

**MacMILLAN BLOEDEL LIMITED**

**1996 ANNUAL REPORT**

**ALBERNI TREE FARM LICENCE**

**No. 44**

**INCLUDING**

**MANAGED FOREST 74**

**JUNE 1997**

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The information in this report was supplied by the staff at Franklin Division, Sproat Lake Division, Kennedy Lake/Estevan Division, Woodlands Services Division, and Timberlands and Properties Division.

P.J. Kofoed, RPF

TFL 44 Forester

**MacMillan Bloedel Limited**

**Solid Wood Group**

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## 1.0 SUMMARY

1996 was the sixth year of Management No. 2 for TFL 44. It was the second of the five-year cut control period 1995-1999.

1996 highlights are:

- The adjusted Annual Allowable Cut for the second year of the current Cut Control Period is 2 159 739 m<sup>3</sup>. The total amount of timber harvested, including residue, in 1996 was 1 762 825 m<sup>3</sup>, or 81.6% of the adjusted AAC.
- New road construction totaled 116.4 km.
- A total of 3 926 ha of Areas Awaiting Restocking (AAR) were planted using 4 065.4 k trees. Fill planting, to bring 383 ha up to Management Plan standards, required 249.0 k trees.
- Public input continued to influence the various plans being developed by MacMillan Bloedel.

## 2.0 PRODUCTION AND CUT CONTROL

Total TFL 44 production and performance in relation to the AAC are discussed in this section. Individual Working Circle statistics and activities are covered in the next section.

### 2.1 Volumes Harvested by MacMillan Bloedel

MacMillan Bloedel harvested volumes on private and Crown land within the TFL as follows:

• Private	56 685 m <sup>3</sup>	(3%)
• Timber Licenses	750 473 m <sup>3</sup>	(46%)
• Crown	836 705 m <sup>3</sup>	(51%)
• Total	1 643 863 m <sup>3</sup>	(100%)

Details of harvested volumes by division, tenure and species are found in Appendix I, Table 1.

### 2.2 Production by Harvest Profile

The Chief Forester's letter setting the TFL 44 AAC (December 31, 1993) required reporting the harvesting performance by operability harvest profiles. Based on divisional data tabulated for the 1996 calendar year and excluding residue, 1 456 827 m<sup>3</sup> was harvested from areas classified as suitable for conventional systems and 97 114 m<sup>3</sup> was logged from areas classified as suitable for non-conventional systems. The total Marginal Economical cut, included in the above figures, was 80 714 m<sup>3</sup>. Details of the Harvest Profile production are shown in Appendix I, Table 1a. These volumes are not based on the official billed volume and may differ from the data shown in Table 1 of Appendix I.

### 2.3 Volumes Harvested by SBFEP

The Small Business Forest Enterprise Program operations harvested a total of 121 802 m<sup>3</sup>, including of residue, in 1996, details are found in Appendix I, Table 2.

### 2.4 Residue

Residue is measured and reported annually for the TFL. Residue and waste applied to Cut Control is the volume billed through the Stumpage and Royalty system in the reporting year, regardless of the year scaled.

A total of 1 029 plots were established in 102 openings (2 408 ha) in 1996 to measure residue and waste for Cut Control purposes. A total of 118 962 m<sup>3</sup> was charged to the AAC in 1996.

### 2.5 AAC Cutting Balance

This is the second year in the 1995-1999 Cut Control period and the production amounted to 81.6% of the AAC.

YEAR	1995	1996	Total
MB AAC (m <sup>3</sup> )	2 138 127	2 138 127	4 276 254
Undercut Adj.	<u>21 612</u>	<u>21 612</u>	<u>43 224</u>
Adjusted MB AAC	<u>2 159 739</u>	<u>2 159 739</u>	<u>4 319 478</u>
Actual Cut (m <sup>3</sup> )			
Log Scale	1 983 963	1 643 863	3 627 826
Residue	<u>168 182</u>	<u>118 962</u>	<u>287 144</u>
Total Actual Cut (m <sup>3</sup> )	<u>2 152 145</u>	<u>1 762 825</u>	<u>3 914 970</u>
Percent of AAC	99.6%	81.6%	90.6%



## 2.6 Contractor Production

The percent compliance achieved under the contractor clause regulation was 106.2 percent.

### Summary of Contractor Production (m<sup>3</sup>)

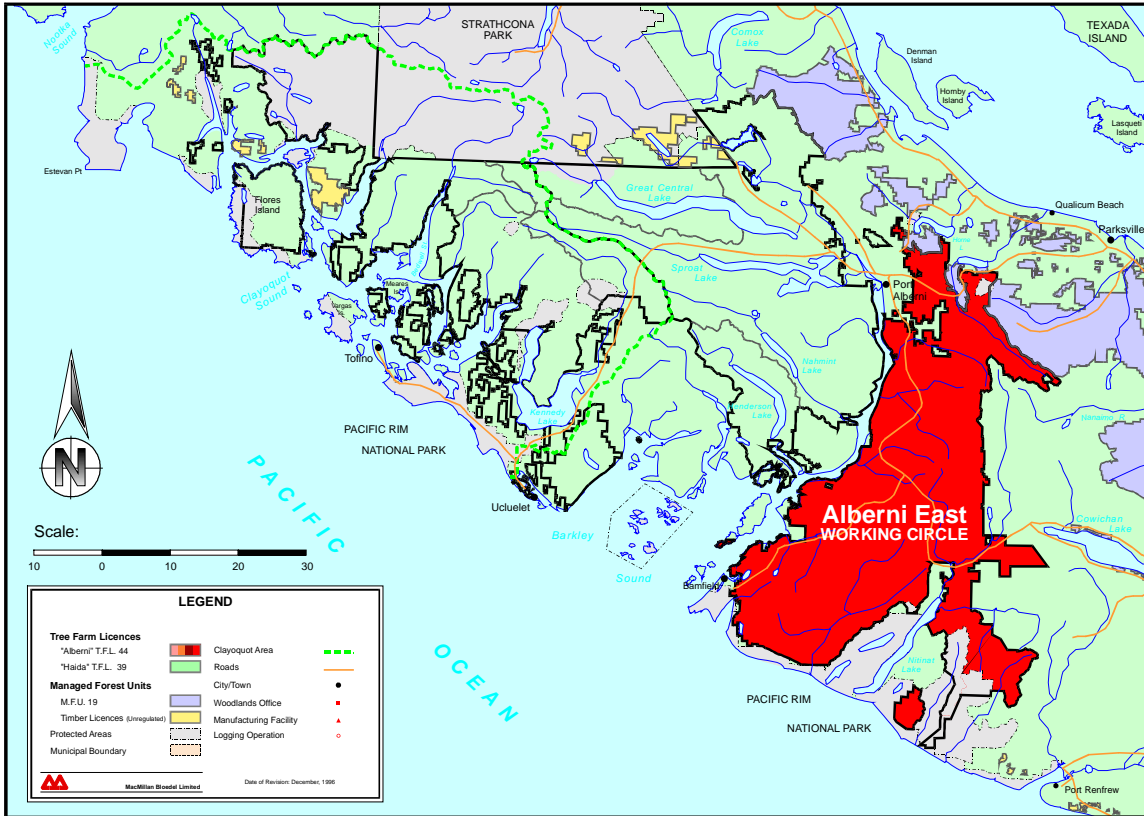
• Full		404 199	72%
• Phase			
. Roads	139 621		
. F & B			
. Yarding	2 936		
. Loading	4 936		
. Hauling	<u>10 990</u>	<u>158 483</u>	<u>28%</u>
• TOTAL		<u>562 682</u>	<u>100%</u>

## 3.0 WORKING CIRCLES

Management Plan No. 2 established four Working Circles as basic management units within TFL 44. The AAC for TFL 44 is partitioned by the Working Circle to facilitate geographic distribution of the cut. This portion of the Annual Report contains comments on the harvesting activity in each Working Circle.

# ALBERNI EAST WORKING CIRCLE

Administered by  
Franklin Woodlands



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### 3.1 Alberni East Working Circle

The Alberni East Working Circle is located east of the Alberni Canal, from the town of Port Alberni, south to the Pacific Ocean. Major drainages include: the Cameron, Franklin, Sarita, and Klanawa Rivers and China, Coleman, and Carnation Creeks. It is made up of Blocks I and II of TFL 44 and has 139 500 ha of productive hemlock, balsam and cedar forests. The current partitioned AAC is 1 168 000 m<sup>3</sup>. Franklin Division administers this Working Circle.

#### 3.1.1 Annual Harvesting

Franklin Division harvested 1 258 697 m<sup>3</sup> or 108% of the partitioned AAC in 1996. This volume includes 80 386 m<sup>3</sup> of residue (6.4% the total) charged to the cut. In addition to conventional harvesting methods, longline and/or helicopter systems were used in the Cameron, Franklin, Nitinat, Klanawa and Sarita drainages. A system of selective feathering of windthrow prone edges will be used on future openings as required throughout the division.

#### 3.1.2 Engineering Development

Mainline access was extended into the Lower Klanawa in CP #3. In the Upper Klanawa a 36 metre bridge was constructed on the Newstead Mainline. A total of 13 portable or concrete bridges over 10 metres in length were constructed at various sites in the division.

#### 3.1.3 Development Plans

Five-Year Development Plan (1996-2000), which was extended to June 15, 1997, was the basis of operation in 1996. Work commenced on the next Five-Year Development Plan (1997-2001) to be submitted for approval prior to mid-June, 1997.

#### 3.1.4 Cutting Permits

The following Cutting Permits were active in 1996:

Cutting Permit No.	Location
1	Cameron area
101	Museum Creek
2, 202	Franklin area
201, 204, 205, 206	Nitinat
3, 312	Sarita area
301, 302, 305, 307, 308, 309, 310, 314	Klanawa
304	Darling/Klanawa
4	Sarita/Spencer
402	Spencer
502, 503, 506	Black Lake

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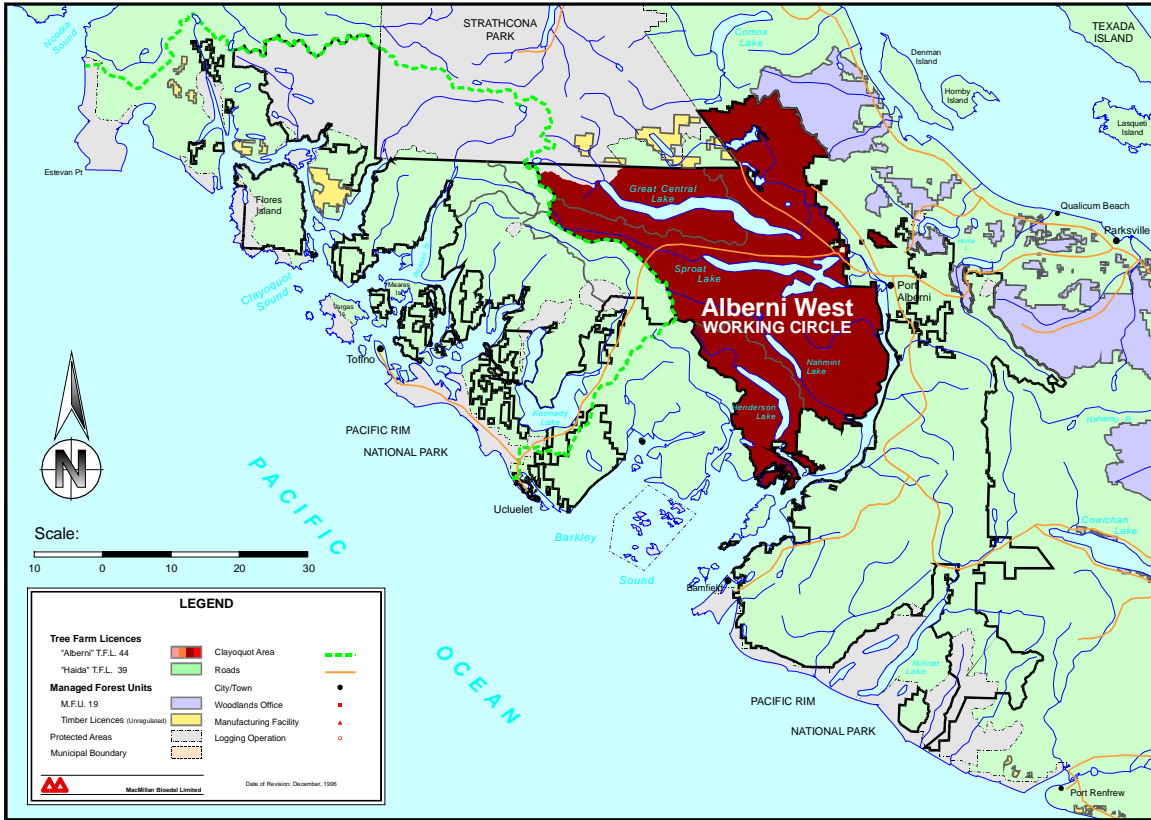
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### 3.1.5 **Scaling**

All harvested wood processed through China Creek and Sarita dryland sorts was 100% stick scaled. Insect control at the dryland sorts included pheromone bated traps and piles of low value pulp logs.

# ALBERNI WEST WORKING CIRCLE

Administered by  
Alberni West Division



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### **3.2 Alberni West Working Circle**

The Alberni West Working Circle lies west of the Alberni Canal, south of Strathcona Provincial Park, and east of the main divide between the Taylor and Kennedy Rivers. The major drainages are: the Taylor and Nahmint Rivers, and the Great Central, Sproat, and Henderson Lakes basins. It is made up of a major portion of Block III and all of Block IV of TFL 44 and contains 111 000 ha of productive hemlock, balsam, cedar and fir forests. The current partitioned AAC is 571 000 m<sup>3</sup>. During 1996 this area was administered jointly by Sproat Lake and Kennedy Lake/Estevan Divisions.

#### **3.2.1 Annual Harvesting**

Harvest during 1996 was 442 891 m<sup>3</sup>; 276 420 m<sup>3</sup> from Sproat Lake Division and 166 471 m<sup>3</sup> from Estevan Division. The two divisions cut 77.6% of the Working Circle partitioned AAC. This volume includes 35 622 m<sup>3</sup> of residue, or 8.0% of the total wood harvested. Sproat Division harvested timber with helicopter and longline systems in addition to conventional systems.

#### **3.2.2 Engineering Development**

Major road construction continued on the Nahmint mainline and Branch N700 in Cutting Permits 44/7 and 44/708. This work was done by Sproat Division. Estevan Division extended the Silver Mainline into Tunnel Creek and built a 15 metre steel bridge to gain access to Opening 0512.

#### **3.2.3 Development Plans**

The existing Five-Year Plans were extended through 1996.

### 3.2.4 Cutting Permits

The following Cutting Permits were active in 1996:

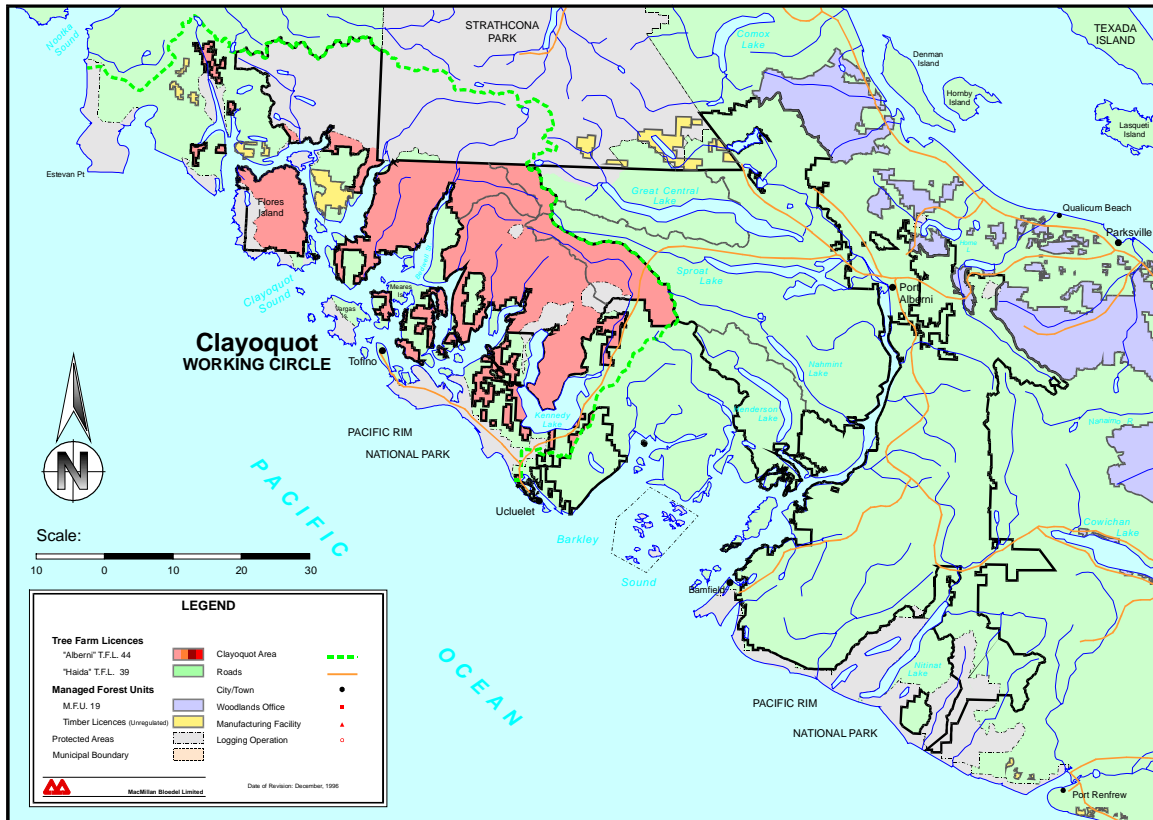
Cutting Permit No.	Division	Location
6	Sproat Lake	Branch 12
603	Sproat Lake	306E
605	Sproat Lake	Cous ML
608	Sproat Lake	Snow Creek
609	Sproat Lake	A100
613	Sproat Lake	Branch 505
614	Sproat Lake	Branch 118D
615	Sproat Lake	118G
616	Sproat Lake	Summit
699	Sproat Lake	Salvage
7	Sproat Lake	1111J
701	Sproat Lake	Riverside
702, 703	Sproat Lake	Upper Kanyon
704	Sproat Lake	Nahmint
706	Sproat Lake	K300
708	Sproat Lake	N700
709	Sproat Lake	Nah Mn
801, 804, 808	Estevan	Silverside
803, 810, 811, T0195A, T0195B	Estevan	Henderson
805	Estevan	Tunnel Creek
806	Estevan	Elbow Creek
832	Estevan	McBride Creek
834, 7027	Estevan	View
835, 836, T00701A	Estevan	Lakeside

### 3.2.5 Scaling

Logs taken to the Sproat Lake dryland sort were 100% stick scaled. In addition, some weight scaling was done at Alberni Specialties. Estevan Division 100% stick scaled their production at the Silver, Snug and Browns Bay sorting areas. The dryland sorts were protected by pheromone bated traps and/or piles of low grade logs.

# CLAYOQUOT WORKING CIRCLE

Administered by  
Clayoquot Division



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### **3.3 Clayoquot Working Circle**

The Clayoquot Working Circle is located west of the divide between the Kennedy and Taylor Rivers and extends to the Pacific Ocean to include Flores Island, but excludes the area southeast of Kennedy Lake. Major drainages include the Kennedy and Cypre Rivers, and Tofino and Tranquil Creeks. It is made up of a portion of Block III, the majority of Block V, and all of Blocks VI, VII and VIII of the TFL and contains 77 000 ha (excluding Meares Island) of productive cedar, hemlock and balsam forests. The current partitioned AAC is 405 000 m<sup>3</sup>. During 1996 Kennedy Lake/Estevan Division administered the Working Circle in two operating areas from offices located in Ucluelet and Port Alberni.

#### **3.3.1 Annual Harvesting**

The volume harvested in the Clayoquot Working Circle was 52 618 m<sup>3</sup> or 13.0% of the partitioned AAC in 1996. The Division was unable to meet the partitioned AAC target due to the extended delays in approving harvesting plans. This volume includes 2 972 m<sup>3</sup> of residue, or 5.6% of the total cut. Kennedy Lake Division used a variety of harvesting systems. In addition to conventional systems, helicopter logging was used in the Tranquil/Bulson Creek and Sand River areas. Some longline harvesting was also done in the Tranquil Creek drainage. Variable Retention harvesting is being practiced in Kennedy Lake Division. Division staff continue to review the Wyssen Cable System for possible future use

#### **3.3.2 Engineering Development**

Mainline road maintenance continued in the Kennedy Lake Operation. No additional mainlines were built.

#### **3.3.3 Development Plans**

Following the Clayoquot Sound Land Use Decision in 1993, an Interim Development Plan was prepared in June 1994, and a draft Five-Year Development Plan was submitted in April, 1995. These plans were not formally approved and cut blocks continue to be approved on a block by block basis.

The implementation of Clayoquot Sound Scientific Panel Report (SPR) requires watershed level FDPs. Some logging operations were delayed by the length of the approval process.

Five-Year Development Plans for Tranquil Creek, Bulson Creek, Warm Bay and the Kennedy Lake Basin were submitted in 1996. Public hearings were held in Ucluelet and Tofino.

### 3.3.4 Cutting Permits

The following Cutting Permits were active during 1996:

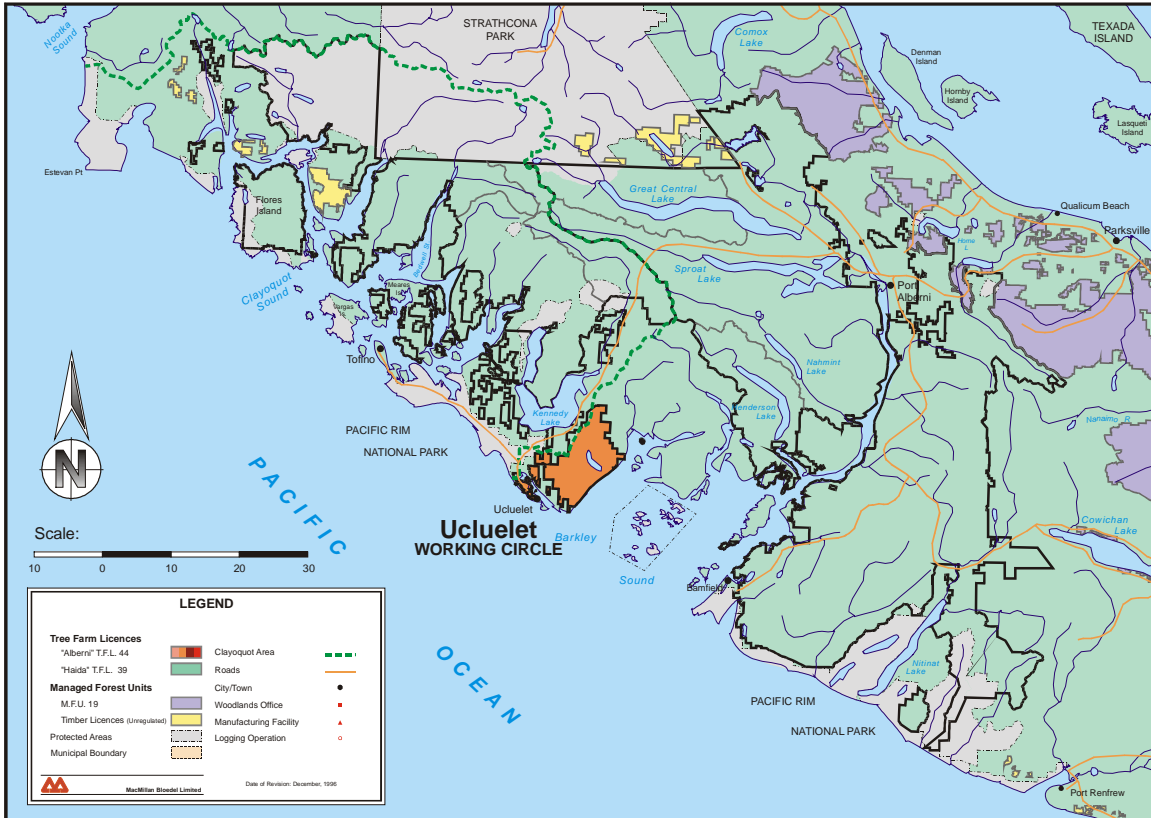
<b>Cutting Permit No.</b>	<b>Division</b>	<b>Location</b>
12	Kennedy	Tranquil/Bulson Creeks
850	Kennedy	Sand River
851	Kennedy	Bulson Creek
853	Kennedy	Tranquil Creek
861	Kennedy	Salvage

### 3.3.5 Scaling

All scaling was done by 100% stick scale on all logs brought to the Ucluelet Dryland Sort. Ambrosia beetles were controlled by the use of pheromone baited traps.

# UCLUELET WORKING CIRCLE

Administered by  
Clayoquot Division



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### 3.4 Ucluelet Working Circle

The Ucluelet Working Circle is located northeast of the community of Ucluelet, lying between the Kennedy Lake and Barkley Sound. This is a portion of TFL 44 Block V and contains 10 000 ha of productive cedar and hemlock forests. The current partitioned AAC is 34 000 m<sup>3</sup>. The area was administered in 1996 by the Kennedy Operation of Kennedy Lake/Estevan Division.

#### 3.4.1 Annual Harvesting

Kennedy Lake Operation harvested 8 619 m<sup>3</sup> or 25.4% of the partitioned AAC from the Barkley Sound area. Again, as in the Clayoquot Working Circle, there were extended delays in approving the logging plans. Therefore, the Division did not meet the harvesting target of 34 000 m<sup>3</sup>. No residue was billed in 1996. All material was harvested by conventional methods.

#### 3.4.2 Engineering Development

No new development occurred in this Working Circle in 1996.

#### 3.4.3 Development Plans

The Five-Year Development Plan for the Ucluelet Working Circle was approved in 1996 after public hearings in Ucluelet and Tofino.

#### 3.4.4 Cutting Permits

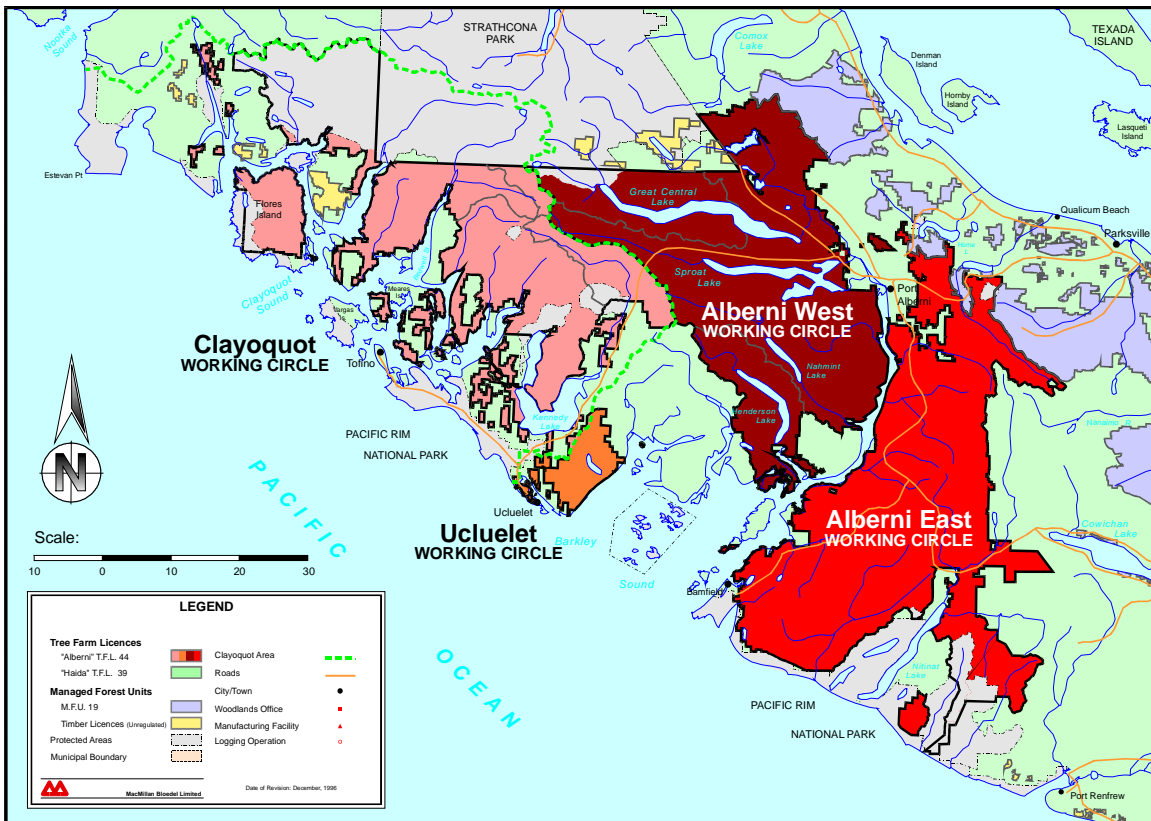
Three Cutting Permits were active in the Ucluelet Working Circle in 1996, namely:

Cutting Permit No.	Division	Location
10	Kennedy	Ucluelet/Kennedy Lake
855	Kennedy	Barkley Main
861	Kennedy	Salvage

#### 3.4.4 Scaling

Logs were 100% scaled at the Ucluelet dryland sort. Pheromone baited traps were used to control the Ambrosia beetles.

# INVENTORY, FOREST PROTECTION, SILVICULTURAL AND ADMINISTRATIVE ACTIVITIES MAP



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## **4.0 1996 GENERAL ACTIVITIES**

The following sections describe the inventory, forest protection, silviculture and administrative activities completed during 1996.

### **4.1 Inventory Activities**

Inventory Section, of Woodland Services, is responsible for obtaining data and maintaining records pertaining to timber inventory.

#### **4.1.1 Operational Cruising**

A total of 2 056 ha of Operational Cruising were completed in 1996 to supply timber volume and grade information for 47 Cutting Permit Applications.

#### **4.1.2 Second-Growth Inventory**

In order to maintain an accurate inventory of immature stands, MacMillan Bloedel has established a program of Second-Growth Inventory. Young stands are cruised as they become stabilized, usually at about age 31. A total of 378 ha were sampled during the past year in Franklin and Sproat Divisions.

#### **4.1.3 Residue Sampling**

Residue was measured on harvested land by outside contractors, to the standards set by the BC Forest Service. Inventory Section performs audits on the contractors at the request of the Division.

#### **4.1.4 Inventory Maintenance**

The annual updating of the forest cover and volume data is required to maintain current information for management and harvesting decisions. Updated information includes harvesting, reforestation, silvicultural treatment, road construction and land acquisition or disposal activities. The Inventory Revisions to December, 1994 and December, 1995 were completed in 1996.

## **4.2 Forest Protection**

Forest Protection includes a wide range of activities to eliminate or minimize the effects of fire, disease and insects.

### **4.2.1 Forest Fires**

A total of three small fires burned a total of four hectares in immature timber and one hectare in mature timber (see Appendix I, Table 4). An escaped slash fire occurred in Franklin Division and the public caused two fires in Sproat Lake Division.

#### 4.2.2 Fire Control Planning/Protection

Prior to the fire season, each division prepared a pre-organization plan outlining the procedures and responsibilities for all phases of the divisional fire prevention and protection effort. Contact was maintained with operators in adjacent areas and with Small Business Forest Enterprise Program operators within the TFL to ensure coordination of prevention and suppression activities.

Roads providing fire protection access to inactive portions of the TFL were inspected prior to the onset of the fire season to ensure their usability.

#### 4.2.3 Slash Disposal

Franklin Division reduced slash on four ha of harvested Crown land by broadcast burning. Burning of roadside accumulations on grapple yarder operations dropped to 74 ha from the 153 ha burned in 1995. These areas were mostly treated with mechanical piling or windrowing followed, in most cases, by burning (see Appendix I, Table 5).

#### 4.2.4 Fuel Management Plans

Approved Fuel Management Plans are in place for all divisions and are reviewed periodically to ensure their validity.

#### 4.2.5 Fire Patrols

Aerial fire watch patrols were carried out by Forest Industries Flying Tankers (FIFT) within two hours after each shift whenever moderate fire hazard extended for more than three days. During the past year, a total of 68 fire watch patrols were flown. In addition, 23 patrol missions were flown during periods of high fire hazard.

Additional ground fire patrols were performed during periods of extreme fire hazard.

#### 4.2.6 Fire Suppression Equipment

Suppression equipment to meet or exceed required levels was maintained at all divisions, including foam application equipment.

#### 4.2.7 Weather Stations

- **Franklin:** Six weather stations were maintained by Franklin Division during 1996. The stations were located in the following areas: Br 440, Granite Creek, Newstead 411, Walbran 10, North Fork, and Thistle Mine Road.
- **Kennedy/Estevan:** The Henderson Creek weather station is maintained by Estevan Division. Stations at Cypre River and View Lake are maintained by the BCFS. Kennedy Lake Division was responsible for stations on Northridge Road and Tranquil Creek.

- **Sproat Lake:** A weather station maintained by Ministry of Forests was located in the Cous River area.

#### 4.2.8 Insects

Infestations of balsam woolly aphid were identified in the Labour Day Lake/Museum Creek areas of Franklin Division and the Upper Ash Valley area in Sproat Lake Division.

#### 4.2.9 Disease

Some outbreaks of root rot have been identified in the Bainbridge area of the TFL.

### 4.3 Forest Regeneration

The initial regeneration of harvested forests includes preparation of the growing site, production of seedlings, planting and measuring the results or regeneration activities.

#### 4.3.1 Site Preparation

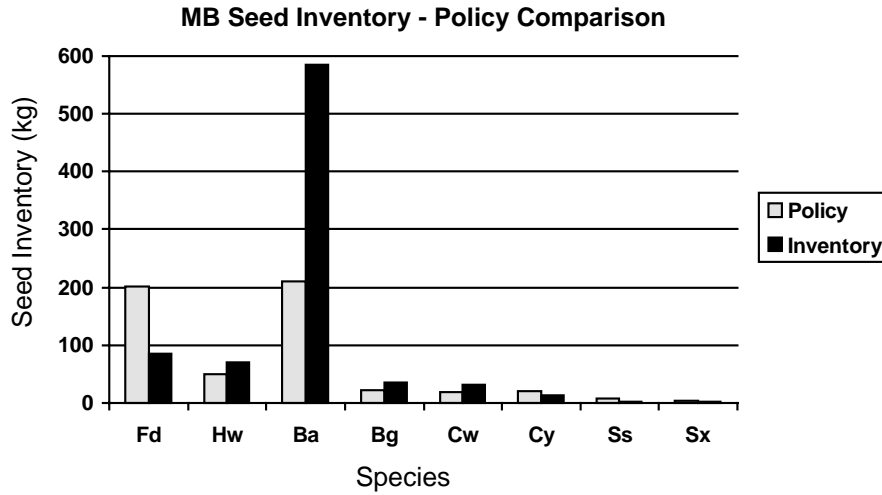
In addition to the areas treated by burning, a total of 180 ha were treated by mechanical scarification using excavators. Three metre sapling knock-down projects were completed on two ha in Sproat Lake Division using chain saws. Table 5 in Appendix I contains the details.

#### 4.3.2 Artificial Reforestation

- **Seed Procurement:** Cone collections from seed orchards produced 1.1 hl (0.8 kg seeds, 193 k seedlings) of western hemlock and 11.5 hl (9.3 kg seeds, 2 742 k seedlings) of cedar. Wild seed collections gathered 21.9 hl (31.7 kg seeds, 923 k seedlings) of yellow cedar.
- **MB Seed Inventory:** The total seed inventory is in excess of 900 kg, details of species distribution are found in Appendix II, Table 2.



The following graph details the seed inventory compared to policy requirements.



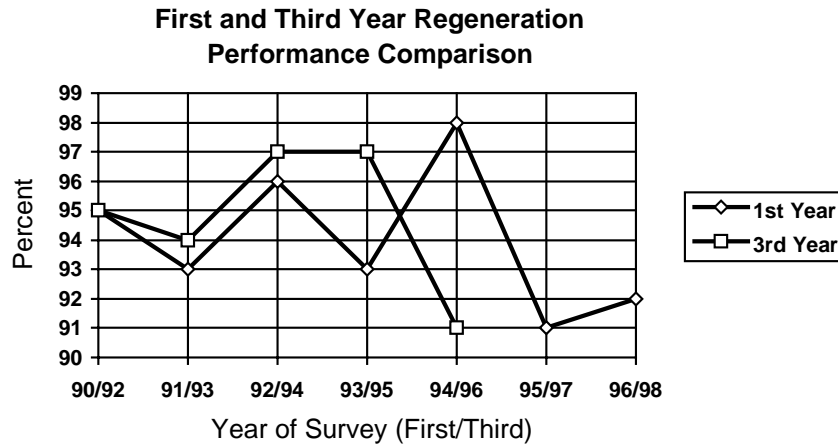
The seed inventory exceeds policy requirements for all major species except Douglas-fir and yellow cedar. The shortage in Douglas-fir was planned, but the shortfall of yellow cedar is due to the lack of available seed.

- Planting Stock:** The seedling inventory held by MacMillan Bloedel at the end of 1996 was 8 243 k. Sowing requests for the fall of 1996 and the spring of 1997 totaled 9 129 k.
- Planting:** Planting was completed on 3 926 ha of AAR using 4 070.7 k seedlings. Fill planting was done on 383 ha using 249.0 k trees to bring the stocking level on those areas to Management Plan standards. Appendix I, Table 6 shows details of planting done by Division, tenure and species.

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**4.3.3 Survival**

Survival surveys, completed one year after planting, on 2 848 ha showed a survival rate of 92%. No Division had less than a 85% survival rate. Three years after planting, the survival rate remained at a high level, 91%, on the 2 125 ha surveyed in 1996. See Appendix I, Table 7 for details.



Third year plantation regeneration performance exceeded first year plantation regeneration performance in the years 1992 through 1995. A number of factors contributed to the drop in performance in 1996, namely: extreme weather conditions causing desiccation, stressed planting stock, poor planting quality, elk browsing, road deactivation and inadequate site preparation. The third year data does not include plantations that failed the first year.

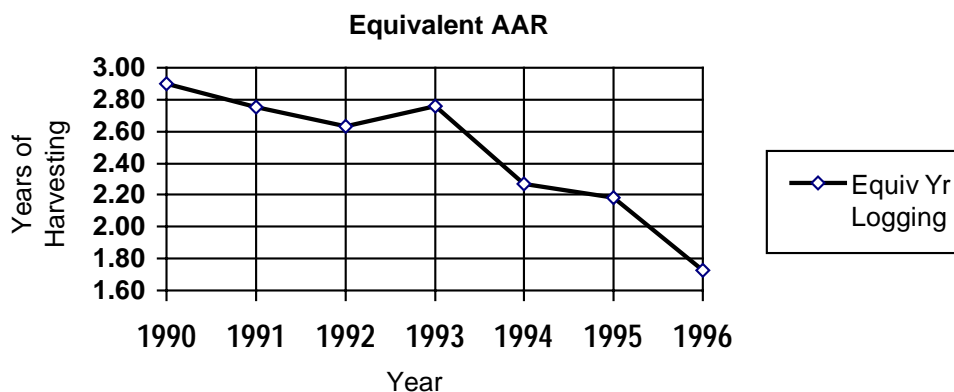
**4.3.4 Natural Regeneration**

Stocking surveys were conducted on a total of 2 672 ha in 1996 and 6% were found to be stocked. After three years the naturally regenerated areas were 82% stocked, based on a survey of 2 334 ha. See Appendix I, Table 7 for details.

**4.3.5 Areas Awaiting Restocking (AAR) Status**

The inventory of Areas Awaiting Restocking in TFL 44 at the end of 1996 was 4 668 ha, a drop of 1 368 ha from the 1995 inventory (refer to Appendix I, Table 8).

The graph shows the trend of AAR expressed in terms of logging history.



When AAR is compared to the average area harvested over the last ten years, the 1996 area represents 1.73 years of logging. The downward trend in the ratio of unstocked area to logged area continues, with the exception of 1993. Over the past seven years the level of AAR has consistently been below the three year benchmark.

#### 4.3.6 Free Growing Status

Free growing surveys were conducted on 2 526 ha. One complete opening of 41 ha, created after October 1, 1987, was declared Free Growing by MB in Sproat Lake Division.

#### 4.4 Stand Tending

Silvicultural activities continue after the reforestation. Several projects were completed in 1996.

##### 4.4.1 Brushing and Weeding

Brushing and weeding projects were completed by all Divisions within the TFL. A total of 905 ha were treated using E-Z-Ject Lance, hack and squirt, or mechanical girdling methods.

##### 4.4.2 Juvenile Spacing

Estevan Division completed 56 ha of juvenile spacing using chain saws.

##### 4.4.3 Fertilizing

All divisions applied fertilizer during planting operations. Kennedy Division completed 109 ha of aerial fertilization during the year.

#### **4.4.4 Pruning**

No pruning was done in 1996.

#### **4.4.5 Erosion Control**

A total of 287 ha were dry or hydroseeded during 1996. Franklin and Sproat Lake Divisions treated both roadside and slide areas. Details are found in Table 10 of Appendix I.

#### **4.5 Assessments**

The results of various types of silvicultural assessments are used for planning future activities, monitoring the success of treatments, and to maintain up-to-date forest management records. Appendix I, Table 11 details the 17 472 ha surveyed for various assessments in 1996.

#### **4.6 Public Involvement**

Public interest in resource management planning has increased the need for review of development and management plans by the general public. In addition, MacMillan Bloedel's Forestry Information Centre in Port Alberni provides an opportunity for the general public to learn more about the total forest environment.

##### **4.6.1 Development Plans**

Divisional Development Plans were reviewed by the public at open houses held in Port Alberni, Ucluelet, Tofino, Bamfield and Victoria.

##### **4.6.2 Management Plan Process**

Management Plan #2 was extended to include 1997. Preparation for MP #3 during 1996 included submission of a draft timber supply analysis information package and work on the 20-year plan.

##### **4.6.3 Alberni Valley Forestry Information Centre**

The Alberni Forest Information Centre, located in Port Alberni hosted over 25 400 visitors during 1996. School presentations/tours involved 2 434 students in 94 program activities. Public forestry tours and special tours were made available to an additional 659 visitors in 80 groups. During July and August mill tours for Alberni Specialties and Somass were booked through the Information Centre.

The Alberni Forest Information Centre participated in National Forest Week with tours, a Tree Growing Contest for Grade Five students and a display at the Alberni Mall. As well, the Information Centre had a display booth at the Alberni District Fall Fair, earning second place in the Government and Industry Category.

#### **4.6.4 Public Information**

A new Recreation and Logging Road Guide was produced late in the year, utilizing state-of-the-art digital cartographic technology. The guide is made available to the general public at various locations in Port Alberni and Nanaimo.

#### **4.7 Operational Research**

Operational research is carried out in several of MacMillan Bloedel's divisions and managed forest units. Results can be applicable to TFL 44 when species, site index, terrain and biological conditions are considered.

##### **4.7.1 Forest Renewal**

Work continued on revamping the Plantation Assessment Database Program in order to better utilize data. This program, initiated in 1988, is designed to provide reliable data on seedling survival and performance in stands 10 years and younger and now contains 31 000 seedling entries. Data is derived from plantation plots established specifically for this program as well as data from research installations such as MASS. The work done in 1996 concentrated on documenting response to fertilization at the time of planting and forecasting the time to reach a Free Growing status.

Forest Renewal research in the Montane Alternative Silvicultural Systems (MASS) project focuses on performance of Douglas-fir, hemlock and western red cedar in various silvicultural systems in higher elevations forests. Activities/results during 1996 included:

- A seedling experiment with two species (amabilis fir and western hemlock) and four treatments (fertilization, vegetation control, both and none) was established during the year in all five silvicultural settings (clearcutting, green-tree retention, shelterwood and patch cutting).
- The number of microclimate stations was increased to provide two stations in each silvicultural setting.
- Preliminary results in the species comparison trial indicate the single most significant growth factor during the first three years is nitrogen availability. This effect has persisted, but diminished through the three growing seasons. The reduction in growth response to fertilization is most apparent in the western hemlock in the open-grown clear-cut settings.
- Seedling growth has not been significantly different on the various silvicultural system settings, except the exceptionally slow growth in the old-growth control area. This is consistent with the collected microclimate evidence which indicated more similarity in temperature and light regimes than was expected.

##### **4.7.2 Ecology**

Ten year measurements were completed in 1995 for the project studying the effects of prescribed burning on some coastal BC sites. Preliminary results indicate the highest intensity burns produced the best growth of Douglas-fir, western red cedar and yellow-cedar. However, these fires consumed significant amounts of nitrogen and other nutrients

that may affect long-term productivity. Partial data analysis of the 10-year results was completed in 1996 and the final reports will be published in the near future.

Ecology research continued on the Montane Alternative Silvicultural Systems (MASS) project. Windthrow is present in all of the cut blocks, but varied between treatments. After three years, green tree retention has lost an average of 6.2 sph; patch cut, 4.3 sph; shelterwood, 11 sph and clear-cut, 5.8 sph due to windthrow. Most of this windthrow occurred during the first year after cutting and was negligible during the third year, in spite of the severe windstorm of October 1996. The total windthrow in the green tree retention blocks is now 34% and 10% in the shelterwood settings. The shelterwood blocks continue to have the greatest cover of advanced regeneration, shrubs and mosses. After three years of collecting, the seed fall was the greatest in the first year. However this year, for the first time, the highest seed fall occurred in the shelterwood areas, not the old-growth control areas. Hemlock seeds continue to be the most abundant in all treatment areas. The greatest proportion of heavy seeded species (amabilis fir and yellow-cedar) were found in the old growth and partially cut areas.

A study to examine microclimate variation along old-growth clear-cut edges was initiated in 1996 in the Corrigan and Nahmint areas of TFL 44. Air and soil temperature were measured at specified distances on either side of the cut boundary. The results quantified the moderating effect of the forest canopy on maximum and minimum temperatures.

MB has participated in a multi-agency cooperative Salal-Cedar-Hemlock Integrated Research Program (SCHIRP) since 1986. A field guide to site identification and treatment was published in 1996. In March, 1996 a replicate trial was established near Ucluelet to test optimum combinations of species, fertilization, mechanical site preparation and planting density. The new trial will expand the usefulness of the SCHIRP results to a wider range of sites.

A study to test the use of Brush Blankets® on yellow-cedar growth was established at Menzies Bay Division in 1996. Brush Blankets® were installed on one-year old yellow-cedar seedlings. After one year, the blanketed seedlings showed no significant height growth differences over the control seedlings, but had notable gains in basal diameter and volume. Similar results could be expected in TFL 44.

#### **4.7.3 Growth and Yield**

Re-measurement of permanent second-growth sample plots continued in 1996. A total of 161 plots were measured. The re-measurement program for the mature plots has been completed.

#### **4.8 Integrated Resource Management**

MacMillan Bloedel is actively engaged in managing other resources within the TFL besides the timber. Management of all resources in the TFL requires the maintenance of information on a number of non-timber values. These are updated on a regular basis and major updates occur in preparation for a new Management Plan. Major updates to the following inventories were continued in 1996, including: visual landscape, recreation, terrain stability, community watersheds, snow avalanche, fisheries and wildlife. Ecological classification projects for significant portions of TFL 44 were begun.

#### **4.8.1 Recreation**

Franklin Division maintains a total of 20 campsites located in campgrounds on Sarita, Nitinat and Flora Lakes.

Within the boundaries of Sproat Lake Division, the MacTush Log Dump campsite is operated by MacMillan Bloedel's Timberlands and Properties Division.

#### **4.8.2 Wildlife**

Wildlife management focused on assessment and protection of important habitat. Activities included marbled murrelet habitat surveys, and 40 habitat assessments on MB lands.

#### **4.8.3 Fisheries**

MacMillan Bloedel continued to advise the World Fisheries Trust on the establishment of the International Fisheries Gene Bank. This program freezes and stores sperm for future use and research and will contribute to the preservation of fish biodiversity and the re-establishment of stocks that are at risk.

Assistance has also been given to a number of First Nations in their hatchery, river assessment and restoration projects within the TFL.

#### **4.8.4 Water**

Work continued on an ongoing MASS project to identify snow hydrology characteristics in relation to alternative silvicultural systems performance within the elevational rain-on-snow prone montane regions of coastal B.C.

Watershed assessments and rate-of-cut studies were conducted in Franklin Division.

#### **4.8.5 Soils**

Terrain mapping in Franklin Division was carried out on seven community watersheds covering 14 000 hectares. Three small community watersheds (1 700 ha) were mapped in Kennedy Lake Division.

A 2-year landslide prediction study was initiated as a collaborative effort with the BC Ministry of Forests. The study will characterize terrain in the Coast Mountains of BC, and develop predictive classification systems/criteria suitable for identifying vulnerable sites prior to logging and road building.

#### **4.8.6 Biological Diversity**

The biodiversity model developed by UBC's Institute for Applied Conservation Biology was incorporated into the GIS system in 1995. Calibration of the model for coastal conditions using PSP data continued in 1996. The sensitivity analysis indicates the model is relatively robust to changes in movement assumptions. Fragmentation estimates are influenced more by distribution of habitat (pattern) than by movement assumptions.

#### **4.9 Administration**

The administration activities necessary to operate a TFL in 1996 are discussed in the following sections.

##### **4.9.1 Amendments**

There were no amendments made to the TFL 44 Agreement in 1996.

##### **4.9.2 Property Additions/Deletions**

There were no property additions or deletions in 1996.

##### **4.9.3 Managed Forest 74**

Managed Forest 74, which comprises the privately owned lands in Schedule "A" of TFL 44, is managed to the standards adopted for all of TFL 44. There is no cut control requirement on MF 74.

##### **4.9.4 Annual Allowable Cut**

The MacMillan Bloedel Annual Allowable Cut is currently 2 138 127 m<sup>3</sup>. A 222 000 m<sup>3</sup> reduction was made by the Chief Forester during 1994 in response to the 1993 Clayoquot decision on protected areas and timber harvesting constraints within specific Management Area.

##### **4.9.5 Management Plan #2 Extension**

An extension of Management Plan #2 to 1997 was granted by the Chief Forester in 1996.

##### **4.9.6 TFL Annual Report**

The Annual Report for the activities within TFL 44 in 1995 was submitted in December, 1996. The late submission was due to the unavailability of reconciled volume data for Cut Control.



**4.9.7 Audits**

Audits allow MacMillan Bloedel to evaluate performance compared to standards in a number of land use and forestry disciplines. These audits are conducted by qualified personnel and the results are discussed with appropriate divisional staff.

APPENDIX I - Table 1

**TFL 44 Volume Harvested in 1996**  
 Based on Cut Control Letter Issued by MoF Port Alberni Forest District  
 Volumes (m<sup>3</sup>)

Working Circle	Division	Tenure	ha	Fir	Pines	Cedar	Cypress	Spruce	Hemlock	Balsam	Decid	Total Billed	Residue	Total Cut Control	
Alberni East	Franklin	Private	2	4,247	666	1,062	5	1	2,496	167		8,644	1,535	10,179	
		TL	627	61,488	1,427	196,733	3,432	1,812	252,394	135,447	40	652,773	42,588	695,361	
		Crown	478	13,197	2,419	200,832	10,948	597	190,028	98,866	25	516,912	36,245	553,157	
		<b>Total</b>	<b>1,107</b>	<b>78,932</b>	<b>4,512</b>	<b>398,627</b>	<b>14,385</b>	<b>2,410</b>	<b>444,918</b>	<b>234,480</b>	<b>65</b>	<b>1,178,329</b>	<b>80,368</b>	<b>1,258,697</b>	
Alberni West	Kennedy /Estevan	Private	1	2,773	104	66	2		588	15		3,548	27	3,575	
		TL	22	3,467	56	694	3,579	22	10,454	1,823		20,095	1,216	21,311	
		Crown	186	6,407	1,684	22,863	19,958	15	51,192	26,802	12	128,933	12,652	141,585	
		<b>Total</b>	<b>209</b>	<b>12,647</b>	<b>1,844</b>	<b>23,623</b>	<b>23,539</b>	<b>37</b>	<b>62,234</b>	<b>28,640</b>	<b>12</b>	<b>152,576</b>	<b>13,895</b>	<b>166,471</b>	
	Sproat Lake	Private	72	8,401	147	1,408	4,234			19,897	9,819	13	43,919	567	44,486
		TL	62	32,339	292	10,729	168		87	24,383	6,029	86	74,113	8,408	82,521
		Crown	139	29,403	414	17,528	4,655	1	46,365	38,264	31	136,661	12,752	149,413	
		<b>Total</b>	<b>273</b>	<b>70,143</b>	<b>853</b>	<b>29,665</b>	<b>9,057</b>	<b>88</b>	<b>90,645</b>	<b>54,112</b>	<b>130</b>	<b>254,693</b>	<b>21,727</b>	<b>276,420</b>	
	Total	Private	73	11,174	251	1,474	4,236			20,485	9,834	13	47,467	594	48,061
		TL	84	35,806	348	11,423	3,747		109	34,837	7,852	86	94,208	9,624	103,832
		Crown	325	35,810	2,098	40,391	24,613	16	97,557	65,066	43	265,594	25,404	290,998	
		<b>Total</b>	<b>482</b>	<b>82,790</b>	<b>2,697</b>	<b>53,288</b>	<b>32,596</b>	<b>125</b>	<b>152,879</b>	<b>82,752</b>	<b>142</b>	<b>407,269</b>	<b>35,622</b>	<b>442,891</b>	
Clayoquot	Kennedy /Estevan	Private													
		TL	4	16	5	2,039				859	573		3,492	190	3,682
		Crown	67	168	14	19,569	3,286	2	12,344	10,769	2	46,154	2,782	48,936	
<b>Total</b>	<b>71</b>	<b>184</b>	<b>19</b>	<b>21,608</b>	<b>3,286</b>	<b>2</b>	<b>13,203</b>	<b>11,342</b>	<b>2</b>	<b>49,646</b>	<b>2,972</b>	<b>52,618</b>			
Ucluelet	Kennedy /Estevan	Private			35	344		15	179	1		574		574	
		TL													
		Crown	12	2	291	6,420	52	16	1,131	133		8,045		8,045	
<b>Total</b>	<b>12</b>	<b>2</b>	<b>326</b>	<b>6,764</b>	<b>52</b>	<b>31</b>	<b>1,310</b>	<b>134</b>		<b>8,619</b>		<b>8,619</b>			
Total	Private	75	15,421	952	2,880	4,241	16	23,160	10,002	13	56,685	2,129	58,814		
	TL	715	97,310	1,780	210,195	7,179	1,921	288,090	143,872	126	750,473	52,402	802,875		
	Crown	882	49,177	4,822	267,212	38,899	631	301,060	174,834	70	836,705	64,431	901,136		
	<b>Total</b>	<b>1,672</b>	<b>161,908</b>	<b>7,554</b>	<b>480,287</b>	<b>50,319</b>	<b>2,568</b>	<b>612,310</b>	<b>328,708</b>	<b>209</b>	<b>1,643,863</b>	<b>118,962</b>	<b>1,762,825</b>		

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APPENDIX 1 - Table 1a

**TFL 44 Production by Harvesting Profile and System in 1996**

As Reported by the Woodlands Divisions (1)

Excludes Residue

Harvesting System	Harvesting Profile												Grand Total	
	Conventional				Non-conventional				Total					
	Economical		Marg. Economical		Economical		Marg. Economical		Economical		Marg. Economical		Volume	ha
Volume	ha	Volume	ha	Volume	ha	Volume	ha	Volume	ha	Volume	ha	Volume	ha	
Clear cut	1,256,735	1,293	52,615	85	62,990	61	17,556	19	1,319,725	1,354	70,171	104	1,389,896	1,458
Clear Cut with reserves	110,351	144	7,756	15	13,781	14	2,787	3	124,132	158	10,543	18	134,675	176
Variable Retension	28,470	34							28,470	34			28,470	34
Patch cut														
Patch cut with reserves														
Seed Tree														
Seed Tree with reserves														
Shelterwood														
Shelterwood with reserves														
Selection	900	5							900	5			900	5
Selection with reserves														
<b>Total</b>	<b>1,396,456</b>	<b>1,476</b>	<b>60,371</b>	<b>100</b>	<b>76,771</b>	<b>75</b>	<b>20,343</b>	<b>22</b>	<b>1,473,227</b>	<b>1,551</b>	<b>80,714</b>	<b>122</b>	<b>1,553,941</b>	<b>1,673</b>

(1) Volume data (m<sup>3</sup>) based on Divisional records and may not agree with the official BCFS billed volumes.

APPENDIX I - Table 2

**TFL 44 SBFEP Timber Harvested - 1996**  
Based on Billing from Vancouver Forest Region  
Volume (m<sup>3</sup>)

<b>BCFS District</b>	<b>Timber Sale</b>	<b>Billed Volume</b>
Port Alberni	A33539	121,802
	A35017	-
<b>Total</b>		<b>121,802</b>

Volume includes Residue.

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APPENDIX I - Table 3

**TFL 44 Road Construction Report - 1996**

Division	New Construction (km)			Debuilt Road (1) (km)
	Mainline, Branch	Spur	Other	
Franklin		69.1		18.7
Estevan	1.9	18.2		1.3
Kennedy		4.6		18.9
Sproat	3.6	19.0		19.5
<b>Total</b>	<b>5.5</b>	<b>110.9</b>		<b>58.4</b>

(1) Debuilt roads are defined as those in which the road structure has been rehabilitated as close to the original land profile as is feasible and, where practicable, restored to forest growing production.

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APPENDIX I - Table 4

TFL 44 Fire Report - 1996

Number and Causes of Fires										
Division	Lightning		Escape Slash		Operational		Public		Total	
	No.	Ha	No.	Ha	No.	Ha	No.	Ha	No.	Ha
Franklin			1	1					1	1
Estevan									nil	
Kennedy									nil	
Sproat							2	4	2	4
<b>Total</b>			<b>1</b>	<b>1</b>			<b>2</b>	<b>4</b>	<b>3</b>	<b>5</b>

Area Burned by Forest Fires (ha)

Division	Mature	Immature	AAR	NP	Total
Franklin	1				1
Estevan					
Kennedy					
Sproat		4			4
<b>Total</b>	<b>1</b>	<b>4</b>			<b>5</b>

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APPENDIX I - Table 5

**TFL 44 Site Preparation - 1996**  
(Hectares)

Division	Tenure	Broad-cast Burn	Burn Accum (1)	Mechanical	Brush/ Grass Control	3 m Sapling Knock-down	Alder Seed Tree Control	Drainage Restore	Total
Franklin	Private Crown		1	17					18
		4	37	123					164
	<b>Total</b>	<b>4</b>	<b>38</b>	<b>140</b>					<b>182</b>
Estevan	Private Crown		14	13					27
			<b>14</b>	<b>13</b>					<b>27</b>
	<b>Total</b>		<b>14</b>	<b>13</b>					<b>27</b>
Kennedy	Private Crown		19	19					38
			<b>19</b>	<b>19</b>					<b>38</b>
	<b>Total</b>		<b>19</b>	<b>19</b>					<b>38</b>
Sproat	Private Crown					2			2
			3	8					11
	<b>Total</b>		<b>3</b>	<b>8</b>		<b>2</b>			<b>13</b>
Total	Private Crown		1	17		2			20
		4	73	164					240
	<b>Total</b>	<b>4</b>	<b>74</b>	<b>180</b>		<b>2</b>			<b>260</b>

(1) Actual hectares of roadside accumulations burned.

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APPENDIX I - Table 6

TFL 44 Summary of Planting - 1996

NORMAL PLANTING	Franklin			Kennedy/Estevan			Sproat			Total		
	Private	Crown	Total	Private	Crown	Total	Private	Crown	Total	Private	Crown	Total
Area Planted (ha)	648	1,577	2,225	14	805	820	10	871	881	672	3,253	3,926
Species	(Thousands of Trees)											
Df	285.2	284.6	569.8	1.4	77.0	78.4	8.0	261.0	269.0	294.6	622.6	917.2
Hw	72.6	652.8	725.4	2.6	312.3	314.9		322.8	322.8	75.2	1287.9	1363.1
Hm	80.1		80.1		5.8	5.8		4.3	4.3	80.1	10.1	90.2
Cw	31.8	671.4	703.2	12.6	367.3	379.9	2.0	131.9	133.9	46.4	1170.6	1217.0
Cy	178.0	53.7	231.7		41.2	41.2		121.0	121.0	178.0	215.9	393.9
Sx	3.9		3.9							3.9		3.9
Ba		18.6	18.6		23.6	23.6					42.2	42.2
Bn	31.4	1.5	32.9					4.4	4.4	31.4	5.9	37.3
Pw					0.8	0.8					0.8	0.8
Dr		2.1	2.1								2.1	2.1
Ds		3.0	3.0								3.0	3.0
Ct												
<b>Total</b>	<b>683.0</b>	<b>1687.7</b>	<b>2370.7</b>	<b>16.6</b>	<b>828.0</b>	<b>844.6</b>	<b>10.0</b>	<b>845.4</b>	<b>855.4</b>	<b>709.6</b>	<b>3361.1</b>	<b>4070.7</b>

FILL PLANTING	Franklin			Kennedy/Estevan			Sproat			Total		
	Private	Crown	Total	Private	Crown	Total	Private	Crown	Total	Private	Crown	Total
Area Planted (ha)	61	61	122	1	48	49		213	213	62	321	383
Species	Number of trees (000's)											
Df	15.1	2.6	17.7		17.8	17.8		5.0	5.0	15.1	25.4	40.5
Hw		3.0	3.0					80.0	80.0		83.0	83.0
Hm	0.4		0.4							0.4		0.4
Cw	2.2	34.9	37.1	1.5	20.6	22.1		12.0	12.0	3.7	67.5	71.2
Cy	5.2	1.1	6.3					25.0	25.0	5.2	26.1	31.3
Dr					11.8	11.8					11.8	11.8
Ds					10.8	10.8					10.8	10.8
<b>Total</b>	<b>22.9</b>	<b>41.6</b>	<b>64.5</b>	<b>1.5</b>	<b>61.0</b>	<b>62.5</b>		<b>122.0</b>	<b>122.0</b>	<b>24.4</b>	<b>224.6</b>	<b>249.0</b>

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APPENDIX I - Table 6

TFL 44 Summary of Planting - 1996

TOTAL PLANTING	Franklin			Kennedy/Estevan			Sproat			Total		
	Private	Crown	Total	Private	Crown	Total	Private	Crown	Total	Private	Crown	Total
Area Planted (ha)	709	1,638	2,347	15	853	868	10	1,084	1,094	734	3,575	4,309
Species	Number of trees (000's)											
Df	72.6	655.8	728.4	2.6	312.3	314.9		402.8	402.8	309.7	648.0	957.7
Hw	300.3	287.2	587.5	1.4	94.8	96.2	8.0	266.0	274.0	75.2	1370.9	1446.1
Hm	80.5		80.5		5.8	5.8		4.3	4.3	80.5	10.1	90.6
Cw	34.0	706.3	740.3	14.1	387.9	402.0	2.0	143.9	145.9	50.1	1238.1	1288.2
Cy	183.2	54.8	238.0		41.2	41.2		146.0	146.0	183.2	242.0	425.2
Sx	3.9		3.9							3.9		3.9
Ba		18.6	18.6		23.6	23.6					42.2	42.2
Bn	31.4	1.5	32.9					4.4	4.4	31.4	5.9	37.3
Pw					0.8	0.8					0.8	0.8
Dr		2.1	2.1		11.8	11.8					13.9	13.9
Ds		3.0	3.0		10.8	10.8					13.8	13.8
<b>Total</b>	<b>705.9</b>	<b>1729.3</b>	<b>2435.2</b>	<b>18.1</b>	<b>889.0</b>	<b>907.1</b>	<b>10.0</b>	<b>967.4</b>	<b>977.4</b>	<b>734.0</b>	<b>3585.7</b>	<b>4319.7</b>

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APPENDIX I - Table 7

TFL 44 Plantation Survival and Regeneration Performance Report - 1996

Division	Natural			Plantation		
	Examined (ha)	Stocked (ha)	Percent Stocked	Examined (ha)	Stocked (ha)	Percent Stocked
	Stocking Survey			Survival Survey (First Year)		
Franklin	1,948	85	4	1,668	1,546	93
Estevan	10	1	10	463	395	85
Kennedy	17	16	95	294	270	92
Sproat	697	53	8	423	417	99
<b>Total</b>	<b>2,672</b>	<b>155</b>	<b>6</b>	<b>2,848</b>	<b>2,628</b>	<b>92</b>

	Regeneration Performance (Third Year)			Regeneration Performance (Third Year)		
	Franklin				1,399	1,235
Estevan	69	65	94	346	327	95
Kennedy	17	16	95	120	115	96
Sproat	2,248	1,823	81	260	260	100
<b>Total</b>	<b>2,334</b>	<b>1,904</b>	<b>82</b>	<b>2,125</b>	<b>1,937</b>	<b>91</b>

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APPENDIX 1 - Table 8

TFL 44 AREA RESTOCKING STATEMENT AS OF DECEMBER 31, 1996  
(Hectares)

Reconciliation of Denuded Lands	Back-log	TFL 20\21 M&WP #1 - 5	TFL 44 M&WP #1	TFL 44 M&WP #2						Grand Total
				1,991	1992	1993	1994	1995	1996	

**DENUDATION HISTORY**

- Logging	20,860	82,501	20,258	2,741	2,329	1,670	2,177	1,833	1,891	12,641	136,260
- Fire		1,420	250		18					18	1,688
- Other (a)		196									196
<b>Total Denuded</b>	<b>20,860</b>	<b>84,117</b>	<b>20,508</b>	<b>2,741</b>	<b>2,347</b>	<b>1,670</b>	<b>2,177</b>	<b>1,833</b>	<b>1,891</b>	<b>12,659</b>	<b>138,144</b>

**RESTOCKING RECONCILIATION**

- Total at previous year end			964	340	978	917	1,162	1,675		5,072	6,036
- Add Total denuded current year									1,891	1,891	1,891
- Regeneration failures			300	6	50	57	38	15	394	560	860
- Adjustments (b)			121	135	-95	-74	26	48	-13	27	148
<b>Total AAR for Reclassification</b>			<b>1,385</b>	<b>481</b>	<b>933</b>	<b>900</b>	<b>1,226</b>	<b>1,738</b>	<b>2,272</b>	<b>7,550</b>	<b>8,935</b>

**RESTOCKING CLASSIFICATION FOR 1996**

- Non-productive (c)			-4				-2	3	199	200	198
- Stocked (d)											
. Planted or seeded			929	385	622	480	633	837	40	2,997	3,926
. Natural			37	29	51	23	3			106	144
Total stocked			966	414	673	503	636	837	40	3,103	4,070
- Awaiting restocking											
. No treatment required			423	66	259	355	502	713	1,955	3,850	4,273
. Treatment required					1	41	90	185	78	395	395
Total Awaiting Restocking			423	66	260	396	592	898	2,033	4,245	4,668
<b>Total Classified During 1996</b>			<b>1,385</b>	<b>480</b>	<b>933</b>	<b>899</b>	<b>1,226</b>	<b>1,738</b>	<b>2,272</b>	<b>7,548</b>	<b>8,933</b>
AAR as of December 31, 1996			423	66	260	396	592	898	2,033	4,245	4,668
Net Change from 1995			-541	-274	-718	-521	-570	-777	2,033	-827	-1,368

**AREA RESTOCKED (Cumulative)**

<b>As of December 31, 1995</b>											
Planted or seeded	3,992	58,706	13,988	1,014	229	85				1,328	78,014
Natural	16,424	26,689	4,017	83	15					98	47,228
Total	20,416	85,395	18,005	1,097	244	85				1,426	125,242
<b>As of December 31, 1996</b>											
Planted or seeded	3,992	58,706	14,917	1,399	851	565	633			3,448	81,063
Natural	16,424	26,689	4,054	112	66	23	3			204	47,371
<b>Total</b>	<b>20,416</b>	<b>85,395</b>	<b>18,971</b>	<b>1,511</b>	<b>917</b>	<b>588</b>	<b>636</b>			<b>3,652</b>	<b>128,434</b>

(a) Includes property additions with existing denuded lands requiring reforestation at time of addition to the TFL.

(b) Adjustments due to area remeasurements, correction of denuded data, etc.

(c) Deduction for roads, rock, swamp, etc.

(d) Does not include "fill" planting (i.e.; intensification of stocking).

APPENDIX I - Table 9

**TFL 44 Stand Tending - 1996**  
(Hectares)

Division	Tenure	Brushing/ Weeding	Spacing	Fertilize	Pruning	Total
Franklin	Private	107				107
	Crown	223				223
	Total	330				330
Estevan	Private					
	Crown	229	56			285
	Total	229	56			285
Kennedy	Private			17		17
	Crown	38		92		130
	Total	38		109		147
Sproat	Private	39				39
	Crown	269				269
	Total	308				308
Total	Private	146		17		163
	Crown	759	56	92		906
	Total	905	56	109		1,070

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APPENDIX I - Table 10

**TFL 44 Erosion Control Seeding - 1996**  
(Hectares)

<b>Division</b>	<b>Tenure</b>	<b>Road-Side</b>	<b>Slide Area</b>	<b>Total</b>
Franklin	Private Crown	240	12	252
	<b>Total</b>	<b>240</b>	<b>12</b>	<b>252</b>
Sproat	Private Crown	35		35
	<b>Total</b>	<b>35</b>		<b>35</b>
<b>Total</b>	Private Crown	275	12	287
	<b>Total</b>	<b>275</b>	<b>12</b>	<b>287</b>

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APPENDIX I - Table 11

**TFL 44 Miscellaneous Stand Surveys and Assessments - 1996**  
(Hectares)

<b>Division</b>	<b>Pre-log Prescript</b>	<b>Post-log Prescript</b>	<b>Stand Maintenance Prescript</b>	<b>Post- Treatment Evaluation</b>	<b>Site Degrad.</b>	<b>Free Growing</b>	<b>Total Area Assessed</b>
Franklin	1,063	1,319	3,192	36	1,885	1,302	8,797
Estevan	295	1,916	1,686	169		375	4,441
Kennedy		534	1,121	25		416	2,096
Sproat	300	807	598			433	2,138
<b>Total</b>	<b>1,658</b>	<b>4,576</b>	<b>6,597</b>	<b>230</b>	<b>1,885</b>	<b>2,526</b>	<b>17,472</b>

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APPENDIX I - Table 12

**TFL 44 Free Growing Status Report For Openings Requiring MoF Approval (1)**  
as of December 31, 1996

Division	Openings Not Free Growing					Openings Free Growing (3)	
	Number of Openings	Treatment Required (ha)	FG Survey Pending (ha)	Declared FG (2) (ha)	Total (ha)	Number of Openings	Hectares
Franklin	286	6,573	3,598	99	10,270		
Kennedy/Estevan	250	3,467	2,986	34	6,487		
Sproat	159	1,417	2,985		4,402	1	41
<b>Total</b>	<b>695</b>	<b>11,457</b>	<b>9,569</b>	<b>133</b>	<b>21,159</b>	<b>1</b>	<b>41</b>

- (1) Only openings/cut blocks with a date of felling on or after October 1, 1987 or negotiated with the MoF, where felling spanned the cut-off date.
- (2) Partial FG openings. An opening is not reported in the next section until it is declared completely Free Growing by MacMillian Bloedel.
- (3) Openings declared Free Growing by MacMillan Bloedel and may not yet be approved by MoF.

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APPENDIX I - Table 13

**Funding Credits - 1996**

<b>Division</b>	<b>Source(1)</b>	<b>Activity\Description</b>	<b>\$</b>	<b>ha</b>
Franklin	Industry Outstanding	Brushing and Weeding	150,119	155
Kennedy/Estevan	Industry Outstanding FRBC	Brushing and Weeding	106,156	144
		FRP-Acess.	99,569	1,274
		Spacing- Supervision	9,168	n/a
		Watershed Restoration	1,836,337	93
	Total		2,051,230	1,510
Sproat	FRBC	Watershed Restoration	11,308	n/a
<b>Total</b>			<b>2,212,657</b>	<b>1,665</b>

(1) i.e., Industry Outstanding, Forest Renewal Fund, FRDA , SMFRA, etc.

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APPENDIX I I - Table 1

**MacMillan Blodel Cone Collection - 1996**  
(hectolitres)

Species	Source		
	MB Orchards	Wild Collections	Total
Cedar	11.5		11.5
Western Hemlock	1.1		1.1
Yellow Cedar		21.9	21.9
<b>Total</b>	<b>12.6</b>	<b>21.9</b>	<b>34.5</b>

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APPENDIX II - Table 2

**MacMillan Bloedel Seed Inventory - 1996**

Species	Seed Orchard Seed (gm)	Seed Orchard Control Cross (gm)	Wild Seed (gm)	Total Seed (gm)	Approx. Seedlings (000's)
Douglas fir	42,901	12,835	29,709	85,445	2,599
Western Hemlock	17,106		52,600	69,706	9,065
Mountain Hemlock			109	109	11
Cedar	1,771		32,267	34,038	5,327
Yellow Cedar			13,064	13,064	455
Sitka Spruce	12,759		2,216	14,975	2,294
Other Spruce			1,612	1,612	148
Amabilis Fir	1,203		584,762	585,965	3,037
Grand Fir			35,295	35,295	425
Noble Fir			52,066	52,066	270
Lodgepole Pine			1,683	1,683	197
White Pine			5,694	5,694	105
Western Larch			619	619	27
<b>Total</b>	<b>75,740</b>	<b>12,835</b>	<b>811,696</b>	<b>900,271</b>	<b>23,960</b>

Does not include seed from 1996 cone collections

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APPENDIX II - Table 3

**Planting Stock Inventory and Sowing Request**

December 31, 1996

	<b>Inventory for Spring 1997</b>	<b>Sowing Request Fall 1997 / Spring 1998</b>
<b>Species</b>	<b>Number of Trees (000)</b>	
Douglas fir	1,513	2,233
Western Hemlock	2,147	2,743
Mountain Hemlock	30	179
Cedar	2,229	2,082
Yellow Cedar	479	940
Sitka Spruce	648	378
Other Spruce	82	64
Amabilis Fir	932	236
Grand Fir	4	6
Noble Fir	82	80
Lodgepole Pine	59	123
White Pine	6	44
Sitka Alder	15	16
Red Alder	17	5
<b>Total</b>	<b>8,243</b>	<b>9,129</b>

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