

Forestland Fire: Industry's Enemy and Management Ally

HAROLD E. HARTMAN

HALF a century ago pioneer forester Col. William B. Greeley, who served in both public and private forestry in the Northwest, declared that forest protection is 75 percent of forestry. With massive insect infestations and ever increasing people risks, that statement is probably more true today than it was in Col. Greeley's time, and fire prevention is the major thrust of forest protection efforts. In fact, one of the most successful public relations efforts on record was the one launched in the early 1940's by public and private forestry groups to convince an indifferent public that it is in its best interests to prevent forest fires. As a result losses from man-caused fires have been reduced nearly 600 percent over what they were just a few decades ago—and the record keeps improving. Historically, the financial burden for such protection has been borne by the private landowner. Close to 60 percent of the dollars spent in Oregon and Washington for fire protection programs on state and private lands comes directly from assessments and/or outlays by private landowners. This amounted to over \$4.6 million in 1972 in Washington alone. That's a strong indication of the importance which the private sector puts on forest fire prevention.

But controlled fire or prescribed burning has a very important place in forest management activities—particularly with regard to slash disposal. It seems paradoxical, perhaps, that the traditional nemesis of the forest can also serve, under the proper conditions,

HAROLD E. HARTMAN

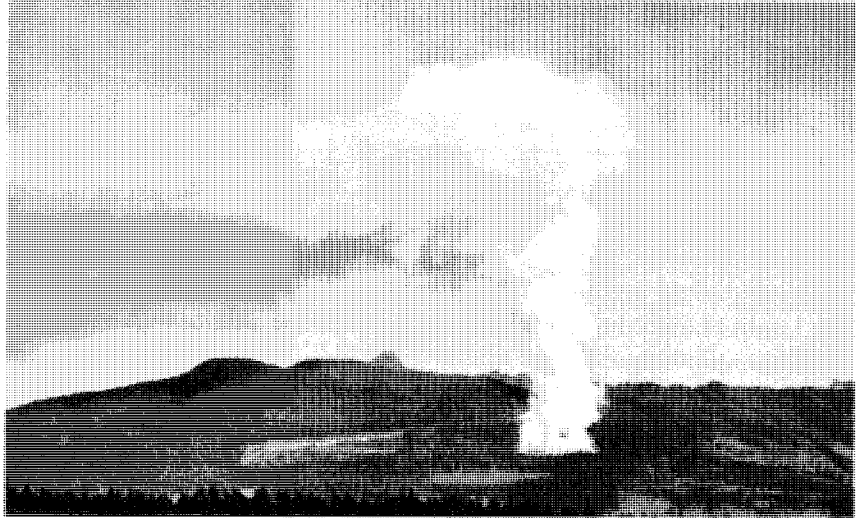


Fig. 1. MANAGEMENT ALLY: A well vented smoke column from a slash burn in the Northwest conducted under a smoke management plan.



Fig. 2. THE ENEMY: A large wildfire showing poor initial venting to upper atmosphere with attendant low level dispersal of smoke particulates, causing additional fire hazard, poor visibility, and possible health problems.

to protect. To a public indoctrinated by Smokey Bear and the fire prevention information surrounding the long-standing and extremely successful campaign to end carelessness with fire, it's difficult to sell prescribed burning. And in fact, there is some disagreement in industry as to when or whether to burn. Even more important, the public's heightened consciousness of air quality has made the mere hint of smoke on the horizon the trigger for launching yet another tirade against the evils of industrial pollution.

Interestingly enough, it was the need to reduce fire hazards in the woods that resulted in prescribed burning. Both public and private forest interests realized that the intense slash build-up from early logging operations was an extreme fire hazard. To abate the hazard, landowners began to use controlled burning as a tool for disposing of slash. As the need for artificial regeneration became widely recognized, the slash disposal program assumed a new dimension: the reduction of physical impediments to artificial seeding and seedling planting.

The use of fire as a tool in forest management has been embraced by some as a cure-all for the evils of slash and by others as a detriment to successful reforestation. In the beginning, the use of fire for hazard abatement resulted in some controlled fires which became quite uncontrolled. Various theories support spring burning, while others propose fall burning. Experience provided increasing incidences of adverse fire weather at varying times of the year. This climatic variability, in conjunction with the region's widely diverse physical conditions, has evolved an industry position for use of fire as a management tool. That position is: the ultimate decision to burn or not to burn must be made on a case-by-case basis by experienced foresters. Prescribed burning in regeneration efforts is well established on many deep soils and lesser slopes. Here, fires generally do less damage and usually will not render the soils unstable or temporarily sterile. However, some areas are characterized by steep slopes and/or very shallow soils. These sites may be harmed even by a light burn. Another important consideration in the prescription of fire is the method of regeneration. For areas well suited for selective harvesting and where natural regeneration has already begun, excluding fire may be the best procedure.

HAROLD E. HARTMAN

Recent years have brought an awakening of the public to the environment all around us. One very important aspect of that environment is the air.

To the uninformed observer, the smoke coming from prescribed burns throughout the year might appear to be a gross intrusion on air quality. Experienced foresters of the Northwest know the possibility of uncontrolled fires sweeping through this debris is not a valid trade-off for the temporary and generally controlled effects of prescribed fire. Industry, in conjunction with state agencies, has tackled this aspect of air quality with the establishment of cooperative smoke management programs. These programs in both Oregon and Washington have become integral parts of all slash burning projects. I believe it is fair to say that these smoke management programs, using the latest scientific data regarding climatic conditions and potential dispersion characteristics have been very successful in minimizing detrimental effects on the air quality of the region.

In point of fact, a recent release by Chairman Robert Matthews states that in Washington to date in 1974 over 455 slash fires have been conducted on 17,500 acres and only two incidents of adverse effects have surfaced. I believe this is an excellent record of private and public cooperation benefiting all of us from a total environmental standpoint. We have successfully eliminated a hazard and provided for more successful regeneration, while safeguarding the environment we all enjoy.

The science of forestry, and the portion of that science involved with prescribed burning, is a constantly changing arena. As utilization standards change and more slash and formerly unutilizable material become studs, paper and particleboard, the need for fire to abate slash hazard and impediments to regeneration will surely decline. It is reasonable to predict, however, that fire necessarily must remain a tool in the forester's black box. Recent innovations in concentrated fire, in the form of air curtain destructors, present interesting possibilities for further reducing air quality effects. Again, this specific tool must be evaluated on a case-by-case basis; size and lack of mobility limit universal application of this equipment.

Another interesting possibility for use of fire in future forest man-

agement activities is presented with recent experiments in site conversion as shown in this short film strip of a 300-acre prescribed fire utilizing a modification of the relatively new concept of mass ignition.

Many cut-over areas, due to past slash accumulation, lack of seed sources, shortages of seedlings, or many other causes have quickly revegetated in thick brush. Some of these areas are capable of being managed with herbicides. Many are so thick that even spraying provides little relief and reforestation is virtually impossible. Here, as in the film you just saw, fire could be used as an effective tool in brushland reclamation.

So you can see there is a continuing need for fire as a modern forestry tool. Use of fire in forest management is at times very controversial within all segments of forestry, both private and public. However, the fact remains many protection and silvicultural objectives, including the most recent experiments with brushland conversion, which could not be attained economically by any other means, are being achieved through proper use of fire. I am convinced that forest management science still holds many untapped means for more fully using fire as an effective and continuing tool in furthering forest management objectives.

Fire has been regarded as the traditional enemy of the forest, and with good reason. Early in this century, a major fire just across the Columbia from where we sit today covered over 200,000 acres near the small community of Yacolt, Washington. This fire marked the beginning of a 5-year epidemic of forest fires in the Pacific Northwest which was instrumental in convincing private landowners of the need for concerted efforts to diminish the loss of life and property caused by fires.

The early 1900's in the Northwest was a period of vigorous growth, development, expanded building, and land clearing by settlers for farms. All of this increased the risk of man-caused fires. In addition, the forests then being cut possessed massive potential for slash accumulation. Most of the timber harvested was used for sawlogs. Smaller material—which in today's market would be considered sawlogs—was left in the woods. During WWI the accumulation increased as the forest industry geared up for a national emergency.

This combination of increased fuel loading and more people in the woods created a massive potential for destruction.

State and Federal forestry organizations were in their genesis at this time. But luckily some individual private landowners recognized the danger and began to initiate programs of their own, patrolling forest land and educating the public on the need for care with fire in the forest. State and Federal programs commenced shortly following these private initiatives, but funding was extremely slow. The Washington Forest Fire Association, created in 1907, and similar groups in Oregon and other states continued to play an indispensable role, even supplying funds when state appropriations fell short.

The initial protection efforts were oriented to the mature timber which had the greatest current value. Little consideration was given to cut-over lands except as they represented hazards to the green and valuable old-growth.

It was not until the 1920's that interest in protecting cut-over lands surfaced. In 1923, Washington Forest Fire Association records indicate that money was first expended with the sole idea of keeping fire out of young growth which had regenerated naturally on logged-over lands.

Eighty-nine percent of the cost of forest protection at this time was being met by private interests. In addition to this outlay, the private forest owner had to carry 100 percent of the risk of loss.

The first real help came with the passage of the landmark Clarke-McNary Act of 1924, which established a formula by which the cost of protection and suppression was shared—25 percent from the state, matched by 25 percent from Federal and the remaining 50 percent provided by the private landowner.

Industry, despite the monumental outlays it provided for protection, still had to police its own land. The need for care by operators working in high fire danger areas brought industry-sponsored programs to abate risks caused by men and machines in the woods. In conjunction with these programs research soon made apparent the relationship of weather and fire danger. Initial efforts to persuade operators that working during high-risk fire weather was an invitation to disaster were met with much skepticism.

Logging shutdowns due to adverse fire danger were initiated in

1934. A committee of industry representatives was set up to authorize any shutdown order put forth by a state forester. This industry support of the program was the major factor in a successful trial year. This was the beginning of fire prevention-risk reduction action which is still in use and supported today.

Industry's continuing support and commitment to forest fire protection can be seen by looking closer at the amount spent in 1972. The figures are the result of a survey of forest landowners of the state of Washington. A similar survey is in progress for Oregon. The Oregon figures will reflect similar relationships of the private sector's investment in fire protection. The Washington figures were probably conservative even in 1972 since any equipment and manpower money outlays primarily for log production were not included even if they occasionally were used in fire protection work. Of this \$4.6 million, about \$780,000 represented forest protection assessments going to the DNR Fire Control Division; \$345,000 represents industry's share of unbudgeted emergency suppression costs. This leaves clearly \$3½ million for additional private programs. This money goes for fire patrols, watchmen, crews, equipment, helicopters, protection road maintenance and a host of other recurring costs.

Yes, fire certainly represents a substantial enemy to the productivity of America's forestland, both private and public. The industry remains committed to a never ending fight to minimize fire's growth robbing, soil sterilizing aspects. However, fire's forceful powers can and are beneficial if used wisely, and industry will continue to participate in development of new and improved uses of the magic and force inherent in fire.