The Unstable Slope Criteria Project

PROJECT CHARTER

May 10, 2022

~~March 2, 2021*~~

PROJECT CHARTER OVERVIEW

The purpose of the Project Charter is to describe the project and give the Project Manager and the Project Team the authority to begin utilizing program resources and spending allocated project funds (CMER Protocols and Standards Manual (PSM) Chapter 7, ~~section~~ Section 4). In general, Project Charters should be brief and updated as needed as the project is implemented to accurately, reliably, and concisely communicate the projects' basic elements and objectives. When substantive changes are considered necessary, which amend the scope of the project (i.e.,,,~~,~~ study design, budget, or schedule), the charter should to be updated (version #2, #3, etc.) to communicate those changes.

PROJECT CHARTER APPROVAL DATES

CMER – February 24, 2015
*update 05/10/2022

Policy – April 9, 2015
~~*update 3/2/2022~~

OVERSITE COMMITTEE

Upland ProcessesProcesses~~Process~~ Science Advisory Group (UPSAG)

PROJECT TEAM* MEMBERS

Name, Title, Affiliation, Contact Info	Roles and Responsibilities
Greg Stewart, CMER (NWIFC) gstewart@nwifc.org	Principal Investigator
Lori Clark, DNR Lori.clark@dnr.wa.gov	Project Manager
Dan Miller (M^2 Environ.) dan@m2environmentalservices.com	Principal Investigator
Ted Turner (Weyerhaeuser) ted.turner@weyerhaeuser.com	Scientific Advisor
Julie Dieu	Scientific Advisor

julie.dieu@rayonier.com	

* *The Project Team was formerly organized as a Technical Writing and Implementation Group (TWIG)*

PROBLEM STATEMENT

It remains unclear whether the unstable slopesslopesslope criteria are "adequate" for identifying features potentially susceptible to slope instability from forest practices. This includes associated hazards as well as sites that should receive review by a Qualified Expert. If the unstable slopes criteria are not adequate, some potentially unstable slopes will not be identified or reviewed and the Forest Practices Rules will not have their intended effect.

PURPOSE STATEMENT

Washington Administrative Code (WAC) Section 222-16-050(1)(d)(i) lists the five rule-identified landforms (RIL) and directs the reader to Section 16 of the board manual where the RIL and their criteria are described in detail. Those five RIL are utilized by DNR's FPA approval process to determine if timber harvest has the potential to deliver sediment or debris to a public resource or in a manner that would threaten public safety (WAC 222-10-030(2)(b), SEPA policies for potentially unstable slopes and practices). The 2015 CMER Work Plan states that the Unstable Slope Criteria Project will evaluate the degree to which the landforms described in the unstable slopes rules and board manual identify potentially unstable areas that are likely towith a high probability of impacting public resources or threatenand public safety.

Current RIL definitions and criteria are based on landforms and processes that are inferred to yield relatively high landslide densities, , are influenced by forest practices, and have the highest likelihood for sediment delivery andare likely to have a probable significant adverse impact (WAC 222-10-030(2)(c)). . They were developed from field observations, regional research, and watershed analysis data collected from various sources and methods. Observations of storm-induced landslides that have occurred since the current rules were implemented have shown that a sizable[JFM1] proportion of delivering hillslope landslides may originate from terrain that does not meet RIL criteria. Likewise, as highlighted by the SR 530 landslide which occurred on March 22, 2014, while models have been built that predict maximum runout potential[JFM2], there are no explicit criteria for assessing delivery to public resources or risk to public safety. [JD3]

DNR's threshold determination under SEPA includes an evaluation of whether proposed forest practices are likely to increase the probability of a mass movement on or near the site (WAC 222-10-030(2)(a)(b)). This project will evaluate the degree to which the landforms described in the unstable slopes rules identify potentially unstable areas with a high that are likely to probability of impacting public resources or threaten publicand safety. The project will be designed to evaluate the original Forests & Fish Report Schedule L-1 research topic: "Test the accuracy and lack of bias of the criteria for identifying unstable landforms in predicting areas with a high risk of instability". ." The project replaces the Testing the Accuracy of Unstable Landform Identification Project, based on feedback from Policy at theirthe November 2010 meeting. At that meeting, UPSAG presented two interpretations of the original Forests & Fish

Report Schedule L-1 topic and asked for direction as to how to proceed and prioritize efforts. UPSAG understood Policy's direction was to evaluate the landslide susceptibility of different slopes/landforms in the interest of evaluating current rule-identified landforms and identifying/characterizing additional potentially unstable landforms.

CRITICAL QUESTION

Could modifications to the unstable slopes criteria result in more accurate and consistent identification[JFM4] of those landforms that are likely to have an adverse impact to public resources or public safety?[CM5]

OBJECTIVES

~~Objectives~~**OBJECTIVES**

~~The TWIG's first objective is to review the Best Available Science (BAS) and develop study design alternatives. CMER must approve the scientific merits of the BAS comparison, and then Policy must approve the alternative to be used.~~

The Unstable Slope Criteria Project is expected to address the following critical question from the CMER work plan (CMER 2015):[JD6]

1. Are unstable landforms being correctly and uniformly identified and evaluated for potential hazard?

This project will evaluate the degree to which the landforms described in the unstable slopes rules identify potentially unstable areas ~~with a high probability of~~likely to impact~~ing~~ public resources or threaten public safety.

CMER RULE GROUP AND PROGRAM

Unstable Slopes Rule Group/Mass Wasting Effectiveness Monitoring Program

PROJECT DELIVERABLES AND PROJECT TIMELINE

The TWIG developed a study design alternatives document to provide the scientific design options for this CMER project. At a minimum, it provides the project purpose, objectives, alternative technical approach/experimental designs, general methods, schedule, and budget.

The Unstable Slope~~Slopes~~ Criteria Project consists of five distinct studies approved by Policy in April 2017:

1. Compare/Contrast Landslide Hazard Zonation (LHZ) Mass Wasting Map Units with RIL (this project will be incorporated into subsequent projects per ISPR review comments).
2. Object-Based Landform Mapping with High-Resolution Topography

3. Empirical Evaluation of Shallow Landslide Susceptibility and Frequency by Landform
4. Empirical Evaluation of Shallow Landslide Runout
5. Models to Identify Landscapes/Landslides Most Susceptible to Management

The Project Team is currently working on Project 2, Object-Based Landform Mapping with High-Resolution Topography Study, implementation. The report is scheduled to be presented to CMER in ~~spring~~ summer 2022.

Study ~~Designs~~ designs for Empirical Evaluation of Shallow Landslide Susceptibility and Frequency by Landform (Project 3) and the Empirical Evaluation of Shallow Landslide Runout (Project 4) are being developed using information learned in the Object-Based Landform Mapping with High-Resolution Topography Study. These Study Designs are expected to go through CMER and ISPR ~~and CMER~~ review in the ~~spring~~ summer of 2022.

Task	Deliverable	Responsible Team Member	Estimated Completion Date
Completed ISPR review for Project 2 Study Alternatives	Final Report with ISPR Comments	Greg Stewart	2020 - completed
Develop Project Management Plan	Project Management Plan	Project Manager	2020 - completed
Complete draft final report for Project 2	Final Report	Greg Stewart	FY2022
Develop Study Designs for Projects 3 & 4	Study Design	Dan Miller/ Lori Clark	FY2022
Complete ISPR review of Study Designs for Projects 3 & 4	Study Design (Projects 3 & 4)	Lori Clark	FY2023
Initiate work on Projects 3 & 4	Project Management Plan and Updated Timeline	Dan Miller Greg Stewart Lori Clark	FY2023
Develop Study Design for Project 5	Study Design (Project 5)	Dan Miller	FY2024
Complete ISPR review of Study Designs for Projects 5	Study Design (Project 5)	Lori Clark	FY2024
Final reports for Projects 3 & 4	Final Report (Projects 3 & 4)	Dan Miller Greg Stewart	FY2025
Finalize Study Design for Project 5	Study Design (Project 5)	Dan Miller Greg Stewart	FY2025

Begin implementation of Project 5	Project Management Plan and Updated Timeline	Lori Clark	FY2025
Completion of work on Project 5	Project Management Plan and Updated Timeline	Dan Miller Greg Stewart Lori Clark	FY2026
Development of Final Report for Project 5.	Final Report for Project 5	Greg Stewart	FY2027

BUDGET

Breakdown by Project	FY 22 ~~Budget~~	FY 23 ~~Budget~~	FY 24 ~~Budget~~	FY 25 ~~Budget~~	FY 2~~Budg~~
Object-~~based~~ Based ~~landform~~ Landform Mapping~~mapping~~Mapping~~mapping~~	$4,840	-	-	-	-
Shallow ~~landslide~~ Landslide Susceptibility~~susceptibility~~Susceptibility~~susceptibility~~	$50,000	$1001~~500~~,000	$10~~78,960~~10,000	$10~~25~~10,000	-
Shallow ~~landslide~~ Landslide Runout~~runout~~Runout~~runout~~	-	$50,000	$10~~100~~,000	$10~~25~~10,000	-
Mgt Susceptibility Modeling~~modeling~~Modeling	-	-	$25,000	$25~~100~~25,000	$75,0
Total Budget	**$54,840**	**$150~~10~~50,000**	**~~$45203,960~~45,000**	**$45~~150~~45,000**	**$75,0**

PROJECT TEAM ROLES AND RESPONSIBILITIES

Position	Roles and Responsibilities
Project Manager (PM): Lori Clark	• Monitors project activities and the performance of the Project Team. • Communicates progress, problems, and problem resolution to the Adaptive Management Program Administrator (AMPA), CMER, and UPSAG. • Works with UPSAG and Project Team to help develop Project Charter and other managing documents, and keeps them updated.

	• Develops proposals, RFPs or RFQQs, reviews contractor proposals, monitors contract performance, develop contract budget, schedule, scope changes, and contract amendments. • Develops project budget and schedule with input from the Project Team and UPSAG. • Works with UPSAG and Project Team to develop interim and final draft reports. • Ensures coordination between UPSAG, CMER, and Project Team. • Coordinates all technical reviews and responses in a timely fashion. • Facilitates archiving of all data and documents. • Ensures that contract provisions are followed. • Provides direction, support and oversight to the Project Team to achieve clear and specific scopes of work, schedules, and budgets within approved contracts. • Coordinates and/or authorizes communication with all project-related contractors. • Maintains sole responsibility for all aspects of project management even if other individuals are completing or helping complete parts of the project.

Principal Investigator (PI): Greg Stewart (CMER Staff)	• Works with the PM and UPSAG to identify additional technical expertise and time commitments needed to complete scoping, study design development and implementation.
	• Provides materials needed by the PM
	  • Principle investigator Object-Based Landform Mapping with High-Resolution Topography study.
	  • Provides scientific and object-based image analysis (OBIA) support to the Empirical Evaluation of Shallow Landslide Susceptibility and Frequency by Landform study.
	• Prepares quarterly summary and progress report of project status.
	• Presents technical findings to UPSAG, CMER, and TFW Policy as necessary.
	• Communicates project status and issues to the PM and Project Team.
	• Lead author of prospective answers to 6 questions document.

Principal Investigator (PI) Dan Miller, M2 Environmental Services	6. Principle investigator for the Empirical Evaluation of Shallow Landslide Susceptibility and Frequency by Landform and Empirical Evaluation of Shallow

	Landslide Runout ~~Study~~ study designs~~Design~~designs.~~Study Design.~~
Project Team members: Julie Dieu, Rayonier Ted Turner, Weyerhaeuser	• Assist with finding solutions to technical issues that arise during scoping, study design development and project implementation. • Provide expertise needed for successful completion of scoping, study design and implementation. • Assist with writing technical documents such as: project charter, communication plan, scoping document, study design, prospective 6 questions document, project management plan, and interim and/or final findings reports. • Provide constructive and timely feedback on project documents. • Assist as needed with communicating project information to UPSAG and CMER. • Participate in project meetings and conference calls as needed. • Assist as needed with implementation tasks at the direction of the Principle Investigator.

Authorization

The Washington Forest Practices Board (Board) has empowered the CMER committee and the TFW Policy committee to participate in the Adaptive Management Program (AMP) (WAC 222-12-045(2)(b)). CMER is responsible for completing technical information and reports for consideration by TFW Policy and the Board. CMER has been tasked with completing a programmatic series of work tasks in support of the AMP; these tasks are outlined in CMER's biennial work plan approved by TFW Policy and the Board. This project listed under the Unstable Slopes Rule Group, Mass Wasting Effectiveness Monitoring Program.

Recognition of Support

Committee	Date of Acceptance	Reference
UPSAG		meeting minutes
CMER	February 24, 2015	meeting minutes
TFW Policy	April 9, 2015	meeting minutes
UPSAG	May~~March 15~~May 16, 2022	by email; recorded in June 7 meeting minutes
CMER		meeting minutes

References

Cooperative Monitoring Evaluation and Research (CMER) Committee. (January 2019), 2019-2021 Biennium Work Plan. https://www.dnr.wa.gov/publications/fp_cmer_2019_2021_workplan_20190119.pdf?o9uq19w.

Protocols and Standards Manuel (PSM). (2017), CMER Review5 06_19_2017 Final Draft, Chapter 7.

WAC 222-12-045. April 2013. http://apps.leg.wa.gov/wac/default.aspx?cite-222-12-045.

Washington Forest Practices Board (WFPB), (May) 2016. Board Manual Section 16. Guidelines for Evaluating Potentially Unstable Slopes and Landforms. Accessible from: https://www.dnr.wa.gov/publications/bc_fpb_manualsection16.pdf?mcolf