLOPES

3.2 Goals

The goals of the PFA commitments regarding timber harvest on steep slopes is to provide large wood and sediment consistent with maintaining or improving aquatic habitat within large basins over long timeframes. (For the purposes of this Chapter, large basins are those of a size equivalent to those supporting independent populations of Oregon coastal coho salmon. In modeling to support the PFA, these are USGS HUC 4th Field [8-digit] basins). To accomplish this, sediment sources and debris flow runout paths will be identified and a subset of these will be managed during timber harvest activities to retain trees and other vegetation. These actions, together with other HCP commitments, are intended to provide high-quality habitat to support recovery and long-term conservation of the species covered by this HCP on private forestlands.

3.2.1 Objectives

Aligned with the overall goals for timber harvest on steep slopes to provide high-quality habitat that supports the recovery, protection, and long-term conservation of covered species on private forestlands, the Authors establish the following objectives under the PFA:

- a. Leave trees in Designated Debris Flow Traversal Areas to help create and maintain high-quality habitat in:
 - 1) Type F or Type SSBT streams by delivering large wood and regulating sediment storage and transport.
 - 2) Type N streams by creating shade and cover for amphibians covered under the HCP.
- b. Leave trees in Slope Retention Areas to:
 - 1) Reduce timber-harvest-related increases in the frequency and volume of sediment delivered to Type F or Type SSBT streams from mass wasting events.
 - 2) Contribute large wood to Type F or Type SSBT streams.
- c. Leave trees on a subset of steep (>70%) slopes immediately adjacent to Type F or Type SSBT streams to:
 - 1) Stabilize these areas.
 - 2) Contribute large wood to Type F or Type SSBT streams.

3.3.8 Timber Harvest on Steep Slopes in Eastern Oregon

The Private Forest Accord does not prescribe new management measures for landslide initiation zones or debris flow traversal channels in Eastern Oregon. The Authors agree that Eastern Oregon's unique geologies and climates likely mean that these processes are different in magnitude, frequency, and impact on the covered species, when compared to Western Oregon. Similarly, the impact of timber harvesting on these processes is potentially different in Eastern Oregon. In light of this uncertainty, the Authors agree that the Adaptive Management Program shall, beginning no later than January 1, 2024, examine the scientific

literature on the impacts that hillslope processes have on the covered species in Eastern Oregon. The primary focus will be on upslope initiated shallow rapid slides and how timber harvesting may impact these in Eastern Oregon environments. A secondary and more limited focus is whether other hillslope processes that likely affect covered species are changed by forest practices. Findings of the Adaptive Management Program on these topics will be presented to the Board of Forestry. These findings should focus primarily on the importance of shallow rapid landslides in Eastern Oregon to habitat for the covered species and the potential modification of these processes by forest practices or lack thereof. The report on this primary topic may or may not include recommendations as to desirability and relative importance of potential management measures. In addition, the report should convey whether the secondary review of literature on the effect of forest practices on other hillslope processes merits more thorough consideration by the Adaptive Management Program in light of scientific literature on the connection of these processes to covered species. Nothing in this Report should be read to suggest that any additional Eastern Oregon steep slope or other hillslope prescriptions are, or are not, necessary. The timber harvest prescriptions for steep slopes established under Section 3.3.3 of this Chapter for Designated Debris Flow Traversal Areas and under Section 3.3.4 of this Chapter for Designated Sediment Source Areas and Slope Retention Areas do not apply to any private forest ownership class east of the summit of the Cascade Mountains. The timber harvest prescriptions for steep slopes established under Section 3.3.7 Stream Adjacent Failures apply to all private forest ownership classes both west and east of the summit of the Cascade Mountains.”

Draft research questions

At the request of the AMPC co-chairs, ODF staff drafted some questions to spur AMPC thinking in developing research questions.

These questions apply east of the crest of the Cascades¹ in Oregon, and are to be answered via literature reviews:

Question 1a. What are the characteristics of upslope-initiated shallow rapid landslides? These characteristics include frequency, magnitude, location, runout, spatial and temporal change in deposits over e.g., decadal timescales.

Question 1b. What are the effects of these landslides on species covered in the draft HCP?

Question 1c. How do forest practices alter landslide characteristics and/or their effects on covered species?

Landslide effects that may impact covered species or the quality of their habitat include:

- Large wood delivery and dynamics;
- Fine sediment delivery and dynamics;
- Coarse sediment delivery and dynamics;
- The interaction of large wood, fine sediment, and coarse sediment.

Question 2a. How do forest practices impact other hillslope processes [aside from upslope-initiated shallow rapid landslides] that may in turn affect species covered in the draft HCP?

¹ Note: ODF maintains a regulatory GIS layer of the FPA delineation between eastern and western Oregon.

Question 2b. Do any of the practices or effects in Question 2a require more thorough consideration by the Adaptive Management Program?