

INTRODUCTION

Watershed Analysis for Mendocino Redwood Company's Ownership in the Big River Watershed

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This report presents the results of a watershed analysis performed by Mendocino Redwood Company (MRC) on their ownership in the Big River watershed. The MRC ownership in the Big River watershed is considered the Big River watershed analysis unit (WAU). This section presents an 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 waterbodies pursuant to the Clean Water Act Section 303(d), 2) key fish populations and 3) forestry operation-related concerns.

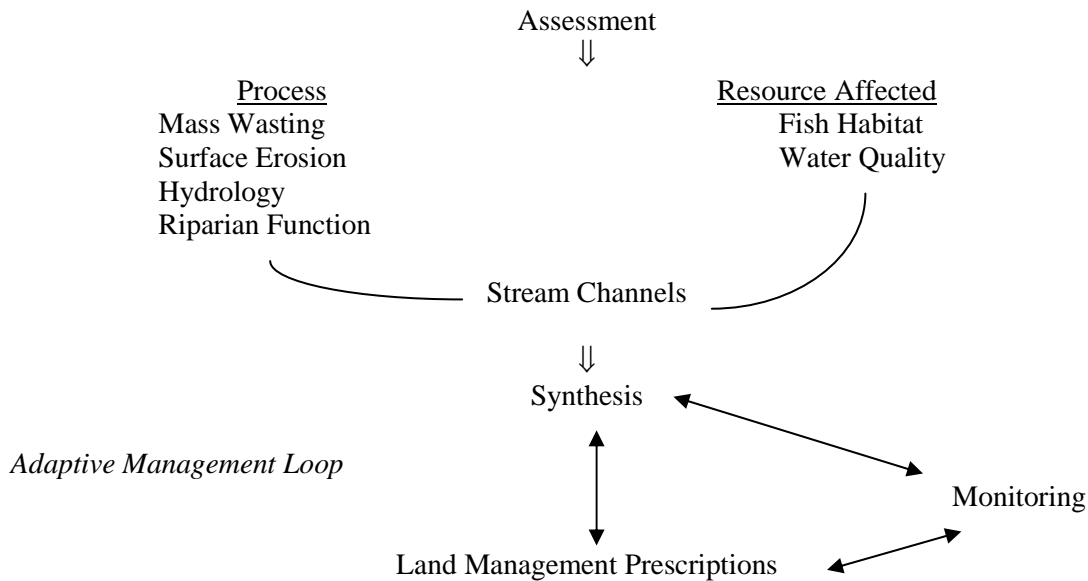
The Big River is on the 303(d) list as sediment impaired and a total maximum daily load (TMDL) has been developed for sediment reduction in the river (EPA, 2001). The Big River and its tributaries support populations of coho salmon, chinook salmon and steelhead trout, three fisheries of concern in Northern 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 Big River 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 Big River 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 watershed hillslope hazards. The physical processes associated with the hillslope hazards 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 hazards that has affected or has the potential to adversely affect aquatic resources and need site-specific protections. A prescription is developed to address the issues and processes identified in each causal mechanism report. Prescriptions are only identified where land management actions will deviate from MRC management policies. 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



Resources Utilized

This watershed analysis was produced from a combination of field observations performed during the summer of 2000 and 2001, aerial photograph interpretation, and use of existing analysis on the Big River WAU.

Existing data or analysis used in this watershed analysis included: Louisiana-Pacific's (L-P) Coastal Mendocino Sustained Yield Plan, California Department of Fish and Game Reports and monitoring data collected by L-P. 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>
1952	1:20000	Mendocino County
1963	1:20000	Mendocino County
1972	1:20000	Mendocino County
1978	1:15840	Mendocino Redwood Co.
1987	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.

Big River Watershed Analysis Unit Overview

The Big River WAU is located in the California Coast Range and drains into the Pacific Ocean in western Mendocino County, California. The outlet of the Big River watershed is located at the village of Mendocino.

The Big River watershed encompasses approximately 75,300 acres. The MRC ownership is within 10 different planning watersheds in the Big River watershed as delineated by the California Water Agency. MRC owns approximately 45 percent of the land in the Big River watershed, approximately 34,060 acres (see Base Map, Big River Watershed Map and Table 1). The basin's elevations range from sea level to 2,810 feet. Rainfall is seasonal in this region, with most of the rain (approximately 50-57 inches/year, Table 1) occurring between October and May.

Table 1. Selected Physical Characteristics by Planning Watershed for the Big River WAU.

Planning Watershed	Watershed Area (ac)	MRC Owned (ac)	Percent MRC Owned	Mean Annual Precipitation
Rice Creek	8,032	924	11.5%	54
Martin Creek	5,939	38	<1%	57
Russell Brook	7,014	5,926	85%	50
East Branch North Fork Big River	5,158	2,527	49%	52
Lower North Fork Big River	4,966	2,170	44%	52
Two Log Creek	11,366	4,275	38%	57
Laguna Creek	3,245	70	2%	55
Dark Gulch	7,148	597	8%	50
South Daugherty Creek	10,662	7,242	68%	52
Mettick Creek	11,725	10,294	88%	51

Fisheries

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

LITERATURE CITED

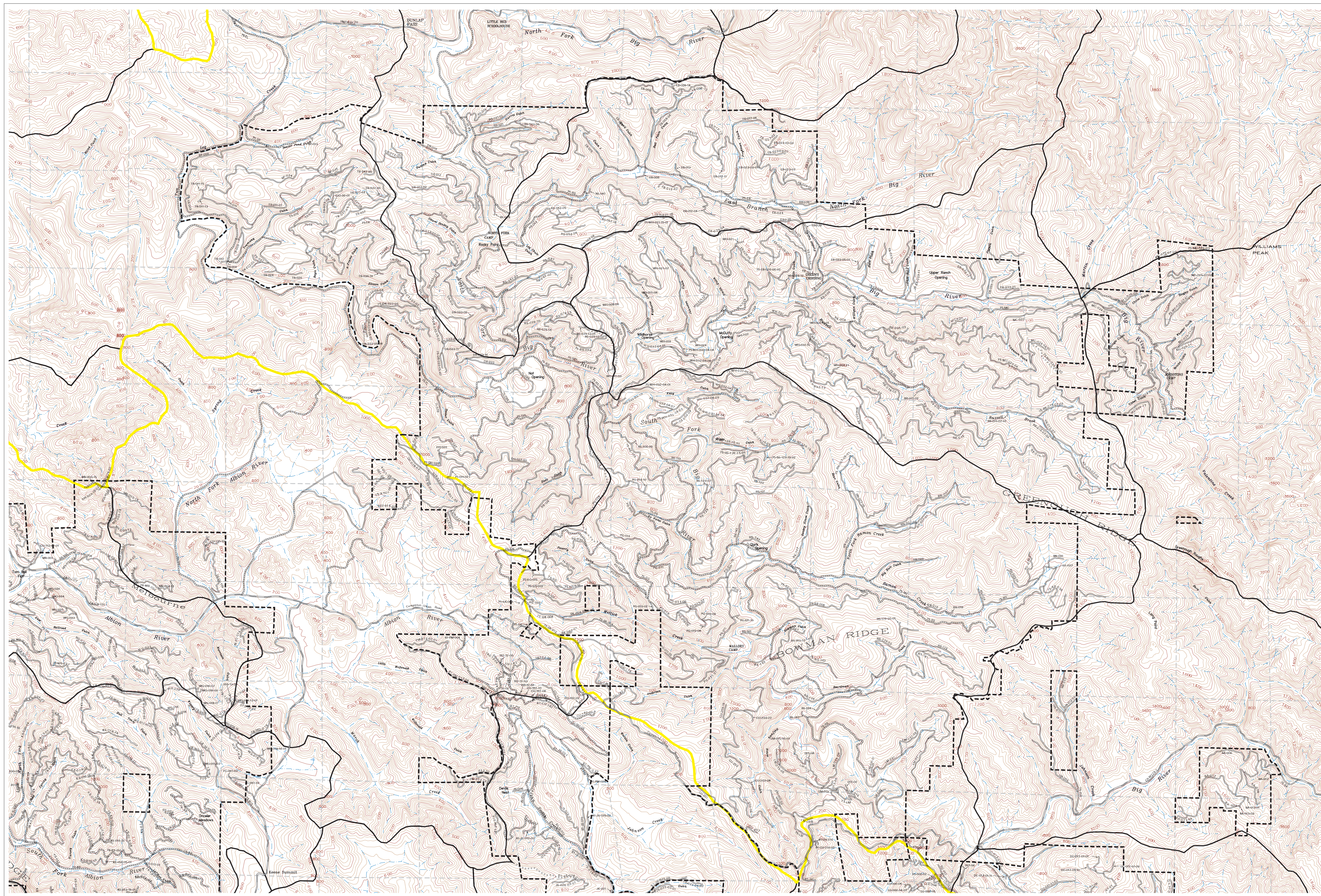
Louisiana-Pacific Corporation. 1997. Sustained Yield Plan for Coastal Mendocino.

United States Environmental Protection Agency (EPA). 2001. Big River total maximum daily load for sediment. San Francisco, CA.

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

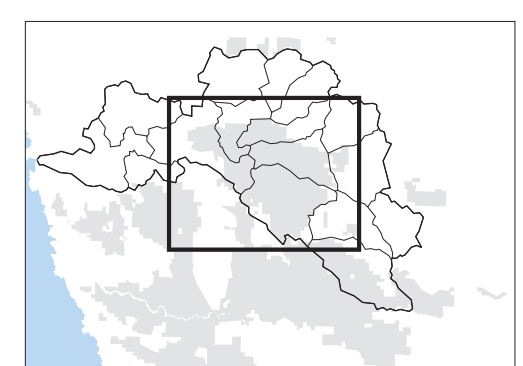
Big River
Watershed Analysis
Unit

Base Map



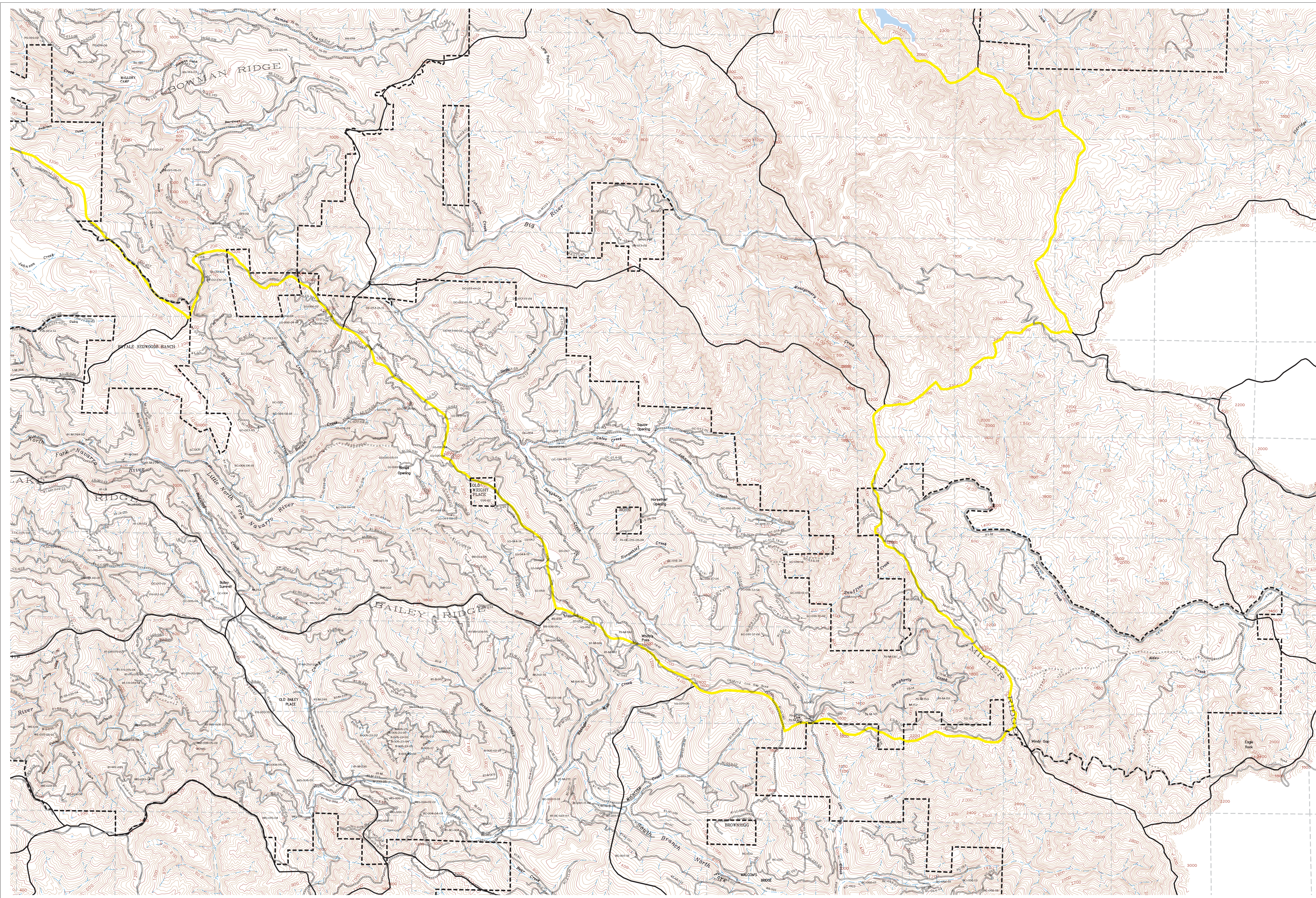
- MRC Ownership
 - Planning Watershed Boundary
 - Big River Watershed Boundary
- Transportation
- Paved Road
 - - - - - Rocky Road
 - Native Road
 - · · · · Jeep Trail
- Flow Class
- Class I
 - Class II
 - Class III
- Topography
- Index Contour (200' Interval)
 - Regular Contour (40' Interval)

Sheet 1



Big River
Watershed Analysis
Unit

Base Map



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Sheet 2

