

PREDICTING OUTCOMES

Newsletter from the Stand Tending Unit, BC Ministry of Forests, Forest Practices Branch

MARCH, 2000

Editor's Note

This is the fourth in a series of newsletters about the activities of the Stand Tending Unit, Forest Practices Branch, BC Ministry of Forests. Although the Stand Tending Unit is involved in many activities, this series of newsletters has focused on a single theme—predicting outcomes of stand-tending treatments.

I hope you have enjoyed the brief, informal articles in this newsletter series. This fourth newsletter is the final quarterly issue. Subsequent issues will be produced periodically if time and resources permit.

If you have any comments on anything you read in this newsletter, please contact me.

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Cooperative Projects Stand Tending and Non-timber Resource Values

Stand tending activities such as pruning, spacing, and fertilisation influence the development of both crop trees and non-timber resources. The Stand Tending Unit is a co-operator on a number of projects that are investigating the impact of stand tending on non-timber resource values. Dr. Tom Sullivan of the Applied Mammal Research Institute is the project leader on one of these projects. Riverside Forest Products Ltd., Gorman Brothers Lumber Ltd., and the Alex Fraser Research forest are the co-operators. The following article briefly summarizes some of Dr. Sullivan's results to date. To learn more about this study, or to arrange a guided tour of the field site, contact Dr. Tom Sullivan (250-494-7160) or Ralph Winter (250-387-8906).

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Background

This study has research installations located in young (16-18 years old) lodgepole pine stands at three sites: Summerland, Kelowna, and Williams Lake. At each site, lodgepole pine has been spaced to 250, 500, 1000, and 2000 trees per hectare in large operational blocks. One-half of each spaced area has been repeatedly fertilised to create an optimum nutrition treatment.

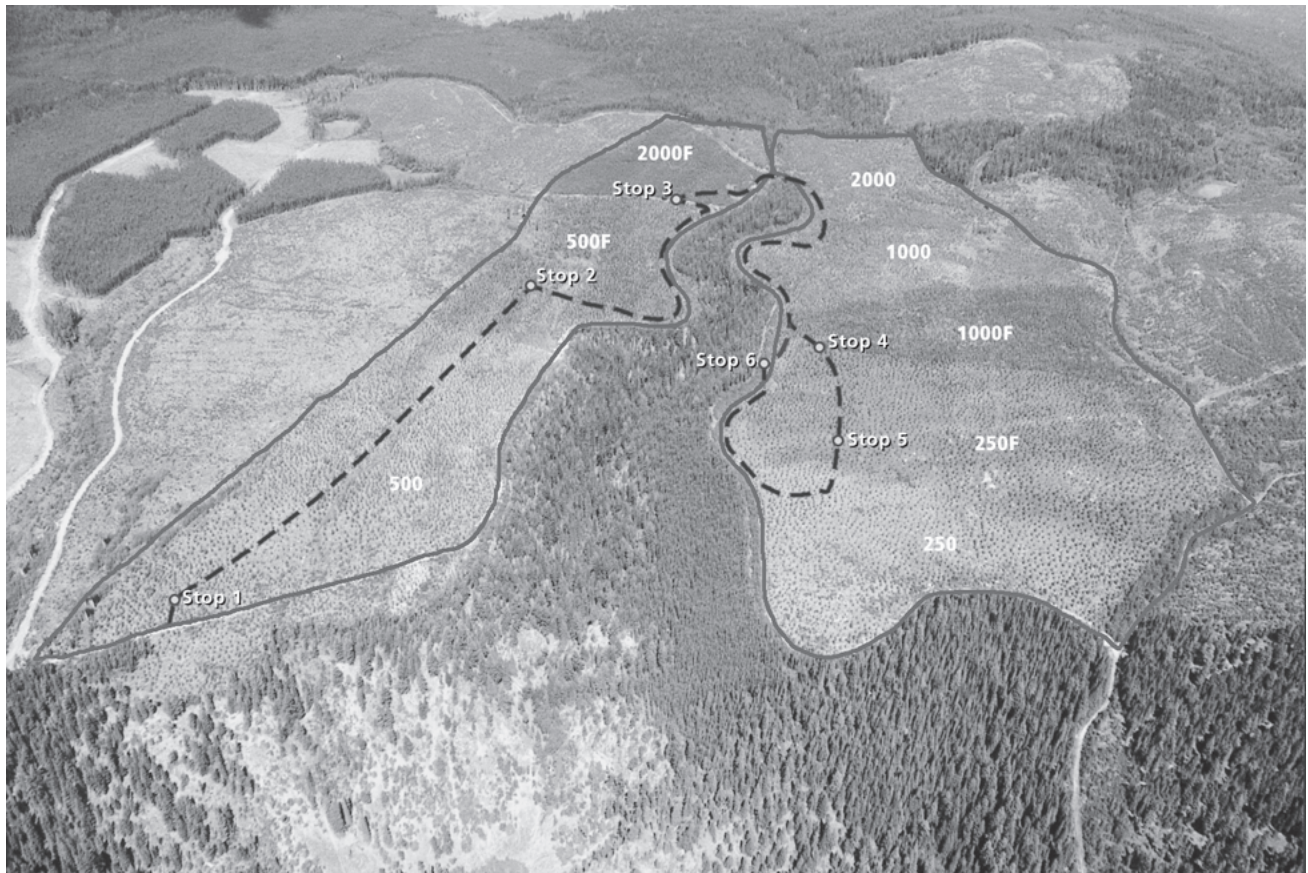
Results to date

In the low-density stands, biomass of understorey vegetation, habitat structure of the understorey, herb volume, and overall structural diversity is building. Shrub volume may also be responding, but this process takes time; its effects should become substantial in the next few years. To date, neither stand thinning nor fertilisation has affected the

richness of plant species. Nor have measurements of plant species diversity shown any consistent trends that are statistically significant. However, some herbaceous species may be dominating the herb layer, particularly in the fertilised low-density stands.

Up to 1997, stand density and fertilisation had not affected the abundance of small mammals. In 1998 mean total abundance of small mammals appeared higher in the fertilised stands than in the unfertilised stands.

In general, the evidence generated to date in this study indicates that silvicultural treatments such as pre-commercial thinning and fertilisation do not appear to have a negative impact on habitat (vegetation biomass and structural diversity) or on small mammal communities. As these stands develop through time, these treatments will very likely result in enhanced habitat quality.

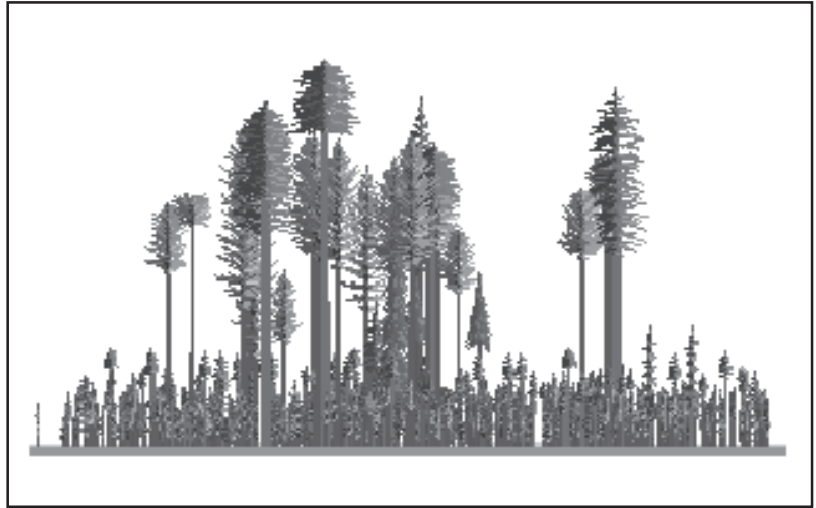


Aerial view of the Kelowna site. 500 indicates 500/ha; 500F indicates 500/ha fertilised, etc. The location of field tour stops is also shown.

PrognosisBC

The BC Ministry of Forests is adapting Prognosis, a stand growth model widely used in the western United States, for use in the southern interior of BC. One advantage of adopting a model that is widely used by other forest resource management agencies is that we can acquire and apply a variety of model “add-ons” that other Prognosis users have developed. The US Forest Service software product, “Stand Visualization System,” is one of these useful model add-ons. The Stand Visualization System converts output from Prognosis into a visual representation of the stand.

The Stand Visualization System converts PrognosisBC yield predictions into images of future stand structure. These images are a useful supplement to the typical growth model outputs (tables of stand statistics and simple graphs). The image to the right shows the stand structure that PrognosisBC predicted



50 years after a partial harvest of a particular stand in the West Arm Demonstration Forest near Nelson, BC.

To discuss PrognosisBC, call Barry Snowdon (250-386-0183).

Enhanced Forestry Program Evaluation

Periodic program reviews are an essential component of quality assurance. Staff in the Stand Tending Unit are committed to helping everyone achieve quality stand-tending prescriptions. This fall, Forest Practices Branch staff carried out an Enhanced Forestry Program (EFP) evaluation that focussed on silviculture activities in free-growing stands managed under the authority of a Stand Management Prescription (SMP). The EFP evaluation fulfils a Ministry of Forests commitment to Forest Renewal BC to evaluate the performance of the Enhanced Forestry Program.

The purpose of the evaluation was to review the performance of Ministry of Forests enhanced forestry

programs and the programs of licensees who have carried out enhanced forestry projects with Forest Renewal BC funding. The evaluation used a standardised evaluation protocol to review and report on projects. Forest health, Forest Practices Code compliance, treatment priority (on a TSA or TFL level), achievement of SMP objectives, and content of the SMP were the focus of this evaluation.

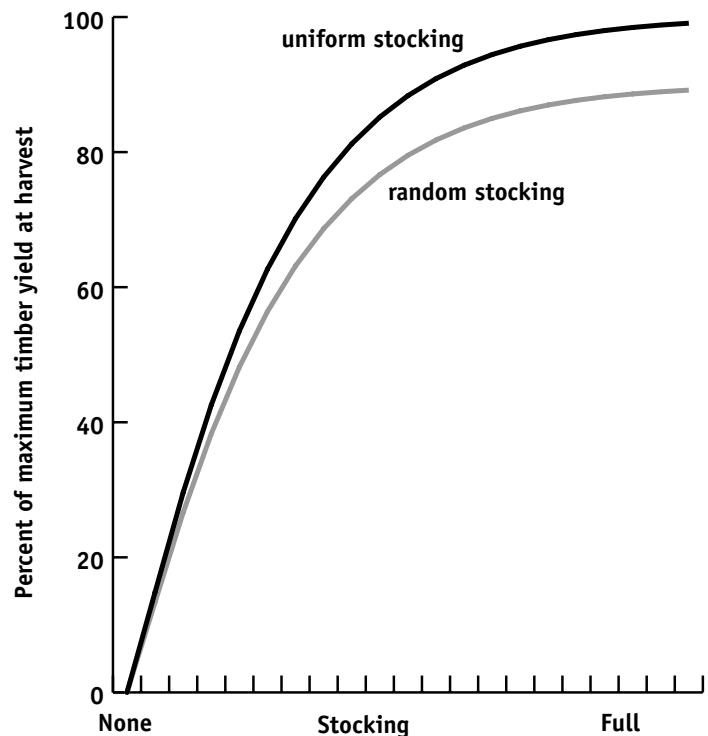
To discuss the EFP evaluation, call Brian Raymer, (250-387-8909).

Yield Principles And Silviculture

Stocking

Many factors influence timber yield at harvest, including harvest age, site quality, tree species composition, forest health agents, utilisation standards, and more. One critical factor is stocking. When regenerating harvested areas, it is useful to consider two components to stocking: the number of trees per hectare and their spatial distribution over the hectare. The figure to the right illustrates the general relationship between stocking and yield. In general, the silviculturist can improve timber yield at the next harvest by achieving full uniform stocking after the current harvest.

To discuss yield principles and their application to silviculture decisions, call Pat Martin (250-356-0305).



Past issues of Predicting Outcomes

Past issues of this newsletter are posted on our web site, <http://www.for.gov.bc.ca/hfp/PubsStandTend.htm>

November 1998

- Changes to the SMP template and guidebook
- PrognosisBC – an overview
- List of growth and yield internet sites
- Effect of silviculture on growth intercept estimates of site index
- Tips for ring counting on increment cores

March 1999

- The flexibility of PrognosisBC
- The new maximum density regulation
- 9th FS415 now available
- Strategic silviculture – treatments that achieve forest-level objectives

August 1999

- Compendiums of pruning and spacing literature
- The new OAF1 survey
- Timber growing potential of 1.6 million hectares of regenerated forest land
- Courses available
- Publications on our web site