

Elk River Watershed Analysis

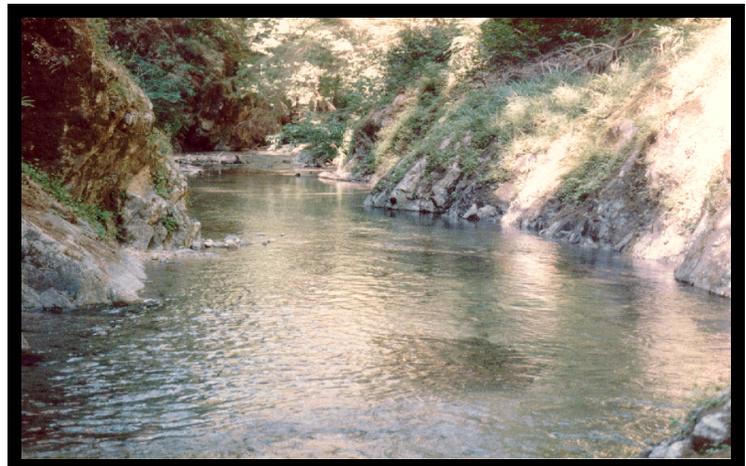
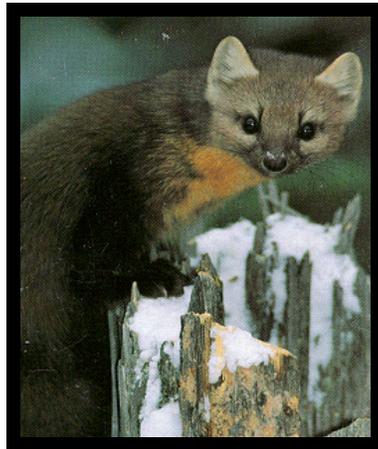
United States
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Region

1998

Iteration 2.0



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Region

1998



ELK RIVER WATERSHED ANALYSIS

ITERATION 2.0

I have read this analysis and it meets the Standards and Guidelines for watershed analysis required by an amendment to the Forest Plan (Record of Decision dated April 1994). Any additional evidence needed to make a decision will be gathered site-specifically as part of a NEPA document or as an update to this document.

SIGNED

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DATE

August 1998

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The following acronyms are used throughout this document:

ACS	Aquatic Conservation Strategy
BBS	Breeding Bird Survey
BLM	Bureau of Land Management
CCC	Civilian Conservation Corps
CON	Connectivity / Diversity Blocks
DBH	Diameter at Breast Height (4.5 ft above ground)
DEIS	Draft Environmental Impact Statement
EA	Environmental Analysis
ESA	Endangered Species Act
FEIS	Final Environmental Impact Statement
FEMAT	Forest Ecosystem Management Assessment Team
FERM	Flood Emergency Road Management plan
GFMA	General Forest Management Areas
GIS	Geographical Information System
GTR	Green Tree Retention
HQI	Habitat Quality Index
ISC	Interagency Scientific Committee
LRMP	Land and Resource Management Plan
LSR	Late Successional Reserve
LSRA	Late Successional reserve Assessment
LWM	Large Woody Material
MFLW	Marten, Fisher, Lynx, Wolverine
NF	National Forest
NFP	Northwest Forest Plan
NMFS	National Marine Fisheries Service
NOAA	National Oceanic Atmospheric Administration
NOI	Notice Of Intent
NRF	Nesting, Roosting, Foraging habitat for Northern Spotted Owl
NRHP	National Register of Historic Places
NTMB	Neo-Tropical Migrant Bird species
ODFW	Oregon Department of Fish & Wildlife
OESA	Oregon Endangered Species Act
OSU	Oregon State University
PETS	Proposed, Endangered, Threatened, Sensitive species
PNW	USFS Pacific Northwest Research Station
RMO	Road Management Objective
ROD	Record Of Decision for the Northwest Forest Plan
SNF	Siskiyou National Forest
USDA	United States Department of Agriculture
USDI	United States Department of the Interior
USFS	United States Forest Service
USFWS	United States Fish & Wildlife Service
USGS	United States Geological Survey
WRT	Wildlife Reserve tree

INTRODUCTION

The Elk River Watershed Analysis summarizes key information for the Elk River beginning at the headwaters and ending at its mouth on the Pacific Ocean three miles north of the community of Port Orford. Among the important values of the Elk River drainage are its fish, wildlife, aesthetics, mining, timber and recreation. The watershed is representative of forested ecosystems along the southern Oregon coast, and includes habitat for old-growth associated species such as the northern spotted owl and the marbled murrelet. In this discussion, "Elk River" or "watershed" refers to the Elk River analysis area (Map 1).

The analysis followed the six steps of the Federal Guide for Watershed Analysis (Version 2.2) and considered the physical, biological and social conditions and trends relevant to the Elk River watershed. Information and ideas from several federal, state and local agencies as well as the public were included in the analysis. Information was collected about lands under the management of the Forest Service, Bureau of Land Management (BLM) and some private ownerships. Additional analysis documentation includes data files, maps, computer model runs, specialist reports, lists of data gaps, monitoring recommendations and process records. New information will be added as it is collected, as the watershed analysis is considered an ongoing process.

PURPOSE AND OBJECTIVES

Watershed analysis is essentially *ecosystem analysis at the watershed scale*. As one of the principal analyses for implementing the Aquatic Conservation Strategy (ACS) set forth in the Northwest Forest Plan (NFP) (*Record of Decision (ROD) for Amendments to Forest Service and Bureau of Land Management Planning Documents Within the Range of the Northern Spotted Owl* (USDA, USDI 1994)) it provides the watershed context for fishery protection, restoration, and enhancement efforts. The understanding gained through watershed analysis is critical to sustaining the health and productivity of natural resources. Healthy ecological functions are essential to maintain and create current and future social and economic opportunities.

The objectives of the analysis are to:

- identify principle issues,
- identify ecological processes and describe existing conditions within the watershed,
- apply technically rigorous procedures to interpret information,
- define activities that need to be modified to achieve the desired condition and,
- outline monitoring and restoration opportunities.

MANAGEMENT CONTEXT

The Elk River is in Curry County, Oregon, between the Rogue and Coquille River watersheds. The Sixes River lies immediately north, and several small coastal streams immediately to the south.

The NFP (1994) identified 12 province planning and analysis areas within the range of the northern spotted owl. The use of planning and analysis provinces allows differentiation between areas of common biological and physical processes at a larger scale than individual watersheds. The provinces, although not optimum for all management objectives, help stratify different scales of analysis.

Southwest Oregon Province

The Southwest Oregon Province contains approximately 12,678 square miles and is located in Southwest Oregon (Map 2). The province is divided into four distinct sub-basins which include the Umpqua River, Coquille/Coos Rivers, Rogue River and the South Coast Basins.

The Southwest Oregon Province as defined by the NFP overlays distinctly different geologic provinces that have considerable implications for the diversity and migration of flora and fauna. This province includes the physiographic-based Cascade Province, the west Cascade sub-province and the Klamath Mountains Province. The Klamath Mountains Province is linked to the Cascades and the Sierra Nevada of California to the south and the Oregon Coast Range to the west and north.

South Coast Basin

The South Coast Basins contain 1,093 square miles (699,634 acres). It contains all coastal rivers within the Southwest Oregon Province except the Rogue, Umpqua and Coquille/Coos watersheds (Map 2). The South Coast Basins can further be divided into distinct sub-basins (watersheds). These sub-basins include numerous small coastal streams and larger coastal rivers such as the Winchuck, Chetco, Pistol, Elk and Sixes.

The various South Coast sub-basins generally have headwaters in the Siskiyou Mountains of the Klamath Mountains Province. The topography is characterized by a relatively narrow coastal plain and narrow alluvial valleys extending into the mountainous interior.

The South Coast streams have been altered by Europeans starting in the mid nineteenth century. The narrow coastal plain, vegetated by mature Sitka spruce and Douglas-fir forest, were settled and cleared where agriculture is possible. Agricultural draining and clearing has simplified the stream and riparian habitat in, and along, coastal streams.

The result of these activities has been a general lowering of the water table in the coastal and interior valleys and the confinement of the streams to a single channel. The interior hillslopes have been roaded for timber harvest. Parts of these headwater areas include unstable and potentially unstable sites, and the sediment transport characteristics of the streams have been altered. These activities have changed the lower stream sections and estuary habitat so important to juvenile salmonids migrating to the ocean.

Elk River

The Siskiyou National Forest Land and Resource Management Plan , as amended by the NFP has created management allocations on federal lands that define the type of management activities within the watershed. Current National Forest land designations (Map 3) within the watershed are 4,800 acres of Matrix, 22,127 acres of Late-Successional Reserve, and 1,313 acres in Botanical. An additional 15,382 acres are in other designations such as Wilderness, Wild/Scenic/Recreational river, Supplemental Resources, and special wildlife sites. Activities in these allocations may not proceed prior to determining how proposed land management activities meet the Aquatic Conservation Strategy objectives (NFP B-11).

There are 764 acres of Federal land managed by the BLM in the Elk Watershed. These are designated Matrix lands with two sub-allocations; 364 acres of General Forest Management Areas (GFMA) and 400 acres of Connectivity/Diversity Blocks (CON). The objectives are to provide a sustainable timber supply, provide connectivity between Late-Successional Reserve (LSR), provide early successional habitat, and provide important ecological functions.

CHARACTERIZATION

Physical Setting

Location: The Elk River flows in westward direction to its mouth just south of Cape Blanco on the Pacific Ocean. The watershed encompasses 58,388 acres; of these, 45,206 acres are in the Siskiyou National Forest. Fed by six major tributaries and numerous small streams, the Elk River enters the Pacific Ocean about three miles north of the town of Port Orford (Maps 1 and 4).

Climate: The climate is typical of coastal Oregon with a strong marine influence, high winter precipitation and moderate year-round temperatures. Annual average precipitation reported from the National Oceanic Atmospheric Administration (NOAA), Port Orford 5E, located at the Oregon State Fish Hatchery is 120 inches. The period of record is from 1970 to the present with maximum annual precipitation of 172.4 inches occurring in 1996 and the minimum of 74.0 inches occurring in 1976. Approximately 80 percent of the precipitation occurs from October to March, and four percent during June, July and August. Snowfall is generally light and of short duration because of the low elevation and moderate marine influence. Less than five percent of the watershed lies between 2400 and 4000 feet in elevation, within the transient snow zone.

Landforms and Geology: The Elk River watershed, located at the northern part of the Klamath Mountains/Siskiyou Province and the southern part of the Oregon Coast Range Province, is comprised primarily of Rocky Point sandstones and siltstones, Humbug Mountain conglomerate, shales of the Galice Formation, diorite intrusions and ultramafic rocks (Map 5). The river leaves the Siskiyou National Forest through a broad valley, and enters the ocean through a small estuary. Recent and ongoing uplift (Muhs et al. 1990) has created rugged, steep terrain with inner gorges adjacent to streams.

Where streams downcut along slopes underlain by resistant rock types including sandstones/conglomerates and diorite, the inner gorges are steepest (Map 6). The steepest slopes are bluffs underlain by conglomerate bedrock, with large boulders scattered below. Slopes are more gentle, and soils tend to be deeper (Map 7) in faulted areas along contacts and on Galice metasediments (Map 5). Soils developed on stable weathering surfaces long enough to develop a high clay content are limited in extent (Map 8).

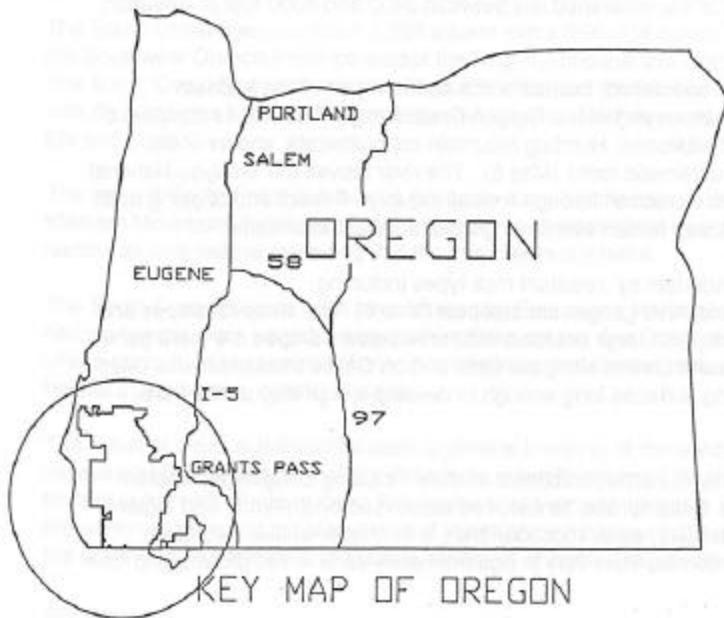
Terrestrial: The watershed has a majority of hardwood/conifer mixture including Douglas fir, western hemlock, Port-Orford-cedar, Jeffrey pine, Sitka spruce, tanoak, red alder, madrone, myrtle, and bigleaf maple. Under the tree canopy are huckleberry, salal, rhododendron, vine maple, willow, swordfern, poison oak and others. The major plant communities vary in age from early seral to old growth, and form habitat for a variety of animal species.

Wildlife: The watershed has varied wildlife species, including northern spotted owls, marbled murrelets, osprey, Roosevelt elk, Bald Eagle, black-tailed deer, mountain lions, northwestern pond turtle, and red-legged frogs. The Del Norte salamander has also been found at one location, and unconfirmed goshawk reports exist in the lower river. Ponds and meadows, hardwood stands, and talus slopes provide critical habitat for many wildlife species.

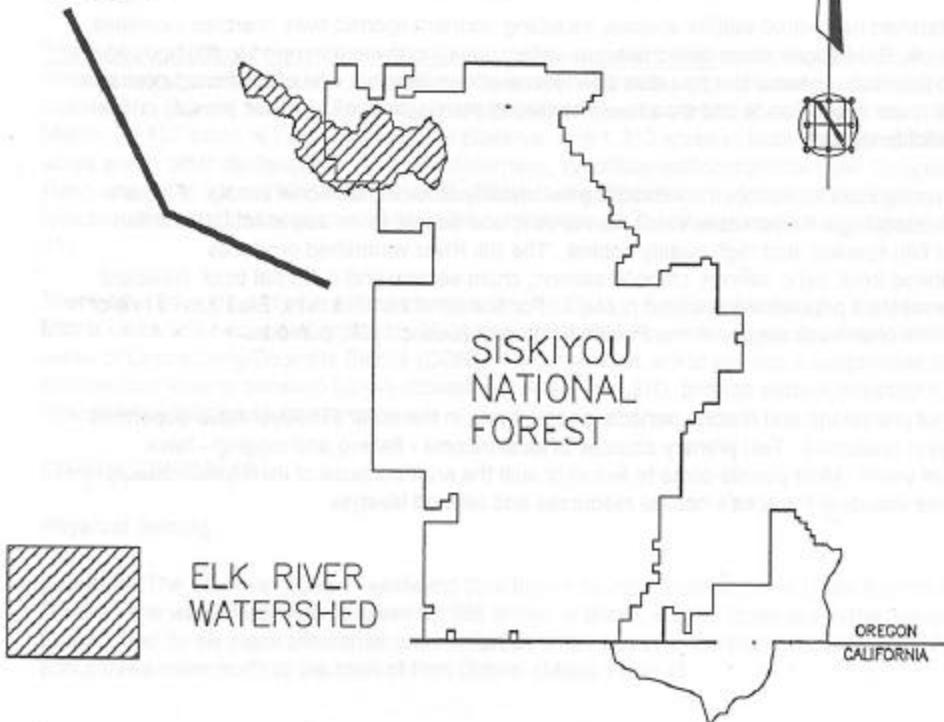
Fish: Elk River is recognized for its role in maintaining the viability of native salmonid stocks. Fish are identified as an Outstandingly Remarkable Value for the Wild and Scenic River due to wild fish stocks, diversity of fish species, and high quality habitat. The Elk River watershed produces anadromous steelhead trout, coho salmon, chinook salmon, chum salmon and cutthroat trout. Resident rainbow and cutthroat trout populations are also present. For a watershed of its size, Elk River is one of the highest producers of chinook salmon in the Pacific Northwest (Susac 1997, personal communication).

People: Throughout prehistoric and historic periods, people living in the lower Elk River have depended on the area's natural resources. Two primary sources of local income - fishing and logging - have decreased in recent years. Most people come to live in or visit the area because of its physical beauty and social amenities including the area's natural resources and relaxed lifestyle.

VICINITY MAP

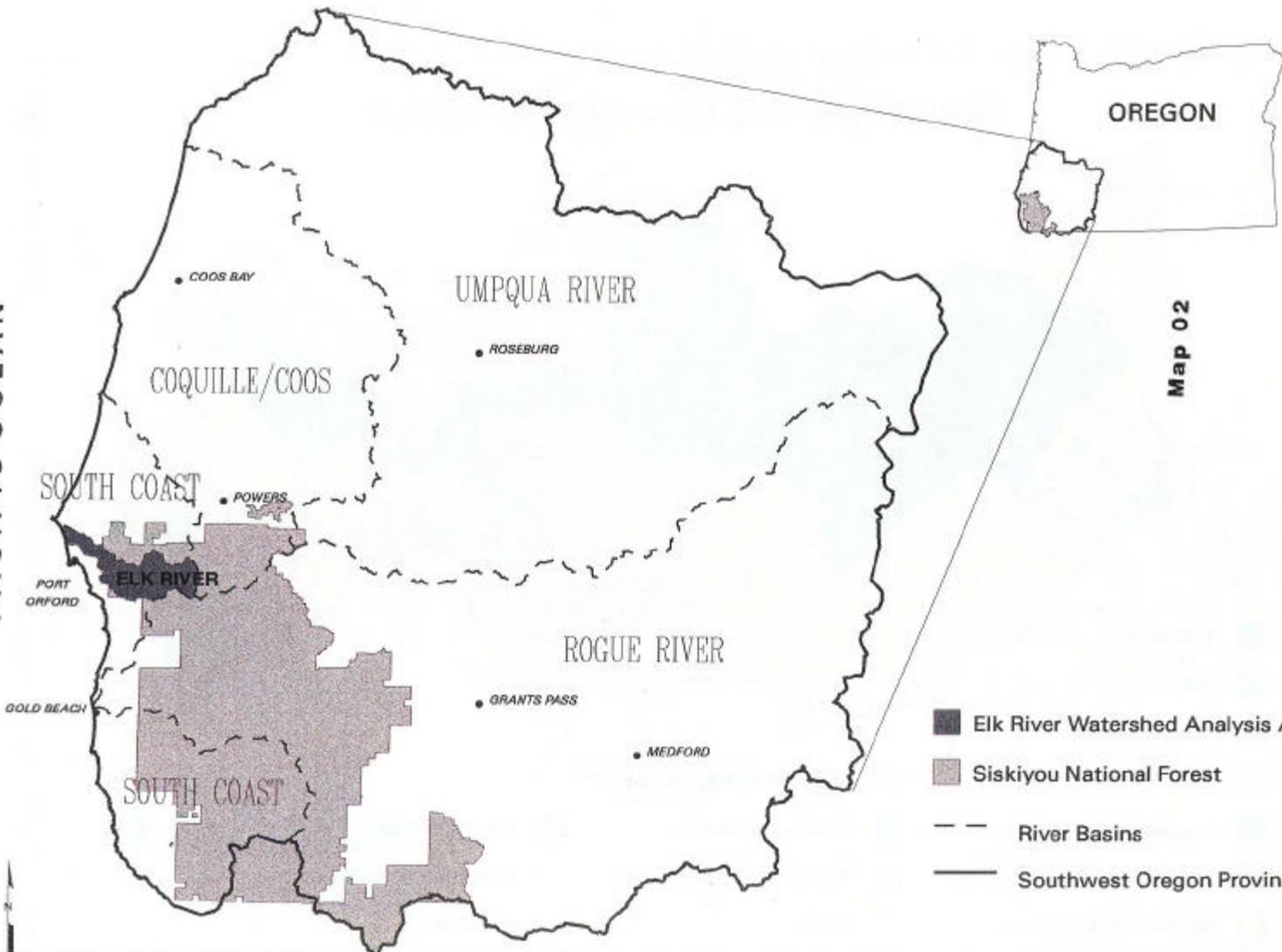


KEY MAP OF OREGON



Map 01

ALL DRAWINGS - NO SCALE



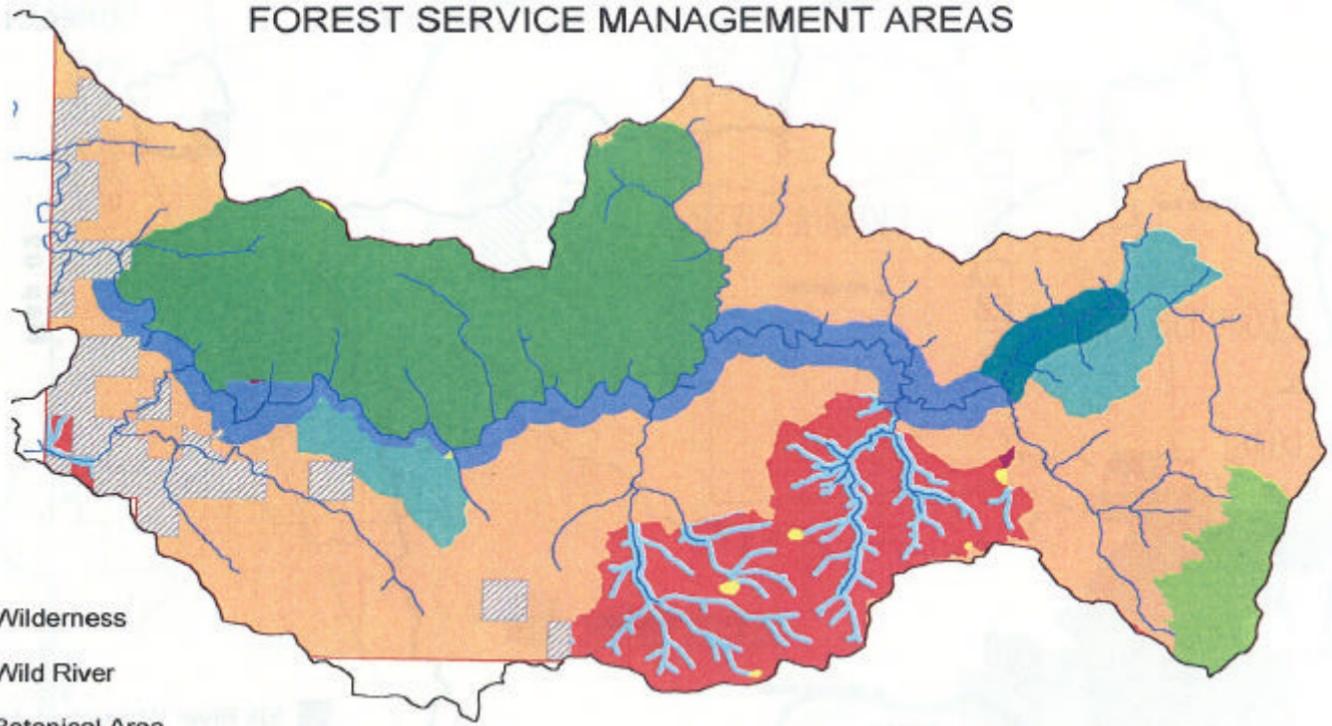
OREGON

Map 02

- Elk River Watershed Analysis Area
- Siskiyou National Forest
- River Basins
- Southwest Oregon Province

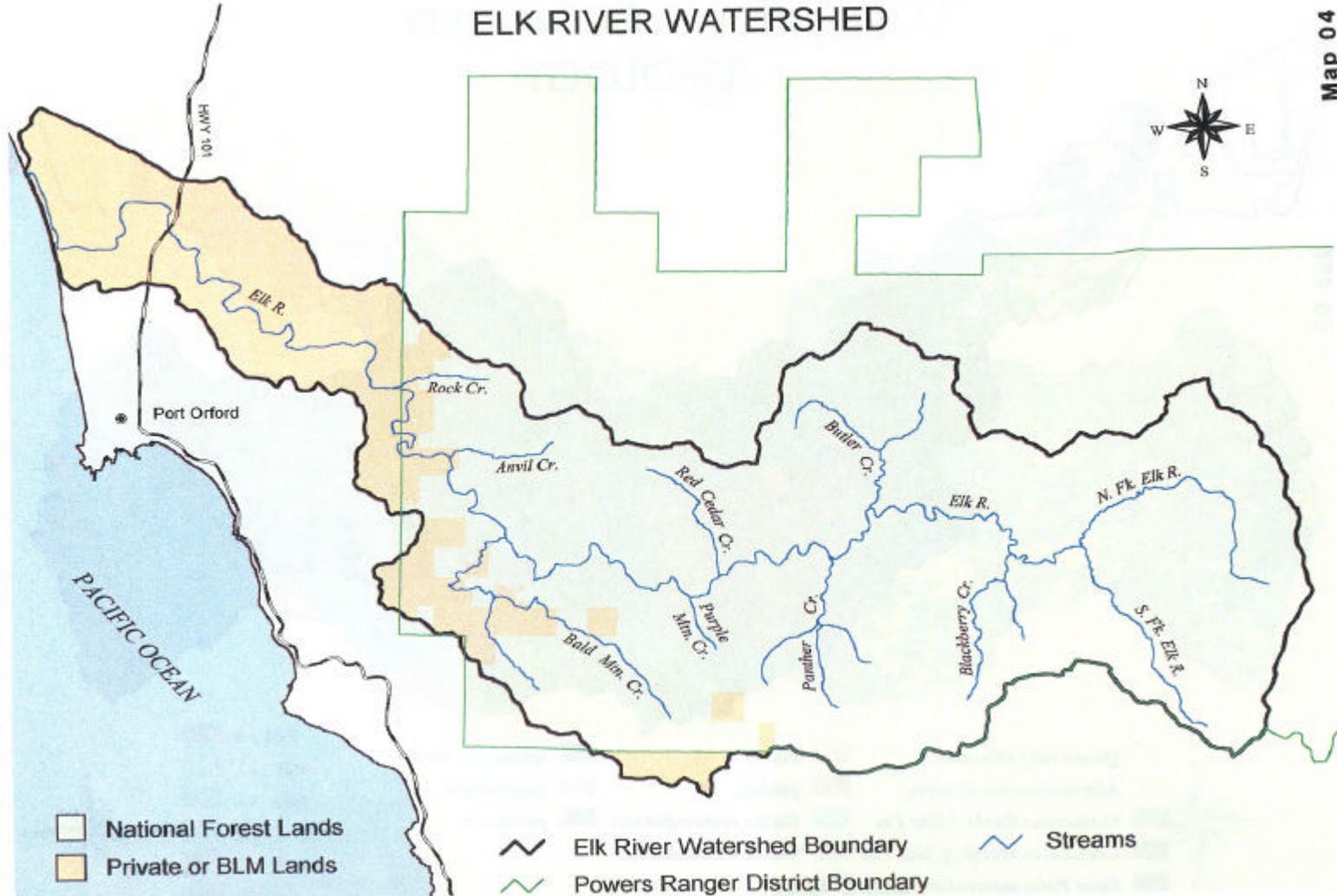
FOREST SERVICE MANAGEMENT AREAS

- Wilderness
- Wild River
- Botanical Area
- Backcountry Recreation
- Supplemental Resource
- Late Successional Reserves
- Special Wildlife Sites
- Scenic/Recreational River
- Riparian Reserves
- Retention Visual / Matrix
- Matrix
- Private Lands
- National Forest Boundary
- Streams



ELK RIVER WATERSHED

Map 04



ELK RIVER WATERSHED GEOLOGY

Map 05

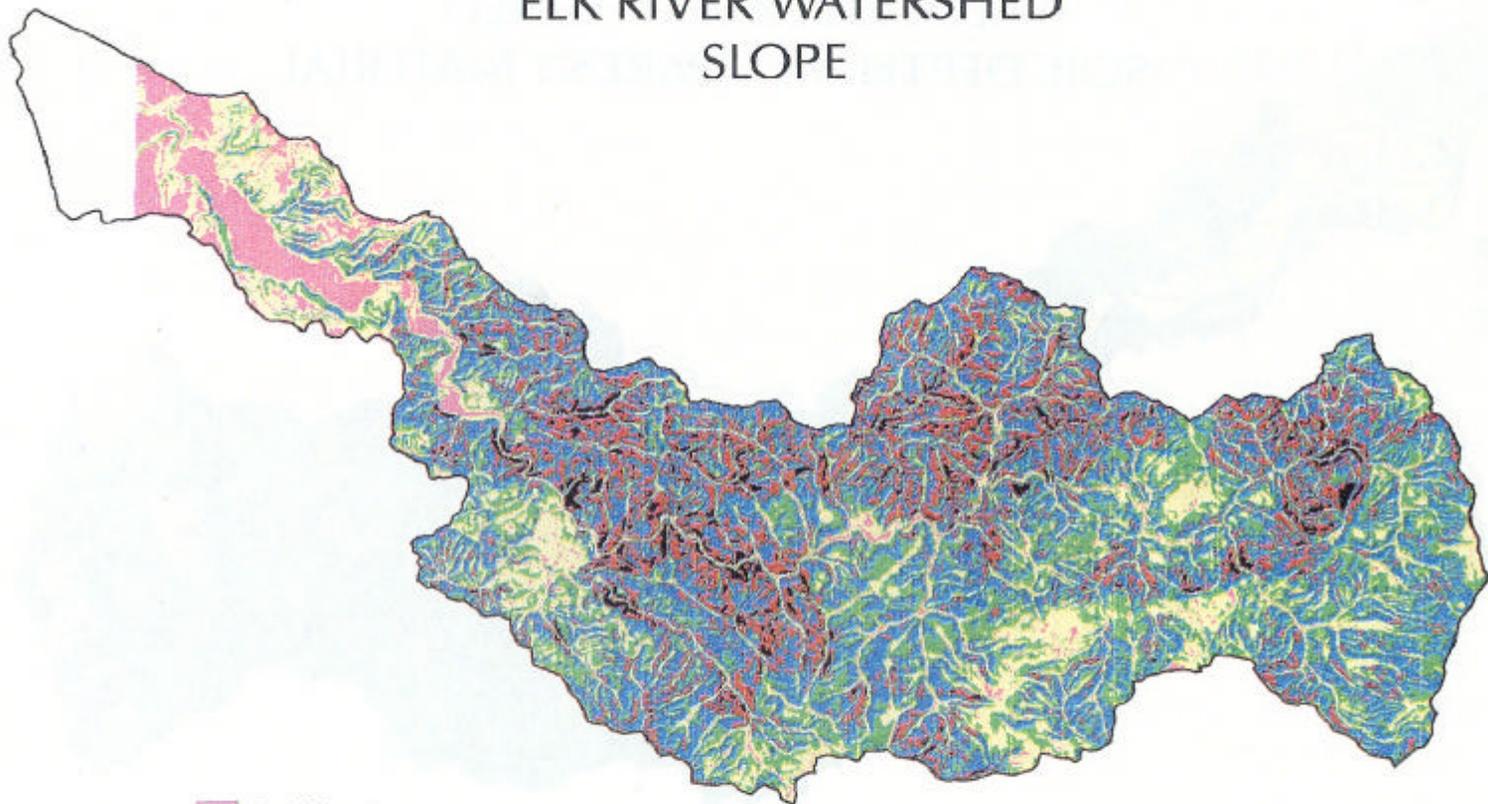
- | | | |
|--|---|---|
|  <i>Quaternary alluvium</i> |  <i>diorite</i> |  <i>ultramafic rocks</i> |
|  <i>Alluvial/marine terraces</i> |  <i>gabbro</i> |  <i>serpentinite</i> |
|  <i>Cretaceous Rocky Point Fm</i> |  <i>Gallie metasediments</i> |  <i>peridotite</i> |
|  <i>Cretaceous Humbug Mtn Fm</i> |  <i>Gallie metavolcanics</i> | |
|  <i>Otter Point metasediments</i> |  <i>Colebrooke schist</i> | |



JUNE 13, 1992

ELK RIVER WATERSHED SLOPE

Map 06



-  0 - 10%
-  11 - 30%
-  31 - 50%
-  51 - 70%
-  71 - 90%
-  91%+



JUNE 11, 1997

ELK RIVER WATERSHED SOIL DEPTH AND PARENT MATERIAL

Map 07



Water	SEDIMENTARY AND METAMORPHIC ROCKS	CONGLOMERATE	ULTRAMAFIC ROCK	SCHIST AND PHYLLITE
Urban Land	>60", very deep	20-40", moderate	40-60", deep	>60", very deep
Valley Alluvium, Beaches, Dune Sand	40-60", deep	GRANITIC ROCKS	20-40", moderate	40-60", deep
Marine Terrace	20-40", moderate	0-20", shallow	0-20", shallow	HIGHLY-SHEARED METASEDIMENTS
Exposed Rock	0-20", shallow			40-60", deep



ELK RIVER WATERSHED

SOIL TEXTURE: SUBSURFACE CLAY CONTENT

Map 08

Elk River - 11

