Eastside Timber Habitat Evaluation Project (ETHEP)

STUDY DESIGN TO EVALUATE FRAMEWORKS FOR APPLYING RIPARIAN HARVEST RULES ALONG TYPE S AND TYPE F STREAMS IN EASTERN WASHINGTON BASED ON FPHCP OBJECTIVES AND PERFORMANCE TARGETS

Answers to Prospective Six Questions from the CMER / Policy Interaction Framework Document

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Approved by CMER on:
Presented by the: Science Advisory Group-Eastside
SAG Co-chairs: Todd Baldwin

Brief Project Description: ETHEP was initiated to develop framework(s) for applying riparian harvest rules along Type S and Type F streams in eastern Washington that are based on the Forest Practices Habitat Conservation Plan (FPHCP) objectives and performance targets. The study will examine and develop alternative(s) to the current Timber Habitat Type (THT) system using GIS analysis of existing geospatial datasets and using data collected in the field to validate and refine the alternative framework(s) for their accuracy in characterizing eastern Washington riparian forests.

1. **Will the study inform a rule, numeric target, Performance Target, or Resource Objective?**

Yes. ETHEP will inform WAC 222-30-022.

2. **Will the study inform the Forest Practices Rules, the Forest Practices Board Manual guidelines, or Schedules L-1 or L-2?**

Yes. ETHEP will develop a framework(s) (i.e. Timber Habitat Types) for applying riparian prescriptions with the objective of achieving the goals of the FPHCP objectives for riparian function.

3. **Will the study be carried out pursuant to CMER scientific protocols (i.e., study design,**

peer review)?

Yes, the development of this study design followed the instructions and guidelines provided in section 7.9 of the Washington state CMER Protocols and Standards Manual (Revised October 19, 2020). The study design also includes a literature review of peer-reviewed articles and relevant CMER reports focusing on the effects of riparian timber harvest on the five key functions, riparian forest health, and stand development (i.e. the FPHCP objectives). This literature review was included to provide scientific backing and justification for the proposed methods based on the most current research available. The study was also cleared by independent scientific review (ISPR). The feedback from ISPR was incorporated into the study design where appropriate.

4a. What will the study tell us?

This study will inform us of the variation in riparian timber habitats along Type F and S streams in eastern Washington covered by the FPHCP based on their hierarchical relationships (e.g., ecoregions), climactic, physiographic, and vegetation characteristics. This study will also estimate the similarities and differences in these habitats in terms of their riparian function, forest health, and disturbance. Phase 1 of this study will group these habitats into the most parsimonious habitat classification units possible which still account for factors that impact riparian function, health, and disturbance. Phase 2 of this study will involve collecting new field data to assess the efficacy of the framework (developed during Phase 1) for characterizing riparian forests covered by the FPHCP, of eastern Washington in terms of their riparian function, forest health, and disturbance. Data collection during Phase 2 will also attempt to remedy any gaps or insufficiencies in the publicly available data sets catalogued and appraised in Phase 1. In developing alternative(s) to the THT system, the study may inform revisions to land classifications to which prescriptions in WAC 222-30-022 apply.

4b. What will the study not tell us?

This study will not test the effectiveness of the current THT system, associated leave tree/basal area requirements, or preferred species list for Type S and Type F waters in eastern Washington. Likewise, this study will not test alternate harvest rules (i.e., leave tree/basal area requirements and preferred species list) for eastside RMZs along Type S and Type F waters. This study will not develop criteria or desired outcomes for rules applied to eastside RMZs along Type S and Type F waters. This study will not develop a framework (classification system) intended for identifying habitat types along Type Np streams in eastern Washington.

5. What is the relationship between this study and any others that may be planned, underway, or recently completed?

There is uncertainty about the scientific basis underlying the THT rules. Results from Phase I and II of the Eastern Washington Riparian Assessment Project (EWRAP Phase 1; Bonoff et al. 2008) support the concern over the accuracy of the THT divisions and if they are the appropriate framework for applying riparian prescriptions. This study will use existing CMER field data collected for the EWRAP, along with data from several other sources. The EWRAP dataset includes riparian stand data from 103 field sites along fish-bearing streams, covered by the FPHCP in eastern Washington. This dataset will be used to estimate the ability of the preliminary

framework developed during Phase 1 of ETHEP to characterize riparian forests of eastern Washington (i.e., validation of the framework with available field data). This data will also be used to estimate the differences between each classification unit (habitat type) in their relationship to the FPHCP objectives (e.g., shade, large wood input, stand health) over time via simulation modeling (Phase1: step 3).

This study will adapt methods used in Eastside Modeling Effectiveness Project (EMEP; Ceder et al., 2020) which estimated the outcomes of the THT prescriptions in maintaining FPHCP objectives over time relative to unmanaged stands. ETHEP will use a modified version of the methods described in EMEP. Specifically, ETHEP will use the Forest Vegetation Simulator (FVS) variants (e.g., Blue Mountains, East Cascades, Inland mountains) described in EMEP. However, ETHEP will not evaluate differences in stand development between managed and unmanaged riparian stands. Instead, the data will be stratified by the classification units developed for the preliminary framework to estimate the differences in stand development over time between each classification unit without management.

6. What is the scientific basis that underlies the rule, numeric target, performance target, or resource objective that the study will inform? How much of an incremental gain in understanding will the study results represent?

There is uncertainty about the scientific basis underlying the Timber Habitat Type (THT) rules because no documentation is available that describes how the riparian prescriptions were developed and agreed upon during the Forests and Fish Report (FFR 1999) negotiations. The current harvest regulations for eastern Washington state's RMZ's adjacent to Type F/S waters are based on the interaction of timber habitat type (THT) and Site Index, whereby the landscape is divided into three elevational zones: low (<2500 ft), medium (2500-5000 ft), and high (>5000 ft). Stream width determines inner zone width and the shade rule influence inner zone tree retention requirements. These elevation zone delineations have been attributed to Franklin and Dyrness' (1973) description of eastern Washington forest covertype distributions, whereby each zone is expected to have a unique historical disturbance, temperature, and moisture regime (CMER 02-025; FFR, 1999). The current regulations were approved and implemented in 1999 by the Washington State Forest Practices Board following the recommendations of the Forests and Fish Report in 1999 (WDNR, 1999). However, Franklin and Dyrness (1973) also caution that the use of a zonal classification scheme (e.g., THTs) should consider several caveats, most relevant to riparian zones:

> "Zones may occur as sequential belts on mountain slopes, but more often they interfinger, with each attaining its lower elevational limits in valleys and its highest limits on ridges; as a consequence, the zones along the slopes of a narrow valley can be reversed from their otherwise altitudinal relationship."

Similarly, in an analysis of landscapes of northern Idaho and eastern Washington from the standpoint of potential "climax" communities, (i.e., vegetation that would develop in the absence of disturbance), Daubenmire (1980) concluded that microclimates controlled by topographic features allow vegetation characteristic of subalpine environments to descend locally to very low altitudes, and vice-versa (Fig 1). From his observations and analysis, Daubenmire posits that the significance of elevation in the northern Rockies has very little ecological significance.

This project will provide a gain to CMER by providing understanding of whether, in addition to

elevation, any other factors influence the distribution of riparian habitat types along Type F/S streams in eastern WA. ETHEP will integrate detailed ecological and climatic datasets to develop one or multiple landscape classification frameworks tailored to RMZs of Eastern Washington. We expect that the results of the ETHEP study will allow consideration of more nuanced site-specific prescriptions.
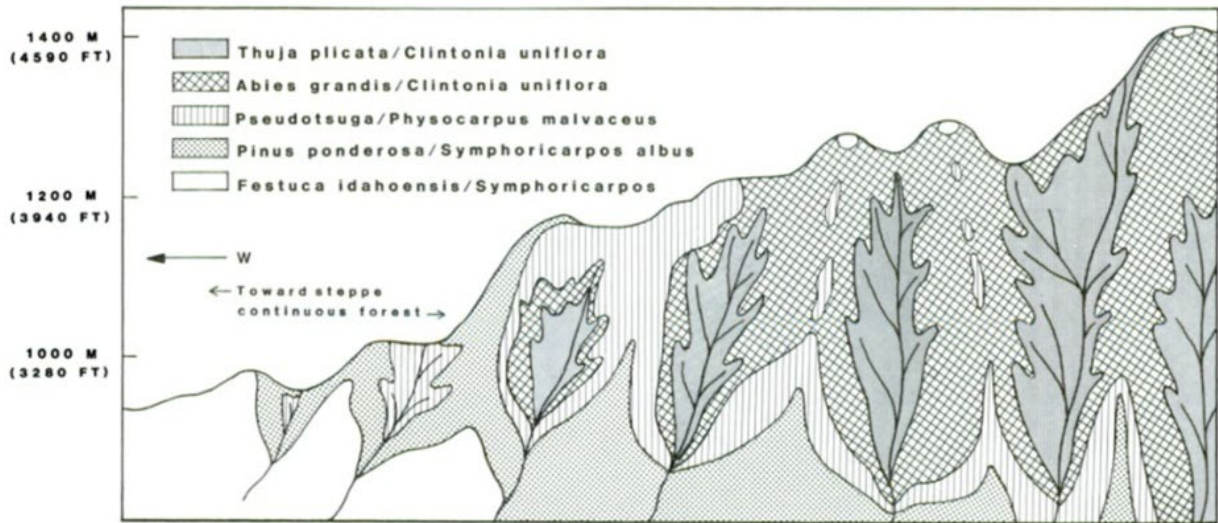

Figure 1. Diagrammatic representation of habitat type-topography relationships on the south face of the Palouse Range (Daubenmire 1980). Results from this study show evidence that climatic, physiographic, and edaphic factors influence vegetation type through microclimate differences that are not captured in elevation bands alone.

References

Bonoff, M., Fairweather, S., & Fay, R. (2008.) Eastern Washington Type F Riparian Assessment Project, Phase I Final Report. Washington Department of Natural Resources, Olympia, WA.

Ceder, K., Teply, M., Ross, K., Anders, P. (2020) Eastside modeling Effectiveness Project (EMEP). Cooperative Monitoring Evaluation and Research Report CMER #2020.10.27. Washington State Forest Practices Adaptive Management Program. Washington Department of Natural Resources, Olympia, WA.

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Franklin, J. F., & Dyrness, C. T. (1973). Natural vegetation of Oregon and Washington (Vol. 8). US Government Printing Office.