

## **Watershed Analysis for Mendocino Redwood Company's Ownership in the Hollow Tree Creek Watershed**

### **INTRODUCTION**

This report presents the results of a watershed analysis performed by Mendocino Redwood Company (MRC) on their ownership in the Hollow Tree Creek watershed. The MRC ownership in the Hollow Tree Creek watershed is considered the Hollow Tree Creek watershed analysis unit (WAU). This section presents a brief overview of the watershed and the watershed analysis process followed by MRC. More specific information is found in the individual modules of this report.

### **MENDOCINO REDWOOD COMPANY'S APPROACH TO WATERSHED ANALYSIS**

MRC is conducting watershed analysis on watersheds within its ownership in Northern California. The criteria for a watershed to be selected for analysis are: 1) impaired water bodies pursuant to the Clean Water Act Section 303(d), and 2) key fish populations and 3) forestry operation-related concerns.

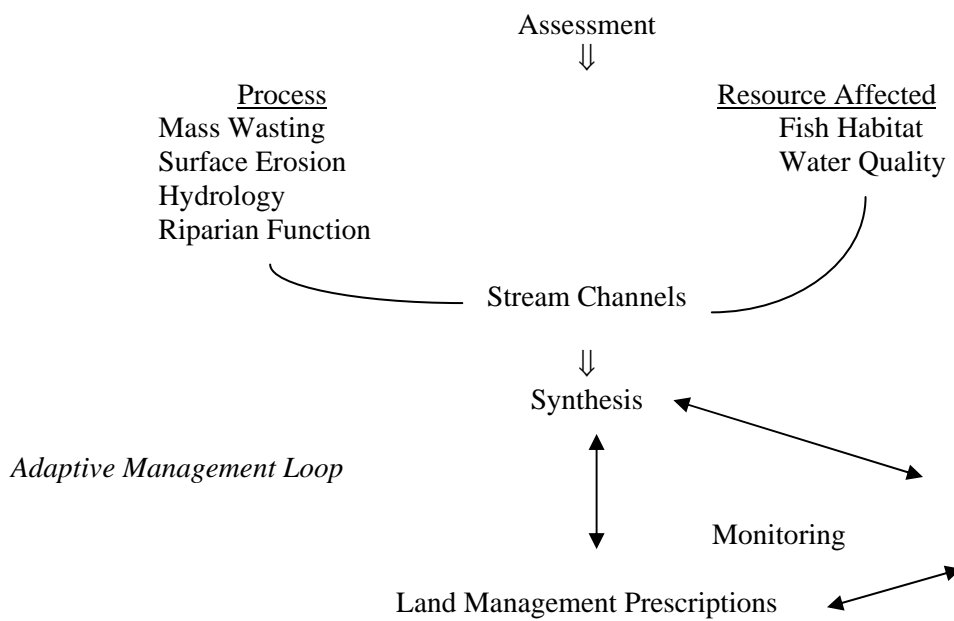
Hollow Tree Creek is on the 303(d) list as sediment and temperature impaired and a total maximum daily load (TMDL) has been developed for sediment and temperature reduction in the river (EPA, 1999). Hollow Tree Creek and its tributaries support populations of coho salmon, chinook salmon and steelhead trout, three fisheries of concern in northern California. For this reason MRC conducted a watershed analysis to assist in their efforts to reduce non-point source pollution, evaluate current and past land management practices and establish a baseline for monitoring of watershed conditions over time. The watershed analysis will also be used to identify needs for site-specific management planning in the watershed to reduce impacts to aquatic resources and potentially to improve fish and stream habitat conditions.

The watershed analysis of the Hollow Tree WAU was conducted following modified guidelines from the Standard Methodology for Conducting Watershed Analysis (Version 4.0, Washington Forest Practices Board). Some variations of the methods in this manual were performed when it was determined that the methodology better served the purpose of this assessment. The watershed analysis process is not yet a regulatory requirement in the state of California. However, MRC is using this process to address cumulative effects from forest practices and provide baseline information of watershed conditions for aquatic habitat and water quality for their ownership.

MRC's approach to the Hollow Tree Creek watershed analysis was to perform resource assessments of mass wasting, surface and point source erosion (roads/skid trails), hydrology, fish habitat, riparian function and stream channel condition. Mass wasting, riparian function and surface and point source erosion modules address the hillslope hazards. The physical processes and potential triggering mechanisms for each hillslope hazard are described in the module reports. The vulnerability of aquatic resources is addressed by the fish habitat and stream channel

condition modules. The results of the resource assessments are synthesized and reported in a causal mechanism report (Figure 1). A causal mechanism report is produced for hillslope hazard that has affected or has the potential to adversely affect site specific aquatic resources. The causal mechanism report contains a description of the hillslope hazard and how land use activities trigger or route key input variables such as coarse sediment, fine sediment, wood and heat energy to sensitive resources. A prescription is developed to address the issues and processes identified in each causal mechanism report. Finally, monitoring is suggested to determine the efficacy of the prescriptions to protect sensitive aquatic resources. The monitoring will provide the feedback for MRC's adaptive management approach to resource conservation.

Figure 1. Watershed Analysis Overview



## ASSESSMENT OVERVIEW

This watershed analysis was produced from a combination of field observations performed during the summer of 1999-2001, aerial photograph interpretation, and use of existing analysis on the Hollow Tree Creek WAU.

Existing data or analysis used in this watershed analysis included: Louisiana-Pacific's (L-P) Coastal Mendocino Sustained Yield Plan, old Fish and Game Reports on large woody debris removal, monitoring data collected by L-P, and fish surveys from CDFG. These information sources are cited in each module as they are used.

Aerial photograph interpretation was performed using available aerial photographs for the recent time period. The delineation of time periods for analysis was based on the available aerial photographs. The aerial photographs used are described below.

<u>Aerial Photo Year</u>	<u>Scale</u>	<u>Photo Source</u>
1978	1:15840	Mendocino Redwood Co.
1987	1:12000	Mendocino Redwood Co.
1996	1:12000	Mendocino Redwood Co.
2000	1:13000	Mendocino Redwood Co.

The synthesis of the field observations, aerial photo interpretation and existing analysis on the WAU constitutes the resource assessment modules in this report.

## Hollow Tree Creek Watershed Analysis Unit Overview

### *Physical Characteristics*

The Hollow Tree Creek WAU is located in the California Coast Range and drains into the South Fork of the Eel River near the town of Leggett. The Hollow Tree Creek watershed encompasses approximately 44,371 acres. The MRC ownership is within 7 different planning watersheds in the Hollow Tree Creek watershed as delineated by the California Water Agency. MRC owns approximately 48 percent of the land in the Hollow Tree Creek watershed (see Base Map, Hollow Tree Creek Watershed Map and Table 1). The basin's elevations range from sea level to 2,955 feet. Rainfall is seasonal in this region, with most of the rain (approximately 66-78 inches/year, Table 1) occurring between October and May.

Table 1. Planning Watershed Information for the Hollow Tree Creek WAU.

Planning Watershed	Watershed Area (ac)	MRC Owned Area (ac)	Portion MRC Owned	Mean Annual Precipitation (in)
Low Gap Creek	4,429	751	17%	70
Upper Hollow Tree Creek	8,966	6,694	75%	70
Middle Hollow Tree Creek	11,584	10,366	90%	66
Lower Hollow Tree Creek	6,656	1,807	27%	70
Mill Creek	3,654	725	20%	70
Dutch Charlie Creek	5,728	91	2%	74
Jack of Hearts Creek	3,354	711	21%	78

### ***Fisheries***

The anadromous fish species inhabiting the Hollow Tree Creek WAU are steelhead trout (*Oncorhynchus mykiss*), chinook salmon (*O.tshawyscha*) and coho salmon (*O. kisutch*). Other non-salmonid species include sculpin (*Cottus* spp.), three-spine stickleback (*Gasterosteus aculeatus*), California roach (*Lavina symmetricus*), Sacramento sucker (*Castomus occidentalis*) and the Pacific lamprey (*Lampetra tridentata*).

### **LITERATURE CITED**

Louisiana-Pacific Corporation. 1997. Sustained Yield Plan for Coastal Mendocino.

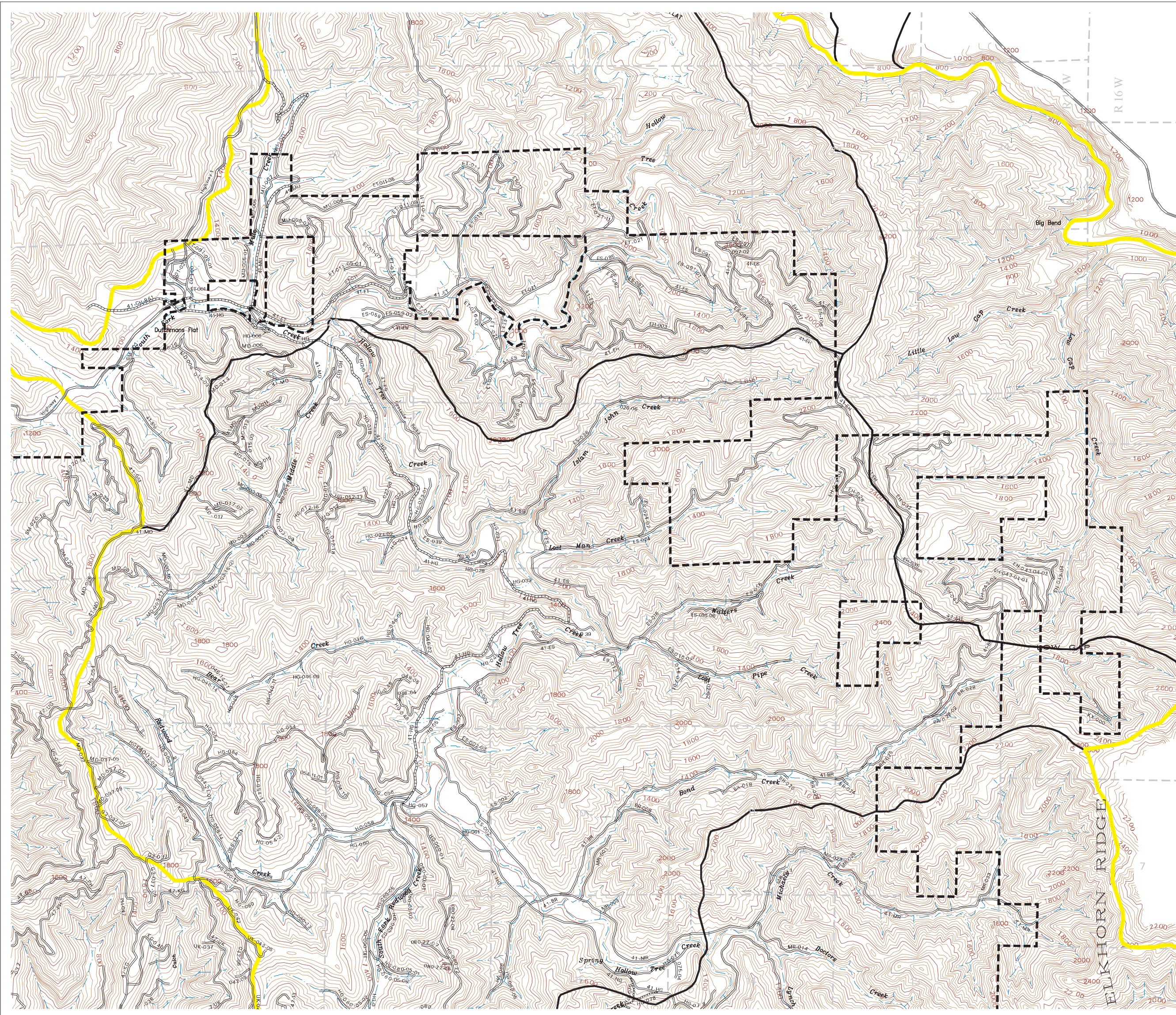
United States Environmental Protection Agency. 1999. South Fork Eel River Total Maximum Daily Loads for sediment and temperature. Region IX, San Francisco.

Washington Forest Practice Board. 1995. Standard methodology for conducting watershed analysis. Version 3.0. WA-DNR Seattle, WA.



# Hollow Tree Creek Watershed Analysis Unit

## Base Map



- MRC Ownership
- Planning Watershed Boundary
- Hollow Tree Creek Watershed Analysis Unit Boundary

### Transportation

- Paved Road
- Rocked Road
- Native Road
- Jeep Trail
- Road Decommissioned in 2003

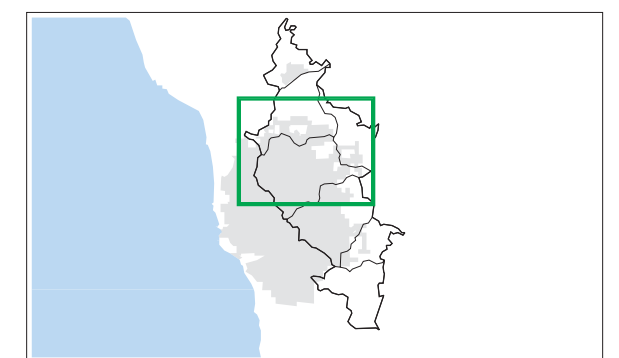
### Flow Class

- Class I
- Class II
- Class III

### Topography

- Index Contour (200' interval)
- Regular Contour (40' interval)

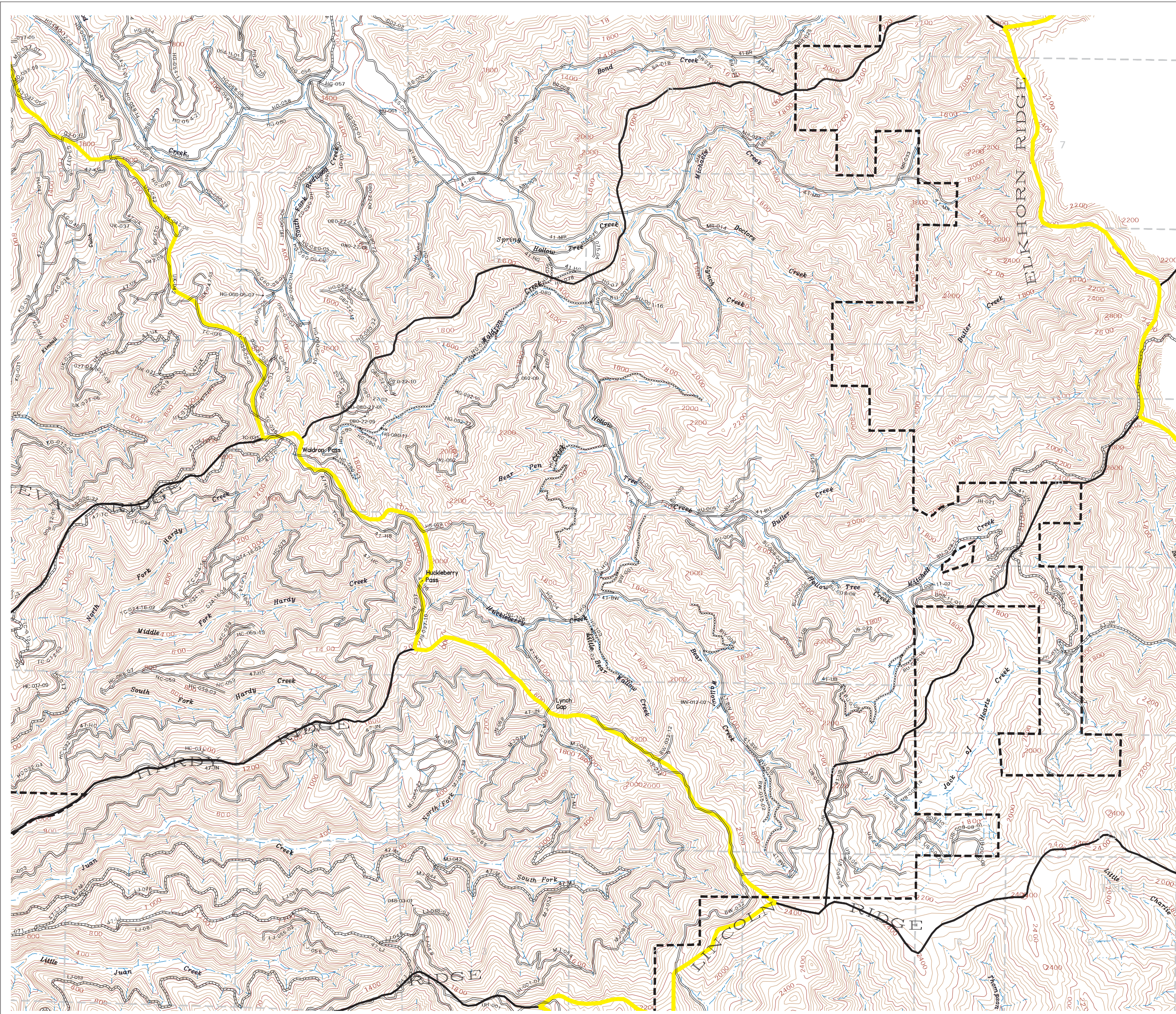
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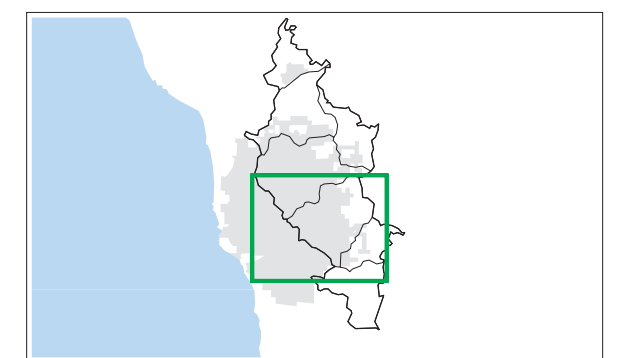
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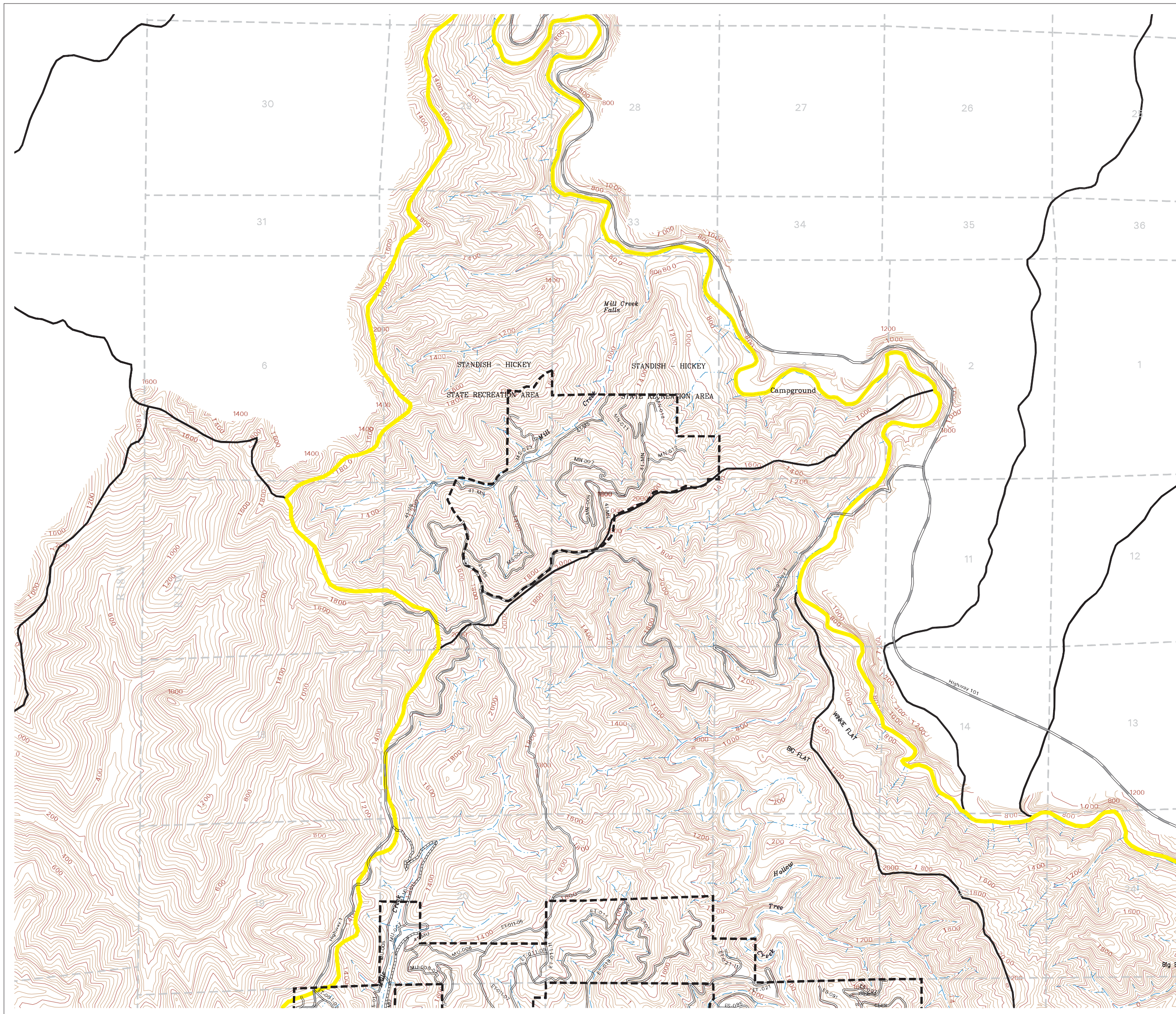
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Sheet 3

