Comparison of Clearing-saw Cutting Attachments for Weeding Young Conifer Plantations - FRDA Report 028

In June 1987, Sylv Holmsen of the Forest Engineering Research Institute of Canada (FERIC) and Roger Whitehead of the Canadian Forestry Service, Pacific Forestry Centre (PFC) established a trial in the West Kootenay Region of British Columbia to evaluate clearing-saw treatments for weeding young conifer plantations.

Major objectives of the first phase of the study were:

1. to estimate the overall productivity, cost and accidental crop damage levels which can be expected when weeding shrub-dominated coniferous plantations with clearing saws; and

2. to compare the productivity and performance of three clearing-saw cutting attachments.

FERIC conducted productivity assessments of three cutting attachments for Husqvarna clearing saws: the MAXI 200/255, MULTI 300 and MULTI 255-4.

FRDA Report 028 covers the activities and results of this phase. In Phase II, growth responses of crop seedlings and major competing brush species will be evaluated over a 5-year post-treatment period on the same site. Comparisons will be made between untreated plots, plots brushed only once and plots brushed on an annual basis.

Prior to treatment, vegetation on the site consisted of numerous shrub and herbaceous species varying in size and distribution. Beaked hazelnut, Douglas maple, ceanothus, ocean-spray, thimbleberry and fireweed were some of the common species. Portions of the area had been planted one to five years previously with a variety of coniferous species. Forty percent of all sampled seedlings were overtapped by competing vegetation. Only 13% had leaders projecting above the competition.

The Husqvarna 244RX clearing saw, a 44 cc professional model, was chosen for the study based on the vegetation on the site (Figure 1). The MAXI 200/225 is the standard circular blade for woody vegetation and the MULTI 300 and Multi 255-4 blades are designed for herbaceous and shrub species (Figure 2).

The overall productivity for the study was 0.025 ha/productive hour (PH), or 0.162 ha/manday. The MULTI 300 had the highest productivity on the study site, however, in areas of woody vegetation its use is limited to diameters less than 25 cm. The productivity for this blade was 0.032 ha/PH. The

FIGURE 1. Diagram of operator with harness and saw adjusted for clearing

costs for the study ranged from $600 to $850 per hectare for the contract crew based on an owning and operating cost of $15.40/hour. Factors influencing productivity in this study were site characteristics, weather, operator experience and availability of spare saws.

Damage to the seedlings was assessed and summarized by PFC. Damage ranged from 9% of seedlings with leaders projecting above vegetation to 25% of seedlings that were overtopped. Overtopped seedlings or seedlings at the same height as the non-crop vegetation experienced the highest damage levels. Overall damage was assessed at 19.5% of the seedlings examined. PFC will monitor the vegetation response on the site and undertake repeat treatments during the remainder of the study's three-year term.

Copies of this 21 page report, *Comparison of clearing-saw cutting attachments for weeding young conifer plantations* by Sylvi D. Holmsen and Roger J. Whitehead, are available while supplies last, from:

Canadian Forestry Service
Pacific Forestry Centre
506 West Burnside Road
Victoria, V8Z 1M5

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