Success and Failure of Prescribed Fire in the North Central Interior

by
S.J. Muraro
Baseline Prescriptions Ltd.
Prince George, B.C.

This paper deals with reasons why broadcast burning, a relatively new technique in the Interior, has in a short period matured to be a sophisticated and efficient site preparation tool. Advances in hardware, techniques and guidelines for defining both purpose and timing of broadcast burns did not materialize until the lack of these tools was recognized as an obstacle to intelligent fire use in Interior forests. Interior broadcast burning posed an entirely new and different dimension of problems than had been encountered on the Coast.

Broadcast fire was virtually unknown in the Interior until the early 1960s, except for isolated instances in the Enderby and Lumby areas. In 1967 Section 116 of the *Forest Act* was extended to the Interior, which empowered the Forest Service to instruct licensees to broadcast burn logging residue for the purpose of hazard abatement. Many strictly silvicultural burns rode on the broad back of hazard abatement in this period. At this time the Forest Service adopted a strong leadership role, encouraging a reluctant industry. Because the Forest Service was responsible for treating some tenures, expertise was developed rapidly. Figure 1 shows the growth of broadcast fire use in the Sub-Boreal Spruce zone of the Cariboo, Prince George and Prince Rupert regions. Of greater relevance to this discussion is the curve at the bottom of the figure showing annual broadcast burn areas for the Prince George Region alone, including all zones.

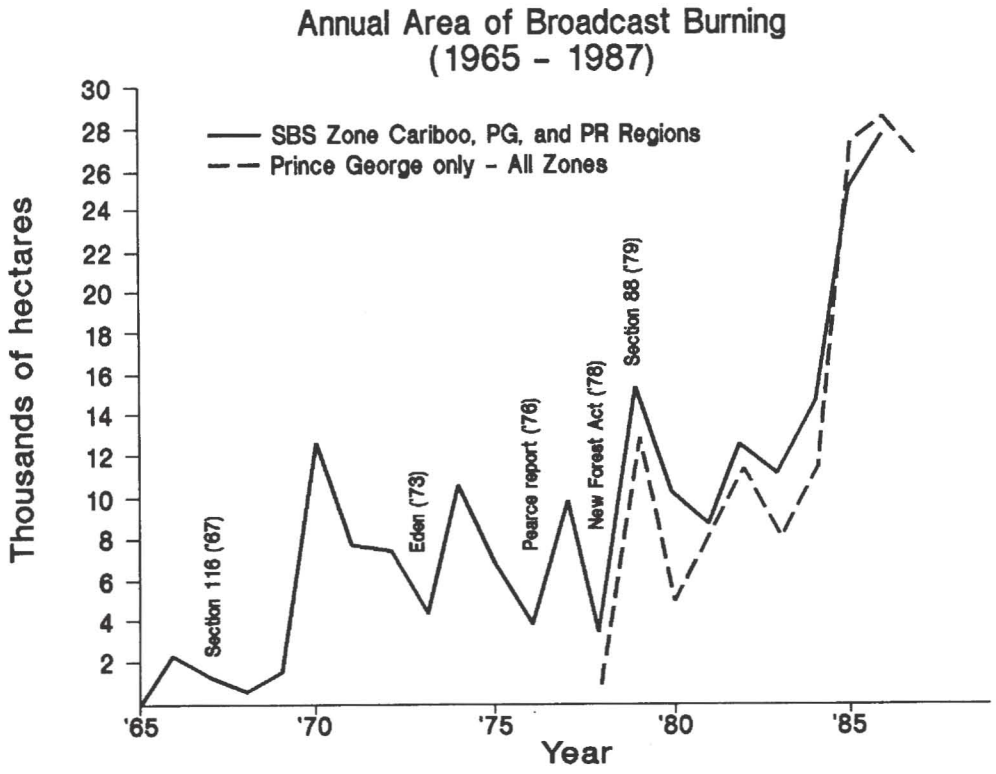

FIGURE 1. Annual area of broadcast burning - 1965-1987.

The success story of broadcast burning in the Interior is the changed attitude of land managers regarding its use and its resultant widespread application. Fortuitously, the ingredients required to make this happen came together throughout a twenty-year period:

1. development of efficient ignition techniques and the hardware required to put fire when and where required;
2. guidelines for developing prescriptions and relating fire impact to weather variables;
3. an aggressive "get the job done" attitude among line people; and
4. financial inducements provided by government policy.

DEVELOPMENT OF IGNITION TECHNIQUES AND HARDWARE

Interior fire use required a greater variety of ignition techniques, organization and hardware to cope with Interior blocks. Large openings with little relief and different types and arrangements of slash fuels required more ignition personnel lighting in more hazardous burning conditions and in more vulnerable areas to achieve desired impacts. In addition, central or walking convection columns were required to maintain control, together with machine guards to contain creeping groundfire. Interior stand characteristics providing abundant ladder fuels with intense drying on exposed forest floors precluded the use of fuel moisture differentials between slash and stand to maintain control.

To obtain ignition within the block, large numbers of personnel walked through the block with hand drip torches. The spectre of wind change, disorientation or a crippling fall required radio communication and a strong buddy system to avoid disaster.

Various efforts at achieving ignition in block interiors culminated in the prototype helitorch, developed by Northwood and the Canadian Forestry Service in 1973 and since refined in safety, versatility and efficiency. The AIDS dispenser, modified from an Australian system to be used primarily for underburning and habitat burns, rounded out the arsenal of aerial ignition hardware.

GUIDELINES AND BURNING PRESCRIPTIONS

Handbooks on prescribing broadcast burning and guidelines offering advice on how, what and when to burn were developed. Simultaneously, the Canadian Fire Danger Rating System was developed using a modular approach that would provide flexibility and the ability to use individual components of the system together or separately for a variety of purposes. The prescribed fire predictor applied the moisture codes to predict prescribed fire characteristics. The establishment of Environment Canada fire weather forecasters in regional offices provided forecasts for prescribed burning as well as other protection needs. Recently, economical telemetering stations have been developed by FTS Victoria.

ATTITUDE OF LINE PEOPLE

The prescribed fire achievements of the last decade would not have occurred were it not for the attitude of the people involved. The line people of both the Ministry and corporations were quick to respond to the challenges of prescribed fire, often without the wholehearted support of their superiors. Those that were staunch of heart and lucky prevailed, and today those people are in higher places with a healthier respect for fire and a great deal more support for their juniors.

FINANCIAL INDUCEMENTS

The last and in some ways most important ingredient contributing to today's success of fire as a site preparation tool was the financial coercion provided by Section 88 of the *Forest Act*, introduced for at least some activities in 1979. The convincing power of this funding was that it adequately covered both expected and unexpected costs but was coupled with stiff assessments for not treating. This carrot-and-club approach

was most convincing to corporate boardrooms and relieved line personnel of pressure. Prior to Section 88, the costs of prescribed fire were costed via the appraisal. Licensees who burned were forever complaining that actual costs exceeded allowances, probably true in adverse situations. Those licensees who did not burn paid relatively light assessments but in general gained by the stumpage allowance and would make only token efforts at treatment.

Although Section 88 would pay the costs, the job still had to be done before credits were granted, unlike the appraisal allowance which initiated reimbursement for site treatment with the first log removed. Both methods, however, shared the common fault of encouraging token treatments. Only after the positive effects of good burns on tree growth were realized did more progressive agencies emphasize achievement rather than attempt.

This article was to present the two aspects of success and failure of fire use. As far as I am concerned there were no failures. However, there were unfulfilled opportunities. Some of those opportunities that we failed to exploit in the past have become the challenges of the future.

The abolition of Section 88 funding and the return to the appraisal allowance for basic silviculture, including site preparation, places the responsibility on the Land Manager to get the best value for the dollar spent. This means burning to obtain the proper impact, planting the best stock and an overall increase in efficiency of silvicultural operations. At the same time, the very near future is presenting the spectre of smoke management, instigated by public concern. When this happens, we will have to be more aggressive in distributing burning load more equally through the summer to take advantage of faster, better-ventilated burns. We will not be allowed to overload the airshed in periods of marginal burning and poor ventilation indices that generally accompany fall drying regimes. Mop-up procedures for all burns will have to be more complete and quicker to reduce residual smoke. The not-too-distant future will also entail a greater number of smaller blocks in more difficult terrain. We will have to use new tools such as foam and expanded water systems, together with all of the burning opportunities available. A return to smaller blocks with their associated cost constraints will re-establish the usefulness of hand and pre-laid ignition systems and will reinstate after-dark ignition.

An open-minded, flexible approach will be the best guarantee of maintaining broadcast fire as a cost-effective silvicultural tool. An informed, vigilant attitude will maintain a favourable public attitude that will allow future use.