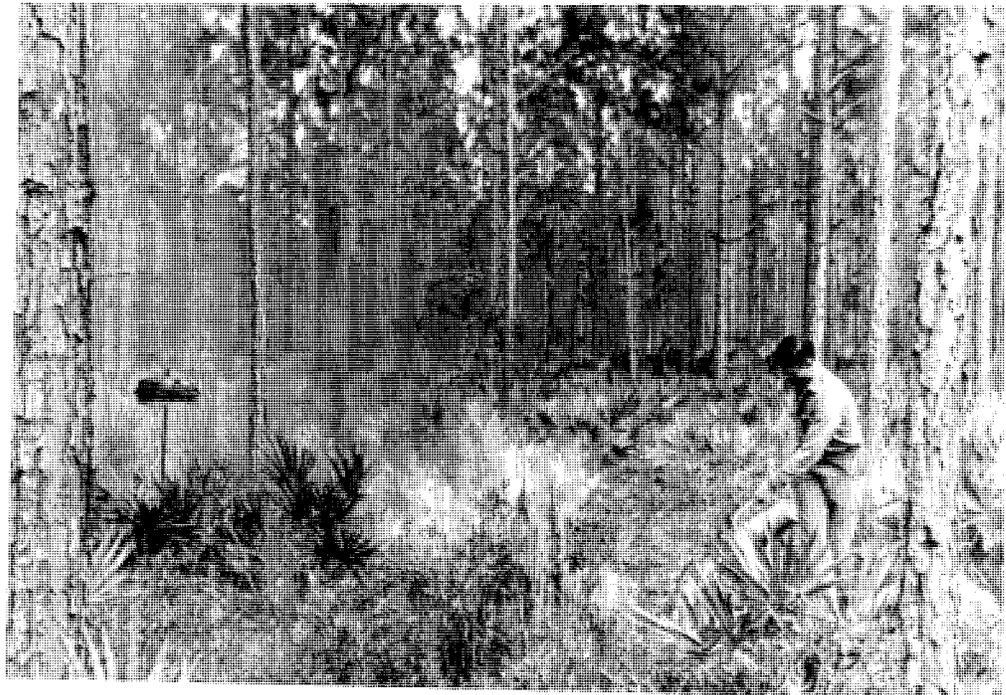


FIG. 1. Simulation exercises in the use of prescribed fire, first evaluated at the Forest Service Research Seminars in 1966, proved to be an excellent method for quick, inexpensive, and realistic training. U. S. Forest Service photo.

FIG. 2. The Research Seminars provided instruction on firing procedures and associated time-temperature relationships. U. S. Forest Service photo.



Training Through Prescribed Fire Seminars

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TRAINING HAS always played an important role in the Forest Service's overall management program. In most instances, this training effort is extended to interested state and private agencies as well as to employees within the Forest Service organization. Training personnel in the control and use of fire is not an easy task; it is, in fact, one of the most difficult because classroom training generally falls short of the mark. As a result, fire specialists have in the past had to learn their trade the hard way; generally this required many years of experience and some costly mistakes.

Fire control training is as old as the Forest Service itself. Many small-scale field exercises, fire case histories, and research developments have helped to bring us to our present state of knowledge and readiness. About 10 years ago, the Forest Service embarked on a nationwide program of Fire Behavior training that proved very fruitful. Yet it lacked some of the field experience that is so necessary to produce the well-rounded fire control officer. Assignments to districts known for their heavy fire loads helped bridge this gap, but again the factor of time and the number of available positions proved to be critical limitations. In 1962, the Forest Service developed

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its first Fire Control Simulator to teach firefighters strategy and tactics. Since then, our training effort involving fire has been in high gear, and the results have been well worth the effort.

The use of fire as a management tool and as a means of reducing hazardous fuels in forested areas gained impetus in the 30's and 40's. There is little doubt but that prescribed burning as we know it today was born here in the South; it was nurtured in the many millions of acres of productive pineland; and it has matured into one of our most useful management devices. But its growth and development were pitted with many a stump hole. Much of the early use of fire in the Southland was promiscuous and without regard to property lines, strict control, and the many other requirements of a true prescription. Some land managers couldn't see the forest because of the trees; they realized the immediate benefits of fire applications in the light of their own specific objectives without a real appreciation of the long-range effects and the problems of control beyond their boundaries. Foresters were confronted with the problem of getting across the idea that fire could be both good and evil, depending on just where, when, and how it was applied. A sound fire prescription implies—"the application of fire to land under such conditions of weather, soil moisture, time of day, and other factors that will allow confinement of the fire to a predetermined area and at the same time produce the intensity of heat and rate of spread required to accomplish certain planned benefits to one or more objectives."

Much was to be learned from the experience of the oldtimers. Techniques and specifications were developed through research, trial and error, and operational burns in a variety of fuel, weather, and topographic situations. The prescribed burner gained recognition as a specialist in his field, and greater use was made of fire to accomplish a greater number of forest management objectives. Forest acreage exposed to a fire treatment of one kind or another has increased steadily during the past 20 years. In the South, more than 2¼ million acres of pine type were burned by prescription in 1964. Someone has estimated that perhaps a future annual burning program of 8 million acres for this geographic area is not unreasonable. In the West, where fire has been used primarily for purposes of slash disposal, prescription burning for seedbed preparation, type conversion, and other

management objectives is gaining favor steadily. With this present growth and acceptance of fire as an economical and effective management tool, it is evident that we must strive even more for its use as a true prescription. One of the requisites is undoubtedly an adequate supply of trained personnel.

Prescribed burning has oftentimes been considered more of an art than a science. Yet we're learning that it's an art that is closely tied in with scientific disciplines and consequently can be transmitted from one individual to another. In recent years, the Forest Service has embarked on a program of Research Seminars designed to carry latest research findings to practitioners. Our most recent and probably most timely seminar, in light of need and demand, was on Prescribed Fire. In cooperation with experienced prescribed burners from industry, state agencies, and other branches of the Forest Service, the three Forest Fire Laboratories organized and carried out a research seminar in 1966 designed to satisfy this need. The seminar had two main objectives: (1) To instruct land management personnel in the wise use of prescribed fire, emphasizing the advantages and limitations of this practice; and (2) To equip participants with technical information and material to train their own personnel in the use of fire as a management tool.

Participation was by invitation, and included practitioners, teachers, consultants, researchers, supervisors, and others interested in forestry and the role of prescribed fire. Sessions were conducted at each of the Fire Laboratories, attracting a total of 232 trainees. The program encompassed all phases of a prescribed burning operation from a discussion of basic principles and diagnosis through the various aspects of planning, preparing, executing, and evaluating a specific fire. In an attempt to bring realism into the classroom, we decided to follow up the discussions with simulated prescribed fire exercises, and at the Macon seminars the Fire Control Simulator played a vital role in achieving this practical approach. It proved to be a high point in the training effort. At the conclusion of the seminar, the participants were given a working manual containing lesson plans, reference material, and a series of training slides to be used in conducting prescribed fire workshops of their own. From all indications, the seminar helped considerably in disseminating research findings and

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in providing the students with the most up-to-date information on the proper use of fire as a forest management tool.

Understanding fire behavior and its effect on the forest complex is the key to successful fire prescriptions. To understand and predict fire behavior, however, requires fundamental knowledge of fuels, weather, and topography and their combined influence on the entire combustion process. A concerted and continuing research effort in this behalf offers the best probability for a speedy solution to this problem.

Because of the differences in fuels, weather, topography, and even economic and social implications in various parts of the country, the specific problems that confront the researcher and the training officer in each region are sometimes rather detached. The national seminars helped to identify these areas of contention and provided an occasion to discuss mutual challenges and their possible solution. For example, in the Northwest, where heavy fuel accumulations create hazardous fire situations and impede satisfactory regeneration, ignition techniques and procedures are of vital concern. Considerable research is underway that involves remote ignition devices, an area of investigation that has created little interest here in the South. Yet it may be an area that would open new horizons in the use of fire sets to stop or break up the advance of raging wildfires in our Coastal Plains. The volume of wood material remaining after a logging operation is astounding to those of us from the East—our pulpwooders would give a pretty penny to have a problem like this. Weather factors, particularly rainfall patterns, are vital considerations in planning and preparing for slash disposal operations. The heavy fuel is conditioned during the normally dry summer months, but late summer rains are counted on to reduce the risk in timbered areas surrounding cutovers before burning begins. Drying conditions follow, quite rapidly in the slash that usually retains only surface moisture easily evaporated in the open, sunny areas, but rather slowly in the shaded, forested portions of the block. As a consequence, fall burning is the general rule in the Northwest.

In California and parts of the Southwest, where brushlands cover the landscape, prescribed burning takes on a new hue. The nature of these fuels is such that they're normally either non-combustible or

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explosive, with very little in between. The answer, therefore, from the standpoint of fire use, appears to involve some form of fuel modification—a practice that is being adopted rather extensively throughout the region. Costs are necessarily high, but in steep terrain, where watershed values rate high priority, fire treatments undoubtedly have less effect on the site than mechanized operations.

Yes, fire used in the right way, at the proper time, and in the appropriate place, can accomplish a multitude of forest management objectives. Applied carelessly, it can inflict considerable damage. We have learned some of the secrets of this great force and our research efforts are being directed to discover more. Research seminars provide a medium through which we can extend findings and know-how to the field. In addition, as was the case in our recent Prescribed Fire Seminar, we can learn from one another as we observe the problems and practices beyond our immediate domain. Being national in scope, the training offered an excellent opportunity for this type of exchange.

We hope that this incipient effort will serve as a catalyst for additional instructional sessions in localized parts of the country. In this way, prescribed fire should eventually become a more useful and diversified instrument of management. Additional research seminars dealing with other aspects of fire are in the making and will be designed to satisfy the needs of resource managers.