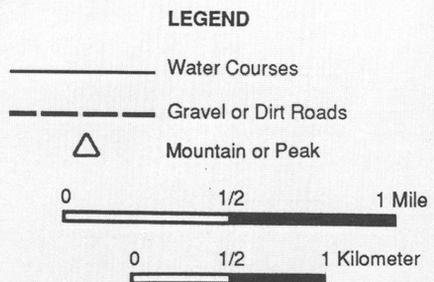
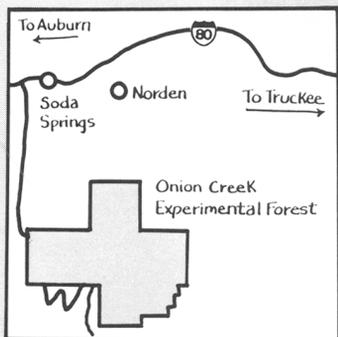
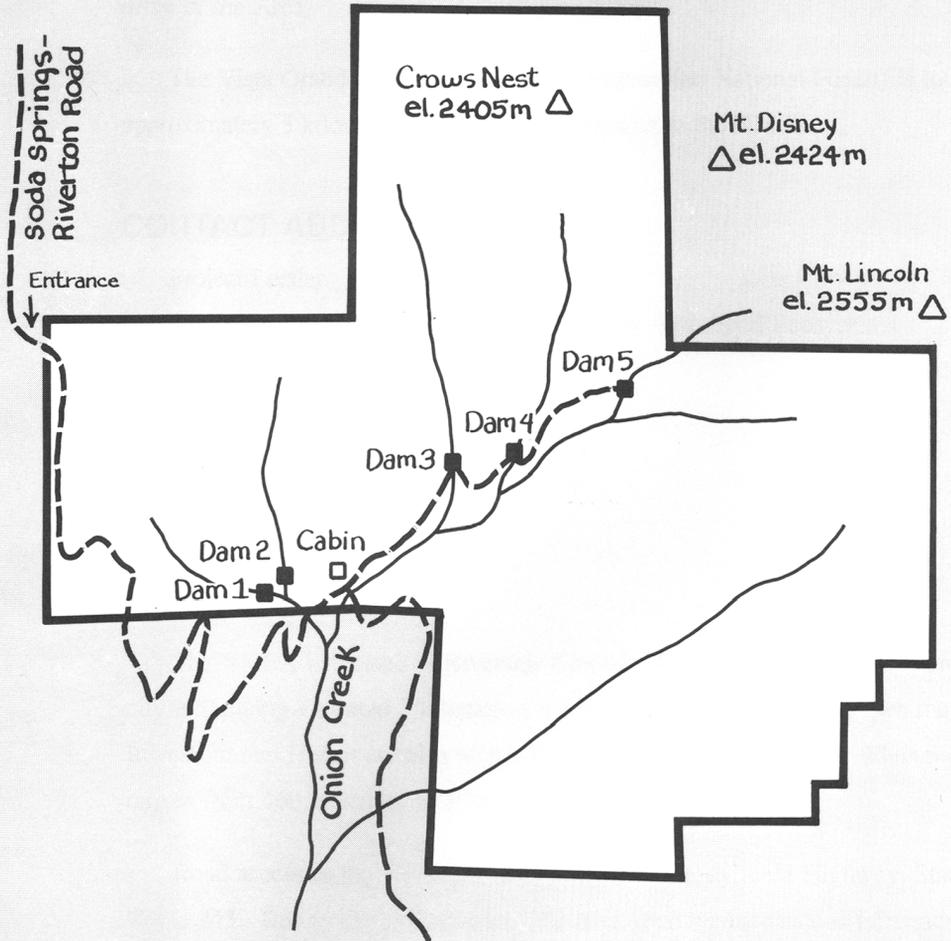


Onion Creek Experimental Forest



ONION CREEK Experimental Forest

The Onion Creek Experimental Forest (OCEF) was established in 1958 to develop techniques for increasing water yields from forested lands in the Sierra Nevada snow zone. OCEF encompasses about 1200 hectares in five main subbasins. The aspect is variable but generally southwest.

Harvest disturbance is minimal. Approximately 20 percent of the northwestern portion of OCEF was harvested in the early 1900's.

Mapped geologic units include Miocene pyroclastics with Andesitic mudflow breccias, volcanic conglomerate, and some tuff. Quaternary glacial deposits include Pleistocene moraines, glacial drift and fluvioglacial sand and gravel. No mineralization of economic significance is known to exist and no mining claims are recorded. A portion of OCEF is formally withdrawn from mineral entry.

An ecological survey of a portion of the Experimental Forest listed major forest plant species including red fir (*Abies magnifica* A. Murr.), white fir (*A. concolor* var. *lowiana* [Gord.] Lemm.), sugar pine (*Pinus lambertiana* Dougl.), Jeffrey pine (*P. jeffreyi* Grev. & Balf.), western white pine (*P. monticola* Dougl.), lodgepole pine (*P. contorta* Dougl. ex Laud.), incense-cedar (*Libocedrus decurrens* Torr.), mountain hemlock (*Tsuga mertensiana* [Bong.] Carr.), and western juniper (*Juniperus occidentalis* Hook.) (Talley 1977).

Grazing continues on OCEF. Approximately 200 animals pass through it over a 3- to 4-day period twice each year.

Atmospheric deposition has not been measured on the Forest. However, annual hydrogen ion loading at the nearby Central Sierra Snow Laboratory of the Pacific Southwest Research Station has ranged from 7 to 10 milligrams per square meter since 1983. Mean sulfate ion loading since 1983 is 4.5 grams per square meter per year at the Snow Laboratory.

CLIMATE

The climate is typically Mediterranean, with moist, relatively mild winters and dry, warm summers. Annual precipitation is about 1060 millimeters at 1830 meters elevation, with 85-90 percent falling as snow during the winter. Mean monthly air temperatures range from -1°C in January to 15°C in July. Monthly minimum temperatures vary from a low of -14°C in January to 1°C in July while monthly maximum temperatures range from about 13°C in January to 30°C in July.

SOILS

Soils are volcanic Xerumbrepts and have been classified as follows: Ahart/rock outcrop (15 pct of the Experimental Forest area), Ahart/Waca (25 pct), Gefo variate (5 pct), Meiss (5 pct), Tallac (15 pct), Waca/Meiss (5 pct), Waca/Windy (5 pct), miscellaneous (20 pct). Cation exchange capacities are 25-35 milliequivalents per 100 grams (sum of cations) or 20-30 milliequivalents per 100 grams (ammonium acetate). A Soil Resource Inventory map (third order soil survey) is available.

MAIN COMMUNITIES

Red Fir (SAF 207), White Fir (SAF 211), Jeffrey Pine (SAF 247), and dry meadow are the main plant communities (Eyre 1980).

DATA BASES

Climatic Data

Air temperature, relative humidity, and precipitation (continuous strip chart) data are available since 1976. Coverage before 1976 is sporadic.

Hydrologic Data

Continuous stream discharge records are available at five subbasins with areas and mean annual discharges as follows:

Area <i>km²</i>	Discharge <i>m³/yr</i>
¹ 2.1	1.3 x 10 ⁶
² 1.7	1.3 x 10 ⁶
² 1.0	7.7 x 10 ⁵
² 1.2	1.1 x 10 ⁶
² 0.5	3.8 x 10 ⁵

¹ October 1958 to September 1964.

² October 1958 to September 1964, and October 1965 to September 1967.

A sixth gauging station monitors the entire 9.3-km² basin. The 20-year mean annual discharge (1960 to 1980) for the basin is 8.8×10^6 cubic meters per year. The "main stem" gauge has been in operation since August 1959, except for a 2-year period in the early 1980's. The gauge on the smallest subbasin was reactivated in 1983, and has been in operation since then. Snowpack depth and water equivalent have been monitored monthly at a snow course since 1937.

EXAMPLES OF RESEARCH

- Snow hydrology
- Freshwater aquatic biology
- Materials evaluation.

FACILITIES

Facilities are minimal: one small cabin with bunk beds for four and an out-building; no drinking water. Commercial accommodations are available 11 kilometers away at Soda Springs. The Central Sierra Snow Laboratory is 11 kilometers distant.

CONTACT ADDRESS

Project Leader
Environmental Hydrology of the California Snow Zone
Pacific Southwest Research Station
P.O. Box 245
Berkeley, California 94701
(415) 486-3456

LOCATION

The forest is in the north drainage of the American River about 20 kilometers west of Truckee, on the Tahoe National Forest (see map). It is 11 kilometers south of Soda Springs, off Old Highway 40. Latitude is 39°17' N., longitude is 120°21'15" W. Elevation ranges from 1830 to 2590 meters.

Main access is along approximately 6.5 kilometers of poorly graded county road known as the Soda Springs-Riverton Road.