CHAPTER 1. INTRODUCTION

Watershed analysis is a procedure used to characterize the human, aquatic, riparian, and terrestrial features, conditions, processes, and interactions . . . within the watershed. It provides a systematic way to understand and organize ecosystem information. In so doing, watershed analysis enhances our ability to estimate direct, indirect and cumulative effects of our management activities and guide the general type, location, and sequence of appropriate management activates within a watershed . . . Watershed analysis is not a decision making process. Rather it is a stage-setting process. The results of watershed analyses establish the context for subsequent decision making processes, including planning, project development and regulatory compliance.

From the introduction to Ecosystem Analysis at the Watershed Scale, Federal Guide for Watershed Analysis, Aug. 1995, Ver. 2.2 (REO 1995).

Relation of this Document to Previous Work

This watershed analysis covers the sixth-field Gordon Creek Watershed (USGS HUC number 170800010801), which drains to the Lower Sandy River. Previous watershed analyses have been conducted for the Upper Sandy River and the Bull Run River. In addition, watershed assessments have been completed for Clear Creek, Rock Creek, and Richardson Creek in the Clackamas River Watershed just to the south of the Sandy River. The Sandy Wild and Scenic River and State Scenic Waterway Management Plan was completed in 1993 for the lower Sandy River.

Data Limits and Cautions

All acre figures in this document are calculated from Geographic Information System (GIS) data and are not, in most cases, based on measurements from the field. Calculations were carried out to two decimal places and the final value rounded to the nearest whole acre. Minor acre and linear measurement discrepancies within the document and the differences between GIS and traversed acres are attributable to query sequence, rounding, the method used to resolve artifacts and slivers, and digitizing precision. Other acre discrepancies, on the order of tens of acres, are an artifact of the ongoing process of editing, correcting, and updating available spatial data, which progresses at different rates for different themes. Bureau of Land Management (BLM) GIS data are used to assist planning for, and management of, BLM-administered lands. Some GIS themes cover only BLM lands. GIS themes that do cover all lands may not reflect conditions on non-BLM lands as completely or with the same level of reliability as those on BLM lands. As a result, values reported in this document for private lands or sums of all lands in the watershed (for example total miles of road, miles of road on private land, road densities on lands other than BLM, total stream miles etc.) may be less reliable than those reported for BLM lands alone.

The Analysis Area

Size and Location

The Gordon Creek Watershed is located in the lower Sandy River basin, approximately 20 miles east of Portland, Oregon. The sixth-field watershed covers approximately 11,000 acres and stretches approximately nine miles from west to east. (Map 1-1).

Specific Description

Gordon Creek drains the southwest side of Larch Mountain. There are approximately 26 miles of stream in the watershed in Gordon Creek: Cat Creek, South Fork Gordon Creek, Thompson Creek, and three unnamed tributaries (Table 1-1). Elevations range from about 90 feet at the confluence of Gordon Creek and the Sandy River near Oxbow County Park in the west, to 4,056 feet at the summit of Larch Mountain in the east. There are no towns in the watershed. The major roads through the watershed are Gordon Creek Road and Trout Creek Road.

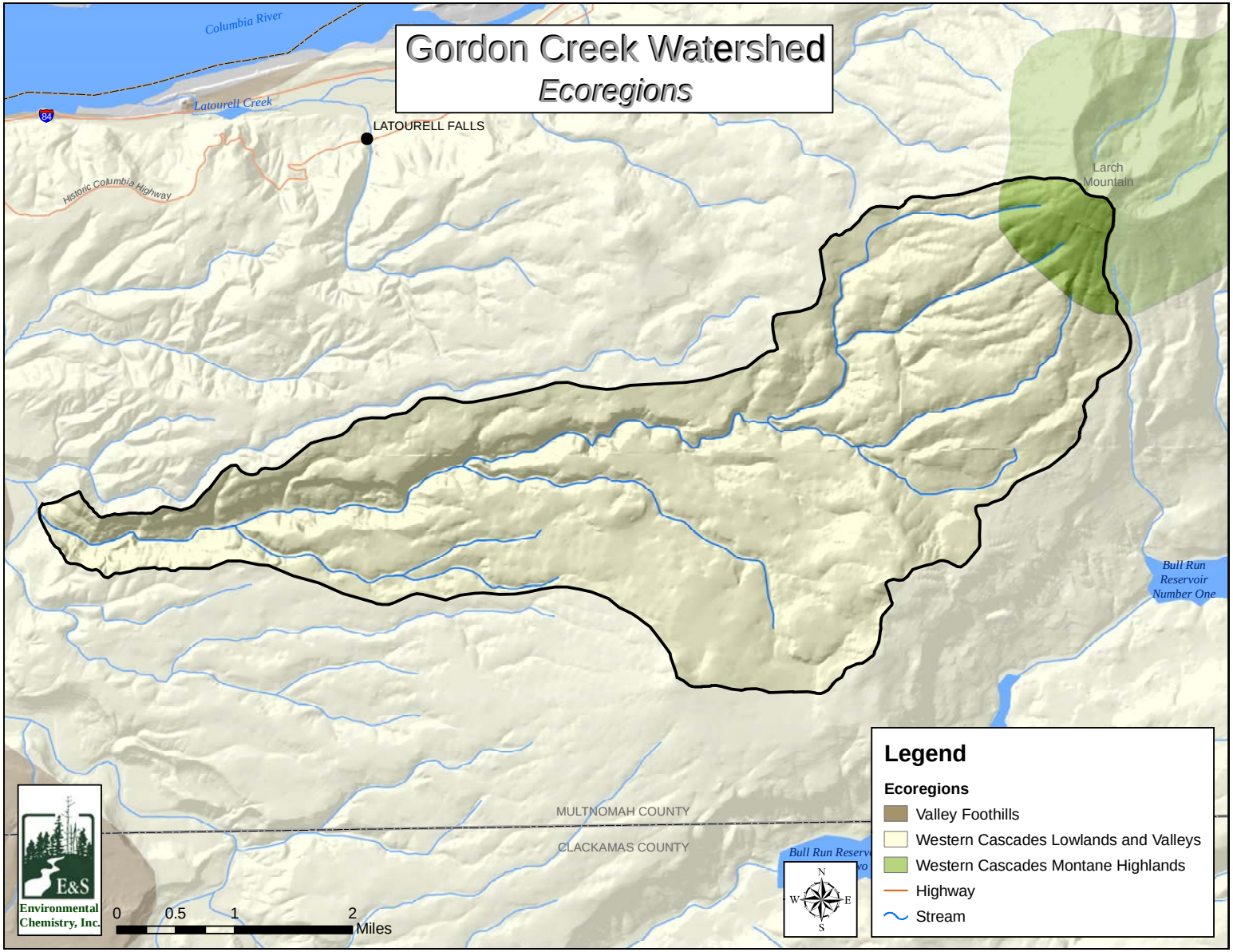
Table 1-1. Streams in the Gordon Creek Watershed.

Stream Name	Miles
Cat Creek	3.0
Gordon Creek	10.5
South Fork Gordon Creek	3.4
Thompson Creek	3.5
Unnamed stream 1	1.7
Unnamed stream 2	2.6
Unnamed stream 3	1.3
Total	26.0

Climate and Vegetation

The east-west axis of the watershed aligns with the seasonal marine storms to deliver from 50 to as much as 120 inches of annual precipitation. Snowfall is rare below 2,000 feet, but may reach considerable depths in the highest elevations. The watershed incorporates portions of two ecoregions (Map 1-2). Most of the watershed (95.5 percent) is in the Western Cascades Lowlands and Valleys Ecoregion, but the extreme eastern portion (4.5 percent) is in the Western Cascades Montane Highlands Ecoregion. The western hemlock vegetation zone comprises most of the lower elevations; lands above 3,000 feet are in the Pacific silver fir vegetation zone. Dominant tree species within the watershed include Douglas-fir, western hemlock, western redcedar, and Pacific silver fir. Common understory vegetation on moist sites consists of devil's club, oxalis, Alaska huckleberry, swordfern, bunchberry, and vine maple.

Map 1-1. Location of the Gordon Creek Watershed.



Map 1-2. Ecoregions in the Gordon Creek Watershed.

Understory vegetation on dry sites consists of dwarf Oregon grape, salal, rhododendron, and bear grass. Early and mid-seral forests dominate the majority of the watershed. Approximately 92 percent of BLM forest stands within the Gordon Creek watershed are less than 70 years old.

Land Cover and Ownership

Major land holders are the BLM, the US Forest Service (USFS), and private owners (Table 1-2, Map 1-3). USFS lands are concentrated in the upper quarter of the watershed, while BLM lands are intermingled with private lands in the middle portion. The major land use in the watershed is industrial forestry, and the major vegetation type is evergreen forest. Land cover types are presented in Table 1-3 and illustrated in Map 1-4.

Table 1-2. Land ownership in the Gordon Creek Watershed.

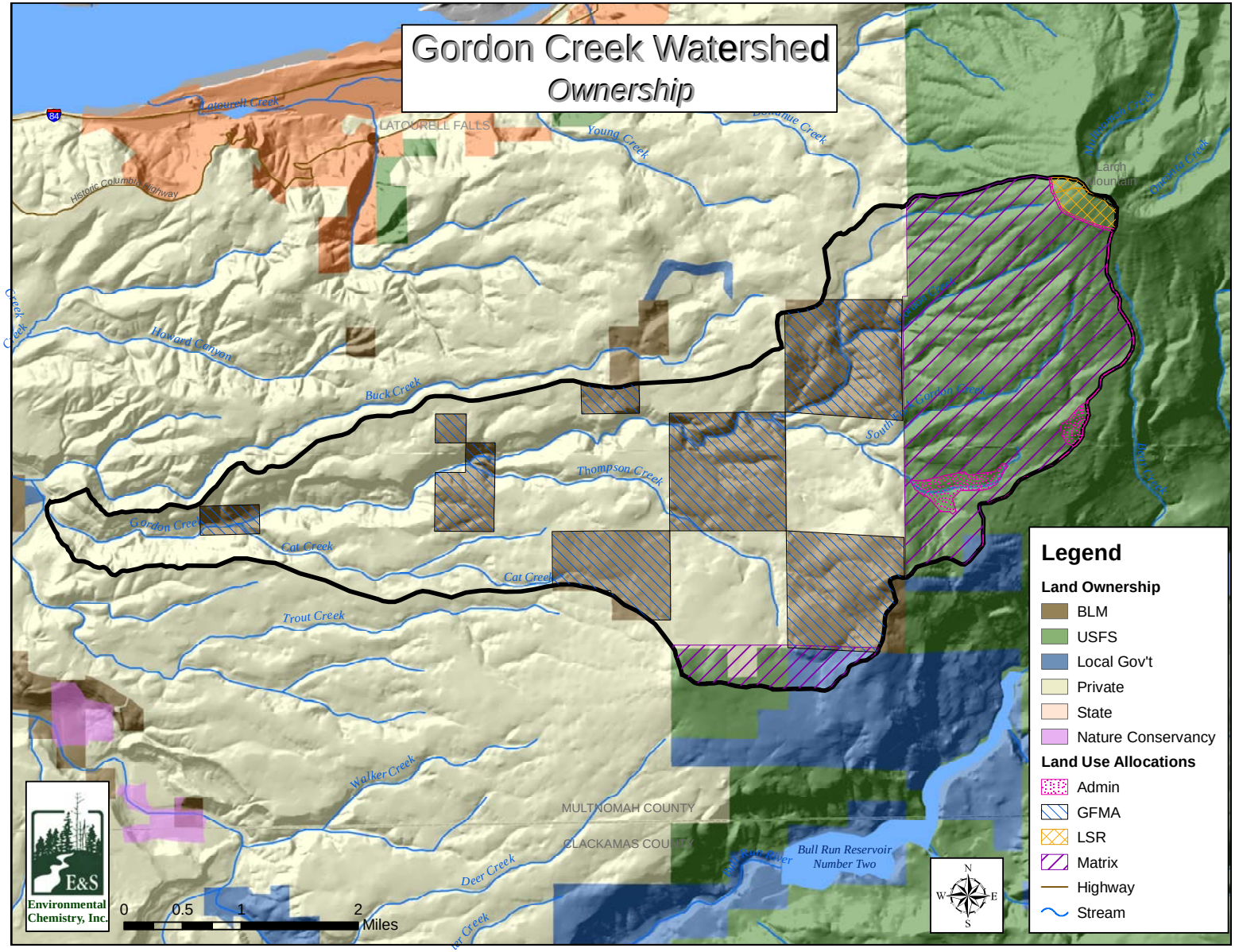
Ownership		Acres	Percent
BLM (Matrix - GFMA)		2,612	23.4
USFS		3,168	28.4
Admin	134		
LSR	86		
Matrix	3,142		
Local government		138	1.2
Private		5,241	47.0
Total		11,159	100.0

Table 1-3. Land cover vegetation in the Gordon Creek Watershed.

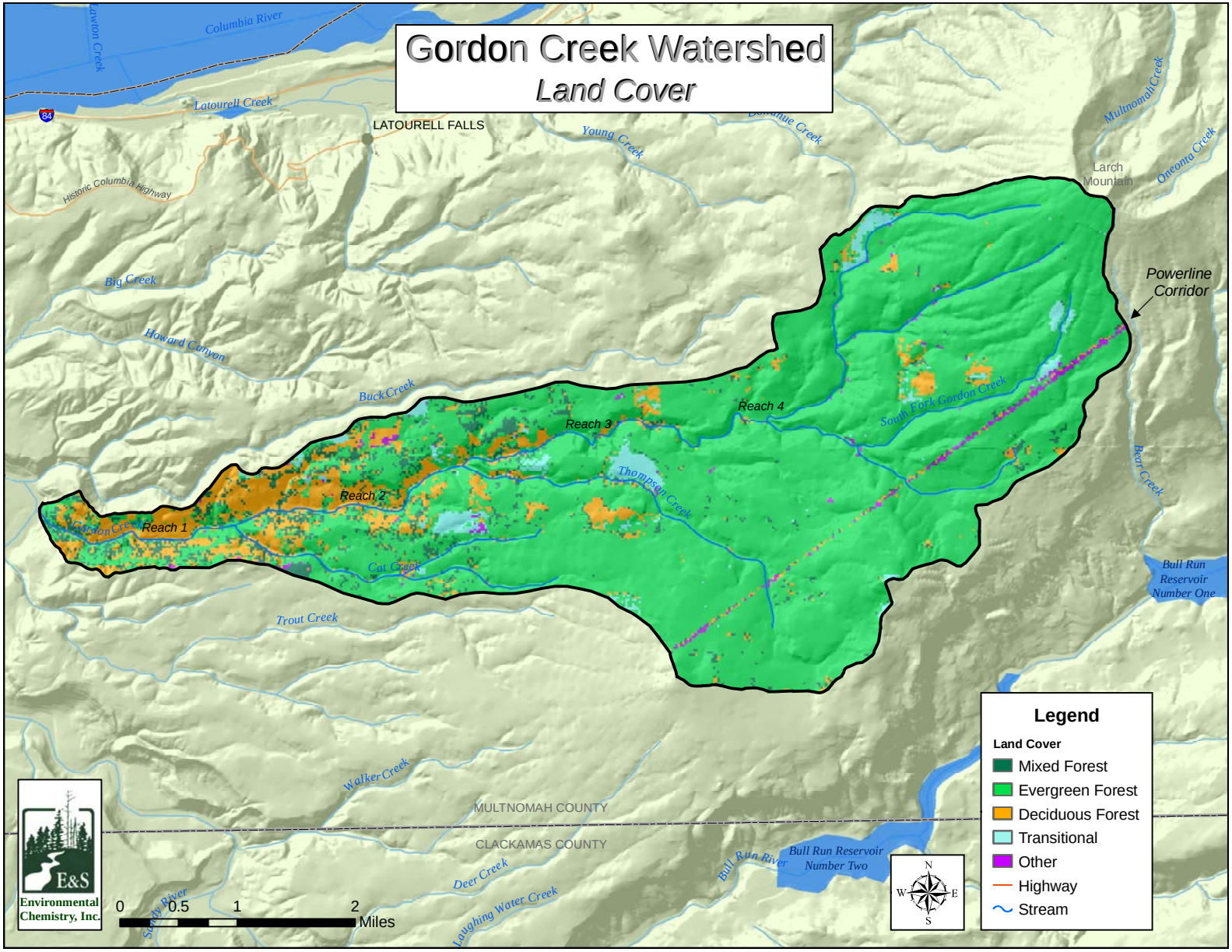
Land Cover Type	Acres	Percent
Evergreen Forest	9,192	82.3
Deciduous Forest	1,030	9.2
Mixed Forest	573	5.1
Transitional[1]	271	2.4
Other	93	0.8
Total	11,159	100.00

[1]Lands in transition from one cover type to another

Land use allocations have been developed for USFS land within the Gordon Creek Watershed. Three types of land use are allocated for the watershed: Late-Successional Reserves (LSR), Matrix Lands (Matrix), and Administratively Withdrawn Lands (Admin). LSRs are designated to protect and enhance conditions of late-successional and old-growth forest ecosystems. Thinning is allowed, but large-scale commercial harvesting of



Map 1-3. Land ownership in the Gordon Creek Watershed.



Map 1-4. Land cover types in the Gordon Creek Watershed.

trees is not permitted in LSRs. Matrix Lands are available for timber harvest and are managed using a variety of treatments, including thinning and regeneration harvest. Admin areas are lands where scheduled timber harvest is precluded to achieve some other purpose.

A small portion of the watershed on the south and southeast is included in the Bull Run Watershed Management Unit. For all other US Forest Service lands in the Gordon Creek Watershed, as per the Memorandum of Understanding between Mt. Hood National Forest and the Corbett Water District, the principal and most important use is municipal water supply. The watershed has been closed to motorized vehicles since 1993, although non-motorized recreation including hiking, bicycling, skiing, and horseback riding is permitted.

Roads and Soils

There are 65 miles of road in the Gordon Creek Watershed, most of which are closed to the public. Approximately 25 percent of the roads are within 200 feet of a stream, but only a small fraction of those are on steep slopes. These two features, proximity to stream and slope steepness, are important determinants of road-associated erosion potential. Roads are closed to the public primarily as a result of the intermingled private and public ownership pattern. There is also a power utility corridor which transects the watershed from NE to SE (see Map 1-4).

Soils in the watershed are typically deep and well-drained. The most abundant soil type is Zygore gravelly loam (68 percent). The high erosion potential of soils in the watershed in areas with steep slopes can limit use of conventional logging practices and may require implementation of management practices to reduce erosion. However, slope gradients are moderate throughout the majority of the watershed.