

Reduction of Wildfire Hazard

correct timing of prescribed burning of dead vegetation in timber reduces danger of uncontrolled fires in those areas

H. H. Biswell and A. M. Schultz



Area of ponderosa pine being prescribed burned to reduce rough and danger of wildfire in summer.

Dangerous fire situations may be created in areas of second-growth ponderosa pine left unburned for a number of years and thereby permitting a buildup of dead shrubs, needles and other litter—the rough—as well as overpopulations of small trees. When such areas are burned by wildfire in summer, or fall, all living vegetation is apt to be killed and a poor land condition results.

To determine the best timing for the removal of rough in second-growth ponderosa pine, records were kept of the days during three wet seasons when pre-

scribed burning could be done safely at Hobergs in Lake County. These records are given in the graph on the next page.

Hobergs is an area of about 600 acres where conditions of slope and fuel were quite variable. The days recorded in the graph are those on which a prescribed—broadcast—burn carried satisfactorily through the upper layer of pine needles, the flash fuel, old stumps, and much of the other debris. The number of days varied from 47 to 53 a season. It was also possible to burn in early April, and some years into May.

Once the pine needles and the soil beneath them are thoroughly wet, the lower layers dry out slowly giving long periods when prescribed burning can be done. For example, in January and February of the 1952-53 wet season it was possible to burn for 29 successive days before it became too dry to burn in heavy rough without excessive risk of the fire getting out of control. Again, in the 1955-56 wet season it was possible to prescribe burn each day for the month of March.

Although the pine needle duff dries out slowly in the lower portions next to the wet soil, it usually dries quickly in the surface inch, making it possible to begin burning within a few days after a rain. Experience has shown that the upper pine needles will burn when most people think the needles are too wet. Occasionally snow on the ground at Hobergs prevented burning for considerable periods of time even though the weather was clear.

In a program of prescribed burning, fires are set under the wettest conditions that fire will carry through the pine needles. Usually this will be on south exposures. As the program progresses and the rough becomes less, later fires may be started under progressively drier conditions.

Prescribed burning is also being carried on at the Teaford Forest near North Fork in Madera County. Here the elevation is about 3,500 feet and there is apt to be more snow on the ground than at Hobergs. While detailed records were not kept for the Teaford Forest area, fewer days were available for broadcast burning during midwinter but the burning extended for a longer period into April and May. On north exposures good burning conditions often extended to mid-May.

From the standpoint of damaging trees, prescribed burning should be stopped when weather temperatures reach 75°F., or when the trees break dormancy and their buds are no longer protected from the heat of the fire.

Prescribed burning can be dangerous—yet, most anyone can quickly learn to do it—experience and patience are the two most important attributes in successful burning.

Harold H. Biswell is Professor of Forestry, University of California, Berkeley.

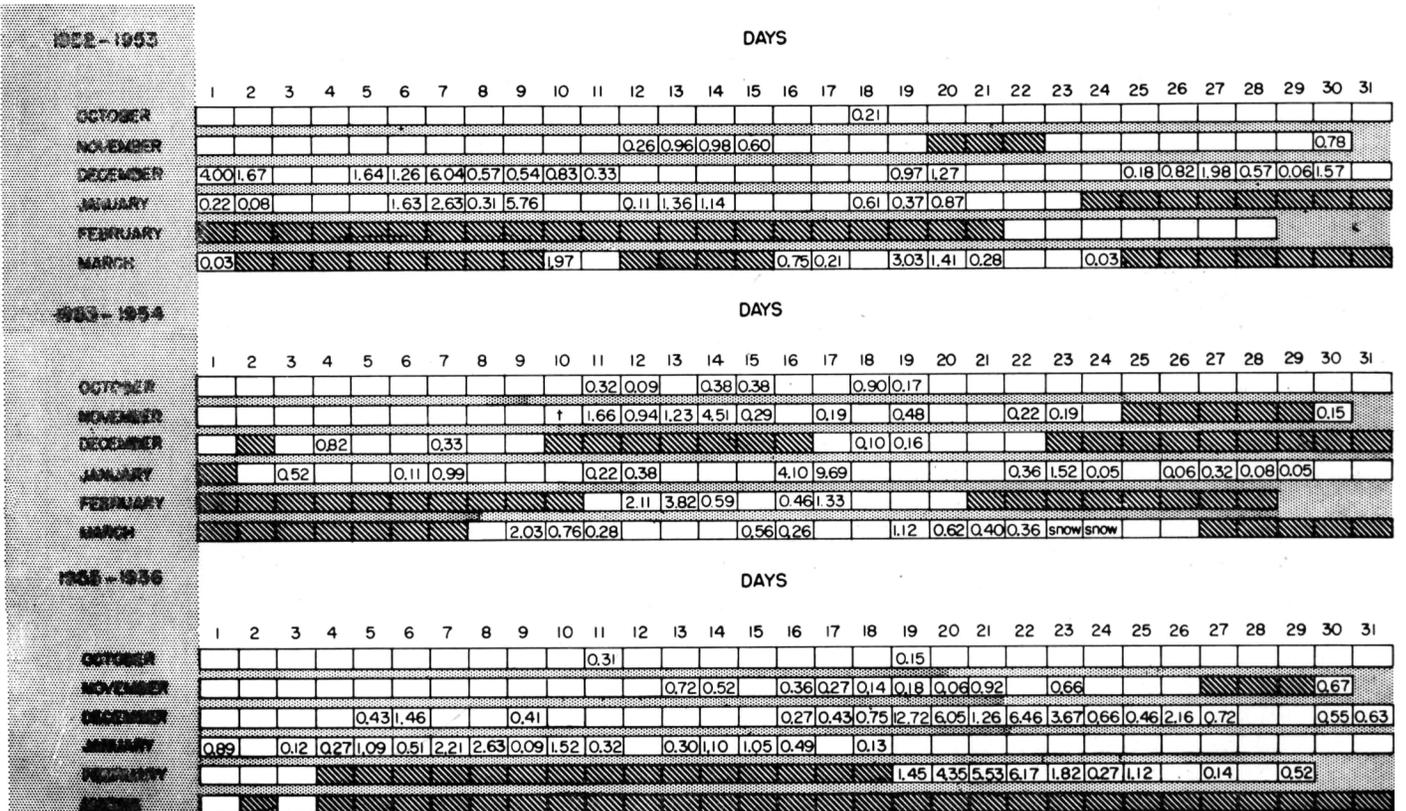
Arnold M. Schultz is Associate Specialist in Forestry, University of California, Berkeley.

The above progress report is based on Research Project No. 1360.

Left—before and—right—after a broadcast-prescribed burn illustrating the reduction in flash fuel from a single fire.



Graph showing days (shaded) when prescribed burning was possible at Hobergs with the days on which precipitation occurred and amount. Unshaded days were unsuitable for burning.



In ponderosa pine growth at Hobergs where rough was successfully reduced by prescribed burning.

