

# Use of Fire in Land Clearing

**controlled burns must be planned and organized to obtain effectiveness, safety and low cost**

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**Preparation and planning** for the application and confinement of a controlled burn take time.

Though planning and organizing are considered apart from selection and preparation, all these jobs are closely related. Poor area selection or inadequate preparation complicate planning and require use of more men and equipment on burn day.

Most actual physical preparation can be done during the winter before the burn, but measures to facilitate firing—such as reduced grazing to increase the volume of grass and other fine fuels near control lines—require earlier planning.

Responsibility for prefire planning should be in the hands of one man who has skill and judgment with fire—preferably the landowner—who should consult local, state or county fire control organizations for advice on specific location of lines and other preparations. This can be done at the time application is made for a fire permit.

## Burn Date and Manpower

In parts of California controlled burning usually can be done between December 1 and April 15 without a permit. Regardless of whether a permit is required there are fire laws applicable to all areas and liability for escapes and property damage rests with the person responsible for the burn.

Flexibility of plans is the keynote for achieving a good burn.

Unless the burn date can be canceled at the last moment if weather conditions are not right, the probability of obtaining an effective burn is greatly reduced.

Choosing a specific date in advance makes it easier to obtain manpower and equipment, to co-ordinate several burns within one general area, and to enable fire control organizations to plan standby services.

Another possibility is to choose a range of weather conditions—particularly humidity, temperature and wind limits—within which the burn will be conducted.

In this case, however, there is the possibility that manpower and equipment may not be so easily available—especially if many other burns are scheduled near the property.

Every controlled burn should be con-

*The third of five articles reporting the findings in investigations in the effectiveness, the safety and the cost of the use of controlled burning as a tool for land clearing. No attempt is made to provide one formula for prescribed burning in California; each fire is an individual case to be planned on the ground.*

ducted under direction of one individual—designated as fire-boss or fire-leader.

As in the prefire planning it is preferable that the fire-boss be the landowner—if qualified—because it is he who must assume financial responsibility.

A common mistake is to select the best fire fighter as the fire-boss, though he may not have administrative ability. Frequently such a man ends up with a fire tool in hand while the important tasks of directing the fire and the men involved are neglected.

On large fires, where it may be physically impossible for one man to direct all activities competently, the fire-boss delegates to assistants responsibility over some function or some part of the control line.

Assistants responsible for part of the line carry on the duties of the fire-boss—conducting the fire and directing crews

on their respective sections. Their place is on and about the control line directing work and co-ordinating it with other sections. Assistants who are responsible for food supply or water supply usually assume that function for the whole fire.

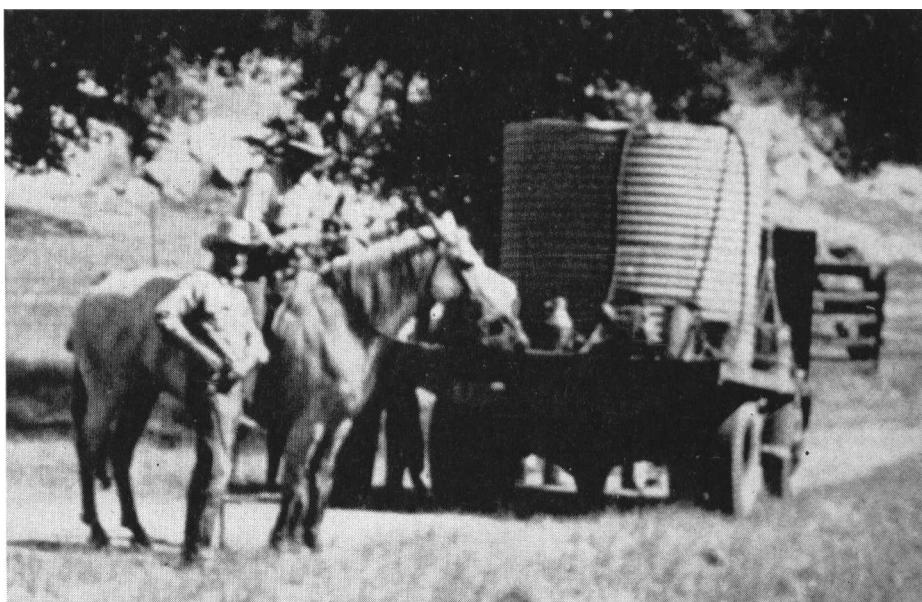
Recruitment and assignment of men to various tasks connected with controlled burning should be completed several weeks before the fire date.

Availability of manpower and equipment is affected by other controlled burns being conducted in the vicinity and by wild fires. In California, incidence of wild fires is highest during August and September. Standby assistance from organized fire control agencies is problematical at this time.

Under the fire-boss and his assistants are crews of men who perform the different functions of conducting the fire. The larger the fire the more specialized these functions become.

On large fires, the fire-boss, his assistants, and crew leaders should meet together a day or so early to review the fire plan. Individual tasks of crews and men should be defined so that each thoroughly understands his specific task and how it fits into the over-all plan in relation to tasks being carried on by other

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**A horse-mounted fire-boss with a crew member before a truck-mounted water supply tank.**

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crews and men. At this meeting the timing of the firing and the objectives to be reached at certain times of the day should be decided. A rough sketch map of the area, showing firing procedure and control lines, is helpful.

On small fires this briefing can be done early on the day of the burn.

The firing crew starts the fires according to prearranged schedules, so that lines are fired at the proper time and the entire area adequately burned.

Holding crews prevent slop-over of fire across control lines during and immediately after firing. They work behind, but in contact with, the firing crew.

The mop-up crew works with and behind the holding crews to extinguish old logs, stumps, and the like, or to burn out smoldering piles of debris near the line. This crew makes sure no fire will roll, spot or blow over the line.

Patrolmen periodically cover all control lines that have been fired and look for fire both inside and outside the lines. The organizational problem here is to keep patrolmen moving and to prevent their gathering into groups. Unless definite patrol limits are assigned in advance, some part of the control line may be neglected and escapes occur.

## Reserve Force

A standby reserve force—of men and equipment—is desirable in case of escapes or other emergencies, and as relief for fatigued men working on other crews.

Organized standby crews furnished by state or county fire control organizations sometimes are available in case of escape, but can not under state law function as relief crews or do any firing.

## Supplies and Equipment

Good planning provides adequate supplies of food and drinking water for the crews; fuel and lube oil for power equipment; replacements for broken tools; and, water for pumpers and spray outfits at all times.

**Fire crew for large controlled burn. Note jeep for the transportation of the fire-boss, the horse-mounted crew bosses and the trucks for the transportation of supplies and men. Each man has suitable equipment for the task assigned him.**

The kind and amount of equipment will vary with accessibility and terrain of the area, and availability of the needed equipment.

Each crew member should be equipped with a tool adapted to the function he is to fulfill. Prefire planning will indicate what tools individuals should bring in cases where a central tool supply is not established.

On larger burns an organized transportation system is essential. Horses or jeeps should be available to the fire-boss and his assistants. Any transportation to the control line increases the effectiveness of the men when they get there. Vehicles capable of covering most of the control line should be provided for supply purposes.

Some transportation should be held in reserve to move men and equipment quickly in case of escapes.

## Communications

Communication is one of the most critical aspects of conducting a controlled burn. Its importance increases with the size of the fire. Co-ordination of firing, movement of crews from one part of the line to another, quick and certain action on escapes can be handled efficiently only if communications are rapid and certain.

Walky-talky radio—if available—for the fire-boss and his assistants is the best means of communication assuring quick action.

Portable field telephones can provide communications from one side of a fire to the other.

All directions and orders from the fire-boss—particularly instructions to modify firing schedules or to move men or equipment—that are not given directly, should be written.

## The Final Decision

Weather conditions, assignments of manpower, and adequacies of supplies and equipment should be evaluated carefully just before the fire is started.

It is better to postpone or to cancel a

burn if weather conditions are too hazardous or if they are such that an effective burn can not be made. Making the decision to cancel or postpone a burn under unfavorable conditions is as important as the decision to burn.

## Postfire Tasks

Postfire responsibilities are not discharged until the fire is completely extinguished. Time for withdrawal of mop-up and patrol crews can not be set until all fire is completely out. These crews may, of necessity, remain on the job several hours or even days after the major portion of burning is completed.

The magnitude of planning and organizing tasks in controlled burning multiplies with increase in fire size. Complexities of supply, transportation and communication are particularly difficult for large fires of several thousand acres.

Since effectiveness and safety of controlled burns are largely determined by weather conditions—once the burn area has been laid out and prepared—the flexibility of a small organization pays dividends.

In communities and counties where controlled burning or range improvement committees co-ordinate several planned fires and help in conducting large burns, the landowner considering a controlled burn should avail himself of the experience represented by the members of such committees.

(To be continued)

*Part IV, "Managing the Fire—How, When, Where of Ignition," will be published in June. The fifth and last section will be published in July.*

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