

BEAVER CREEK *Ecosystem Analysis*

STEP 1 - CHARACTERIZATION

The Beaver Creek Watershed lies within the Klamath Mountains Physiographic Province in the Klamath National Forest. Beaver Creek is tributary to the Klamath River and its watershed encompasses about 70,000 acres on the north side of the river. The northwest boundary of the watershed is the Siskiyou Crest which separates the Klamath River and Rogue River Basins and the Klamath and Rogue River National Forests. The southwest and east boundaries are the watershed divides with Horse Creek, Doggett Creek, Lumgrey Creek, Cottonwood Creek, and other small tributaries to the Klamath River. Most of the Beaver Creek watershed lies in California, with about one-third in Oregon (see Figure 1-1, Base Map).

Elevations in the watershed range from 1,700 feet at the Klamath River to 7,500 feet at Mount Ashland on the Siskiyou Crest. The topography is dominated by steep mountain slopes with some moderate to gentle slopes on dormant landslides and glacial or alluvial deposits. The eastern third of the watershed consists of granitic soils while the remaining area has soils derived from metamorphic bedrock.

Yearly precipitation ranges from 24" at the mouth of Beaver Creek to over 60" on the Siskiyou Crest. The mid and lower elevations have a typical Mediterranean climate of cool, wet winters and hot, dry summers. Summer lightning storms are common in August and September. Winter precipitation is generally rain at lower elevations, below about 3,000 feet, with snow accumulation rare. Higher elevations, above about 4,500 feet, are characteristic of the Sierra and Cascade mountain ranges with short summers and relatively long winters, and deep accumulations of snow. The rain/snow transition zone occurs between about 3,000 and 4,500 feet. Snow typically accumulates in this zone but is frequently melted by mid-winter rains. Although most precipitation falls in winter through spring, there may be significant rainfall from intense summer thunderstorm cells generated on the south side of Mt. Ashland. These cells have the potential to drop up to two inches of rain/hour for short periods.

Beaver Creek lies further east than the majority of the Klamath National Forest Westside. It has generally drier conditions and experiences a lower magnitude and frequency of flooding compared to similar sized watersheds to the west. The last major flood in Beaver Creek occurred in 1964 and recovery from this event is evident. Flooding in the 1970s and early '80s had major impacts on the Salmon River and other downstream Klamath River tributaries, but a lesser impact upon Beaver Creek.

The majority of the watershed lies within the high elevation snow zone, having deep infiltration and slow precipitation release. This generates summertime flows in Beaver Creek that are comparable to similar sized watersheds to the west. Due to intense summer thunderstorms, summer peak flows occur which compare to winter floods in the main stem of Beaver Creek.

A summer flood recorded for August of 1956 rivals the magnitude of the '64 flood, although details are scarce. Another summer flood was a debris torrent in Grouse Creek that occurred in '89.

The watershed is dominated by timbered stands, primarily mixed conifer at the lower elevations and becoming mostly true fir above about 5,000 feet. Mixed stands include Douglas-fir, ponderosa pine, sugar pine, white fir, and incense-cedar. Southern exposures at lower elevations support stands of shrubs or oak. Historically, mature forest stands in this area were fairly open and dominated by Douglas-fir and ponderosa pine. Over the past 80 years plant communities have shifted towards more shade-tolerant species, with more white fir and Douglas-fir than previous. Many stands have filled in and exhibit overstocking and decreased growth rates.

The higher elevations contain extensive meadows dominated by a mix of native and non-native grasses and forbs. There are also large barren areas with exposed soil (about 250 acres total) which are sparsely vegetated with low growing, early successional plants. Because of the minimal amount of ground cover, these sites have higher than average erosion rates. It is thought that these conditions were created by overgrazing of livestock in the late 1800s, but despite years of study, no positive conclusions as to how they were created have been reached. Likewise, there is no universally accepted method for their rehabilitation.

Several wildlife species of concern reside in the watershed. The northern spotted owl, listed as Threatened under the Endangered Species Act, is found in Beaver Creek. The Record of Decision for Amendments to Forest Service and Bureau of Land Management Planning Documents Within the Range of the Northern Spotted Owl (ROD) amended National Forest Plans to provide land allocations for the northern spotted owl and other late-seral obligate species such as marten and fisher. Steelhead, coho, and chinook salmon spawn in Beaver Creek and some of its tributaries. These stocks of anadromous fish are either proposed or petitioned for listing under the Endangered Species Act. Willow flycatchers, Siskiyou Mountain salamanders, and great grey owls (all considered sensitive) are found in Beaver Creek. Although not numerous, elk are increasing their numbers throughout the watershed; they are currently hunted in Oregon, and may become an important game species in California in the future.

The majority of the watershed (64%) is administered by the Klamath National Forest. The remainder is privately owned, mostly by two timber companies, with a small area (300 acres) of BLM land. The National Forest and BLM lands are managed by land allocation. The northern one-third is part of the Mt. Ashland Late-Seral Reserve (LSR #RO-248). Eight additional areas have been designated for management as 100-acre LSRs outside the primary LSR. An extensive Riparian Reserve network includes significant amounts of land along streams and are subject to special management standards. Four Special Interest Areas (SIAs) have been designated along the Siskiyou Crest to protect sensitive plants and unique geological features. Three are botanical areas within the LSR and one geological area outside. A 40-acre parcel is under a long-term special-use permit to the Yreka Union High School District for maintenance of the Oak Knoll Education Center, which will become a residential learning facility in the near future. The remaining area, approximately 11,000 acres, is available for timber harvest, with considerations for visual quality and sensitive soils.

Beaver Creek has been heavily impacted by several types of land uses. Railroad logging was conducted between 1909 and 1931 throughout the northeast portion of the drainage. While many of the resulting second-growth stands are healthy, they are also in need of management to realize resource goals. Mining in the stream channel was a dominant use which has affected the streambed and fishery habitat. Over the years, adverse impacts from placer mining have become less noticeable and do not play a major role in present management.

The largest influence on the drainage is the extensive road network. Roads have been constructed primarily to access timber harvest areas and private lands, and have been left open to accommodate recreational uses. Approximately 440 miles of road are in place in the drainage today, plus an unknown amount of skid trails. As roads have been built, sedimentation has increased from roadbeds and cutbanks, especially in the highly erosive granitic soils. Since most of the road system has been in place and used for at least 20 years, the public is accustomed to driving to almost any point in the drainage. This customary use creates a challenge for managing roads to maintain public access while minimizing adverse impacts from sedimentation.

A significant portion of lower Beaver Creek burned in the 1955 Dutch Creek Fire; this was the last major fire (greater than 1,000 acres) that burned in the watershed. Over the last 80 years, fire suppression efforts have led to changes in nutrient cycling, vegetative succession, and spatial arrangement of vegetative types. Fuel loadings have increased, with an attendant rise in the risk of catastrophic fire. Large, stand-replacing fires could threaten late-seral habitat in the LSRs, fisheries habitat, plantations, and private lands.

Private lands are scattered throughout the watershed with permanent residences clustered near the confluence with Klamath River. There is a volunteer fire company but no other services within the drainage. Beaver Creek residents live a rural lifestyle dependent upon National Forest Lands. They take great pride in their self sufficiency and strong ties to the land. Contemporary attitudes shift between amenity and commodity values. Incomes are derived primarily from resource-oriented businesses or jobs located in nearby communities such as Yreka, California and Ashland, Oregon. Purchases are made in local communities outside the watershed, but residents utilize resources within the watershed in the form of firewood, fence poles, game (primarily deer, bear, and gamebirds), fish, forage for livestock, and gathering of limited amounts of edible and decorative forest products.

Recreation use is moderate throughout much of the drainage, but use is concentrated in specific areas during certain times of year. The Pacific Crest Trail, a National Scenic Trail, crosses the northern portion of the watershed and is an important recreational feature. The Jefferson Scenic Byway (Highway 96) crosses the watershed near the mouth of Beaver Creek. The Siskiyou Crest attracts a multitude of day and weekend use, such as sightseeing, photography, bird watching, picnicking, hiking, horseback riding, and camping. Numerous deer hunters use the many miles of open road during the fall, camping in dispersed sites throughout the drainage. Winter sports include cross-country skiing and snowmobiling from December through May; a snow shelter is maintained for cross country skiers at Grouse Gap. The presence of roads and traffic preclude the potential for wilderness-type recreational experiences.