

## INTRODUCTION

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

#### **INTRODUCTION**

This report presents the results of a watershed analysis performed by Mendocino Redwood Company (MRC) on their ownership in the Greenwood Creek watershed. The MRC ownership in the Greenwood Creek watershed is considered the Greenwood 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 WATERSHED ANALYSIS APPROACH**

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.

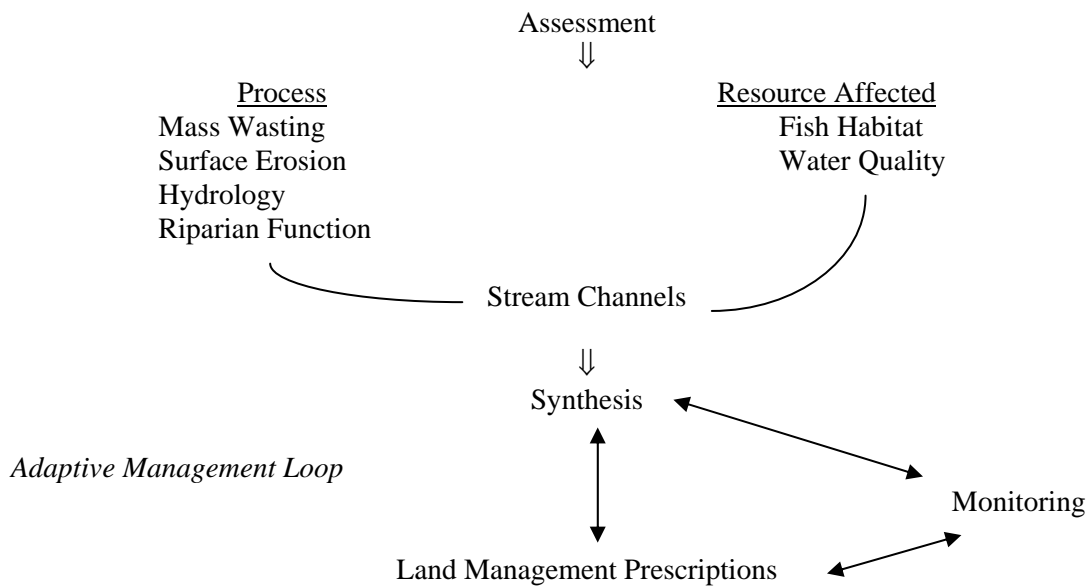
The Greenwood Creek is on the 303(d) watch list as sediment and temperature impaired. Greenwood Creek and its tributaries support populations of steelhead trout, a fishery of concern in northern California. For this reason MRC conducted a watershed analysis to assist in their efforts to reduce non-point 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, amphibian and aquatic habitat conditions.

The watershed analysis of the Greenwood Creek 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 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 Greenwood Creek watershed analysis was to perform resource assessments of mass wasting, surface and point source erosion (roads/skid trails), hydrology, fish habitat, riparian condition and stream channel condition. Mass wasting, riparian condition 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 fish habitat and stream channel condition modules address the vulnerability of aquatic

resources. 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 that current company management policies does not specifically address. 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 2003, aerial photograph interpretation, and use of existing analysis on the Greenwood WAU.

Existing data or analysis used in this watershed analysis included: Louisiana-Pacific's (L-P) Coastal Mendocino Sustained Yield Plan and monitoring data collected by L-P and MRC. 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>
1969	1:15840	Mendocino Redwood Co.
1972	1:20000	Mendocino County
1978	1:15840	Mendocino Redwood Co.
1981	1:20000	Mendocino County
1988	1:20000	Mendocino County
1990	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.

## GREENWOOD CREEK WATERSHED OVERVIEW

### Physical Characteristics

#### *General Location*

The Greenwood WAU is located in the California Coast Range and drains into the Pacific Ocean in western Mendocino County, California. The outlet of the Greenwood Creek is approximately 25 miles south of the city of Fort Bragg.

The Greenwood Creek watershed encompasses approximately a 26 mi<sup>2</sup> area. The MRC ownership is within 2 different planning watersheds in the Greenwood watershed as delineated by the California Water Agency. MRC owns approximately 59 percent of the land in the Greenwood Creek watershed (see Base Map, Greenwood Creek Watershed Map and Table 1). The basin's elevations range from sea level to 2,300 feet. Rainfall is seasonal in this region, with most of the rain (approximately 40-60 inches/year) occurring between October and May.

Table 1. Mendocino Redwood Company Lands by Planning Watershed for Greenwood WAU.

Calwater Planning Watershed	Calwater Planning Watershed Number	Calwater Planning Watershed Acres	MRC Land Acres	Percent MRC Lands
Lower Greenwood Creek	114.61010	7,597	3,674	48.4
Upper Greenwood Creek	114.61011	8,851	6,008	67.9

***Aquatic Species Present***

The anadromous fish species inhabiting the Greenwood WAU is steelhead trout (*Oncorhynchus mykiss*) and there is much debate as to whether or not coho salmon (*Oncorhynchus kisutch*) once existed in this watershed. Coho salmon do not currently reside in the Greenwood WAU. Other species include three-spine stickleback (*Gasterosteus aculeatus*), prickly sculpin (*Cottus asper*), coastrange sculpin (*C. aleuticus*), California roach (*Lavinia symmetricus*), crayfish (*Pacifastacus spp.*), red-legged frog (*Rana aurora spp.*), foothill yellow legged frog (*Rana boylei*), Pacific giant salamander (*Dicamptodon tenebrosus*), tailed frog (*Ascaphus truei*), Southern torrent salamander (*Rhyacotriton variengatus*), and California newt (*Taricha torosa*).

**LITERATURE CITED**

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

North Coast Regional Water Quality Control Board (NCRWQCB). 2000. Greenwood Creek watershed technical support document for the total maximum daily load for sediment and the total maximum daily load for temperature. Technical Report. Santa Rosa, CA.

Washington Forest Practice Board. 1995. Standard methodology for conducting watershed analysis. Version 4.0. WA-DNR Seattle, WA.

