

# GEOLOGY OF THE DISTRICTS

The Hilt and Colestin Fire Districts are located south of the jagged crest of the Siskiyou Mountains along the watershed divide between the Rogue and Klamath River drainages. The district boundaries lie within the Klamath Mountain geologic province and are largely drained by the main and east forks of Cottonwood Creek and their tributaries.

The Klamath Mountains are steep, rugged mountains consisting mainly of metamorphic and igneous rocks that formed beneath the ocean and subsequently collided with the North American continent about 150 million years ago. Complexly folded and faulted rocks are bounded by belts of sparsely vegetated bands of serpentine. Rocks, including igneous, metamorphic, and sedimentary types, are very diverse and interspersed. The Klamath Mountains were formed, in part, by the rotation and westward movement of what was once the northern Sierra Nevada Mountains. Other rock types, including limestone and serpentine, formed under the ocean floor, were uplifted, and attached to the continent. Still other rocks (granites) formed from the melting and subsequent uplift caused by the sinking of the Pacific plate under the North American plate.

The Klamath Mountains are irregular and do not form well defined ranges. Most of the short ranges which do occur in the Klamath Mountains run east-west, an unusual characteristic for mountains in North America. The northern portion of the Klamath range is known as the Siskiyou Mountains. They extend in an east-west arc for approximately 100 mi (160 km) from east of Crescent City, California northeast along the north side of the Klamath River into Josephine and Jackson counties in Oregon.

Oregon's oldest known rocks (425 million years old) are found in the Siskiyou Mountains. The Siskiyou Crest is a span of tall peaks beginning in the vicinity of Pilot Rock and Mount Ashland. The rocks vary in composition from granitic types (igneous rocks) to the metamorphosed peridotites (serpentine).

Within the boundaries of the Colestin and Hilt Fire Districts the surface rock types are largely igneous intrusive rocks (magmas that cooled below the earth's surface) and non-marine and oceanic sedimentary rocks of the Hornbrook Formation. The majority of the two Districts is underlain by granite rock related to the Mount Ashland Pluton (a large body of cooled magma) with a small area in the southwest near Interstate Route 5 that is underlain by volcanic lavas and sediments of the Hornbrook Formation.

The Mt. Ashland granites are light to dark grey and are comprised largely of varying amounts of the minerals quartz, feldspar, biotite and hornblende. The most widespread type is called quartz diorite or tonolite. The Hornbrook Formation in the eastern area of the Districts near Hilt is mainly comprised of soft, dark grey shale with 1-10 foot interbeds of fine, buff colored sandstone.

Various faults cut the Hornbrook Formation and the adjacent igneous rocks, however they are relatively old and not believed to be seismically active.

[written by Russell Juncal]