

Chapter 1 – Characterization

This analysis addresses an area that covers approximately 70,000 acres of the Klamath Mountains province in Northern California. Federal land (37,800 acres) is administered by the Scott River Ranger District of the Klamath National Forest (see **Figure i-1 Klamath Basin Vicinity and Horse Creek Watershed, page intro-3**, and **Figure 1-1 Base Map**, contained in the Map Packet located at the end of this document). The Klamath River borders the watershed from the southeast boundary about one mile above the Klamath River School to the confluence of the Scott River. The northern boundary of the watershed is the Forest boundary along the Siskiyou Crest and the Beaver Creek Watershed. Other boundaries include Johnny O'Neil Ridge to the west. The southern boundary is south of the Klamath River from Collins Baldy Lookout in the east to the confluence of the Scott River on the west boundary.

Approximately 54% of the area is public land, administered by the Klamath National Forest, see **Figure 1-1**. About 46% of the analysis area is in private ownership, the bulk of which is industrial timberland. The two timber companies with the largest holdings in the analysis area are Fruit Growers Supply Company and Timber Products, who own 70% (approx. 17,660 acres) and 14% (approx. 4500 acres), respectively, of the private ownership. Most of the private timber company lands are in a checkerboard (every other section) pattern with Federal ownership. Most of the individually owned private land is concentrated in the Horse Creek and Middle Creek drainages and along the Klamath River in smaller parcels. The largest population center is Horse Creek, population 115, in the south-central portion of the analysis area. Primary access is from Interstate Highway I-5 to California State Highway 96, which parallels the Klamath River through the analysis area.

This watershed analysis covers six major drainages, their tributaries, and face drainages. Draining from the Siskiyou Crest and located on the north side of the Klamath River are Horse Creek, Middle Creek, Buckhorn Creek, Kohl Creek and Doggett Creek; on the south side of the river is Collins Creek; and the face drainages draining directly into the Klamath include Sambo and Howards Gulches; and Kinsman, Everill, and Lime Creeks. The sub-watersheds will be analyzed together; but some information may be compiled by individual sub-watershed. This landscape borders four other watershed analysis areas on the Klamath National

Forest: Seiad, Lower Scott, Haystack and Beaver, see **Figure i-2 Completed Ecosystem Analysis/ Watershed Boundaries, page intro-4**. The Forest boundary on the northern end of the watershed borders the Rogue River National Forest.

The Klamath National Forest has allocated land into 17 distinct Management Areas through land management planning, as documented in the *Klamath National Forest Land and Resource Management Plan (Forest Plan)*. Each Management Area has distinct goals and objectives, with standards and guidelines guiding management. This analysis area includes seven of these Management Areas, see **Figure 1-2 Forest Plan Management Areas**. **Table 1-1 Management Areas and Proportion of Analysis Area and National Forest** displays the percentages of the area occupied by each Management Area as a proportion of the entire analysis area, and as a proportion of only the National Forest System lands.

Table 1-1. Management Areas and Proportion of Analysis Area (%WA) and National Forest (%KNF).		
	% WA	% KNF
Congressionally Designated:		
Late-Successional Reserves (LSRs)	30%	55%
Administratively Withdrawn:		
Special Management	<1%	<1%
Riparian Reserves (RRs)	6%	10%
Matrix:		
Retention	2	3%
Recreation River	<1%	<1%
Partial Retention	10%	19%
General Forest	6%	12%

Elevations within the analysis area range from 1,560 feet on the Klamath River at Blue Heron to 7,112 feet at Condrey Mountain on the Siskiyou Crest. Copper Butte and White Mountain are other prominent peaks in the crest area. The climate is one of a temperate Mediterranean type, typified by hot, dry summers and cool, moist winters. Precipitation ranges from an annual rainfall of 30" in the lower elevations near the Klamath River, to about 75" at the highest elevations, the crest zone, with approximately 90% falling between October and May. Below 3,500 feet in elevation, the predominate precipitation is rainfall, while above 4,000 feet winter precipitation is predominately snowfall with rain-on-snow events occurring in the transition zone.

Summer precipitation occurs predominantly as thunderstorm activity, with high-intensity, short-duration thunderstorms common.

The Horse Creek analysis area is a complex area geologically, with a variety of bedrock types and several different geomorphic landscapes. The bedrock underlying this area is a complex of metamorphosed sedimentary and volcanic rocks derived from the ocean floor and subduction zone that were uplifted and thrust onto the North American continent. The Condrey Mountain Schist comprises the bedrock in the northern and central part of the area. It is the noticeable, expansive, uplifted dome-shaped landform that can be seen while driving along Highway 96. Other meta-sedimentary and meta-volcanic rocks of the Rattlesnake Creek and Eastern Hayfork Terranes are faulted against the Condrey Schist on the west and the east. Younger granitic rocks of the Slinkard Peak and Vesa Bluffs Plutons have intruded the metamorphic rocks on the west and the east. Portions of the original oceanic basement rocks (ultramafic rocks) are exposed in the southern and eastern part of the area near Horse Creek along the Klamath River. All of the bedrock has been uplifted as part of the regional uplift of the Klamath Mountains, and subsequently this area has been deeply eroded. The rivers and streams (Horse, Middle, Buckhorn, Collins Creeks and the Klamath River) have actively downcut through these uplifted mountain terranes.

The area can be divided into six geologic terranes, sharing similar bedrock and geomorphic attributes. The Condrey Mountain Dome is the major landscape feature of the area, with other terranes in fault contact around it. In order of occurrence in the analysis area, the geomorphic landscapes of the analysis area are:

- Graphitic Schist of the Condrey Mountain Terrane.
- Other schists of the Condrey Mountain Terrane (blueschist, greenschist, quartz mica schist)
- Metasediments of the Eastern Hayfork Terrane
- Meta-volcanic and meta-sedimentary rocks of the Rattlesnake Creek Terrane
- Granitic rocks of the Slinkard Creek and Vesa Bluffs Plutons
- Ultramafic rocks.

Each of these bedrock units produces unique slope features, topography, and landslides. The graphitic schist of the Condrey Mountain Terrane comprises the basement of extremely large, dormant landslide blocks that extend from the headwater ridges down to the channels of Buckhorn and Middle Creeks. These landslide blocks originated hundreds to thousands of years ago when the climate was much

wetter than it is now. Massive earthquakes related to subduction zone processes may have initiated these massive landslides. All of the Condrey schist terranes have significant numbers of springs, seeps and wetlands, indicating elevated groundwater. Soils derived from the Condrey Mountain schist are soft, sensitive to disturbance, and easily compacted, while soils derived from the granitics are highly erodible. Another feature of the area is the presence of what are known as "barrens" in the high elevation red-fir forests of the Condrey Mountain Terrane. These sites are largely unvegetated with scattered grass and shrubs and occur in the crest zone around Dry Lake and Condrey Mountain. The soils are significantly depleted in calcium and magnesium, and are heavily disturbed by pocket gophers.

The Condrey Mountain Blueschist geologic Special Interest Area, located along the crest northwest of Dry Lake, contains unusual blue-colored rocks that were formed deep within the ancient subduction zone at high pressures and low temperatures. Other unique features of the area include two mineral springs located in Crawfish Gulch and Williams Gulch. Mineral deposits that have been explored and mined in the area include placer and lode gold, copper, mercury and chromite.

The Klamath River winds for approximately 18 miles through the south central portion of the analysis area. The western boundary of the area is where the Scott River enters the Klamath River at river mile (RM) 143 from the ocean, at an elevation of 1560 ft. The area provides important habitat (spawning and rearing) and migration corridors for resident and anadromous fish species, and other aquatic organisms. Indigenous fish stocks include fall and winter steelhead trout, fall-run Chinook salmon, coho salmon, rainbow trout, Pacific lamprey, speckled dace, Klamath smallscale sucker, and marbled sculpin. The Southern Oregon/ Northern California coast (SONCC) coho has been listed as Threatened under the Endangered Species Act and the Klamath Mountains Province (KMP) steelhead has been listed as a Candidate Species under the Endangered Species Act. Currently, the National Marine Fisheries Service (NMFS) is undergoing another status review to determine if the KMP steelhead warrant listing under the Endangered Species Act.

Fresh water mussels and other mollusk species may occur within the Klamath River. However, most information about mollusks, such as abundance or distribution, is poorly known.

Indigenous Pacific giant salamander and tailed frogs are common in most of the tributaries to the River within the analysis area. The foothill yellow-legged

frog and western pond turtle are Forest Service Region 5 Sensitive Species, and are found in the watershed. Bullfrogs are an exotic species that have been introduced to the Klamath River, and can be found within the analysis area. Numerous aquatic invertebrate insects inhabit all flowing and standing water bodies in the analysis area.

The primary anadromous tributary to the Klamath River within the analysis area is Horse Creek. Other, smaller landscape streams with anadromous habitat include Collins Creek, Kohl Creek, and Doggett Creek. Tributaries within this analysis area provide important year-around perennial connection to the Klamath River. In addition, the tributaries contribute important cold water and other watershed products, such as large wood and gravel, to mainstem Horse Creek and the Klamath River.

Vegetative cover in the landscape area includes Douglas fir and Klamath mixed conifer forest, montane hardwood, chaparral, riparian shrub/hardwood, riparian meadow, oak woodland, and annual grassland. Habitat exists for two plant species listed as Region 5 Sensitive Species by the Regional Forester: Howells lousewort (*Pedicularis howellii*) and Henderson's horkelia (*Horkelia hendersonii*).

Two Botanical Special Interest Areas (SIAs), and a portion of a Geological SIA are located on National Forest lands within the watershed. These SIAs comprise 467 acres of the watershed. The Geological SIA, the Condrey Mountain Blue Schist Geological Area mentioned above, straddles the boundary between the Horse Creek and Beaver Creek watersheds. Botanical SIA B23, White Mountain, comprises 123 acres along the Siskiyou Crest. The area was designated because of the plant species endemic to the Crest Zone. Area B24, Horse Creek, is an example of old growth riparian hardwood and is located in the lower reaches of Horse Creek.

Wildfire is the primary natural disturbance process in the landscape. All the natural vegetation types are developed and adapted to a frequent fire disturbance regime, and many are dependant upon fire for their persistence. Lightning and American Indian ignited fires were the primary factors shaping the vegetation. Fire suppression became effective in the 1930s through efforts of the Civilian Conservation Corp (CCC). Mechanized support (fire engines, dozers, aircraft, etc.) increased fire suppression efficiency in later years. With effective fire suppression, vegetative response has been to fill areas that were historically more open and to favor shade tolerant species. This has resulted in increased competition for moisture and sunlight,

shading out and killing understory species, and crowding the overstory. Stand densities and fuel loadings have increased over pre-suppression periods. The most recent large fires that have occurred in the analysis area were in 1977 from an escaped control burn, 1987 when fire suppression forces were overwhelmed with multiple fires starting from a dry lightning storm at the end of August, and the Bark Fire in 2000. Due to the high intensities, many of the effects are still being realized, and will be discussed in detail through the analysis.

Wildlife habitats are determined by the distribution of vegetation communities on the landscape and by the structure and mix of species within a community. The analysis area supports a variety of wildlife species representative of animals found throughout northwestern California. The mix of species is diverse because of the range of habitats found within the analysis area, from small intermittent streams to high mountain meadows. All vegetative seral stages are represented here with a corresponding compliment of wildlife species.

There are several wildlife species found in the watershed that have special and unique habitat needs. Based on current population estimates, and threats to habitats some of these species are recognized under the Endangered Species Act as Threatened or Endangered, listed as Region 5 Sensitive Species by the Regional Forester, or as Survey and Manage Species. Threatened or Endangered wildlife species that may occur in the analysis area include northern spotted owls and bald eagles. Region 5 Sensitive species include northern goshawk, willow flycatcher, Pacific fisher, wolverine, great gray owls, and marten. Big game species such as bear and black-tailed deer are abundant within the landscape, as well as small game species and a wide variety of migratory songbirds. The Horse Creek watershed supports a large and growing Roosevelt elk herd.

Survey and Manage species in the analysis area include both the Siskiyou Mountain salamander and the Del Norte salamander; it is called the zone of contact for these two species. Survey and Manage mollusks, fungi, and bryophytes may occur in the analysis area.

The Klamath River is a designated Recreational component of the National Wild and Scenic River system with approximately 18 miles of the river flowing through the analysis area.

Human uses and values are an important aspect of the watershed. The Shasta Indian Tribes are the first known inhabitants. Their territory may have included the area from Scott River to Horse Creek.

There are at least twelve documented village sites along the Klamath River within the boundary of the watershed.

Initial exploration by Euro-Americans within the area of the Horse Creek watershed may have occurred with the movement of fur trappers over the Siskiyou and into Scott Valley. The fur trappers of the 1820s and 1830s made early contacts with the Shasta Indians.

The discovery of gold at Scott Bar in 1850 brought many to the Klamath River region in search of gold. For approximately 40 years, mining activity was the most important rural industry. Mining claims were established along the Klamath River. These claims were categorized into river, bank, gulch, and hillside claims. Following the decline of mining activities in the late 1880's, other land uses, including homesteading, cattle grazing, and farming, increased. After 1950, logging became the most important rural industry. Timber harvest occurs both on private lands and on National Forest managed lands within the analysis area.

The numerous stream courses provide water for domestic and agricultural use. One cattle grazing

allotment and portions of a second are under permit to local ranchers. The base of operations for the largest permits is at the Rainey Ranch at the mouth of Horse Creek. Other grazing permittees truck their livestock from Scott and Shasta Valleys. In 1996 a watershed analysis was completed for the Horse Creek and Dry Lake Grazing Allotments in conjunction with permit issuance. This analysis incorporates by reference the information contained in that analysis.

Recreational experiences in this landscape are unique in that the number of users is low, compared to other places on this Forest as well to other National Forests in the California Region, especially those close. Recreational experiences in this landscape are unique in that the number of users is low. Whitewater rafting and fishing are important recreational uses for this area. Recreation opportunities include a Forest Service dispersed recreation site (Brown Bear Picnic Site), a river access site (Blue Heron Boat Ramp) and the Pacific Crest National Scenic Trail which traverses the analysis area. Hunting and fishing occurs throughout the area.