Alberta Economic Timber Supply Analysis
Final Report
Contract Number 01SG.01K45-5-0145

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31 March 1987
(Revised September 1988)

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DISCLAIMER

The study on which this report is based was funded in part under the Canada/Alberta Forest Resource Development Agreement.

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Catalogue No.: FO 42-91/62-1989E
ISBN: 0-662-16729-5

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EXECUTIVE SUMMARY

This study was undertaken in order to begin to develop an understanding of the economic supply characteristics of Alberta's forests. An understanding of these characteristics would be useful to government agencies involved in the rational allocation of timber supplies to interested companies. It would also contribute to the devlopment of more economically efficient forest management plans by the forest industry and the Alberta Forest Service.

The approach taken by this study was to develop an economic timber supply model suitable for use in Alberta. This model consisted of a number of components:

- A **delivered wood cost model** was developed to estimate the cost of harvesting and transporting timber using measurable characteristics of the timber inventory. The model was developed using information obtained through a questionnaire sent out to the forest industry in Alberta.
- A **geo-referenced forest inventory** was developed for the areas selected by the Alberta Forest Service as case study areas. This geo-referenced inventory was necessary to develop estimates of transportation costs. It was developed using quarter section summary data provided by the Alberta Forest Service and the ARC/INFO geographic information system.
- The **harvest scheduling model** Timber RAM was used to model the dynamics of forest growth and harvest and to allow for constraints on the marginal and average cost per cubic metre of harvesting and transporting timber. The Timber RAM was modified to allow for average cost constraints.

The delivered wood cost model that was developed comprises woodlands, truck to mill, development, and constant cost phases. Linear regression analysis was used to develop the equations from survey data for the woodlands and truck to mill cost sub-models, but we were unable to estimate suitable equations for the development and constant cost phases.

The development cost sub-model chosen is a very simple model based on linear interpolation. It was developed using data obtained from the industry survey. The constant cost phase (representing stumpage fees, reforestation costs, holding and protection charges, and miscellaneous costs) is modelled as a constant based on published or actual government charges and survey data.

One of the secondary objectives of the study was to determine if the quarter section timber inventory summary provided by the AFS was suitable for timber supply analysis. A comparison of the total areas by type for the AFS stand and quarter section inventories indicated large differences. Any timber supply analysis undertaken using the quarter section summaries will probably be biased. Despite this limitation the inventory was useful for demonstrating the techniques used here.

Perhaps the most significant result of this research is a demonstration of the effect of using a static stock supply analysis to project availability of timber supply into the future. The use of Timber RAM allowed us to determine the maximum **sustainable** harvest level under different marginal and average cost constraints. The use of a static stock supply analysis for the case study areas drastically underestimates the future supply of timber.

The operable forest land bases determined by simulating AFS rules-of-thumb and the economic timber supply model's cost constraints were remarkably similar. The subjective elimination of some stands from analysis by the AFS seems to be based largely on economic considerations.

Because of the influence of forest policy and the logistics of timber harvesting operations, we conclude that the use of average cost constraints on woodlands operations better represent the behaviour of forest operators in Alberta than do marginal cost constraints.

The study concludes with several recommendations and suggestions for further research: (a) because spatial information is so important to the model, Alberta's forest inventory must be loaded onto a geographic information system before more studies like this can be undertaken; (b) the woodlands cost model developed for this study was very weak: we recommend that a good time and motion study be undertaken to develop a stronger model (We believe, based the presurvey interviews, that the result would be a model that would show tree to truck cost to be a a function of piece size, volume per hectare, time of year, and possibly topography.); (c) the data available on deciduous operations are sparse: more effort should be made to get good data for these operations; (d) expertise on the use of GISs should be developed and maintained; (e) this type of analysis should be extended to other FMU's in the province; (f) this study could be extended by examining the effects of technological change; (g) further work is necessary to link economic timber supply analyses with a national forest sector model.

ACKNOWLEDGEMENTS

A number of individuals, companies and organizations contributed to the completion of this research. Without their assistance such a study would not have been possible.

We thank the Canada/Alberta Forest Resources Development Agreement for the funding necessary to carry out this research project. We are particularly grateful to Diana Boylen of the Canadian Forestry Service, Northern Forestry Centre who was supportive and acted as the scientific advisor for the project.

We are grateful to Con Dermott, Jake Scheffer, Evelynne Wrangler and Daryl Price of the Timber Management Branch, Alberta Forest Service for their support and cooperation in providing the inventory information and allowable cut constraints used on Forest Management Units El and R4.

The Resource Evaluation and Planning Division of the Department of Forestry, Lands and Wildlife provided invaluable support through the use of their Geographic Information System. The assistance and advice of John Harrower, Rick Haag, Gordon Glover, Donna MacDonald and Frank Schreiner is greatly appreciated.

The information and advice given by the staff of the Forest Economics and Policy Analysis Project at the University of British Columbia proved valuable and we thank them.

A special thanks is due to Linda Ehrler of the Department of Forest Science at the University of Alberta for her management of the project accounts and other help.

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1. INTRODUCTION

Canada's forest industry is undergoing profound and perhaps lasting changes. The Forest Industries Advisory Committee (1983) examined trends in resource supplies, production technologies, and markets, and concluded that the "*magnitude of complexity and challenges [to the forest industry] are without precedent...*". The committee acknowledged that the forest industry faces "*... fundamental issues that time and economic revival alone will not resolve...*". These issues include escalating recovery costs, declining quantity and quality of timber harvested, and possible shifts in demand away from traditional forest products (Pearse *et al.* 1984).

Canadian foresters and policy makers perceive a need for better information about the economic aspects of timber supply. Several important publications have focused attention on the supply of economically recoverable timber in Canada: "Canada's Reserve Timber Supply" (Reed 1974), "Timber Rights and Forest Policy in British Columbia" (Pearse 1976), and "Forest Management in Canada" (Reed 1978) are notable examples.

Assessment and analysis of the economic aspects of timber supply have been frustrated by a scarcity of relevant information and confusion over terminology. Haley and Cooney (1982) make an important distinction between the stock and flow concepts of timber supply. A stock model of timber supply is essentially a "snapshot" view of the distribution of current volume over a range of costs. The stock of economically recoverable timber is the total volume available at a cost less than or equal to its selling price. Von Segebaden (1969) provides an early example of this type of analysis.

Several stock models of timber supply have been developed in British Columbia. Berndt *et al.* (1979) developed a "timber availability curve" by applying a logging cost model to timber inventory information. Cooney (1981) developed an "economic stock supply schedule" using similar techniques. Smith (1980) and Birch (1983) produced "timber stock supply curves". The Forest Economics and Policy Analysis (FEPA) project has developed "cumulative cost of recovery distributions" (Morrison *et al.* 1985; Williams and Gasson 1986) for the B.C. coastal timber inventory.

The flow model of timber supply is more in line with the traditional economic concept of a supply curve. It represents the volume of timber that would be supplied at a given point in time at different price levels. In most Canadian jurisdictions, the annual allowable cut approximates the maximum volume harvestable in any year. At or near this point, the supply curve becomes vertical because of policy constraints.

Walker and Lougheed (1985) developed something very close to a flow model of timber supply for a major timber producer in New Brunswick. They developed a "harvest volume - production cost trade off" curve by determining the minimum cost timber management schedule required to meet alternative annual wood supply requirements. This curve was developed to allow managers to explicitly evaluate the trade off between higher sustainable harvest volumes and lower forest management costs.

Pearse was quoted in a recent newspaper article[1] as saying that annual allowable cuts in British Columbia are made without any systematic attention to the economic variables involved. He expressed concern that estimates of recoverable timber volume are overly optimistic. If this is the case, an unexpected decrease in the supply of timber is likely in the near future. There is a need for an economic evaluation of timber supply in order to minimize uncertainty.

The Alberta economic timber supply study was initiated in order to begin to understand the economic characteristics of Alberta's forests. Three basic questions relating to this overall objective were identified:

- What are the determinants of delivered wood cost in Alberta?
- How is the timber inventory distributed in terms of cost of supply?
- How will the distributions of delivered wood cost change with time?

In order to answer these questions, it was necessary to:

- Develop an understanding of the determinants of delivered wood cost in

[1] Whitely D., 4 December 1986, Vancouver Sun, p. F7

Alberta,

• Develop a model that could be used to estimate delivered wood costs using measurable inventory and spatial characteristics,

• Collect and develop the inventory data necessary to drive the delivered wood cost model, and

• Link the delivered wood cost model to a forest growth/timber management scheduling model to allow for the projection of delivered wood cost estimates into the future.

Figure 1-1 indicates in schematic form the whole project.

This document is the final report of the Alberta economic timber supply study. The next section of the report discusses the collection and development of the data used to calibrate the delivered wood cost model. Following this, a description of the timber inventory and haul distance determination procedure is presented. The linkage of the delivered wood cost model and data to a forest growth/timber management scheduling model follows the inventory discussion. The final sections of the report are an analysis of the results of the study, some concluding comments, and recommendations for further research.

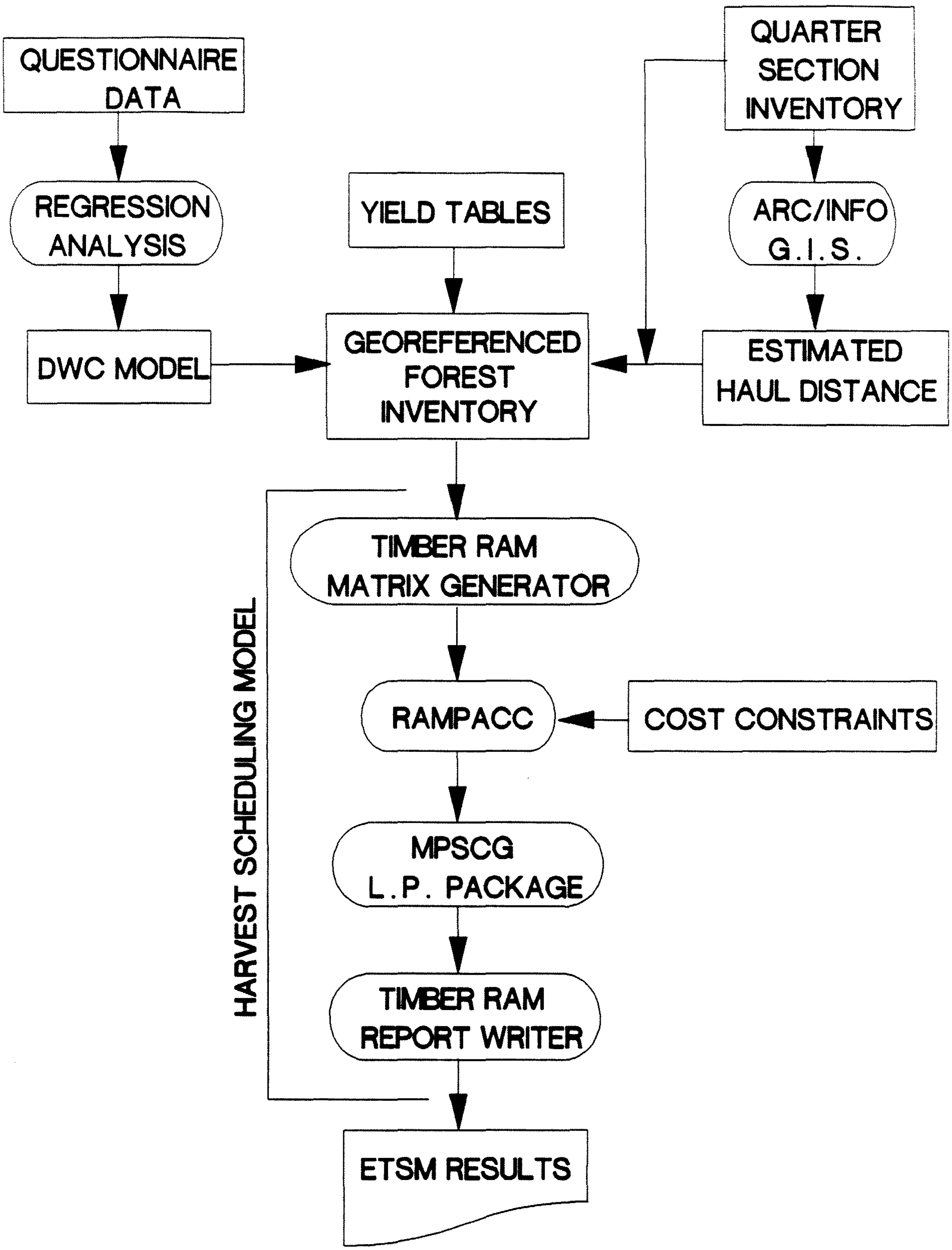

Figure 1-1. The economic timber supply model.

2. RESEARCH METHODOLOGY

Medium to large Alberta forest industry companies were selected so that representative delivered wood costs could be obtained and so that there was adequate representation from each region of the province.

Following preliminary discussions with industry, a list of major delivered wood cost variables was developed. Using these variables, a draft delivered wood cost questionnaire was developed. Consultation with the industry resulted in revising the final draft of the questionnaire. An independent management consulting and chartered accountant firm, Price Waterhouse, was contracted to distribute the questionnaire, collect the data and supply the aggregated results to the project. This ensured the confidentiality of each company's cost data.

While the delivered wood cost data was being collected, inventory data was obtained from the Alberta Forest Service (AFS) for the two areas selected by the AFS, Forest Management Units (FMU) E1 and R4. This involved selecting quarter section and stand data for these units and transferring this data to a computer tape for use on the University's computer. The files included a quarter section listing and a stand listing for each unit. This information was then translated into stand and type summaries for each unit.

A Geographic Information System (GIS) was made available through the Resource Evaluation and Planning Division (REAP) of Alberta's Department of Forestry, Lands and Wildlife. It was to be used to estimate the haul distance between the harvest site and the mill. The determination of this haul distance involved the use of the ARC/INFO GIS system and its networking capabilities. This required the digitizing and linking of the internal (within the FMU) and external road networks.

The Timber Resources Allocation Method (Timber RAM) (Navon 1971), a linear programming based timber harvest scheduling model with the potential to incorporate periodic constraints on harvest level, total cost, total revenue and net revenue was modified to accept periodic unit cost constraints. This was necessary to permit an evaluation of the economic availability of timber. Two programs were written to modify the Timber RAM generated matrix to allow for the incorporation of periodic average cost constraints.

Our intention was to then develop regression models for each of the cost phases; woodlands, truck to mill, development and other. Combined with the constants developed for stumpage and reforestation this would give us the delivered wood cost model. We used our GIS haul distance model for calculating the haul distances necessary for the delivered wood cost model.

The delivered wood cost model was then combined with the timber harvest scheduling model (Timber RAM) to form the Economic Timber Supply Model (Figure 1-1). The Timber RAM input files were set for a 10 decade conversion period and a 25 decade planning horizon, and a base run was made for each unit. Following this, a series of Timber RAM runs were made with the same structure except constraining the maximum average and marginal costs for each of the 10 decades of the conversion period. These gave us the data to construct our average and marginal cost supply curves.

3. THE DELIVERED WOOD COST MODEL

A critical component of the economic timber supply analysis system developed for Alberta is the delivered wood cost model. This model estimates the costs of harvesting timber and delivering the logs to a mill yard using information on the biophysical and spatial characteristics of the forest. Attempts to develop similar models have been made elsewhere (Berndt *et al.* 1979; Cooney and Haley 1982; Morrison *et al.* 1985).

The data used to calibrate the delivered wood cost model was collected using a questionnaire sent out to fifteen operations throughout the province. Industry cooperation was good with only one operation not answering the questionnaire. One factor contributing to this level of cooperation was the use of Price Waterhouse to collect and aggregate the questionnaire responses. Confidentiality of the individual operations cost information was therefore assured.

Four cost phases were identified for the delivered wood cost model: woodlands costs, truck to mill costs, development costs, and constant costs. The woodlands and truck to mill cost models were developed using regression analysis. A simple development cost model was developed using current road density as an index of the amount of development required. The cost elements not included in the above models were treated as constants.

3.1 Questionnaire

At the outset of this research project a number companies were informed of the project and were asked to be active participants. All of the companies approached were keenly interested in the project and agreed to participate by providing cost data to the project.

Preliminary discussions with each company's woodlands staff helped identify the components of delivered wood costs. The components that were identified are:

- overhead costs;
- development and planning costs;
- falling, limbing, skidding and loading costs;

- road development costs;
- road maintenance costs;
- hauling costs;
- log yard unloading and decking costs;
- log yard scaling costs;
- forestry costs;
- reforestation costs;
- stumpage fees;
- camp costs; and
- holding and protection charges.

3.1.1 Questionnaire Development

Following extensive discussions with industry, a draft questionnaire was designed. This draft was discussed with each company. Comments and suggestions for improvement were incorporated into the final draft.

Copies of the final draft (Appendix 1) were provided to the accounting firm contracted to handle the raw cost data returned on the questionnaire. This ensured the confidentiality of each company's cost data. The accounting firm aggregated this cost data and provided the aggregate data to the researchers.

3.1.2 Cost Categories

The questionnaire requested information on tenure, utilization standard, volume harvested, area harvested, average number of stems per hectare and average slope. The costs listed below were requested for each major operating area. A major operating area was defined as that area served by the same main haul road. All the information collected was for the period 1 May 1984 to 30 April 1985.

- **Woodlands overhead.** The costs to be included in this category were initial planning costs, assessment or company cruising costs, planning costs for cut block layout and sequencing, administration costs associated with obtaining Forest Service approval, depletion write-offs for purchased crown timber quota, equipment depreciation costs, woodlands supervision costs (including travel), and firefighting training and equipment costs.

- **Tree to truck.** Included in this category are the costs of falling, limbing, skidding, and loading plus in-block road and landing construction costs. Any associated move-in costs are to be included here as well.
- **Hauling.** This category represents the cost of trucking the timber from landing to mill.
- **Logyard.** The costs of unloading and decking associated with unloading at the mill yard.
- **Scaling.** The cost of scaling the logs delivered to the mill yard.
- **Intensive forest management.** The costs of juvenile spacing, thinning, permanent sample plots, "plus tree" selection, seed orchards, or other intensive forest management activities.
- **Reforestation.** The costs of company reforestation and reforestation levies paid to the AFS in the year of the survey. This category also includes expected future reforestation costs such as regeneration survey costs and any seed collection costs.
- **Stumpage fees.** Stumpage dues paid to the AFS.
- **Haul road write-offs.** The write-off costs for all main and branch roads. In-block road construction is included in the tree to truck cost category.
- **Haul road maintenance.** The costs of maintaining haul roads including any erosion control costs.
- **Holding and protection.** The holding and protection charges paid to the AFS.
- **Camp costs.** The net camp costs for the operating area.
- **Other costs.** Any cost not accounted for in the above categories.

3.1.3 Cost Influencing Factors

The relevance of particular timber stand conditions as determinants of logging costs has been documented in several earlier studies. Dobie (1966) found that the cost per cunit of coastal B.C. falling decreased significantly as tree diameter increased, and that the cost in all other phases decreased with increasing volume per log over the range observed. Tennas *et al.* (1955), Adams (1965), and Dykstra (1975) attempted to determine the relationship between costs and such conditions as slope, brush cover, yarding distance, volume per acre and volume per log, without significant results. Anderson (1976) found that an experienced forest engineer's judgements about the important determinants of logging costs suggest the variables that are likely to be most important in determining the total factor cost of recovering timber are volume per hectare, log size, defect, terrain, and a miscellany of other factors such as tree height, weather conditions, remoteness, cutting pattern restrictions, planning requirements and size of operation.

The present research attempted to determine the relationships between costs and such conditions as utilization stump diameter, volume per hectare, volume per log, stems per hectare, on highway and off highway haul distances, and total haul distance.

3.1.4 Questionnaire Responses

3.1.4.1 Quality of Responses

A difference in the level of aggregation and response by companies was noted. For instance, one company provided 12 observations, while another company of approximately the same cut provided only 1 observation. We found that data representing extremely large volumes cut from extremely large areas did not adequately indicate the natural variation in cost by harvesting blocks or smaller operating areas. Some companies were unable to differentiate between the costs of summer and winter harvesting. Again, we feel that there is a difference in cost, but the accounting methods used by industry do not show this. Several inconsistencies were found in utilization standards. Each case had to be clarified through Price Waterhouse in order to obtain a consistent utilization standard. One company with 12 different operating areas could only provide one hauling cost for all its operations. Although we expected to see a variation in haul costs by operating area, this company may have had one standard hauling contract. Haul road write-off costs showed a great deal of variation in reported values. We feel this may be more a function of various accounting systems than actual variation. Road construction costs varied significantly because of indistinct differentiation by some companies between main haul roads and branch roads. In some cases main haul roads cost much less than other companies' branch roads.

It should be noted that the reforestation results obtained by the questionnaire were not for the areas harvested during the period in question but for areas harvested some time before these areas were harvested. Therefore, no correlation to direct reforestation costs was possible for the reported harvested areas.

We recognize that there are numerous accounting systems used by the industry and that not all cost accounting systems were set up to be able to retrieve the kinds of cost data that we requested. In spite of the above mentioned inconsistencies all data was of value to the study.

3.1.4.2 Descriptive Statistics

The results of numerous cost determinants have been summarized in Table 3-1. These resulted from the delivered wood cost questionnaire's data analyses. In order to develop the delivered wood cost model, the individual cost categories were aggregated into four cost phases. These four cost phases were:

- **Woodlands.** This cost phase is the sum of the woodlands overhead, tree to truck, and camp costs detailed above.
- **Truck to mill.** This cost phase consists of the haul cost, road maintenance cost, logyard costs, and scaling costs.
- **Development.** This phase represents the haul road write-off costs.

- **Constants.** This phase represents a number of variables we chose to treat as constants: stumpage fees, holding and protection charges, reforestation costs, and the "other" costs from the questionnaire.

The distributions of tree to truck, truck to mill, and total costs from the questionnaire responses are shown in Figures 3-1, 3-2, and 3-3.

3.2 Model Development and Estimation

Our intention was to develop regression models for each of the cost phases identified above. We were able to do this for the woodlands and truck to mill phases, but were unable to develop any meaningful relationships for the other two phases. The approaches used are discussed in more detail below.

The costs for companies harvesting primarily deciduous timber were quite different than the costs for companies harvesting primarily coniferous timber. The regression models estimated when the data from deciduous operations were included differed considerably from the equations estimated when these operations were excluded. Our commitment to confidentiality prevented us from developing a separate model for deciduous operations as only two companies were represented in our survey. We chose to limit our analysis to primarily coniferous operations.

3.2.1 Woodlands Costs

A number of woodlands cost models were estimated using the stepwise regression procedure of SPSSx (Anon. 1983). The probability of F-to-enter was set at 0.05 and the probability of F-to-remove was set at 0.10. The dependent variables considered for entry into the model were:

a) on-highway haul distance (ONHIWAY),

b) off-highway haul distance (OFFHIWAY),

c) total haul distance (TOTHAUL),

Table 3-1. Delivered wood cost data descriptive statistics

Parameter	Minimum	Average	Maximum
Hauling ($/m^3)	3.12	6.52	11.76
Road Maintenance ($/m^3)	0.05	0.55	1.86
Log yard ($/m^3)	0.18	1.17	2.59
Scaling ($/m^3)	0.05	0.31	3.35
Truck to Mill ($/m^3)	4.00	8.55	13.96
Holding & Protection ($/m^3)	0.00	0.33	1.39
Other Costs ($/m^3)	0.00	0.18	2.95
Tree to Truck ($/m^3)	7.40	10.40	18.00
Woodlands Overhead ($/m^3)	0.64	2.41	4.02
Camp Costs ($/m^3)	0.00	0.47	2.20
Total Delivered Wood Costs ($/m^3)	19.07	30.89	40.33
Area (hectares)	12	739	4287
Volume (m^3)	2825	147,476	840,907
Volume/hectare	90.23	208.36	424.59
Stems/hectare	192.01	711.76	4041.85
Log size (m^3)	0.032	0.408	1.205
Utilization Stump Diameter (cm)	10.2	17.2	25.4
On Highway Haul Distance (km)	0	33	117
Off Highway Haul Distance (km)	3	62	176
Total Haul Distance (km)	28	95	196

d) proportion of total harvest volume in pine (PINEPROP),

e) proportion of total harvest volume in aspen (DECIPROP),

f) volume per hectare (VOLPHA),

g) number of stems per hectare (STEMSPHA),

h) average log size (LOGSIZE),

i) the utilization standard stump diameter (SDIAM),

j) square transformations of (f) through (i) (SQVOL, SQSTEM, SQLOG, SQSDIAM),

k) logarithmic transformations of (f) through (i) (LNVOL, LNSTEM, LNLOG, LNSDIAM), and

l) inverse transformations of the (f) through (i) (INVOL, INSTEM, INLOG,

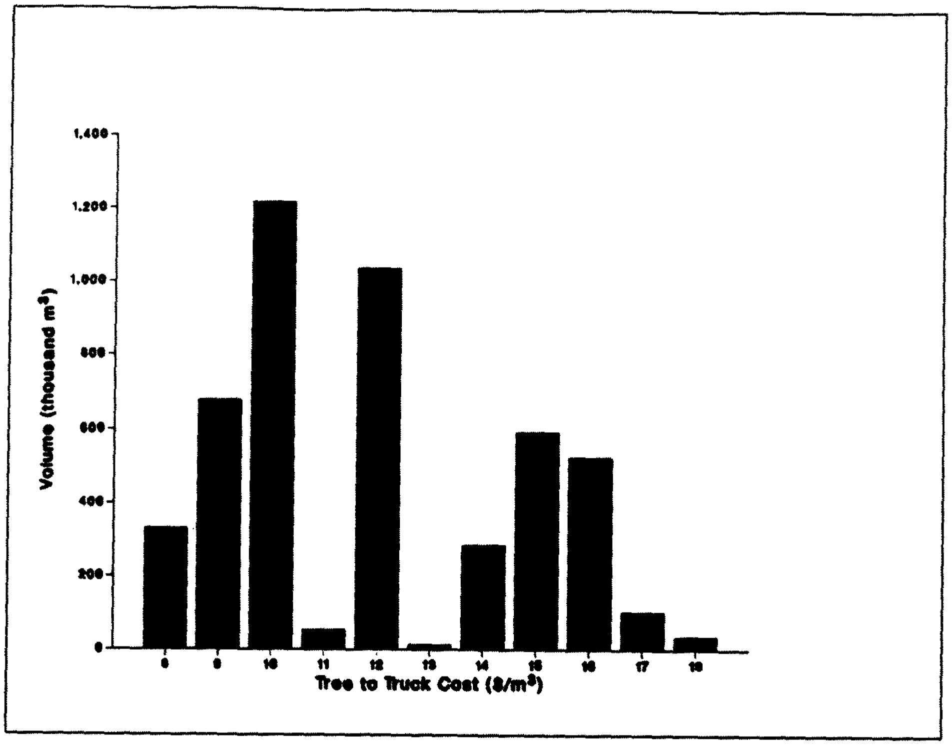

Figure 3-1. Tree to truck costs

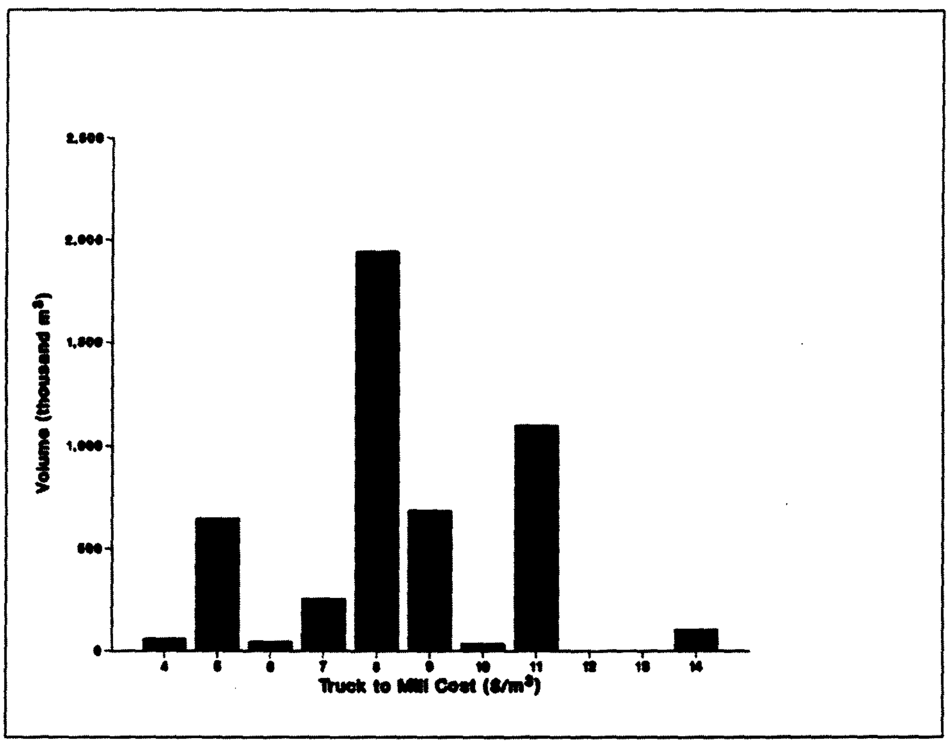

Figure 3-2. Truck to mill costs

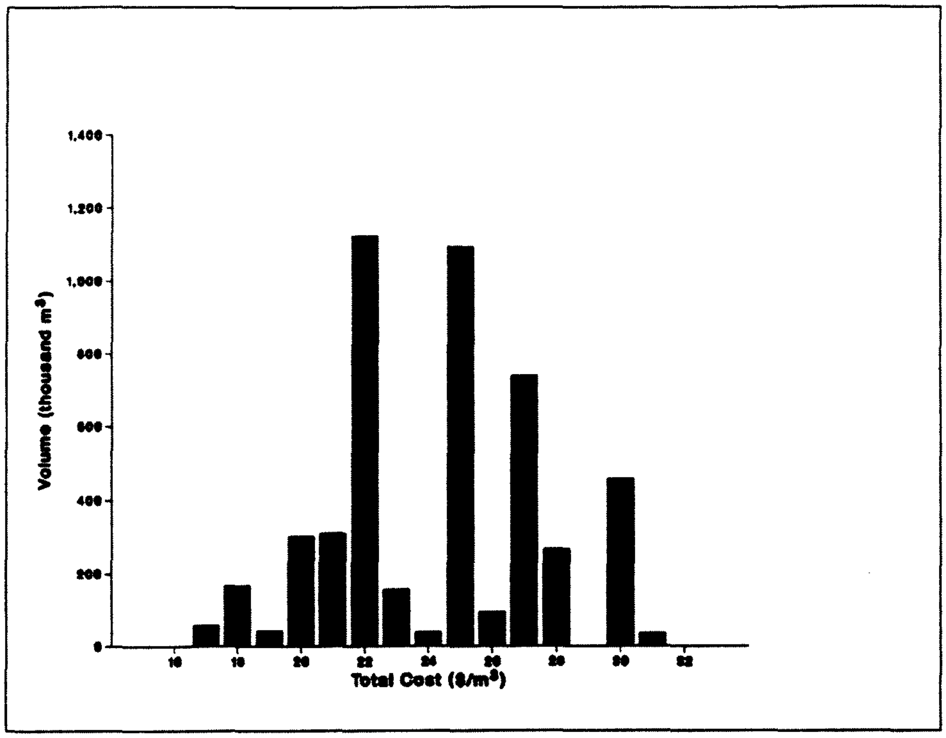

Figure 3-3. Total costs

INSDIAM).

The results of three of the estimated models are detailed below.

Regression 1 (Table 3-2) was estimated using all the observations in the coniferous data set. None of the biophysical characteristics of the areas harvested added any significant explanatory power for the variation in woodlands cost. This model is interesting in that the only independent variable is on-highway haul distance. As the haul distance increases, woodlands costs decrease. One explanation for this behaviour is that the operators may be willing to trade off woodlands and truck to mill costs. In other words, if the operators must travel a long distance to get their wood, they are unwilling to harvest the more expensive stands.

We attempted to isolate the effects of distance from the effects of the harvest area's biophysical characteristics by blocking the entry of the distance variables (ONHIWAY, OFFHIWAY, and TOTHAUL) into the stepwise regression procedure. When we did this, no independent variable in the data set had any significant explanatory power. Regression 1 does

Table 3-2. Woodlands cost: Regression 1.

Variable	Coefficient	Standard Error
Constant	13.526	0.4908
ONHIWAY	0.0288	0.0068
n=38	r^2(adj.)=0.35	F=17.93

provide some evidence that operators may trade off harvesting and transportation costs, but does not provide any illumination on how the biophysical characteristics of a harvest area affect the harvest costs.

Our survey data covered a number of companies from a number of different areas in Alberta. It is possible that there is some real variation in woodlands costs throughout Alberta that simply cannot be explained using only the biophysical characteristics of the harvest areas. Regional differences in terrain, availability of equipment, and environmental constraints may be very important considerations. One way of controlling for these complicating factors is to estimate a woodlands cost model for different regions of the province. While data at each FMU level would be desirable, the authors suspect the availability of data will limit individual models to 2-4 regions for the province.

Because of the confidentiality constraint, we were unable to separate the data set into regions. Fortunately for us, one company provided us with twelve observations from which we were able to develop regression 2 (Table 3-3) and regression 3 (Table 3-4). We do not know which company from which these observations came, or the region of the province to which they may be applicable.

Regression 2 explains the variation in woodlands cost as a function of the square of the number of stems per hectare. This regression works quite well at explaining the variation in woodlands cost in the range of the data for which it was developed but is unsuitable for

Table 3-3. Woodlands cost: Regression 2.

Variable	Coefficient	Standard Error
Constant	8.4144	0.6070
SQSTEM	1.6036×10^{-5}	3.8838×10^{-6}
n=12	r^2(adj.)=0.59	F=17.05

Table 3-4. Woodlands cost: Regression 3.

Variable	Coefficient	Standard Error
Constant	8.9465	0.6870
LNLOG	-2.6288	0.9229
n=12	r^2(adj.)=0.39	F=8.060

our purposes. We need to be able to estimate woodlands costs for stands that would not currently be considered harvestable. The stand growth tables we are using for this study show stem density increasing and then decreasing with age (Figure 3-4). Using regression 2 with this information would result in woodlands costs rising and then decreasing with age. This type of behaviour does not seem likely, so the model was rejected.

Regression 3 was developed by blocking the entry of the stem density variables (STEMSPHA, SQSTEM, LNSTEM, INSTEM) into the stepwise regression procedure. The resulting model explains woodlands costs as a function of the natural logarithm of average log size. Woodlands costs decrease with increasing log size as illustrated in Figure 3-5. Figure 3-5 also shows the location of the data points relative to the estimated function. The shape of this curve below a 0.25 m^3 log size cannot be justified statistically using our data, but is

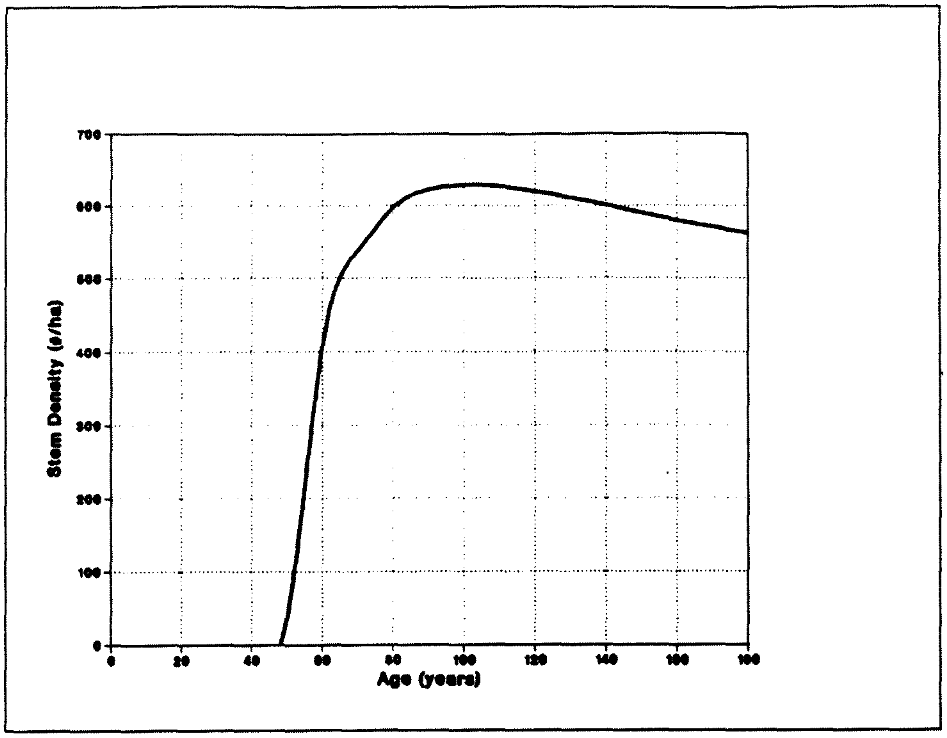

Figure 3-4. Stem density for medium site white spruce

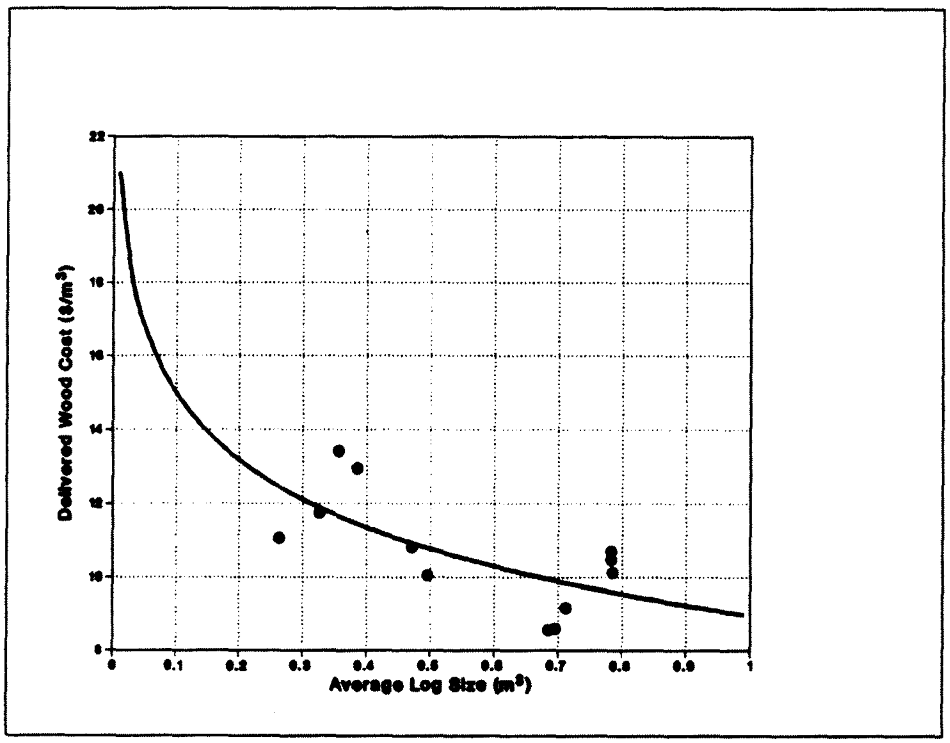

Figure 3-5. Woodlands cost regression model

consistent with information presented by Clark (1980).

Despite the relatively low r^2 calculated for this model, it was the one chosen for inclusion in the delivered wood cost model. It explains woodlands costs as a function of a biophysical variable. The change in woodlands cost with respect to age (Figure 3-6) follows a believable pattern. The behaviour of the model beyond the range of the data it was developed from is not unreasonable.

3.2.2 Truck to Mill Costs

The truck to mill cost model was also estimated using stepwise regression and the dependent variables mentioned above. The data set consisted of only twenty-eight observations as the company that provided twelve data observations for woodlands costs provided only one observation for truck to mill costs.

Regression 4 (Table 3-5) explains the variation in truck to mill costs as a function of total haul distance, utilization standard stump diameter, and average log size. As haul distance increases, truck to mill costs increase. As stump diameter increases, truck to mill costs decrease. As log size increases, truck to mill costs increase. This model was rejected largely because the effects of average log size on truck to mill costs run counter to theory and common sense.

Regression 5 (Table 3-6) is the truck to mill equation chosen for inclusion in the delivered wood cost model. Truck to mill costs are expressed as a function of total haul distance and the utilization standard stump diameter. Truck to mill costs increase at the rate of $0.038/$m^3$ for every added kilometre of haul distance. As the utilization standard stump diameter increases, the truck to mill costs decrease.

The stump diameter effect makes sense as there is generally an increase in the total log volume on trucks hauling large tree-length logs (which are associated with larger utilization standards). With greater volume per truck, fewer truck loads are needed to haul a given volume, and costs should decrease.

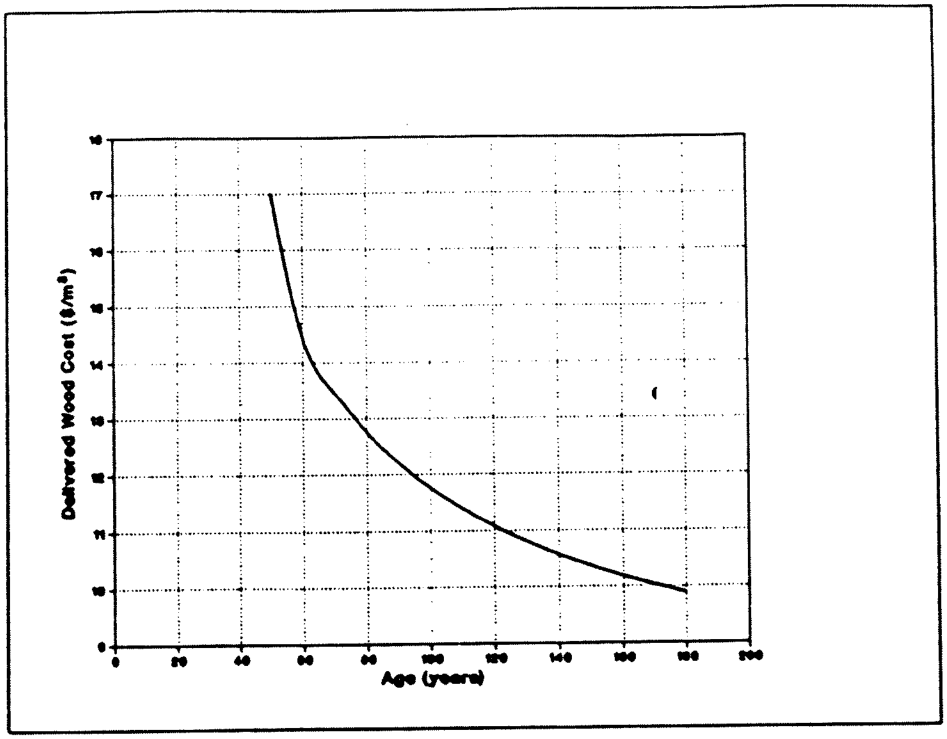

Figure 3-6. Woodlands cost by age class for medium site white spruce

Table 3-5. Truck to mill costs: Regression 4.

Variable	Coefficient	Standard Error
Constant	0.042686	1.4520
TOTHAUL	0.027535	0.006415
INSDIAM	78.760	18.718
SQLOG	3.3874	0.89768
n=28	r^2(adj.)=0.67	F=19.26

3.2.3 Development Costs

None of the independent variables in our data set had any significant explanatory power for variation in development cost. However, there was a great deal of variation in development costs in the questionnaire responses. In the preliminary discussions with

Table 3-6. Truck to mill costs: Regression 5.

Variable	Coefficient	Standard Error
Constant	0.7616	1.7801
TOTHAUL	0.03795	0.007165
INSDIAM	65.7272	22.747
n=28	r^2(adj.)=0.49	F=14.23

industrial representatives, it was suggested that development costs should be a function of existing road density, and therefore we felt that some model of development costs was appropriate, even if there was no statistical basis for the model.

The approach used to build the model was to assume that the development cost per hectare is largely a function of the amount of road that needs to be built in order to access a particular cutting area. From the travel time minimizing transportation network we developed for each of the two forest management units (discussed later), we were able to estimate an index of necessary road construction for each township in our study area. This index is simply the sum of the non-road distances to each forested quarter section divided by the sum of the area of forested land in the township. This index is called the non-road density index (NRDENS).

From our questionnaire data, we were able to develop a low and a high estimate of per hectare development costs. Most operators were charging road costs off over the years of use. However, several operators reported zero or very low development costs because they were operating in areas with roads built in previous years and their accounting did not charge roads off over time, and at least one operator had large costs which were reported as current year costs to build roads to open an area for several years logging. Without the ability to directly contact each operator to clarify each qustionnaire we arbitrarily developed the following procedure to eliminate most of the problems from above: Observations with a development cost of \$0/ha were excluded, as were the highest and lowest development costs that remained in the data set. For each FMU, the low non-road density index was equated to the low development cost per ha, and the high non-road density index was equated to the high development cost per ha. The development cost for townships with intermediate non-road density indices was estimated using straight line interpolation. The resulting per hectare development cost model for each FMU is:

FMU E1: DEVCOST = -31.97 + 2730.64 (NRDENS)

FMU R4: DEVCOST = -118.27 + 7428.27 (NRDENS)

These per hectare development costs can be transformed to a per cubic metre basis by dividing DEVCOST by volume per hectare.

3.2.4 Constant Costs

We modeled the remaining elements of the total delivered cost as constants, largely because of the difficulty of developing a statistical model for them. Stumpage fees were assumed to be the provincial standards of \$0.70/m^3. Reforestation costs were set the provincial levy of \$2.30/m^3. Holding and protection charges, and miscellaneous costs were set at the questionnaire averages of \$0.18/m^3 and \$0.33/m^3 respectively. The total constant cost added to account for these other costs is \$3.51/m^3.

3.2.5 Model Summary

The final Delivered Wood Cost (DWC) model is of the form: DWC = Tree to truck cost + Truck to mill cost + Development costs + Constant costs.

The tree to truck cost submodel estimates cost based on the biophysical characteristics of each stand and thus each stand has its own unique cost. Note this cost is location independent in that the tree to truck costs for two identical stands, one located at the mill gate and one 400 km away, are the same. This submodel as stated earlier is very weak because companies surveyed did not in general have data to support its development. This model could be improved greatly by a time and motion study. In fact a good time and motion study might find some regional differences, and Alberta might be split into 2 or more regions.

The truck to mill cost submodel estimates the cost of getting wood from the landing to the mill. As expected from persurvey discussions, both the location of the stand and the stand average diameter affect these costs. Thus each unique stand has a unique cost based on location and stand characteristics.

The development cost submodel estimates the cost of roading and is a function of the existing road density. Each stand, depending on location, has a unique development cost.

The constant cost submodel estimates the cost of stumpage, reforestation, holding and protection, and miscellaneous costs. We used the provincial levies for stumpage and reforestation in place at the time of the analysis and the averages from the survey for the other two items.

Overall, the DWC model used does recognize differences in cost for each stand based on its distance from the mill, the existing road density, the average diameter of the stand and the average volume per hectare of the stand. While our presurvey interviews indicated a difference in cost would be shown by time of year, no statistically valid evidence of this is contained in the sample data.

4. INVENTORY

Alberta's current forest inventory is not on a geographic information system. Thus, to use any spatial analysis with the inventory we were faced with solving this problem. As a test the Alberta Forest Service had created an inventory by quarter section labeling each quarter by its legal description and the AFS phase III inventory cover type of the largest type island in the quarter. There was a desire to see if use of this inventory for harvest scheduling analysis would give similar results to that of their individual stand inventory. This inventory could also be easily placed on a GIS system by creating a quarter section grid and then labeling the grids by their legal description. It was also obvious that if we used this inventory, the techniques used for determining distance to a potential supply point (mill) for each quarter section stand would be similar to those needed to determine distance to a supply point for individual stands in a GIS inventory. Thus, a decision was made to use this inventory to demonstrate the use of an economic timber supply model, and the results of the timber supply analysis with no cost restrictions could be compared with the AFS analysis on individual stands to see if the quarter section inventory gave similar results.

Area analysis of the quarter section data base quickly eliminated the idea that the quarter section data base would give similar results to the stand based inventory. Table 4-1 summarizes the differences of the E1 land base by major cover group. This is very aggregated data and the differences are large. When the data is disaggregated by species, site and age class, the total differences are so great as to make any meaningful comparative analysis impossible. Table 4-2 similarly summarizes the two inventories for R4 and exhibits differences similar to E1.

While these differences make meaningful comparisons of an allowable cut or timber supply analysis from the quarter section inventory to the official allowable cut or a timber supply analysis based on the individual stand inventory impossible, they do not destroy the value of this inventory for use in demonstrating and testing a delivered wood cost model or an economic timber supply model. Techniques used to determine the distance of a quarter

Table 4-1. Inventory comparison for FMU E1

Cover Group	Stand Inventory Area (hectares)	Quarter Section Inventory Area (hectares)	Difference
Coniferous	75,595.3	70,776.6	-4,818.7
Conif/Decid	14,587.6	14,563.9	-23.7
Decid/Conif	12,646.7	12,389.2	-257.5
Deciduous	12,107.7	13,180.0	1,072.3
Pot. Productive	3,259.6	1,252.1	-2,007.5
Nonproductive	43,853.7	52,654.1	8,800.4
Nonforested	8,563.3	7,183.1	-1,380.2
Water	3,013.0	1,449.8	-1,563.2
Unclassified	1,955.9	1,318.0	-637.9
Total	175,582.8	174,766.8	-816.0

Table 4-2. Inventory comparison for FMU R4

Cover Group	Stand Inventory Area (hectares)	Quarter Section Inventory Area (hectares)	Difference
Coniferous	78,769.4	83,034.0	4,264.6
Conif/Decid	18,602.5	19,308.7	706.2
Decid/Conif	14,216.0	14,168.5	-47.5
Deciduous	34,453.6	38,024.3	3,570.7
Pot. Productive	2,922.1	1,515.7	-1,406.4
Nonproductive	30,720.8	28,007.5	-2,713.3
Nonforested	6,200.2	1,383.9	-4,816.3
Water	7,248.8	7,644.4	395.6
Unclassified	934.4	1,054.4	120
Total	194,067.8	194,141.4	73.6

section from a potential supply point are similar to those to find the distance of any stand from a potential supply point.

4.1 E1 Net Land Bases

To develop a net coniferous land base from the gross numbers given in Table 4-1 the quarter section inventory was tested to remove all Unclassified, Water, Nonforested, Nonproductive, and Deciduous cover groups. Additionally 922.6 hectares (14 quarter sections) were removed because they were classified as provincial park, grazing lease, or steep areas. This resulting land base was called the **E1 full land base**. An economic timber supply model should select only economic stands from this base. The Alberta Forest Service has developed some "rules of thumb" which give them a means of trying to reduce this land base to a commercial land base. In order to test our model against this system, it was decided to develop an **E1 AFS land base** using the rules of thumb and to test our model on both the full land base and the AFS land base. Results should be similar if the model and rules of thumb eliminate similar stands. If they do not both must be examined to see which seems better. To get the **E1 AFS land base** we reduced the full land base using similar procedures to those used in the AFS stand inventory analysis from data supplied by the Timber Management Branch by eliminating:

All stands with Lt [2] as a primary or secondary species

All A0 covertype [3] combinations older than origin 1950
All A1 covertype combinations older than origin 1930
All A2 covertype combinations older than origin 1910

[2]Lt is the species *Larix laricina* (Du Roi) K. Koch which is commonly known as tamarack. The list of tree species recognized in the Phase 3 Inventory is available in Table 5, page 15 of the publication: Alberta Phase 3 Forest Inventory: Forest Cover Type Specifications, Alberta Energy and Natural Resources, Alberta Forest Service and Resource Evaluation and Planning Division, Edmonton, 1985.

[3]Alberta's Phase 3 Inventory has a basic six-part forest cover type legend consisting of stand density, height, species composition, commercialism, stand origin and site index class. A,B,C, and D refer to the various levels of stand density. The numbers 0 to 5 represent stand height classes. For further information see the publication: Alberta Phase 3 Forest Inventory: Forest Cover Type Specifications.

All B0 covertype combinations older than origin 1950
All B1 covertype combinations older than origin 1930

All C0 covertype combinations older than origin 1950
All C1 covertype combinations older than origin 1930

All D0 covertype combinations older than origin 1950
All D1 covertype combinations older than origin 1930

Of the remaining stands any stand of rotation age or older that had less than 50 m^3/ha of coniferous volume currently was removed, and any stand less than rotation age was removed if its predicted rotation age coniferous volume was less than 50 m^3/ha. We were unable to remove any area for ground rule deletions, streamside buffers, lake buffers, *etc.* because streams, lakes, steep areas, *etc.* were not in the GIS quarter section inventory. Figure 4-1 displays the resulting net land bases by age class.

4.2 R4 Net Land Bases

In this management unit a net coniferous land base was developed from the quarter section inventory by removing all of the Unclassified, Water, Nonforested, Nonproductive and Deciduous cover groups from those shown in Table 4-2. From the remaining cover groups 431.3 hectares (7 quarter sections) were removed which were too steep (slope > 45%). This resulting land base we call the **R4 full land base**. As in the case with E1 we also created an **R4 AFS land base** which was created from the full land base by using the subjective guidelines of the Timber Management Branch to arrive at a commercial land base. This last land base is created by removing from the full land base the following:

All stands with Lt as a primary or secondary species

All "1" height class stands older than origin 1930
All "2" height class stands with 'H' and 'U' commercialism older than origin 1900

All "A" density stands with Sb as a primary species
All A0 covertype combinations

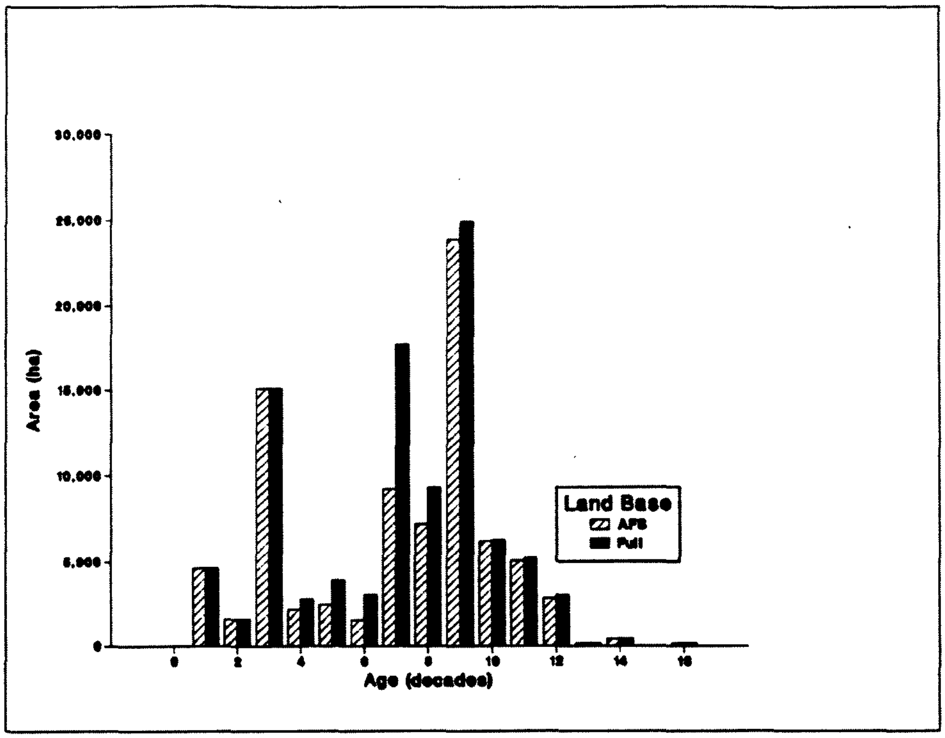

Figure 4-1. E1 age class distributions

All "B" density stands with Sb as a primary species
All B0 covertype combinations older than origin 1950

All C0 covertype combinations older than origin 1950
All C2Sb covertype combinations with 'H' and 'U' commercialism [4]
All C3Sb covertype combinations with 'H' and 'U' commercialism

All D0 covertype combinations
All D2Sb covertype combinations with 'H' and 'U' commercialism
All D3Sb covertype combinations with 'H' and 'U' commercialism

Any remaining stand that did not currently have 50 m^3/hectare in conifer volume or would not produce that much by rotation age was also removed. Figure 4-2 displays the resulting net land bases by age class.

[4]The stand commercialism classes are L for lumber, R for roundwood, H for high uncommercial and U for low uncommercial. For further information see the publication: Alberta Phase 3 Forest Inventory: Forest Cover Type Specifications.

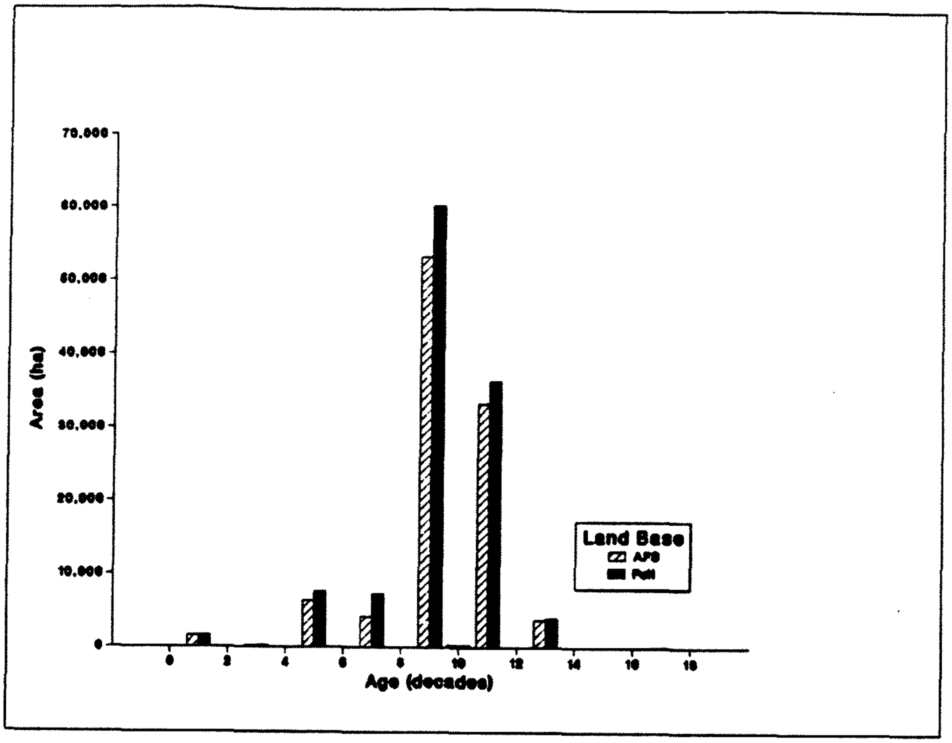

Figure 4-2. R4 age class distributions

4.3 Yield Tables Data

Once the net conifer land base was determined for each unit, current and future yield tables were needed to predict current and future volumes/hectare and stems per hectare. For purposes of the harvest schedule modeling Table 4-3 indicates the area of site/species combinations that were used on the land base.

Yields in terms of volume per hectare and stems per hectare were predicted using the Alberta Phase 3 Forest Inventory Yield Tables for Unmanaged Stands (Anon. 1985) for the appropriate species/site combinations and for the utilization standard desired (15/10 cm). The AFS at this point would make a stocking adjustment to the yield tables which we could have done, but since our quarter section land base would not duplicate the actual land base and therefore the published AAC, we did not make a stocking adjustment. The uncommercial group was assumed to be (based on an area weighted site average) black spruce stands between medium and fair sites. Values used from these tables are shown in Appendix 2.

Table 4.3. Area (ha) of species/site combinations used

Species/Site	FMU E1			FMU R4		
	G	M	F	G	M	F
Pine	7,644	41,094	2,372	1,582	59,322	1,120
White spruce	659	1,647	—	—	2,702	—
Black spruce	1,384	1,120	—	—	4,613	—
Mixed	6,129	20,390	—	2,043	31,704	—
Uncom.	—	—	15,618	—	—	14,498

4.4 GIS Haul Distance Calculation

The delivered wood cost model requires spatial information that is not readily attainable from the Phase III forest inventory. The truck to mill cost submodel requires the haul distance from landing to mill as an input. The development cost submodel uses a "non-road density" index (see section 3.2.3 for the definition) to estimate the cost of developing a particular area. These data were not available in any convenient form.

Collection of this information through manual measurement from maps was impractical because of the amount of information that must be processed. A GIS with network analysis capability is a useful tool for obtaining this type of information. The Resource Evaluation and Planning Division operates an ARC/INFO GIS system. This system was made available to us and provided the basis for our spatial analysis.

4.4.1 The ARC/INFO GIS

True geographic information systems facilitate the storage, organization, analysis, and retrieval of spatial information data, and allow the data to be graphically displayed in the form of maps (Devine *et al.* 1986). ARC/INFO is a true GIS in the sense that it incorporates all of the above capabilities.

ARC/INFO works with spatial information in the form of points, arcs (lines), and polygons, and can store, manipulate, analyse, retrieve or graphically display these features and any related attributes. Points are used to represent point features, arcs represent linear features, and polygons, which are bordered by arcs, represent area features. For instance a point may represent an oil-well site and may have an ownership attribute attached. Similarly an arc may represent a road with an attached road class attribute. A polygon could represent a forest stand with attributes pertaining to inventory characteristics.

The most useful characteristic of ARC/INFO with respect to this study is its networking capability. Networking is a means of allocating resources along defined transportation corridors to centres, while minimizing a specified impedance characteristic and not exceeding a centre's specified capacity to accept resources. For example networking analysis could be used to allocate standing timber along haul roads to meet a mill's capacity, while minimizing the transportation distance to each stand. ARC/INFO's networking capabilities were used in a similar manner to determine the distance to each quarter section in FMU's E1 and R4 from each of the potential mill locations used for our study. The mill locations considered for FMU E1 were the towns of Edson, Erith, and Hinton. For FMU R4, the mill locations were Drayton Valley, Lodgepole, and Edson.

4.4.2 GIS Data Input

Prior to the networking analysis, the necessary inventory and road network data had to be stored on ARC/INFO, a process which involved a series of three distinct steps. Completion of the data input phase was by far the most resource consuming portion of the GIS analysis.

This required manually digitizing the existing road network within each FMU, and an external road network from the FMU's to each mill location. Every road in the combined network was then assigned a road class attribute identifying it as either a primary, secondary, or tertiary highway. The roads were distinguished on the basis of haul speed as transportation cost was expected to vary with road quality.

After completion of the road network, a quarter section grid was generated for each FMU. The attributes township, range, meridian, stand number, and stand letter were manually added to identify each quarter section. This identification was necessary so that after networking a correspondence could be established between the distance assigned to each quarter section and the relevant timber inventory characteristics.

The final step in the data input process involved merging the road network with the quarter section grids. Once merged the resources (in the form of unique stands) and the transportation corridors necessary for networking were both present. The arcs bordering each quarter section were assigned a road class of 4 to identify them as non-existent roads. Movement of resources along the class 4 "roads" was permitted to allow access to quarter sections which do not have an existing road passing through them.

Networking analysis was the means by which the distance was obtained to each quarter section from each mill location. Networking required the specification of mill locations on the road network as well as an impedance value to be minimized in allocating resources. The impedance value used in this study was travel time as it was felt that travel time would more accurately reflect transportation costs than would absolute distance. Travel time was calculated for each road as road length/speed limit, with primary, secondary, tertiary, and non-roads assigned speed limits of 90, 70, 50, and 5 km/h respectively. The speed limit of 5 km/h on class 4 roads (quarter section boundaries) led to a high impedance value being assigned to these roads which ensure the networking algorithm would choose to use existing roads wherever possible. The result of this analysis was the travel time minimizing route from each quarter section to each of the potential mill locations.

4.4.3 Linkage of Spatial Information to the Timber Inventory

Two specific pieces of information were required from the spatial analysis of the two FMUs. These were the total haul distance from each quarter section to a mill site and the non-road density index used for the development cost model. Neither the total haul distance from each quarter section to a mill site nor the non-road density index were available directly from the network analysis. The networking results were exported to the University of Alberta computer system for the calculation of the total haul distance and non-road density index.

4.4.3.1 Haul Distance Determination

The networking algorithm of ARC/INFO computes the cumulative total impedance for each arc in the network, but does not compute the cumulative total distance travelled (unless impedance is equated with distance). The total distance from each arc to the centre was accumulated by summing the length of all the arcs in the cost minimizing path. The path was determined using the "previous arc" attribute. The distance to each stand was calculated by averaging the total haul distance for all arcs bordering or intersecting the stand. Distributions of area by distance for FMU E1 and FMU R4 are shown in Figures 4-3 and 4-4 respectively.

4.4.3.2 Non-road Density Index

The development cost model requires an index of the amount of road construction necessary. The index used in this study is extremely simple. For each township in the study areas we know the total area of forested land and the travel distance by road class to each of the forested quarter sections. The non-road density index for each township was calculated by dividing the sum of the distance travelled along the quarter section boundaries by the total area of forested land in the township.

4.4.3.3 Distance Classes for RAM Analysis

Two hundred timber classes are available in the version of Timber RAM at the University of Alberta. This means that considerable aggregation of the data was necessary before RAM could be used. We chose to model each of the FMU's with three distance classes. The distance classes were determined by calculating a "locational cost"

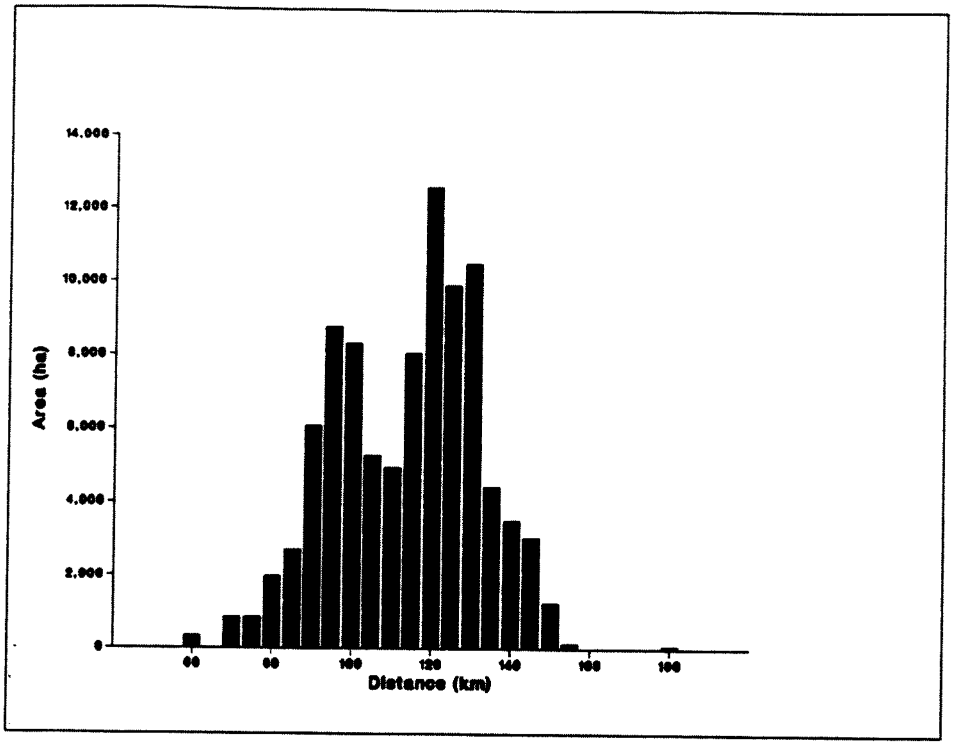

Figure 4-3. FMU E1 area distance distributions

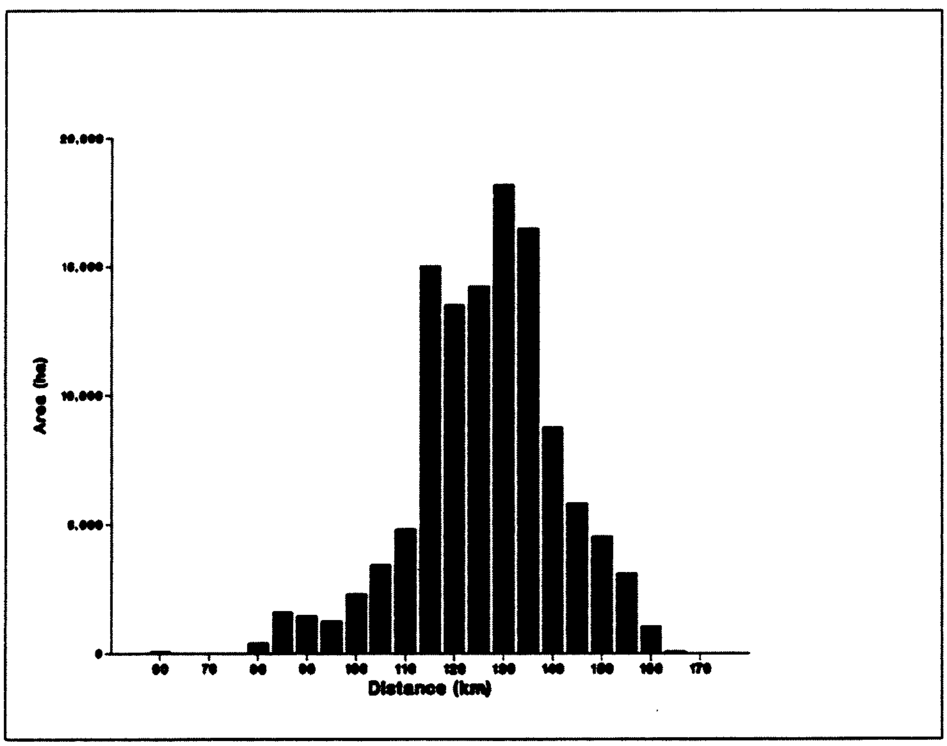

Figure 4-4. FMU R4 area distance distributions

for each of the quarter sections. This locational cost was the sum of the modeled truck to mill cost and the development cost per m^3 assuming an average volume of 221 m^3 per hectare. Development costs were translated to a volume basis in order to make the truck to mill and development costs comparable. The locational costs were divided into three classes with equal area. Quarter sections with locational costs in the lowest third were put into the "near" distance class; quarter sections in the middle third were put into the "moderate" distance class; and the quarter sections in the highest third were put into the "far" distance class.

5. THE USE OF TIMBER RAM

The Timber Resources Allocation Method (Timber RAM; Navon, 1971) is a linear programming based timber management scheduling model. Timber RAM allows for the specification of different types of objective functions (silvicultural or financial) and allows for the specification of periodic constraints on harvest level, total cost, total revenue, and net revenue. The model is useful for timber management planning in a region (like Alberta) where harvest volume maximization is an objective and sustained yield policies are part of the constraint set. Following a pilot study by Beck and Phillips (1980) Timber RAM was adopted by the Alberta Forest Service as one of its timber management planning models. Consequently, the use of Timber RAM in this study was a practicality based on the current use of Timber RAM by the Alberta Forest Service.

Timber RAM was chosen as the central model for the economic timber supply analysis system for a number of reasons:

1) the timber management policies of the Alberta Forest Service are easy to incorporate into RAM,

2) the data input conventions for RAM allow for easy input of the relevant growth and cost information,

3) the basic structure of RAM is simple, allowing for modification where necessary,

4) the model is flexible enough to allow for analysis of a number of different policy alternatives, and

5) a number of provincial government analysts are familiar with RAM and understand its strengths and weaknesses.

The basic thrust of this research was to compare the potential annual allowable cuts calculated under different marginal and average cost constraints. The procedures used will be explained below.

5.1 Marginal Cost Constraints

For the purposes of this study, marginal cost constraints are to be interpreted as follows. No timber class with a cost ($\$/m^3$) in a period greater than the marginal cost constraint is permitted to be harvested. With a marginal cost constraint of $\$25/m^3$, for example, a timber class that would cost $\$25.10/m^3$ to harvest in period 1 would not be harvestable. If the same timber class cost $\$24.90/m^3$ in period 2, it would be eligible for harvest in that period. Marginal cost constraints can be incorporated indirectly into Timber RAM through manipulation of the first entry and first harvest parameters of Timber RAM. The period of first entry and first harvest is set so that a timber class is available for harvest only once it reaches an age at which it can be delivered within the per unit marginal cost constraint. Timber classes which are never available at a cost less than the constraint level are considered never merchantable (at that constraint level) and are eliminated from the data file.

5.2 Average Cost Constraints

Average cost constraints were incorporated in the the system in order to incorporate an important characteristic of Alberta's timber allocation system. In order to avoid the problem of "high-grading", harvesting rights in Alberta are allocated such that operators get a mix of "better than average" timber and "worse than average" timber. An operator is not permitted to harvest only cheapest timber or better than average timber. We chose to model this policy using an average cost constraint. This average cost constraint could be stated as follows. For any given period in the planning horizon, the total cost of harvesting divided by the total volume harvested cannot exceed the stated constraint level.

Incorporation of these average cost constraints requires modification of the Timber RAM generated linear programming matrix. The matrix must be augmented with activities into which periodic total costs are summed, and by constraint rows of the following format:

$$TOTCST(i) - [(ACC(i)) \times HARV(i)] \leq 0$$

where

TOTCST(i) is total cost of harvesting in period i,

ACC(i) is the average cost constraint for period i,and

HARV(i) is the total volume harvested in period i.

The periodic average cost constraint is input as a coefficient of the Timber RAM generated periodic total harvest activity.

A package of two FORTRAN post processors was written to perform the above modifications on the input matrix, and to remove from the solution basis added activities not recognized by the Timber RAM Report Writer. The program RAMPACC.MOD adds the appropriate rows and columns to the Timber RAM matrix after reading the average cost constraints from a user-control file. The program RAMPACC.KILL removes all added columns from the solution basis. Listings of both programs and a sample user-control file are contained in Appendix 3.

5.3 Timber RAM Data Input

Eight series of Timber RAM runs were made for this study. Each series consists of 6 to 9 individual Timber RAM runs. The hierarchy of these runs in show in Table 5-1. The RAM inputs are summarized in the matrix generator reports presented in Appendix 4.

5.3.1 Policy Parameters

All the RAM runs were set up so as to model the basic AFS policy of harvest volume maximization over the conversion period subject to sustained yield constraints. Strict even flow of harvest volume was required over the conversion period with large variations allowed in the post-conversion period (PCP). These variations in the PCP were allowed in order to

Table 5-1. Series of RAM runs made for the study.

FMU E1		
	Full land base	
		•Marginal cost constraints
		•Average cost constraints
	AFS land base	
		•Marginal cost constraints
		•Average cost constraints
FMU R4		
	Full land base	
		•Marginal cost constraints
		•Average cost constraints
	AFS land base	
		•Marginal cost constraints
		•Average cost constraints

avoid possible problems with infeasibility (Armstrong *et al.* 1984). [5] The conversion period and planning horizon lengths were set to 10 and 25 decades respectively.

5.3.2 Timber Classes

A timber class was set up to represent each distance class - species - site - age class combination used in the analysis. There were 166 timber classes used for the FMU E1 analysis and 101 used for FMU R4. A description of the timber classes is in Appendix 5.

5.3.3 Management Alternatives

The management alternatives used in this analysis were very simple. None of RAM's genetic options was used. The type of management was assumed to be clearcut only. The earliest period of first entry and first harvest was set for the first decade in order to allow maximum flexibility[6]. The period of last entry and last harvest was set so that no timber would exceed the maximum allowable age of 18 decades. This was done to duplicate the Alberta Forest Service's policy of not allowing any stand to get older than 180 years.

[5]In linear programming, infeasibility is the term used to describe a problem which cannot be solved.

[6]These parameters were changed in the marginal cost series as detailed above.

5.3.4 Volume Data

One volume table was created for each species - site class combination. The source of the volume data used is discussed in a previous section. Timber class ages were calculated by subtracting the AFS orgin age from 1985. For FMU E1, one decade old timber classes were assumed to be ten years old; two decade old timber classes were assumed to be twenty years old, *etc.* For FMU R4, one decade old timber classes were assumed to be the median age of five years old; two decade old timber classes were assumed to be fifteen years old, three decade old timber classes were assumed to be twenty-five years old, (i.e. the median age of the range twenty to thirty years), *etc.* This difference is because of the different dates of stand origins in our inventory files. Rotation ages were set at the decade nearest the culmination of mean annual increment. No regeneration lag was assumed.

5.3.5 Economic Data

A different cost per cubic metre table was created for each distance class - species - site class combination. The cost per cubic metre tables were used to reflect all costs except for development. These tables are found in Appendix 2. The cost per hectare tables were used to reflect development costs. These costs were a constant for each of the distance classes. The cost per hectare for regenerated timber for all distance classes was set to be that for the near distance class. This was done in order to recognize that less road development will be necessary after the first rotation.

6. RESULTS

6.1 Static versus Dynamic Analysis

The entire inventory for each Forest Management Unit's land base was analysed and both marginal and average cost curves were created[7] for the growing stock volume. The curves for the FMU E1 full and AFS land bases are shown in Figures 6-1 and 6-2. Similar curves for the two FMU R4 land bases are shown in Figures 6-3 and 6-4.

The marginal cost curves show the total volume in the land bases that can be harvested for less than a given delivered wood cost. The average cost curves for the same volume level show what the average delivered wood cost is for that volume, assuming that the stands are harvested cheapest first. These curves depict today's distribution of growing stock volume by cost. Curves such as these have been used in economic timber supply analyses elsewhere (Williams and Gasson, 1986).

These curves present a very static picture because the growth of forests and change in economic characteristics over time are ignored. Because of the age class distribution of the two FMU's (Figures 4-1 and 4-2), it is incorrect to assume no growth for this analysis. Due to the need to recognize the dynamic nature of the forest, curves presented in Figures 6-5 through 6-8 were developed. These curves represent sustainable harvest levels for each of the land bases calculated using different average and marginal cost constraints. These harvest levels were determined using the Economic Timber Supply Model[8] incorporating objectives and policies which approximate AFS timber management guidelines.

It is important to emphasize that these curves represent **sustainable** harvests, that is, harvests at this level are sustainable in perpetuity without violating the cost constraint for at least 10 decades. For example, using the curves developed for the R4 AFS land base (Figure

[7]Both the marginal and the average cost curves were created by using the developed economic timber supply model to define the volume of wood available at a number of different cost levels. Each level required an individual computer run. Each run gave a data point which were used in the development of the curves.
[8]The Economic Timber Supply Model was developed by joining our Delivered Wood Cost Model with our modified Timber RAM harvest scheduling model.

6-8), imposition of an average cost constraint of \$26/m^3 would allow for a sustainable harvest of about 230,000 m^3 per year. The static average cost curve for the R4 AFS land base (Figure 6-4) indicates that 12 million m^3 are available at an average cost of \$26 per m^3. This stock analysis using average cost constraints shows that there are only 52 years of harvest left at the 230,000 m^3 harvest level. However, from our dynamic analysis we know that this level is sustainable. Dynamic analysis is based on an analysis where the simulated forest is harvested and grown over time, whereas static analysis is based on an analysis at a given point in time without considering growth.

The static marginal cost curve (Figure 6-4) shows 5.5 million m^3 available at a cost less than \$26 per m^3. At a harvest of 170,000 m^3 per year one would conclude that only 32 years of harvest can be supported. But using the dynamic marginal cost curve at the same constraint level a sustainable harvest of 170,000 m^3 per year is possible (Figure 6-8).

Table 6-1 serves to illustrate how the use of static stock supply analyses can underestimate the period of sustainable harvest at a given level of harvest. Impending timber supply shortages reported by the press may not be as drastic as first indicated. Many timber famines have been predicted: few have occurred. Is this because of the use of static timber supply analyses?

Table 6-1. Years of remaining harvest indicated by marginal stock supply analysis.

CONSTRAINT LEVEL (\$/m^3)	STOCK SUPPLY ANALYSIS HARVESTABLE YEARS REMAINING			
	FMU E1		FMU R4	
	SUSTAINABLE HARVEST	INDICATED YEARS LEFT	SUSTAINABLE HARVEST	INDICATED YEARS LEFT
28	225,000	47	240,000	60
27	220,000	42	210,000	52
26	210,000	31	170,000	33
25	180,000	28	120,000	18

Table 6-2. Years of remaining harvest indicated by average stock supply analysis.

CONSTRAINT LEVEL ($/m³)	STOCK SUPPLY ANALYSIS HARVESTABLE YEARS REMAINING			
	FMU E1		FMU R4	
	SUSTAINABLE HARVEST	INDICATED YEARS LEFT	SUSTAINABLE HARVEST	INDICATED YEARS LEFT
26	227,000	49	250,000	48
25	225,000	40	200,000	25
24	170,000	28	80,000	16
23	80,000	21	----	---

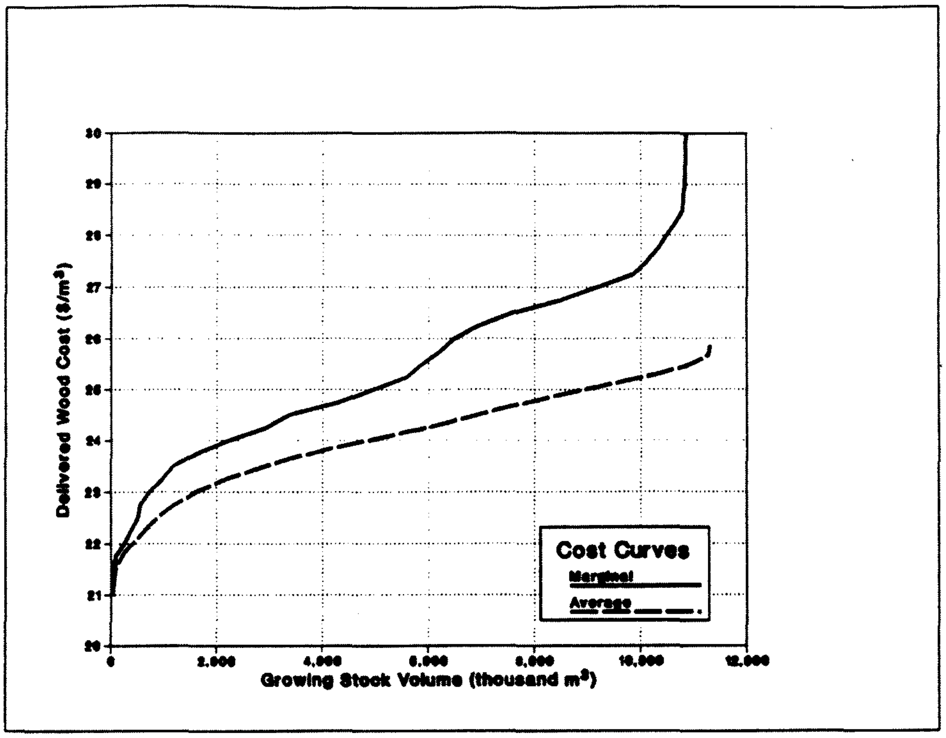

Figure 6-1. FMU E1 full land base STATIC cost curve

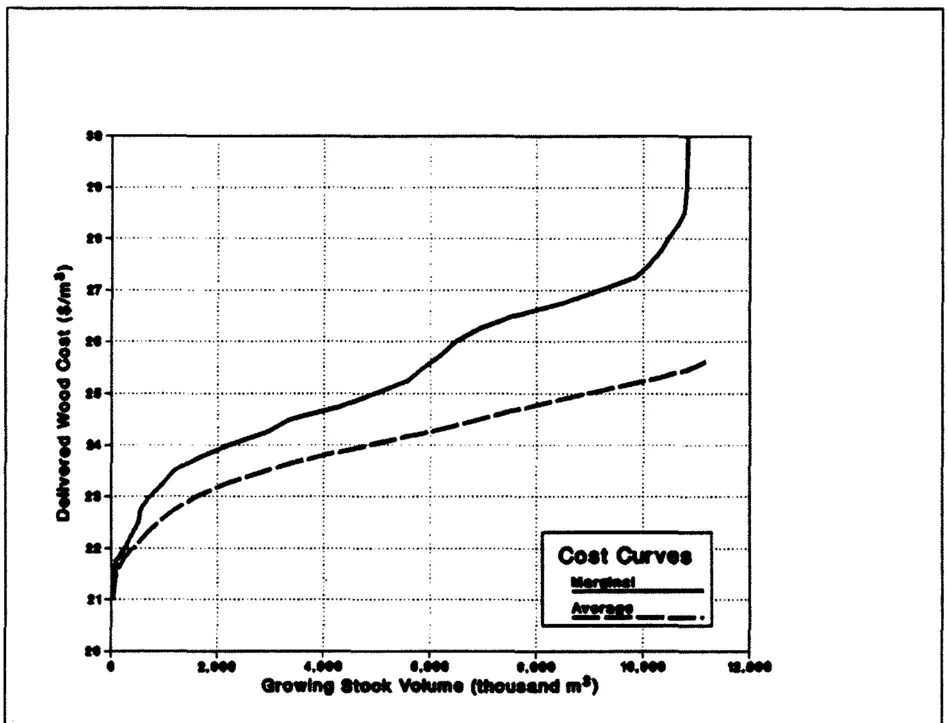

Figure 6-2. FMU E1 AFS land base STATIC cost curve

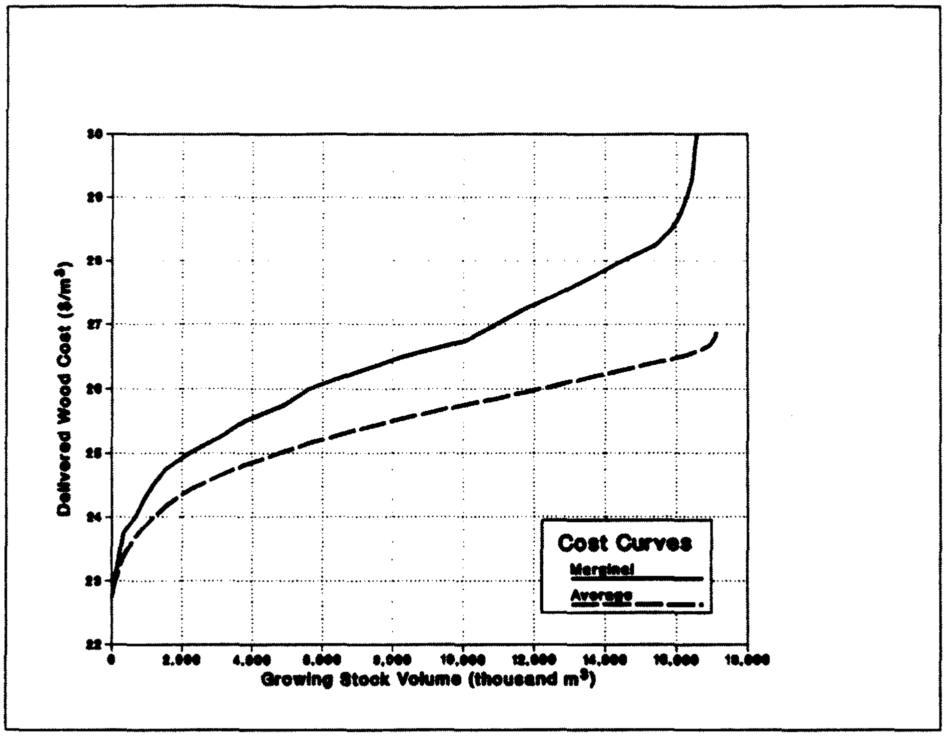

Figure 6-3. FMU R4 Full land base STATIC cost curve

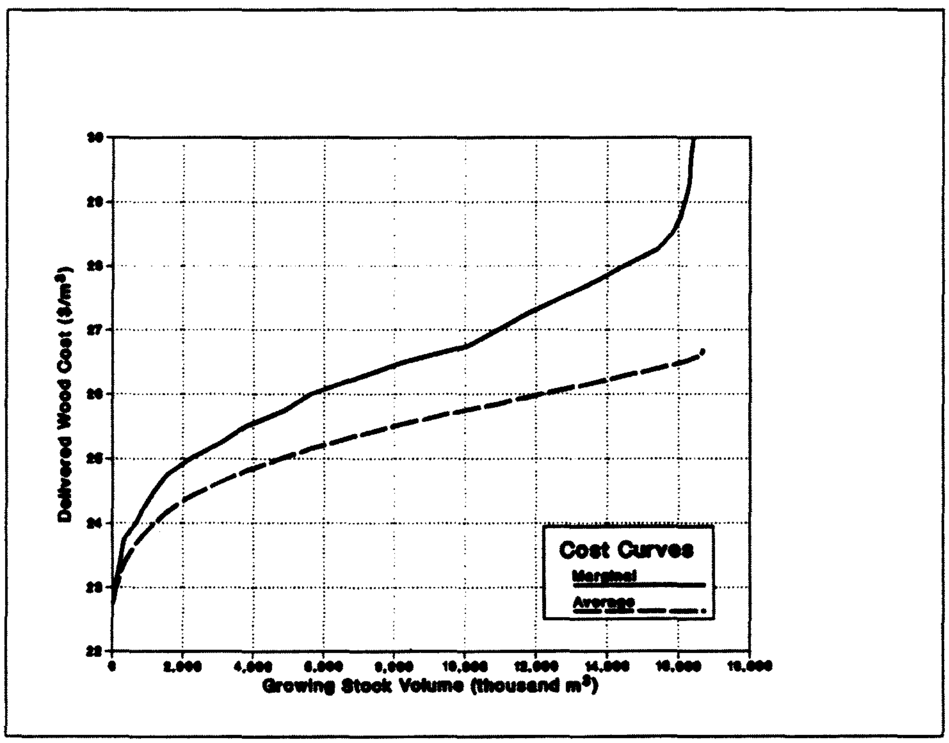

Figure 6-4. FMU R4 AFS land base STATIC cost curve

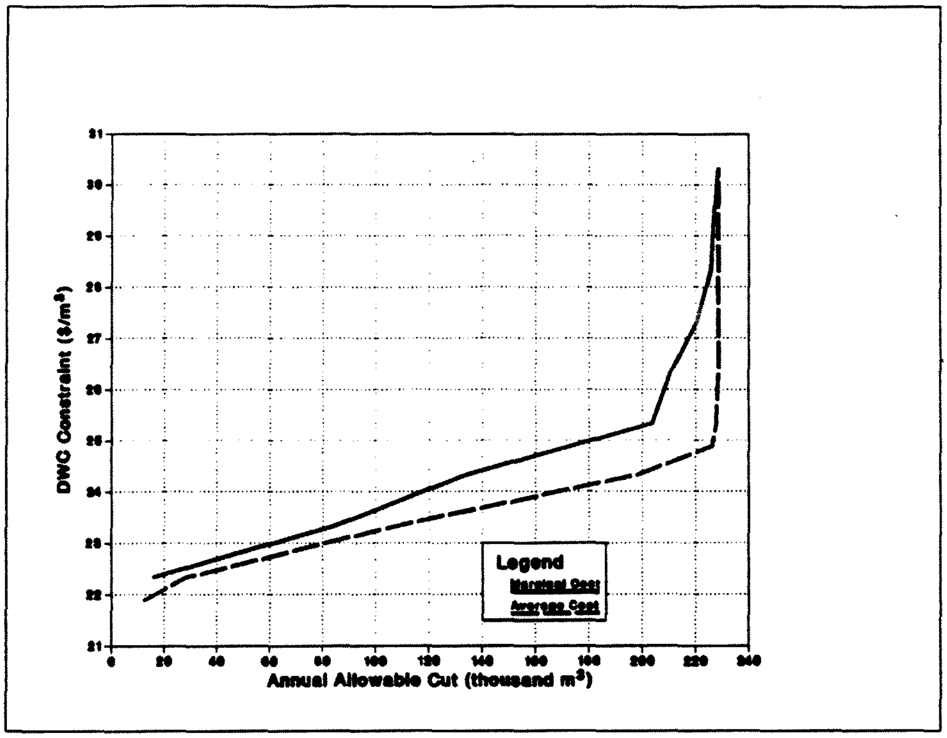

Figure 6-5. FMU E1 full land base DYNAMIC cost curve

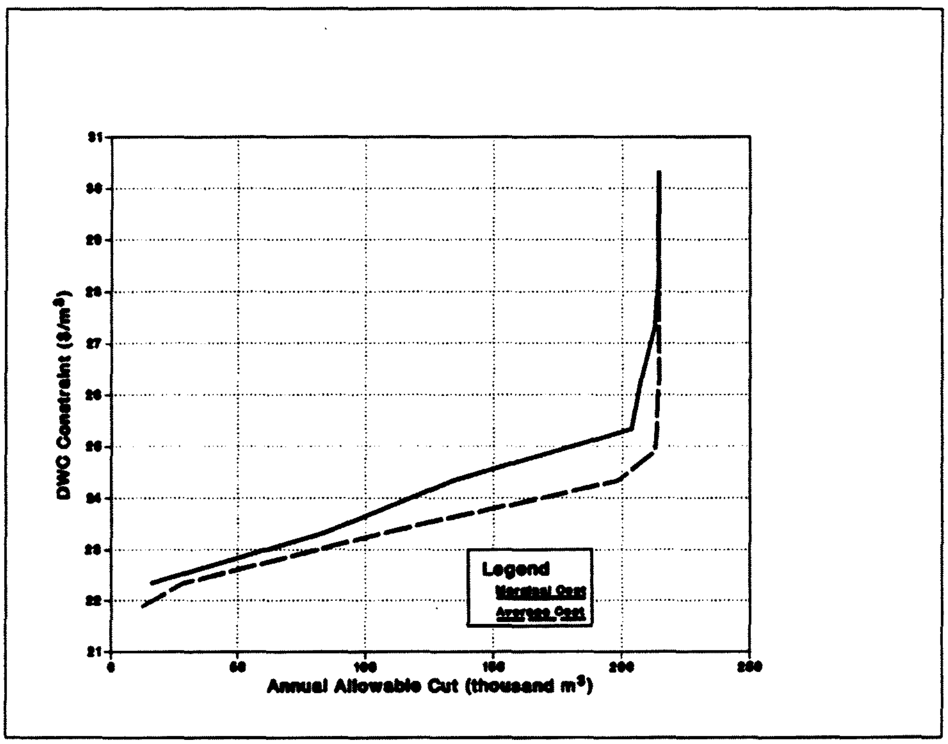

Figure 6-6. FMU E1 AFS land base DYNAMIC cost curve

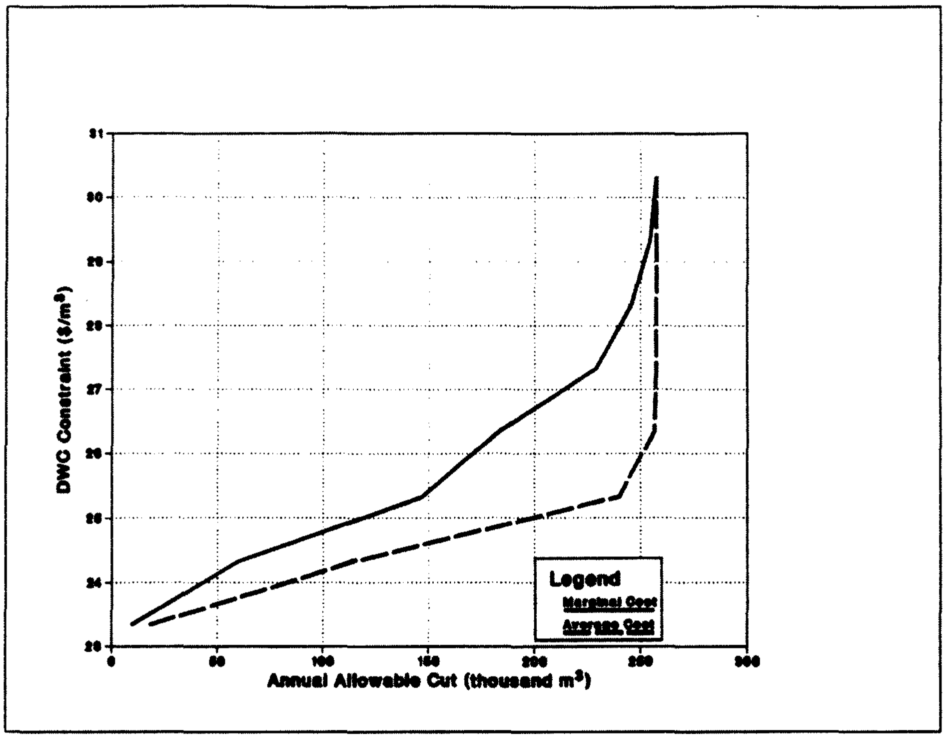

Figure 6-7. FMU R4 full land base DYNAMIC cost curve

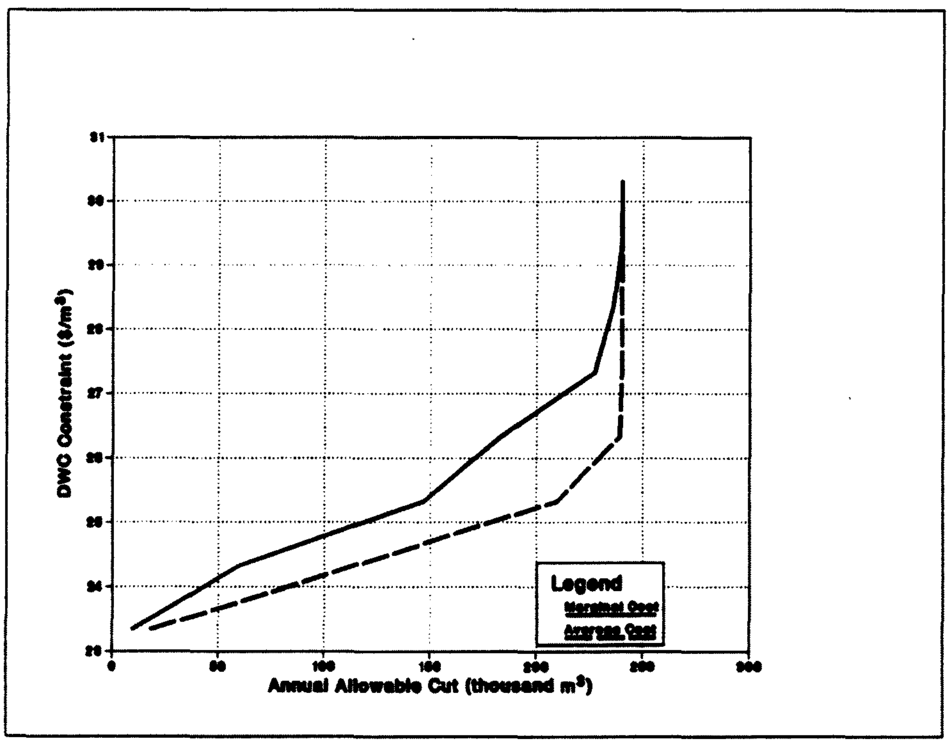

Figure 6-8. FMU R4 AFS land base DYNAMIC cost curve

6.2 Full Land Base versus AFS Land Base

Careful analysis of Figure 6-5 and Figure 6-6 or Figures 6-7 and 6-8 indicates little difference in allowable cut for marginal delivered wood costs below about \$27 per m^3. This indicates none of the uncommercial land classes (NM, MM, or, FM)[9] subjectively eliminated from the full land base to get the AFS land base are scheduled for harvest. At delivered wood cost levels above this, some differences do show with the full land bases having a larger allowable cut.

A detailed analysis of the R4 unit (Figures 6-7 and 6-8) is included in Tables 6-3 and 6-4. At a delivered wood cost of \$27.33 per m^3 or less the economic timber supply model schedules the same areas for harvest for the full land base and the AFS land base. At \$28.33 the model starts to schedule the NM and MM land classes for harvest on the full land base. The near (NM) and some of the medium (MM) distance land classes which were subjectively eliminated to get the AFS land base are economically harvestable at this cost level. At the unconstrained level (base run) all of the near, medium, and far (NM, MM, FM) distance land classes in the full land base are used.

In summary, as cost first becomes constraining, the economic timber supply model first eliminates, based on costs, the same stands that have been subjectively eliminated by the the AFS rule-of-thumb. The economic timber supply model also eliminates the more distant, poorer stands before it eliminates the closer, poorer stands. Since these stands are used at only very high acceptable cost levels, either the AFS land base or the full land base would be sufficient in future analyses. Both give similar results when costs are constraining. Therefore, the economic timber supply model simulates quite well what the Alberta Forest Service does practically and logically. One might ask the question why not use the marginal cost curve, and this leads us to the next section, Marginal versus Average Cost Curves.

[9]The two letter symbol combines the developed distance classes (near, moderate and far) with species/site combinations (good, medium and fair). The reader may wish to review Section 4.4.3.3 "Distance classes for RAM Analysis" and Section 4.3 "Yield tables data".

Table 6-3. R4 Full land base harvested area (ha) — marginal cost constraint

Yield Class	Base Run	Maximum Cost Permitted $28.33	$27.33	$26.33	$25.33	$24.33	$23.33
NB	1,120	1,120	1,120	923	923	461	191
NE	1,384	1,384	527	0	0	0	0
NG	857	857	857	857	857	857	857
NH	11,144	11,144	11,079	9,826	10,893	10,556	983
NJ	725	725	725	725	725	725	638
NK	19,367	19,367	17,350	19,367	15,216	2,124	0
NL	66	66	66	66	0	0	0
NM	4,415	4,415	0	0	0	0	0
MB	395	395	395	330	330	66	0
ME	1,384	1,384	0	0	0	0	0
MG	593	593	593	593	593	593	593
MH	11,547	11,547	11,547	11,086	11,547	10,689	0
MJ	395	395	395	395	395	395	186
MK	19,887	19,887	19,624	14,747	8,006	0	0
ML	791	791	791	0	0	0	0
MM	4,481	2,833	0	0	0	0	0
FB	1,186	1,186	1,186	923	923	0	0
FE	1,845	989	0	0	0	0	0
FG	593	593	593	593	593	461	0
FH	9,012	9,012	9,012	8,617	9,012	330	0
FJ	461	461	461	461	461	0	132
FK	20,068	20,068	19,870	9,778	6,624	0	0
FL	264	264	0	0	0	0	0
FM	5,602	0	0	0	0	0	0
Total	117,584	109,477	96,192	79,287	67,098	27,257	3,579

6.3 Marginal versus Average Cost Curves

One of the major tenets of economic efficiency is to produce the quantity where marginal cost equals marginal revenue. When applied to forest stand allocation for harvesting this theory assumes all stands in any economic class are accessible. In reality, institutional, policy, and management restrictions violate this assumption. First, most forests consist of an intermixed mosaic of stands of many economic classes. Policy and practicality dictate that most merchantable stands in an active logging area be logged at the same time. Thus, stands in a range of economic classes are always harvestable. Size of the individual stands has an influence as well; often stands are smaller than the average cut block, and they are often very irregular in shape. Again, this leads to the harvesting of a mix of economic classes. Location also enters as

Table 6-4. **R4 AFS land base harvested area (ha) — marginal cost constraint**

Yield Class	Base Run	Maximum Cost Permitted $28.33	$27.33	$26.33	$25.33	$24.33	$23.33
NB	1,120	1,120	1,120	923	923	461	191
NE	1,384	1,384	527	0	0	0	0
NG	857	857	857	857	857	857	857
NH	11,144	11,079	11,079	9,826	10,893	10,556	983
NJ	725	725	725	725	725	725	638
NK	19,367	19,038	17,350	19,367	15,216	2,124	0
NL	66	66	66	66	0	0	0
MB	395	395	395	330	330	66	0
ME	1,384	1,384	0	0	0	0	0
MG	593	593	593	593	593	593	593
MH	11,547	11,547	11,547	11,086	11,547	10,689	0
MJ	395	395	395	395	395	395	186
MK	19,887	19,729	19,624	14,747	8,006	0	0
ML	791	791	791	0	0	0	0
FB	1,186	1,186	1,886	923	923	0	0
FE	1,845	198	0	0	0	0	0
FG	593	593	593	593	593	461	0
FH	9,012	9,012	9,012	8,617	9,012	0	0
FJ	461	461	461	461	461	330	132
FK	20,068	20,068	19,870	9,778	6,624	0	0
FL	264	264	0	0	0	0	0
Total	103,086	100,884	96,192	79,287	67,098	27,257	3,579

Note: The Yield Class (or timber class) used in Timber RAM is identified with a three character code. In this study the first character was used to identify the haul distance class and the second character was used to identify the species-site combination. The third character was used to identify the current age of the timber class. For further detailed information see Appendix 5.

a factor. The Alberta Forest Service does not allocate all close timber before allocating more distant timber. Several companies operating in Alberta have a management objective that the average haul distance over the first rotation will vary by no more than 5 miles in each year. Because of the above, we submit that the average cost curves better simulate actual timber harvesting than the marginal cost curves.

7. RECOMMENDATIONS AND SUGGESTIONS FOR FURTHER RESEARCH

1. Before the benefits possible from this research can be achieved it is essential the provincial stand inventory be placed on a geographic information system. The quarter section inventory we used does not correlate well with the individual stand inventory and thus, while it was useful to develop the techniques in this study, it is not, in our opinion, reliable for analysing real allowable cut alternatives.

2. Based on the results of our delivered wood cost survey, we believe a time and motion economic work study is needed to get a more reliable tree to truck cost relationship.

3. More data is needed on deciduous operations if there is a desire to model these operations.

4. If any further studies like this are to proceed, expertise on use of a GIS will need to be developed and maintained provincially.

5. When recommendations 1 through 4 have been achieved we recommend this type of analysis be completed for all FMU's in Alberta.

6. For the type of analysis carried out in this project, Timber RAM was found to be more than adequate in handling the project data and objectives. Since the government is experienced in the use Timber RAM, further economic analyses using Timber RAM is quite feasible.

7. Future research could look at changing constraints by period to simulate technological change, instead of using constant average cost constraints.

8. Further work is necessary to link economic timber supply analyses with a national forest sector model.

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DELIVERED WOOD COST MODEL

QUESTIONNAIRE

For the Alberta
ECONOMIC TIMBER SUPPLY MODEL PROJECT

A Research Project of
The Department of Forest Science
UNIVERSITY OF ALBERTA

RETURN TO: Price Waterhouse
Management Consultants
2401 Toronto Dominion Tower
Edmonton Centre
Edmonton, Alberta T5J 2Z1

INSTRUCTIONS

1. Please separate your May 1, 1984 to April 30, 1985 harvesting activities into major operating areas. A major operating area should be defined as that area served by the same main haul road. There may be several distinct operating areas, each with several cutting permits. This questionnaire does not include any costs associated with purchased wood.

2. Please identify each operating area so that Price Waterhouse is able to identify the area should follow up with you be necessary.

3. Please complete one questionnaire for each separate operating area.

4. Please answer all questions. Incomplete questionnaires will necessitate follow up by Price Waterhouse and will delay the project.

5. Any questions that cannot be answered "quantitatively" should be answered with your "best estimate".

6. **DO NOT RETURN** the questionnaire to anyone but Price Waterhouse. Please use the return envelope as this will guarantee the confidentiality of your cost data.

PLEASE RETURN TO PRICE WATERHOUSE NO LATER THAN APRIL 15th.

THANK YOU FOR YOUR COOPERATION. IF THERE ARE ANY QUESTIONS PLEASE CONTACT MR. COLIN REID, C.A., OF PRICE WATERHOUSE AT 423-5234.

DELIVERED WOOD COST STUDY

QUESTIONNAIRE

COMPANY NAME: ____

COMPANY CONTACT: ____________________ PHONE: ____________________

OPERATING AREA: __________ # __________ of __________ Areas

Note: The above information is confidential and is solely for the purpose of follow up by Price Waterhouse, if necessary.

1. **HARVESTING INFORMATION** for this operating area for the period May 1,1984 to April 30, 1985:

TENURE	UTILIZATION STD. & AVG. VOLUME(%)	SEASON	HARVESTED AREA	VOLUME	AVG. STEMS	AVG. SLOPE
	Pl(%) Sp(%) Other(%)Decid(%)	(S/W)	(ha. Logged)	HARVESTED	(#/ha)	(%)
______	___(%) ___(%) ___(%) ___(%)	__	_______ha( )	_______m3	_____/ha	___%
______	___(%) ___(%) ___(%) ___(%)	__	_______ha( )	_______m3	_____/ha	___%
______	___(%) ___(%) ___(%) ___(%)	__	_______ha( )	_______m3	_____/ha	___%
______	___(%) ___(%) ___(%) ___(%)	__	_______ha( )	_______m3	_____/ha	___%
______	___(%) ___(%) ___(%) ___(%)	__	_______ha( )	_______m3	_____/ha	___%
______	___(%) ___(%) ___(%) ___(%)	__	_______ha( )	_______m3	_____/ha	___%
______	___(%) ___(%) ___(%) ___(%)	__	_______ha( )	_______m3	_____/ha	___%
______	___(%) ___(%) ___(%) ___(%)	__	_______ha( )	_______m3	_____/ha	___%
______	___(%) ___(%) ___(%) ___(%)	__	_______ha( )	_______m3	_____/ha	___%
______	___(%) ___(%) ___(%) ___(%)	__	_______ha( )	_______m3	_____/ha	___%
______	___(%) ___(%) ___(%) ___(%)	__	_______ha( )	_______m3	_____/ha	___%
______	___(%) ___(%) ___(%) ___(%)	__	_______ha( )	_______m3	_____/ha	___%
______	___(%) ___(%) ___(%) ___(%)	__	_______ha( )	_______m3	_____/ha	___%

Note: Please indicate after harvesting area whether this was a coniferous (c), deciduous (d) or mixed (m) area.

COMMENTS ON UTILIZATION STANDARDS: ____

____

____

2. WOODLANDS OVERHEAD COSTS: $__________/m3

Note: The overhead cost/m3 for the period May 1/84 to Apr 30/85 should include the following:

- -initial planning costs
- -any assessment or company cruising costs
- -any planning costs for cut block sequencing and cut block layout
- -any administration costs associated with obtaining A.F.S. approvals
- -any depletion write-offs for purchased crown timber quota
- -any woodlands equipment depreciation costs
- -all woodlands supervision including travel expenses
- -include firefighting equipment and training costs.
- -this overhead cost **should NOT include** any head office charges or general administrative or interest charges

COMMENTS ON WOODLANDS OVERHEAD COSTS:

3. TREE TO TRUCK COSTS: Winter $__________/m3
Summer $__________/m3

Note: This is the **AVERAGE** cost for falling, limbing, skidding and loading plus any in-block road and landing construction costs. If there are any associated move-in costs they should be included here.
Please answer the following:
Loading system used ________________ Loading Costs_____$/m3

Indicate if tree length or short logs hauled:________________

Harvesting system(s) used and relative percentage of volume harvested by each:____________________________

(Harvesting systems can be i)Power Saw, ii) Feller-Buncher (mechanical) or iii) Power-saw with mechanical delimbers.

4. HAULING COSTS: $__________/m3

Note: Please specify the **AVERAGE** total haul distance from this area segregating the **AVERAGE** on and off-highway distances.

Average on-highway distance _____km
Average off-highway distance_____km

Total Average haul distance _____km

5. **LOG YARD COSTS:** $_______________/m3

Note: Please indicate the total unloading and decking costs associated with unloading at the millyard. Please identify the unloading and decking system used:_______________

6. **TOTAL SCALING COSTS:** $_______________/m3

Note: Please indicate your total yard cost of scaling per m3. and identify the system of scaling used:_______________

7. **INTENSIVE FOREST MANAGEMENT COSTS:** $_______________/m3

Note: Please include any juvenile spacing, thinning, permanent sample plots, plus tree selection, seed orchard costs or other intensive forest management costs.

8. **TOTAL REFORESTATION COSTS:** $_______________/m3

A. Company reforestation activity:

Method	Area (ha.)	Cost ($/ha)	Cost ($/m3)
Scar/planting			
Scar/seeding			
Scarification			
Planting			
Natural			
Untreated			

(Scar= scarification)

B. Forest Service Reforestation activity on Company's behalf:

TENURE	AREA (ha.)	AFS LEVY PAID ($/ha)	($/m3)

C. Future Anticipated Reforestation Costs:

-By year 3 $_______________
-By year 7 $_______________
-By year 10 $_______________

Note: Your anticipated reforestation costs for this operating area should include your expected regen survey costs and any seed collection costs.

9. **AVERAGE STUMPAGE COSTS:** Coniferous $____________/m3
Deciduous $____________/m3

Note: Please indicate your total dues cost for this operating area.

10. **HAUL ROAD WRITE-OFF COSTS:**

A. Present write-offs: MAIN ROAD ____________$/m3
BRANCH ROAD ____________$/m3

Note: Please include all main and branch road write-off costs used to harvest this operating area. **DO NOT** include "in -block" roads with these costs as they should have been included in the tree-to-truck costs.

Total km__________MAIN ROAD Cost per km Main Road__________
Total km__________BRANCH ROAD Cost per km Branch Rd__________

If records are not kept separately then please provide total road cost information below:

Total km__________ALL ROADS Cost per km All Roads__________

B. Present **<u>average</u>** road construction costs:

MAIN ROAD __________$/km Winter __________$/km Summer
BRANCH ROAD __________$/km Winter __________$/km Summer

11. **HAUL ROAD MAINTENANCE COSTS:** $__________/km

Note: Gross haul road maintenance costs can be the average cost per kilometer for the entire Alberta operation or can be for this operating area only, whichever is the most convenient. If your figure is for the entire Alberta operation please indicate this beside your answer. Include erosion control costs in your figure. If maintenance costs have been expended on private roads other than your company's, please indicate the amount paid for road usage or maintenance and indicate the distance.
$____________km____________

12. **ROAD REVENUE:** ________km for $________

Note: Please indicate any road revenue that was realized from this operating area, or indicate if there was a shared maintenance agreement, or an upgrading agreement. If this revenue reduced the road maintenance for this operating area or if it affects any figures given earlier (i.e. Haul road maintenance costs) please indicate the effects in the space below.

13. **HOLDING AND PROTECTION COSTS:** $______________/m3
AND $______________/ha

Note: This cost includes holding and protection costs only.

14. **CAMP COSTS:** $________________/m3
OR TOTAL COST $____________________

Note: Please indicate your net camp costs (if applicable) for this operating area. If reporting only the cost it will be assumed the cost is for the total volume harvested in this operating area only.

15. **OTHER COSTS:** $________________/m3

Note: Please detail any other costs that are applicable to your delivered wood, but are not accounted for in any of the above sections (indicate the total above):

16. **TOTAL COST RECONCILATION:** $________________/m3

Note: Please give the average total delivered wood cost for your operating area. The total of #1 to #15 should agree with the above figure. If any discrepancy please explain below.

RAM Data Development for White Spruce Good site: FMU E1.

Age (Decades)	Volume (m3/ha)	Stem Density (#/ha)	Log Size (m3/log)	Woodlands Cost ($/m3)	---Subtotal Cost---- Near	Medium	Far	----Total Cost---- Near	Medium	Far
1	0.0	0.	0.0	-----	-----	-----	-----	-----	-----	-----
2	0.0	0.	0.0	-----	-----	-----	-----	-----	-----	-----
3	0.0	0.	0.0	-----	-----	-----	-----	-----	-----	-----
4	21.8	250.	0.087	15.35	27.20	28.06	28.68	30.15	33.18	37.03
5	91.4	526.	0.174	13.54	25.39	26.25	26.87	26.09	27.47	28.86
6	156.2	609.	0.256	12.52	24.37	25.23	25.85	24.78	25.95	27.01
7	211.9	629.	0.337	11.80	23.66	24.52	25.13	23.96	25.04	25.99
8	261.8	624.	0.419	11.23	23.08	23.94	24.56	23.33	24.37	25.25
9	304.6	610.	0.499	10.77	22.62	23.48	24.10	22.83	23.85	24.70
10	340.9	593.	0.575	10.40	22.25	23.11	23.73	22.44	23.44	24.26
11	371.4	576.	0.645	10.10	21.95	22.81	23.43	22.13	23.11	23.92
12	396.7	560.	0.708	9.85	21.71	22.57	23.18	21.87	22.85	23.64
13	419.5	545.	0.770	9.63	21.49	22.35	22.96	21.64	22.61	23.40
14	437.9	532.	0.823	9.46	21.31	22.17	22.79	21.46	22.43	23.20
15	454.8	520.	0.875	9.30	21.15	22.01	22.63	21.29	22.26	23.03
16	469.6	510.	0.921	9.16	21.02	21.88	22.49	21.16	22.12	22.88
17	482.6	500.	0.965	9.04	20.90	21.76	22.37	21.03	21.99	22.75
18	494.0	492.	1.004	8.94	20.79	21.65	22.27	20.92	21.88	22.63

Haul Costs ($/m3)
  Near: 8.68
  Medium: 9.54
  Far: 10.15

Development Costs ($/ha)
  Near: 64.15
  Medium: 111.39
  Far : 181.84

The subtotal column includes all costs except development costs.
The total column includes development costs expressed on a per cubic metre basis.

RAM Data Development for White Spruce Medium site: FMU E1.

Age (Decades)	Volume (m3/ha)	Stem Density (#/ha)	Log Size (m3/log)	Woodlands Cost ($/m3)	---Subtotal Cost----			----Total Cost----		
					Near	Medium	Far	Near	Medium	Far
1	0.0	0.	0.0	-----	-----	-----	-----	-----	-----	-----
2	0.0	0.	0.0	-----	-----	-----	-----	-----	-----	-----
3	0.0	0.	0.0	-----	-----	-----	-----	-----	-----	-----
4	0.0	0.	0.0	-----	-----	-----	-----	-----	-----	-----
5	1.6	35.	0.046	17.02	28.88	29.74	30.35	68.72	98.92	143.29
6	49.9	404.	0.124	14.43	26.29	27.15	27.76	27.57	29.38	31.40
7	96.4	537.	0.180	13.45	25.31	26.17	26.78	25.97	27.32	28.67
8	139.7	597.	0.234	12.76	24.61	25.47	26.09	25.07	26.27	27.39
9	179.1	622.	0.288	12.21	24.07	24.93	25.54	24.43	25.55	26.56
10	215.2	629.	0.342	11.76	23.62	24.48	25.09	23.91	24.99	25.93
11	246.6	627.	0.393	11.39	23.25	24.11	24.72	23.51	24.56	25.46
12	275.5	620.	0.444	11.07	22.93	23.79	24.40	23.16	24.19	25.06
13	300.8	611.	0.492	10.81	22.66	23.52	24.14	22.87	23.89	24.74
14	323.7	601.	0.539	10.57	22.43	23.29	23.90	22.62	23.63	24.46
15	343.4	590.	0.582	10.37	22.22	23.08	23.70	22.41	23.41	24.23
16	361.6	580.	0.623	10.19	22.04	22.90	23.52	22.22	23.21	24.02
17	377.9	571.	0.662	10.03	21.88	22.75	23.36	22.05	23.04	23.84
18	392.6	562.	0.699	9.89	21.74	22.60	23.22	21.91	22.89	23.68

Haul Costs ($/m3)
- Near: 8.68
- Medium: 9.54
- Far: 10.15

Development Costs ($/ha)
- Near: 64.15
- Medium: 111.39
- Far : 181.84

The subtotal column includes all costs except development costs.
The total column includes development costs expressed on a per cubic metre basis.

RAM Data Development for White Spruce Fair site: FMU E1.

Age (Decades)	Volume (m3/ha)	Stem Density (#/ha)	Log Size (m3/log)	Woodlands Cost ($/m3)	---Subtotal Cost---- Near	Medium	Far	----Total Cost---- Near	Medium	Far
1	0.0	0.	0.0	-----	-----	-----	-----	-----	-----	-----
2	0.0	0.	0.0	-----	-----	-----	-----	-----	-----	-----
3	0.0	0.	0.0	-----	-----	-----	-----	-----	-----	-----
4	0.0	0.	0.0	-----	-----	-----	-----	-----	-----	-----
5	0.0	0.	0.0	-----	-----	-----	-----	-----	-----	-----
6	0.0	0.	0.0	-----	-----	-----	-----	-----	-----	-----
7	0.0	0.	0.0	-----	-----	-----	-----	-----	-----	-----
8	13.4	182.	0.074	15.79	27.64	28.51	29.12	32.43	36.82	42.69
9	42.6	372.	0.114	14.63	26.49	27.35	27.96	28.00	29.97	32.24
10	71.0	477.	0.149	13.94	25.80	26.66	27.27	26.70	28.23	29.84
11	97.8	541.	0.181	13.43	25.29	26.15	26.76	25.94	27.29	28.62
12	123.9	581.	0.213	13.00	24.85	25.71	26.33	25.37	26.61	27.80
13	148.8	605.	0.246	12.63	24.48	25.34	25.96	24.91	26.09	27.18
14	172.2	619.	0.278	12.30	24.16	25.02	25.63	24.53	25.67	26.69
15	194.2	627.	0.310	12.02	23.88	24.74	25.35	24.21	25.31	26.29
16	213.5	629.	0.339	11.78	23.64	24.50	25.11	23.94	25.02	25.96
17	232.6	629.	0.370	11.56	23.41	24.27	24.89	23.69	24.75	25.67
18	250.5	626.	0.400	11.35	23.20	24.07	24.68	23.46	24.51	25.41

Haul Costs ($/m3)
Near: 8.68
Medium: 9.54
Far: 10.15

Development Costs ($/ha)
Near: 64.15
Medium: 111.39
Far : 181.84

The subtotal column includes all costs except development costs.
The total column includes development costs expressed on a per cubic metre basis.

RAM Data Development for Black Spruce Good site: FMU E1.

Age (Decades)	Volume (m3/ha)	Stem Density (#/ha)	Log Size (m3/log)	Woodlands Cost ($/m3)	---Subtotal Cost----			----Total Cost----		
					Near	Medium	Far	Near	Medium	Far
1	0.0	0.	0.0	-----	-----	-----	-----	-----	-----	-----
2	0.0	0.	0.0	-----	-----	-----	-----	-----	-----	-----
3	0.0	0.	0.0	-----	-----	-----	-----	-----	-----	-----
4	0.0	0.	0.0	-----	-----	-----	-----	-----	-----	-----
5	6.2	115.	0.054	16.60	28.46	29.32	29.93	38.79	47.25	59.21
6	56.3	603.	0.093	15.17	27.02	27.88	28.50	28.16	29.86	31.73
7	104.6	873.	0.120	14.51	26.37	27.23	27.84	26.98	28.29	29.58
8	149.6	1041.	0.144	14.03	25.89	26.75	27.37	26.32	27.50	28.58
9	192.0	1145.	0.168	13.63	25.49	26.35	26.96	25.82	26.93	27.91
10	231.1	1206.	0.192	13.28	25.14	26.00	26.61	25.41	26.48	27.40
11	266.9	1240.	0.215	12.98	24.83	25.69	26.31	25.07	26.11	26.99
12	299.2	1255.	0.238	12.71	24.56	25.42	26.04	24.78	25.80	26.65
13	328.2	1258.	0.261	12.47	24.33	25.19	25.80	24.52	25.53	26.36
14	354.5	1253.	0.283	12.26	24.11	24.97	25.59	24.29	25.29	26.10
15	378.8	1242.	0.305	12.06	23.92	24.78	25.39	24.09	25.07	25.87
16	401.1	1229.	0.326	11.88	23.74	24.60	25.21	23.90	24.88	25.67
17	421.5	1209.	0.349	11.71	23.57	24.43	25.04	23.72	24.69	25.47
18	439.5	1181.	0.372	11.54	23.39	24.26	24.87	23.54	24.51	25.28

Haul Costs ($/m3)
Near: 8.68
Medium: 9.54
Far: 10.15

Development Costs ($/ha)
Near: 64.15
Medium: 111.39
Far : 181.84

The subtotal column includes all costs except development costs.
The total column includes development costs expressed on a per cubic metre basis.

RAM Data Development for Black Spruce Medium site: FMU E1.

Age (Decades)	Volume (m3/ha)	Stem Density (#/ha)	Log Size (m3/log)	Woodlands Cost ($/m3)	---Subtotal Cost---- Near	Medium	Far	----Total Cost---- Near	Medium	Far
1	0.0	0.	0.0	-----	-----	-----	-----	-----	-----	-----
2	0.0	0.	0.0	-----	-----	-----	-----	-----	-----	-----
3	0.0	0.	0.0	-----	-----	-----	-----	-----	-----	-----
4	0.0	0.	0.0	-----	-----	-----	-----	-----	-----	-----
5	0.0	0.	0.0	-----	-----	-----	-----	-----	-----	-----
6	0.0	0.	0.0	-----	-----	-----	-----	-----	-----	-----
7	0.0	0.	0.0	-----	-----	-----	-----	-----	-----	-----
8	0.0	0.	0.0	-----	-----	-----	-----	-----	-----	-----
9	24.7	342.	0.072	15.84	27.70	28.56	29.17	30.30	33.08	36.55
10	51.1	568.	0.090	15.26	27.12	27.98	28.60	28.38	30.16	32.16
11	77.0	735.	0.105	14.86	26.72	27.58	28.19	27.55	29.03	30.55
12	102.4	865.	0.118	14.54	26.40	27.26	27.87	27.03	28.35	29.65
13	126.7	966.	0.131	14.27	26.13	26.99	27.61	26.64	27.87	29.04
14	150.4	1044.	0.144	14.03	25.88	26.74	27.36	26.31	27.49	28.57
15	173.3	1105.	0.157	13.81	25.66	26.52	27.14	26.03	27.16	28.19
16	195.2	1152.	0.169	13.60	25.46	26.32	26.93	25.79	26.89	27.86
17	216.3	1187.	0.182	13.41	25.27	26.13	26.74	25.56	26.64	27.58
18	236.1	1213.	0.195	13.24	25.09	25.95	26.57	25.37	26.43	27.34

Haul Costs ($/m3)
  Near: 8.68
  Medium: 9.54
  Far: 10.15

Development Costs ($/ha)
  Near: 64.15
  Medium: 111.39
  Far   : 181.84

The subtotal column includes all costs except development costs.
The total column includes development costs expressed on a per cubic metre basis.

RAM Data Development for Black Spruce Fair site: FMU E1.

Age (Decades)	Volume (m3/ha)	Stem Density (#/ha)	Log Size (m3/log)	Woodlands Cost ($/m3)	---Subtotal Cost---- Near	Medium	Far	----Total Cost---- Near	Medium	Far
1	0.0	0.	0.0	-----	-----	-----	-----	-----	-----	-----
2	0.0	0.	0.0	-----	-----	-----	-----	-----	-----	-----
3	0.0	0.	0.0	-----	-----	-----	-----	-----	-----	-----
4	0.0	0.	0.0	-----	-----	-----	-----	-----	-----	-----
5	0.0	0.	0.0	-----	-----	-----	-----	-----	-----	-----
6	0.0	0.	0.0	-----	-----	-----	-----	-----	-----	-----
7	0.0	0.	0.0	-----	-----	-----	-----	-----	-----	-----
8	0.0	0.	0.0	-----	-----	-----	-----	-----	-----	-----
9	0.0	0.	0.0	-----	-----	-----	-----	-----	-----	-----
10	0.0	0.	0.0	-----	-----	-----	-----	-----	-----	-----
11	0.0	0.	0.0	-----	-----	-----	-----	-----	-----	-----
12	0.0	0.	0.0	-----	-----	-----	-----	-----	-----	-----
13	0.0	0.	0.0	-----	-----	-----	-----	-----	-----	-----
14	9.6	166.	0.058	16.41	28.26	29.12	29.74	34.91	40.67	48.58
15	25.0	345.	0.072	15.83	27.69	28.55	29.16	30.26	33.01	36.44
16	40.3	484.	0.083	15.47	27.32	28.18	28.80	28.91	30.95	33.31
17	55.4	599.	0.092	15.19	27.05	27.91	28.52	28.21	29.92	31.81
18	69.3	697.	0.099	15.00	26.86	27.72	28.33	27.78	29.32	30.95

Haul Costs ($/m3)
Near: 8.68
Medium: 9.54
Far: 10.15

Development Costs ($/ha)
Near: 64.15
Medium: 111.39
Far : 181.84

The subtotal column includes all costs except development costs.
The total column includes development costs expressed on a per cubic metre basis.

RAM Data Development for Mixedwood   Good   site: FMU E1.

Age (Decades)	Volume (m3/ha)	Stem Density (#/ha)	Log Size (m3/log)	Woodlands Cost ($/m3)	---Subtotal Cost---- Near	Medium	Far	----Total Cost---- Near	Medium	Far
1	0.0	0.	0.0	-----	-----	-----	-----	-----	-----	-----
2	0.0	0.	0.0	-----	-----	-----	-----	-----	-----	-----
3	0.0	0.	0.0	-----	-----	-----	-----	-----	-----	-----
4	0.0	0.	0.0	-----	-----	-----	-----	-----	-----	-----
5	28.9	195.	0.148	13.95	25.81	26.67	27.28	28.03	30.52	33.57
6	88.9	333.	0.267	12.41	24.27	25.13	25.74	24.99	26.38	27.79
7	140.1	370.	0.379	11.49	23.35	24.21	24.82	23.81	25.00	26.12
8	184.2	383.	0.481	10.87	22.72	23.58	24.20	23.07	24.19	25.18
9	221.3	389.	0.569	10.43	22.28	23.14	23.76	22.57	23.65	24.58
10	252.8	392.	0.645	10.10	21.95	22.81	23.43	22.21	23.25	24.15
11	278.8	394.	0.708	9.85	21.71	22.57	23.18	21.94	22.97	23.84
12	301.7	396.	0.762	9.66	21.52	22.38	22.99	21.73	22.75	23.59
13	321.4	397.	0.809	9.50	21.36	22.22	22.83	21.56	22.56	23.40
14	338.4	399.	0.848	9.38	21.23	22.10	22.71	21.42	22.42	23.25
15	353.1	400.	0.883	9.27	21.13	21.99	22.60	21.31	22.31	23.12
16	366.0	402.	0.910	9.19	21.05	21.91	22.52	21.22	22.21	23.02
17	377.3	403.	0.936	9.12	20.97	21.84	22.45	21.14	22.13	22.93
18	386.0	404.	0.955	9.07	20.92	21.78	22.40	21.09	22.07	22.87

Haul Costs ($/m3)
Near: 8.68
Medium: 9.54
Far: 10.15

Development Costs ($/ha)
Near: 64.15
Medium: 111.39
Far : 181.84

The subtotal column includes all costs except development costs.
The total column includes development costs expressed on a per cubic metre basis.

RAM Data Development for Mixedwood Medium site: FMU E1.

Age (Decades)	Volume (m3/ha)	Stem Density (#/ha)	Log Size (m3/log)	Woodlands Cost ($/m3)	---Subtotal Cost---- Near	Medium	Far	----Total Cost---- Near	Medium	Far
1	0.0	0.	0.0	-----	-----	-----	-----	-----	-----	-----
2	0.0	0.	0.0	-----	-----	-----	-----	-----	-----	-----
3	0.0	0.	0.0	-----	-----	-----	-----	-----	-----	-----
4	0.0	0.	0.0	-----	-----	-----	-----	-----	-----	-----
5	0.0	0.	0.0	-----	-----	-----	-----	-----	-----	-----
6	0.0	0.	0.0	-----	-----	-----	-----	-----	-----	-----
7	34.0	216.	0.157	13.80	25.65	26.51	27.13	27.54	29.79	32.48
8	74.5	315.	0.236	12.73	24.58	25.44	26.06	25.45	26.94	28.50
9	110.7	354.	0.313	12.00	23.85	24.71	25.33	24.43	25.72	26.97
10	143.0	371.	0.385	11.45	23.30	24.16	24.78	23.75	24.94	26.05
11	171.6	381.	0.450	11.04	22.89	23.75	24.37	23.27	24.40	25.43
12	197.0	386.	0.510	10.71	22.57	23.43	24.04	22.89	23.99	24.96
13	219.5	389.	0.564	10.45	22.30	23.16	23.78	22.60	23.67	24.61
14	239.5	391.	0.612	10.23	22.09	22.95	23.56	22.36	23.41	24.32
15	256.1	392.	0.653	10.06	21.92	22.78	23.39	22.17	23.21	24.10
16	271.9	394.	0.690	9.92	21.78	22.64	23.25	22.01	23.05	23.92
17	286.0	395.	0.724	9.79	21.65	22.51	23.12	21.87	22.90	23.76
18	298.7	396.	0.754	9.69	21.54	22.40	23.02	21.76	22.78	23.62

Haul Costs ($/m3)
Near: 8.68
Medium: 9.54
Far: 10.15

Development Costs ($/ha)
Near: 64.15
Medium: 111.39
Far : 181.84

The subtotal column includes all costs except development costs.
The total column includes development costs expressed on a per cubic metre basis.

RAM Data Development for Mixedwood Fair site: FMU E1.

Age (Decades)	Volume (m3/ha)	Stem Density (#/ha)	Log Size (m3/log)	Woodlands Cost ($/m3)	---Subtotal Cost---- Near	Medium	Far	----Total Cost---- Near	Medium	Far
1	0.0	0.	0.0	-----	-----	-----	-----	-----	-----	-----
2	0.0	0.	0.0	-----	-----	-----	-----	-----	-----	-----
3	0.0	0.	0.0	-----	-----	-----	-----	-----	-----	-----
4	0.0	0.	0.0	-----	-----	-----	-----	-----	-----	-----
5	0.0	0.	0.0	-----	-----	-----	-----	-----	-----	-----
6	0.0	0.	0.0	-----	-----	-----	-----	-----	-----	-----
7	0.0	0.	0.0	-----	-----	-----	-----	-----	-----	-----
8	0.0	0.	0.0	-----	-----	-----	-----	-----	-----	-----
9	11.7	98.	0.119	14.52	26.38	27.24	27.85	31.87	36.77	43.41
10	40.6	241.	0.168	13.62	25.48	26.34	26.95	27.06	29.08	31.44
11	67.5	305.	0.221	12.90	24.76	25.62	26.23	25.71	27.27	28.92
12	92.6	338.	0.274	12.34	24.20	25.06	25.67	24.89	26.26	27.64
13	115.7	358.	0.323	11.91	23.77	24.63	25.24	24.32	25.59	26.81
14	136.9	369.	0.371	11.55	23.40	24.26	24.88	23.87	25.08	26.20
15	156.3	377.	0.415	11.26	23.11	23.97	24.59	23.52	24.68	25.75
16	174.3	381.	0.457	11.00	22.85	23.71	24.33	23.22	24.35	25.37
17	190.8	385.	0.496	10.79	22.64	23.50	24.12	22.98	24.09	25.07
18	205.9	387.	0.532	10.60	22.46	23.32	23.93	22.77	23.86	24.81

Haul Costs ($/m3)
Near: 8.68
Medium: 9.54
Far: 10.15

Development Costs ($/ha)
Near: 64.15
Medium: 111.39
Far : 181.84

The subtotal column includes all costs except development costs.
The total column includes development costs expressed on a per cubic metre basis.

RAM Data Development for Pine Good site: FMU E1.

Age (Decades)	Volume (m3/ha)	Stem Density (#/ha)	Log Size (m3/log)	Woodlands Cost ($/m3)	---Subtotal Cost---- Near	Medium	Far	----Total Cost---- Near	Medium	Far
1	0.0	0.	0.0	-----	-----	-----	-----	-----	-----	-----
2	0.0	0.	0.0	-----	-----	-----	-----	-----	-----	-----
3	0.0	0.	0.0	-----	-----	-----	-----	-----	-----	-----
4	56.0	514.	0.109	14.76	26.62	27.48	28.09	27.76	29.47	31.34
5	131.4	817.	0.161	13.74	25.60	26.46	27.07	26.08	27.30	28.45
6	198.9	910.	0.219	12.94	24.79	25.65	26.27	25.11	26.21	27.18
7	257.4	908.	0.284	12.25	24.11	24.97	25.58	24.36	25.40	26.29
8	307.5	870.	0.353	11.67	23.53	24.39	25.00	23.74	24.75	25.60
9	350.1	821.	0.426	11.18	23.04	23.90	24.51	23.22	24.22	25.03
10	385.5	773.	0.499	10.77	22.63	23.49	24.10	22.79	23.78	24.57
11	414.8	729.	0.569	10.43	22.28	23.14	23.76	22.44	23.41	24.19
12	441.2	681.	0.648	10.08	21.94	22.80	23.42	22.09	23.05	23.83
13	464.0	640.	0.725	9.79	21.65	22.51	23.12	21.78	22.75	23.51
14	483.7	606.	0.798	9.54	21.39	22.25	22.87	21.53	22.48	23.24
15	501.0	577.	0.868	9.32	21.17	22.03	22.65	21.30	22.26	23.01
16	516.2	552.	0.935	9.12	20.98	21.84	22.45	21.10	22.05	22.80
17	529.7	531.	0.998	8.95	20.81	21.67	22.28	20.93	21.88	22.63
18	541.6	512.	1.058	8.80	20.65	21.52	22.13	20.77	21.72	22.46

Haul Costs ($/m3)
Near: 8.68
Medium: 9.54
Far: 10.15

Development Costs ($/ha)
Near: 64.15
Medium: 111.39
Far : 181.84

The subtotal column includes all costs except development costs.
The total column includes development costs expressed on a per cubic metre basis.

RAM Data Development for Pine   Medium site: FMU E1.

Age (Decades)	Volume (m3/ha)	Stem Density (#/ha)	Log Size (m3/log)	Woodlands Cost ($/m3)	---Subtotal Cost----			----Total Cost----		
					Near	Medium	Far	Near	Medium	Far
1	0.0	0.	0.0	-----	-----	-----	-----	-----	-----	-----
2	0.0	0.	0.0	-----	-----	-----	-----	-----	-----	-----
3	0.0	0.	0.0	-----	-----	-----	-----	-----	-----	-----
4	0.0	0.	0.0	-----	-----	-----	-----	-----	-----	-----
5	33.2	360.	0.092	15.20	27.06	27.92	28.53	28.99	31.27	34.01
6	83.1	655.	0.127	14.36	26.22	27.08	27.69	26.99	28.42	29.88
7	128.8	811.	0.159	13.77	25.63	26.49	27.10	26.13	27.35	28.51
8	170.2	886.	0.192	13.27	25.13	25.99	26.60	25.51	26.65	27.67
9	206.7	913.	0.226	12.84	24.70	25.56	26.17	25.01	26.10	27.05
10	239.4	914.	0.262	12.46	24.32	25.18	25.79	24.58	25.64	26.55
11	268.0	901.	0.297	12.13	23.98	24.84	25.46	24.22	25.26	26.14
12	292.9	882.	0.332	11.84	23.69	24.55	25.17	23.91	24.93	25.79
13	315.6	859.	0.367	11.57	23.43	24.29	24.90	23.63	24.64	25.48
14	335.8	836.	0.402	11.34	23.19	24.06	24.67	23.39	24.39	25.21
15	353.9	813.	0.435	11.13	22.98	23.84	24.46	23.17	24.16	24.97
16	370.1	791.	0.468	10.94	22.79	23.65	24.27	22.97	23.96	24.76
17	384.8	771.	0.499	10.77	22.63	23.49	24.10	22.79	23.78	24.57
18	398.0	753.	0.529	10.62	22.47	23.34	23.95	22.64	23.61	24.41

Haul Costs ($/m3)
Near: 8.68
Medium: 9.54
Far: 10.15

Development Costs ($/ha)
Near: 64.15
Medium: 111.39
Far : 181.84

The subtotal column includes all costs except development costs.
The total column includes development costs expressed on a per cubic metre basis.

RAM Data Development for Uncommercial Good site: FMU E1.

Age (Decades)	Volume (m3/ha)	Stem Density (#/ha)	Log Size (m3/log)	Woodlands Cost ($/m3)	---Subtotal Cost---- Near	Medium	Far	----Total Cost---- Near	Medium	Far
1	0.0	0.	0.0	-----	-----	-----	-----	-----	-----	-----
2	0.0	0.	0.0	-----	-----	-----	-----	-----	-----	-----
3	0.0	0.	0.0	-----	-----	-----	-----	-----	-----	-----
4	0.0	0.	0.0	-----	-----	-----	-----	-----	-----	-----
5	0.2	4.	0.055	16.56	28.41	29.28	29.89	307.31	513.56	820.48
6	2.1	22.	0.093	15.17	27.02	27.88	28.50	58.31	82.22	117.20
7	3.8	32.	0.120	14.51	26.37	27.23	27.84	43.20	56.46	75.57
8	5.4	38.	0.144	14.04	25.89	26.75	27.37	37.66	47.19	60.73
9	20.7	231.	0.089	15.28	27.14	28.00	28.61	30.24	33.39	37.41
10	36.8	359.	0.102	14.92	26.78	27.64	28.25	28.53	30.67	33.20
11	52.4	453.	0.116	14.60	26.46	27.32	27.93	27.68	29.44	31.40
12	67.7	526.	0.129	14.32	26.18	27.04	27.65	27.13	28.68	30.34
13	82.2	582.	0.141	14.08	25.93	26.79	27.41	26.71	28.15	29.62
14	100.3	693.	0.145	14.01	25.87	26.73	27.35	26.51	27.84	29.16
15	120.1	799.	0.150	13.92	25.77	26.63	27.25	26.31	27.56	28.76
16	139.4	882.	0.158	13.78	25.64	26.50	27.11	26.10	27.30	28.42
17	158.0	947.	0.167	13.64	25.50	26.36	26.98	25.91	27.07	28.13
18	175.3	1001.	0.175	13.52	25.37	26.23	26.85	25.74	26.87	27.88

Haul Costs ($/m3)
Near: 8.68
Medium: 9.54
Far: 10.15

Development Costs ($/ha)
Near: 64.15
Medium: 111.39
Far : 181.84

The subtotal column includes all costs except development costs.
The total column includes development costs expressed on a per cubic metre basis.

RAM Data Development for Uncommercial Medium site: FMU E1.

Age (Decades)	Volume (m3/ha)	Stem Density (#/ha)	Log Size (m3/log)	Woodlands Cost ($/m3)	---Subtotal Cost---- Near	Medium	Far	----Total Cost---- Near	Medium	Far
1	0.0	0.	0.0	-----	-----	-----	-----	-----	-----	-----
2	0.0	0.	0.0	-----	-----	-----	-----	-----	-----	-----
3	0.0	0.	0.0	-----	-----	-----	-----	-----	-----	-----
4	0.0	0.	0.0	-----	-----	-----	-----	-----	-----	-----
5	0.2	4.	0.055	16.56	28.41	29.28	29.89	307.31	513.56	820.48
6	2.1	22.	0.093	15.17	27.02	27.88	28.50	58.31	82.22	117.20
7	3.8	32.	0.120	14.51	26.37	27.23	27.84	43.20	56.46	75.57
8	5.4	38.	0.144	14.04	25.89	26.75	27.37	37.66	47.19	60.73
9	20.7	231.	0.089	15.28	27.14	28.00	28.61	30.24	33.39	37.41
10	36.8	359.	0.102	14.92	26.78	27.64	28.25	28.53	30.67	33.20
11	52.4	453.	0.116	14.60	26.46	27.32	27.93	27.68	29.44	31.40
12	67.7	526.	0.129	14.32	26.18	27.04	27.65	27.13	28.68	30.34
13	82.2	582.	0.141	14.08	25.93	26.79	27.41	26.71	28.15	29.62
14	100.3	693.	0.145	14.01	25.87	26.73	27.35	26.51	27.84	29.16
15	120.1	799.	0.150	13.92	25.77	26.63	27.25	26.31	27.56	28.76
16	139.4	882.	0.158	13.78	25.64	26.50	27.11	26.10	27.30	28.42
17	158.0	947.	0.167	13.64	25.50	26.36	26.98	25.91	27.07	28.13
18	175.3	1001.	0.175	13.52	25.37	26.23	26.85	25.74	26.87	27.88

Haul Costs ($/m3)
Near: 8.68
Medium: 9.54
Far: 10.15

Development Costs ($/ha)
Near: 64.15
Medium: 111.39
Far : 181.84

The subtotal column includes all costs except development costs.
The total column includes development costs expressed on a per cubic metre basis.

RAM Data Development for Uncommercial Fair site: FMU E1.

Age (Decades)	Volume (m3/ha)	Stem Density (#/ha)	Log Size (m3/log)	Woodlands Cost ($/m3)	---Subtotal Cost---- Near	Medium	Far	----Total Cost---- Near	Medium	Far
1	0.0	0.	0.0	-----	-----	-----	-----	-----	-----	-----
2	0.0	0.	0.0	-----	-----	-----	-----	-----	-----	-----
3	0.0	0.	0.0	-----	-----	-----	-----	-----	-----	-----
4	0.0	0.	0.0	-----	-----	-----	-----	-----	-----	-----
5	0.2	4.	0.055	16.56	28.41	29.28	29.89	307.31	513.56	820.48
6	2.1	22.	0.093	15.17	27.02	27.88	28.50	58.31	82.22	117.20
7	3.8	32.	0.120	14.51	26.37	27.23	27.84	43.20	56.46	75.57
8	5.4	38.	0.144	14.04	25.89	26.75	27.37	37.66	47.19	60.73
9	20.7	231.	0.089	15.28	27.14	28.00	28.61	30.24	33.39	37.41
10	36.8	359.	0.102	14.92	26.78	27.64	28.25	28.53	30.67	33.20
11	52.4	453.	0.116	14.60	26.46	27.32	27.93	27.68	29.44	31.40
12	67.7	526.	0.129	14.32	26.18	27.04	27.65	27.13	28.68	30.34
13	82.2	582.	0.141	14.08	25.93	26.79	27.41	26.71	28.15	29.62
14	100.3	693.	0.145	14.01	25.87	26.73	27.35	26.51	27.84	29.16
15	120.1	799.	0.150	13.92	25.77	26.63	27.25	26.31	27.56	28.76
16	139.4	882.	0.158	13.78	25.64	26.50	27.11	26.10	27.30	28.42
17	158.0	947.	0.167	13.64	25.50	26.36	26.98	25.91	27.07	28.13
18	175.3	1001.	0.175	13.52	25.37	26.23	26.85	25.74	26.87	27.88

Haul Costs ($/m3)
Near: 8.68
Medium: 9.54
Far: 10.15

Development Costs ($/ha)
Near: 64.15
Medium: 111.39
Far : 181.84

The subtotal column includes all costs except development costs.
The total column includes development costs expressed on a per cubic metre basis.

RAM Data Development for White Spruce Medium site: FMU R4.

Age (Decades)	Volume (m3/ha)	Stem Density (#/ha)	Log Size (m3/log)	Woodlands Cost ($/m3)	---Subtotal Cost---- Near	Medium	Far	----Total Cost---- Near	Medium	Far
1	0.0	0.	0.0	-----	-----	-----	-----	-----	-----	-----
2	0.0	0.	0.0	-----	-----	-----	-----	-----	-----	-----
3	0.0	0.	0.0	-----	-----	-----	-----	-----	-----	-----
4	0.0	0.	0.0	-----	-----	-----	-----	-----	-----	-----
5	0.8	18.	0.046	17.04	29.59	30.26	30.61	157.43	201.28	317.05
6	25.8	220.	0.117	14.57	27.12	27.79	28.14	31.09	33.10	37.04
7	73.2	471.	0.156	13.83	26.38	27.05	27.40	27.77	28.92	30.53
8	118.1	567.	0.208	13.06	25.61	26.29	26.64	26.48	27.44	28.58
9	159.4	610.	0.262	12.46	25.01	25.69	26.04	25.65	26.55	27.48
10	197.2	626.	0.315	11.97	24.52	25.20	25.55	25.04	25.89	26.71
11	230.9	628.	0.368	11.57	24.12	24.79	25.14	24.56	25.39	26.14
12	261.1	624.	0.419	11.23	23.78	24.45	24.80	24.17	24.98	25.68
13	288.1	616.	0.468	10.94	23.49	24.16	24.51	23.84	24.64	25.31
14	312.2	606.	0.515	10.69	23.24	23.91	24.26	23.56	24.35	24.99
15	333.5	596.	0.560	10.47	23.02	23.69	24.04	23.32	24.10	24.73
16	352.5	585.	0.603	10.28	22.82	23.50	23.85	23.11	23.89	24.50
17	369.8	576.	0.643	10.11	22.66	23.33	23.68	22.93	23.70	24.30
18	385.3	567.	0.680	9.96	22.51	23.18	23.53	22.77	23.54	24.13

Haul Costs ($/m3)
Near: 9.37
Medium: 10.04
Far: 10.39

Development Costs ($/ha)
Near: 102.28
Medium: 136.82
Far : 229.15

The subtotal column includes all costs except development costs.
The total column includes development costs expressed on a per cubic metre basis.

RAM Data Development for White Spruce Fair site: FMU R4.

Age (Decades)	Volume (m3/ha)	Stem Density (#/ha)	Log Size (m3/log)	Woodlands Cost ($/m3)	---Subtotal Cost---- Near	Medium	Far	----Total Cost---- Near	Medium	Far
1	0.0	0.	0.0	-----	-----	-----	-----	-----	-----	-----
2	0.0	0.	0.0	-----	-----	-----	-----	-----	-----	-----
3	0.0	0.	0.0	-----	-----	-----	-----	-----	-----	-----
4	0.0	0.	0.0	-----	-----	-----	-----	-----	-----	-----
5	0.0	0.	0.0	-----	-----	-----	-----	-----	-----	-----
6	0.0	0.	0.0	-----	-----	-----	-----	-----	-----	-----
7	0.0	0.	0.0	-----	-----	-----	-----	-----	-----	-----
8	6.7	91.	0.074	15.79	28.34	29.01	29.36	43.60	49.43	63.56
9	28.0	277.	0.101	14.96	27.51	28.18	28.53	31.16	33.07	36.72
10	56.8	425.	0.134	14.22	26.77	27.45	27.80	28.57	29.86	31.84
11	84.4	509.	0.166	13.66	26.21	26.88	27.23	27.42	28.50	29.95
12	110.9	561.	0.198	13.20	25.75	26.42	26.77	26.67	27.66	28.84
13	136.4	593.	0.230	12.80	25.35	26.03	26.38	26.10	27.03	28.06
14	160.5	612.	0.262	12.46	25.01	25.68	26.03	25.64	26.53	27.46
15	183.2	623.	0.294	12.16	24.71	25.38	25.73	25.26	26.13	26.98
16	203.8	628.	0.325	11.90	24.45	25.12	25.47	24.95	25.79	26.60
17	223.0	629.	0.355	11.67	24.22	24.89	25.24	24.67	25.50	26.27
18	241.6	628.	0.385	11.45	24.00	24.67	25.02	24.42	25.24	25.97

Haul Costs ($/m3)
Near: 9.37
Medium: 10.04
Far: 10.39

Development Costs ($/ha)
Near: 102.28
Medium: 136.82
Far : 229.15

The subtotal column includes all costs except development costs.
The total column includes development costs expressed on a per cubic metre basis.

RAM Data Development for Black Spruce Good site: FMU R4.

Age (Decades)	Volume (m3/ha)	Stem Density (#/ha)	Log Size (m3/log)	Woodlands Cost ($/m3)	---Subtotal Cost---- Near	Medium	Far	----Total Cost---- Near	Medium	Far
1	0.0	0.	0.0	-----	-----	-----	-----	-----	-----	-----
2	0.0	0.	0.0	-----	-----	-----	-----	-----	-----	-----
3	0.0	0.	0.0	-----	-----	-----	-----	-----	-----	-----
4	0.0	0.	0.0	-----	-----	-----	-----	-----	-----	-----
5	3.1	58.	0.054	16.61	29.16	29.83	30.18	62.15	73.96	104.10
6	31.2	359.	0.087	15.35	27.90	28.57	28.93	31.18	32.96	36.26
7	80.4	738.	0.109	14.76	27.31	27.98	28.34	28.58	29.69	31.19
8	127.1	957.	0.133	14.24	26.79	27.47	27.82	27.60	28.54	29.62
9	170.8	1093.	0.156	13.82	26.36	27.04	27.39	26.96	27.84	28.73
10	211.5	1176.	0.180	13.44	25.99	26.67	27.02	26.48	27.32	28.10
11	249.0	1223.	0.204	13.12	25.67	26.34	26.70	26.08	26.89	27.62
12	283.0	1248.	0.227	12.84	25.39	26.06	26.41	25.75	26.54	27.22
13	313.7	1257.	0.250	12.59	25.14	25.81	26.16	25.46	26.25	26.89
14	341.3	1256.	0.272	12.36	24.91	25.59	25.94	25.21	25.99	26.61
15	366.6	1248.	0.294	12.16	24.71	25.38	25.73	24.99	25.75	26.36
16	390.0	1236.	0.316	11.97	24.52	25.19	25.55	24.78	25.55	26.13
17	411.3	1219.	0.337	11.80	24.35	25.02	25.37	24.59	25.35	25.93
18	430.5	1195.	0.360	11.62	24.17	24.85	25.20	24.41	25.17	25.73

Haul Costs ($/m3)
  Near: 9.37
  Medium: 10.04
  Far: 10.39

Development Costs ($/ha)
  Near: 102.28
  Medium: 136.82
  Far : 229.15

The subtotal column includes all costs except development costs.
The total column includes development costs expressed on a per cubic metre basis.

RAM Data Development for Black Spruce Medium site: FMU R4.

Age (Decades)	Volume (m3/ha)	Stem Density (#/ha)	Log Size (m3/log)	Woodlands Cost ($/m3)	---Subtotal Cost----			----Total Cost----		
					Near	Medium	Far	Near	Medium	Far
1	0.0	0.	0.0	-----	-----	-----	-----	-----	-----	-----
2	0.0	0.	0.0	-----	-----	-----	-----	-----	-----	-----
3	0.0	0.	0.0	-----	-----	-----	-----	-----	-----	-----
4	0.0	0.	0.0	-----	-----	-----	-----	-----	-----	-----
5	0.0	0.	0.0	-----	-----	-----	-----	-----	-----	-----
6	0.0	0.	0.0	-----	-----	-----	-----	-----	-----	-----
7	0.0	0.	0.0	-----	-----	-----	-----	-----	-----	-----
8	0.0	0.	0.0	-----	-----	-----	-----	-----	-----	-----
9	12.3	171.	0.072	15.84	28.39	29.07	29.42	36.69	40.16	48.00
10	37.9	455.	0.083	15.47	28.02	28.69	29.04	30.72	32.31	35.09
11	64.0	652.	0.098	15.03	27.58	28.25	28.61	29.18	30.39	32.18
12	89.7	800.	0.112	14.69	27.24	27.91	28.26	28.38	29.44	30.82
13	114.5	916.	0.125	14.40	26.95	27.62	27.97	27.84	28.82	29.97
14	138.5	1005.	0.138	14.14	26.69	27.37	27.72	27.43	28.35	29.37
15	161.8	1075.	0.151	13.91	26.46	27.13	27.49	27.09	27.98	28.90
16	184.3	1129.	0.163	13.70	26.25	26.92	27.27	26.80	27.67	28.52
17	205.8	1170.	0.176	13.50	26.05	26.73	27.08	26.55	27.39	28.19
18	226.2	1200.	0.189	13.32	25.87	26.55	26.90	26.32	27.15	27.91

Haul Costs ($/m3)
Near: 9.37
Medium: 10.04
Far: 10.39

Development Costs ($/ha)
Near: 102.28
Medium: 136.82
Far : 229.15

The subtotal column includes all costs except development costs.
The total column includes development costs expressed on a per cubic metre basis.

RAM Data Development for Mixedwood Good site: FMU R4.

Age (Decades)	Volume (m3/ha)	Stem Density (#/ha)	Log Size (m3/log)	Woodlands Cost ($/m3)	---Subtotal Cost---- Near	Medium	Far	----Total Cost---- Near	Medium	Far
1	0.0	0.	0.0	-----	-----	-----	-----	-----	-----	-----
2	0.0	0.	0.0	-----	-----	-----	-----	-----	-----	-----
3	0.0	0.	0.0	-----	-----	-----	-----	-----	-----	-----
4	0.0	0.	0.0	-----	-----	-----	-----	-----	-----	-----
5	14.4	98.	0.148	13.95	26.50	27.18	27.53	33.58	36.65	43.39
6	58.9	264.	0.223	12.88	25.43	26.10	26.46	27.17	28.43	30.35
7	114.5	352.	0.326	11.89	24.44	25.11	25.46	25.33	26.31	27.46
8	162.2	377.	0.431	11.16	23.70	24.38	24.73	24.34	25.22	26.14
9	202.8	386.	0.525	10.64	23.18	23.86	24.21	23.69	24.53	25.34
10	237.0	391.	0.607	10.26	22.81	23.48	23.83	23.24	24.06	24.80
11	265.8	393.	0.676	9.97	22.52	23.20	23.55	22.91	23.71	24.41
12	290.2	395.	0.735	9.75	22.30	22.98	23.33	22.66	23.45	24.12
13	311.5	397.	0.786	9.58	22.13	22.80	23.15	22.46	23.24	23.89
14	329.9	398.	0.829	9.44	21.99	22.66	23.01	22.30	23.08	23.71
15	345.7	400.	0.865	9.33	21.87	22.55	22.90	22.17	22.94	23.56
16	359.6	401.	0.897	9.23	21.78	22.46	22.81	22.07	22.84	23.44
17	371.7	403.	0.923	9.16	21.70	22.38	22.73	21.98	22.75	23.35
18	381.7	404.	0.946	9.09	21.64	22.32	22.67	21.91	22.67	23.27

Haul Costs ($/m3)
Near: 9.37
Medium: 10.04
Far: 10.39

Development Costs ($/ha)
Near: 102.28
Medium: 136.82
Far : 229.15

The subtotal column includes all costs except development costs.
The total column includes development costs expressed on a per cubic metre basis.

RAM Data Development for Mixedwood   Medium site: FMU R4.

Age (Decades)	Volume (m3/ha)	Stem Density (#/ha)	Log Size (m3/log)	Woodlands Cost ($/m3)	---Subtotal Cost---- Near	Medium	Far	----Total Cost---- Near	Medium	Far
1	0.0	0.	0.0	-----	-----	-----	-----	-----	-----	-----
2	0.0	0.	0.0	-----	-----	-----	-----	-----	-----	-----
3	0.0	0.	0.0	-----	-----	-----	-----	-----	-----	-----
4	0.0	0.	0.0	-----	-----	-----	-----	-----	-----	-----
5	0.0	0.	0.0	-----	-----	-----	-----	-----	-----	-----
6	0.0	0.	0.0	-----	-----	-----	-----	-----	-----	-----
7	17.0	108.	0.157	13.80	26.35	27.02	27.37	32.37	35.07	40.86
8	54.2	266.	0.204	13.11	25.66	26.34	26.69	27.55	28.86	30.91
9	92.6	335.	0.277	12.32	24.86	25.54	25.89	25.97	27.02	28.37
10	126.8	363.	0.350	11.70	24.25	24.92	25.28	25.06	26.00	27.08
11	157.3	376.	0.418	11.23	23.78	24.46	24.81	24.43	25.33	26.26
12	184.3	384.	0.481	10.87	23.42	24.09	24.44	23.97	24.83	25.69
13	208.2	388.	0.537	10.58	23.12	23.80	24.15	23.62	24.46	25.25
14	229.5	390.	0.588	10.34	22.89	23.56	23.91	23.33	24.16	24.91
15	247.8	392.	0.633	10.15	22.70	23.37	23.72	23.11	23.92	24.65
16	264.0	393.	0.672	9.99	22.54	23.21	23.56	22.93	23.73	24.43
17	279.0	395.	0.707	9.86	22.40	23.08	23.43	22.77	23.57	24.25
18	292.4	396.	0.739	9.74	22.29	22.96	23.31	22.64	23.43	24.10

Haul Costs ($/m3)
Near: 9.37
Medium: 10.04
Far: 10.39

Development Costs ($/ha)
Near: 102.28
Medium: 136.82
Far : 229.15

The subtotal column includes all costs except development costs.
The total column includes development costs expressed on a per cubic metre basis.

RAM Data Development for Mixedwood Fair site: FMU R4.

Age (Decades)	Volume (m3/ha)	Stem Density (#/ha)	Log Size (m3/log)	Woodlands Cost ($/m3)	---Subtotal Cost---- Near	Medium	Far	----Total Cost---- Near	Medium	Far
1	0.0	0.	0.0	-----	-----	-----	-----	-----	-----	-----
2	0.0	0.	0.0	-----	-----	-----	-----	-----	-----	-----
3	0.0	0.	0.0	-----	-----	-----	-----	-----	-----	-----
4	0.0	0.	0.0	-----	-----	-----	-----	-----	-----	-----
5	0.0	0.	0.0	-----	-----	-----	-----	-----	-----	-----
6	0.0	0.	0.0	-----	-----	-----	-----	-----	-----	-----
7	0.0	0.	0.0	-----	-----	-----	-----	-----	-----	-----
8	0.0	0.	0.0	-----	-----	-----	-----	-----	-----	-----
9	5.8	49.	0.119	14.53	27.07	27.75	28.10	44.59	51.18	67.34
10	26.1	170.	0.154	13.85	26.40	27.08	27.43	30.32	32.31	36.20
11	54.0	273.	0.198	13.19	25.74	26.42	26.77	27.64	28.95	31.01
12	80.1	322.	0.249	12.59	25.14	25.82	26.17	26.42	27.53	29.03
13	104.1	348.	0.299	12.11	24.66	25.34	25.69	25.64	26.65	27.89
14	126.3	364.	0.347	11.72	24.27	24.94	25.29	25.08	26.03	27.11
15	146.6	373.	0.393	11.40	23.94	24.62	24.97	24.64	25.55	26.53
16	165.3	379.	0.436	11.12	23.67	24.35	24.70	24.29	25.17	26.08
17	182.5	383.	0.477	10.89	23.44	24.11	24.46	24.00	24.86	25.72
18	198.4	386.	0.514	10.69	23.24	23.92	24.27	23.76	24.61	25.42

Haul Costs ($/m3)
Near: 9.37
Medium: 10.04
Far: 10.39

Development Costs ($/ha)
Near: 102.28
Medium: 136.82
Far : 229.15

The subtotal column includes all costs except development costs.
The total column includes development costs expressed on a per cubic metre basis.

RAM Data Development for Pine Good site: FMU R4.

Age (Decades)	Volume (m3/ha)	Stem Density (#/ha)	Log Size (m3/log)	Woodlands Cost ($/m3)	---Subtotal Cost---- Near	Medium	Far	----Total Cost---- Near	Medium	Far
1	0.0	0.	0.0	-----	-----	-----	-----	-----	-----	-----
2	0.0	0.	0.0	-----	-----	-----	-----	-----	-----	-----
3	0.0	0.	0.0	-----	-----	-----	-----	-----	-----	-----
4	28.0	257.	0.109	14.76	27.31	27.98	28.34	30.96	32.87	36.52
5	93.7	666.	0.141	14.09	26.64	27.31	27.66	27.73	28.77	30.11
6	165.1	864.	0.191	13.29	25.83	26.51	26.86	26.45	27.34	28.25
7	228.2	909.	0.251	12.57	25.12	25.80	26.15	25.57	26.40	27.15
8	282.5	889.	0.318	11.95	24.50	25.18	25.53	24.86	25.66	26.34
9	328.8	846.	0.389	11.42	23.97	24.65	25.00	24.28	25.06	25.69
10	367.8	797.	0.461	10.97	23.52	24.20	24.55	23.80	24.57	25.17
11	400.1	751.	0.533	10.60	23.15	23.82	24.17	23.40	24.16	24.74
12	428.0	705.	0.607	10.26	22.80	23.48	23.83	23.04	23.80	24.37
13	452.6	661.	0.685	9.94	22.49	23.16	23.51	22.71	23.46	24.02
14	473.9	623.	0.761	9.66	22.21	22.89	23.24	22.43	23.18	23.72
15	492.4	592.	0.832	9.43	21.98	22.65	23.00	22.18	22.93	23.47
16	508.6	565.	0.901	9.22	21.77	22.44	22.79	21.97	22.71	23.24
17	522.9	542.	0.966	9.04	21.59	22.26	22.61	21.78	22.52	23.05
18	535.7	522.	1.027	8.88	21.43	22.10	22.45	21.62	22.36	22.88

Haul Costs ($/m3)
Near: 9.37
Medium: 10.04
Far: 10.39

Development Costs ($/ha)
Near: 102.28
Medium: 136.82
Far : 229.15

The subtotal column includes all costs except development costs.
The total column includes development costs expressed on a per cubic metre basis.

RAM Data Development for Pine   Medium site: FMU R4.

Age (Decades)	Volume (m3/ha)	Stem Density (#/ha)	Log Size (m3/log)	Woodlands Cost ($/m3)	---Subtotal Cost----			----Total Cost----		
					Near	Medium	Far	Near	Medium	Far
1	0.0	0.	0.0	-----	-----	-----	-----	-----	-----	-----
2	0.0	0.	0.0	-----	-----	-----	-----	-----	-----	-----
3	0.0	0.	0.0	-----	-----	-----	-----	-----	-----	-----
4	0.0	0.	0.0	-----	-----	-----	-----	-----	-----	-----
5	16.6	180.	0.092	15.20	27.75	28.42	28.77	33.91	36.67	42.59
6	58.1	508.	0.115	14.63	27.18	27.85	28.20	28.94	30.21	32.15
7	105.9	733.	0.145	14.02	26.57	27.24	27.59	27.53	28.53	29.76
8	149.5	849.	0.176	13.50	26.05	26.72	27.07	26.73	27.64	28.61
9	188.4	900.	0.209	13.05	25.60	26.27	26.62	26.14	27.00	27.84
10	223.0	914.	0.244	12.64	25.19	25.87	26.22	25.65	26.48	27.25
11	253.7	908.	0.280	12.29	24.84	25.51	25.86	25.24	26.05	26.77
12	280.5	892.	0.315	11.98	24.53	25.20	25.55	24.89	25.69	26.37
13	304.3	871.	0.350	11.70	24.25	24.93	25.28	24.59	25.38	26.03
14	325.7	848.	0.384	11.45	24.00	24.68	25.03	24.32	25.10	25.73
15	344.8	825.	0.418	11.23	23.78	24.46	24.81	24.08	24.85	25.47
16	362.0	802.	0.451	11.03	23.58	24.26	24.61	23.86	24.63	25.24
17	377.5	781.	0.483	10.85	23.40	24.08	24.43	23.67	24.44	25.04
18	391.4	762.	0.514	10.69	23.24	23.92	24.27	23.50	24.27	24.85

Haul Costs ($/m3)
Near: 9.37
Medium: 10.04
Far: 10.39

Development Costs ($/ha)
Near: 102.28
Medium: 136.82
Far : 229.15

The subtotal column includes all costs except development costs.
The total column includes development costs expressed on a per cubic metre basis.

RAM Data Development for Pine Fair site: FMU R4.

Age (Decades)	Volume (m3/ha)	Stem Density (#/ha)	Log Size (m3/log)	Woodlands Cost ($/m3)	---Subtotal Cost---- Near	Medium	Far	----Total Cost---- Near	Medium	Far
1	0.0	0.	0.0	-----	-----	-----	-----	-----	-----	-----
2	0.0	0.	0.0	-----	-----	-----	-----	-----	-----	-----
3	0.0	0.	0.0	-----	-----	-----	-----	-----	-----	-----
4	0.0	0.	0.0	-----	-----	-----	-----	-----	-----	-----
5	0.0	0.	0.0	-----	-----	-----	-----	-----	-----	-----
6	0.0	0.	0.0	-----	-----	-----	-----	-----	-----	-----
7	8.5	110.	0.077	15.66	28.21	28.88	29.23	40.28	45.04	56.29
8	31.4	335.	0.094	15.16	27.70	28.38	28.73	30.96	32.74	36.03
9	59.3	529.	0.112	14.69	27.24	27.91	28.26	28.96	30.22	32.13
10	85.2	662.	0.129	14.32	26.87	27.54	27.90	28.07	29.15	30.58
11	109.4	754.	0.145	14.01	26.56	27.23	27.58	27.49	28.48	29.68
12	131.6	817.	0.161	13.73	26.28	26.96	27.31	27.06	28.00	29.05
13	151.9	859.	0.177	13.49	26.04	26.71	27.07	26.71	27.61	28.57
14	170.5	887.	0.192	13.27	25.82	26.49	26.84	26.42	27.30	28.19
15	187.4	903.	0.208	13.07	25.62	26.29	26.64	26.16	27.02	27.87
16	202.9	912.	0.223	12.89	25.44	26.11	26.46	25.94	26.79	27.59
17	216.8	916.	0.237	12.72	25.27	25.95	26.30	25.75	26.58	27.36
18	229.5	915.	0.251	12.57	25.12	25.80	26.15	25.57	26.39	27.15

Haul Costs ($/m3)
Near: 9.37
Medium: 10.04
Far: 10.39

Development Costs ($/ha)
Near: 102.28
Medium: 136.82
Far : 229.15

The subtotal column includes all costs except development costs.
The total column includes development costs expressed on a per cubic metre basis.

RAM Data Development for Uncommercial Good site: FMU R4.

Age (Decades)	Volume (m3/ha)	Stem Density (#/ha)	Log Size (m3/log)	Woodlands Cost ($/m3)	---Subtotal Cost---- Near	Medium	Far	----Total Cost---- Near	Medium	Far
1	0.0	0.	0.0	-----	-----	-----	-----	-----	-----	-----
2	0.0	0.	0.0	-----	-----	-----	-----	-----	-----	-----
3	0.0	0.	0.0	-----	-----	-----	-----	-----	-----	-----
4	0.0	0.	0.0	-----	-----	-----	-----	-----	-----	-----
5	0.3	5.	0.055	16.56	29.11	29.79	30.14	407.91	536.52	878.84
6	2.7	31.	0.087	15.35	27.90	28.57	28.92	66.06	79.62	114.43
7	6.9	63.	0.109	14.76	27.31	27.99	28.34	42.15	47.84	61.59
8	10.9	82.	0.133	14.24	26.79	27.47	27.82	36.18	40.03	48.86
9	24.9	235.	0.106	14.84	27.39	28.07	28.42	31.51	33.57	37.64
10	49.5	478.	0.104	14.89	27.44	28.12	28.47	29.51	30.88	33.10
11	74.4	645.	0.115	14.61	27.16	27.83	28.18	28.53	29.67	31.26
12	98.6	770.	0.128	14.34	26.89	27.56	27.91	27.92	28.95	30.24
13	121.8	866.	0.141	14.09	26.64	27.32	27.67	27.48	28.44	29.55
14	144.5	947.	0.152	13.88	26.43	27.10	27.45	27.14	28.05	29.04
15	167.0	1019.	0.164	13.69	26.24	26.91	27.26	26.85	27.73	28.64
16	188.9	1076.	0.175	13.51	26.06	26.73	27.09	26.60	27.46	28.30
17	209.8	1120.	0.187	13.34	25.89	26.56	26.91	26.38	27.21	28.01
18	229.7	1152.	0.199	13.18	25.73	26.40	26.75	26.17	27.00	27.75

Haul Costs ($/m3)
Near: 9.37
Medium: 10.04
Far: 10.39

Development Costs ($/ha)
Near: 102.28
Medium: 136.82
Far : 229.15

The subtotal column includes all costs except development costs.
The total column includes development costs expressed on a per cubic metre basis.

RAM Data Development for Uncommercial Medium site: FMU R4.

Age (Decades)	Volume (m3/ha)	Stem Density (#/ha)	Log Size (m3/log)	Woodlands Cost ($/m3)	---Subtotal Cost---- Near	Medium	Far	----Total Cost---- Near	Medium	Far
1	0.0	0.	0.0	-----	-----	-----	-----	-----	-----	-----
2	0.0	0.	0.0	-----	-----	-----	-----	-----	-----	-----
3	0.0	0.	0.0	-----	-----	-----	-----	-----	-----	-----
4	0.0	0.	0.0	-----	-----	-----	-----	-----	-----	-----
5	0.3	5.	0.055	16.56	29.11	29.79	30.14	407.91	536.52	878.84
6	2.7	31.	0.087	15.35	27.90	28.57	28.92	66.06	79.62	114.43
7	6.9	63.	0.109	14.76	27.31	27.99	28.34	42.15	47.84	61.59
8	10.9	82.	0.133	14.24	26.79	27.47	27.82	36.18	40.03	48.86
9	24.9	235.	0.106	14.84	27.39	28.07	28.42	31.51	33.57	37.64
10	49.5	478.	0.104	14.89	27.44	28.12	28.47	29.51	30.88	33.10
11	74.4	645.	0.115	14.61	27.16	27.83	28.18	28.53	29.67	31.26
12	98.6	770.	0.128	14.34	26.89	27.56	27.91	27.92	28.95	30.24
13	121.8	866.	0.141	14.09	26.64	27.32	27.67	27.48	28.44	29.55
14	144.5	947.	0.152	13.88	26.43	27.10	27.45	27.14	28.05	29.04
15	167.0	1019.	0.164	13.69	26.24	26.91	27.26	26.85	27.73	28.64
16	188.9	1076.	0.175	13.51	26.06	26.73	27.09	26.60	27.46	28.30
17	209.8	1120.	0.187	13.34	25.89	26.56	26.91	26.38	27.21	28.01
18	229.7	1152.	0.199	13.18	25.73	26.40	26.75	26.17	27.00	27.75

Haul Costs ($/m3)
Near: 9.37
Medium: 10.04
Far: 10.39

Development Costs ($/ha)
Near: 102.28
Medium: 136.82
Far : 229.15

The subtotal column includes all costs except development costs.
The total column includes development costs expressed on a per cubic metre basis.

RAM Data Development for Uncommercial Fair site: FMU R4.

Age (Decades)	Volume (m3/ha)	Stem Density (#/ha)	Log Size (m3/log)	Woodlands Cost ($/m3)	---Subtotal Cost---- Near	Medium	Far	----Total Cost---- Near	Medium	Far
1	0.0	0.	0.0	-----	-----	-----	-----	-----	-----	-----
2	0.0	0.	0.0	-----	-----	-----	-----	-----	-----	-----
3	0.0	0.	0.0	-----	-----	-----	-----	-----	-----	-----
4	0.0	0.	0.0	-----	-----	-----	-----	-----	-----	-----
5	0.3	5.	0.055	16.56	29.11	29.79	30.14	407.91	536.52	878.84
6	2.7	31.	0.087	15.35	27.90	28.57	28.92	66.06	79.62	114.43
7	6.9	63.	0.109	14.76	27.31	27.99	28.34	42.15	47.84	61.59
8	10.9	82.	0.133	14.24	26.79	27.47	27.82	36.18	40.03	48.86
9	24.9	235.	0.106	14.84	27.39	28.07	28.42	31.51	33.57	37.64
10	49.5	478.	0.104	14.89	27.44	28.12	28.47	29.51	30.88	33.10
11	74.4	645.	0.115	14.61	27.16	27.83	28.18	28.53	29.67	31.26
12	98.6	770.	0.128	14.34	26.89	27.56	27.91	27.92	28.95	30.24
13	121.8	866.	0.141	14.09	26.64	27.32	27.67	27.48	28.44	29.55
14	144.5	947.	0.152	13.88	26.43	27.10	27.45	27.14	28.05	29.04
15	167.0	1019.	0.164	13.69	26.24	26.91	27.26	26.85	27.73	28.64
16	188.9	1076.	0.175	13.51	26.06	26.73	27.09	26.60	27.46	28.30
17	209.8	1120.	0.187	13.34	25.89	26.56	26.91	26.38	27.21	28.01
18	229.7	1152.	0.199	13.18	25.73	26.40	26.75	26.17	27.00	27.75

Haul Costs ($/m3)
Near: 9.37
Medium: 10.04
Far: 10.39

Development Costs ($/ha)
Near: 102.28
Medium: 136.82
Far : 229.15

The subtotal column includes all costs except development costs.
The total column includes development costs expressed on a per cubic metre basis.

OPTIONS IN EFFECT: NOLIST NOMAP NOXREF NOGOSTMT NODECK SOURCE TERM OBJECT FIXED NOTEST SEQ
OPTIMIZE(0) LANGLVL(77) NOFIPS FLAG(I) NAME(MAIN) LINECOUNT(60)

```
             *....*...1.........2.........3.........4.........5.........6.........7.*.......8.........9.........*

             ***********************************************************************
             *                          RAMPACC.MOD                                *
             *                                                                     *
             *  A FORTRAN-77 PROGRAM WHICH MODIFIES A TIMBER RAM GENERATED         *
             *    MATRIX TO ALLOW INCORPORATION OF PERIODIC AVERAGE COST           *
             *                CONSTRAINTS (HENCE RAMPACC).                         *
             *                                                                     *
             *          WRITTEN BY GLENN FARROW (SEPTEMBER 1986)                   *
             *                                                                     *
             *                                                                     *
             *                                                                     *
             ***********************************************************************
             C
             C                     VARIABLE LIST
             C
             C  PERIOD:         NUMBER OF PERIODS FOR WHICH AVERAGE COST IS
             C                  CONSTRAINED
             C  DEC:            DECADE (INTEGER)
             C  DECADE:         DECADE (CHARACTER)
             C  LOWCOS:         LOWER AVERAGE COST CONSTRAINT (AN ARRAY)
             C  UPCOS:          UPPER AVERAGE COST CONSTRAINT (AN ARRAY)
             C  COEFF:          COEFFICIENTS FOR "COLUMNS" SECTION OF RAM MATRIX
             C  LINE:           VARIABLE INTO WHICH INPUT LINES ARE READ
             C  CHEK?:          FOR CHECKING ATTRIBUTES OF LINES
             C  COLUMN:         CONTAINS COLUMN (ACTIVITY) NAME
             C  TEST:           CONTAINS ALPHA DECADE CODES
             C  P:              ARRAY CONTAINING ALPHA DECADE CODES
             C  ROW:            ROW NAME
             C
ISN     1          INTEGER PERIOD,DEC
ISN     2          REAL LOWCOS(35),UPCOS(35)
ISN     3          REAL COEFF
ISN     4          CHARACTER LINE*40,CHEK*3,COLUMN*6,TEST*26,CHEK5*2
ISN     5          CHARACTER P(26)*1,ROW*7,D*1,DEC2*1
ISN     6          CHARACTER DECADE*1,CHEK2*7,CHEK3*6,CHEK4*4
ISN     7          TEST='ABCDEFGHIJKLMNOPQRSTUVWXYZ'
             C
             C   THE NUMBER OF CONSTRAINED PERIODS (PERIOD) AND THE
             C   PERIODIC LOWER AND UPPER COST CONSTRAINTS ARE READ
             C   FROM THE USERCONTROL FILE (UNIT 4).
             C
ISN     8          READ(4,1) PERIOD
ISN     9          DO 52 I=1,PERIOD
ISN    10            READ(4,2) LOWCOS(I),UPCOS(I)
ISN    11       52 CONTINUE
             C
             C   ALPHA CHARACTERS ARE READ INTO THE ARRAY "P".  THIS
             C   IS DONE TO ALLOW THE RAMPACC VARIABLE NAMING CONVENTION
             C   TO BE CONSITENT WITH RAM CONVENTIONS
             C
ISN    12          READ(TEST,28) (P(I),I=1,26)
             C
             C   THE -LPIN IS CHECKED FOR THE TITLE LINE AND TITLE
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                 *....*...1.........2.........3.........4.........5.........6.........7.*.......8.........9.........*
                 C   OF THE ROWS SECTION, AND THE PROGRAM IS HALTED WITH
                 C   SUITABLE ERROR MESSAGES IF THE SECTIONS ARE NOT FOUND.
                 C
ISN      13            READ(5,3)LINE
ISN      14            READ(LINE,4)CHEK4
ISN      15            IF(CHEK4.NE.'NAME') THEN
ISN      16               WRITE(6,29) 'MISSING TITLE'
ISN      17               GOTO 500
ISN      18            ELSE
ISN      19               WRITE(6,3) LINE
ISN      20            ENDIF
ISN      21            READ(5,3) LINE
ISN      22            READ(LINE,4) CHEK4
ISN      23            IF(CHEK4.NE.'ROWS') THEN
ISN      24               WRITE(6,30) 'MISSING ROWS SECTION'
ISN      25               GOTO 500
ISN      26            ELSE
ISN      27               WRITE(6,3) LINE
ISN      28            ENDIF
                 C
                 C   THE ROWS SECTION IS REPRODUCED WITH THE ADDITION OF ROWS TO
                 C   SUM PERIODIC TOTAL COSTS (PAC), CREATED BY DUPLICATING RAM
                 C   PERIODIC TOTAL COST CONSTRAINT ROWS (PCT) AND CHANGING THE
                 C   SIGN TO "E".  THE TOTAL COST ROWS WERE DUPLICATED RATHER
                 C   THAN MODIFIED SO THAT BOTH AVERAGE AND TOTAL COST COULD BE
                 C   CONSTRAINED.
                 C
ISN      29        100 READ(5,3) LINE
ISN      30            READ(LINE,31) CHEK2,CHEK,ROW
ISN      31            IF(CHEK2.EQ.'COLUMNS') GOTO 150
ISN      32            WRITE(6,3) LINE
ISN      33            IF(CHEK.EQ.'PCT') THEN
ISN      34              READ(LINE,33) DECADE
ISN      35              IF(DECADE.LT.'1') THEN
ISN      36                DEC=(INDEX(TEST,DECADE))+9
ISN      37              ELSE
ISN      38                READ(DECADE,34) DEC
ISN      39              ENDIF
ISN      40              IF(DEC.LE.PERIOD) THEN
ISN      41                IF(DEC.LE.9) THEN
ISN      42                  WRITE(6,32) 'E','PAC',DEC
ISN      43                ELSE
ISN      44                  DEC=DEC-9
ISN      45                  WRITE(6,35) 'E','PAC',P(DEC)
ISN      46                ENDIF
ISN      47              ELSE
ISN      48              ENDIF
ISN      49            ENDIF
ISN      50            GOTO 100
ISN      51        150 CONTINUE
                 C
                 C  UPPER AND LOWER COST CONSTRAINT ROWS (LOW,UPP) ARE ADDED
                 C  FOR EACH CONSTRAINED PERIOD.
                 C
ISN      52            DO 175 I=1,PERIOD
ISN      53              IF (I.LE.9) THEN
```

```
                  *....*...1.........2.........3.........4.........5.........6.........7.*.......8.........9.......*
ISN    54                WRITE(6,10) 'L','LOW',I
ISN    55                WRITE(6,10) 'G','UPP',I
ISN    56              ELSE
ISN    57                J=I-9
ISN    58                WRITE(6,12) 'L','LOW',P(J)
ISN    59                WRITE(6,12) 'G','UPP',P(J)
ISN    60              ENDIF
ISN    61         175 CONTINUE
                  C
                  C   THE COLUMNS SECTION IS REPRODUCED WITH THE ADDITION OF
                  C   TOTAL PERIODIC HARVEST ACTIVITIES (HC?) TO THE UPPER
                  C   AND LOWER AVERAGE COST CONSTRAINT ROWS (UPP,LOW) WITH
                  C   THE APPROPRIATE COST CONSTRAINT AS THE COEFFICIENT.
                  C   IN ADDITION ALL ACTIVITIES WITH COEFFICIENTS IN THE
                  C   TIMBER RAM GENERATED PERIODIC TOTAL COST CONSTRAINT (PCT)
                  C   ROWS ARE REPRODUCED WITH THE SAME COEFFICIENTS IN THE
                  C   PERIODIC AVERAGE COST CONSTRAINTS ROWS (PAC).
                  C
ISN    62            WRITE(6,14) 'COLUMNS'
ISN    63            D='Z'
ISN    64         225 READ(5,3) LINE
ISN    65            READ(LINE,53) CHEK
ISN    66            IF(CHEK.EQ.'RHS') GOTO 275
ISN    67            WRITE(6,3) LINE
ISN    68         250 READ(LINE,15) CHEK5,DECADE,COLUMN,CHEK,DEC2,ROW,COEFF
ISN    69            IF(CHEK5.EQ.'HC') THEN
ISN    70              IF(DECADE.LT.'1')THEN
ISN    71                I=(INDEX(TEST,DECADE))+9
ISN    72                IF(I.LE.PERIOD.AND.D.NE.DECADE) THEN
ISN    73                  J=I-9
ISN    74                  WRITE(6,20) COLUMN,'UPP',P(J),UPCOS(I)
ISN    75                  WRITE(6,20) COLUMN,'LOW',P(J),LOWCOS(I)
ISN    76                  D=DECADE
ISN    77                ENDIF
ISN    78              ELSE
ISN    79                READ(DECADE,36) I
ISN    80                IF(I.LE.PERIOD.AND.D.NE.DECADE) THEN
ISN    81                  WRITE(6,22) COLUMN,'UPP',I,UPCOS(I)
ISN    82                  WRITE(6,22) COLUMN,'LOW',I,LOWCOS(I)
ISN    83                  D=DECADE
ISN    84                ENDIF
ISN    85              ENDIF
ISN    86            ELSE IF (CHEK.EQ.'PCT') THEN
ISN    87              IF(DEC2.LT.'1')THEN
ISN    88                I=(INDEX(TEST,DEC2))+9
ISN    89                IF(I.LE.PERIOD) THEN
ISN    90                  WRITE(6,37) COLUMN,'PAC',DEC2,COEFF
ISN    91                ENDIF
ISN    92              ELSE
ISN    93                READ(DEC2,34) I
ISN    94                IF(I.LE.PERIOD) THEN
ISN    95                  WRITE(6,37) COLUMN,'PAC',DEC2,COEFF
ISN    96                ENDIF
ISN    97              ENDIF
ISN    98            ENDIF
ISN    99            GOTO 225
```

```
                  *....*...1.........2.........3.........4.........5.........6.........7.*.......8.........9.......'
ISN   100           275 CONTINUE
                  C
                  C  TOTAL PERIODIC COST ACTIVITIES ARE ADDED TO THE MATRIX, WITH
                  C  THESE ACTIVITIES SUMMED IN THE PAC ROWS.  THESE ACTIVITIES
                  C  ARE ADDED TO THE LOWER AND UPPER CONSTRAINT ROWS (LOW AND UPP)
                  C  TO FORM THE CONSTRAINT.
                  C
ISN   101               DO 300 I=1,PERIOD
ISN   102                 IF(I.LE.9) THEN
ISN   103                   WRITE(6,21) 'COS',I,'UPP',I,'-1.0'
ISN   104                   WRITE(6,21) 'COS',I,'LOW',I,'-1.0'
ISN   105                   WRITE(6,24) 'COS',I,'PAC',I,'-1.0'
ISN   106                 ELSE
ISN   107                   J = I - 9
ISN   108                   WRITE(6,23) 'COS',I,'UPP',P(J),'-1.0'
ISN   109                   WRITE(6,23) 'COS',I,'LOW',P(J),'-1.0'
ISN   110                   WRITE(6,26) 'COS',I,'PAC',P(J),'-1.0'
ISN   111                 ENDIF
ISN   112           300 CONTINUE
                  C
                  C  THE RIGHT HAND SIDE OF THE MATRIX IS REPRODUCED WITH NO
                  C  MODIFICATION SINCE THE RHS OF ALL ADDED ROWS IS 0.
                  C
ISN   113               WRITE(6,55) 'RHS'
                  C
                  C
ISN   114           425 READ(5,3) LINE
ISN   115               READ(LINE,56) CHEK3
ISN   116               IF(CHEK3.EQ.'ENDATA') GOTO 450
ISN   117               WRITE(6,3) LINE
ISN   118               GOTO 425
ISN   119           450 WRITE(6,56) 'ENDATA'
ISN   120               WRITE(6,54) '$ENDFILE'
ISN   121             1 FORMAT(I2,A3)
ISN   122             2 FORMAT(F6.2,F6.2)
ISN   123             3 FORMAT(A36)
ISN   124             4 FORMAT(A4)
ISN   125             5 FORMAT(T2,A1,T5,A3,I1)
ISN   126             6 FORMAT(T2,A1,T5,A4,I1)
ISN   127             7 FORMAT(T2,A1,T5,A3,I2)
ISN   128             8 FORMAT(T2,A1,T5,A4,I2)
ISN   129            10 FORMAT(T2,A1,T5,A3,I1)
ISN   130            12 FORMAT(T2,A1,T5,A3,A1)
ISN   131            14 FORMAT(A7)
ISN   132            15 FORMAT(T5,A2,A1,T5,A6,T15,A3,A1,T15,A5,T25,F12.6)
ISN   133            16 FORMAT(T19,A1)
ISN   134            17 FORMAT(T5,A6,T15,A3,I2,T25,F12.6)
ISN   135            18 FORMAT(T5,A6,T15,A3,I1,T25,F12.6)
ISN   136            19 FORMAT(I1)
ISN   137            20 FORMAT(T5,A3,T15,A3,A1,T27,F6.2)
ISN   138            21 FORMAT(T5,A3,I1,T15,A3,I1,T28,A4)
ISN   139            22 FORMAT(T5,A3,T15,A3,I1,T27,F6.2)
ISN   140            23 FORMAT(T5,A3,I2,T15,A3,A1,T28,A4)
ISN   141            24 FORMAT(T5,A3,I1,T15,A3,I1,T27,A5)
ISN   142            25 FORMAT(T5,A3,I1,T15,A3,I1,T27,A5)
ISN   143            26 FORMAT(T5,A3,I2,T15,A3,A1,T27,A5)
```

```
                          *....*...1.........2.........3.........4.........5.........6.........7.*.......8.........9.........*
ISN     144     222.         27 FORMAT(T5,A3,I2,T15,A3,I2,T27,A5)
ISN     145     223.         28 FORMAT(26(A1))
ISN     146     224.         29 FORMAT(A13)
ISN     147     225.         30 FORMAT(A20)
ISN     148     226.         31 FORMAT(A7,T2,T5,A3,T5,A7)
ISN     149     227.         32 FORMAT(T2,A1,T5,A3,I1)
ISN     150     228.         33 FORMAT(T8,A1)
ISN     151     229.         34 FORMAT(I1)
ISN     152     230.         35 FORMAT(T2,A1,T5,A3,A1)
ISN     153     231.         36 FORMAT(I1)
ISN     154     232.         37 FORMAT(T5,A6,T15,A3,A1,T25,F12.6)
ISN     155     233.         50 FORMAT(T15,A8)
ISN     156     234.         51 FORMAT(A4,T15,A8)
ISN     157     235.         53 FORMAT(A3)
ISN     158     236.         54 FORMAT(A8)
ISN     159     237.         55 FORMAT(A3)
ISN     160     238.         56 FORMAT(A6)
ISN     161     239.         57 FORMAT(T18,A1)
ISN     162     240.         58 FORMAT(T5,A6,T15,A4,I2,T25,F12.6)
ISN     163     241.         59 FORMAT(T5,A6,T15,A4,I1,T25,F12.6)
ISN     164     242.        500 STOP
ISN     165     243.            END

*STATISTICS*   SOURCE STATEMENTS = 165, PROGRAM SIZE = 5136 BYTES, PROGRAM NAME = MAIN    PAGE:     1.

*STATISTICS*    NO DIAGNOSTICS GENERATED.

****** END OF COMPILATION 1 ******
```

```
OPTIONS IN EFFECT:  NOLIST NOMAP NOXREF NOGOSTMT NODECK   SOURCE   TERM   OBJECT FIXED        NOTEST   SEQ
                      OPTIMIZE(0)  LANGLVL(77) NOFIPS   FLAG(I)  NAME(MAIN   )  LINECOUNT(60)

                          *....*...1.........2.........3.........4.........5.........6.........7.*.......8.........9.........*

                          ******************************************************************
                          *                        RAMPACC.KILL                             *
                          *                                                                 *
                          *    A FORTRAN-77 POST-PROCESSOR THAT REMOVES FROM THE MPSCG     *
                          *    SOLUTION BASIS ALL ACTIVITIES ADDED BY RAMPACC.MOD AND NOT  *
                          *    RECOGNIZED BY THE TIMBER RAM REPORT WRITER.                 *
                          *                                                                 *
                          *          WRITTEN BY GLENN FARROW (SEPTEMBER 1986)              *
                          *                                                                 *
                          ******************************************************************
ISN       1                     CHARACTER*80 LINE
ISN       2                     CHARACTER*3 COLUMN
ISN       3                  25 READ(5,1,END=100) LINE
ISN       4                     READ(LINE,2) COLUMN
ISN       5                     IF(COLUMN.EQ.'COS') THEN
ISN       6                       GOTO 25
ISN       7                     ELSE
ISN       8                       WRITE(6,1) LINE
ISN       9                       GOTO25
ISN      10                     ENDIF
ISN      11                 100 CONTINUE
ISN      12                   1 FORMAT(A80)
ISN      13                   2 FORMAT(T5,A3)
ISN      14                     STOP
ISN      15                     END

*STATISTICS*   SOURCE STATEMENTS = 15, PROGRAM SIZE = 510 BYTES, PROGRAM NAME = MAIN    PAGE:     1.

*STATISTICS*    NO DIAGNOSTICS GENERATED.

****** END OF COMPILATION 1 ******
```

Separate Timber RAM data files were created for the full landbases of each Forest Management Unit (FMU) considered in this study (R4 and E1). Data files for the AFS landbase in each FMU were then created from the Full landbase data files by eliminating all uncommercial timber classes. Copies of the Timber RAM GENOUT files for each Full landbase are included at the end of this section. Uncommercial timber classes in these files are identified by an "M" as the second character in the timber class name.

Incorporating average cost constraints in Timber RAM using RAMPACC requires that the "Silviculture and Economics LP and Report" option be used. Total cost constraints must be input but can be set so as to be non-constraining. RAMPACC reads the average cost constraints from the user-control file PACC.USER and incorporates these constraints in the Linear Programming input matrix. Since the Timber RAM data file is not modified by RAMPACC the same data file is used for all constraint levels. A sample PACC.USER file is included at the end of this section.

Incorporating marginal cost constraints requires modification of the "Management Alternatives" section of the Timber RAM data file (section 6). Timber classes must be made unavailable for harvest during periods when harvesting costs exceed the marginal cost constraint. In Timber RAM the period at which a timber class becomes available for harvest is determined by the first entry and first harvest variables. First entry and first harvest must therefore be set to ensure that the marginal cost constraint is met. Since the values for the first entry and first harvest variables will vary with the constraint level a separate data file must be used for each marginal cost constraint.

To determine the appropriate first entry/first harvest values the relationship between marginal cost and age must be established for each timber class. The age at which a timber class is economically accessible can then be specified for any given marginal cost constraint. First entry is calculated as:

(accessible age - current age) + 1.

The age difference is incremented by 1 since the age of a timber class in period 1 is equal to its current age. Thus a timber class with a current age of 70 and an accessible age of 90 would not be available for harvest until period 3. Timber classes which have an accessible age greater than a specified age limit can simply be eliminated from the input data file.

Included at the end of this appendix is the "Management Alternatives" section of the $22 marginal cost run for the E1Full landbase, and a table outlining the marginal cost / age relationship for timber group "NB". With a marginal cost constraint of $22 per cubic metre timber group "NB" is not economically accessible until age 180. Since the current age of "NB7" is 7 decades, first entry and first harvest for this timber class are set to 12.

PROBLEM TITLE

E1 CONIFER LAND BASE -- FEBRUARY 1987
UNCOMMERCIAL STUFF INCLUDED

1.2 TYPE OF RUN

PRINT OUT DATA AND GENERATE LP MATRIX ON TAPE=2 REPORT TAPE=3

1.3 SCOPE OF ANALYSIS

SILVICULTURE AND ECONOMICS LP AND REPORT

1.4 PROBLEM PARAMETERS

LENGTH OF THE FIRST PLANNING PERIOD (IN YEARS) = 10
CURRENT VOLUME LEVEL = 2000.00
LENGTH OF CONVERSION PERIOD (IN DECADES) = 10
TOTAL TIME SPANNED BY THE PROBLEM (IN DECADES) = 25
OLDEST AGE TO BE REACHED BY ANY TIMBER CLASS (IN DECADES) = 18

1.5 DEFINITION OF HARVEST CONSTRAINTS

VOLUME CONTROL AND REGULATION

1.6 TYPE OF HARVEST CONTROL CONSTRAINTS

SEQUENTIAL LOWER AND UPPER BOUNDS

2 CONTROL AND REGULATION CONSTRAINTS

DEGREE OF HARVEST CONTROL

CONVERSION PERIOD	LOWER	UPPER
1	0.990	0.990
2	0.0	0.0
3	0.0	0.0
4	0.0	0.0
5	0.0	0.0
6	0.0	0.0
7	0.0	0.0
8	0.0	0.0
9	0.0	0.0
10	0.0	0.0

DEGREE OF HARVEST REGULATION

CONVERSION LINK	0.990	0.0
POST-CONVERSION PERIOD		
11	0.990	0.990
12	0.990	0.990
13	0.990	0.990
14	0.990	0.990
15	0.990	0.990
16	0.990	0.990
17	0.990	0.990
18	0.990	0.990
19	0.990	0.990
20	0.990	0.990
21	0.990	0.990
22	0.990	0.990
23	0.990	0.990
24	0.990	0.990
25	0.990	0.990

NM9	9	L	0.198	1.00
NMA	10	L	0.066	1.00
MA9	9	L	0.132	1.00
MAE	14	L	0.066	1.00
MB7	7	L	0.198	1.00
MB8	8	L	0.132	1.00
MBB	11	L	0.264	1.00
MBC	12	L	0.066	1.00
MD4	4	L	0.330	1.00
MD7	7	L	0.066	1.00
ME7	7	L	0.066	1.00
ME8	8	L	0.066	1.00
ME9	9	L	0.066	1.00
MG8	8	L	0.066	1.00
MG9	9	L	1.186	1.00
MGB	11	L	0.725	1.00
MGC	12	L	0.659	1.00
MHX	1	L	0.460	1.00
MH2	2	L	0.132	1.00
MH3	3	L	2.307	1.00
MH4	4	L	0.066	1.00
MH6	6	L	0.198	1.00
MH8	8	L	0.395	1.00
MH9	9	L	1.054	1.00
MHA	10	L	0.066	1.00
MHB	11	L	0.132	1.00
MHC	12	L	0.132	1.00
MHG	16	L	0.066	1.00
MJ7	7	L	0.132	1.00
MJ8	8	L	1.252	1.00
MJ9	9	L	2.175	1.00
MJB	11	L	0.395	1.00
MJC	12	L	0.066	1.00
MKX	1	L	0.858	1.00
MK2	2	L	0.066	1.00
MK3	3	L	1.977	1.00
MK4	4	L	0.198	1.00
MK5	5	L	0.132	1.00
MK6	6	L	0.264	1.00
MK7	7	L	1.648	1.00
MK8	8	L	1.977	1.00
MK9	9	L	5.801	1.00
MKA	10	L	0.198	1.00
MKB	11	L	0.461	1.00
MKC	12	L	0.066	1.00
ML7	7	L	0.395	1.00
ML8	8	L	0.264	1.00
ML9	9	L	0.066	1.00
MLB	11	L	0.066	1.00
MM4	4	L	0.132	1.00
MM5	5	L	1.054	1.00
MM6	6	L	0.593	1.00
MM7	7	L	1.911	1.00
MM8	8	L	0.527	1.00
MM9	9	L	0.659	1.00
MMB	11	L	0.132	1.00
MMC	12	L	0.198	1.00
FA9	9	L	0.132	1.00
FAB	11	L	0.132	1.00
FAC	12	L	0.066	1.00

FB7	7	L	0.132	1.00
FB9	9	L	0.066	1.00
FBB	11	L	0.132	1.00
FBC	12	L	0.198	1.00
FE2	2	L	0.132	1.00
FE3	3	L	0.395	1.00
FE4	4	L	0.066	1.00
FG7	7	L	0.066	1.00
FG9	9	L	0.791	1.00
FGA	10	L	0.066	1.00
FGB	11	L	0.461	1.00
FGC	12	L	0.066	1.00
FHX	1	L	0.092	1.00
FH2	2	L	0.330	1.00
FH3	3	L	0.066	1.00
FH4	4	L	0.066	1.00
FH6	6	L	0.461	1.00
FH7	7	L	0.264	1.00
FH8	8	L	0.066	1.00
FH9	9	L	1.911	1.00
FHA	10	L	0.527	1.00
FHB	11	L	0.264	1.00
FHE	14	L	0.198	1.00
FJ7	7	L	0.198	1.00
FJ8	8	L	0.264	1.00
FJ9	9	L	1.977	1.00
FJA	10	L	0.066	1.00
FJB	11	L	0.593	1.00
FJC	12	L	0.264	1.00
FKX	1	L	0.172	1.00
FK3	3	L	0.461	1.00
FK4	4	L	0.527	1.00
FK5	5	L	0.527	1.00
FK6	6	L	0.198	1.00
FK7	7	L	3.954	1.00
FK8	8	L	0.725	1.00
FK9	9	L	6.392	1.00
FKA	10	L	0.593	1.00
FKB	11	L	0.527	1.00
FL3	3	L	0.066	1.00
FL5	5	L	0.527	1.00
FL7	7	L	0.330	1.00
FL8	8	L	0.198	1.00
FL9	9	L	0.066	1.00
FLC	12	L	0.066	1.00
FM4	4	L	0.132	1.00
FM5	5	L	0.395	1.00
FM6	6	L	0.198	1.00
FM7	7	L	4.349	1.00
FM8	8	L	0.198	1.00
FM9	9	L	0.198	1.00

THE TOTAL AREA OF THE TIMBER CLASSES IN THE PROBLEM IS 88.058 THOUSAND ACRES

NOTE TOTAL AREA IS DETERMINED USING SINGLE PRECISION ARITHMETIC. IT IS POSSIBLE THAT THE CALCULATED AREA WILL DISAGREE SLIGHTLY WITH THE ACTUAL AREA.

FB7	R	2	22	-1	0	12	12
FB9	R	2	22	-1	0	10	10
FBB	R	2	22	-1	0	8	8
FBC	R	2	22	-1	0	7	7
FE2	R	4	24	-1	0	17	17
FE3	R	4	24	-1	0	16	16
FE4	R	4	24	-1	0	15	15
FG7	R	5	25	-1	0	12	12
FG9	R	5	25	-1	0	10	10
FGA	R	5	25	-1	0	9	9
FGB	R	5	25	-1	0	8	8
FGC	R	5	25	-1	0	7	7
FHX	R	6	26	-1	0	18	18
FH2	R	6	26	-1	0	17	17
FH3	R	6	26	-1	0	16	16
FH4	R	6	26	-1	0	15	15
FH6	R	6	26	-1	0	13	13
FH7	R	6	26	-1	0	12	12
FH8	R	6	26	-1	0	11	11
FH9	R	6	26	-1	0	10	10
FHA	R	6	26	-1	0	9	9
FHB	R	6	26	-1	0	8	8
FHE	R	6	26	-1	0	5	5
FJ7	R	7	27	-1	0	12	12
FJ8	R	7	27	-1	0	11	11
FJ9	R	7	27	-1	0	10	10
FJA	R	7	27	-1	0	9	9
FJB	R	7	27	-1	0	8	8
FJC	R	7	27	-1	0	7	7
FKX	R	8	28	-1	0	18	18
FK3	R	8	28	-1	0	16	16
FK4	R	8	28	-1	0	15	15
FK5	R	8	28	-1	0	14	14
FK6	R	8	28	-1	0	13	13
FK7	R	8	28	-1	0	12	12
FK8	R	8	28	-1	0	11	11
FK9	R	8	28	-1	0	10	10
FKA	R	8	28	-1	0	9	9
FKB	R	8	28	-1	0	8	8
FL3	R	9	29	-1	0	16	16
FL5	R	9	29	-1	0	14	14
FL7	R	9	29	-1	0	12	12
FL8	R	9	29	-1	0	11	11
FL9	R	9	29	-1	0	10	10
FLC	R	9	29	-1	0	7	7
FM4	R	10	30	-1	0	15	15
FM5	R	10	30	-1	0	14	14
FM6	R	10	30	-1	0	13	13
FM7	R	10	30	-1	0	12	12
FM8	R	10	30	-1	0	11	11
FM9	R	10	30	-1	0	10	10

7 VOLUME DATA

WHITE SPRUCE -- GOOD SITE
CLASS NUMBER 1

NORMAL ROTATION AGE - 10

IMPROVED ROTATION AGE - 0

MINIMUM CUT USED IN
VOLUME REGULATION - 0.0

VOLUME (CUNITS/ACRE)

	STANDING TIMBER				REGENERATED TIMBER	
	INTENSIVE MANAGEMENT			NON-INTENSIVE	SUSTAINED YIELD	
AGE IN DECADES	ENTRY CUTS	RE-ENTRY CUTS	HARVEST CUTS	HARVEST CUTS	NORMAL CUTS	IMPROVED CUTS
1	0.0	0.0	0.0	0.0	0.0	0.0
2	0.0	0.0	0.0	0.0	0.0	0.0
3	0.0	0.0	0.0	0.0	0.0	0.0
4	0.0	0.0	0.0	21.80	0.0	0.0
5	0.0	0.0	0.0	91.40	0.0	0.0
6	0.0	0.0	0.0	156.20	0.0	0.0
7	0.0	0.0	0.0	211.90	0.0	0.0
8	0.0	0.0	0.0	261.80	0.0	0.0
9	0.0	0.0	0.0	304.60	0.0	0.0
10	0.0	0.0	0.0	340.90	340.90	0.0
11	0.0	0.0	0.0	371.40	0.0	0.0
12	0.0	0.0	0.0	398.70	0.0	0.0
13	0.0	0.0	0.0	419.50	0.0	0.0
14	0.0	0.0	0.0	437.90	0.0	0.0
15	0.0	0.0	0.0	454.60	0.0	0.0
16	0.0	0.0	0.0	468.80	0.0	0.0
17	0.0	0.0	0.0	482.60	0.0	0.0
18	0.0	0.0	0.0	494.00	0.0	0.0

BLACK SPRUCE -- MED SITE
CLASS NUMBER 4

NORMAL ROTATION AGE - 18

IMPROVED ROTATION AGE - 0

MINIMUM CUT USED IN
VOLUME REGULATION - 0.0

VOLUME (CUNITS/ACRE)

	STANDING TIMBER				REGENERATED TIMBER	
	INTENSIVE MANAGEMENT			NON-INTENSIVE	SUSTAINED YIELD	
AGE IN DECADES	ENTRY CUTS	RE-ENTRY CUTS	HARVEST CUTS	HARVEST CUTS	NORMAL CUTS	IMPROVED CUTS
1	0.0	0.0	0.0	0.0	0.0	0.0
2	0.0	0.0	0.0	0.0	0.0	0.0
3	0.0	0.0	0.0	0.0	0.0	0.0
4	0.0	0.0	0.0	0.0	0.0	0.0
5	0.0	0.0	0.0	0.0	0.0	0.0
6	0.0	0.0	0.0	0.0	0.0	0.0
7	0.0	0.0	0.0	0.0	0.0	0.0
8	0.0	0.0	0.0	0.0	0.0	0.0
9	0.0	0.0	0.0	24.70	0.0	0.0
10	0.0	0.0	0.0	51.10	0.0	0.0
11	0.0	0.0	0.0	77.00	0.0	0.0
12	0.0	0.0	0.0	102.40	0.0	0.0
13	0.0	0.0	0.0	126.70	0.0	0.0
14	0.0	0.0	0.0	150.40	0.0	0.0
15	0.0	0.0	0.0	173.30	0.0	0.0
16	0.0	0.0	0.0	195.20	0.0	0.0
17	0.0	0.0	0.0	216.30	0.0	0.0
18	0.0	0.0	0.0	236.10	236.10	0.0

MIXEDWOOD -- GOOD SITE
CLASS NUMBER 5

NORMAL ROTATION AGE - 11

IMPROVED ROTATION AGE - 0

MINIMUM CUT USED IN
VOLUME REGULATION - 0.0

VOLUME (CUNITS/ACRE)

	STANDING TIMBER				REGENERATED TIMBER	
	INTENSIVE MANAGEMENT			NON-INTENSIVE	SUSTAINED YIELD	
AGE IN DECADES	ENTRY CUTS	RE-ENTRY CUTS	HARVEST CUTS	HARVEST CUTS	NORMAL CUTS	IMPROVED CUTS
1	0.0	0.0	0.0	0.0	0.0	0.0
2	0.0	0.0	0.0	0.0	0.0	0.0
3	0.0	0.0	0.0	0.0	0.0	0.0
4	0.0	0.0	0.0	0.0	0.0	0.0
5	0.0	0.0	0.0	28.90	0.0	0.0
6	0.0	0.0	0.0	88.90	0.0	0.0
7	0.0	0.0	0.0	140.10	0.0	0.0
8	0.0	0.0	0.0	184.20	0.0	0.0
9	0.0	0.0	0.0	221.30	0.0	0.0
10	0.0	0.0	0.0	252.80	0.0	0.0
11	0.0	0.0	0.0	278.80	278.80	0.0
12	0.0	0.0	0.0	301.70	0.0	0.0
13	0.0	0.0	0.0	321.40	0.0	0.0
14	0.0	0.0	0.0	338.40	0.0	0.0
15	0.0	0.0	0.0	353.10	0.0	0.0
16	0.0	0.0	0.0	366.00	0.0	0.0
17	0.0	0.0	0.0	377.30	0.0	0.0
18	0.0	0.0	0.0	388.00	0.0	0.0

PINE -- MED SITE
CLASS NUMBER 8

NORMAL ROTATION AGE - 12

IMPROVED ROTATION AGE - 0

MINIMUM CUT USED IN
VOLUME REGULATION - 0.0

VOLUME (CUNITS/ACRE)

	STANDING TIMBER				REGENERATED TIMBER	
	INTENSIVE MANAGEMENT			NON-INTENSIVE	SUSTAINED YIELD	
AGE IN DECADES	ENTRY CUTS	RE-ENTRY CUTS	HARVEST CUTS	HARVEST CUTS	NORMAL CUTS	IMPROVED CUTS
1	0.0	0.0	0.0	0.0	0.0	0.0
2	0.0	0.0	0.0	0.0	0.0	0.0
3	0.0	0.0	0.0	0.0	0.0	0.0
4	0.0	0.0	0.0	0.0	0.0	0.0
5	0.0	0.0	0.0	33.20	0.0	0.0
6	0.0	0.0	0.0	83.10	0.0	0.0
7	0.0	0.0	0.0	128.80	0.0	0.0
8	0.0	0.0	0.0	170.20	0.0	0.0
9	0.0	0.0	0.0	206.70	0.0	0.0
10	0.0	0.0	0.0	239.40	0.0	0.0
11	0.0	0.0	0.0	268.00	0.0	0.0
12	0.0	0.0	0.0	292.90	292.90	0.0
13	0.0	0.0	0.0	315.60	0.0	0.0
14	0.0	0.0	0.0	335.80	0.0	0.0
15	0.0	0.0	0.0	353.90	0.0	0.0
16	0.0	0.0	0.0	370.10	0.0	0.0
17	0.0	0.0	0.0	384.80	0.0	0.0
18	0.0	0.0	0.0	398.00	0.0	0.0

PINE -- FAIR SITE
CLASS NUMBER 9

NORMAL ROTATION AGE - 16

IMPROVED ROTATION AGE - 0

MINIMUM CUT USED IN
VOLUME REGULATION - 0.0

VOLUME (CUNITS/ACRE)

	STANDING TIMBER				REGENERATED TIMBER	
	INTENSIVE MANAGEMENT			NON-INTENSIVE	SUSTAINED YIELD	
AGE IN DECADES	ENTRY CUTS	RE-ENTRY CUTS	HARVEST CUTS	HARVEST CUTS	NORMAL CUTS	IMPROVED CUTS
1	0.0	0.0	0.0	0.0	0.0	0.0
2	0.0	0.0	0.0	0.0	0.0	0.0
3	0.0	0.0	0.0	0.0	0.0	0.0
4	0.0	0.0	0.0	0.0	0.0	0.0
5	0.0	0.0	0.0	0.0	0.0	0.0
6	0.0	0.0	0.0	0.0	0.0	0.0
7	0.0	0.0	0.0	16.90	0.0	0.0
8	0.0	0.0	0.0	45.90	0.0	0.0
9	0.0	0.0	0.0	72.70	0.0	0.0
10	0.0	0.0	0.0	97.80	0.0	0.0
11	0.0	0.0	0.0	121.00	0.0	0.0
12	0.0	0.0	0.0	142.30	0.0	0.0
13	0.0	0.0	0.0	161.50	0.0	0.0
14	0.0	0.0	0.0	179.60	0.0	0.0
15	0.0	0.0	0.0	195.30	0.0	0.0
16	0.0	0.0	0.0	210.60	210.60	0.0
17	0.0	0.0	0.0	223.10	0.0	0.0
18	0.0	0.0	0.0	236.00	0.0	0.0

NEAR DISTANCE WHITE SPRUCE -- GOOD SITE
CLASS NUMBER 1

NORMAL ROTATION AGE - 10

IMPROVED ROTATION AGE - 0

GROSS REVENUE 2

AGE IN DECADES	STANDING TIMBER: INTENSIVE MANAGEMENT: ENTRY CUTS	RE-ENTRY CUTS	HARVEST CUTS	NON-INTENSIVE HARVEST CUTS	REGENERATED TIMBER: SUSTAINED YIELD: NORMAL CUTS	IMPROVED CUTS
1	0.0	0.0	0.0	0.0	0.0	0.0
2	0.0	0.0	0.0	0.0	0.0	0.0
3	0.0	0.0	0.0	0.0	0.0	0.0
4	0.0	0.0	0.0	0.0	0.0	0.0
5	0.0	0.0	0.0	0.0	0.0	0.0
6	0.0	0.0	0.0	0.0	0.0	0.0
7	0.0	0.0	0.0	0.0	0.0	0.0
8	0.0	0.0	0.0	0.0	0.0	0.0
9	0.0	0.0	0.0	0.0	0.0	0.0
10	0.0	0.0	0.0	0.0	0.0	0.0
11	0.0	0.0	0.0	0.0	0.0	0.0
12	0.0	0.0	0.0	0.0	0.0	0.0
13	0.0	0.0	0.0	0.0	0.0	0.0
14	0.0	0.0	0.0	0.0	0.0	0.0
15	0.0	0.0	0.0	0.0	0.0	0.0
16	0.0	0.0	0.0	0.0	0.0	0.0
17	0.0	0.0	0.0	0.0	0.0	0.0
18	0.0	0.0	0.0	0.0	0.0	0.0

**** DATA ERROR NUMBER 24 SEE TIMBER RAM USERS' MANUAL, FORESTER'S GUIDE, APPENDIX II-2

(DIAGNOSTIC MESSAGE ONLY)

NEAR DISTANCE WHITE SPRUCE -- GOOD SITE
CLASS NUMBER 1

NORMAL ROTATION AGE - 10

IMPROVED ROTATION AGE - 0

COSTS/CU.M

AGE IN DECADES	STANDING TIMBER: INTENSIVE MANAGEMENT: ENTRY CUTS	RE-ENTRY CUTS	HARVEST CUTS	NON-INTENSIVE HARVEST CUTS	REGENERATED TIMBER: SUSTAINED YIELD: NORMAL CUTS	IMPROVED CUTS
1	0.0	0.0	0.0	9999.00	0.0	0.0
2	0.0	0.0	0.0	9999.00	0.0	0.0
3	0.0	0.0	0.0	9999.00	0.0	0.0
4	0.0	0.0	0.0	27.20	0.0	0.0
5	0.0	0.0	0.0	25.39	0.0	0.0
6	0.0	0.0	0.0	24.37	0.0	0.0
7	0.0	0.0	0.0	23.65	0.0	0.0
8	0.0	0.0	0.0	23.08	0.0	0.0
9	0.0	0.0	0.0	22.82	0.0	0.0
10	0.0	0.0	0.0	22.25	22.25	0.0
11	0.0	0.0	0.0	21.95	0.0	0.0
12	0.0	0.0	0.0	21.71	0.0	0.0
13	0.0	0.0	0.0	21.49	0.0	0.0
14	0.0	0.0	0.0	21.31	0.0	0.0
15	0.0	0.0	0.0	21.15	0.0	0.0
16	0.0	0.0	0.0	21.02	0.0	0.0
17	0.0	0.0	0.0	20.89	0.0	0.0
18	0.0	0.0	0.0	20.78	0.0	0.0

NEAR DISTANCE WHITE SPRUCE -- MED SITE
CLASS NUMBER 2

NORMAL ROTATION AGE - 13

IMPROVED ROTATION AGE - 0

GROSS REVENUE 2

	STANDING TIMBER				REGENERATED TIMBER	
	INTENSIVE MANAGEMENT			NON-INTENSIVE	SUSTAINED YIELD	
AGE IN DECADES	ENTRY CUTS	RE-ENTRY CUTS	HARVEST CUTS	HARVEST CUTS	NORMAL CUTS	IMPROVED CUTS
1	0.0	0.0	0.0	0.0	0.0	0.0
2	0.0	0.0	0.0	0.0	0.0	0.0
3	0.0	0.0	0.0	0.0	0.0	0.0
4	0.0	0.0	0.0	0.0	0.0	0.0
5	0.0	0.0	0.0	0.0	0.0	0.0
6	0.0	0.0	0.0	0.0	0.0	0.0
7	0.0	0.0	0.0	0.0	0.0	0.0
8	0.0	0.0	0.0	0.0	0.0	0.0
9	0.0	0.0	0.0	0.0	0.0	0.0
10	0.0	0.0	0.0	0.0	0.0	0.0
11	0.0	0.0	0.0	0.0	0.0	0.0
12	0.0	0.0	0.0	0.0	0.0	0.0
13	0.0	0.0	0.0	0.0	0.0	0.0
14	0.0	0.0	0.0	0.0	0.0	0.0
15	0.0	0.0	0.0	0.0	0.0	0.0
16	0.0	0.0	0.0	0.0	0.0	0.0
17	0.0	0.0	0.0	0.0	0.0	0.0
18	0.0	0.0	0.0	0.0	0.0	0.0

**** DATA ERROR NUMBER 24 SEE TIMBER RAM USERS' MANUAL, FORESTER'S GUIDE, APPENDIX II-2

(DIAGNOSTIC MESSAGE ONLY)

NEAR DISTANCE WHITE SPRUCE -- MED SITE
CLASS NUMBER 2

NORMAL ROTATION AGE - 13

IMPROVED ROTATION AGE - 0

COSTS/CU.M

	STANDING TIMBER				REGENERATED TIMBER	
	INTENSIVE MANAGEMENT			NON-INTENSIVE	SUSTAINED YIELD	
AGE IN DECADES	ENTRY CUTS	RE-ENTRY CUTS	HARVEST CUTS	HARVEST CUTS	NORMAL CUTS	IMPROVED CUTS
1	0.0	0.0	0.0	9999.00	0.0	0.0
2	0.0	0.0	0.0	9999.00	0.0	0.0
3	0.0	0.0	0.0	9999.00	0.0	0.0
4	0.0	0.0	0.0	9999.00	0.0	0.0
5	0.0	0.0	0.0	26.88	0.0	0.0
6	0.0	0.0	0.0	26.29	0.0	0.0
7	0.0	0.0	0.0	25.31	0.0	0.0
8	0.0	0.0	0.0	24.81	0.0	0.0
9	0.0	0.0	0.0	24.07	0.0	0.0
10	0.0	0.0	0.0	23.61	0.0	0.0
11	0.0	0.0	0.0	23.25	0.0	0.0
12	0.0	0.0	0.0	22.93	0.0	0.0
13	0.0	0.0	0.0	22.66	22.66	0.0
14	0.0	0.0	0.0	22.42	0.0	0.0
15	0.0	0.0	0.0	22.22	0.0	0.0
16	0.0	0.0	0.0	22.04	0.0	0.0
17	0.0	0.0	0.0	21.88	0.0	0.0
18	0.0	0.0	0.0	21.74	0.0	0.0

NEAR DISTANCE BLACK SPRUCE -- GOOD SITE
CLASS NUMBER 3

NORMAL ROTATION AGE - 14

IMPROVED ROTATION AGE - 0

GROSS REVENUE 2

	STANDING TIMBER				REGENERATED TIMBER	
	INTENSIVE MANAGEMENT			NON-INTENSIVE	SUSTAINED YIELD	
AGE IN DECADES	ENTRY CUTS	RE-ENTRY CUTS	HARVEST CUTS	HARVEST CUTS	NORMAL CUTS	IMPROVED CUTS
1	0.0	0.0	0.0	0.0	0.0	0.0
2	0.0	0.0	0.0	0.0	0.0	0.0
3	0.0	0.0	0.0	0.0	0.0	0.0
4	0.0	0.0	0.0	0.0	0.0	0.0
5	0.0	0.0	0.0	0.0	0.0	0.0
6	0.0	0.0	0.0	0.0	0.0	0.0
7	0.0	0.0	0.0	0.0	0.0	0.0
8	0.0	0.0	0.0	0.0	0.0	0.0
9	0.0	0.0	0.0	0.0	0.0	0.0
10	0.0	0.0	0.0	0.0	0.0	0.0
11	0.0	0.0	0.0	0.0	0.0	0.0
12	0.0	0.0	0.0	0.0	0.0	0.0
13	0.0	0.0	0.0	0.0	0.0	0.0
14	0.0	0.0	0.0	0.0	0.0	0.0
15	0.0	0.0	0.0	0.0	0.0	0.0
16	0.0	0.0	0.0	0.0	0.0	0.0
17	0.0	0.0	0.0	0.0	0.0	0.0
18	0.0	0.0	0.0	0.0	0.0	0.0

**** DATA ERROR NUMBER 24 SEE TIMBER RAM USERS' MANUAL, FORESTER'S GUIDE, APPENDIX II-2

(DIAGNOSTIC MESSAGE ONLY)

NEAR DISTANCE BLACK SPRUCE -- GOOD SITE
CLASS NUMBER 3

NORMAL ROTATION AGE - 14

IMPROVED ROTATION AGE - 0

COSTS/CU M

	STANDING TIMBER				REGENERATED TIMBER	
	INTENSIVE MANAGEMENT			NON-INTENSIVE	SUSTAINED YIELD	
AGE IN DECADES	ENTRY CUTS	RE-ENTRY CUTS	HARVEST CUTS	HARVEST CUTS	NORMAL CUTS	IMPROVED CUTS
1	0.0	0.0	0.0	9999.00	0.0	0.0
2	0.0	0.0	0.0	9999.00	0.0	0.0
3	0.0	0.0	0.0	9999.00	0.0	0.0
4	0.0	0.0	0.0	9999.00	0.0	0.0
5	0.0	0.0	0.0	28.46	0.0	0.0
6	0.0	0.0	0.0	27.02	0.0	0.0
7	0.0	0.0	0.0	26.37	0.0	0.0
8	0.0	0.0	0.0	25.89	0.0	0.0
9	0.0	0.0	0.0	25.49	0.0	0.0
10	0.0	0.0	0.0	25.14	0.0	0.0
11	0.0	0.0	0.0	24.83	0.0	0.0
12	0.0	0.0	0.0	24.56	0.0	0.0
13	0.0	0.0	0.0	24.33	0.0	0.0
14	0.0	0.0	0.0	24.11	24.11	0.0
15	0.0	0.0	0.0	23.92	0.0	0.0
16	0.0	0.0	0.0	23.74	0.0	0.0
17	0.0	0.0	0.0	23.57	0.0	0.0
18	0.0	0.0	0.0	23.39	0.0	0.0

NEAR DISTANCE BLACK SPRUCE -- MED SITE
CLASS NUMBER 4

NORMAL ROTATION AGE - 18

IMPROVED ROTATION AGE - 0

GROSS REVENUE 2

	STANDING TIMBER				REGENERATED TIMBER	
	INTENSIVE MANAGEMENT			NON-INTENSIVE	SUSTAINED YIELD	
AGE IN DECADES	ENTRY CUTS	RE-ENTRY CUTS	HARVEST CUTS	HARVEST CUTS	NORMAL CUTS	IMPROVED CUTS
1	0.0	0.0	0.0	0.0	0.0	0.0
2	0.0	0.0	0.0	0.0	0.0	0.0
3	0.0	0.0	0.0	0.0	0.0	0.0
4	0.0	0.0	0.0	0.0	0.0	0.0
5	0.0	0.0	0.0	0.0	0.0	0.0
6	0.0	0.0	0.0	0.0	0.0	0.0
7	0.0	0.0	0.0	0.0	0.0	0.0
8	0.0	0.0	0.0	0.0	0.0	0.0
9	0.0	0.0	0.0	0.0	0.0	0.0
10	0.0	0.0	0.0	0.0	0.0	0.0
11	0.0	0.0	0.0	0.0	0.0	0.0
12	0.0	0.0	0.0	0.0	0.0	0.0
13	0.0	0.0	0.0	0.0	0.0	0.0
14	0.0	0.0	0.0	0.0	0.0	0.0
15	0.0	0.0	0.0	0.0	0.0	0.0
16	0.0	0.0	0.0	0.0	0.0	0.0
17	0.0	0.0	0.0	0.0	0.0	0.0
18	0.0	0.0	0.0	0.0	0.0	0.0

**** DATA ERROR NUMBER 24 SEE TIMBER RAM USERS' MANUAL, FORESTER'S GUIDE, APPENDIX II-2

(DIAGNOSTIC MESSAGE ONLY)

NEAR DISTANCE BLACK SPRUCE -- MED SITE
CLASS NUMBER 4

NORMAL ROTATION AGE - 18

IMPROVED ROTATION AGE - 0

COSTS/CU.M.

	STANDING TIMBER				REGENERATED TIMBER	
	INTENSIVE MANAGEMENT			NON-INTENSIVE	SUSTAINED YIELD	
AGE IN DECADES	ENTRY CUTS	RE-ENTRY CUTS	HARVEST CUTS	HARVEST CUTS	NORMAL CUTS	IMPROVED CUTS
1	0.0	0.0	0.0	9999.00	0.0	0.0
2	0.0	0.0	0.0	9999.00	0.0	0.0
3	0.0	0.0	0.0	9999.00	0.0	0.0
4	0.0	0.0	0.0	9999.00	0.0	0.0
5	0.0	0.0	0.0	9999.00	0.0	0.0
6	0.0	0.0	0.0	9999.00	0.0	0.0
7	0.0	0.0	0.0	9999.00	0.0	0.0
8	0.0	0.0	0.0	9999.00	0.0	0.0
9	0.0	0.0	0.0	27.70	0.0	0.0
10	0.0	0.0	0.0	27.12	0.0	0.0
11	0.0	0.0	0.0	28.72	0.0	0.0
12	0.0	0.0	0.0	28.40	0.0	0.0
13	0.0	0.0	0.0	28.13	0.0	0.0
14	0.0	0.0	0.0	25.88	0.0	0.0
15	0.0	0.0	0.0	25.66	0.0	0.0
16	0.0	0.0	0.0	25.48	0.0	0.0
17	0.0	0.0	0.0	25.27	0.0	0.0
18	0.0	0.0	0.0	25.08	25.08	0.0

NEAR DISTANCE MIXEDWOOD -- GOOD SITE
CLASS NUMBER 5

NORMAL ROTATION AGE - 11

IMPROVED ROTATION AGE - 0

GROSS REVENUE 2

AGE IN DECADES	STANDING TIMBER: INTENSIVE MANAGEMENT: ENTRY CUTS	RE-ENTRY CUTS	HARVEST CUTS	NON-INTENSIVE HARVEST CUTS	REGENERATED TIMBER: SUSTAINED YIELD: NORMAL CUTS	IMPROVED CUTS
1	0.0	0.0	0.0	0.0	0.0	0.0
2	0.0	0.0	0.0	0.0	0.0	0.0
3	0.0	0.0	0.0	0.0	0.0	0.0
4	0.0	0.0	0.0	0.0	0.0	0.0
5	0.0	0.0	0.0	0.0	0.0	0.0
6	0.0	0.0	0.0	0.0	0.0	0.0
7	0.0	0.0	0.0	0.0	0.0	0.0
8	0.0	0.0	0.0	0.0	0.0	0.0
9	0.0	0.0	0.0	0.0	0.0	0.0
10	0.0	0.0	0.0	0.0	0.0	0.0
11	0.0	0.0	0.0	0.0	0.0	0.0
12	0.0	0.0	0.0	0.0	0.0	0.0
13	0.0	0.0	0.0	0.0	0.0	0.0
14	0.0	0.0	0.0	0.0	0.0	0.0
15	0.0	0.0	0.0	0.0	0.0	0.0
16	0.0	0.0	0.0	0.0	0.0	0.0
17	0.0	0.0	0.0	0.0	0.0	0.0
18	0.0	0.0	0.0	0.0	0.0	0.0

**** DATA ERROR NUMBER 24 SEE TIMBER RAM USERS' MANUAL, FORESTER'S GUIDE, APPENDIX II-2

(DIAGNOSTIC MESSAGE ONLY)

NEAR DISTANCE MIXEDWOOD -- GOOD SITE
CLASS NUMBER 5

NORMAL ROTATION AGE - 11

IMPROVED ROTATION AGE - 0

COSTS/CU M

AGE IN DECADES	STANDING TIMBER: INTENSIVE MANAGEMENT: ENTRY CUTS	RE-ENTRY CUTS	HARVEST CUTS	NON-INTENSIVE HARVEST CUTS	REGENERATED TIMBER: SUSTAINED YIELD: NORMAL CUTS	IMPROVED CUTS
1	0.0	0.0	0.0	9999.00	0.0	0.0
2	0.0	0.0	0.0	9999.00	0.0	0.0
3	0.0	0.0	0.0	9999.00	0.0	0.0
4	0.0	0.0	0.0	9999.00	0.0	0.0
5	0.0	0.0	0.0	25.81	0.0	0.0
6	0.0	0.0	0.0	24.27	0.0	0.0
7	0.0	0.0	0.0	23.35	0.0	0.0
8	0.0	0.0	0.0	22.72	0.0	0.0
9	0.0	0.0	0.0	22.28	0.0	0.0
10	0.0	0.0	0.0	21.95	0.0	0.0
11	0.0	0.0	0.0	21.71	21.71	0.0
12	0.0	0.0	0.0	21.52	0.0	0.0
13	0.0	0.0	0.0	21.36	0.0	0.0
14	0.0	0.0	0.0	21.23	0.0	0.0
15	0.0	0.0	0.0	21.13	0.0	0.0
16	0.0	0.0	0.0	21.05	0.0	0.0
17	0.0	0.0	0.0	20.97	0.0	0.0
18	0.0	0.0	0.0	20.92	0.0	0.0

NEAR DISTANCE MIXEDWOOD -- MED SITE
CLASS NUMBER 6

NORMAL ROTATION AGE - 14

IMPROVED ROTATION AGE - 0

GROSS REVENUE 2

AGE IN DECADES	STANDING TIMBER: INTENSIVE MANAGEMENT: ENTRY CUTS	RE-ENTRY CUTS	HARVEST CUTS	NON-INTENSIVE HARVEST CUTS	REGENERATED TIMBER: SUSTAINED YIELD: NORMAL CUTS	IMPROVED CUTS
1	0.0	0.0	0.0	0.0	0.0	0.0
2	0.0	0.0	0.0	0.0	0.0	0.0
3	0.0	0.0	0.0	0.0	0.0	0.0
4	0.0	0.0	0.0	0.0	0.0	0.0
5	0.0	0.0	0.0	0.0	0.0	0.0
6	0.0	0.0	0.0	0.0	0.0	0.0
7	0.0	0.0	0.0	0.0	0.0	0.0
8	0.0	0.0	0.0	0.0	0.0	0.0
9	0.0	0.0	0.0	0.0	0.0	0.0
10	0.0	0.0	0.0	0.0	0.0	0.0
11	0.0	0.0	0.0	0.0	0.0	0.0
12	0.0	0.0	0.0	0.0	0.0	0.0
13	0.0	0.0	0.0	0.0	0.0	0.0
14	0.0	0.0	0.0	0.0	0.0	0.0
15	0.0	0.0	0.0	0.0	0.0	0.0
16	0.0	0.0	0.0	0.0	0.0	0.0
17	0.0	0.0	0.0	0.0	0.0	0.0
18	0.0	0.0	0.0	0.0	0.0	0.0

**** DATA ERROR NUMBER 24 SEE TIMBER RAM USERS' MANUAL, FORESTER'S GUIDE, APPENDIX II-2

(DIAGNOSTIC MESSAGE ONLY)

NEAR DISTANCE MIXEDWOOD -- MED SITE
CLASS NUMBER 6

NORMAL ROTATION AGE - 14

IMPROVED ROTATION AGE - 0

COSTS/CU.M.

AGE IN DECADES	STANDING TIMBER: INTENSIVE MANAGEMENT: ENTRY CUTS	RE-ENTRY CUTS	HARVEST CUTS	NON-INTENSIVE HARVEST CUTS	REGENERATED TIMBER: SUSTAINED YIELD: NORMAL CUTS	IMPROVED CUTS
1	0.0	0.0	0.0	9999.00	0.0	0.0
2	0.0	0.0	0.0	9999.00	0.0	0.0
3	0.0	0.0	0.0	9999.00	0.0	0.0
4	0.0	0.0	0.0	9999.00	0.0	0.0
5	0.0	0.0	0.0	9999.00	0.0	0.0
6	0.0	0.0	0.0	9999.00	0.0	0.0
7	0.0	0.0	0.0	25.65	0.0	0.0
8	0.0	0.0	0.0	24.58	0.0	0.0
9	0.0	0.0	0.0	23.85	0.0	0.0
10	0.0	0.0	0.0	23.30	0.0	0.0
11	0.0	0.0	0.0	22.89	0.0	0.0
12	0.0	0.0	0.0	22.57	0.0	0.0
13	0.0	0.0	0.0	22.30	0.0	0.0
14	0.0	0.0	0.0	22.09	22.09	0.0
15	0.0	0.0	0.0	21.92	0.0	0.0
16	0.0	0.0	0.0	21.77	0.0	0.0
17	0.0	0.0	0.0	21.65	0.0	0.0
18	0.0	0.0	0.0	21.54	0.0	0.0

NEAR DISTANCE PINE -- GOOD SITE
CLASS NUMBER 7

NORMAL ROTATION AGE - 9

IMPROVED ROTATION AGE - 0

GROSS REVENUE 2

	STANDING TIMBER				REGENERATED TIMBER	
	INTENSIVE MANAGEMENT			NON-INTENSIVE	SUSTAINED YIELD	
AGE IN DECADES	ENTRY CUTS	RE-ENTRY CUTS	HARVEST CUTS	HARVEST CUTS	NORMAL CUTS	IMPROVED CUTS
1	0.0	0.0	0.0	0.0	0.0	0.0
2	0.0	0.0	0.0	0.0	0.0	0.0
3	0.0	0.0	0.0	0.0	0.0	0.0
4	0.0	0.0	0.0	0.0	0.0	0.0
5	0.0	0.0	0.0	0.0	0.0	0.0
6	0.0	0.0	0.0	0.0	0.0	0.0
7	0.0	0.0	0.0	0.0	0.0	0.0
8	0.0	0.0	0.0	0.0	0.0	0.0
9	0.0	0.0	0.0	0.0	0.0	0.0
10	0.0	0.0	0.0	0.0	0.0	0.0
11	0.0	0.0	0.0	0.0	0.0	0.0
12	0.0	0.0	0.0	0.0	0.0	0.0
13	0.0	0.0	0.0	0.0	0.0	0.0
14	0.0	0.0	0.0	0.0	0.0	0.0
15	0.0	0.0	0.0	0.0	0.0	0.0
16	0.0	0.0	0.0	0.0	0.0	0.0
17	0.0	0.0	0.0	0.0	0.0	0.0
18	0.0	0.0	0.0	0.0	0.0	0.0

**** DATA ERROR NUMBER 24 SEE TIMBER RAM USERS' MANUAL FORESTER'S GUIDE, APPENDIX II-2

(DIAGNOSTIC MESSAGE ONLY)

NEAR DISTANCE PINE -- GOOD SITE
CLASS NUMBER 7

NORMAL ROTATION AGE - 9

IMPROVED ROTATION AGE - 0

COSTS/CU M.

	STANDING TIMBER				REGENERATED TIMBER	
	INTENSIVE MANAGEMENT			NON-INTENSIVE	SUSTAINED YIELD	
AGE IN DECADES	ENTRY CUTS	RE-ENTRY CUTS	HARVEST CUTS	HARVEST CUTS	NORMAL CUTS	IMPROVED CUTS
1	0.0	0.0	0.0	9999.00	0.0	0.0
2	0.0	0.0	0.0	9999.00	0.0	0.0
3	0.0	0.0	0.0	9999.00	0.0	0.0
4	0.0	0.0	0.0	26.62	0.0	0.0
5	0.0	0.0	0.0	25.60	0.0	0.0
6	0.0	0.0	0.0	24.79	0.0	0.0
7	0.0	0.0	0.0	24.11	0.0	0.0
8	0.0	0.0	0.0	23.53	0.0	0.0
9	0.0	0.0	0.0	23.04	23.04	0.0
10	0.0	0.0	0.0	22.63	0.0	0.0
11	0.0	0.0	0.0	22.28	0.0	0.0
12	0.0	0.0	0.0	21.94	0.0	0.0
13	0.0	0.0	0.0	21.65	0.0	0.0
14	0.0	0.0	0.0	21.39	0.0	0.0
15	0.0	0.0	0.0	21.17	0.0	0.0
16	0.0	0.0	0.0	20.98	0.0	0.0
17	0.0	0.0	0.0	20.81	0.0	0.0
18	0.0	0.0	0.0	20.65	0.0	0.0

NEAR DISTANCE PINE -- MED SITE
CLASS NUMBER 8

NORMAL ROTATION AGE - 12

IMPROVED ROTATION AGE - 0

GROSS REVENUE 2

	STANDING TIMBER				REGENERATED TIMBER	
	INTENSIVE MANAGEMENT			NON-INTENSIVE	SUSTAINED YIELD	
AGE IN DECADES	ENTRY CUTS	RE-ENTRY CUTS	HARVEST CUTS	HARVEST CUTS	NORMAL CUTS	IMPROVED CUTS
1	0.0	0.0	0.0	0.0	0.0	0.0
2	0.0	0.0	0.0	0.0	0.0	0.0
3	0.0	0.0	0.0	0.0	0.0	0.0
4	0.0	0.0	0.0	0.0	0.0	0.0
5	0.0	0.0	0.0	0.0	0.0	0.0
6	0.0	0.0	0.0	0.0	0.0	0.0
7	0.0	0.0	0.0	0.0	0.0	0.0
8	0.0	0.0	0.0	0.0	0.0	0.0
9	0.0	0.0	0.0	0.0	0.0	0.0
10	0.0	0.0	0.0	0.0	0.0	0.0
11	0.0	0.0	0.0	0.0	0.0	0.0
12	0.0	0.0	0.0	0.0	0.0	0.0
13	0.0	0.0	0.0	0.0	0.0	0.0
14	0.0	0.0	0.0	0.0	0.0	0.0
15	0.0	0.0	0.0	0.0	0.0	0.0
16	0.0	0.0	0.0	0.0	0.0	0.0
17	0.0	0.0	0.0	0.0	0.0	0.0
18	0.0	0.0	0.0	0.0	0.0	0.0

**** DATA ERROR NUMBER 24 SEE TIMBER RAM USERS' MANUAL, FORESTER'S GUIDE, APPENDIX II-2

(DIAGNOSTIC MESSAGE ONLY)

NEAR DISTANCE PINE -- MED SITE
CLASS NUMBER 8

NORMAL ROTATION AGE - 12

IMPROVED ROTATION AGE - 0

COSTS/CU M.

	STANDING TIMBER				REGENERATED TIMBER	
	INTENSIVE MANAGEMENT			NON-INTENSIVE	SUSTAINED YIELD	
AGE IN DECADES	ENTRY CUTS	RE-ENTRY CUTS	HARVEST CUTS	HARVEST CUTS	NORMAL CUTS	IMPROVED CUTS
1	0.0	0.0	0.0	9999.00	0.0	0.0
2	0.0	0.0	0.0	9999.00	0.0	0.0
3	0.0	0.0	0.0	9999.00	0.0	0.0
4	0.0	0.0	0.0	9999.00	0.0	0.0
5	0.0	0.0	0.0	27.05	0.0	0.0
6	0.0	0.0	0.0	26.22	0.0	0.0
7	0.0	0.0	0.0	25.63	0.0	0.0
8	0.0	0.0	0.0	25.13	0.0	0.0
9	0.0	0.0	0.0	24.70	0.0	0.0
10	0.0	0.0	0.0	24.32	0.0	0.0
11	0.0	0.0	0.0	23.98	0.0	0.0
12	0.0	0.0	0.0	23.69	23.69	0.0
13	0.0	0.0	0.0	23.43	0.0	0.0
14	0.0	0.0	0.0	23.19	0.0	0.0
15	0.0	0.0	0.0	22.98	0.0	0.0
16	0.0	0.0	0.0	22.79	0.0	0.0
17	0.0	0.0	0.0	22.62	0.0	0.0
18	0.0	0.0	0.0	22.47	0.0	0.0

NEAR DISTANCE PINE -- FAIR SITE
CLASS NUMBER 9

NORMAL ROTATION AGE - 16

IMPROVED ROTATION AGE - 0

GROSS REVENUE 2

	STANDING TIMBER				REGENERATED TIMBER	
	INTENSIVE MANAGEMENT			NON-INTENSIVE	SUSTAINED YIELD	
AGE IN DECADES	ENTRY CUTS	RE-ENTRY CUTS	HARVEST CUTS	HARVEST CUTS	NORMAL CUTS	IMPROVED CUTS
1	0.0	0.0	0.0	0.0	0.0	0.0
2	0.0	0.0	0.0	0.0	0.0	0.0
3	0.0	0.0	0.0	0.0	0.0	0.0
4	0.0	0.0	0.0	0.0	0.0	0.0
5	0.0	0.0	0.0	0.0	0.0	0.0
6	0.0	0.0	0.0	0.0	0.0	0.0
7	0.0	0.0	0.0	0.0	0.0	0.0
8	0.0	0.0	0.0	0.0	0.0	0.0
9	0.0	0.0	0.0	0.0	0.0	0.0
10	0.0	0.0	0.0	0.0	0.0	0.0
11	0.0	0.0	0.0	0.0	0.0	0.0
12	0.0	0.0	0.0	0.0	0.0	0.0
13	0.0	0.0	0.0	0.0	0.0	0.0
14	0.0	0.0	0.0	0.0	0.0	0.0
15	0.0	0.0	0.0	0.0	0.0	0.0
16	0.0	0.0	0.0	0.0	0.0	0.0
17	0.0	0.0	0.0	0.0	0.0	0.0
18	0.0	0.0	0.0	0.0	0.0	0.0

**** DATA ERROR NUMBER 24 SEE TIMBER RAM USERS' MANUAL, FORESTER'S GUIDE, APPENDIX II-2

(DIAGNOSTIC MESSAGE ONLY)

NEAR DISTANCE PINE -- FAIR SITE
CLASS NUMBER 9

NORMAL ROTATION AGE - 16

IMPROVED ROTATION AGE - 0

COSTS/CU M

	STANDING TIMBER				REGENERATED TIMBER	
	INTENSIVE MANAGEMENT			NON-INTENSIVE	SUSTAINED YIELD	
AGE IN DECADES	ENTRY CUTS	RE-ENTRY CUTS	HARVEST CUTS	HARVEST CUTS	NORMAL CUTS	IMPROVED CUTS
1	0.0	0.0	0.0	9999.00	0.0	0.0
2	0.0	0.0	0.0	9999.00	0.0	0.0
3	0.0	0.0	0.0	9999.00	0.0	0.0
4	0.0	0.0	0.0	9999.00	0.0	0.0
5	0.0	0.0	0.0	9999.00	0.0	0.0
6	0.0	0.0	0.0	9999.00	0.0	0.0
7	0.0	0.0	0.0	27.51	0.0	0.0
8	0.0	0.0	0.0	26.80	0.0	0.0
9	0.0	0.0	0.0	26.37	0.0	0.0
10	0.0	0.0	0.0	26.02	0.0	0.0
11	0.0	0.0	0.0	25.73	0.0	0.0
12	0.0	0.0	0.0	25.46	0.0	0.0
13	0.0	0.0	0.0	25.24	0.0	0.0
14	0.0	0.0	0.0	25.02	0.0	0.0
15	0.0	0.0	0.0	24.83	0.0	0.0
16	0.0	0.0	0.0	24.65	24.65	0.0
17	0.0	0.0	0.0	24.51	0.0	0.0
18	0.0	0.0	0.0	24.35	0.0	0.0

NEAR DISTANCE UNCOMMERCIAL -- ALL SITES
CLASS NUMBER 10

NORMAL ROTATION AGE - 18

IMPROVED ROTATION AGE - 0

GROSS REVENUE 2

	STANDING TIMBER				REGENERATED TIMBER	
	INTENSIVE MANAGEMENT			NON-INTENSIVE	SUSTAINED YIELD	
AGE IN DECADES	ENTRY CUTS	RE-ENTRY CUTS	HARVEST CUTS	HARVEST CUTS	NORMAL CUTS	IMPROVED CUTS
1	0.0	0.0	0.0	0.0	0.0	0.0
2	0.0	0.0	0.0	0.0	0.0	0.0
3	0.0	0.0	0.0	0.0	0.0	0.0
4	0.0	0.0	0.0	0.0	0.0	0.0
5	0.0	0.0	0.0	0.0	0.0	0.0
6	0.0	0.0	0.0	0.0	0.0	0.0
7	0.0	0.0	0.0	0.0	0.0	0.0
8	0.0	0.0	0.0	0.0	0.0	0.0
9	0.0	0.0	0.0	0.0	0.0	0.0
10	0.0	0.0	0.0	0.0	0.0	0.0
11	0.0	0.0	0.0	0.0	0.0	0.0
12	0.0	0.0	0.0	0.0	0.0	0.0
13	0.0	0.0	0.0	0.0	0.0	0.0
14	0.0	0.0	0.0	0.0	0.0	0.0
15	0.0	0.0	0.0	0.0	0.0	0.0
16	0.0	0.0	0.0	0.0	0.0	0.0
17	0.0	0.0	0.0	0.0	0.0	0.0
18	0.0	0.0	0.0	0.0	0.0	0.0

**** DATA ERROR NUMBER 24 SEE TIMBER RAM USERS' MANUAL, FORESTER'S GUIDE, APPENDIX II-2

(DIAGNOSTIC MESSAGE ONLY)

NEAR DISTANCE UNCOMMERCIAL -- ALL SITES
CLASS NUMBER 10

NORMAL ROTATION AGE - 18

IMPROVED ROTATION AGE - 0

COSTS/CU.M

	STANDING TIMBER				REGENERATED TIMBER	
	INTENSIVE MANAGEMENT			NON-INTENSIVE	SUSTAINED YIELD	
AGE IN DECADES	ENTRY CUTS	RE-ENTRY CUTS	HARVEST CUTS	HARVEST CUTS	NORMAL CUTS	IMPROVED CUTS
1	0.0	0.0	0.0	9999.00	0.0	0.0
2	0.0	0.0	0.0	9999.00	0.0	0.0
3	0.0	0.0	0.0	9999.00	0.0	0.0
4	0.0	0.0	0.0	9999.00	0.0	0.0
5	0.0	0.0	0.0	28.46	0.0	0.0
6	0.0	0.0	0.0	27.02	0.0	0.0
7	0.0	0.0	0.0	28.37	0.0	0.0
8	0.0	0.0	0.0	25.89	0.0	0.0
9	0.0	0.0	0.0	27.14	0.0	0.0
10	0.0	0.0	0.0	26.78	0.0	0.0
11	0.0	0.0	0.0	26.46	0.0	0.0
12	0.0	0.0	0.0	26.18	0.0	0.0
13	0.0	0.0	0.0	25.93	0.0	0.0
14	0.0	0.0	0.0	25.87	0.0	0.0
15	0.0	0.0	0.0	25.77	0.0	0.0
16	0.0	0.0	0.0	25.64	0.0	0.0
17	0.0	0.0	0.0	25.50	0.0	0.0
18	0.0	0.0	0.0	25.37	25.37	0.0

MEDIUM DISTANCE WHITE SPRUCE -- GOOD SITE
CLASS NUMBER 11

NORMAL ROTATION AGE - 10

IMPROVED ROTATION AGE - 0

GROSS REVENUE 2

	STANDING TIMBER				REGENERATED TIMBER	
	INTENSIVE MANAGEMENT			NON-INTENSIVE	SUSTAINED YIELD	
AGE IN DECADES	ENTRY CUTS	RE-ENTRY CUTS	HARVEST CUTS	HARVEST CUTS	NORMAL CUTS	IMPROVED CUTS
1	0 0	0 0	0 0	0 0	0 0	0 0
2	0 0	0 0	0 0	0 0	0 0	0 0
3	0 0	0 0	0 0	0 0	0 0	0 0
4	0 0	0 0	0 0	0 0	0 0	0 0
5	0 0	0 0	0 0	0 0	0 0	0 0
6	0 0	0 0	0 0	0 0	0 0	0 0
7	0 0	0 0	0 0	0 0	0 0	0 0
8	0 0	0 0	0 0	0 0	0 0	0 0
9	0 0	0 0	0 0	0 0	0 0	0 0
10	0 0	0 0	0 0	0 0	0 0	0 0
11	0 0	0 0	0 0	0 0	0 0	0 0
12	0 0	0 0	0 0	0 0	0 0	0 0
13	0 0	0 0	0 0	0 0	0 0	0 0
14	0 0	0 0	0 0	0 0	0 0	0 0
15	0 0	0 0	0 0	0 0	0 0	0 0
16	0 0	0 0	0 0	0 0	0 0	0 0
17	0 0	0 0	0 0	0 0	0 0	0 0
18	0 0	0 0	0 0	0 0	0 0	0 0

**** DATA ERROR NUMBER 24 SEE TIMBER RAM USERS' MANUAL, FORESTER'S GUIDE, APPENDIX II-2

(DIAGNOSTIC MESSAGE ONLY)

MEDIUM DISTANCE WHITE SPRUCE -- GOOD SITE
CLASS NUMBER 11

NORMAL ROTATION AGE - 10

IMPROVED ROTATION AGE - 0

COSTS/CU M

	STANDING TIMBER				REGENERATED TIMBER	
	INTENSIVE MANAGEMENT			NON-INTENSIVE	SUSTAINED YIELD	
AGE IN DECADES	ENTRY CUTS	RE-ENTRY CUTS	HARVEST CUTS	HARVEST CUTS	NORMAL CUTS	IMPROVED CUTS
1	0 0	0 0	0.0	9999.00	0.0	0 0
2	0 0	0.0	0 0	9999 00	0.0	0 0
3	0 0	0.0	0.0	9999 00	0 0	0.0
4	0 0	0.0	0 0	28 06	0 0	0.0
5	0.0	0 0	0 0	26.25	0 0	0.0
6	0 0	0.0	0 0	25.23	0 0	0.0
7	0.0	0.0	0.0	24.52	0 0	0.0
8	0 0	0.0	0 0	23.94	0 0	0.0
9	0.0	0.0	0.0	23 48	0.0	0.0
10	0 0	0.0	0 0	23.11	23.11	0 0
11	0 0	0.0	0.0	22.81	0 0	0 0
12	0.0	0.0	0.0	22.57	0 0	0.0
13	0.0	0.0	0 0	22.35	0 0	0 0
14	0 0	0.0	0.0	22.17	0 0	0.0
15	0.0	0.0	0 0	22.01	0 0	0.0
16	0.0	0.0	0.0	21.88	0 0	0 0
17	0 0	0.0	0 0	21 75	0 0	0 0
18	0.0	0.0	0 0	21.65	0 0	0.0

MEDIUM DISTANCE WHITE SPRUCE -- MED SITE
CLASS NUMBER 12

NORMAL ROTATION AGE - 13

IMPROVED ROTATION AGE - 0

GROSS REVENUE 2

	STANDING TIMBER				REGENERATED TIMBER	
	INTENSIVE MANAGEMENT			NON-INTENSIVE	SUSTAINED YIELD	
AGE IN DECADES	ENTRY CUTS	RE-ENTRY CUTS	HARVEST CUTS	HARVEST CUTS	NORMAL CUTS	IMPROVED CUTS
1	0.0	0.0	0.0	0.0	0.0	0.0
2	0.0	0.0	0.0	0.0	0.0	0.0
3	0.0	0.0	0.0	0.0	0.0	0.0
4	0.0	0.0	0.0	0.0	0.0	0.0
5	0.0	0.0	0.0	0.0	0.0	0.0
6	0.0	0.0	0.0	0.0	0.0	0.0
7	0.0	0.0	0.0	0.0	0.0	0.0
8	0.0	0.0	0.0	0.0	0.0	0.0
9	0.0	0.0	0.0	0.0	0.0	0.0
10	0.0	0.0	0.0	0.0	0.0	0.0
11	0.0	0.0	0.0	0.0	0.0	0.0
12	0.0	0.0	0.0	0.0	0.0	0.0
13	0.0	0.0	0.0	0.0	0.0	0.0
14	0.0	0.0	0.0	0.0	0.0	0.0
15	0.0	0.0	0.0	0.0	0.0	0.0
16	0.0	0.0	0.0	0.0	0.0	0.0
17	0.0	0.0	0.0	0.0	0.0	0.0
18	0.0	0.0	0.0	0.0	0.0	0.0

**** DATA ERROR NUMBER 24 SEE TIMBER RAM USERS' MANUAL, FORESTER'S GUIDE, APPENDIX II-7

(DIAGNOSTIC MESSAGE ONLY)

MEDIUM DISTANCE WHITE SPRUCE -- MED SITE
CLASS NUMBER 12

NORMAL ROTATION AGE - 13

IMPROVED ROTATION AGE - 0

COSTS/CU.M

	STANDING TIMBER				REGENERATED TIMBER	
	INTENSIVE MANAGEMENT			NON-INTENSIVE	SUSTAINED YIELD	
AGE IN DECADES	ENTRY CUTS	RE-ENTRY CUTS	HARVEST CUTS	HARVEST CUTS	NORMAL CUTS	IMPROVED CUTS
1	0.0	0.0	0.0	9999.00	0.0	0.0
2	0.0	0.0	0.0	9999.00	0.0	0.0
3	0.0	0.0	0.0	9999.00	0.0	0.0
4	0.0	0.0	0.0	9999.00	0.0	0.0
5	0.0	0.0	0.0	29.74	0.0	0.0
6	0.0	0.0	0.0	27.15	0.0	0.0
7	0.0	0.0	0.0	26.17	0.0	0.0
8	0.0	0.0	0.0	25.47	0.0	0.0
9	0.0	0.0	0.0	24.93	0.0	0.0
10	0.0	0.0	0.0	24.48	0.0	0.0
11	0.0	0.0	0.0	24.11	0.0	0.0
12	0.0	0.0	0.0	23.79	0.0	0.0
13	0.0	0.0	0.0	23.52	23.52	0.0
14	0.0	0.0	0.0	23.29	0.0	0.0
15	0.0	0.0	0.0	23.08	0.0	0.0
16	0.0	0.0	0.0	22.90	0.0	0.0
17	0.0	0.0	0.0	22.74	0.0	0.0
18	0.0	0.0	0.0	22.60	0.0	0.0

MEDIUM DISTANCE   BLACK SPRUCE -- GOOD SITE
CLASS NUMBER 13

NORMAL ROTATION AGE - 14

IMPROVED ROTATION AGE - 0

GROSS REVENUE 2

	STANDING TIMBER				REGENERATED TIMBER	
	INTENSIVE MANAGEMENT			NON-INTENSIVE	SUSTAINED YIELD	
AGE IN DECADES	ENTRY CUTS	RE-ENTRY CUTS	HARVEST CUTS	HARVEST CUTS	NORMAL CUTS	IMPROVED CUTS
1	0.0	0.0	0.0	0.0	0.0	0.0
2	0.0	0.0	0.0	0.0	0.0	0.0
3	0.0	0.0	0.0	0.0	0.0	0.0
4	0.0	0.0	0.0	0.0	0.0	0.0
5	0.0	0.0	0.0	0.0	0.0	0.0
6	0.0	0.0	0.0	0.0	0.0	0.0
7	0.0	0.0	0.0	0.0	0.0	0.0
8	0.0	0.0	0.0	0.0	0.0	0.0
9	0.0	0.0	0.0	0.0	0.0	0.0
10	0.0	0.0	0.0	0.0	0.0	0.0
11	0.0	0.0	0.0	0.0	0.0	0.0
12	0.0	0.0	0.0	0.0	0.0	0.0
13	0.0	0.0	0.0	0.0	0.0	0.0
14	0.0	0.0	0.0	0.0	0.0	0.0
15	0.0	0.0	0.0	0.0	0.0	0.0
16	0.0	0.0	0.0	0.0	0.0	0.0
17	0.0	0.0	0.0	0.0	0.0	0.0
18	0.0	0.0	0.0	0.0	0.0	0.0

**** DATA ERROR NUMBER 24   SEE TIMBER RAM USERS' MANUAL, FORESTER'S GUIDE, APPENDIX II-2

(DIAGNOSTIC MESSAGE ONLY)

MEDIUM DISTANCE.   BLACK SPRUCE -- GOOD SITE
CLASS NUMBER 13

NORMAL ROTATION AGE - 14

IMPROVED ROTATION AGE - 0

COSTS/CU.M.

	STANDING TIMBER				REGENERATED TIMBER	
	INTENSIVE MANAGEMENT			NON-INTENSIVE	SUSTAINED YIELD	
AGE IN DECADES	ENTRY CUTS	RE-ENTRY CUTS	HARVEST CUTS	HARVEST CUTS	NORMAL CUTS	IMPROVED CUTS
1	0.0	0.0	0.0	9999.00	0.0	0.0
2	0.0	0.0	0.0	9999.00	0.0	0.0
3	0.0	0.0	0.0	9999.00	0.0	0.0
4	0.0	0.0	0.0	9999.00	0.0	0.0
5	0.0	0.0	0.0	28.32	0.0	0.0
6	0.0	0.0	0.0	27.88	0.0	0.0
7	0.0	0.0	0.0	27.23	0.0	0.0
8	0.0	0.0	0.0	26.75	0.0	0.0
9	0.0	0.0	0.0	26.35	0.0	0.0
10	0.0	0.0	0.0	26.00	0.0	0.0
11	0.0	0.0	0.0	25.69	0.0	0.0
12	0.0	0.0	0.0	25.42	0.0	0.0
13	0.0	0.0	0.0	25.19	0.0	0.0
14	0.0	0.0	0.0	24.97	24.97	0.0
15	0.0	0.0	0.0	24.78	0.0	0.0
16	0.0	0.0	0.0	24.60	0.0	0.0
17	0.0	0.0	0.0	24.43	0.0	0.0
18	0.0	0.0	0.0	24.25	0.0	0.0

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MEDIUM DISTANCE PINE -- FAIR SITE
CLASS NUMBER 19

NORMAL ROTATION AGE - 16

IMPROVED ROTATION AGE - 0

GROSS REVENUE 2

	STANDING TIMBER				REGENERATED TIMBER	
	INTENSIVE MANAGEMENT				SUSTAINED YIELD	
AGE IN DECADES	ENTRY CUTS	RE-ENTRY CUTS	HARVEST CUTS	NON-INTENSIVE HARVEST CUTS	NORMAL CUTS	IMPROVED CUTS
1	0.0	0.0	0.0	0.0	0.0	0.0
2	0.0	0.0	0.0	0.0	0.0	0.0
3	0.0	0.0	0.0	0.0	0.0	0.0
4	0.0	0.0	0.0	0.0	0.0	0.0
5	0.0	0.0	0.0	0.0	0.0	0.0
6	0.0	0.0	0.0	0.0	0.0	0.0
7	0.0	0.0	0.0	0.0	0.0	0.0
8	0.0	0.0	0.0	0.0	0.0	0.0
9	0.0	0.0	0.0	0.0	0.0	0.0
10	0.0	0.0	0.0	0.0	0.0	0.0
11	0.0	0.0	0.0	0.0	0.0	0.0
12	0.0	0.0	0.0	0.0	0.0	0.0
13	0.0	0.0	0.0	0.0	0.0	0.0
14	0.0	0.0	0.0	0.0	0.0	0.0
15	0.0	0.0	0.0	0.0	0.0	0.0
16	0.0	0.0	0.0	0.0	0.0	0.0
17	0.0	0.0	0.0	0.0	0.0	0.0
18	0.0	0.0	0.0	0.0	0.0	0.0

**** DATA ERROR NUMBER 24 SEE TIMBER RAM USERS' MANUAL, FORESTER'S GUIDE, APPENDIX II-2

(DIAGNOSTIC MESSAGE ONLY)

MEDIUM DISTANCE PINE -- FAIR SITE
CLASS NUMBER 19

NORMAL ROTATION AGE - 16

IMPROVED ROTATION AGE - 0

COSTS/CU M.

	STANDING TIMBER				REGENERATED TIMBER	
	INTENSIVE MANAGEMENT				SUSTAINED YIELD	
AGE IN DECADES	ENTRY CUTS	RE-ENTRY CUTS	HARVEST CUTS	NON-INTENSIVE HARVEST CUTS	NORMAL CUTS	IMPROVED CUTS
1	0.0	0.0	0.0	9999.00	0.0	0.0
2	0.0	0.0	0.0	9999.00	0.0	0.0
3	0.0	0.0	0.0	9999.00	0.0	0.0
4	0.0	0.0	0.0	9999.00	0.0	0.0
5	0.0	0.0	0.0	9999.00	0.0	0.0
6	0.0	0.0	0.0	9999.00	0.0	0.0
7	0.0	0.0	0.0	28.37	0.0	0.0
8	0.0	0.0	0.0	27.66	0.0	0.0
9	0.0	0.0	0.0	27.23	0.0	0.0
10	0.0	0.0	0.0	26.88	0.0	0.0
11	0.0	0.0	0.0	26.59	0.0	0.0
12	0.0	0.0	0.0	26.33	0.0	0.0
13	0.0	0.0	0.0	26.10	0.0	0.0
14	0.0	0.0	0.0	25.88	0.0	0.0
15	0.0	0.0	0.0	25.70	0.0	0.0
16	0.0	0.0	0.0	25.52	25.52	0.0
17	0.0	0.0	0.0	25.37	0.0	0.0
18	0.0	0.0	0.0	25.21	0.0	0.0

MEDIUM DISTANCE UNCOMMERCIAL -- ALL SITES
CLASS NUMBER 20

NORMAL ROTATION AGE - 18

IMPROVED ROTATION AGE - 0

GROSS REVENUE 2

	STANDING TIMBER				REGENERATED TIMBER	
	INTENSIVE MANAGEMENT			NON-INTENSIVE	SUSTAINED YIELD	
AGE IN DECADES	ENTRY CUTS	RE-ENTRY CUTS	HARVEST CUTS	HARVEST CUTS	NORMAL CUTS	IMPROVED CUTS
1	0.0	0.0	0.0	0.0	0.0	0.0
2	0.0	0.0	0.0	0.0	0.0	0.0
3	0.0	0.0	0.0	0.0	0.0	0.0
4	0.0	0.0	0.0	0.0	0.0	0.0
5	0.0	0.0	0.0	0.0	0.0	0.0
6	0.0	0.0	0.0	0.0	0.0	0.0
7	0.0	0.0	0.0	0.0	0.0	0.0
8	0.0	0.0	0.0	0.0	0.0	0.0
9	0.0	0.0	0.0	0.0	0.0	0.0
10	0.0	0.0	0.0	0.0	0.0	0.0
11	0.0	0.0	0.0	0.0	0.0	0.0
12	0.0	0.0	0.0	0.0	0.0	0.0
13	0.0	0.0	0.0	0.0	0.0	0.0
14	0.0	0.0	0.0	0.0	0.0	0.0
15	0.0	0.0	0.0	0.0	0.0	0.0
16	0.0	0.0	0.0	0.0	0.0	0.0
17	0.0	0.0	0.0	0.0	0.0	0.0
18	0.0	0.0	0.0	0.0	0.0	0.0

**** DATA ERROR NUMBER 24 SEE TIMBER RAM USERS' MANUAL, FORESTER'S GUIDE, APPENDIX II-2

(DIAGNOSTIC MESSAGE ONLY)

MEDIUM DISTANCE UNCOMMERCIAL -- ALL SITES
CLASS NUMBER 20

NORMAL ROTATION AGE - 18

IMPROVED ROTATION AGE - 0

COSTS/CU.M.

	STANDING TIMBER				REGENERATED TIMBER	
	INTENSIVE MANAGEMENT			NON-INTENSIVE	SUSTAINED YIELD	
AGE IN DECADES	ENTRY CUTS	RE-ENTRY CUTS	HARVEST CUTS	HARVEST CUTS	NORMAL CUTS	IMPROVED CUTS
1	0.0	0.0	0.0	9999.00	0.0	0.0
2	0.0	0.0	0.0	9999.00	0.0	0.0
3	0.0	0.0	0.0	9999.00	0.0	0.0
4	0.0	0.0	0.0	9999.00	0.0	0.0
5	0.0	0.0	0.0	28.32	0.0	0.0
6	0.0	0.0	0.0	27.88	0.0	0.0
7	0.0	0.0	0.0	27.23	0.0	0.0
8	0.0	0.0	0.0	26.75	0.0	0.0
9	0.0	0.0	0.0	28.00	0.0	0.0
10	0.0	0.0	0.0	27.64	0.0	0.0
11	0.0	0.0	0.0	27.32	0.0	0.0
12	0.0	0.0	0.0	27.04	0.0	0.0
13	0.0	0.0	0.0	26.79	0.0	0.0
14	0.0	0.0	0.0	26.73	0.0	0.0
15	0.0	0.0	0.0	26.63	0.0	0.0
16	0.0	0.0	0.0	26.50	0.0	0.0
17	0.0	0.0	0.0	26.36	0.0	0.0
18	0.0	0.0	0.0	26.23	26.23	0.0

FAR DISTANCE BLACK SPRUCE -- MED SITE
CLASS NUMBER 24

NORMAL ROTATION AGE - 18

IMPROVED ROTATION AGE - 0

GROSS REVENUE 2

AGE IN DECADES	STANDING TIMBER: INTENSIVE MANAGEMENT: ENTRY CUTS	RE-ENTRY CUTS	HARVEST CUTS	NON-INTENSIVE HARVEST CUTS	REGENERATED TIMBER: SUSTAINED YIELD: NORMAL CUTS	IMPROVED CUTS
1	0.0	0.0	0.0	0.0	0.0	0.0
2	0.0	0.0	0.0	0.0	0.0	0.0
3	0.0	0.0	0.0	0.0	0.0	0.0
4	0.0	0.0	0.0	0.0	0.0	0.0
5	0.0	0.0	0.0	0.0	0.0	0.0
6	0.0	0.0	0.0	0.0	0.0	0.0
7	0.0	0.0	0.0	0.0	0.0	0.0
8	0.0	0.0	0.0	0.0	0.0	0.0
9	0.0	0.0	0.0	0.0	0.0	0.0
10	0.0	0.0	0.0	0.0	0.0	0.0
11	0.0	0.0	0.0	0.0	0.0	0.0
12	0.0	0.0	0.0	0.0	0.0	0.0
13	0.0	0.0	0.0	0.0	0.0	0.0
14	0.0	0.0	0.0	0.0	0.0	0.0
15	0.0	0.0	0.0	0.0	0.0	0.0
16	0.0	0.0	0.0	0.0	0.0	0.0
17	0.0	0.0	0.0	0.0	0.0	0.0
18	0.0	0.0	0.0	0.0	0.0	0.0

**** DATA ERROR NUMBER 24 SEE TIMBER RAM USERS' MANUAL, FORESTER'S GUIDE, APPENDIX II-2

-DIAGNOSTIC MESSAGE ONLY-

FAR DISTANCE BLACK SPRUCE -- MED SITE
CLASS NUMBER 24

NORMAL ROTATION AGE - 18

IMPROVED ROTATION AGE - 0

COSTS/CU.M

AGE IN DECADES	STANDING TIMBER: INTENSIVE MANAGEMENT: ENTRY CUTS	RE-ENTRY CUTS	HARVEST CUTS	NON-INTENSIVE HARVEST CUTS	REGENERATED TIMBER: SUSTAINED YIELD: NORMAL CUTS	IMPROVED CUTS
1	0.0	0.0	0.0	$999.00	0.0	0.0
2	0.0	0.0	0.0	$999.00	0.0	0.0
3	0.0	0.0	0.0	$999.00	0.0	0.0
4	0.0	0.0	0.0	$999.00	0.0	0.0
5	0.0	0.0	0.0	$999.00	0.0	0.0
6	0.0	0.0	0.0	$999.00	0.0	0.0
7	0.0	0.0	0.0	$999.00	0.0	0.0
8	0.0	0.0	0.0	$999.00	0.0	0.0
9	0.0	0.0	0.0	29.17	0.0	0.0
10	0.0	0.0	0.0	28.58	0.0	0.0
11	0.0	0.0	0.0	28.19	0.0	0.0
12	0.0	0.0	0.0	27.87	0.0	0.0
13	0.0	0.0	0.0	27.60	0.0	0.0
14	0.0	0.0	0.0	27.38	0.0	0.0
15	0.0	0.0	0.0	27.14	0.0	0.0
16	0.0	0.0	0.0	26.93	0.0	0.0
17	0.0	0.0	0.0	26.74	0.0	0.0
18	0.0	0.0	0.0	26.57	26.57	0.0

FAR DISTANCE MIXEDWOOD -- GOOD SITE
CLASS NUMBER 25

NORMAL ROTATION AGE - 11

IMPROVED ROTATION AGE - 0

GROSS REVENUE 2

	STANDING TIMBER				REGENERATED TIMBER	
	INTENSIVE MANAGEMENT			NON-INTENSIVE	SUSTAINED YIELD	
AGE IN DECADES	ENTRY CUTS	RE-ENTRY CUTS	HARVEST CUTS	HARVEST CUTS	NORMAL CUTS	IMPROVED CUTS
1	0.0	0.0	0.0	0.0	0.0	0.0
2	0.0	0.0	0.0	0.0	0.0	0.0
3	0.0	0.0	0.0	0.0	0.0	0.0
4	0.0	0.0	0.0	0.0	0.0	0.0
5	0.0	0.0	0.0	0.0	0.0	0.0
6	0.0	0.0	0.0	0.0	0.0	0.0
7	0.0	0.0	0.0	0.0	0.0	0.0
8	0.0	0.0	0.0	0.0	0.0	0.0
9	0.0	0.0	0.0	0.0	0.0	0.0
10	0.0	0.0	0.0	0.0	0.0	0.0
11	0.0	0.0	0.0	0.0	0.0	0.0
12	0.0	0.0	0.0	0.0	0.0	0.0
13	0.0	0.0	0.0	0.0	0.0	0.0
14	0.0	0.0	0.0	0.0	0.0	0.0
15	0.0	0.0	0.0	0.0	0.0	0.0
16	0.0	0.0	0.0	0.0	0.0	0.0
17	0.0	0.0	0.0	0.0	0.0	0.0
18	0.0	0.0	0.0	0.0	0.0	0.0

**** DATA ERROR NUMBER 24 SEE TIMBER RAM USERS' MANUAL, FORESTER'S GUIDE, APPENDIX II-2

(DIAGNOSTIC MESSAGE ONLY)

FAR DISTANCE MIXEDWOOD -- GOOD SITE
CLASS NUMBER 25

NORMAL ROTATION AGE - 11

IMPROVED ROTATION AGE - 0

COSTS/CU.M.

	STANDING TIMBER				REGENERATED TIMBER	
	INTENSIVE MANAGEMENT			NON-INTENSIVE	SUSTAINED YIELD	
AGE IN DECADES	ENTRY CUTS	RE-ENTRY CUTS	HARVEST CUTS	HARVEST CUTS	NORMAL CUTS	IMPROVED CUTS
1	0.0	0.0	0.0	9999.00	0.0	0.0
2	0.0	0.0	0.0	9999.00	0.0	0.0
3	0.0	0.0	0.0	9999.00	0.0	0.0
4	0.0	0.0	0.0	9999.00	0.0	0.0
5	0.0	0.0	0.0	27.28	0.0	0.0
6	0.0	0.0	0.0	25.74	0.0	0.0
7	0.0	0.0	0.0	24.82	0.0	0.0
8	0.0	0.0	0.0	24.20	0.0	0.0
9	0.0	0.0	0.0	23.76	0.0	0.0
10	0.0	0.0	0.0	23.43	0.0	0.0
11	0.0	0.0	0.0	23.18	23.18	0.0
12	0.0	0.0	0.0	22.99	0.0	0.0
13	0.0	0.0	0.0	22.83	0.0	0.0
14	0.0	0.0	0.0	22.71	0.0	0.0
15	0.0	0.0	0.0	22.60	0.0	0.0
16	0.0	0.0	0.0	22.52	0.0	0.0
17	0.0	0.0	0.0	22.45	0.0	0.0
18	0.0	0.0	0.0	22.40	0.0	0.0

FAR DISTANCE MIXEDWOOD -- MED SITE
CLASS NUMBER 26

NORMAL ROTATION AGE - 14

IMPROVED ROTATION AGE - 0

GROSS REVENUE 2

	STANDING TIMBER				REGENERATED TIMBER	
	INTENSIVE MANAGEMENT			NON-INTENSIVE	SUSTAINED YIELD	
AGE IN DECADES	ENTRY CUTS	RE-ENTRY CUTS	HARVEST CUTS	HARVEST CUTS	NORMAL CUTS	IMPROVED CUTS
1	0.0	0.0	0.0	0.0	0.0	0.0
2	0.0	0.0	0.0	0.0	0.0	0.0
3	0.0	0.0	0.0	0.0	0.0	0.0
4	0.0	0.0	0.0	0.0	0.0	0.0
5	0.0	0.0	0.0	0.0	0.0	0.0
6	0.0	0.0	0.0	0.0	0.0	0.0
7	0.0	0.0	0.0	0.0	0.0	0.0
8	0.0	0.0	0.0	0.0	0.0	0.0
9	0.0	0.0	0.0	0.0	0.0	0.0
10	0.0	0.0	0.0	0.0	0.0	0.0
11	0.0	0.0	0.0	0.0	0.0	0.0
12	0.0	0.0	0.0	0.0	0.0	0.0
13	0.0	0.0	0.0	0.0	0.0	0.0
14	0.0	0.0	0.0	0.0	0.0	0.0
15	0.0	0.0	0.0	0.0	0.0	0.0
16	0.0	0.0	0.0	0.0	0.0	0.0
17	0.0	0.0	0.0	0.0	0.0	0.0
18	0.0	0.0	0.0	0.0	0.0	0.0

***** DATA ERROR NUMBER 24 SEE TIMBER RAM USERS' MANUAL, FORESTER'S GUIDE, APPENDIX II-2

(DIAGNOSTIC MESSAGE ONLY)

FAR DISTANCE MIXEDWOOD -- MED SITE
CLASS NUMBER 26

NORMAL ROTATION AGE - 14

IMPROVED ROTATION AGE - 0

COSTS/CU.M

	STANDING TIMBER				REGENERATED TIMBER	
	INTENSIVE MANAGEMENT			NON-INTENSIVE	SUSTAINED YIELD	
AGE IN DECADES	ENTRY CUTS	RE-ENTRY CUTS	HARVEST CUTS	HARVEST CUTS	NORMAL CUTS	IMPROVED CUTS
1	0.0	0.0	0.0	9999.00	0.0	0.0
2	0.0	0.0	0.0	9999.00	0.0	0.0
3	0.0	0.0	0.0	9999.00	0.0	0.0
4	0.0	0.0	0.0	9999.00	0.0	0.0
5	0.0	0.0	0.0	9999.00	0.0	0.0
6	0.0	0.0	0.0	9999.00	0.0	0.0
7	0.0	0.0	0.0	27.13	0.0	0.0
8	0.0	0.0	0.0	26.06	0.0	0.0
9	0.0	0.0	0.0	25.33	0.0	0.0
10	0.0	0.0	0.0	24.78	0.0	0.0
11	0.0	0.0	0.0	24.37	0.0	0.0
12	0.0	0.0	0.0	24.04	0.0	0.0
13	0.0	0.0	0.0	23.78	0.0	0.0
14	0.0	0.0	0.0	23.56	23.56	0.0
15	0.0	0.0	0.0	23.38	0.0	0.0
16	0.0	0.0	0.0	23.25	0.0	0.0
17	0.0	0.0	0.0	23.12	0.0	0.0
18	0.0	0.0	0.0	23.02	0.0	0.0

FAR DISTANCE PINE -- MED SITE
CLASS NUMBER 28

NORMAL ROTATION AGE - 12

IMPROVED ROTATION AGE - 0

GROSS REVENUE 2

	STANDING TIMBER				REGENERATED TIMBER	
	INTENSIVE MANAGEMENT			NON-INTENSIVE	SUSTAINED YIELD	
AGE IN DECADES	ENTRY CUTS	RE-ENTRY CUTS	HARVEST CUTS	HARVEST CUTS	NORMAL CUTS	IMPROVED CUTS
1	0.0	0.0	0.0	0.0	0.0	0.0
2	0.0	0.0	0.0	0.0	0.0	0.0
3	0.0	0.0	0.0	0.0	0.0	0.0
4	0.0	0.0	0.0	0.0	0.0	0.0
5	0.0	0.0	0.0	0.0	0.0	0.0
6	0.0	0.0	0.0	0.0	0.0	0.0
7	0.0	0.0	0.0	0.0	0.0	0.0
8	0.0	0.0	0.0	0.0	0.0	0.0
9	0.0	0.0	0.0	0.0	0.0	0.0
10	0.0	0.0	0.0	0.0	0.0	0.0
11	0.0	0.0	0.0	0.0	0.0	0.0
12	0.0	0.0	0.0	0.0	0.0	0.0
13	0.0	0.0	0.0	0.0	0.0	0.0
14	0.0	0.0	0.0	0.0	0.0	0.0
15	0.0	0.0	0.0	0.0	0.0	0.0
16	0.0	0.0	0.0	0.0	0.0	0.0
17	0.0	0.0	0.0	0.0	0.0	0.0
18	0.0	0.0	0.0	0.0	0.0	0.0

**** DATA ERROR NUMBER 24 SEE TIMBER RAM USERS' MANUAL, FORESTER'S GUIDE, APPENDIX II-2

(DIAGNOSTIC MESSAGE ONLY)

FAR DISTANCE PINE -- MED SITE
CLASS NUMBER 28

NORMAL ROTATION AGE - 12

IMPROVED ROTATION AGE - 0

COSTS/CU.M

	STANDING TIMBER				REGENERATED TIMBER	
	INTENSIVE MANAGEMENT			NON-INTENSIVE	SUSTAINED YIELD	
AGE IN DECADES	ENTRY CUTS	RE-ENTRY CUTS	HARVEST CUTS	HARVEST CUTS	NORMAL CUTS	IMPROVED CUTS
1	0.0	0.0	0.0	9999.00	0.0	0.0
2	0.0	0.0	0.0	9999.00	0.0	0.0
3	0.0	0.0	0.0	9999.00	0.0	0.0
4	0.0	0.0	0.0	9999.00	0.0	0.0
5	0.0	0.0	0.0	28.53	0.0	0.0
6	0.0	0.0	0.0	27.69	0.0	0.0
7	0.0	0.0	0.0	27.10	0.0	0.0
8	0.0	0.0	0.0	26.80	0.0	0.0
9	0.0	0.0	0.0	26.17	0.0	0.0
10	0.0	0.0	0.0	25.79	0.0	0.0
11	0.0	0.0	0.0	25.48	0.0	0.0
12	0.0	0.0	0.0	25.17	25.17	0.0
13	0.0	0.0	0.0	24.90	0.0	0.0
14	0.0	0.0	0.0	24.67	0.0	0.0
15	0.0	0.0	0.0	24.46	0.0	0.0
16	0.0	0.0	0.0	24.27	0.0	0.0
17	0.0	0.0	0.0	24.10	0.0	0.0
18	0.0	0.0	0.0	23.95	0.0	0.0

FAR DISTANCE PINE -- FAIR SITE
CLASS NUMBER 29

NORMAL ROTATION AGE - 16

IMPROVED ROTATION AGE - 0

GROSS REVENUE 2

	STANDING TIMBER				REGENERATED TIMBER	
	INTENSIVE MANAGEMENT			NON-INTENSIVE	SUSTAINED YIELD	
AGE IN DECADES	ENTRY CUTS	RE-ENTRY CUTS	HARVEST CUTS	HARVEST CUTS	NORMAL CUTS	IMPROVED CUTS
1	0.0	0.0	0.0	0.0	0.0	0.0
2	0.0	0.0	0.0	0.0	0.0	0.0
3	0.0	0.0	0.0	0.0	0.0	0.0
4	0.0	0.0	0.0	0.0	0.0	0.0
5	0.0	0.0	0.0	0.0	0.0	0.0
6	0.0	0.0	0.0	0.0	0.0	0.0
7	0.0	0.0	0.0	0.0	0.0	0.0
8	0.0	0.0	0.0	0.0	0.0	0.0
9	0.0	0.0	0.0	0.0	0.0	0.0
10	0.0	0.0	0.0	0.0	0.0	0.0
11	0.0	0.0	0.0	0.0	0.0	0.0
12	0.0	0.0	0.0	0.0	0.0	0.0
13	0.0	0.0	0.0	0.0	0.0	0.0
14	0.0	0.0	0.0	0.0	0.0	0.0
15	0.0	0.0	0.0	0.0	0.0	0.0
16	0.0	0.0	0.0	0.0	0.0	0.0
17	0.0	0.0	0.0	0.0	0.0	0.0
18	0.0	0.0	0.0	0.0	0.0	0.0

**** DATA ERROR NUMBER 24 SEE TIMBER RAM USERS' MANUAL, FORESTER'S GUIDE, APPENDIX II-2

-DIAGNOSTIC MESSAGE ONLY

FAR DISTANCE PINE -- FAIR SITE
CLASS NUMBER 29

NORMAL ROTATION AGE - 16

IMPROVED ROTATION AGE - 0

COSTS/CU.M.

	STANDING TIMBER				REGENERATED TIMBER	
	INTENSIVE MANAGEMENT			NON-INTENSIVE	SUSTAINED YIELD	
AGE IN DECADES	ENTRY CUTS	RE-ENTRY CUTS	HARVEST CUTS	HARVEST CUTS	NORMAL CUTS	IMPROVED CUTS
1	0.0	0.0	0.0	9999.00	0.0	0.0
2	0.0	0.0	0.0	9999.00	0.0	0.0
3	0.0	0.0	0.0	9999.00	0.0	0.0
4	0.0	0.0	0.0	9999.00	0.0	0.0
5	0.0	0.0	0.0	9999.00	0.0	0.0
6	0.0	0.0	0.0	9999.00	0.0	0.0
7	0.0	0.0	0.0	28.88	0.0	0.0
8	0.0	0.0	0.0	28.27	0.0	0.0
9	0.0	0.0	0.0	27.84	0.0	0.0
10	0.0	0.0	0.0	27.50	0.0	0.0
11	0.0	0.0	0.0	27.20	0.0	0.0
12	0.0	0.0	0.0	26.94	0.0	0.0
13	0.0	0.0	0.0	26.71	0.0	0.0
14	0.0	0.0	0.0	26.49	0.0	0.0
15	0.0	0.0	0.0	26.31	0.0	0.0
16	0.0	0.0	0.0	26.13	26.13	0.0
17	0.0	0.0	0.0	25.98	0.0	0.0
18	0.0	0.0	0.0	25.83	0.0	0.0

FAR DISTANCE UNCOMMERCIAL -- ALL SITES
CLASS NUMBER 30

NORMAL ROTATION AGE - 18

IMPROVED ROTATION AGE - 0

GROSS REVENUE 2

	STANDING TIMBER				REGENERATED TIMBER	
	INTENSIVE MANAGEMENT			NON-INTENSIVE	SUSTAINED YIELD	
AGE IN DECADES	ENTRY CUTS	RE-ENTRY CUTS	HARVEST CUTS	HARVEST CUTS	NORMAL CUTS	IMPROVED CUTS
1	0.0	0.0	0.0	0.0	0.0	0.0
2	0.0	0.0	0.0	0.0	0.0	0.0
3	0.0	0.0	0.0	0.0	0.0	0.0
4	0.0	0.0	0.0	0.0	0.0	0.0
5	0.0	0.0	0.0	0.0	0.0	0.0
6	0.0	0.0	0.0	0.0	0.0	0.0
7	0.0	0.0	0.0	0.0	0.0	0.0
8	0.0	0.0	0.0	0.0	0.0	0.0
9	0.0	0.0	0.0	0.0	0.0	0.0
10	0.0	0.0	0.0	0.0	0.0	0.0
11	0.0	0.0	0.0	0.0	0.0	0.0
12	0.0	0.0	0.0	0.0	0.0	0.0
13	0.0	0.0	0.0	0.0	0.0	0.0
14	0.0	0.0	0.0	0.0	0.0	0.0
15	0.0	0.0	0.0	0.0	0.0	0.0
16	0.0	0.0	0.0	0.0	0.0	0.0
17	0.0	0.0	0.0	0.0	0.0	0.0
18	0.0	0.0	0.0	0.0	0.0	0.0

**** DATA ERROR NUMBER 24 SEE TIMBER RAM USERS' MANUAL, FORESTER'S GUIDE, APPENDIX II-2

(DIAGNOSTIC MESSAGE ONLY)

FAR DISTANCE UNCOMMERCIAL -- ALL SITES
CLASS NUMBER 30

NORMAL ROTATION AGE - 18

IMPROVED ROTATION AGE - 0

COSTS/CU.M

	STANDING TIMBER				REGENERATED TIMBER	
	INTENSIVE MANAGEMENT			NON-INTENSIVE	SUSTAINED YIELD	
AGE IN DECADES	ENTRY CUTS	RE-ENTRY CUTS	HARVEST CUTS	HARVEST CUTS	NORMAL CUTS	IMPROVED CUTS
1	0.0	0.0	0.0	9999.00	0.0	0.0
2	0.0	0.0	0.0	9999.00	0.0	0.0
3	0.0	0.0	0.0	9999.00	0.0	0.0
4	0.0	0.0	0.0	9999.00	0.0	0.0
5	0.0	0.0	0.0	29.93	0.0	0.0
6	0.0	0.0	0.0	28.50	0.0	0.0
7	0.0	0.0	0.0	27.84	0.0	0.0
8	0.0	0.0	0.0	27.38	0.0	0.0
9	0.0	0.0	0.0	28.61	0.0	0.0
10	0.0	0.0	0.0	28.25	0.0	0.0
11	0.0	0.0	0.0	27.93	0.0	0.0
12	0.0	0.0	0.0	27.65	0.0	0.0
13	0.0	0.0	0.0	27.41	0.0	0.0
14	0.0	0.0	0.0	27.34	0.0	0.0
15	0.0	0.0	0.0	27.25	0.0	0.0
16	0.0	0.0	0.0	27.11	0.0	0.0
17	0.0	0.0	0.0	26.97	0.0	0.0
18	0.0	0.0	0.0	26.84	26.84	0.0

1 PROBLEM TITLE

R4 CONIFER LAND BASE -- MARCH 1987
FULL LAND BASE (UNCOMMERCIAL STUFF INCLUDED) UNCONSTRAINED

1.2 TYPE OF RUN

PRINT OUT DATA AND GENERATE LP MATRIX ON TAPE=2 REPORT TAPE=3

1.3 SCOPE OF ANALYSIS

SILVICULTURE AND ECONOMICS LP AND REPORT

1.4 PROBLEM PARAMETERS

LENGTH OF THE FIRST PLANNING PERIOD (IN YEARS) = 10
CURRENT VOLUME LEVEL = 2000.00
LENGTH OF CONVERSION PERIOD (IN DECADES) = 10
TOTAL TIME SPANNED BY THE PROBLEM (IN DECADES) = 25
OLDEST AGE TO BE REACHED BY ANY TIMBER CLASS (IN DECADES) = 12

1.5 DEFINITION OF HARVEST CONSTRAINTS

VOLUME   CONTROL AND REGULATION

1.6 TYPE OF HARVEST CONTROL CONSTRAINTS

SEQUENTIAL   LOWER AND UPPER BOUNDS

2 CONTROL AND REGULATION CONSTRAINTS

DEGREE OF HARVEST CONTROL

	LOWER	UPPER
CONVERSION PERIOD		
1	0.990	0.990
2	0.0	0.0
3	0.0	0.0
4	0.0	0.0
5	0.0	0.0
6	0.0	0.0
7	0.0	0.0
8	0.0	0.0
9	0.0	0.0
10	0.0	0.0

DEGREE OF HARVEST REGULATION

CONVERSION LINK	0.990	0.0
POST-CONVERSION PERIOD		
11	0.990	0.990
12	0.990	0.990
13	0.990	0.990
14	0.990	0.990
15	0.990	0.990
16	0.990	0.990
17	0.990	0.990
18	0.990	0.990
19	0.990	0.990
20	0.990	0.990
21	0.990	0.990
22	0.990	0.990
23	0.990	0.990
24	0.990	0.990
25	0.990	0.990

5 TIMBER CLASS DATA

CLASS NAME	STAND TYPE	AGE	TYPE OF CONSTRAINT	AREA	PERCENT ACCESSIBLE IN PERIODS 1	2	3	4	5
NB7		7	L	0.066	1.00				
NB9		9	L	0.395	1.00				
NB8		11	L	0.461	1.00				
NBD		13	L	0.198	1.00				
NE7		7	L	0.066	1.00				
NE9		9	L	0.857	1.00				
NE8		11	L	0.461	1.00				
NG9		9	L	0.264	1.00				
NG8		11	L	0.527	1.00				
NGD		13	L	0.066	1.00				
NHX		1	L	0.139	1.00				
NH3		3	L	0.132	1.00				
NH5		5	L	0.198	1.00				
NH7		7	L	0.527	1.00				
NH9		9	L	3.680	1.00				
NHA		10	L	0.066	1.00				
NH8		11	L	5.074	1.00				
NHD		13	L	1.252	1.00				
NHH		17	L	0.066	1.00				
NJ9		9	L	0.461	1.00				
NJ8		11	L	0.264	1.00				
NKX		1	L	0.256	1.00				
NK5		5	L	0.198	1.00				
NK7		7	L	1.648	1.00				
NK9		9	L	12.785	1.00				
NK8		11	L	4.152	1.00				
NKD		13	L	0.330	1.00				
NL9		9	L	0.066	1.00				
NM5		5	L	0.066	1.00				
NM7		7	L	0.395	1.00				
NM9		9	L	2.702	1.00				
NM8		11	L	1.252	1.00				
MB9		9	L	0.066	1.00				
MB8		11	L	0.264	1.00				
MBD		13	L	0.066	1.00				
ME3		3	L	0.066	1.00				
ME5		5	L	0.132	1.00				
ME7		7	L	0.066	1.00				
ME9		9	L	0.593	1.00				
ME8		11	L	0.527	1.00				
MG9		9	L	0.264	1.00				
MG8		11	L	0.330	1.00				
MHX		1	L	0.278	1.00				
MH5		5	L	0.132	1.00				
MH9		9	L	3.427	1.00				
MHA		10	L	0.132	1.00				
MH8		11	L	7.117	1.00				
MHD		13	L	0.461	1.00				
MJ9		9	L	0.264	1.00				
MJ8		11	L	0.132	1.00				
MKX		1	L	0.513	1.00				
MK5		5	L	2.175	1.00				
MK7		7	L	1.120	1.00				
MK9		9	L	10.676	1.00				
MKA		10	L	0.066	1.00				
MK8		11	L	5.074	1.00				
MKD		13	L	0.264	1.00				
ML5		5	L	0.132	1.00				
ML9		9	L	0.395	1.00				
ML8		11	L	0.198	1.00				
MLD		13	L	0.066	1.00				
MM5		5	L	0.659	1.00				
MM7		7	L	0.988	1.00				
MM9		9	L	1.713	1.00				
MM8		11	L	1.054	1.00				
MMD		13	L	0.066	1.00				
FB5		5	L	0.198	1.00				
FB9		9	L	0.066	1.00				
FB8		11	L	0.659	1.00				
FBD		13	L	0.264	1.00				
FE5		5	L	0.132	1.00				
FE9		9	L	0.857	1.00				
FE8		11	L	0.791	1.00				
FED		13	L	0.066	1.00				
FG9		9	L	0.132	1.00				
FG8		11	L	0.330	1.00				
FGD		13	L	0.132	1.00				
FHX		1	L	0.116	1.00				
FH5		5	L	0.725	1.00				
FH7		7	L	0.132	1.00				
FH9		9	L	3.758	1.00				
FH8		11	L	3.888	1.00				
FHD		13	L	0.395	1.00				
FJ5		5	L	0.132	1.00				
FJ9		9	L	0.132	1.00				
FJ8		11	L	0.198	1.00				
FKX		1	L	0.232	1.00				
FK5		5	L	2.109	1.00				
FK7		7	L	0.527	1.00				
FK9		9	L	14.234	1.00				
FK8		11	L	2.788	1.00				
FKD		13	L	0.198	1.00				
FL5		5	L	0.066	1.00				
FL9		9	L	0.066	1.00				
FL8		11	L	0.132	1.00				
FM3		3	L	0.066	1.00				
FM5		5	L	0.527	1.00				
FM7		7	L	1.713	1.00				
FM9		9	L	2.504	1.00				
FM8		11	L	0.725	1.00				
FMD		13	L	0.066	1.00				

THE TOTAL AREA OF THE TIMBER CLASSES IN THE PROBLEM IS 117.583 THOUSAND HECTARES

NOTE. TOTAL AREA IS DETERMINED USING SINGLE PRECISION ARITHMETIC. IT IS POSSIBLE THAT THE CALCULATED AREA WILL DISAGREE SLIGHTLY WITH THE ACTUAL AREA

VOLUME DATA

WHITE SPRUCE -- MED SITE
CLASS NUMBER 1

NORMAL ROTATION AGE - 14

IMPROVED ROTATION AGE - 0

MINIMUM CUT USED IN
VOLUME REGULATION - 0.0

VOLUME (CUBIC METERS/HA)

	STANDING TIMBER				REGENERATED TIMBER	
	INTENSIVE MANAGEMENT			NON-INTENSIVE	SUSTAINED YIELD	
AGE IN DECADES	ENTRY CUTS	RE-ENTRY CUTS	HARVEST CUTS	HARVEST CUTS	NORMAL CUTS	IMPROVED CUTS
1	0.0	0.0	0.0	0.0	0.0	0.0
2	0.0	0.0	0.0	0.0	0.0	0.0
3	0.0	0.0	0.0	0.0	0.0	0.0
4	0.0	0.0	0.0	0.0	0.0	0.0
5	0.0	0.0	0.0	0.80	0.0	0.0
6	0.0	0.0	0.0	25.80	0.0	0.0
7	0.0	0.0	0.0	73.20	0.0	0.0
8	0.0	0.0	0.0	118.10	0.0	0.0
9	0.0	0.0	0.0	159.40	0.0	0.0
10	0.0	0.0	0.0	197.20	0.0	0.0
11	0.0	0.0	0.0	230.90	0.0	0.0
12	0.0	0.0	0.0	261.10	0.0	0.0
13	0.0	0.0	0.0	288.10	0.0	0.0
14	0.0	0.0	0.0	312.20	312.20	0.0
15	0.0	0.0	0.0	333.50	0.0	0.0
16	0.0	0.0	0.0	352.50	0.0	0.0
17	0.0	0.0	0.0	369.80	0.0	0.0
18	0.0	0.0	0.0	385.30	0.0	0.0

BLACK SPRUCE -- MED SITE
CLASS NUMBER 2

NORMAL ROTATION AGE - 18

IMPROVED ROTATION AGE - 0

MINIMUM CUT USED IN
VOLUME REGULATION - 0.0

VOLUME (CUBIC METERS/HA)

	STANDING TIMBER				REGENERATED TIMBER	
	INTENSIVE MANAGEMENT			NON-INTENSIVE	SUSTAINED YIELD	
AGE IN DECADES	ENTRY CUTS	RE-ENTRY CUTS	HARVEST CUTS	HARVEST CUTS	NORMAL CUTS	IMPROVED CUTS
1	0.0	0.0	0.0	0.0	0.0	0.0
2	0.0	0.0	0.0	0.0	0.0	0.0
3	0.0	0.0	0.0	0.0	0.0	0.0
4	0.0	0.0	0.0	0.0	0.0	0.0
5	0.0	0.0	0.0	0.0	0.0	0.0
6	0.0	0.0	0.0	0.0	0.0	0.0
7	0.0	0.0	0.0	0.0	0.0	0.0
8	0.0	0.0	0.0	0.0	0.0	0.0
9	0.0	0.0	0.0	12.30	0.0	0.0
10	0.0	0.0	0.0	37.90	0.0	0.0
11	0.0	0.0	0.0	64.00	0.0	0.0
12	0.0	0.0	0.0	89.70	0.0	0.0
13	0.0	0.0	0.0	114.50	0.0	0.0
14	0.0	0.0	0.0	138.60	0.0	0.0
15	0.0	0.0	0.0	161.90	0.0	0.0
16	0.0	0.0	0.0	184.30	0.0	0.0
17	0.0	0.0	0.0	205.80	0.0	0.0
18	0.0	0.0	0.0	226.20	226.20	0.0

PINE -- GOOD SITE
CLASS NUMBER 5

NORMAL ROTATION AGE - 10

IMPROVED ROTATION AGE - 0

MINIMUM CUT USED IN
VOLUME REGULATION - 0.0

VOLUME (CUBIC METERS/HA)

	STANDING TIMBER				REGENERATED TIMBER	
	INTENSIVE MANAGEMENT			NON-INTENSIVE	SUSTAINED YIELD	
AGE IN DECADES	ENTRY CUTS	RE-ENTRY CUTS	HARVEST CUTS	HARVEST CUTS	NORMAL CUTS	IMPROVED CUTS
1	0.0	0.0	0.0	0.0	0.0	0.0
2	0.0	0.0	0.0	0.0	0.0	0.0
3	0.0	0.0	0.0	0.0	0.0	0.0
4	0.0	0.0	0.0	28.00	0.0	0.0
5	0.0	0.0	0.0	93.70	0.0	0.0
6	0.0	0.0	0.0	165.10	0.0	0.0
7	0.0	0.0	0.0	228.20	0.0	0.0
8	0.0	0.0	0.0	282.50	0.0	0.0
9	0.0	0.0	0.0	328.80	0.0	0.0
10	0.0	0.0	0.0	367.80	367.80	0.0
11	0.0	0.0	0.0	400.10	0.0	0.0
12	0.0	0.0	0.0	428.00	0.0	0.0
13	0.0	0.0	0.0	452.80	0.0	0.0
14	0.0	0.0	0.0	473.90	0.0	0.0
15	0.0	0.0	0.0	492.40	0.0	0.0
16	0.0	0.0	0.0	508.60	0.0	0.0
17	0.0	0.0	0.0	523.00	0.0	0.0
18	0.0	0.0	0.0	535.70	0.0	0.0

PINE -- MED SITE
CLASS NUMBER 6

NORMAL ROTATION AGE - 12

IMPROVED ROTATION AGE - 0

MINIMUM CUT USED IN
VOLUME REGULATION - 0.0

VOLUME (CUBIC METERS/HA)

	STANDING TIMBER				REGENERATED TIMBER	
	INTENSIVE MANAGEMENT			NON-INTENSIVE	SUSTAINED YIELD	
AGE IN DECADES	ENTRY CUTS	RE-ENTRY CUTS	HARVEST CUTS	HARVEST CUTS	NORMAL CUTS	IMPROVED CUTS
1	0.0	0.0	0.0	0.0	0.0	0.0
2	0.0	0.0	0.0	0.0	0.0	0.0
3	0.0	0.0	0.0	0.0	0.0	0.0
4	0.0	0.0	0.0	0.0	0.0	0.0
5	0.0	0.0	0.0	16.80	0.0	0.0
6	0.0	0.0	0.0	58.10	0.0	0.0
7	0.0	0.0	0.0	105.90	0.0	0.0
8	0.0	0.0	0.0	149.50	0.0	0.0
9	0.0	0.0	0.0	188.40	0.0	0.0
10	0.0	0.0	0.0	223.00	0.0	0.0
11	0.0	0.0	0.0	253.70	0.0	0.0
12	0.0	0.0	0.0	280.50	280.50	0.0
13	0.0	0.0	0.0	304.30	0.0	0.0
14	0.0	0.0	0.0	325.70	0.0	0.0
15	0.0	0.0	0.0	344.80	0.0	0.0
16	0.0	0.0	0.0	362.00	0.0	0.0
17	0.0	0.0	0.0	377.50	0.0	0.0
18	0.0	0.0	0.0	391.40	0.0	0.0

4 ECONOMIC DATA

NEAR DISTANCE WHITE SPRUCE -- MED SITE
CLASS NUMBER 1

NORMAL ROTATION AGE - 14

IMPROVED ROTATION AGE - 0

GROSS REVENUE 1

AGE IN DECADES	STANDING TIMBER: INTENSIVE MANAGEMENT: ENTRY CUTS	RE-ENTRY CUTS	HARVEST CUTS	NON-INTENSIVE HARVEST CUTS	REGENERATED TIMBER: SUSTAINED YIELD: NORMAL CUTS	IMPROVED CUTS
1	0 0	0 0	0 0	0 0	0 0	0 0
2	0 0	0 0	0 0	0 0	0 0	0 0
3	0 0	0 0	0 0	0 0	0 0	0 0
4	0 0	0 0	0 0	0 0	0 0	0 0
5	0 0	0 0	0 0	0 0	0 0	0 0
6	0 0	0 0	0 0	0 0	0 0	0 0
7	0 0	0 0	0 0	0 0	0 0	0 0
8	0 0	0 0	0 0	0 0	0 0	0 0
9	0 0	0 0	0 0	0 0	0 0	0 0
10	0 0	0 0	0 0	0 0	0 0	0 0
11	0 0	0 0	0 0	0 0	0 0	0 0
12	0 0	0 0	0 0	0 0	0 0	0 0
13	0 0	0 0	0 0	0 0	0 0	0 0
14	0 0	0 0	0 0	0 0	0 0	0 0
15	0 0	0 0	0 0	0 0	0 0	0 0
16	0 0	0 0	0 0	0 0	0 0	0 0
17	0 0	0 0	0 0	0 0	0 0	0 0
18	0 0	0 0	0 0	0 0	0 0	0 0

**** DATA ERROR NUMBER 24 SEE TIMBER RAM USERS' MANUAL, FORESTER'S GUIDE, APPENDIX II-2

(DIAGNOSTIC MESSAGE ONLY)

NEAR DISTANCE WHITE SPRUCE -- MED SITE
CLASS NUMBER 1

NORMAL ROTATION AGE - 14

IMPROVED ROTATION AGE - 0

GROSS REVENUE 2

AGE IN DECADES	STANDING TIMBER: INTENSIVE MANAGEMENT: ENTRY CUTS	RE-ENTRY CUTS	HARVEST CUTS	NON-INTENSIVE HARVEST CUTS	REGENERATED TIMBER: SUSTAINED YIELD: NORMAL CUTS	IMPROVED CUTS
1	0.0	0.0	0.0	0.0	0.0	0.0
2	0.0	0.0	0.0	0.0	0.0	0.0
3	0.0	0.0	0.0	0.0	0.0	0.0
4	0.0	0.0	0.0	0.0	0.0	0.0
5	0.0	0.0	0.0	0.0	0.0	0.0
6	0.0	0.0	0.0	0.0	0.0	0.0
7	0.0	0.0	0.0	0.0	0.0	0.0
8	0.0	0.0	0.0	0.0	0.0	0.0
9	0.0	0.0	0.0	0.0	0.0	0.0
10	0.0	0.0	0.0	0.0	0.0	0.0
11	0.0	0.0	0.0	0.0	0.0	0.0
12	0.0	0.0	0.0	0.0	0.0	0.0
13	0.0	0.0	0.0	0.0	0.0	0.0
14	0.0	0.0	0.0	0.0	0.0	0.0
15	0.0	0.0	0.0	0.0	0.0	0.0
16	0.0	0.0	0.0	0.0	0.0	0.0
17	0.0	0.0	0.0	0.0	0.0	0.0
18	0.0	0.0	0.0	0.0	0.0	0.0

**** DATA ERROR NUMBER 24. SEE TIMBER RAM USERS' MANUAL, FORESTER'S GUIDE, APPENDIX II-2

(DIAGNOSTIC MESSAGE ONLY)

NEAR DISTANCE BLACK SPRUCE -- MED SITE
CLASS NUMBER 2

NORMAL ROTATION AGE - 18

IMPROVED ROTATION AGE - 0

GROSS REVENUE 1

	STANDING TIMBER				REGENERATED TIMBER	
	INTENSIVE MANAGEMENT			NON-INTENSIVE	SUSTAINED YIELD	
AGE IN DECADES	ENTRY CUTS	RE-ENTRY CUTS	HARVEST CUTS	HARVEST CUTS	NORMAL CUTS	IMPROVED CUTS
1	0.0	0.0	0.0	0.0	0.0	0.0
2	0.0	0.0	0.0	0.0	0.0	0.0
3	0.0	0.0	0.0	0.0	0.0	0.0
4	0.0	0.0	0.0	0.0	0.0	0.0
5	0.0	0.0	0.0	0.0	0.0	0.0
6	0.0	0.0	0.0	0.0	0.0	0.0
7	0.0	0.0	0.0	0.0	0.0	0.0
8	0.0	0.0	0.0	0.0	0.0	0.0
9	0.0	0.0	0.0	0.0	0.0	0.0
10	0.0	0.0	0.0	0.0	0.0	0.0
11	0.0	0.0	0.0	0.0	0.0	0.0
12	0.0	0.0	0.0	0.0	0.0	0.0
13	0.0	0.0	0.0	0.0	0.0	0.0
14	0.0	0.0	0.0	0.0	0.0	0.0
15	0.0	0.0	0.0	0.0	0.0	0.0
16	0.0	0.0	0.0	0.0	0.0	0.0
17	0.0	0.0	0.0	0.0	0.0	0.0
18	0.0	0.0	0.0	0.0	0.0	0.0

**** DATA ERROR NUMBER 24 SEE TIMBER RAM USERS' MANUAL, FORESTER'S GUIDE, APPENDIX II-2

(DIAGNOSTIC MESSAGE ONLY)

NEAR DISTANCE BLACK SPRUCE -- MED SITE
CLASS NUMBER 2

NORMAL ROTATION AGE - 18

IMPROVED ROTATION AGE - 0

GROSS REVENUE 2

	STANDING TIMBER				REGENERATED TIMBER	
	INTENSIVE MANAGEMENT			NON-INTENSIVE	SUSTAINED YIELD	
AGE IN DECADES	ENTRY CUTS	RE-ENTRY CUTS	HARVEST CUTS	HARVEST CUTS	NORMAL CUTS	IMPROVED CUTS
1	0.0	0.0	0.0	0.0	0.0	0.0
2	0.0	0.0	0.0	0.0	0.0	0.0
3	0.0	0.0	0.0	0.0	0.0	0.0
4	0.0	0.0	0.0	0.0	0.0	0.0
5	0.0	0.0	0.0	0.0	0.0	0.0
6	0.0	0.0	0.0	0.0	0.0	0.0
7	0.0	0.0	0.0	0.0	0.0	0.0
8	0.0	0.0	0.0	0.0	0.0	0.0
9	0.0	0.0	0.0	0.0	0.0	0.0
10	0.0	0.0	0.0	0.0	0.0	0.0
11	0.0	0.0	0.0	0.0	0.0	0.0
12	0.0	0.0	0.0	0.0	0.0	0.0
13	0.0	0.0	0.0	0.0	0.0	0.0
14	0.0	0.0	0.0	0.0	0.0	0.0
15	0.0	0.0	0.0	0.0	0.0	0.0
16	0.0	0.0	0.0	0.0	0.0	0.0
17	0.0	0.0	0.0	0.0	0.0	0.0
18	0.0	0.0	0.0	0.0	0.0	0.0

**** DATA ERROR NUMBER 24 SEE TIMBER RAM USERS' MANUAL, FORESTER'S GUIDE, APPENDIX II-2

(DIAGNOSTIC MESSAGE ONLY)

NEAR DISTANCE MIXEDWOOD -- GOOD SITE
CLASS NUMBER 3

NORMAL ROTATION AGE - 11

IMPROVED ROTATION AGE - 0

GROSS REVENUE 1

AGE IN DECADES	STANDING TIMBER: INTENSIVE MANAGEMENT: ENTRY CUTS	STANDING TIMBER: INTENSIVE MANAGEMENT: RE-ENTRY CUTS	STANDING TIMBER: INTENSIVE MANAGEMENT: HARVEST CUTS	STANDING TIMBER: NON-INTENSIVE HARVEST CUTS	REGENERATED TIMBER: SUSTAINED YIELD: NORMAL CUTS	REGENERATED TIMBER: SUSTAINED YIELD: IMPROVED CUTS
1	0.0	0.0	0.0	0.0	0.0	0.0
2	0.0	0.0	0.0	0.0	0.0	0.0
3	0.0	0.0	0.0	0.0	0.0	0.0
4	0.0	0.0	0.0	0.0	0.0	0.0
5	0.0	0.0	0.0	0.0	0.0	0.0
6	0.0	0.0	0.0	0.0	0.0	0.0
7	0.0	0.0	0.0	0.0	0.0	0.0
8	0.0	0.0	0.0	0.0	0.0	0.0
9	0.0	0.0	0.0	0.0	0.0	0.0
10	0.0	0.0	0.0	0.0	0.0	0.0
11	0.0	0.0	0.0	0.0	0.0	0.0
12	0.0	0.0	0.0	0.0	0.0	0.0
13	0.0	0.0	0.0	0.0	0.0	0.0
14	0.0	0.0	0.0	0.0	0.0	0.0
15	0.0	0.0	0.0	0.0	0.0	0.0
16	0.0	0.0	0.0	0.0	0.0	0.0
17	0.0	0.0	0.0	0.0	0.0	0.0
18	0.0	0.0	0.0	0.0	0.0	0.0

**** DATA ERROR NUMBER 24 SEE TIMBER RAM USERS' MANUAL, FORESTER'S GUIDE, APPENDIX II-2

(DIAGNOSTIC MESSAGE ONLY)

NEAR DISTANCE MIXEDWOOD -- GOOD SITE
CLASS NUMBER 3

NORMAL ROTATION AGE - 11

IMPROVED ROTATION AGE - 0

GROSS REVENUE 2

AGE IN DECADES	STANDING TIMBER: INTENSIVE MANAGEMENT: ENTRY CUTS	STANDING TIMBER: INTENSIVE MANAGEMENT: RE-ENTRY CUTS	STANDING TIMBER: INTENSIVE MANAGEMENT: HARVEST CUTS	STANDING TIMBER: NON-INTENSIVE HARVEST CUTS	REGENERATED TIMBER: SUSTAINED YIELD: NORMAL CUTS	REGENERATED TIMBER: SUSTAINED YIELD: IMPROVED CUTS
1	0.0	0.0	0.0	0.0	0.0	0.0
2	0.0	0.0	0.0	0.0	0.0	0.0
3	0.0	0.0	0.0	0.0	0.0	0.0
4	0.0	0.0	0.0	0.0	0.0	0.0
5	0.0	0.0	0.0	0.0	0.0	0.0
6	0.0	0.0	0.0	0.0	0.0	0.0
7	0.0	0.0	0.0	0.0	0.0	0.0
8	0.0	0.0	0.0	0.0	0.0	0.0
9	0.0	0.0	0.0	0.0	0.0	0.0
10	0.0	0.0	0.0	0.0	0.0	0.0
11	0.0	0.0	0.0	0.0	0.0	0.0
12	0.0	0.0	0.0	0.0	0.0	0.0
13	0.0	0.0	0.0	0.0	0.0	0.0
14	0.0	0.0	0.0	0.0	0.0	0.0
15	0.0	0.0	0.0	0.0	0.0	0.0
16	0.0	0.0	0.0	0.0	0.0	0.0
17	0.0	0.0	0.0	0.0	0.0	0.0
18	0.0	0.0	0.0	0.0	0.0	0.0

**** DATA ERROR NUMBER 24 SEE TIMBER RAM USERS' MANUAL, FORESTER'S GUIDE, APPENDIX II-2

(DIAGNOSTIC MESSAGE ONLY)

NEAR DISTANCE MIXEDWOOD -- MED SITE
CLASS NUMBER 4

NORMAL ROTATION AGE - 15

IMPROVED ROTATION AGE - 0

GROSS REVENUE 1

	STANDING TIMBER				REGENERATED TIMBER	
	INTENSIVE MANAGEMENT			NON-INTENSIVE	SUSTAINED YIELD	
AGE IN DECADES	ENTRY CUTS	RE-ENTRY CUTS	HARVEST CUTS	HARVEST CUTS	NORMAL CUTS	IMPROVED CUTS
1	0.0	0.0	0.0	0.0	0.0	0.0
2	0.0	0.0	0.0	0.0	0.0	0.0
3	0.0	0.0	0.0	0.0	0.0	0.0
4	0.0	0.0	0.0	0.0	0.0	0.0
5	0.0	0.0	0.0	0.0	0.0	0.0
6	0.0	0.0	0.0	0.0	0.0	0.0
7	0.0	0.0	0.0	0.0	0.0	0.0
8	0.0	0.0	0.0	0.0	0.0	0.0
9	0.0	0.0	0.0	0.0	0.0	0.0
10	0.0	0.0	0.0	0.0	0.0	0.0
11	0.0	0.0	0.0	0.0	0.0	0.0
12	0.0	0.0	0.0	0.0	0.0	0.0
13	0.0	0.0	0.0	0.0	0.0	0.0
14	0.0	0.0	0.0	0.0	0.0	0.0
15	0.0	0.0	0.0	0.0	0.0	0.0
16	0.0	0.0	0.0	0.0	0.0	0.0
17	0.0	0.0	0.0	0.0	0.0	0.0
18	0.0	0.0	0.0	0.0	0.0	0.0

**** DATA ERROR NUMBER 24 SEE TIMBER RAM USERS' MANUAL, FORESTER'S GUIDE, APPENDIX II-2

(DIAGNOSTIC MESSAGE ONLY)

NEAR DISTANCE MIXEDWOOD -- MED SITE
CLASS NUMBER 4

NORMAL ROTATION AGE - 15

IMPROVED ROTATION AGE - 0

GROSS REVENUE 2

	STANDING TIMBER				REGENERATED TIMBER	
	INTENSIVE MANAGEMENT			NON-INTENSIVE	SUSTAINED YIELD	
AGE IN DECADES	ENTRY CUTS	RE-ENTRY CUTS	HARVEST CUTS	HARVEST CUTS	NORMAL CUTS	IMPROVED CUTS
1	0.0	0.0	0.0	0.0	0.0	0.0
2	0.0	0.0	0.0	0.0	0.0	0.0
3	0.0	0.0	0.0	0.0	0.0	0.0
4	0.0	0.0	0.0	0.0	0.0	0.0
5	0.0	0.0	0.0	0.0	0.0	0.0
6	0.0	0.0	0.0	0.0	0.0	0.0
7	0.0	0.0	0.0	0.0	0.0	0.0
8	0.0	0.0	0.0	0.0	0.0	0.0
9	0.0	0.0	0.0	0.0	0.0	0.0
10	0.0	0.0	0.0	0.0	0.0	0.0
11	0.0	0.0	0.0	0.0	0.0	0.0
12	0.0	0.0	0.0	0.0	0.0	0.0
13	0.0	0.0	0.0	0.0	0.0	0.0
14	0.0	0.0	0.0	0.0	0.0	0.0
15	0.0	0.0	0.0	0.0	0.0	0.0
16	0.0	0.0	0.0	0.0	0.0	0.0
17	0.0	0.0	0.0	0.0	0.0	0.0
18	0.0	0.0	0.0	0.0	0.0	0.0

**** DATA ERROR NUMBER 24 SEE TIMBER RAM USERS' MANUAL, FORESTER'S GUIDE, APPENDIX II-2

(DIAGNOSTIC MESSAGE ONLY)

NEAR DISTANCE PINE -- GOOD SITE
CLASS NUMBER 5

NORMAL ROTATION AGE - 10

IMPROVED ROTATION AGE - 0

GROSS REVENUE 1

	STANDING TIMBER				REGENERATED TIMBER	
	INTENSIVE MANAGEMENT			NON-INTENSIVE	SUSTAINED YIELD	
AGE IN DECADES	ENTRY CUTS	RE-ENTRY CUTS	HARVEST CUTS	HARVEST CUTS	NORMAL CUTS	IMPROVED CUTS
1	0.0	0.0	0.0	0.0	0.0	0.0
2	0.0	0.0	0.0	0.0	0.0	0.0
3	0.0	0.0	0.0	0.0	0.0	0.0
4	0.0	0.0	0.0	0.0	0.0	0.0
5	0.0	0.0	0.0	0.0	0.0	0.0
6	0.0	0.0	0.0	0.0	0.0	0.0
7	0.0	0.0	0.0	0.0	0.0	0.0
8	0.0	0.0	0.0	0.0	0.0	0.0
9	0.0	0.0	0.0	0.0	0.0	0.0
10	0.0	0.0	0.0	0.0	0.0	0.0
11	0.0	0.0	0.0	0.0	0.0	0.0
12	0.0	0.0	0.0	0.0	0.0	0.0
13	0.0	0.0	0.0	0.0	0.0	0.0
14	0.0	0.0	0.0	0.0	0.0	0.0
15	0.0	0.0	0.0	0.0	0.0	0.0
16	0.0	0.0	0.0	0.0	0.0	0.0
17	0.0	0.0	0.0	0.0	0.0	0.0
18	0.0	0.0	0.0	0.0	0.0	0.0

**** DATA ERROR NUMBER 24 SEE TIMBER RAM USERS' MANUAL, FORESTER'S GUIDE, APPENDIX II-2

(DIAGNOSTIC MESSAGE ONLY)

NEAR DISTANCE PINE -- GOOD SITE
CLASS NUMBER 5

NORMAL ROTATION AGE - 10

IMPROVED ROTATION AGE - 0

GROSS REVENUE 2

	STANDING TIMBER				REGENERATED TIMBER	
	INTENSIVE MANAGEMENT			NON-INTENSIVE	SUSTAINED YIELD	
AGE IN DECADES	ENTRY CUTS	RE-ENTRY CUTS	HARVEST CUTS	HARVEST CUTS	NORMAL CUTS	IMPROVED CUTS
1	0.0	0.0	0.0	0.0	0.0	0.0
2	0.0	0.0	0.0	0.0	0.0	0.0
3	0.0	0.0	0.0	0.0	0.0	0.0
4	0.0	0.0	0.0	0.0	0.0	0.0
5	0.0	0.0	0.0	0.0	0.0	0.0
6	0.0	0.0	0.0	0.0	0.0	0.0
7	0.0	0.0	0.0	0.0	0.0	0.0
8	0.0	0.0	0.0	0.0	0.0	0.0
9	0.0	0.0	0.0	0.0	0.0	0.0
10	0.0	0.0	0.0	0.0	0.0	0.0
11	0.0	0.0	0.0	0.0	0.0	0.0
12	0.0	0.0	0.0	0.0	0.0	0.0
13	0.0	0.0	0.0	0.0	0.0	0.0
14	0.0	0.0	0.0	0.0	0.0	0.0
15	0.0	0.0	0.0	0.0	0.0	0.0
16	0.0	0.0	0.0	0.0	0.0	0.0
17	0.0	0.0	0.0	0.0	0.0	0.0
18	0.0	0.0	0.0	0.0	0.0	0.0

**** DATA ERROR NUMBER 24 SEE TIMBER RAM USERS' MANUAL, FORESTER'S GUIDE, APPENDIX II-2

(DIAGNOSTIC MESSAGE ONLY)

NEAR DISTANCE PINE -- MED SITE
CLASS NUMBER 6

NORMAL ROTATION AGE - 12

IMPROVED ROTATION AGE - 0

GROSS REVENUE 1

	STANDING TIMBER				REGENERATED TIMBER	
	INTENSIVE MANAGEMENT			NON-INTENSIVE	SUSTAINED YIELD	
AGE IN DECADES	ENTRY CUTS	RE-ENTRY CUTS	HARVEST CUTS	HARVEST CUTS	NORMAL CUTS	IMPROVED CUTS
1	0.0	0.0	0.0	0.0	0.0	0.0
2	0.0	0.0	0.0	0.0	0.0	0.0
3	0.0	0.0	0.0	0.0	0.0	0.0
4	0.0	0.0	0.0	0.0	0.0	0.0
5	0.0	0.0	0.0	0.0	0.0	0.0
6	0.0	0.0	0.0	0.0	0.0	0.0
7	0.0	0.0	0.0	0.0	0.0	0.0
8	0.0	0.0	0.0	0.0	0.0	0.0
9	0.0	0.0	0.0	0.0	0.0	0.0
10	0.0	0.0	0.0	0.0	0.0	0.0
11	0.0	0.0	0.0	0.0	0.0	0.0
12	0.0	0.0	0.0	0.0	0.0	0.0
13	0.0	0.0	0.0	0.0	0.0	0.0
14	0.0	0.0	0.0	0.0	0.0	0.0
15	0.0	0.0	0.0	0.0	0.0	0.0
16	0.0	0.0	0.0	0.0	0.0	0.0
17	0.0	0.0	0.0	0.0	0.0	0.0
18	0.0	0.0	0.0	0.0	0.0	0.0

**** DATA ERROR NUMBER 24 SEE TIMBER RAM USERS' MANUAL, FORESTER'S GUIDE, APPENDIX II-2

(DIAGNOSTIC MESSAGE ONLY)

NEAR DISTANCE PINE -- MED SITE
CLASS NUMBER 6

NORMAL ROTATION AGE - 12

IMPROVED ROTATION AGE - 0

GROSS REVENUE 2

	STANDING TIMBER				REGENERATED TIMBER	
	INTENSIVE MANAGEMENT			NON-INTENSIVE	SUSTAINED YIELD	
AGE IN DECADES	ENTRY CUTS	RE-ENTRY CUTS	HARVEST CUTS	HARVEST CUTS	NORMAL CUTS	IMPROVED CUTS
1	0.0	0.0	0.0	0.0	0.0	0.0
2	0.0	0.0	0.0	0.0	0.0	0.0
3	0.0	0.0	0.0	0.0	0.0	0.0
4	0.0	0.0	0.0	0.0	0.0	0.0
5	0.0	0.0	0.0	0.0	0.0	0.0
6	0.0	0.0	0.0	0.0	0.0	0.0
7	0.0	0.0	0.0	0.0	0.0	0.0
8	0.0	0.0	0.0	0.0	0.0	0.0
9	0.0	0.0	0.0	0.0	0.0	0.0
10	0.0	0.0	0.0	0.0	0.0	0.0
11	0.0	0.0	0.0	0.0	0.0	0.0
12	0.0	0.0	0.0	0.0	0.0	0.0
13	0.0	0.0	0.0	0.0	0.0	0.0
14	0.0	0.0	0.0	0.0	0.0	0.0
15	0.0	0.0	0.0	0.0	0.0	0.0
16	0.0	0.0	0.0	0.0	0.0	0.0
17	0.0	0.0	0.0	0.0	0.0	0.0
18	0.0	0.0	0.0	0.0	0.0	0.0

**** DATA ERROR NUMBER 24 SEE TIMBER RAM USERS' MANUAL, FORESTER'S GUIDE, APPENDIX II-2

(DIAGNOSTIC MESSAGE ONLY)

NEAR DISTANCE PINE -- FAIR SITE
CLASS NUMBER 7

NORMAL ROTATION AGE - 17

IMPROVED ROTATION AGE - 0

GROSS REVENUE [illegible]

	STANDING TIMBER				REGENERATED TIMBER	
	INTENSIVE MANAGEMENT			NON-INTENSIVE	SUSTAINED YIELD	
AGE IN DECADES	ENTRY CUTS	RE-ENTRY CUTS	HARVEST CUTS	HARVEST CUTS	NORMAL CUTS	IMPROVED CUTS
1	0.0	0.0	0.0	0.0	0.0	0.0
2	0.0	0.0	0.0	0.0	0.0	0.0
3	0.0	0.0	0.0	0.0	0.0	0.0
4	0.0	0.0	0.0	0.0	0.0	0.0
5	0.0	0.0	0.0	0.0	0.0	0.0
6	0.0	0.0	0.0	0.0	0.0	0.0
7	0.0	0.0	0.0	0.0	0.0	0.0
8	0.0	0.0	0.0	0.0	0.0	0.0
9	0.0	0.0	0.0	0.0	0.0	0.0
10	0.0	0.0	0.0	0.0	0.0	0.0
11	0.0	0.0	0.0	0.0	0.0	0.0
12	0.0	0.0	0.0	0.0	0.0	0.0
13	0.0	0.0	0.0	0.0	0.0	0.0
14	0.0	0.0	0.0	0.0	0.0	0.0
15	0.0	0.0	0.0	0.0	0.0	0.0
16	0.0	0.0	0.0	0.0	0.0	0.0
17	0.0	0.0	0.0	0.0	0.0	0.0
18	0.0	0.0	0.0	0.0	0.0	0.0

**** DATA ERROR NUMBER 24 SEE TIMBER RAM USERS' MANUAL, FORESTER'S GUIDE APPENDIX II-2

(DIAGNOSTIC MESSAGE ONLY)

NEAR DISTANCE PINE -- FAIR SITE
CLASS NUMBER 7

NORMAL ROTATION AGE - 17

IMPROVED ROTATION AGE - 0

GROSS REVENUE 2

	STANDING TIMBER				REGENERATED TIMBER	
	INTENSIVE MANAGEMENT			NON-INTENSIVE	SUSTAINED YIELD	
AGE IN DECADES	ENTRY CUTS	RE-ENTRY CUTS	HARVEST CUTS	HARVEST CUTS	NORMAL CUTS	IMPROVED CUTS
1	0.0	0.0	0.0	0.0	0.0	0.0
2	0.0	0.0	0.0	0.0	0.0	0.0
3	0.0	0.0	0.0	0.0	0.0	0.0
4	0.0	0.0	0.0	0.0	0.0	0.0
5	0.0	0.0	0.0	0.0	0.0	0.0
6	0.0	0.0	0.0	0.0	0.0	0.0
7	0.0	0.0	0.0	0.0	0.0	0.0
8	0.0	0.0	0.0	0.0	0.0	0.0
9	0.0	0.0	0.0	0.0	0.0	0.0
10	0.0	0.0	0.0	0.0	0.0	0.0
11	0.0	0.0	0.0	0.0	0.0	0.0
12	0.0	0.0	0.0	0.0	0.0	0.0
13	0.0	0.0	0.0	0.0	0.0	0.0
14	0.0	0.0	0.0	0.0	0.0	0.0
15	0.0	0.0	0.0	0.0	0.0	0.0
16	0.0	0.0	0.0	0.0	0.0	0.0
17	0.0	0.0	0.0	0.0	0.0	0.0
18	0.0	0.0	0.0	0.0	0.0	0.0

**** DATA ERROR NUMBER 24 SEE TIMBER RAM USERS' MANUAL, FORESTER'S GUIDE APPENDIX II-2

(DIAGNOSTIC MESSAGE ONLY)

NEAR DISTANCE UNCOMMERCIAL -- ALL SITES
CLASS NUMBER 8

NORMAL ROTATION AGE - 18

IMPROVED ROTATION AGE - 0

GROSS REVENUE

AGE IN DECADES	STANDING TIMBER: INTENSIVE MANAGEMENT: ENTRY CUTS	STANDING TIMBER: INTENSIVE MANAGEMENT: RE-ENTRY CUTS	STANDING TIMBER: INTENSIVE MANAGEMENT: HARVEST CUTS	STANDING TIMBER: NON-INTENSIVE HARVEST CUTS	REGENERATED TIMBER: SUSTAINED YIELD: NORMAL CUTS	REGENERATED TIMBER: SUSTAINED YIELD: IMPROVED CUTS
1	0.0	0.0	0.0	0.0	0.0	0.0
2	0.0	0.0	0.0	0.0	0.0	0.0
3	0.0	0.0	0.0	0.0	0.0	0.0
4	0.0	0.0	0.0	0.0	0.0	0.0
5	0.0	0.0	0.0	0.0	0.0	0.0
6	0.0	0.0	0.0	0.0	0.0	0.0
7	0.0	0.0	0.0	0.0	0.0	0.0
8	0.0	0.0	0.0	0.0	0.0	0.0
9	0.0	0.0	0.0	0.0	0.0	0.0
10	0.0	0.0	0.0	0.0	0.0	0.0
11	0.0	0.0	0.0	0.0	0.0	0.0
12	0.0	0.0	0.0	0.0	0.0	0.0
13	0.0	0.0	0.0	0.0	0.0	0.0
14	0.0	0.0	0.0	0.0	0.0	0.0
15	0.0	0.0	0.0	0.0	0.0	0.0
16	0.0	0.0	0.0	0.0	0.0	0.0
17	0.0	0.0	0.0	0.0	0.0	0.0
18	0.0	0.0	0.0	0.0	0.0	0.0

**** DATA ERROR NUMBER 24 SEE TIMBER RAM USERS' MANUAL, FORESTER'S GUIDE, APPENDIX II-2

(DIAGNOSTIC MESSAGE ONLY)

NEAR DISTANCE UNCOMMERCIAL -- ALL SITES
CLASS NUMBER 8

NORMAL ROTATION AGE - 18

IMPROVED ROTATION AGE - 0

GROSS REVENUE 2

AGE IN DECADES	STANDING TIMBER: INTENSIVE MANAGEMENT: ENTRY CUTS	STANDING TIMBER: INTENSIVE MANAGEMENT: RE-ENTRY CUTS	STANDING TIMBER: INTENSIVE MANAGEMENT: HARVEST CUTS	STANDING TIMBER: NON-INTENSIVE HARVEST CUTS	REGENERATED TIMBER: SUSTAINED YIELD: NORMAL CUTS	REGENERATED TIMBER: SUSTAINED YIELD: IMPROVED CUTS
1	0.0	0.0	0.0	0.0	0.0	0.0
2	0.0	0.0	0.0	0.0	0.0	0.0
3	0.0	0.0	0.0	0.0	0.0	0.0
4	0.0	0.0	0.0	0.0	0.0	0.0
5	0.0	0.0	0.0	0.0	0.0	0.0
6	0.0	0.0	0.0	0.0	0.0	0.0
7	0.0	0.0	0.0	0.0	0.0	0.0
8	0.0	0.0	0.0	0.0	0.0	0.0
9	0.0	0.0	0.0	0.0	0.0	0.0
10	0.0	0.0	0.0	0.0	0.0	0.0
11	0.0	0.0	0.0	0.0	0.0	0.0
12	0.0	0.0	0.0	0.0	0.0	0.0
13	0.0	0.0	0.0	0.0	0.0	0.0
14	0.0	0.0	0.0	0.0	0.0	0.0
15	0.0	0.0	0.0	0.0	0.0	0.0
16	0.0	0.0	0.0	0.0	0.0	0.0
17	0.0	0.0	0.0	0.0	0.0	0.0
18	0.0	0.0	0.0	0.0	0.0	0.0

**** DATA ERROR NUMBER 24 SEE TIMBER RAM USERS' MANUAL, FORESTER'S GUIDE, APPENDIX II-2

(DIAGNOSTIC MESSAGE ONLY)

MEDIUM DISTANCE   WHITE SPRUCE -- MED SITE
CLASS NUMBER 9

NORMAL ROTATION AGE - 14

IMPROVED ROTATION AGE - 0

GROSS REVENUE 1

	STANDING TIMBER				REGENERATED TIMBER	
	INTENSIVE MANAGEMENT			NON-INTENSIVE	SUSTAINED YIELD	
AGE IN DECADES	ENTRY CUTS	RE-ENTRY CUTS	HARVEST CUTS	HARVEST CUTS	NORMAL CUTS	IMPROVED CUTS
1	0.0	0.0	0.0	0.0	0.0	0.0
2	0.0	0.0	0.0	0.0	0.0	0.0
3	0.0	0.0	0.0	0.0	0.0	0.0
4	0.0	0.0	0.0	0.0	0.0	0.0
5	0.0	0.0	0.0	0.0	0.0	0.0
6	0.0	0.0	0.0	0.0	0.0	0.0
7	0.0	0.0	0.0	0.0	0.0	0.0
8	0.0	0.0	0.0	0.0	0.0	0.0
9	0.0	0.0	0.0	0.0	0.0	0.0
10	0.0	0.0	0.0	0.0	0.0	0.0
11	0.0	0.0	0.0	0.0	0.0	0.0
12	0.0	0.0	0.0	0.0	0.0	0.0
13	0.0	0.0	0.0	0.0	0.0	0.0
14	0.0	0.0	0.0	0.0	0.0	0.0
15	0.0	0.0	0.0	0.0	0.0	0.0
16	0.0	0.0	0.0	0.0	0.0	0.0
17	0.0	0.0	0.0	0.0	0.0	0.0
18	0.0	0.0	0.0	0.0	0.0	0.0

**** DATA ERROR NUMBER 24 SEE TIMBER RAM USERS' MANUAL, FORESTER'S GUIDE, APPENDIX II-2

(DIAGNOSTIC MESSAGE ONLY)

MEDIUM DISTANCE   WHITE SPRUCE -- MED SITE
CLASS NUMBER 9

NORMAL ROTATION AGE - 14

IMPROVED ROTATION AGE - 0

GROSS REVENUE 2

	STANDING TIMBER				REGENERATED TIMBER	
	INTENSIVE MANAGEMENT			NON-INTENSIVE	SUSTAINED YIELD	
AGE IN DECADES	ENTRY CUTS	RE-ENTRY CUTS	HARVEST CUTS	HARVEST CUTS	NORMAL CUTS	IMPROVED CUTS
1	0.0	0.0	0.0	0.0	0.0	0.0
2	0.0	0.0	0.0	0.0	0.0	0.0
3	0.0	0.0	0.0	0.0	0.0	0.0
4	0.0	0.0	0.0	0.0	0.0	0.0
5	0.0	0.0	0.0	0.0	0.0	0.0
6	0.0	0.0	0.0	0.0	0.0	0.0
7	0.0	0.0	0.0	0.0	0.0	0.0
8	0.0	0.0	0.0	0.0	0.0	0.0
9	0.0	0.0	0.0	0.0	0.0	0.0
10	0.0	0.0	0.0	0.0	0.0	0.0
11	0.0	0.0	0.0	0.0	0.0	0.0
12	0.0	0.0	0.0	0.0	0.0	0.0
13	0.0	0.0	0.0	0.0	0.0	0.0
14	0.0	0.0	0.0	0.0	0.0	0.0
15	0.0	0.0	0.0	0.0	0.0	0.0
16	0.0	0.0	0.0	0.0	0.0	0.0
17	0.0	0.0	0.0	0.0	0.0	0.0
18	0.0	0.0	0.0	0.0	0.0	0.0

**** DATA ERROR NUMBER 24 SEE TIMBER RAM USERS' MANUAL, FORESTER'S GUIDE, APPENDIX II-2

(DIAGNOSTIC MESSAGE ONLY)

MEDIUM DISTANCE BLACK SPRUCE -- MED SITE
CLASS NUMBER 10

NORMAL ROTATION AGE - 18

IMPROVED ROTATION AGE - 0

GROSS REVENUE 1

AGE IN DECADES	STANDING TIMBER: INTENSIVE MANAGEMENT: ENTRY CUTS	RE-ENTRY CUTS	HARVEST CUTS	NON-INTENSIVE HARVEST CUTS	REGENERATED TIMBER: SUSTAINED YIELD: NORMAL CUTS	IMPROVED CUTS
1	0.0	0.0	0.0	0.0	0.0	0.0
2	0.0	0.0	0.0	0.0	0.0	0.0
3	0.0	0.0	0.0	0.0	0.0	0.0
4	0.0	0.0	0.0	0.0	0.0	0.0
5	0.0	0.0	0.0	0.0	0.0	0.0
6	0.0	0.0	0.0	0.0	0.0	0.0
7	0.0	0.0	0.0	0.0	0.0	0.0
8	0.0	0.0	0.0	0.0	0.0	0.0
9	0.0	0.0	0.0	0.0	0.0	0.0
10	0.0	0.0	0.0	0.0	0.0	0.0
11	0.0	0.0	0.0	0.0	0.0	0.0
12	0.0	0.0	0.0	0.0	0.0	0.0
13	0.0	0.0	0.0	0.0	0.0	0.0
14	0.0	0.0	0.0	0.0	0.0	0.0
15	0.0	0.0	0.0	0.0	0.0	0.0
16	0.0	0.0	0.0	0.0	0.0	0.0
17	0.0	0.0	0.0	0.0	0.0	0.0
18	0.0	0.0	0.0	0.0	0.0	0.0

**** DATA ERROR NUMBER 24 SEE TIMBER RAM USERS' MANUAL, FORESTER'S GUIDE, APPENDIX II-2

(DIAGNOSTIC MESSAGE ONLY)

MEDIUM DISTANCE BLACK SPRUCE -- MED SITE
CLASS NUMBER 10

NORMAL ROTATION AGE - 18

IMPROVED ROTATION AGE - 0

GROSS REVENUE 2

AGE IN DECADES	STANDING TIMBER: INTENSIVE MANAGEMENT: ENTRY CUTS	RE-ENTRY CUTS	HARVEST CUTS	NON-INTENSIVE HARVEST CUTS	REGENERATED TIMBER: SUSTAINED YIELD: NORMAL CUTS	IMPROVED CUTS
1	0.0	0.0	0.0	0.0	0.0	0.0
2	0.0	0.0	0.0	0.0	0.0	0.0
3	0.0	0.0	0.0	0.0	0.0	0.0
4	0.0	0.0	0.0	0.0	0.0	0.0
5	0.0	0.0	0.0	0.0	0.0	0.0
6	0.0	0.0	0.0	0.0	0.0	0.0
7	0.0	0.0	0.0	0.0	0.0	0.0
8	0.0	0.0	0.0	0.0	0.0	0.0
9	0.0	0.0	0.0	0.0	0.0	0.0
10	0.0	0.0	0.0	0.0	0.0	0.0
11	0.0	0.0	0.0	0.0	0.0	0.0
12	0.0	0.0	0.0	0.0	0.0	0.0
13	0.0	0.0	0.0	0.0	0.0	0.0
14	0.0	0.0	0.0	0.0	0.0	0.0
15	0.0	0.0	0.0	0.0	0.0	0.0
16	0.0	0.0	0.0	0.0	0.0	0.0
17	0.0	0.0	0.0	0.0	0.0	0.0
18	0.0	0.0	0.0	0.0	0.0	0.0

**** DATA ERROR NUMBER 24 SEE TIMBER RAM USERS' MANUAL, FORESTER'S GUIDE, APPENDIX II-2

(DIAGNOSTIC MESSAGE ONLY)

MEDIUM DISTANCE MIXEDWOOD -- GOOD SITE
CLASS NUMBER 11

NORMAL ROTATION AGE - 11

IMPROVED ROTATION AGE - 0

GROSS REVENUE 1

	STANDING TIMBER				REGENERATED TIMBER	
	INTENSIVE MANAGEMENT			NON-INTENSIVE	SUSTAINED YIELD	
AGE IN DECADES	ENTRY CUTS	RE-ENTRY CUTS	HARVEST CUTS	HARVEST CUTS	NORMAL CUTS	IMPROVED CUTS
1	0.0	0.0	0.0	0.0	0.0	0.0
2	0.0	0.0	0.0	0.0	0.0	0.0
3	0.0	0.0	0.0	0.0	0.0	0.0
4	0.0	0.0	0.0	0.0	0.0	0.0
5	0.0	0.0	0.0	0.0	0.0	0.0
6	0.0	0.0	0.0	0.0	0.0	0.0
7	0.0	0.0	0.0	0.0	0.0	0.0
8	0.0	0.0	0.0	0.0	0.0	0.0
9	0.0	0.0	0.0	0.0	0.0	0.0
10	0.0	0.0	0.0	0.0	0.0	0.0
11	0.0	0.0	0.0	0.0	0.0	0.0
12	0.0	0.0	0.0	0.0	0.0	0.0
13	0.0	0.0	0.0	0.0	0.0	0.0
14	0.0	0.0	0.0	0.0	0.0	0.0
15	0.0	0.0	0.0	0.0	0.0	0.0
16	0.0	0.0	0.0	0.0	0.0	0.0
17	0.0	0.0	0.0	0.0	0.0	0.0
18	0.0	0.0	0.0	0.0	0.0	0.0

**** DATA ERROR NUMBER 24 SEE TIMBER RAM USERS' MANUAL, FORESTER'S GUIDE, APPENDIX II-2

(DIAGNOSTIC MESSAGE ONLY)

MEDIUM DISTANCE MIXEDWOOD -- GOOD SITE
CLASS NUMBER 11

NORMAL ROTATION AGE - 11

IMPROVED ROTATION AGE - 0

GROSS REVENUE 2

	STANDING TIMBER				REGENERATED TIMBER	
	INTENSIVE MANAGEMENT			NON-INTENSIVE	SUSTAINED YIELD	
AGE IN DECADES	ENTRY CUTS	RE-ENTRY CUTS	HARVEST CUTS	HARVEST CUTS	NORMAL CUTS	IMPROVED CUTS
1	0.0	0.0	0.0	0.0	0.0	0.0
2	0.0	0.0	0.0	0.0	0.0	0.0
3	0.0	0.0	0.0	0.0	0.0	0.0
4	0.0	0.0	0.0	0.0	0.0	0.0
5	0.0	0.0	0.0	0.0	0.0	0.0
6	0.0	0.0	0.0	0.0	0.0	0.0
7	0.0	0.0	0.0	0.0	0.0	0.0
8	0.0	0.0	0.0	0.0	0.0	0.0
9	0.0	0.0	0.0	0.0	0.0	0.0
10	0.0	0.0	0.0	0.0	0.0	0.0
11	0.0	0.0	0.0	0.0	0.0	0.0
12	0.0	0.0	0.0	0.0	0.0	0.0
13	0.0	0.0	0.0	0.0	0.0	0.0
14	0.0	0.0	0.0	0.0	0.0	0.0
15	0.0	0.0	0.0	0.0	0.0	0.0
16	0.0	0.0	0.0	0.0	0.0	0.0
17	0.0	0.0	0.0	0.0	0.0	0.0
18	0.0	0.0	0.0	0.0	0.0	0.0

**** DATA ERROR NUMBER 24 SEE TIMBER RAM USERS' MANUAL, FORESTER'S GUIDE, APPENDIX II-2

(DIAGNOSTIC MESSAGE ONLY)

FAR DISTANCE MIXEDWOOD -- GOOD SITE
CLASS NUMBER 19

NORMAL ROTATION AGE - 11

IMPROVED ROTATION AGE - 0

GROSS REVENUE 1

	STANDING TIMBER				REGENERATED TIMBER	
	INTENSIVE MANAGEMENT			NON-INTENSIVE	SUSTAINED YIELD	
AGE IN DECADES	ENTRY CUTS	RE-ENTRY CUTS	HARVEST CUTS	HARVEST CUTS	NORMAL CUTS	IMPROVED CUTS
1	0 0	0 0	0 0	0 0	0 0	0 0
2	0 0	0 0	0 0	0 0	0 0	0 0
3	0 0	0 0	0 0	0 0	0 0	0 0
4	0 0	0 0	0 0	0 0	0 0	0 0
5	0 0	0 0	0 0	0 0	0 0	0 0
6	0 0	0 0	0 0	0 0	0 0	0 0
7	0 0	0 0	0 0	0 0	0 0	0 0
8	0 0	0 0	0 0	0 0	0 0	0 0
9	0 0	0 0	0 0	0 0	0 0	0 0
10	0 0	0 0	0 0	0 0	0 0	0 0
11	0 0	0 0	0 0	0 0	0 0	0 0
12	0 0	0 0	0 0	0 0	0 0	0 0
13	0 0	0 0	0 0	0 0	0 0	0 0
14	0 0	0 0	0 0	0 0	0 0	0 0
15	0 0	0 0	0 0	0 0	0 0	0 0
16	0 0	0 0	0 0	0 0	0 0	0 0
17	0 0	0 0	0 0	0 0	0 0	0 0
18	0 0	0 0	0 0	0 0	0 0	0 0

**** DATA ERROR NUMBER 24 SEE TIMBER RAM USERS' MANUAL, FORESTER'S GUIDE, APPENDIX II-2

(DIAGNOSTIC MESSAGE ONLY)

FAR DISTANCE MIXEDWOOD -- GOOD SITE
CLASS NUMBER 19

NORMAL ROTATION AGE - 11

IMPROVED ROTATION AGE - 0

GROSS REVENUE 2

	STANDING TIMBER				REGENERATED TIMBER	
	INTENSIVE MANAGEMENT			NON-INTENSIVE	SUSTAINED YIELD	
AGE IN DECADES	ENTRY CUTS	RE-ENTRY CUTS	HARVEST CUTS	HARVEST CUTS	NORMAL CUTS	IMPROVED CUTS
1	0.0	0.0	0.0	0.0	0.0	0.0
2	0.0	0.0	0.0	0.0	0.0	0.0
3	0.0	0.0	0.0	0.0	0.0	0.0
4	0.0	0.0	0.0	0.0	0.0	0.0
5	0.0	0.0	0.0	0.0	0.0	0.0
6	0.0	0.0	0.0	0.0	0.0	0.0
7	0.0	0.0	0.0	0.0	0.0	0.0
8	0.0	0.0	0.0	0.0	0.0	0.0
9	0.0	0.0	0.0	0.0	0.0	0.0
10	0.0	0.0	0.0	0.0	0.0	0.0
11	0.0	0.0	0.0	0.0	0.0	0.0
12	0.0	0.0	0.0	0.0	0.0	0.0
13	0.0	0.0	0.0	0.0	0.0	0.0
14	0.0	0.0	0.0	0.0	0.0	0.0
15	0.0	0.0	0.0	0.0	0.0	0.0
16	0.0	0.0	0.0	0.0	0.0	0.0
17	0.0	0.0	0.0	0.0	0.0	0.0
18	0.0	0.0	0.0	0.0	0.0	0.0

**** DATA ERROR NUMBER 24. SEE TIMBER RAM USERS' MANUAL, FORESTER'S GUIDE, APPENDIX II-2

(DIAGNOSTIC MESSAGE ONLY)

FAR DISTANCE PINE -- GOOD SITE
CLASS NUMBER 21

NORMAL ROTATION AGE - 10

IMPROVED ROTATION AGE - 0

GROSS REVENUE 1

	STANDING TIMBER				REGENERATED TIMBER	
	INTENSIVE MANAGEMENT			NON-INTENSIVE	SUSTAINED YIELD	
AGE IN DECADES	ENTRY CUTS	RE-ENTRY CUTS	HARVEST CUTS	HARVEST CUTS	NORMAL CUTS	IMPROVED CUTS
1	0.0	0.0	0.0	0.0	0.0	0.0
2	0.0	0.0	0.0	0.0	0.0	0.0
3	0.0	0.0	0.0	0.0	0.0	0.0
4	0.0	0.0	0.0	0.0	0.0	0.0
5	0.0	0.0	0.0	0.0	0.0	0.0
6	0.0	0.0	0.0	0.0	0.0	0.0
7	0.0	0.0	0.0	0.0	0.0	0.0
8	0.0	0.0	0.0	0.0	0.0	0.0
9	0.0	0.0	0.0	0.0	0.0	0.0
10	0.0	0.0	0.0	0.0	0.0	0.0
11	0.0	0.0	0.0	0.0	0.0	0.0
12	0.0	0.0	0.0	0.0	0.0	0.0
13	0.0	0.0	0.0	0.0	0.0	0.0
14	0.0	0.0	0.0	0.0	0.0	0.0
15	0.0	0.0	0.0	0.0	0.0	0.0
16	0.0	0.0	0.0	0.0	0.0	0.0
17	0.0	0.0	0.0	0.0	0.0	0.0
18	0.0	0.0	0.0	0.0	0.0	0.0

**** DATA ERROR NUMBER 24. SEE TIMBER RAM USERS' MANUAL, FORESTER'S GUIDE, APPENDIX II-2

(DIAGNOSTIC MESSAGE ONLY)

FAR DISTANCE PINE -- GOOD SITE
CLASS NUMBER 21

NORMAL ROTATION AGE - 10

IMPROVED ROTATION AGE - 0

GROSS REVENUE 2

	STANDING TIMBER				REGENERATED TIMBER	
	INTENSIVE MANAGEMENT			NON-INTENSIVE	SUSTAINED YIELD	
AGE IN DECADES	ENTRY CUTS	RE-ENTRY CUTS	HARVEST CUTS	HARVEST CUTS	NORMAL CUTS	IMPROVED CUTS
1	0.0	0.0	0.0	0.0	0.0	0.0
2	0.0	0.0	0.0	0.0	0.0	0.0
3	0.0	0.0	0.0	0.0	0.0	0.0
4	0.0	0.0	0.0	0.0	0.0	0.0
5	0.0	0.0	0.0	0.0	0.0	0.0
6	0.0	0.0	0.0	0.0	0.0	0.0
7	0.0	0.0	0.0	0.0	0.0	0.0
8	0.0	0.0	0.0	0.0	0.0	0.0
9	0.0	0.0	0.0	0.0	0.0	0.0
10	0.0	0.0	0.0	0.0	0.0	0.0
11	0.0	0.0	0.0	0.0	0.0	0.0
12	0.0	0.0	0.0	0.0	0.0	0.0
13	0.0	0.0	0.0	0.0	0.0	0.0
14	0.0	0.0	0.0	0.0	0.0	0.0
15	0.0	0.0	0.0	0.0	0.0	0.0
16	0.0	0.0	0.0	0.0	0.0	0.0
17	0.0	0.0	0.0	0.0	0.0	0.0
18	0.0	0.0	0.0	0.0	0.0	0.0

**** DATA ERROR NUMBER 24. SEE TIMBER RAM USERS' MANUAL, FORESTER'S GUIDE, APPENDIX II-2

(DIAGNOSTIC MESSAGE ONLY)

FAR DISTANCE PINE -- MED SITE
CLASS NUMBER 22

NORMAL ROTATION AGE - 12

IMPROVED ROTATION AGE - 0

GROSS REVENUE 1

	STANDING TIMBER				REGENERATED TIMBER	
	INTENSIVE MANAGEMENT			NON-INTENSIVE	SUSTAINED YIELD	
AGE IN DECADES	ENTRY CUTS	RE-ENTRY CUTS	HARVEST CUTS	HARVEST CUTS	NORMAL CUTS	IMPROVED CUTS
1	0.0	0.0	0.0	0.0	0.0	0.0
2	0.0	0.0	0.0	0.0	0.0	0.0
3	0.0	0.0	0.0	0.0	0.0	0.0
4	0.0	0.0	0.0	0.0	0.0	0.0
5	0.0	0.0	0.0	0.0	0.0	0.0
6	0.0	0.0	0.0	0.0	0.0	0.0
7	0.0	0.0	0.0	0.0	0.0	0.0
8	0.0	0.0	0.0	0.0	0.0	0.0
9	0.0	0.0	0.0	0.0	0.0	0.0
10	0.0	0.0	0.0	0.0	0.0	0.0
11	0.0	0.0	0.0	0.0	0.0	0.0
12	0.0	0.0	0.0	0.0	0.0	0.0
13	0.0	0.0	0.0	0.0	0.0	0.0
14	0.0	0.0	0.0	0.0	0.0	0.0
15	0.0	0.0	0.0	0.0	0.0	0.0
16	0.0	0.0	0.0	0.0	0.0	0.0
17	0.0	0.0	0.0	0.0	0.0	0.0
18	0.0	0.0	0.0	0.0	0.0	0.0

**** DATA ERROR NUMBER 24 SEE TIMBER RAM USERS' MANUAL, FORESTER'S GUIDE, APPENDIX II-2

(DIAGNOSTIC MESSAGE ONLY)

FAR DISTANCE PINE -- MED SITE
CLASS NUMBER 22

NORMAL ROTATION AGE - 12

IMPROVED ROTATION AGE - 0

GROSS REVENUE 2

	STANDING TIMBER				REGENERATED TIMBER	
	INTENSIVE MANAGEMENT			NON-INTENSIVE	SUSTAINED YIELD	
AGE IN DECADES	ENTRY CUTS	RE-ENTRY CUTS	HARVEST CUTS	HARVEST CUTS	NORMAL CUTS	IMPROVED CUTS
1	0.0	0.0	0.0	0.0	0.0	0.0
2	0.0	0.0	0.0	0.0	0.0	0.0
3	0.0	0.0	0.0	0.0	0.0	0.0
4	0.0	0.0	0.0	0.0	0.0	0.0
5	0.0	0.0	0.0	0.0	0.0	0.0
6	0.0	0.0	0.0	0.0	0.0	0.0
7	0.0	0.0	0.0	0.0	0.0	0.0
8	0.0	0.0	0.0	0.0	0.0	0.0
9	0.0	0.0	0.0	0.0	0.0	0.0
10	0.0	0.0	0.0	0.0	0.0	0.0
11	0.0	0.0	0.0	0.0	0.0	0.0
12	0.0	0.0	0.0	0.0	0.0	0.0
13	0.0	0.0	0.0	0.0	0.0	0.0
14	0.0	0.0	0.0	0.0	0.0	0.0
15	0.0	0.0	0.0	0.0	0.0	0.0
16	0.0	0.0	0.0	0.0	0.0	0.0
17	0.0	0.0	0.0	0.0	0.0	0.0
18	0.0	0.0	0.0	0.0	0.0	0.0

**** DATA ERROR NUMBER 24 SEE TIMBER RAM USERS' MANUAL, FORESTER'S GUIDE, APPENDIX II-2

(DIAGNOSTIC MESSAGE ONLY)

FAR DISTANCE PINE -- FAIR SITE
CLASS NUMBER 23

NORMAL ROTATION AGE - 17

IMPROVED ROTATION AGE - 0

GROSS REVENUE 1

AGE IN DECADES	STANDING TIMBER: INTENSIVE MANAGEMENT: ENTRY CUTS	STANDING TIMBER: INTENSIVE MANAGEMENT: RE-ENTRY CUTS	STANDING TIMBER: INTENSIVE MANAGEMENT: HARVEST CUTS	STANDING TIMBER: NON-INTENSIVE HARVEST CUTS	REGENERATED TIMBER: SUSTAINED YIELD: NORMAL CUTS	REGENERATED TIMBER: SUSTAINED YIELD: IMPROVED CUTS
1	0.0	0.0	0.0	0.0	0.0	0.0
2	0.0	0.0	0.0	0.0	0.0	0.0
3	0.0	0.0	0.0	0.0	0.0	0.0
4	0.0	0.0	0.0	0.0	0.0	0.0
5	0.0	0.0	0.0	0.0	0.0	0.0
6	0.0	0.0	0.0	0.0	0.0	0.0
7	0.0	0.0	0.0	0.0	0.0	0.0
8	0.0	0.0	0.0	0.0	0.0	0.0
9	0.0	0.0	0.0	0.0	0.0	0.0
10	0.0	0.0	0.0	0.0	0.0	0.0
11	0.0	0.0	0.0	0.0	0.0	0.0
12	0.0	0.0	0.0	0.0	0.0	0.0
13	0.0	0.0	0.0	0.0	0.0	0.0
14	0.0	0.0	0.0	0.0	0.0	0.0
15	0.0	0.0	0.0	0.0	0.0	0.0
16	0.0	0.0	0.0	0.0	0.0	0.0
17	0.0	0.0	0.0	0.0	0.0	0.0
18	0.0	0.0	0.0	0.0	0.0	0.0

**** DATA ERROR NUMBER 24 SEE TIMBER RAM USERS' MANUAL, FORESTER'S GUIDE, APPENDIX II-2

(DIAGNOSTIC MESSAGE ONLY)

FAR DISTANCE PINE -- FAIR SITE
CLASS NUMBER 23

NORMAL ROTATION AGE - 17

IMPROVED ROTATION AGE - 0

GROSS REVENUE 2

AGE IN DECADES	STANDING TIMBER: INTENSIVE MANAGEMENT: ENTRY CUTS	STANDING TIMBER: INTENSIVE MANAGEMENT: RE-ENTRY CUTS	STANDING TIMBER: INTENSIVE MANAGEMENT: HARVEST CUTS	STANDING TIMBER: NON-INTENSIVE HARVEST CUTS	REGENERATED TIMBER: SUSTAINED YIELD: NORMAL CUTS	REGENERATED TIMBER: SUSTAINED YIELD: IMPROVED CUTS
1	0.0	0.0	0.0	0.0	0.0	0.0
2	0.0	0.0	0.0	0.0	0.0	0.0
3	0.0	0.0	0.0	0.0	0.0	0.0
4	0.0	0.0	0.0	0.0	0.0	0.0
5	0.0	0.0	0.0	0.0	0.0	0.0
6	0.0	0.0	0.0	0.0	0.0	0.0
7	0.0	0.0	0.0	0.0	0.0	0.0
8	0.0	0.0	0.0	0.0	0.0	0.0
9	0.0	0.0	0.0	0.0	0.0	0.0
10	0.0	0.0	0.0	0.0	0.0	0.0
11	0.0	0.0	0.0	0.0	0.0	0.0
12	0.0	0.0	0.0	0.0	0.0	0.0
13	0.0	0.0	0.0	0.0	0.0	0.0
14	0.0	0.0	0.0	0.0	0.0	0.0
15	0.0	0.0	0.0	0.0	0.0	0.0
16	0.0	0.0	0.0	0.0	0.0	0.0
17	0.0	0.0	0.0	0.0	0.0	0.0
18	0.0	0.0	0.0	0.0	0.0	0.0

**** DATA ERROR NUMBER 24. SEE TIMBER RAM USERS' MANUAL, FORESTER'S GUIDE, APPENDIX II-2

(DIAGNOSTIC MESSAGE ONLY)

FAR DISTANCE UNCOMMERCIAL -- ALL SITES
CLASS NUMBER 24

NORMAL ROTATION AGE - 18

IMPROVED ROTATION AGE - 0

GROSS REVENUE 1

AGE IN DECADES	STANDING TIMBER: INTENSIVE MANAGEMENT: ENTRY CUTS	STANDING TIMBER: INTENSIVE MANAGEMENT: RE-ENTRY CUTS	STANDING TIMBER: INTENSIVE MANAGEMENT: HARVEST CUTS	STANDING TIMBER: NON-INTENSIVE HARVEST CUTS	REGENERATED TIMBER: SUSTAINED YIELD: NORMAL CUTS	REGENERATED TIMBER: SUSTAINED YIELD: IMPROVED CUTS
1	0.0	0.0	0.0	0.0	0.0	0.0
2	0.0	0.0	0.0	0.0	0.0	0.0
3	0.0	0.0	0.0	0.0	0.0	0.0
4	0.0	0.0	0.0	0.0	0.0	0.0
5	0.0	0.0	0.0	0.0	0.0	0.0
6	0.0	0.0	0.0	0.0	0.0	0.0
7	0.0	0.0	0.0	0.0	0.0	0.0
8	0.0	0.0	0.0	0.0	0.0	0.0
9	0.0	0.0	0.0	0.0	0.0	0.0
10	0.0	0.0	0.0	0.0	0.0	0.0
11	0.0	0.0	0.0	0.0	0.0	0.0
12	0.0	0.0	0.0	0.0	0.0	0.0
13	0.0	0.0	0.0	0.0	0.0	0.0
14	0.0	0.0	0.0	0.0	0.0	0.0
15	0.0	0.0	0.0	0.0	0.0	0.0
16	0.0	0.0	0.0	0.0	0.0	0.0
17	0.0	0.0	0.0	0.0	0.0	0.0
18	0.0	0.0	0.0	0.0	0.0	0.0

**** DATA ERROR NUMBER 24 SEE TIMBER RAM USERS' MANUAL, FORESTER'S GUIDE, APPENDIX II-2

(DIAGNOSTIC MESSAGE ONLY)

FAR DISTANCE UNCOMMERCIAL -- ALL SITES
CLASS NUMBER 24

NORMAL ROTATION AGE - 18

IMPROVED ROTATION AGE - 0

GROSS REVENUE 2

AGE IN DECADES	STANDING TIMBER: INTENSIVE MANAGEMENT: ENTRY CUTS	STANDING TIMBER: INTENSIVE MANAGEMENT: RE-ENTRY CUTS	STANDING TIMBER: INTENSIVE MANAGEMENT: HARVEST CUTS	STANDING TIMBER: NON-INTENSIVE HARVEST CUTS	REGENERATED TIMBER: SUSTAINED YIELD: NORMAL CUTS	REGENERATED TIMBER: SUSTAINED YIELD: IMPROVED CUTS
1	0.0	0.0	0.0	0.0	0.0	0.0
2	0.0	0.0	0.0	0.0	0.0	0.0
3	0.0	0.0	0.0	0.0	0.0	0.0
4	0.0	0.0	0.0	0.0	0.0	0.0
5	0.0	0.0	0.0	0.0	0.0	0.0
6	0.0	0.0	0.0	0.0	0.0	0.0
7	0.0	0.0	0.0	0.0	0.0	0.0
8	0.0	0.0	0.0	0.0	0.0	0.0
9	0.0	0.0	0.0	0.0	0.0	0.0
10	0.0	0.0	0.0	0.0	0.0	0.0
11	0.0	0.0	0.0	0.0	0.0	0.0
12	0.0	0.0	0.0	0.0	0.0	0.0
13	0.0	0.0	0.0	0.0	0.0	0.0
14	0.0	0.0	0.0	0.0	0.0	0.0
15	0.0	0.0	0.0	0.0	0.0	0.0
16	0.0	0.0	0.0	0.0	0.0	0.0
17	0.0	0.0	0.0	0.0	0.0	0.0
18	0.0	0.0	0.0	0.0	0.0	0.0

**** DATA ERROR NUMBER 24. SEE TIMBER RAM USERS' MANUAL, FORESTER'S GUIDE, APPENDIX II-2

(DIAGNOSTIC MESSAGE ONLY)

```
GENERATION COMPLETE
NORMAL PROGRAM END

END OF INPUT DATA
NORMAL PROGRAM END
```

Sample Usercontrol File (PACC.USER)

```
10                  -Number of periods to be constrained (I2)
000.00024.00        -Lower and Upper average cost constraint (2F6.2)
000.00024.00
000.00024.00
000.00024.00
000.00024.00
000.00024.00
000.00024.00
000.00024.00
000.00024.00
000.00024.00
```

AGE OF ECONOMIC ACCESSABILITY FOR TIMBER GROUP NB

	$30	$29	$28	$27	$26	$25	$24	$23	$22
AGE	60	60	60	70	70	90	90	130	180

6. MANAGEMENT ALTERNATIVES

CLASS NAME	MGMT CODES REG	NON GEN	VOLUME CLASS	ECONOMIC CLASS	PERIOD OF IMP SUSTAINED YIELD	TYPE OF MGMT	FIRST ENTRY	LAST ENTRY	FIRST HARVEST	LAST HARVEST	MIN NO OF CUTS	MAX NO OF CUTS
NAC	R		1	1	-1	0	1	7	1	7	1	1
NAG	R		1	1	-1	0	1	3	1	3	1	1
NB7	R		2	2	-1	0	1	12	1	12	1	1
NB8	R		2	2	-1	0	1	11	1	11	1	1
NBA	R		2	2	-1	0	1	9	1	9	1	1
ND2	R		3	3	-1	0	1	17	1	17	1	1
ND5	R		3	3	-1	0	1	14	1	14	1	1
ND6	R		3	3	-1	0	1	13	1	13	1	1
ND8	R		3	3	-1	0	1	11	1	11	1	1
NDA	R		3	3	-1	0	1	9	1	9	1	1
NE2	R		4	4	-1	0	1	17	1	17	1	1
NE8	R		4	4	-1	0	1	11	1	11	1	1
NEA	R		4	4	-1	0	1	9	1	9	1	1
NG6	R		5	5	-1	0	1	13	1	13	1	1
NG8	R		5	5	-1	0	1	11	1	11	1	1
NG9	R		5	5	-1	0	1	10	1	10	1	1
NGA	R		5	5	-1	0	1	9	1	9	1	1
NGB	R		5	5	-1	0	1	8	1	8	1	1
NGC	R		5	5	-1	0	1	7	1	7	1	1
NGD	R		5	5	-1	0	1	6	1	6	1	1
NGE	R		5	5	-1	0	1	5	1	5	1	1
NHX	R		6	6	-1	0	1	18	1	18	1	1
NH2	R		6	6	-1	0	1	17	1	17	1	1
NH3	R		6	6	-1	0	1	16	1	16	1	1
NH4	R		6	6	-1	0	1	15	1	15	1	1
NH5	R		6	6	-1	0	1	14	1	14	1	1
NH6	R		6	6	-1	0	1	13	1	13	1	1
NH7	R		6	6	-1	0	1	12	1	12	1	1
NH8	R		6	6	-1	0	1	11	1	11	1	1
NH9	R		6	6	-1	0	1	10	1	10	1	1
NHA	R		6	6	-1	0	1	9	1	9	1	1
NHB	R		6	6	-1	0	1	8	1	8	1	1
NHC	R		6	6	-1	0	1	7	1	7	1	1
NJ5	R		7	7	-1	0	1	14	1	14	1	1
NJ8	R		7	7	-1	0	1	11	1	11	1	1
NJ9	R		7	7	-1	0	1	10	1	10	1	1
NKX	R		8	8	-1	0	1	18	1	18	1	1
NK2	R		8	8	-1	0	1	17	1	17	1	1
NK3	R		8	8	-1	0	1	16	1	16	1	1
NK4	R		8	8	-1	0	1	15	1	15	1	1
NK5	R		8	8	-1	0	1	14	1	14	1	1
NK7	R		8	8	-1	0	1	12	1	12	1	1
NK8	R		8	8	-1	0	1	11	1	11	1	1
NK9	R		8	8	-1	0	1	10	1	10	1	1
NKA	R		8	8	-1	0	1	9	1	9	1	1
NKB	R		8	8	-1	0	1	8	1	8	1	1
NKC	R		8	8	-1	0	1	7	1	7	1	1
NL5	R		9	9	-1	0	1	14	1	14	1	1
NL8	R		9	9	-1	0	1	11	1	11	1	1
NL9	R		9	9	-1	0	1	10	1	10	1	1
NLA	R		9	9	-1	0	1	9	1	9	1	1
NM4	R		10	10	-1	0	1	15	1	15	1	1
NM6	R		10	10	-1	0	1	13	1	13	1	1
NM7	R		10	10	-1	0	1	12	1	12	1	1
NM8	R		10	10	-1	0	1	11	1	11	1	1

RAM Timber Class Naming Conventions

Timber RAM uses a three character name to identify timber classes. For this study, the first character was used to identify the haul distance class:

N identified the near distance class,

M identified the moderate distance class, and

F identified the far distance class.

The second character was used to identify the species - site combination:

A for white spruce - good site,

B for white spruce - medium site,

C for white spruce - fair site,

D for black spruce - good site,

E for black spruce - medium site,

F for black spruce - fair site,

G for mixedwood - good site,

H for mixedwood - medium site,

I for mixedwood - good site,

J for pine - good site,

K for pine - medium site,

L for pine - fair site, and

M for uncommercial classes.

The last character was used to identify the current age of the timber class:

X for current clearcuts,

1 for timber classes 1 decade old,

2 for timber classes 2 decades old,

3 for timber classes 3 decades old,

4 for timber classes 4 decades old,

5 for timber classes 5 decades old,

6 for timber classes 6 decades old,

7 for timber classes 7 decades old,

8 for timber classes 8 decades old,

9 for timber classes 9 decades old,

A for timber classes 10 decades old,

B for timber classes 11 decades old,

C for timber classes 12 decades old,

D for timber classes 13 decades old,

E for timber classes 14 decades old,

F for timber classes 15 decades old,

G for timber classes 16 decades old,

H for timber classes 17 decades old, and

I for timber classes 18 decades old.

This naming convention was consistent between both FMUs.