

Riparian Function Module

Smith Creek Sub-Watershed

May 23, 2017

APPENDIX D Riparian Function Module

Table of Contents

Overview 2

Part 1. Large Woody Debris Recruitment 2

 Introduction 2

 Methodology..... 4

 Critical Questions 4

 Assumptions..... 5

 General Approach and Products 5

 Confidence in Work Products 6

 Qualifications and Skills 7

 Startup Materials 7

 Analysis Procedure 8

 Riparian LWD Recruitment Assessment Report.....22

Part 2. Canopy Closure/Stream Temperature23

 Introduction23

 Critical Questions24

 Assumptions.....24

 General Approach and Products24

 Confidence in Work Products25

 Qualifications.....25

 Startup Materials25

 Analysis Procedure25

 Canopy Closure/Stream Temperature Assessment Report33

Acknowledgments.....36

References37

Worksheet D-1: Stream Length by Riparian Vegetation Condition and Channel Segment40

Worksheet D-2: LWD Recruitment Impact Call by Channel Segment41

Worksheet D-3: Stream Length by Estimated Canopy Closure and Channel Segment42

Washington
Watershed Analysis
Manual

Watercourse Classification



LEGEND

Watercourses

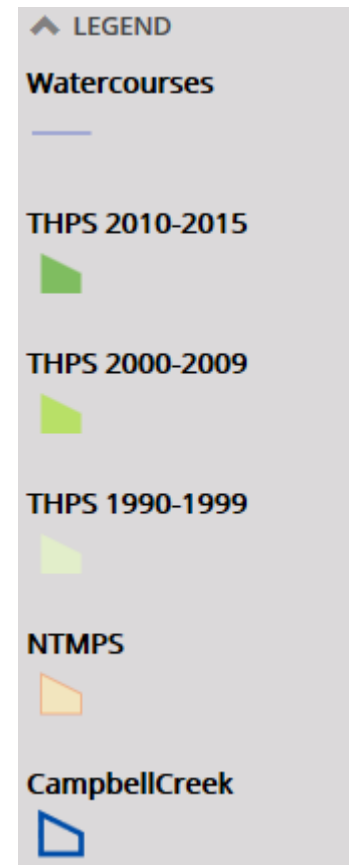
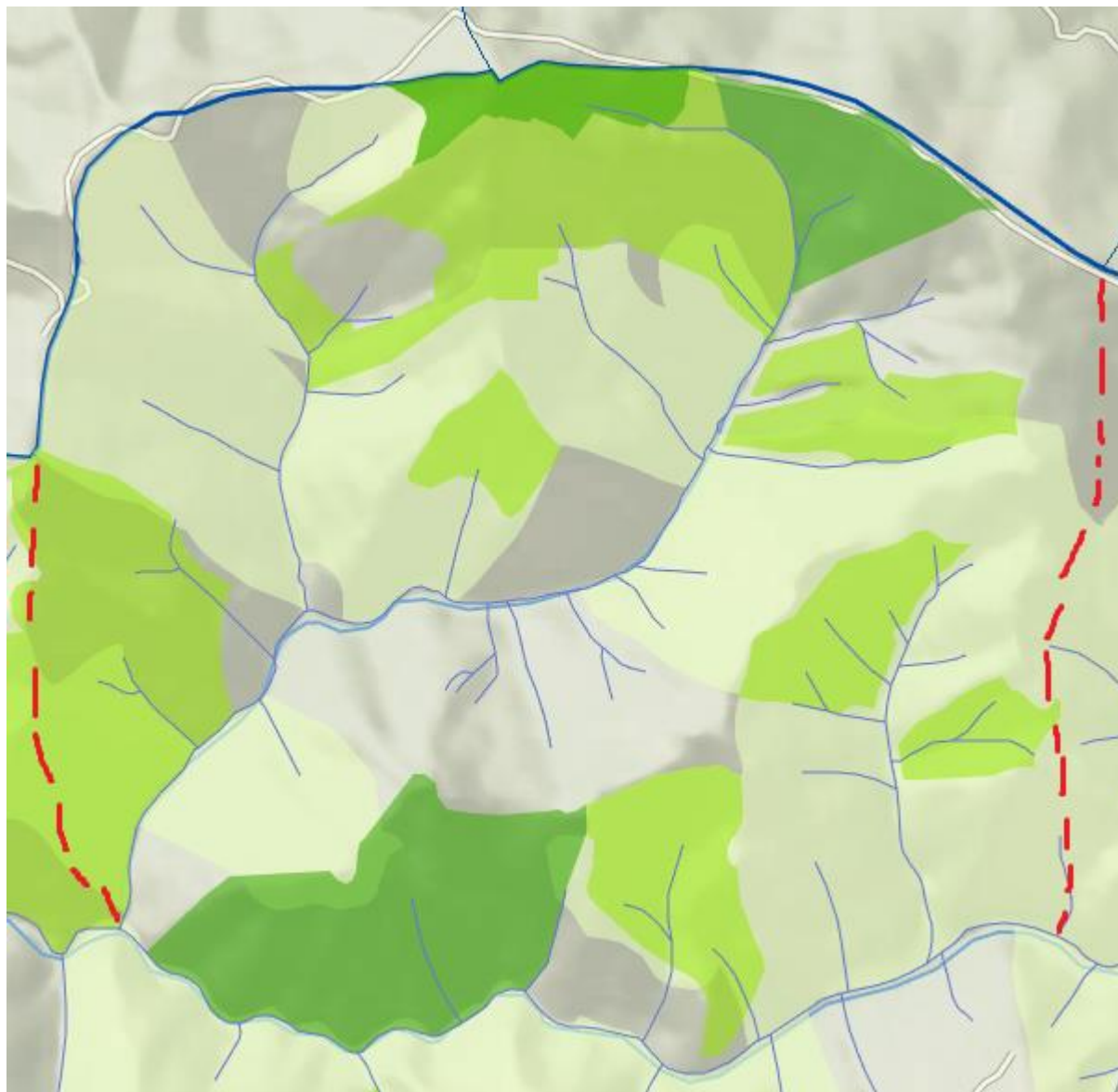
- Class 1
- Large Class 2
- Standard Class 2
- Class 2
- Class 3
- Unclassified
- Intermittent

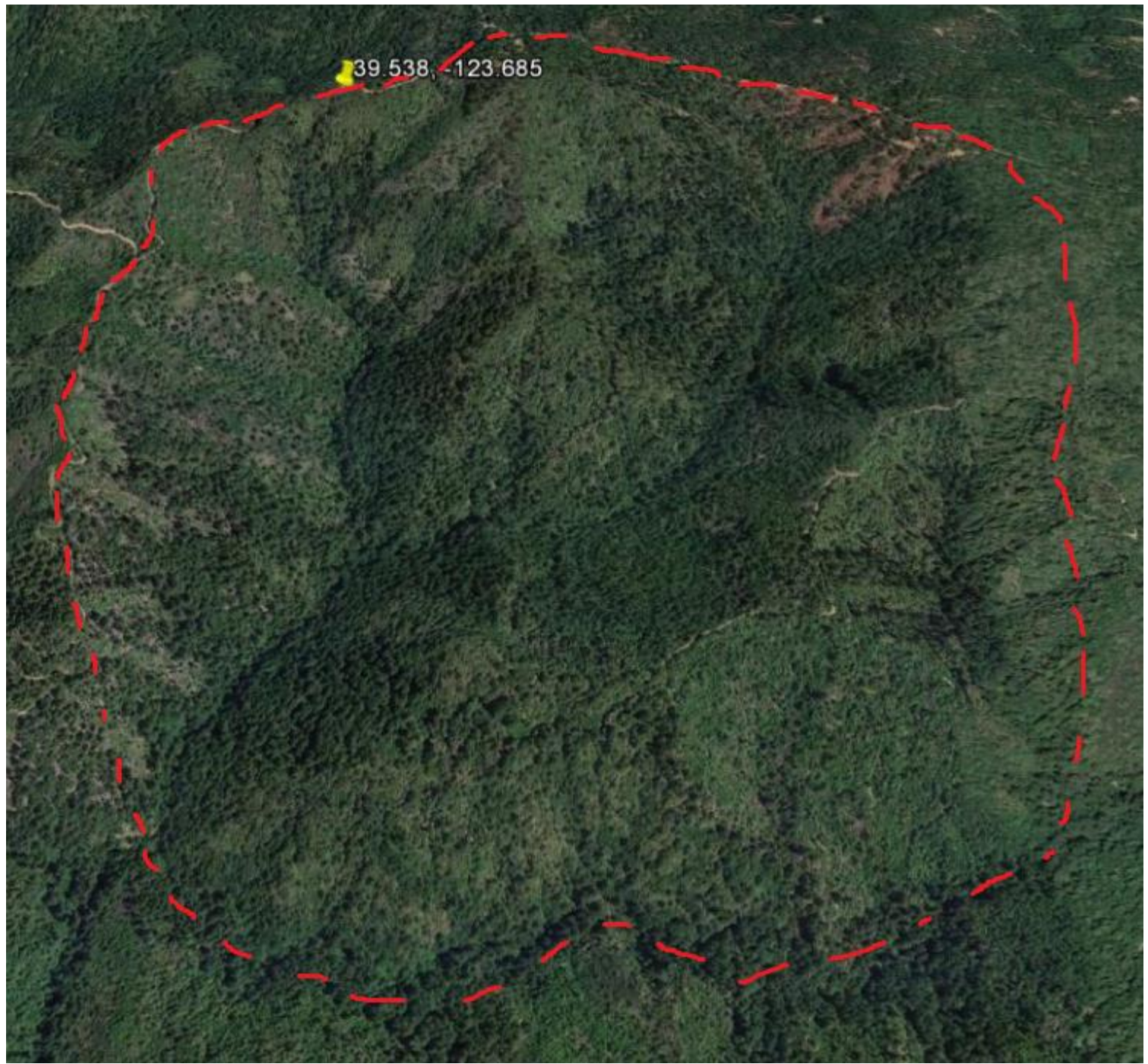
Springs/Wet Areas

- Spring
- Wet Area

303(d) Impaired Watercourses

Timber Harvesting History





Google Earth
5/28/2014

Table D-1: Dominant Vegetation Types

>= 70% Coniferous Species	Conifer Dominated
>= 70% Hardwood Species	Hardwood Dominated
All Other Cases	Mixed

Table D-2: Average Tree Size Classes¹

Small	<12 inches DBH
Medium	>=12 and < 20 inches DBH
Large	>=20 inches DBH

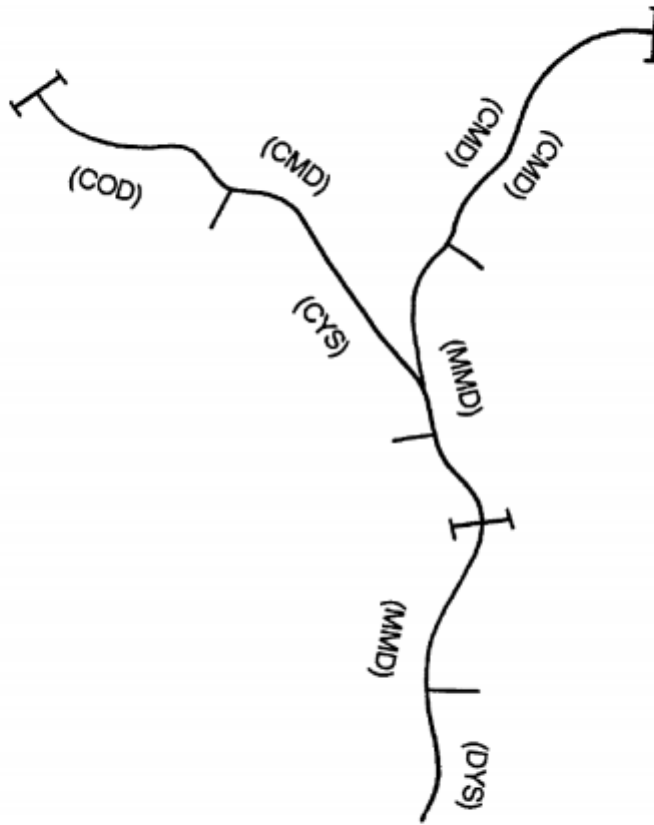
¹ Under certain circumstances, age may be a reliable indicator of tree diameter; if this is the case, the analyst may obtain forest age class data from landowners and use the information to correlate age and diameter.

Table D-3: Stand Density Classes

Western WA	Density is sparse if more than 1/3 of the ground is exposed. Otherwise, it is dense.
Eastern WA	Density is sparse if more than 1/2 of the ground is exposed. Otherwise, it is dense.

(CMD), where:

- C**=Vegetation type (Conifer or Hardwood)
- M**=Tree size (Small, Medium or Large)
- D**=Stand density (Dense or Sparse)



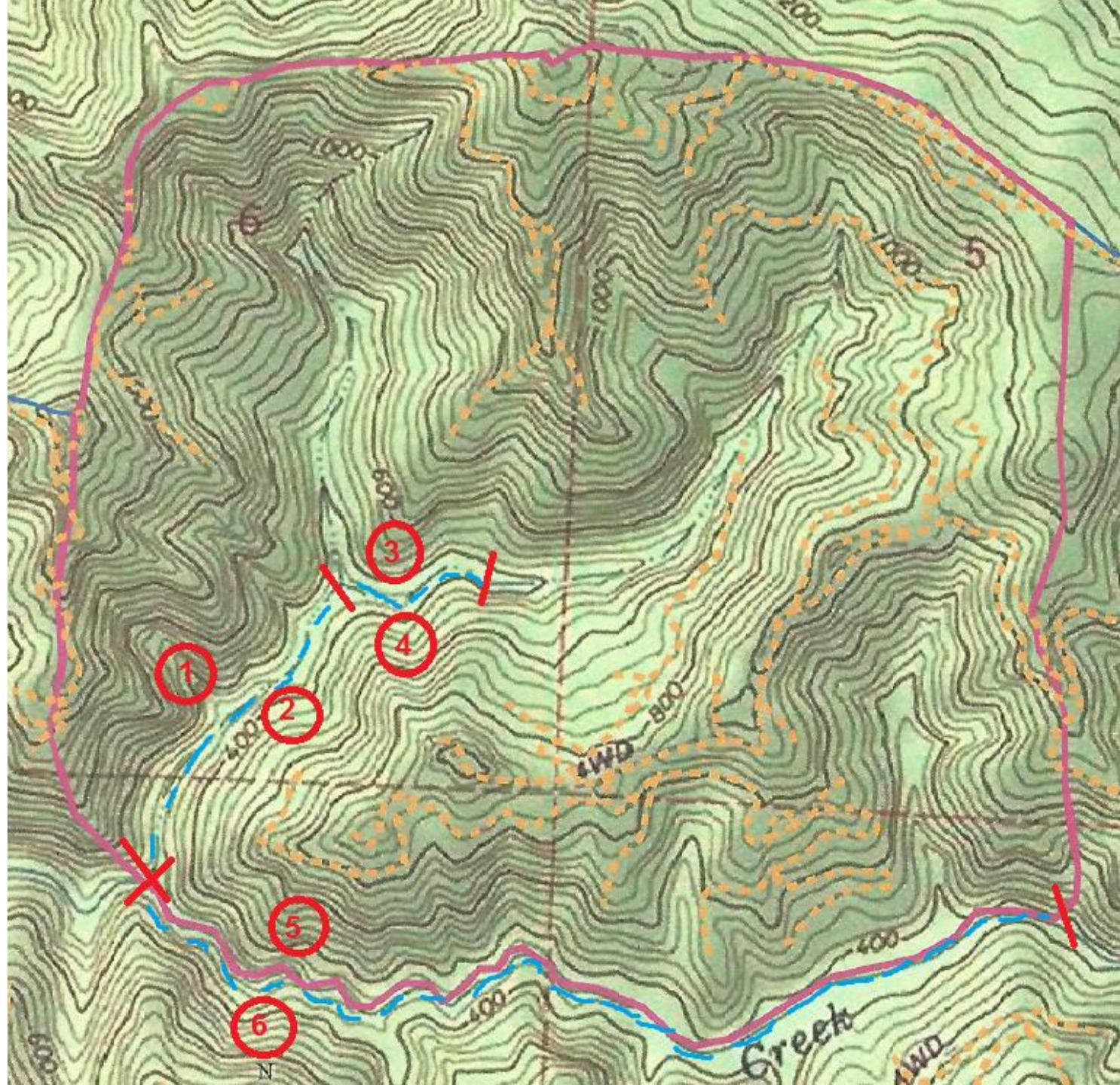
- Riparian Condition Unit (RCU) Boundary = —
- Channel Segment Boundary = T

Figure D-1: Example of Map D-1: Riparian Vegetation Condition

Classify riparian vegetation based on:

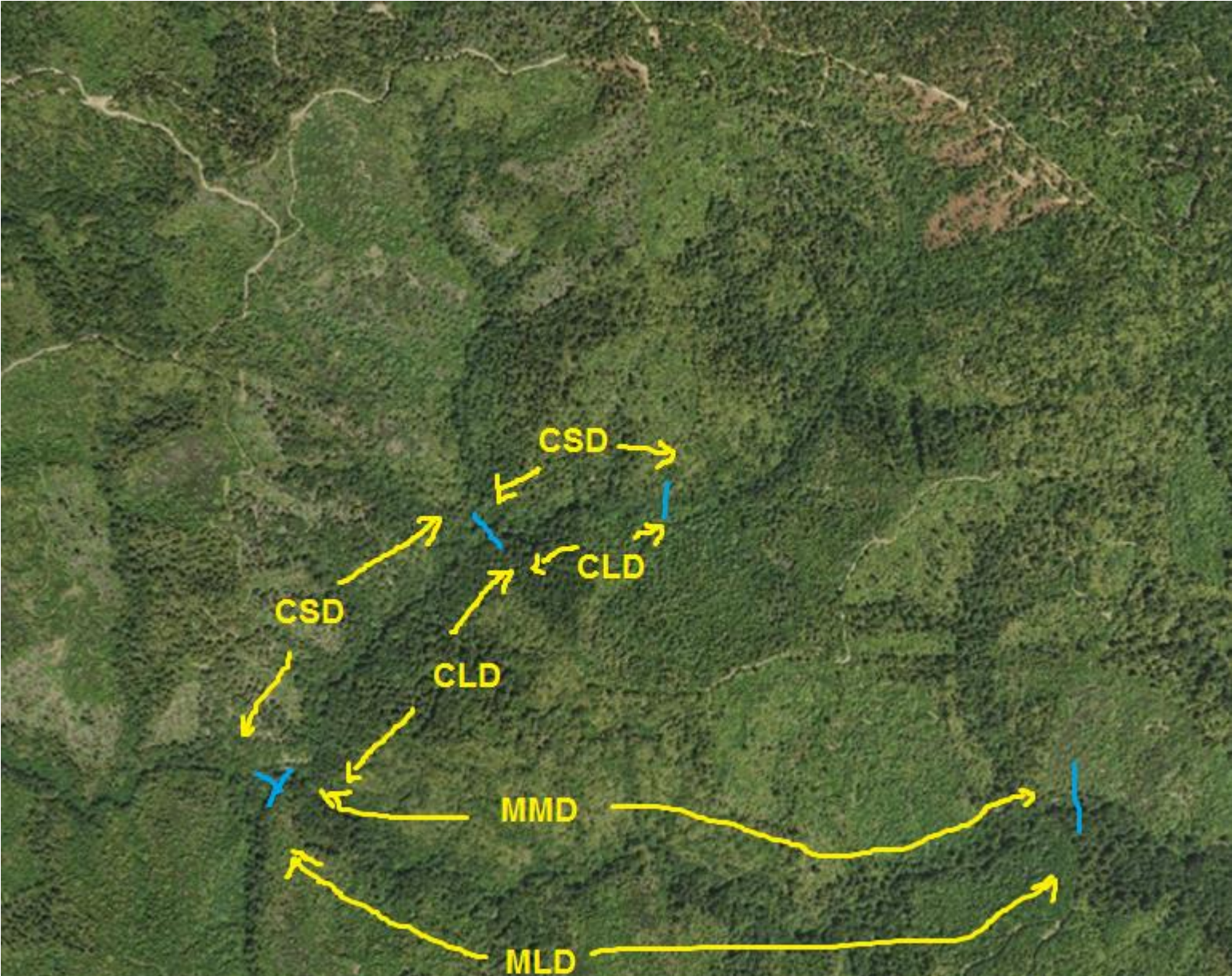
- Vegetation type
- Tree size
- Stand density

Classify for both sides of the fish bearing channels in the assessment area.





06/07/2014
NAIP



Segment	Classification	Length (ft)	LW Recruitment Potential
1	CSD	2400	Low
2	CLD	2400	High
3	CSD	1600	Low
4	CLD	1600	High
5	MMD	6000	High
6	MLD	6000	High

MLD = 6,000 feet; MMD = 6,000 feet; CLD = 4,000 feet; CSD = 4,000 feet

Preliminary Conclusions

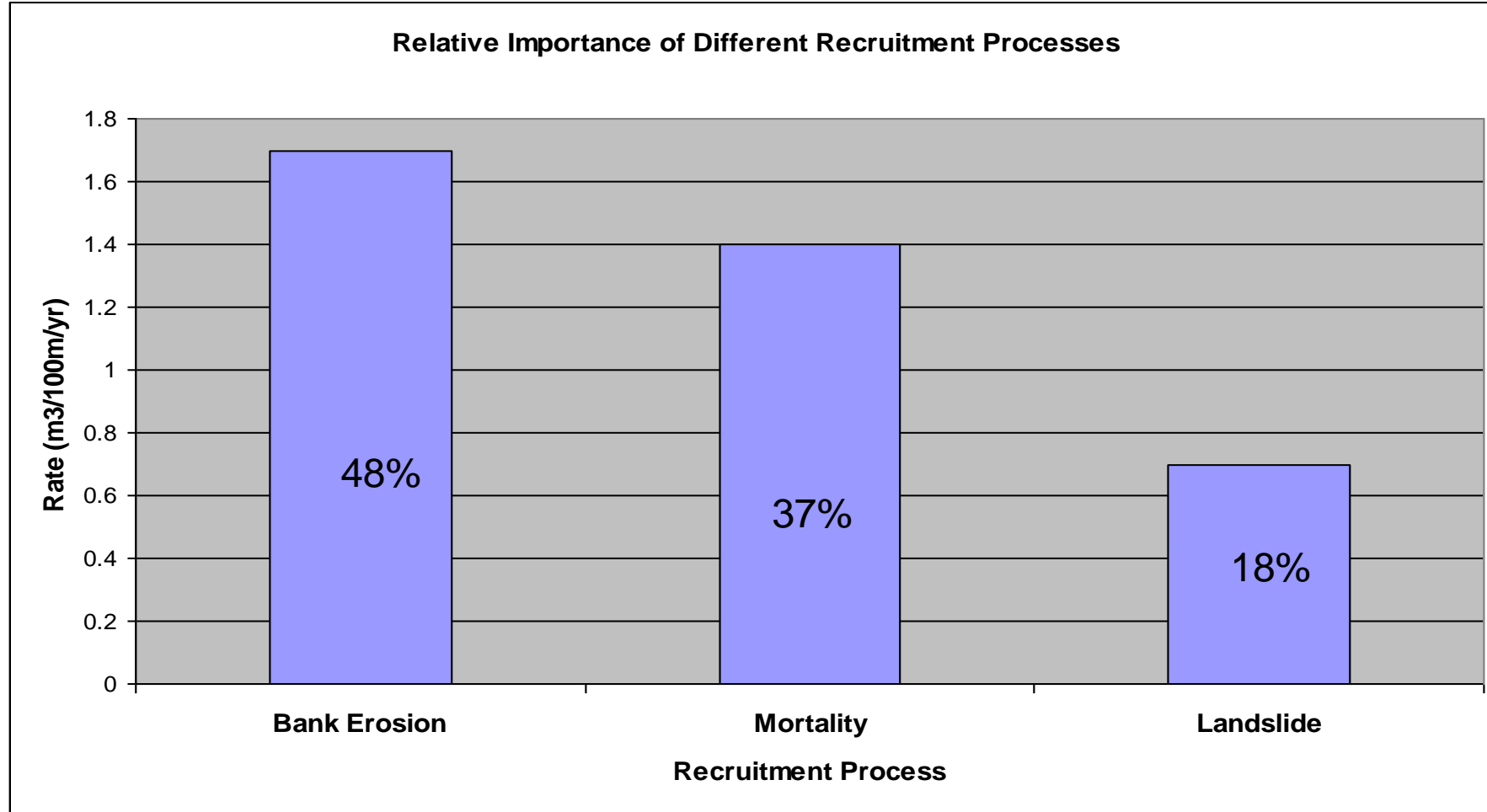
California Modifications

- The WA Watershed Analysis method presumes **conifer mortality rates** that are much higher for Douglas-fir than for coast redwood.
- Therefore, we will modify CLD, MLD, and MMD from high to moderate for large wood recruitment potential.
- Moderate = 16,000 feet; Low = 4,000 feet.



Smith Creek at LWD site 4, THP 1-13-031 MEN

Mendocino Coast: Second Growth (logging debris not included)



Source: Benda 2011

2/3rd of wood recruitment
NOT from tree mortality

Preliminary Conclusions

- Existing channel conditions in the Smith Creek sub-watershed are unknown with this analysis.
- DFW (2012) stream survey report for the part of the Smith Creek reach in this assessment area:
 - 32% conifer, 67.4% hardwood
 - 92.7% canopy
 - Residual pool depth: 73% < 2 feet
- DFW and Campbell Global work in the Campbell Creek planning watershed suggests that **wood loading is low**.
- A reasonable hypothesis is that fish production can be increased with wood enhancement work.



DFW 2012 Smith Creek Stream Survey—Reach 2