

Blacks Mountain Experimental Forest (BLA)

Formally designated in 1934, Blacks Mountain Experimental Forest contains ~10,600 acres, ranging in elevation from 5,500-6,900 feet.

Most of the forest is dominated by ponderosa and Jeffrey pine, with White fir and incense-cedar becoming more common at higher elevations (SAF 237).

Studies going back as far as 1910 resulted in new theories of management, silviculture, insect control, and fire effects.

Introduction

Blacks Mountain Experimental Forest (BMEF), located in Lassen County, California, was originally designated as the Pacific Southwest Station's principal site for management studies of the interior ponderosa pine type (fig. 2). The initial objective of BMEF was to develop theories into a system of management and to test, demonstrate, and improve this system through continuous operations of a timber tract on a commercial scale.

Since then the focus of research has altered between even-aged and uneven-aged management. In 1992 compartments within BMEF became the basis for a new long-term interdisciplinary study of how forest structural complexity affects the health and vigor of interior ponderosa pine ecosystems, the ecosystem's resilience to natural and human-caused disturbances, and how such ecosystems can be managed for sustained resource values.

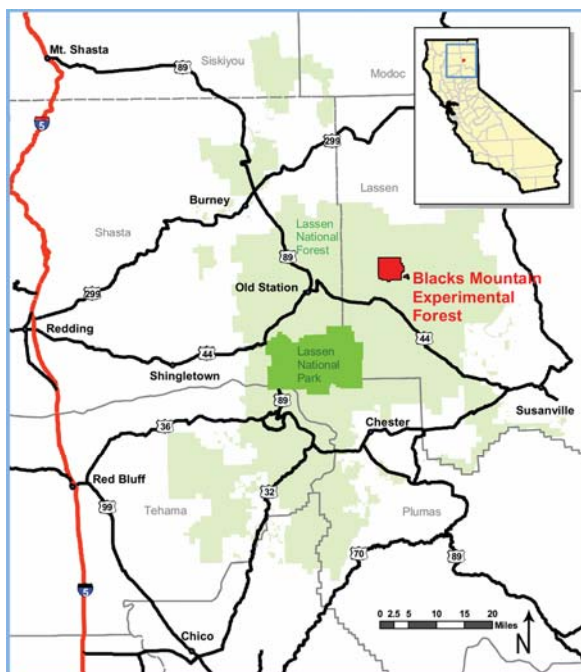
The Cone Fire encroached BMEF in 2002, consuming ~1,600 acres and \$2,761,600 in suppression efforts. As a result, research projects were initiated to study the effects of various salvage retention and wildfire behavior. Additionally, these studies were conducted to quantify the response of fuel conditions, soil compaction, planting success and natural regeneration after wildfire.

The Studies

Locally known as "eastside pine," the general region of the type covers ~2.3 million acres, nearly 14% of the total available commercial forest area in California. The type also extends south into Baja California, and north through eastern Oregon and Washington into central British Columbia.

An insect risk-rating system was developed at BMEF to identify large, old ponderosa pines at risk of being killed by the western pine beetle. A system for classifying ponderosa pine trees as to vigor continues to be used widely. A 50-year record of stand development has demonstrated and quantified the increase in stand density, the influx of white fir, and the increased mortality of large, old ponderosa pines found in interior ponderosa pine forests throughout the West in the absence of periodic wildfire (Dolph et al. 1995).

In 1933 and 1934, Blacks Mountain Experimental Forest was completely inventoried on a 1 hectare (2.47 acre) grid. Timber type maps and inventories were prepared by compartments and updated following harvests. Computerized stem maps for a 20-year period and inventories for a 50-year period are available on 20 acre parcels.



A. A. Hasel (1938) conducted research on *Sampling Error In Timber Surveys* at Blacks Mountain. His seminal work has had wide influence on forest inventory methods and are still highly regarded today. A study of stand growth and development after several harvest intensities began in 1938. Each year for 10 years, plots were installed to test harvest prescriptions ranging from a commercial clearcut, to various levels of partial cutting, or no harvest. This methods-of-cutting (MOC) was abandoned in the mid-1960s when research became focused on even-age management, but was resurrected in 1990 when interest returned to uneven-age management.

In 1939, J.W. Bongberg, an entomologist with the USDA Bureau of Entomology and Plant Quarantine, reported the first description of what was later called black stain root disease (*Leptographium wageneri*). The site (at Blacks Mountain Experimental Forest) remains an active center 65 years after the original description by Bongberg.

An interdisciplinary team was developed in 1992 to help create the Blacks Mountain Ecological Research Project (BMERP). Two forest structures were created across twelve (250 acre) units. Each unit was then split into various combinations of ground disturbance; with/without prescribed fire, and with/without grazing (Oliver 2000).

High-Structural Diversity (fig. 3 top) forest structures maintain key features such as the presence of large, old trees and snags, multiple canopy layers with dense clumps of smaller trees, and many small gaps in the canopy. Low-Structural Diversity (fig. 3 bottom) forest structures maintain key features such as a single layer of an evenly spaced and continuous canopy, and a relatively homogeneous size distribution and spacing.

Blacks Mountain Experimental Forest has been an active learning laboratory for researchers and forest managers for over 70 years. With numerous current research projects relating to silviculture, fire ecology, stand regeneration and long-term site productivity, this forest will continue to help guide and inform managers in the interior pine type for many years to come.

References

- Oliver, W.W. 2000. Ecological research at the Blacks Mountain Experimental Forest in northeastern California. USDA-FS Gen. Tech. Rep. PSW-GTR-179. 66 p.
- Dolph, K.L., S.R. Mori and W.W. Oliver. 1995. Long-Term Response of Old-Growth Stands to Varying Levels of Partial Cutting in the Eastside Pine Type. West. J. Appl. For. 10(3):101-108.

ACKNOWLEDGMENTS



