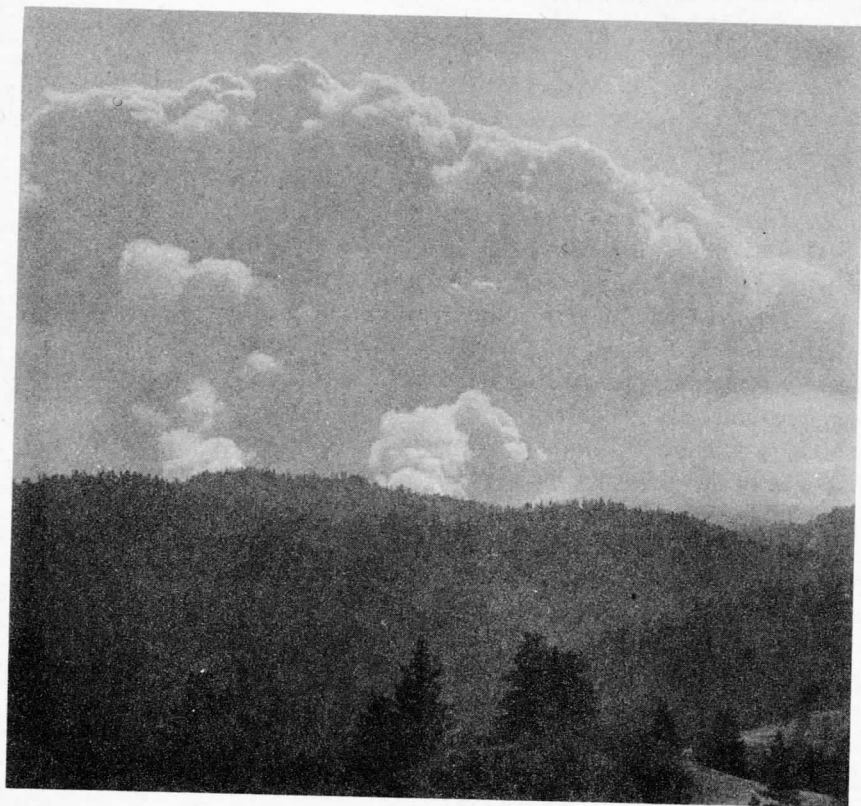


## *Fire-a Deterrent to Sustained Yield Management*



As noted from previous pages the chief purpose of our State forest policy is to protect privately owned timber and watershed lands. Fire prevention and suppression is and will always be a most vital activity in forest management in California, especially if sustained production of our forests is to be practical. The amount of fire hazard involved is one of the major factors as to whether it is more economical to farm our forests rather than mine them. The private timber owner must have a reasonable assurance that his timber will not be destroyed before it is ready to harvest if he is to hold the land for future cuttings. Fire activities of the Division will undoubtedly expand in the future as they have in the past, to give the private owner more complete assurance that his timber is reasonably safe from destruction by fire. Few major developments occurred this year in the fire control field because of wartime conditions, but the season was active and presented many difficult problems. Activities of 1945 are outlined in the following pages.

Because of our reclassification of California lands this year into zones differing from those used in the past, it has been necessary to compile two sets of fire statistics in order to compare 1945 fires with those of previous years. (These figures, presented on pages 55, 56, 57 and 58, show fire statistics by our new land zone classifications and therefore do not agree with the totals shown below.) Statistics of 1945, based on land zones of previous years, show 2,391 timber and watershed fires burning 535,587 acres of the Division's protection area. In comparison with records of the past 10 years these totals rank this year second to 1939 in number and second to 1936 in acreage burned. The average number of timber and watershed fires during the last 10-year period has been 1,958, and the average acreage burned 312,328, or 1.7 per cent of the total timber and watershed protection area.

The weather during the 1945 fire season in California was unusual in several respects. Lightning storms were somewhat more numerous than usual, and the large number of such storms occurring in Southern California was especially rare for that section of the State. Relative humidities were, as a rule, below average throughout the State except that during August heavy rains were instrumental in eliminating fire danger and producing high humidities in sections of Southern California. Humidities in the southern Sierra Nevadas were slightly above average, while Northern California experienced especially low humidities throughout the entire season.

Especially hazardous weather developed during the last few days of September and continued into the first three days of October. Low humidities existed over the entire State with the coastal section experiencing very low humidities in certain areas. High northerly and easterly winds prevailed during the aforementioned period, which, together with the low humidities and moderately high temperatures developed an acute fire hazard.

During the 1945 season there were several disastrous fires throughout the State. Two major fires to be mentioned were the Mill Creek Fire and the Stovell Fire.

The Mill Creek fire in Mendocino County started from lightning on August 19, 1945, being one of several fires started by this cause at that time. The fire was attacked by a small crew, but it could not be controlled in the heavy logging slash. Soldiers were sent in on the fire line, but the huge fire perimeter, low humidities, rugged topography, and heavy cover proved to be difficult obstacles to control of the fire. To add to the confusion trained Division overhead were repeatedly drawn from the fire to attend to other potentially dangerous fires occurring elsewhere in the county. Of the 31,500 acres burned, approximately 85 per cent contained merchantable timber and young growth, the remaining 15 per cent being brush and grassland. The small community of Riverdale was burned out and the structural loss, added to the value of destroyed forest products, totaled approximately \$92,885. Probably the most striking feature of the fire, however, was its "campaign" nature, for it burned from August 19th to October 7th before being controlled. Other fires actually



During 1945 wild-fire swept over 75,368 acres of merchantable and young growth timber on privately owned forest lands under joint protection by industry and the Division of Forestry. The total acreage represents but 1 per cent of forest lands under private ownership.

burned into the Mill Creek Fire before favorable weather finally aided in bringing it under control. A total of 47,649 crew man-hours were extended on this fire, and 56 forest officers contributed many additional man-hours.

The Stovell Fire in San Diego County started on September 28, 1945. The cause of this fire was believed to have been a spark from a pump engine exhaust. A 10-mile an hour wind fanned the small flame across a county boundary reaching major proportions in Riverside County and destroying 44,470 acres of brush watershed and grassland before being placed under control on the seventh day. The forage and improvement loss totaled \$30,980 and more than 59,854 man-hours of labor were required to keep the fire from burning additional area. Fortunately nearby army camps supplied the bulk of the labor, and if this huge pool had not been available, results would have been even more disastrous.

The two major fires mentioned were not the most disastrous in terms of damage, but they do represent the persistent nature of large fires during critical fire weather periods.

Considering the fact that Mendocino County in our north coast area accounted for 41 per cent of all emergency fire suppression funds necessary to control fires in all parts of California, and 18 per cent of total acreage burned, it is well to describe local fire conditions leading to such results.

The weather factor should first be considered. Lightning was the cause of a number of fires in inaccessible areas during August and September when low humidities and high winds were prevalent. These unfavorable conditions created high fuel ignition and burning hazards. A high occurrence of lightning fires, coupled with fires resulting from illegal land clearance (incendiary) burns, kept the small State suppression crews extremely busy. To an already serious situation was added a major fire requiring trained overhead for the direction of large numbers of soldiers. Considering the heavy cover type Redwood, Douglas fir), the logging slash and the steep topography, it is easy to envisage the chaotic results of these and the above factors when operating together.



Repeated fires have wiped out the young growth in this virgin forest and have allowed inferior but dominant brush species to occupy the forest floor. On this area there will be a loss of many years of forest growth as it will take years before seedlings will again become established and finally dominate the encroaching brush.

During 1945 and in the other war years, the personnel problem was probably more acute in the Division of Forestry than it was in other governmental or private organizations. This year showed only 69 per cent of the budgeted manpower actually employed. The peak was reached at the end of July when 1,483 fire control personnel were on the job. In the previous year our peak figure was 1,730. The personnel turnover was about six to one, and during the month of August one out of every three men quit their jobs. Fire control personnel decreased by 492 men during August and thus set our total figure at 991 on the first of September. September and October are always a period of high fire hazard because of low humidities and increased wind velocities. Fire occurrence increases in these months, becoming harder to control because of weather conditions and necessitates the presence of well trained personnel to effect their suppression. It is just at this time that many of our firefighters, a large percentage being high school students, return to school, and others drift off because of the gruelling conditions of the job and seasonal employment. Consequently, when our need for men is greatest our manpower strength takes a tragic drop. During 1945 we found it impossible to hire personnel in the latter part of the season to meet our increasing needs.

As a supplement to our regular crews the Division had one new source of labor this year in the form of boys held in detention by the California Youth Authority, a division of our State Department of Corrections. Recent legislative appropriations provided for the Division's use of these boys for fire fighting and other outdoor work such as forest insect and disease control, road construction and maintenance, hazard reduction, etc. Under agreement with the Youth Authority Office the Division provides lodging for the boys in 50-man camps, directs the actual forestry work, and pays the Youth Authority \$3 per boy day for maintenance and camp operation. Supervisory personnel from the Youth Authority handle the custodial and housekeeping responsibilities of the camps. Throughout this fire season these camps, totaling 170 men, contributed a valuable force of striking power on many serious fires. Two of the camps, while not on wild-fires, were engaged in blister rust control work, and the third on construction and maintenance work. The program will be enlarged next year to include six permanent camps (one in cooperation with the California Adult Authority) housing approximately 250 juveniles and 50 convicts.

Because of the campaign nature of many of our 1945 fires, the Armed Forces were called on repeatedly for manpower. They cooperated wholeheartedly, and hundreds of service men and their equipment have operated on many of our fires. Other main sources of manpower used were the U. S. Forest Service and Bureau of Entomology blister rust crews, and State prisoners. It was often necessary to call on timber and sawmill operators to furnish a supply of labor. The California State Guard cooperated on a number of large fires by furnishing portable radio communications.

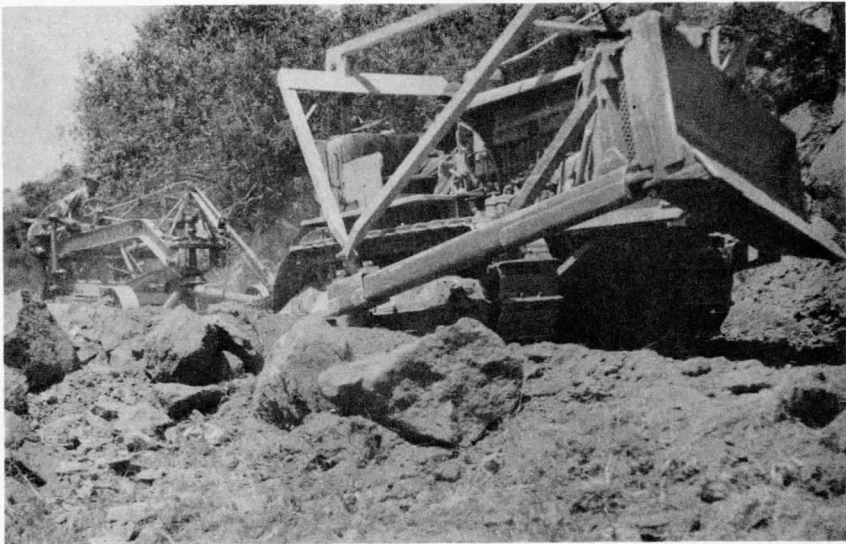
We hope that the manpower problem will be alleviated to some extent during the 1946 fire season because of the cessation of fighting and curtailment of war production.



## EQUIPMENT

The year, 1945, saw few additions to Division motorized equipment. Adequate maintenance was responsible for trucks, pickups and bulldozers lasting out another season. Unless many of our prewar vehicles can be replaced in 1946 we are going to face a serious shortage next year. Six jeeps, two pickups, an express and one station wagon were acquired during 1945 and Division personnel operated a total of 70 sedans, 28 station wagons, 105 pickups, 22 expresses, 72 stakesides, 402 fire trucks, 19 heavy trucks and 44 bulldozers.

A committee representing the various forestry agencies in California is studying military equipment to determine the types adaptable to forestry work. No published results are available, but it appears that several types of equipment can be used advantageously by forestry agencies. Jeeps or command cars should be valuable for scouting fires, carrying supplies and men, and for general duty around the fire line. Heavy military tractors and tractor transportation trucks have seen much service in Southern California, and have been very valuable in fire control work. Many military fire trucks have also been used successfully on forest fires in Southern California. Certain of the smaller type military rolling kitchens have been used on forest fires, and their mobility has made possible the feeding of fire truck crews and other fire fighters on the fire line. Water tank trucks of large capacities should prove useful in many areas. The military flame throwers are of short duration and must be changed before being used as back fire torches in fire control work. It is probable that the helicopter will see some use in transporting men and supplies to remote areas where a small landing space is available. Many other smaller items will find their place in forestry work.



Construction and maintenance was limited because of the war but important truck trails and firebreaks had to be maintained.

## **FIRE DETECTION AND COMMUNICATIONS**

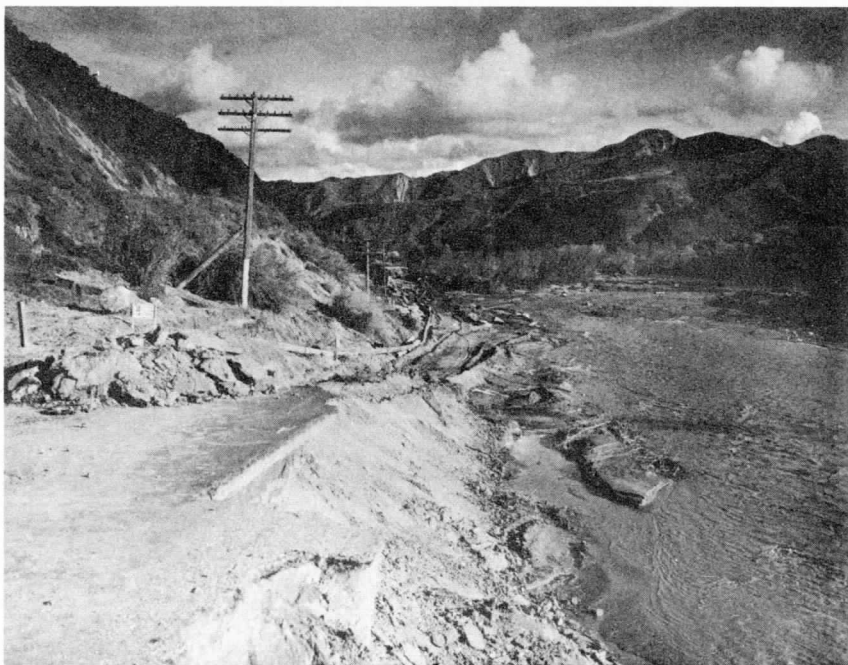
The "eyes" of the Division of Forestry's protective system are its 79 lookouts and a number of Forest Service Lookouts which overlook State protection areas. With new protection responsibilities on certain secondary watershed lands of the State more visibility coverage of present blind areas is required. To determine most adaptable sites for new locations a lookout survey was carried on during 1945 and will continue into 1946. When located, lookouts will be erected, as the 1945-47 budget covered the construction of six new ones. Basalt Peak in Merced County, Mikes Peak in Stanislaus County and Berryessa Peak in Yolo County have already been selected and lookouts are presently being activated. Further studies are being carried on in Monterey County, San Benito County and in the vicinity of the junction of Alameda, San Joaquin, and Stanislaus County.

To insure proper disposition and maximum utilization of our fire control forces during California's high hazard summer months of July, August and September, we have found an adequate radio network essential. Augmenting the Division's 1,968 miles of telephone lines connecting lookouts with permanent fire camps, ranger stations and commercial lines, there is operated the following medium and high frequency radio equipment: 3 (500 watt) fixed land stations, 28 (10-50 watt) portable units in a fixed location, 36 (10-50 watt) portable units, 80 (7½, 10 or 15 watt) portable-mobile units, and 82 (2¼ or 3 watt) S. P. F. forestry field sets. As in the case of other equipment, it has been impossible to obtain new radio materials. When available we will extend the operating range of our mobile units through the addition of at least four automatic mountain top repeater stations, located at strategic positions in the State. Our present budget also provides for replacing low powered portable units at Ranger Headquarters with higher powered equipment. To establish a complete network between our Sacramento Headquarters and our District Headquarters, we hope to install four new 500 watt stations during the coming year.

Limited experience with the handy-talkie Army type radio has shown it invaluable to efficient operation on the fire line. At present this type can not be used by the Division as it is not on a frequency allotted to our radio work. The manufacturer will undoubtedly have this situation corrected in 1946, and we hope to be able to efficiently use this type of communication facility.

## **MAINTENANCE AND CONSTRUCTION**

During 1945 the construction program was limited because of the war. However necessary repairs and small projects were completed. Costs were high because of the rise in prices and the increase in wages. One thousand, five hundred and fifty-nine miles of roads, 1,581 miles of telephone lines and 17 miles of firebreaks were maintained. New construction included one Ranger's residence and office, seven garages, seven crew barracks, 13 miles of truck trails, 30 miles of telephone lines, 59 miles of firebreaks and 476 miles of roadside clearing.



When fire destroys protective vegetative cover on mountain slopes rainwater runs rampant destroying soil productivity and structural developments in the valley areas below.

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