Report of the Ministry of Forests

Fiscal Year Ended March 31, 1981

Province of British Columbia
Ministry of Forests

Honourable T.M. Waterland, Minister

December 1, 1981

The Honourable Henry P. Bell-Irving,
D.S.O., O.B.E., E.D.,
Lieutenant-Governor of British Columbia

May It Please Your Honour:

Herewith I respectfully submit the Annual Report of the Ministry of Forests for the year ended March 31, 1981.

Yours truly,

T.M. Waterland,
Minister

September 30, 1981

The Honourable T.M. Waterland,
Minister of Forests,
Parliament Buildings,
Victoria, B.C.

Sir:

I have the honour to submit the Annual Report of the Ministry of Forests for the year ended March 31, 1981.

Yours truly,

T.M. Apsey,
Deputy Minister

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Silviculture

The ministry's silviculture program provid
the maintenance and improvement of the f
resource. In 1980-81 initiatives were taken
increase seedling production by private ind
Four nurseries were approved for developm
forest industry licensees and seven commer
nurseries were allocated production.

Directory

Directory

(March 3

Victoria

Minister
HON. T.M. WATERLAND

Executive Committee
T.M. APSEY,
Deputy Minister and Chairman,
Executive Committee

W. YOUNG,
Chief Forester, Forestry Division

R.W. ROBBINS,
Assistant Deputy Minister, Operations Division

A.C. MacPHERSON,
Assistant Deputy Minister,
Timber, Range and Recreation Division

R.J. CULLEN,
Assistant Deputy Minister,
Finance and Administration Division

Staff Consultant
J.A.K. REID

Branch Directors
J.R. COX,
Director, Information Services Branch

E. KNIGHT,
Director, Strategic Studies Branch

C.J. HIGHSTED,
Director, Planning Branch

F. HEGYI,
Director, Inventory Branch

R.L. SCHMIDT,
Director, Research Branch

C.M. JOHNSON,
Director, Silviculture Branch

D.H. OWEN,
Director, Protection Branch

J. MILROY,
Director, Range Management Branch

J.J. JUHASZ,
Director, Timber Management Branch

H.N. MARSHALL,
Director, Recreation Management Branch

R.D. THOMAS,
Director, Valuation Branch

C.P. WILLIAMS,
Director, Engineering Branch

L.G. UNDERWOOD,
Director, Personnel Services Branch

R.W. LONG,
Ministry Comptroller, Financial Services

J.G. HILL,
Director, Systems Services Branch

J. SHEPPARD,
Director, Legal and Administrative Servic
Branch

J.H. TAYLOR,
Director, Technical Services Branch

Forest Regions and Districts

Cariboo Forest Region

REGIONAL MANAGER

J.A.D. McDONALD,
Williams Lake

DISTRICT MANAGERS

R. REEVES,
Alexis Creek Forest District, Alexis Creek

L. ASHTON,
Horsefly Forest District, Horsefly

R.T. OSTBY,
100 Mile House Forest District, 100 Mile

O.J. KETTLESON,
Quesnel Forest District, Quesnel

W.S. CARR,
Williams Lake Forest District, Williams la

Kamloops Forest Region

REGIONAL MANAGER

A.B. ROBINSON,
Kamloops

DISTRICT MANAGERS

M.E. MONTEITH,
Clearwater Forest District, Clearwater

H.W.A. JANNING,
Kamloops Forest District, Kamloops

A.P. PETTY,
Lillooet Forest District, Lillooet

J.E. LeDUC,
Merritt Forest District, Merritt

F. PEARCE,
Penticton Forest District, Penticton

J.H. LITTLE,
Salmon Arm Forest District, Salmon Arm

E.W. HEWITT,
Vernon Forest District, Vernon

Forest Region

ICAL MANAGER

NOR,
elsa

RT MANAGERS

AIN,
rc Forest District, Castlegar

BASH,
ulary Forest District, Grand Forks

TER,
arrook Forest District, Cranbrook

GL,
olin Forest District, Golden

AEY,
venere Forest District, Invermere

ELACK,
onay Lake Forest District, Nelson

AFIE,
evitoke Forest District, Revelstoke

George Forest Region

IOAL MANAGER

UHBERT,
in George

RIT MANAGERS

GBS,
iwn Creek-Chetwynd Forest District,
iwn Creek

YE,
rt elson Forest District, Fort Nelson

HL,
rt. James Forest District, Fort St. James

HOSON,
rt. John Forest District, Fort St. John

NISON,
ac nzie Forest District, Mackenzie

HWKINS,
cBde-Valemount Forest District,
cBde

TINAMAN,
in George East Forest District,
in George

MGEE,
in George West Forest District,
in George

AHETT,
anrhoof Forest District, Vanderhoof

Prince Rupert Forest Region

REGIONAL MANAGER

J.A. BIICKERT,
Prince Rupert

DISTRICT MANAGERS

J.H. WENGER,
Bulkley Forest District, Smithers

VACANT,
Cassiar Forest District, Dease Lake

G.F. DODD,
Kalum Forest District, Terrace

T.H. PETER,
Kispiox Forest District, Hazelton

VACANT,
Lakes Forest District, Burns Lake

R.W. THOMAS,
Mid-Coast Forest District, Bella Coola

D.A. AMONSON,
Morice Forest District, Houston

J.G. WARD,
North Coast Forest District, Prince Rupert

T.A. DYER,
Queen Charlotte Islands Forest District,
Queen Charlotte City

Vancouver Forest Region

REGIONAL MANAGER

D. GRANT,
Vancouver

DISTRICT MANAGERS

D.E. deHART,
Campbell River Forest District, Campbell River

J.H. CARRADICE,
Chilliwack Forest District, Chilliwack

T.A. WALKER,
Duncan Forest District, Duncan

D.B. DOERKSEN,
Maple Ridge Forest District, Maple Ridge

R.A.CAMPBELL,
Port Alberni Forest District, Port Alberni

W.S. MILLWARD,
Port McNeill Forest District, Port McNeill

J.B. MOUNTAIN,
Powell River Forest District, Powell River

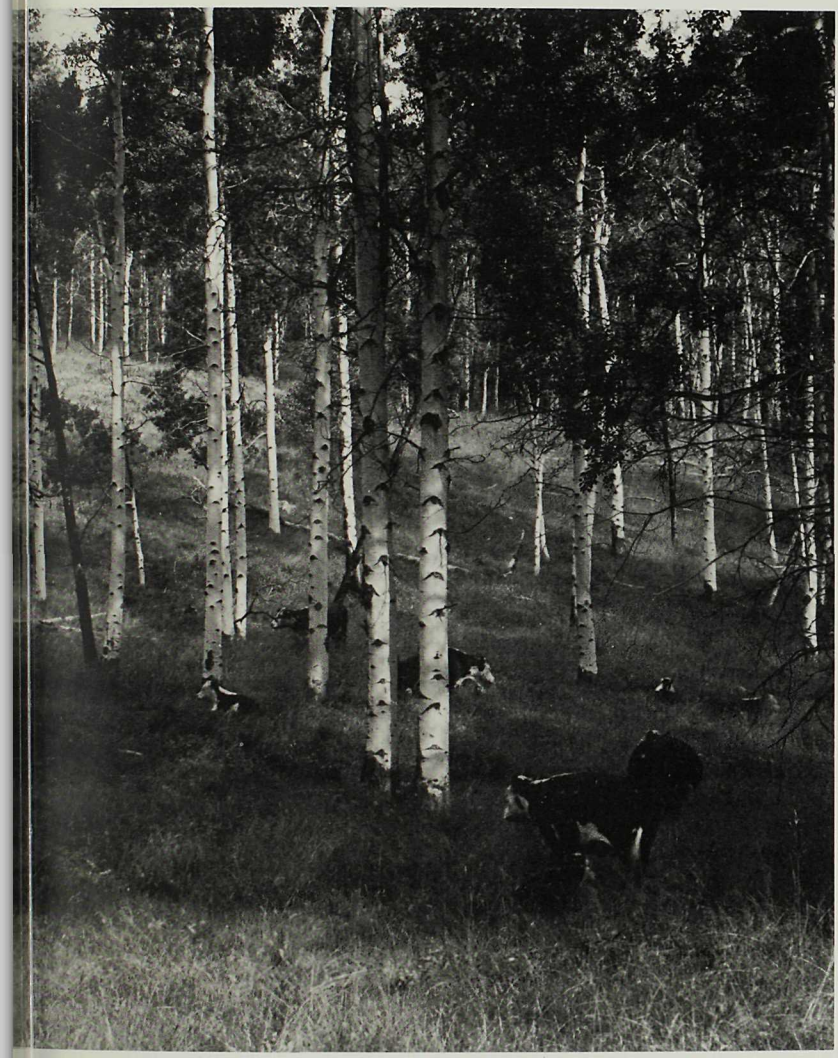
B.C. CUSTANCE,
Sechelt Forest District, Sechelt

N.P. GILGAN,
Squamish Forest District, Squamish

Range Management

The ministry's commitment to coordinate resource management is borne out in its r program. In 1980-81 the ministry seeded 1 hectares of forest and range land, increasi their productivity, and helping to ensure t future of this renewable resource.

Deputy Minister's Message



Deputy Minister's Message

This report differs significantly in content and organization from previous annual reports of the Ministry of Forests. For the first time, it has been prepared in accordance with the Ministry of Forests Act, 1978. As such, the report forms an integral part of the forest and range resource management system now used in the Ministry.

The new management system of the Ministry is rooted in three Acts passed in 1978 relating to the management, protection and conservation of provincial forest and range resources. The three Acts are:

Ministry of Forests Act, 1978
Forest Act, 1978
Range Act, 1978

With the proclamation of these Acts on January 1, 1979, British Columbia entered a new era of resource stewardship.

The Ministry of Forests Act defines the purposes and functions of the Ministry as well as the management process through which the Ministry is expected to operate. The Act demands that the Ministry be operated in a business-like fashion and that public accountability be emphasized.

The purposes and functions of the Ministry as stated in the Ministry of Forests Act are to:

(a) encourage maximum productivity of the forest and range resources in the Province;

(b) manage, protect and conserve the forest and range resources of the Crown, having regard to the immediate and long term economic and social benefits they may confer on the Province;

(c) plan the use of the forest and range resources of the Crown, so that the production of timber and forage, the harvesting of timber, the grazing of livestock and the realization of fisheries, wildlife, water, outdoor recreation and other natural resource values are coordinated and integrated, in consultation and cooperation with other ministries and agencies of the Crown and with the private sector;

(d) encourage a vigorous, efficient and world competitive timber processing industry in the Province; and

(e) assert the financial interest of the Crown in its forest and range resources in a systematic and equitable manner.

The management system to be followed the Ministry is also described in the Ministry Forests Act. **Figure 1** is a schematic representation of this management system.

The Act requires a periodic forest and ra resource analysis which is the main "engine" driving the management process. The analys provides a long term perspective on the opportunities facing the industry and any constraints which are likely to impede its development.

The resource analysis is required to incl

(a) a description of the present conditi the forest and range resources of th Province;

(b) a description of the Ministry progr presently being applied to the fore range resources;

(c) an analysis of trends in world dem for and supplies of forest and range resources and the products manufactured from them; and

(d) a summary of public policy issues are expected to affect significantly use, ownership, licensing and management of forest and range resources.

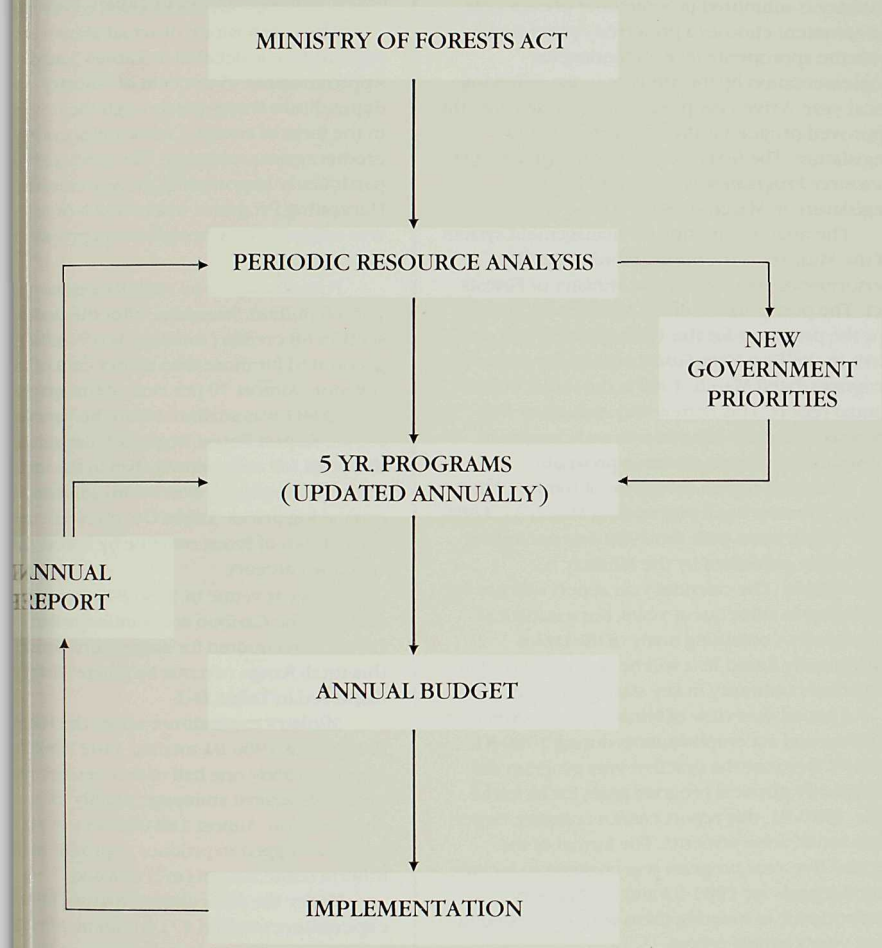
The first *Forest and Range Resource An Report* was submitted on September 30, 19 was subsequently presented to the British Columbia Legislature in March, 1980. The r was widely discussed both within and outsi Government. Undoubtedly, the wood suppl analysis in the report attracted the most atte as it confirmed that the provincial timber s limited and that local wood shortages coul emerge in a number of areas of the Provinc within the next 20 years.

While the resource analysis sets forth a general framework for defining what is wan from the forest and range resources of the Province, actual programs to meet the chall revealed by the analysis are developed thro five-year resource program. The program l ahead five years, but is updated annually so each yearly program is put into a broader perspective.

The requirements for the five-year res program are also stated in the Ministry of F Act. The five-year program must contain:

(a) a set of alternatives for restocking land, for increasing the productiv

Figure 1


MINISTRY OF FORESTS ACT
PERIODIC RESOURCE ANALYSIS
NEW GOVERNMENT PRIORITIES
5 YR. PROGRAMS (UPDATED ANNUALLY)
NNUAL
EPORT
ANNUAL BUDGET
IMPLEMENTATION

forest and range land and for otherwise improving forest and range resources in the Province, identifying for each alternative relative costs and benefits; and

(b) a recommended program for implementation by the Ministry during the next five years including the respective roles to be played by the Crown and the private sector.

The set of alternatives prepared by the Ministry is submitted in September of each year. Government chooses a preferred option along with the appropriate level of funding for implementation by the Ministry in the following fiscal year. A five-year program report detailing the approved program is then presented to the Legislature. The first *Five-Year Forest and Range Resource Program* was submitted to the Legislature in March, 1980.

The final step in the new management system of the Ministry is the public monitoring of performance required by the Ministry of Forests Act. The performance of the Ministry in carrying out the programs for the 1980-81 fiscal year set forth in the *Five-Year Forest and Range Resource Program* dated March, 1980 is the subject of this annual report. This review and evaluation will serve as a basis for adjustments and changes to subsequent five-year resource programs.

Since this report covers the activities of the Ministry for the fiscal year ending March 31, 1981, some duplication with the *1980 Annual Report* previously published by the Ministry is unavoidable. The calendar year report will not be published in subsequent years, but a statistical supplement containing many of the tables traditionally found in it will be issued to maintain historical continuity in key statistical series.

A broad overview of Ministry expenditure, revenue and accomplishments during 1980-81 follows. Because the first five-year program did not specify physical program goals for its initial year, 1980-81, this report cannot compare targets with actual achievements. The format of the second five-year program was changed to include specific goals for 1981-82 and the Ministry's performance in meeting them will be assessed in next year's annual report.

In 1980-81, expenditure by the Ministry of Forests totalled $268.2 million. This amount includes funding from the following three sources:

Ministry of Forests budget	$163.4 million
Forest and Range Resource Fund	23.9 million
Credits against stumpage revenue	80.9 million
Total	$268.2 million

All expenditure tables contained in this report include Ministry of Forests expenditures made from all three sources.

Ministry expenditure exceeded the amou forecast in the five-year program by 3 per cent ($7.8 million). Expenditure was significantly higher than expected for the Harvesting Progr By Forest Region, the difference between actu and forecast expenditure was the greatest in th Prince George Forest Region. A comparison of actual and forecast expenditure by program an Forest Region is shown in **Tables 1 and 2**.

The composition of actual Ministry of For expenditure is detailed in **Tables 3 and 4**. Approximately 45 per cent of Ministry expenditure was made through the private sec in the form of contract work and section 88 credits against stumpage. The private sector w particularly important in the Silviculture and Harvesting Programs where much of the activi was carried out by licensees and private contractors.

Forest revenue in 1980-81 amounted to $360.8 million. Stumpage, after the deduction section 88 credits (totalling $80.9 million), accounted for more than 85 per cent of forest revenue. Almost 70 per cent of stumpage reve in 1980-81 was attributable to the Vancouver Prince Rupert Forest Regions. Stumpage rates the coast fell more slowly than in the interior to the more gradual downward adjustment in coastal log prices. **Table C-2** gives a detailed breakdown of forest revenue by Forest Region d revenue category.

Range revenue in 1980-81 amounted to $ million. The Cariboo and Kamloops Range Districts accounted for almost three quarters this total. Range revenue by Range District is displayed in **Table D-2**.

Ministry expenditure under the Harvesti Program in 1980-81 totalled $102.2 million. Approximately one half of this amount consis of credits against stumpage, mainly for road construction. Almost 188 000 hectares (ha) o land was logged to produce approximately 73 million cubic metres (m^3) of wood.

Under the Silviculture Program, Ministry expenditure totalled $71.6 million. Almost 74 million trees were planted on approximately 63 000 ha of Crown land during 1980-81. A fu 22 400 ha were spaced to improve the value growth of the timber remaining on these area

Ministry expenditure for Protection amounted to $30.0 million. Fire management accounted for more than 90 per cent of this t The remaining $2.3 million was devoted to p management. During 1980-81, wildfires burn

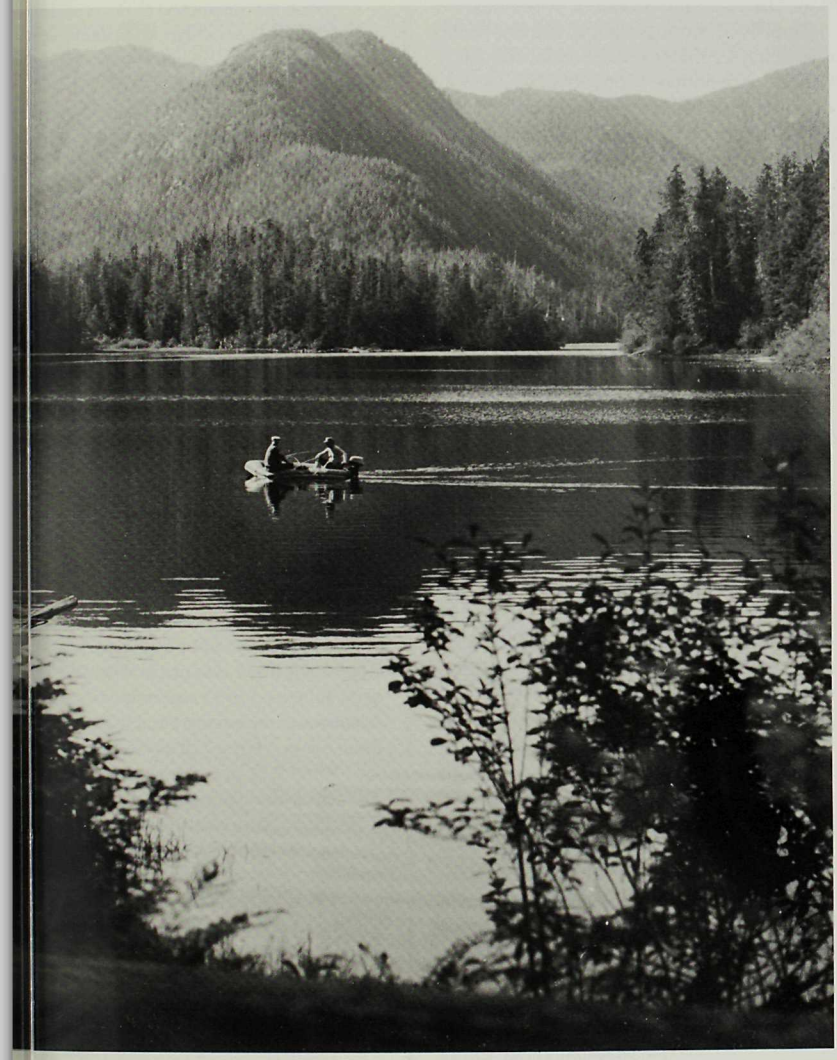
ıl ın m³ of timber on 65 600 ha. Although
ɔt provincial area burned was slightly less
th ɔen-year average of 70 200 ha, the fire
n as severe in the Prince George Forest
ɔn fore than 80 per cent of the timber
ed ı the Province in 1980-81 was located in
ɔ ɔst Region.
ɔ ner details on the activities and
m shments of the Ministry in 1980-81 are
tir d in the program reports which follow.
n ɔnclusion, this report marks the
ɔlcɔn of the first cycle in the new management system initiated by the Ministry of Forests Act. Significant strides have been made in placing the operations of the Ministry on a more business-like basis. With this footing in place, I am confident that British Columbia, through the Ministry of Forests, will continue its leadership role in forest and range resource management in coming years.

T.M. Apsey,
Deputy Minister

Recreation

The forest is for everyone. During 1980-81 th ministry developed 73 new recreation sites a 300 kilometres of trail throughout British Columbia.

Program Reports



Silviculture Program

The objectives of the Silviculture Program are to restock denuded land and to improve the value and productivity of forest stands by tending practices. Denuded land is restocked through planting or natural regeneration. Site preparation is often done prior to planting or to ensure natural restocking. A brushing and weeding treatment may be required in some plantations to ensure that the seedlings attain a "free to grow" condition. The value and productivity of forest stands is improved through silviculture treatments such as spacing, fertilization and conifer release.

Forecast expenditure for 1980-81 was $75.4 million; actual expenditure was $71.6 million (see **Table A-1**). The fertilization program planned in the Vancouver Forest Region was curtailed due to a shift in priorities during the year. Actual expenditure in future years is planned to increase significantly as the Silviculture Program expands to meet the goals established in the Ministry's five-year program.

Under the terms of the British Columbia Canada Subsidiary Agreement on Intensive Forest Management, the federal government contributed $5.8 million toward the $71.6 million spent on the 1980-81 Silviculture Program. The objective of the Agreement is to enhance the forest resource base of the Province through the implementation of intensive forest management. Toward this objective, federal contributions were used in support of spacing, reforestation, fertilization and other projects.

During the year, a significant policy decision concerning nurseries was made. Following discussion and consideration of the responses to the White Paper on the Growing of Tree Seedlings, it was decided that:

(i) production from Ministry nurseries will be constrained to about 100 million seedlings per year,

(ii) all production above this level required to meet the five-year program goals will be achieved through the development and expansion of private nurseries, and

(iii) the Ministry will pay for the cost of producing seedlings in private nurseries which are used to restock Crown land.

As a result of this policy, in 1980-81 the Ministry approved 4 nurseries to be developed by the forest industry (licensees), and 7 commercial nurseries were allocated production.

During the year, the Ministry and licensees surveyed 212 500 hectares (ha) of Crown land which was denuded in previous years and left t restock naturally, or was site prepared and left restock naturally (see **Table A-2**). Of the area surveyed, 66 per cent (141 200 ha) was found have sufficient commercially valuable trees to classified as satisfactorily restocked. The remaining area (71 300 ha) will be planted, sit prepared for natural restocking or left for natu restocking depending on the results of the sur

Areas are inspected to determine if site preparation is necessary to obtain natural restocking or to prepare land for planting. **Tab A-3** gives statistics on areas of Crown land whi were site prepared in 1980-81 and left for natu restocking. The area actually treated was 26 1 ha while 30 200 ha were found not to require treatment. **Table A-4** shows the areas of Crow land which were site prepared in 1980-81 in anticipation of planting. Over 46 000 ha were actually treated while 7 800 ha were found no require any treatment.

In 1980-81, 73.8 million trees were plante on 62 900 ha of Crown land (see **Table A-5**). I addition, approximately 4 million trees were planted on private land bringing the total numl of trees planted during the year to about 78 million.

Approximately 21 per cent of the area planted in the Province was good site forest la 70 per cent medium site and 9 per cent poor si On average, the forest land planted in the Vancouver Forest Region was the most productive, followed closely by the coastal are the Prince Rupert Forest Region and then Prin George and Prince Rupert (interior) Forest Regions. Spruce was planted on 46 per cent of area, followed by Douglas fir (17 per cent), hemlock (14 per cent) and lodgepole pine (11 cent).

The Ministry established over 10 000 sur plots on areas planted during the year. The dat from these plots will allow the Ministry to gau the success of the plantations and, hence, the a satisfactorily restocked through planting.

Table A-6 gives statistics on the area of Crown land which received brushing and weeding. This treatment is most important in t Vancouver Forest Region (2 500 ha treated in 1980-81) where brush encroachment in plantations on very productive land is serious.

Table A-7 shows areas of Crown land whi received silviculture treatment during 1980-8 improve the value and productivity of the exis

forest stands. Spacing was the most treatment with 22 400 ha completed. ment, by removing competitive trees, crop trees to grow faster and attain a able size sooner.

e A-8 shows the Ministry's inventory of and changes in the inventory during the year. Over 1 700 kilograms (kg) of seed were added to the inventory as a result of collections of cones from wild stands. About 50 kg of seed from seed orchards were added to the inventory. The contribution of seed from seed orchards will increase significantly in the future as the orchards established recently reach seed producing age.

Forest Protection Program

Ministry of Forests has the responsibility ing the forest and range resources of the from damage by wildfires and pests, insects and diseases. These ilities are addressed through Forest n and Fire Suppression. The major are devoted to fire management and pest ent.

ANAGEMENT

1980 fire season began with an y dry spring with drought conditions in ern forests, especially in the Fort Nelson River areas of the Prince George Forest ildfires started easily, spread rapidly, difficult to control. The fire situation was siderably with higher than normal July and August. While the number of during the year was 33 per cent below ar average, Fire Suppression re was 7 per cent higher. This p was mainly due to the northern fire where most fires were inaccessible and ics of the fire control difficult and costly. **-2** through **B-5** provide pertinent on suppression costs, fire numbers and d areas and timber volumes burned for Region in the Province.

major provincial fire management goals program are to keep the area below 69 000 hectares (ha) and the mature and immature timber burned 7 million m^3 per year. For the year, the burned was 65 600 ha and the timber burned million m^3, both below the target goals. Other important accomplishments were ing the year. In order to improve the of initial attack systems, the first ters-controlled fire attack crew using the rappel technique was established for wide use. It consisted of an 18-man crew Bell 206 Long Ranger helicopter. A location and mapping system was and tested successfully in the southern interior. This network will be expanded to cover the whole province within three years. An investigation of fire ecology and fire impact north of 57 degrees latitude was initiated. This project will lead to improved guidelines for fire management practices in the northern forests.

Fire management administration was refined in the areas of policy and regulations. Fire prevention regulations were amended to include petroleum industry activities, and the systems for administering forest use restrictions, burning permits and smoke management were improved. Policies were clarified to promote rapid initial attack on fires by all parties and agencies on both Crown and private lands and the responsibilities for the control of fires further defined.

More than 5 000 ha were burned to prescription to reduce dangerous fuel hazards. In addition, all silviculture burns, and the burns to improve wildlife and domestic livestock habitats were approved, assisted and monitored by protection personnel.

Forest Protection and Fire Suppression are complementary in meeting fire management objectives. Expenditures in the activities of each are outlined in **Tables B-1** and **B-2**.

PEST MANAGEMENT

The forest and range analysis completed by the Ministry in March, 1980 identified the significant impact that forest insects and disease have on the Province's forest resources. In British Columbia more than 200 000 ha of pine and spruce forest are under attack by bark beetles. The Nelson and Cariboo Forest Regions are the most severely affected. Losses due to disease pathogens are not accurately known. Conservative estimates place total provincial timber losses to insects, disease organisms, and unwanted vegetation in excess of 16 million m^3 annually.

To realize the potential reduction of timber losses, pest management effort was increased at provincial and regional levels to define the extent and impact of forest pests in British Columbia, to

develop strategies and methods to reduce timber losses, and to establish and monitor pest control activities.

During 1980-81, $2.3 million was expended on pest management administration at provincial, regional, and district levels. This included training, equipment, information publications and development of guidelines for forest operations in infected or suspect areas. A major portion of the pest management effort was in detection with Ministry survey crews and support funding for Canadian Forestry Service staff who provided services and training in detection and mapping of infestations. Various pest control efforts including rehabilitation projects, research, and road access to infested areas for control and sanitation logging were accomplished.

Special projects undertaken included dw mistletoe control measures incorporated into harvesting contracts, the preparation of trap tr to reduce spruce beetle infestation levels, and monitoring of various root disease control measures for developing management guideli A study of the severe bark beetle problems in Cariboo Forest Region was completed and recommendations were made to co-ordinate timber salvage and pest control measures.

Increased effort on pest management at al levels will take time to be fully effective. The future impact on Ministry objectives will be significant.

Table B-1 outlines pest management expenditure incurred by Forest Region.

Harvesting Program

The objective of the Harvesting Program is to make timber available to the forest industry in a manner which reflects provincial forest resource use objectives and ensures that the financial interests of the Crown are realized. The program includes timber administration, technical services, valuation, scaling, engineering services, forest development roads and primary access roads.

Expenditure on Harvesting in 1980-81 was $102.2 million (see **Table C-1**). Approximately 60 per cent of this total was accounted for by engineering services and road construction. Most of the road construction is performed by the private sector which is reimbursed through credits against stumpage.

The second largest category of expenditures in Harvesting was technical services which totalled $19.5 million. This component was moved to the Finance and Support Services Program in the rearranged program structure of the second *Five-Year Forest and Range Resource Program*. This move more accurately reflects the role of technical services which is closely linked to all other activities of the Ministry, not just the Harvesting Program.

Expenditure for scaling amounted to $13.9 million in 1980-81. Much of the total is recoverable through the scaling fees paid by the forest industry. Scaling fees and other sources of forest revenue by Forest Region are shown in **Table C-2**.

Expenditures under the remaining two categories of the Harvesting Program, valuation and timber management, together totalled $8.7 million. Expenditure relating to the implementation of the Small Business Enterpri Program is included in timber management.

In 1980-81, approximately 188 000 hect (ha) were logged to produce 73 million m^3 of wood. Details of the area harvested and the tim harvest are shown in **Tables C-5** and **C-6**. The logged in 1980-81 was approximately 13 per c (22 000 ha) greater than the average establish in the first *Five-Year Forest and Range Resour Program* while the harvest was approximately per cent less.

Forest revenue resulting from the Harves Program fell to $360.8 million in 1980-81 fro $570.2 million in the previous fiscal year. As shown in **Table C-2**, the Vancouver Forest Re accounted for approximately 50 per cent of th forest revenue collected by the Province in 1980-81. Coast stumpage prices remained relatively high throughout much of the year as Vancouver Log Market prices did not fall as quickly as North American lumber prices. Minimum stumpage rates were prevalent in th interior for much of the year. Average stumpa prices by species and Forest Region for 1980- are shown in **Table C-3**.

The financial performance of the forest industry was mixed in 1980 as market conditi differed sharply between the wood products pulp and paper sectors. The integrated compa generally fared better as strong demand and increased prices for newsprint and market pul partially offset depressed lumber markets. The North American residential construction mar was particularly hard hit by high interest rates which continue to depress the market this yea

tarts in the United States tumbled from ion units in 1979 to 1.3 million in 1980. ithstanding the mixed markets, the ustry, which depends upon the wood lable under the Harvesting Program, l to make a major contribution to the l economy. The forest industry provided ately 95 000 man-years of employment he value of shipments by the forest ncreased slightly to $7.4 billion in 1980 line in sawmill shipments was more than ncreases in the pulp and paper sector. billion represented slightly less than 50 f the total value of shipments by all lumbia manufacturing industries. xports by the forest industry in 1980 l to $5.7 billion or approximately 60 per e total value of British Columbia foreign s

number of licences administered and the f wood committed under the Harvesting re shown in **Tables C-8** and **C-9** ely. The Vancouver Forest Region administers the largest number of licences, 1767 or 40 per cent of the provincial total, and also has the largest commitment, 18.8 million m^3 or 28 per cent of the provincial total. By volume of wood committed, the timber sale harvesting licence is the most important form of tenure in the Province while the timber sale licence (all categories) is the most common form of tenure.

A major initiative under the Harvesting Program is the Small Business Enterprise Program. This program is designed to promote competition in the forest industry by ensuring that room remains for the dynamic, innovative small operator. **Table C-4** shows the volume billed and the stumpage received under this program in 1980-81. On average, the bonus bid represented 65 per cent of the total stumpage received on timber billed under this program in 1980-81. As shown in **Table C-7**, 566 sales were made under the Small Business Enterprise Program in 1980-81. These sales represented an estimated volume of 2.0 million m^3 and an estimated value of $10.2 million.

Range Management Program

overall goals of the Range Management are to supply forage for domestic and ulates, while conserving the resource ion" base so that a flow of forage will in the future, in a manner consistent with use goals for Crown lands. In 1980-81, d use for domestic ungulates was 0 animal unit months (AUM's) which l the goal of 934 000 AUM's for 1984-85 ed in the first five-year program. cast expenditure for 1980-81 was $3.3 ctual expenditure was $2.9 million (see 1). In addition, Range Management staff ered the expenditure of $3.5 million Coordinated Resource Management Plans F). CRMP funding is through the re and Rural Development Subsidiary nt (ARDSA), a joint British Columbia- initiative.

ge revenue (see **Table D-2**) from the use range tenured through permits and was $1.4 million in 1980-81. Revenue l over the previous year because of in authorized use, utilization and use 980-81, the rent applied to authorized 0.20 per AUM; the same rent as in the year. However, the use fee applied to ilized is tied to cattle prices and increased to $1.44 per AUM compared to $1.04 per AUM in 1979-80.

Grazing permits and grazing licences in 1980-81 are summarized in **Table D-3**. Actual utilization was 921 900 AUM's; 98 per cent of the authorized use.

Hay cutting permits and hay cutting licences in 1980-81 are summarized in **Table D-4**. Most of the authorized hay cutting permits and hay cutting licences are for wetlands of the interior. Differences between authorized use and utilization are primarily due to high water table resulting from climatic variation and other factors.

Range improvements funded by the Ministry during the year are shown in **Table D-5**. Range improvements made from ARDSA funded projects are excluded.

Weed control is principally for knapweed (400 ha) and thistle (40 ha). Knapweed control programs have been mainly for containment. Fencing, water developments and other improvements are principally capital expenditures for new improvements to provide better utilization of existing forage. Seeding is mainly on disturbed forest sites (17 100 ha) with grassland rehabilitation on 22 sites (700 ha). Increased forage production through seeded clearcuts is being integrated into range unit planning in the

Kamloops Range District to a major extent and is being initiated in the Cariboo, Prince George and Prince Rupert Range Districts. In biogeoclimatic zones where research has been conducted, cattle production on seeded clearcuts has not significantly impacted on forest production and is a cost-effective means of increasing forage production for domestic and wild ungulates.

Range inventory conducted in conjunction with the Inventory Branch resulted in 904 000 ha being sampled in the field and 13 500 ha being processed for computer retrieval. Research continued on biological control of knapweed; on range burning. The Research Branch has initiated research projects on range topics.

CRMP's funded under ARDSA show 30 completed (13 completed in 1980-81) and 74 progress (17 initiated in 1980-81). These CRM cover 3.96 million ha and have contributed to resolution of many problems resulting from multiple-use of Crown range.

Recreation Management Program

The objectives of the Recreation Management Program, within the Ministry's integrated resource use framework, are to maintain and enhance recreational values (including the aesthetic values of the forest landscape) and to provide a system of sites and trails to facilitate public recreational use of Crown lands.

Expenditure on Recreation Management in 1980-81 was $2.8 million (see **Table E-1**). Site and trail maintenance, improvement and development accounted for most of the expenditure during the year. Approximately 300 kilometers (km) of trail and 73 recreation sites were developed. Over 300 existing sites and 240 km of existing trail were improved during the year. Maintenance was performed on 990 sites and 766 km of trail.

Higher emphasis was given to planning, inventory and research activities than in previ years. These were continued and/or initiated t ensure that recreation values are protected an maintained.

Recreation site and trail use is shown in **Table E-2**. The Ministry now has 1 127 sites in Province and manages over 2 600 km of trail. Summer use was down slightly in 1980, particularly in the Vancouver and Kamloops Regions, due to unusually damp and cool weat However, winter recreation activity again increased noticeably, and it is estimated that 1 million user visits were made to recreation sit and trails managed by the Ministry during the Provincial residents made up a high percentag the user population.

Associated Program

The purpose of the Associated Program is to support the timber, range and recreation management functions of the Ministry. In 1980-81, the Associated Program included planning, inventory, research and computer consulting. Expenditure under the program totalled $20.0 million which was approximately 80 per cent of the amount budgeted in the first *Five-Year Forest and Range Resource Program* (see **Table 1**). The research component of the program accounted for more than 40 per cent of the total program expenditure.

In the revised program structure introduced in the second *Five-Year Forest and Range Resource Program*, the Associated Program disappeared as the four component activities were allocated to the related programs which they support. In the new program structure, planni and inventory are included with the Harvestin Program, research is included under the Silviculture Program, and computer consultin included in the Finance and Support Program.

PLANNING

The Planning Branch develops resource planning systems to implement the Ministry's five-year resource program and is also respon for coordinating these systems with those of o resource Ministries.

In 1980-81, the Branch completed 14 Tim Supply Area (TSA) analyses. As of March 31, 1 this brought the total number of analyses completed to 28 out of the 33 TSA's establish for the Province. On the basis of these analyse

ii Forester had established 14 allowable
ts (AAC's) by the end of the fiscal year.
v new provincial forests were established
80-81 bringing the total number to 102
31, 1981. The objective of the provincial
pgram is to designate the land base
o maintain provincial forest and range
production.

NORY

nventory Branch is responsible for
the statistics and maps required for the
ent of the forest and range resources of
nce.
80-81, the Branch assisted regional staff
ting re-inventory surveys in several
in remeasuring sample plots in both
d managed stands. Decay studies were
d out in the forest regions.
le **8** shows the area of Crown and private
al in British Columbia by forest region.
cover status of the Crown land is also
Approximately 54 per cent of Crown
al is covered by mature timber.

ACH

try research is generally aimed at
pg and using knowledge and methods
ribute to the improved management of
forest and range resources under the
on of the Ministry.
80-81, Ministry expenditure on research
3.1 million which exceeded the amount
the first *Five-Year Forest and Range*
Program by approximately $2.4 million
le **1**). The $8.1 million excludes another $1.3 million devoted to research which has been allocated directly to other programs, principally the Silviculture Program.

The Ministry has placed a high priority on establishing the research capability and knowledge required to help meet some of the difficult challenges of the Silviculture Program. Additional highly skilled research staff were recruited for tree growth and yield analysis, forest regeneration and tending studies, planting stock improvement and tree breeding. Several new research projects were initiated that address high priority information needs such as more effective reforestation strategies for severe sites and managed stand yield tables for intensive silviculture practices.

Two integrated resource management programs were established to increase the benefits to the province from the forest land base. The first program addresses the impact of mass wasting in the Queen Charlotte Islands on stream habitat and forest productivity and the second is a long term program between the Ministries of Forests and Environment to examine wildlife - intensive forestry interactions on Vancouver Island. Also, a range research program was initiated to assist range managers in meeting provincial production goals.

A research centre consisting of a laboratory, greenhouse and service complex was constructed near Vernon to accommodate forest geneticists, tree physiologists and other staff.

The results of the experiments and field studies by the Research Branch are published each year in the *Forest Research Review*.

Administration/Operations Program

dministration component of this
provides Executive direction for the
nd support services such as manpower
ent, financial management and facilities
ent. The operations component (Field
is) includes staff at the field level to
ther programs such as Protection,
n, Range and Silviculture.
e revised program structure introduced
ond *Five-Year Forest Range and*
Program, the Administration/
is Program disappeared. The operations
nt was distributed across all other
and all finance and support activities
to form the Finance and Support Program. These changes will be reflected in the *Annual Report* for 1981-82 which reports on the second *Resource Program*.

Expenditure for 1980-81 was $38.6 million with $13.7 million for Administration and $24.9 million for Field Operations.

One of the major tasks of the administration component during 1980-81 was to continue implementing the reorganization of the Ministry. A significant problem has been the high level of vacancies in permanent positions (see **Tables 6** and **7**). During the year, over 17 per cent of all permanent positions were unfilled by permanent staff. Of the 570 vacancies in March, 1981, 190 were in the process of being staffed on a

permanent basis. Although many of the functions of the vacant positions are being carried out by auxiliary staff, this is not a desirable situation. With classification of the majority of positions completed in 1980-81, the vacancy problem can be remedied as staffing accelerates during 1981-82.

Research

Tree improvement applies genetics to seedlin production to produce faster growing trees. A research facility devoted to tree improvemen consisting of laboratory, greenhouse and ser complex coupled with a seed orchard, was established near Vernon.

Summary Statistical Tables

NOTE: All financial data for 1980-81 contained in sections IV and V are unaudited.

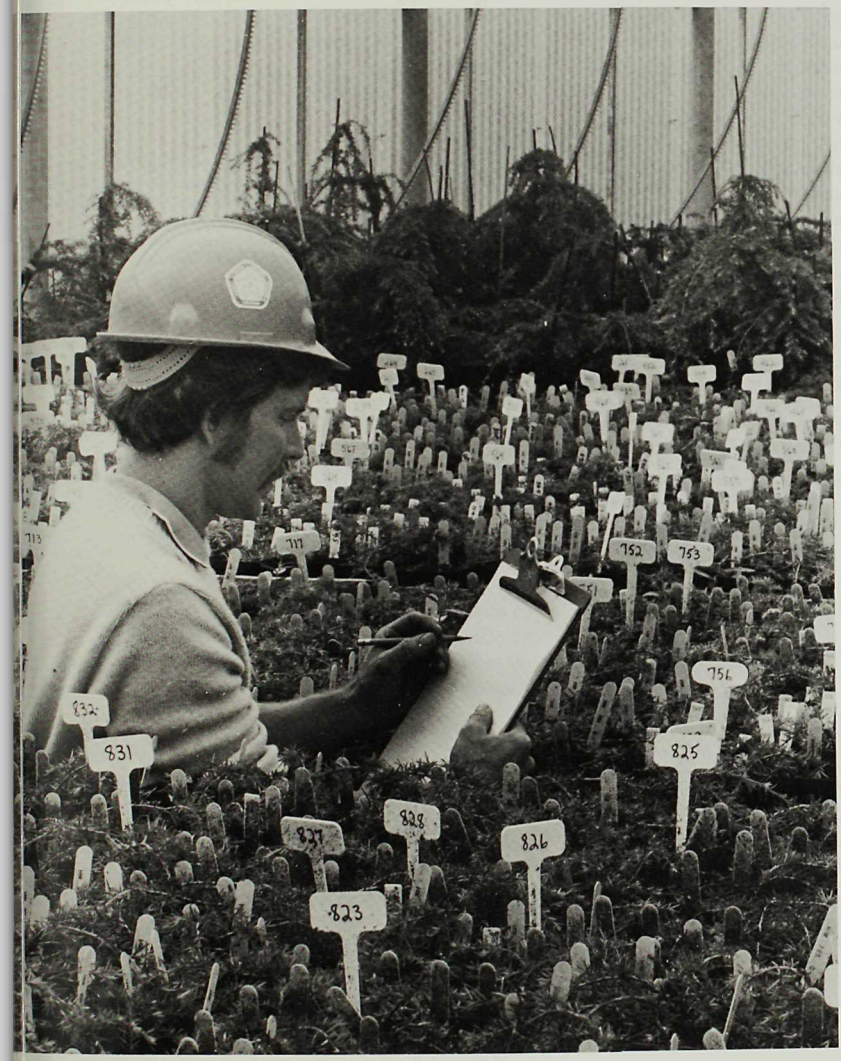


Table 1 Forecast and Actual Expenditure in 1980-81, by Program

PROGRAM	Forecast Expenditure[1]	Actual Expenditure[2]
	(thousands of dollars)	
Timber		
Silviculture	75,380	71,635
Protection[3]	28,970	30,013
Harvesting	88,250	102,163
Range		
Range	3,340	2,945
Recreation		
Recreation	3,190	2,798
Associated		
Research	5,730	8,108
Other	18,780	11,888
Administration/ Operations		
Ministry H.Q.	14,010	13,693
Field Operations	22,750	24,926
TOTAL	260,400	268,169

NOTES:

1 *Forecast expenditure in the Five-Year Forest and Range Resource Program, March 1980.*

2 *Incorporates all expenditures including accruals of $.603 million. Funds are from three sources:*
(i) Ministry of Forests budget,
(ii) Forest and Range Resource Fund, and
(iii) Expenditures by licensees under Section 88 of the Forest Act.

3 *The budgetary allocation for the Fire Suppression component of the Protection Program was $8.460 million. Actual expenditure was $18.363 million.*

Table 2 Forecast and Actual Expendit in 1980-81, by Forest Region

FOREST REGION	Forecast Expenditure[1]	Actua Expendit
	(thousands of dollars)	
Cariboo	23,100	20,52
Kamloops	26,600	26,67
Nelson	27,100	26,44
Prince George	43,400	57,98
Prince Rupert	31,400	32,08
Vancouver	50,800	45,66
Victoria	58,000	58,80
TOTAL	260,400	268,16

NOTES:

1 *Forecast regional expenditure implicit in the Five-Ye Forest and Range Resource Program, March 1980.*

2 *Includes all expenditures. Funds are from three sourc*
(i) Ministry of Forests budget,
(ii) Forest and Range Resource Fund, and
(iii) Expenditures by licensees under Section 88 of th Forest Act.

Table 3 Composition of Actual Expenditure in 1980-81, by Program

GAM	Wages & Salaries: Permanent Staff	Wages & Salaries: Temporary, Aux. Staff	Materials, Supplies & Expenses	Contracts	Section 88	Total
			(thousands of dollars)			
be						
vilture	5,215	15,602	8,586	14,646	27,586	71,635
ortion	2,879	7,664	5,909	11,454	2,107	30,013
arsting	25,665	7,394	14,294	3,802	51,008	102,163
ge						
in	757	669	949	570	0	2,945
reon						
ecation	282	1,363	513	482	158	2,798
cied						
esrch	1,818	1,935	3,191	1,164	0	8,108
th	3,477	2,770	4,930	711	0	11,888
inrtration/Operations						
in ry H.Q.	4,075	1,351	2,673	5,594	0	13,693
elOperations	16,510	3,963	4,120	333	0	24,926
TA	60,678	42,711	45,165	38,756	80,859	268,169

Table 4 Composition of Actual Expenditure in 1980-81, by Forest Region

E' REGION	Wages & Salaries: Permanent Staff	Wages & Salaries: Temporary, Aux. Staff	Materials, Supplies & Expenses	Contracts	Section 88	Total
			(thousands of dollars)			
bc	5,313	4,753	3,154	3,032	4,271	20,523
nlops	6,344	5,695	4,249	3,294	7,089	26,671
sor	6,739	4,987	(1,532)[1]	6,761	9,485	26,440
ccieorge	7,168	6,098	5,233	7,343	32,144	57,986
ccupert	5,961	4,408	4,028	3,625	14,060	32,082
co'er	11,830	6,667	5,860	7,500	13,810	45,667
cor	17,323	10,103	24,173	7,201	0	58,800
TA	60,678	42,711	45,165	38,756	80,859	268,169

NOTE: [1] Credit results from recoveries from B.C. Hydro for the Revelstoke Reservoir Clearing Program amounting to $5.300 million.

Table 5 Forest and Range Revenue in 1980-81, by Forest Region

FOREST REGION	Forest Revenue[1]	Range Revenue	Total Revenue
	(thousands of dollars)		
Cariboo	26,644	552	27,196
Kamloops	22,539	522	23,061
Nelson	15,413	118	15,531
Prince George	45,734	223	45,957
Prince Rupert	62,037	30	62,067
Vancouver	181,228	1	181,229
Victoria	7,243	1	7,244
TOTAL	360,838	1,447	362,285

NOTE:

[1] *Forest revenue is net of credits against stumpage which equaled $80.859 million in 1980-81. Gross Ministry of Forests revenue totalled $443.144 million. Credits approved by program and forest region are shown in tables 3 and 4 under the column heading "Section 88".*

Table 6 Ministry of Forests Personnel (Permanent Staff) in 1980-81, by Program

	April 1, 1980			March 31, 1981		
PROGRAM	Positions	Staff	Vacancies	Positions	Staff	Vac
Timber						
Silviculture	281	238	43	281	208	
Protection	90	62	28	90	54	
Harvesting	961	798	163	961	804	
Range	43	29	14	43	26	
Recreation	14	3	11	14	5	
Associated	255	225	30	255	206	
Administration/ Operations[1]	1,578	1,327	251	1,578	1,349	
TOTAL	3,222	2,682	540	3,222	2,652	

NOTE: [1] *The Field Operations component of the Administration/Operations Program includes staff working in other programs.*

Table 7 Ministry of Forests Personnel (Permanent Staff) in 1980-81, by Forest Region

IT IN	April 1, 1980			March 31, 1981		
	Positions	Staff	Vacancies	Positions	Staff	Vacancies
)	285	245	40	285	244	41
lps	355	292	63	355	282	73
)	352	315	37	352	293	59
George	399	302	97	399	307	92
Rupert	332	257	75	332	243	89
ver	609	513	96	609	522	87
)	890	758	132	890	761	129
A	3,222	2,682	540	3,222	2,652	570

Table 8 Forest Land in British Columbia, by Forest Region[1]

IT IN	Crown Forest Land[2]						Private Forest Land	Total
	Mature	Immature	NSR[3]	NC Brush[4]	Other[5]	Total		
	(thousands of hectares)							
)	3 534.8	2 686.4	155.4	19.0	80.5	6 476.1	443.5	6 919.6
lps	2 241.9	1 974.9	130.7	19.7	20.5	4 387.7	946.3	5 334.0
)	1 335.7	2 084.9	241.8	21.0	80.3	3 763.7	681.1	4 444.8
George	7 840.7	8 235.7	196.7	627.0	396.7	17 296.8	1 589.9	18 886.7
Rupert	8 700.7	2 340.7	344.0	75.1	204.1	11 664.6	613.1	12 277.7
ver	2 181.6	1 450.6	88.2	6.0	98.2	3 824.6	586.4	4 411.0
A	25 835.4	18 773.2	1 156.8	767.8	880.3	47 413.5	4 860.3	52 273.8

NOTES: 1 *Source: Forest and Range Resource Analysis Technical Report.*
2 *Land owned by the Province which has a productive capacity best suited to the growing of forest crops.*
3 *Not Satisfactorily Restocked. Stands which have been disturbed over 75 percent by fire, logging or other causes and have not restocked with sufficient numbers of commercial species.*
4 *Non-commecial Brush. Areas that have been invaded and covered by brush and non-commercial species.*
5 *Includes miscellaneous cover types such as non-productive timber, non-commercial timber and residual stands following logging.*

Forest Protection

The ministry continued to take the major role provincial fire management through a hectic fire season. The area burned was kept to 65 00 hectares, well below the Five-Year Program lin of 69 000 hectares.

Detailed Statistical Tables

NOTE: Totals in certain tables are not equal to the sum of their components due to rounding.

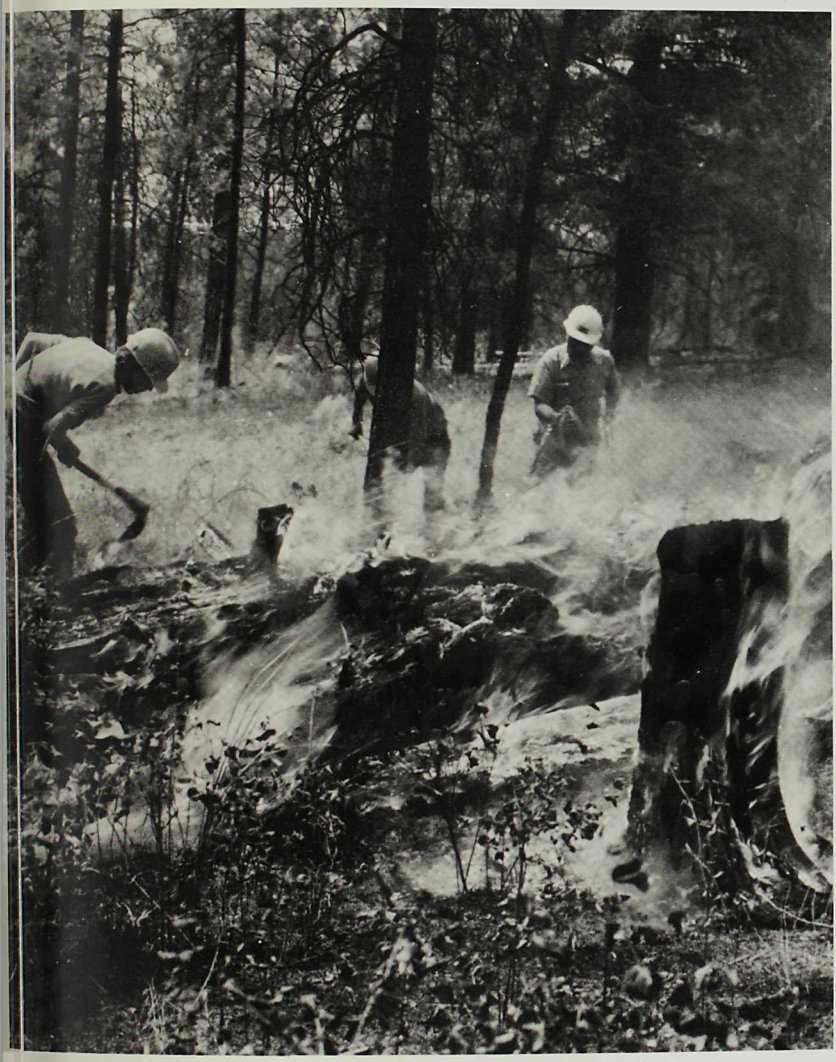


Table A-1 Silviculture Expenditure in 1980-81, by Forest Region

FOREST REGION	Administration	Basic & Intensive	Nursery Operations	Seed Operations	Inventory & Research	Tota
			(thousands of dollars)			
Cariboo	1,238	3,332	0	41	89	4,70
Kamloops	1,093	6,412	10	72	62	7,64
Nelson	625	3,213	0	183	73	4,09
Prince George	502	9,327	152	33	0	10,01
Prince Rupert	538	6,515	46	79	38	7,21
Vancouver	2,127	19,327	341	1,073	150	23,01
Victoria	1,310	526	10,526	2,016	566	14,94
TOTAL	7,433	48,652	11,075	3,497	978	71,63

Table A-2 Surveys on Crown Land of Natural Regeneration[1] in 1980-81, by Forest Region

FOREST REGION	Area Surveyed	Area Satisfacatorily Stocked	Area Not Satisfacatorily Stocked	Area Satisfacatori Stocked
		(hectares)		(%)
Cariboo	44 943	38 850	6 093	86.4
Kamloops	28 842	13 458	15 384	46.7
Nelson	30 265	18 163	12 102	60.0
Prince George	35 678	23 696	11 982	66.4
Prince Rupert	31 457	19 873	11 584	63.2
Vancouver	41 345	27 164	14 181	65.7
TOTAL	212 530	141 204	71 326	66.4

NOTE: [1] Does not include surveys on natural regeneration on Crown land within Tree Farm Licen

A-3 Site Preparation on Crown Land for Natural Regeneration in 1980-81, by Forest Region

MENT	Cariboo	Kamloops	Nelson	Prince George	Prince Rupert	Vancouver	Total
				(hectares)			
carified	512	787	1 512	205	0	0	3 016
ast burned	381	242	56	0	0	10	689
d and burned	33	553	989	1 187	37	0	2 799
d only	16	39	17	145	0	0	217
al treatment	0	0	0	54	0	0	54
arified	292	842	1 592	5 668	2 157	0	10 551
l falling	0	0	66	0	0	2 615	2 681
rned	97	42	1 862	0	380	246	2 627
ling only	0	0	0	0	0	0	0
	2 422	991	0	102	0	0	3 515
al	3 753	3 495	6 094	7 361	2 574	2 871	26 148
tment	10 151	1 934	0	10 965	4 295	2 833	30 178
	13 904	5 429	6 094	18 326	6 869	5 704	56 326

NOTES: [1]Includes other site preparation treatment (cultivation, brush chopping, etc.).

able A-4 Site Preparation on Crown Land for Planting in 1980-81, by Forest Region

MENT	Cariboo	Kamloops	Nelson	Prince George	Prince Rupert	Vancouver	Total
				(hectares)			
arified	363	570	159	4 307	1 113	213	6 725
ast burned	2 407	3 051	1 918	4 977	4 974	4 092	21 419
d and burned	945	2 845	43	2 128	835	28	6 824
d only	135	203	0	711	0	14	1 063
al treatment	0	0	0	0	0	78	78
arified	50	19	37	0	131	0	237
l falling	0	0	81	0	437	3 323	3 841
rned	17	86	939	79	0	1 040	2 161
ing only	192	0	0	0	20	0	212
	352	779	0	2 109	718	18	3 976
al	4 461	7 553	3 177	14 311	8 228	8 806	46 536
tment	0	1 848	0	2 692	54	3 250	7 844
	4 461	9 400	3 177	17 003	8 282	12 056	54 379

NOTE: [1]Includes other site preparation treatment (cultivation, brush chopping, etc.).

Table A-5 Crown Forest Land Planted in 1980-81, by Forest Region

FOREST REGION	Area Planted (hectares)	Trees Planted (thousands of trees)
Cariboo	5 772	7,193
Kamloops	6 483	8,267
Nelson	5 907	6,895
Prince George	19 775	25,212
Prince Rupert	5 590	7,425
Vancouver	19 355	18,787
TOTAL	62 883	73,778

Table A-6 Brushing and Weeding on Cr Land in 1980-81, by Forest Re

FOREST REGION	Area Treate (hectare
Cariboo	2(
Kamloops	26
Nelson	(
Prince George	5
Prince Rupert	9
Vancouver	2 50(
TOTAL	2 93(

Table A-7 Crown Forest Land Improved in 1980-81, by Forest Region

FOREST REGION	Spacing[1]	Fertilization	Site Rehabilitation	Conifer Release	Commercial Thinning	Mistle Cont
	(hectares)					
Cariboo	2 243	0	20	0	0	135
Kamloops	3 487	11	535	0	0	16
Nelson	1 406	0	45	0	0	
Prince George	1 352	0	2 643	0	0	1
Prince Rupert	2 751	0	403	0	0	3
Vancouver	11 185	5 505	159	2 680	31	
TOTAL	22 425	5 516	3 805	2 680	31	156

Note: [1] *Includes juvenile spacing and sanitation spacing.*

Table A-8 Seed Additions, Withdrawals and Inventory in 1980-81, by Species[1]

	Inital Inventory[2]	Additions: Natural Collections	Additions: Seed Orchard Collections	Withdrawals: Ministry Nurseries[3]	Withdrawals: Private & Licensee Nurseries[3]	Withdrawals: Other[4]	Final Inventory[5]
	(kilograms)						
estern Red	316.9	29.9	0.0	15.3	4.1	0.0	327.4
llow	14.4	1.6	0.0	5.7	0.0	0.0	10.3
ir	10 818.0	860.4	49.6	452.4	209.1	20.9	11 045.9
e	800.6	11.8	0.0	8.1	0.0	2.5	801.9
ilis	4 620.8	99.8	0.0	650.3	76.7	15.4	3 978.1
l	374.0	28.4	0.0	11.9	8.5	0.3	381.8
Mountain	98.6	0.0	0.0	1.0	0.4	0.2	97.0
Western	547.7	1.4	0.0	45.5	9.5	4.2	490.0
stern	112.5	160.8	0.0	8.9	1.8	0.3	262.2
gepole	3 866.0	244.7	0.0	92.4	42.3	24.2	3 951.8
derosa	621.6	15.8	0.0	27.6	15.5	0.6	593.6
nglemann	1 701.1	40.0	0.0	35.2	22.9	0.0	1 683.0
tka	1 167.8	0.0	0.6	21.5	8.9	0.2	1 137.8
hite	3 387.6	0.0	0.0	102.6	11.7	5.4	3 267.9
neral[6]	6 999.9	199.9	0.0	235.0	41.2	36.9	6 886.8
eous	262.6	5.7	0.0	7.6	3.1	1.6	256.0
	35 710.4	1 700.4	50.2	1 720.9	455.9	112.6	35 171.6

NOTES: [1] *Excludes approximately 200 kilograms of seed from exotic species.*
[2] *April 1, 1980.*
[3] *For sowing of seedlings primarily in 1981-82.*
[4] *Includes withdrawals for direct seeding, export, research purposes, etc.*
[5] *March 31, 1981.*
[6] *Includes natural crosses between Sitka, Englemann, White and Black Spruce.*

Table B-1 Forest Protection Expenditure[1] in 1980-81, by Forest Region

	Fire Management	Pest Management	Forest Protection Services	Air Operations Services	Planning, Development & Research Services	Total
	(thousands of dollars)					
o	1,022	449	167	111	1	1,750
o	1,727	448	93	94	2	2,364
	1,034	454	108	86	2	1,684
Corge	515	206	177	181	0	1,079
Robert	783	203	143	156	0	1,285
nt	1,776	271	154	118	2	2,321
a	103	273	412	35	344	1,167
	6,960	2,304	1,254	781	351	11,650

NOTE: [1] *Standby expenditure is included in Table B-2 to conform with the Ministry's program structure.*

Table B-2 Fire Suppression Expenditure in 1980-81, by Forest Region

FOREST REGION	Direct Fire Fighting	Suppr. Flying	Equip-ment	Standby & Overtime[1]	Suppr. & Safety Training	Site Rehabil-itation	To
			(thousands of dollars)				
Cariboo	454	533	52	231	8	0	1,
Kamloops	372	393	193	350	1	13	1,
Nelson	270	420	72	229	0	0	9
Prince George	6,027	1,511	141	406	0	0	8,
Prince Rupert	617	529	68	50	1	32	1,
Vancouver	239	581	56	353	0	0	1,
Victoria	950	2,242	701	154	102	12	4,
TOTAL	8,929	6,209	1,283	1,773	112	57	18,

NOTE: [1] Standby expenditure is included in this Table to conform with the Ministry's program structure.

Table B-3 Number and Cause of Wildfires[1] in 1980-81, by Forest Region

CAUSE	Cariboo		Kamloops		Nelson		Prince George		Prince Rupert		Vancouver		Total	
	1980-1981	Ten-Year Average[2]	1980-1981	Ten-Year Average	1980-1981	Ten-Year Average	1980-1981	Ten-Year Average	1980-1981	Ten-Year Average	1980-1981	Ten-Year Average	1980-1981	10 Av
							(number of wildfires)							
Lighting	35	125	170	323	174	314	148	131	45	54	87	100	659	1,
Recreational[3]	8	27	42	69	24	38	20	30	29	23	29	52	152	
Railroads	6	7	20	50	10	41	7	10	2	4	13	22	58	
Smokers	17	37	41	118	29	53	17	22	16	19	20	84	140	
Brush Burning[4]	29	20	21	26	15	16	41	24	14	8	6	11	126	
Range Burning	40	32	4	9	0	1	33	14	1	3	0	1	78	
Construction[5]	2	4	2	8	6	6	5	4	1	5	3	5	19	
Industrial[6]	15	27	37	49	28	32	29	29	30	20	37	48	176	
Incendiary	46	58	31	25	3	6	37	10	6	4	1	5	124	
Misc. Known Causes	37	63	60	102	42	58	38	21	17	25	17	40	211	
Unknown Causes	0	3	0	3	0	3	0	2	0	1	0	1	0	
TOTAL	235	403	428	782	331	568	375	297	161	166	213	369	1,743	2

NOTES: [1] Includes all wildfires in British Columbia.
[2] Based on 1970 through 1979.
[3] Campers, hunters, fishermen, etc.
[4] Excluding railway or right-of-way clearing.
[5] Road, power, telephone, pipeline and right-of-way construction.
[6] Logging, milling and other industries.

Table B-4 Area Burned by Wildfires[1] in 1980-81, by Forest Region

	Merchantable Timber		Immature Timber		Other[2]		Total	
	1980-1981	Ten-Year Average[3]	1980-1981	Ten-Year Average	1980-1981	Ten-Year Average	1980-1981	Ten-Year Average
				(hectares)				
	516	1 038	101	1 512	1 631	1 623	2 248	4 173
s	201	2 314	63	2 071	741	2 723	1 005	7 108
	93	2 482	44	2 136	434	4 198	571	8 816
eorge	8 268	5 736	22 829	7 498	28 950	24 163	60 047	37 397
ipert	318	2 702	15	1 124	852	6 669	1 185	10 495
er	237	534	62	656	223	976	522	2 166
	9 633	14 806	23 114	14 997	32 831	40 352	65 578	70 155

NOTES: 1 *Includes all wildfires in British Columbia.*
2 *Includes wildfires on NSR areas, NCC areas, grazing and pasture land, non-productive sites and fires less than 4 hectares in area.*
3 *Based on 1970 through 1979.*

Table B-5 Timber Burned by Wildfires[1] in 1980-81, by Forest Region

FOREST REGION	Merchantable Timber[2]	Immature Timber[3]	Total
	(thousands of m^3)		
Cariboo	129	4	133
Kamloops	73	3	76
Nelson	19	2	21
Prince George	755	1 231	1 986
Prince Rupert	53	1	54
Vancouver	37	11	48
TOTAL	1 066	1 252	2 318

NOTES:
1 *Includes all wildfires in British Columbia.*
2 *Before salvage. Burned timber is salvaged wherever practical.*
3 *Estimates. Based on species and generalized age and site information. Assumes complete mortality.*

Table C-1 Harvesting Expenditure in 1980-81, by Forest Region

FOREST REGION	Technical Services	Valuation	Timber Management	Engineering & Roads	Scaling	Tot
			(thousands of dollars)			
Cariboo	1,616	609	463	3,843	956	7,4
Kamloops	1,772	368	274	4,314	1,392	8,1
Nelson	1,683	295	624	8,716	1,290	12,6
Prince George	2,062	714	883	26,565	2,081	32,3
Prince Rupert	1,916	682	482	11,303	2,027	16,4
Vancouver	2,126	554	791	3,462	5,832	12,7
Victoria	8,339	875	1,066	1,915	272	12,4
TOTAL	19,514	4,097	4,583	60,118	13,850	102,1

Table C-2 Forest Revenue in 1980-81, by Forest Region

FOREST REGION	Annual Rents	Stumpage: Gross Stumpage	Stumpage: Less Credits	Stumpage: Net Stumpage	Roy-alty	Scal-ing	Inter-est	Other[1]	To
				(thousands of dollars)					
Cariboo	1,154	28,223	4,271	23,952	1	653	755	129	26,
Kamloops	1,329	26,459	7,089	19,370	246	996	461	138	22,
Nelson	1,170	22,148	9,485	12,663	134	935	410	100	15,
Prince George	2,775	71,485	32,144	39,341	107	1,487	1,897	126	45,
Prince Rupert	2,500	68,542	14,060	54,482	2,692	1,699	474	191	62,
Vancouver	6,384	173,719	13,810	159,909	10,528	3,316	498	593	181,
Victoria	881	76	0	76	0	0	0	6,286	7,
TOTAL	16,194	390,652	80,859	309,794	13,706	9,086	4,495	7,562	360,

NOTE: [1] *Includes forest revenue from forest protection agreements, recoveries of $5.812 million from the B.C. - Canada Intensive Forest Management Subsidiary Agreement and other miscellaneous sources.*

le C-3 Average Stumpage Prices Received on Timber Billed from Tree Farm Licences, Timber Sale Harvesting Licences and Timber Sale Licences other than Small Business Sales in 1980-81, by Species and Forest Region

E'	BALSAM		CEDAR		CYPRESS		FIR	
N	Volume (,000m³)	Price ($/m³)	Volume (,000m³)	Price ($/m³)	Volume (,000m³)	Price ($/m³)	Volume (,000m³)	Price ($/m³)
C	277	1.42	175	1.32	–	–	1 249	3.43
os	867	1.27	482	1.99	*	0.91	1 210	2.71
I	455	1.15	557	2.19	–	–	471	2.10
e eorge	1 173	1.35	37	1.31	–	–	224	7.46
e upert (C)	624	2.76	804	4.12	95	37.29	92	13.40
e upert (I)	1 218	1.64	145	2.19	–	–	*	3.75
) er (C)	2 857	10.89	2 893	8.26	478	56.57	1 471	13.32
) er (I)	137	5.78	47	4.04	4	14.16	85	4.93
AL	7 608	5.16	5 140	5.87	577	53.12	4 802	6.55

ES	HEMLOCK		LARCH		LODGEPOLE PINE		SPRUCE	
C	Volume (,000m³)	Price ($/m³)	Volume (,000m³)	Price ($/m³)	Volume (,000m³)	Price ($/m³)	Volume (,000m³)	Price ($/m³)
o	31	1.04	–	–	3 013	1.43	1 497	3.03
os	340	0.94	61	1.59	2 159	1.10	2 074	1.80
n	559	0.25	215	1.66	1 624	0.99	1 064	1.52
e eorge	23	1.17	–	–	3 581	1.30	6 487	3.05
e upert (C)	1 895	6.79	–	–	10	1.88	628	30.87
e upert (I)	1 227	0.91	–	–	1 901	1.36	1 411	2.49
ter (C)	5 074	10.58	–	–	1	7.19	140	36.92
ter (I)	108	4.71	–	–	22	1.13	61	3.48
AL	9 257	7.42	276	1.64	12 311	1.27	13 362	4.34

ES	WHITE PINE		OTHER SPECIES		ALL SPECIES	
O	Volume (,000m³)	Price ($/m³)	Volume (,000m³)	Price ($/m³)	Volume (,000m³)	Price ($/m³)
oc	*	1.07	2	1.33	6 244	2.21
ocs	35	8.91	26	7.22	7 254	1.70
n	180	9.71	15	5.18	5 140	1.61
e eorge	*	1.08	22	0.51	11 547	2.41
e upert (C)	*	2.61	18	1.51	4 166	10.10
e upert (I)	–	–	24	0.61	5 926	1.61
our (C)	31	6.84	16	2.99	12 961	12.41
our (I)	5	8.04	1	0.74	470	4.77
AL	251	9.20	124	2.97	53 708	5.16

NOTES: [1] *Volumes exclude firmwood rejects and waste.*
[2] ** indicates volume less than 500m³.*
[3] *Average stumpage prices do not reflect the effect of credits against stumpage.*

Table C-4 Stumpage Revenue from the Small Business Enterprise Program in 1980-81, by Forest Region

FOREST REGION	Volume Billed[1] (,000m^3)	Stumpage Appraised[2]	Bonus Bid (thousands of dollars)	Stumpage Received	Stumpage Recei as a % of Stumpage Appra (%)
Cariboo	231	321	1,115	1,435	447
Kamloops	107	157	208	365	232
Nelson	14	25	73	98	390
Prince George	93	262	351	613	234
Prince Rupert:					
Coast	18	49	1	49	101
Interior	173	185	278	464	250
Vancouver	75	361	502	864	239
TOTAL	711	1,360	2,528	3,888	286

NOTES: [1] *Excludes firmwood rejects and waste.*
[2] *Appraised stumpage was set at prescribed minimum rates for the period June 1, 1980 through March 31, 1981.*

Table C-5 Total Volume of All Products Billed[1] in 1980-81, by Forest Region

LAND STATUS	Cariboo	Kamloops	Nelson	Prince George	Prince Rupert	Vancouver	To
			(thousands of cubic meters)				
Crown Land							
Tree Farm Licences[2]	111	733	1 469	542	2 757	7 076	12
Timber Sale Harvesting Licences	3 052	3 324	2 417	7 584	5 898	4 954	27
Timber Sale Licences	3 514	3 732	1 520	3 940	1 834	1 533	16
Licences to Cut	166	24	119	403	247	86	1
Timber Licences	0	0	6	52	0	447	
Old Temporary Tenures[3]	0	127	62	15	754	6 414	7
Other[4]	65	60	14	11	18	335	
Sub-Total	6 909	8 001	5 608	12 547	11 508	20 844	65
Private Land	428	412	737	535	506	4 264	6
Other[5]	10	23	5	49	138	59	
TOTAL	7 347	8 437	6 350	13 131	12 152	25 167	72

NOTES: [1] *Includes firmwood rejects.*
[2] *Includes schedule B lands only.*
[3] *Includes special timber licences, timber leases, pulp licences, pulp leases and timber be*
[4] *Includes farm woodlot licences, right of way, beachcomb, trespass and misc.*
[5] *Includes Indian Reserves and Dominion reserves.*

Table C-6 Area Harvested[1] in 1980-81, by Forest Region

FOREST REGION	Clear Cutting	Selective Cutting	Total
		(hectares)	
Cariboo	22 613	10 395	33 008
Kamloops	15 927	10 481	26 408
Nelson	14 240	8 165	22 405
Prince George	46 234	0	46 234
Prince Rupert	26 653	1 473	28 126
Vancouver	31 119	534	31 653
TOTAL	156 786	31 048	187 834

NOTE:

1 *Includes all harvesting on Crown lands. Excludes harvesting of private lands except private lands within Tree Farm Licences, Tree Farms and Farm Woodlot Licences.*

Table C-7 Small Business Enterprise Program in 1980-81, by Forest Region

REGION	Registrants[1]		Sales		Volume	
	Cat. 1[2]	Cat. 2[3]	Cat. 1	Cat. 2	Sold[4]	Value[5]
	(number of)				(,000m^3)	($,000)
c	338	97	51	30	556.2	2,591.3
o	595	223	53	39	254.7	1,130.2
	428	220	24	30	171.2	711.7
Korge	491	191	12	14	80.5	516.7
Ipert	500	206	166	46	479.9	1,469.3
ır	771	171	94	7	421.7	3,790.2
	3,123	1,108	400	166	1 964.2	10,209.4

NOTES:
1 *On March 31, 1981.*
2 *Category 1: Registrants who, at the time of application, did not own a timber processing facility.*
3 *Category 2: Registrants who, at the time of application, owned a timber processing facility.*
4 *Tendered volume.*
5 *Value based upon appraised price at time of sale plus bonus bid, if any.*

Table C-8 Number of Tenures at March 31, 1981, by Forest Region

TENURE	Cariboo	Kamloops	Nelson	Prince George	Prince Rupert	Vancouver	To
				(number of licences)			
Tree Farm Licences[1]	1	7	5	1	6	17	
Farm Woodlot Licences	11	2	4	6	4	10	
Timber Sale Harvesting Licences	38	48	37	60	48	41	
Timber Sale Licences:							
Quota	44	113	67	42	38	126	
Third Band	31	65	33	62	4	0	
S.B.E.P.[2]	90	116	87	31	285	101	
Other	463	75	116	109	522	1,472	2,
TOTAL	678	426	349	311	907	1,767	4,

NOTES: [1] *Tree Farm Licences 2, 25 and 39 are in both Vancouver and Prince Rupert Forest Regions.*
[2] *Small Business Enterprise Program.*

Table C-9 Commitment as at March 31, 1981, by Forest Region

Tenure	Cariboo	Kamloops	Nelson	Prince George	Prince Rupert	Vancouver	To
				(thousands of m^3)			
Tree Farm Licences[1]	119	772	1 641	441	4 194	11 904	19
Farm Woodlot Licences	2	0	1	2	1	2	
Timber Sale Harvesting Licences	2 833	3 123	2 392	9 024	6 616	5 268	29
Timber Sale Licences:							
Quota	354	138	123	490	240	1 304	2
Third Band	2 767	3 043	2 149	4 408	501	0	12
S.B.E.P.[2]	341	352	276	989	1 091	300	3
Other	0	0	0	0	0	0	
TOTAL	6 416	7 429	6 581	15 353	12 643	18 778	67

NOTES: [1] *Tree Farm Licences 2, 25 and 39 are in both Vancouver and Prince Rupert Forest Regions.*
[2] *Small Business Enterprise Program.*

Table D-1 Range Management Expenditure[1] in 1980-81, by Range District

NCT	Planning, Administration	Improvements: Repair, Maintenance	Improvements: Development	Inventory, Research	Total
			(thousands of dollars)		
b	509	33	347	112	1,001
lps	149	0	578	1	728
o	219	31	69	34	353
George	361	20	36	74	491
lupert	189	0	10	0	199
ver	12	0	0	0	12
	105	0	0	56	161
A	1,544	84	1,040	277	2,945

NOTE: [1] Excludes expenditure funded through the Agriculture and Rural Development Subsidiary Agreement (ARDSA) which was administered by the Ministry of Forests.

Table D-2 Range Revenue in 1980-81, by Range District

RANGE DISTRICT	Annual Rents and Fees
	(thousands of dollars)
Cariboo	552
Kamloops	522
Nelson	118
Prince George	223
Prince Rupert	30
Vancouver	1
Victoria	1
TOTAL	1,447

Table D-3 Grazing Permits and Grazing Licences in 1980-81, by Range District

GDISTRICT	Permits: Number	Permits: Authorized	Permits: Utilized	Licences: Number	Licences: Authorized	Licences: Utilized
		(AUM's)[1]			(AUM's)	
oo	559	333,014	323,195	36	39,298	41,448
oos	516	287,766	285,412	13	33,536	33,536
n	257	68,689	68,689	15	6,282	6,282
eorge	396	139,581	137,161	12	957	846
pert	134	26,345	24,675	1	70	63
our	8	608	608	0	0	0
AL	1,870	856,003	839,740	77	80,143	82,175

NOTE: [1] Animal Unit Month (AUM) means the amount of forage required for one month by an average animal of the genus bos, aged 6 months or older.

Table D-4 Hay Cutting Permits and Hay Cutting Licences in 1980-81, by Range District

RANGE DISTRICT	Permits			Licences		
	Number	Authorized (tonnes)	Utilized (tonnes)	Number	Authorized (tonnes)	Utiliz (tonnes)
Cariboo	38	571	315	39	627	39
Kamloops	0	0	0	1	10	1
Nelson	0	0	0	2	35	3
Prince George	9	148	148	1	9	9
Prince Rupert	8	83	83	0	0	0
Vancouver	0	0	0	0	0	0
TOTAL	55	802	546	43	681	44

Table D-5 Range Improvements[1] in 1980-81, by Range District

RANGE DISTRICT	Seeding[2] (ha)	Fencing[3] (km)	Weed Control[4] (ha)	Water Development[5] (no.)	Oth (no
Cariboo	3 025	66	15	5	3
Kamloops	11 380	79	306	32	3
Nelson	975	21	87	16	2
Prince George	1 939	131	61	0	2
Prince Rupert	387	35	0	0	
Vancouver	50	0	0	1	
TOTAL	17 756	332	469	54	14

NOTES: [1] *Excludes improvements financed through ARDSA.*
[2] *Includes grassland rehabilitation and seeding of disturbed forest lands (clearcuts, e*
[3] *Includes repair and maintenance of fences and new fences constructed.*
[4] *Control of knapweed, thistle, etc.*
[5] *Includes repair and maintenance of water developments and new water developme*
[6] *Includes repair, maintenance and development of trails, corrals, cattleguards, etc.*

Table E-1 Recreation Expenditure in 1980-81, by Forest Region

	Administration	Protection & Maintenance of Rec. Values	Site/Trail Maintenance, Improvements & Development	Research & Inventory	Total
			(thousands of dollars)		
	103	6	285	2	396
	42	44	526	18	630
	139	81	285	0	505
orge	97	0	205	0	302
ert	54	47	148	0	249
	133	32	333	18	516
	117	65	0	18	200
	685	275	1,782	56	2,798

Table E-2 Recreation Site and Trail Use in 1980-81, by Forest Region

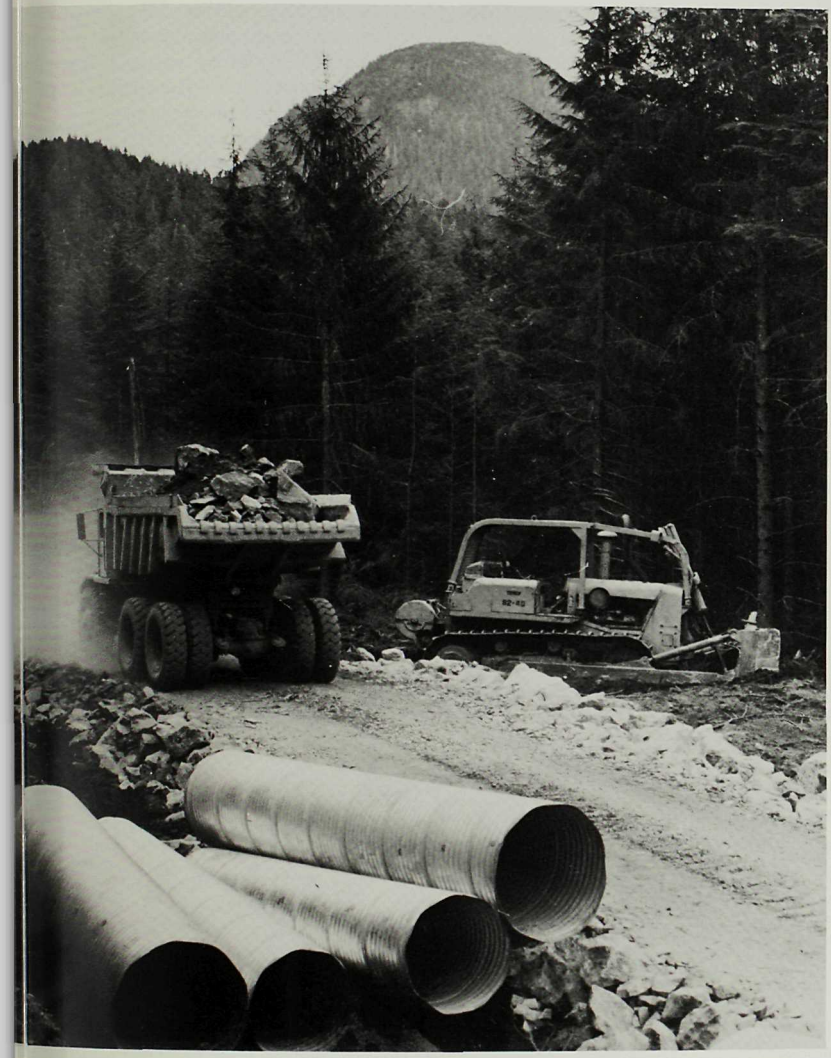
	Class A Sites[1]		Class B Sites[3]		Trails	
REGION	Number	User Visits[2]	Number	User Visits[2]	Length[4]	User Visits[5]
	144	133,444	2	2,092	210	16,000
s	233	350,000	106	61,800	629	34,000
n	216	160,815	24	5,672	977	30,000
eorge	153	122,410	19	2,695	337	50,000
ipert	63	88,153	19	25,964	99	8,000
ier	127	262,000	21	8,600	425	50,000
l	936	1,116,822	191	106,823	2,677	188,000

NOTES: [1] *Class A Sites are those with tables, litter facilities and ground toilets.*
[2] *Estimates. Based on field surveys.*
[3] *Class B Sites are those with litter facilities only.*
[4] *In kilometers.*
[5] *Estimates.*

Harvesting

The Harvesting Program increases the amount of timber accessible to the forest industry. Sixty percent of the program's activity was devoted to engineering and road construction.

7. The Structure of the Ministry



Ministry Organization

The Ministry established its present structure in order to decentralize administrative authority. The district, region and headquarters staffs work together to decentralize decision-making. The Ministry headquarters staff define policy and provide overall guidance. They also advise the deputy minister and through him, the minister a government on all matters relating to forest and range policy.

Headquarters

As shown in the organization chart on page 47, the Ministry headquarters staff is organized into the following four divisions:

- Forestry;
- Timber, Range and Recreation;
- Finance and Administration;
- Operations.

Each of the four divisions is headed by an assistant deputy minister who reports to the deputy minister. These four officials, together with the deputy minister as chairman, constitute the Ministry's executive. In addition to the four assistant deputy ministers, the directors of the Information Services Branch and the Strategic Studies Branch report directly to the deputy minister.

The functions of each division are summarized below.

The *Forestry Division* ensures that all Crown forest and range lands are managed to provide the greatest long-term benefits for British Columbia. The assistant deputy minister of this division is also the chief forester. The Forestry Division maintains a comprehensive inventory of all the province's forest and range resources and assesses these lands in terms of their present and potential uses. The division comprises the following five branches:

- Planning;
- Inventory;
- Research;
- Silviculture;
- Protection.

The *Timber, Range and Recreation Division* is responsible for formulating comprehensive timber, range and recreation programs and rela resource management policies. It also advises t executive on all matters involving engineering valuation activities. The division is composed o the following five branches:

- Range Management;
- Timber Management;
- Recreation Management;
- Valuation;
- Engineering.

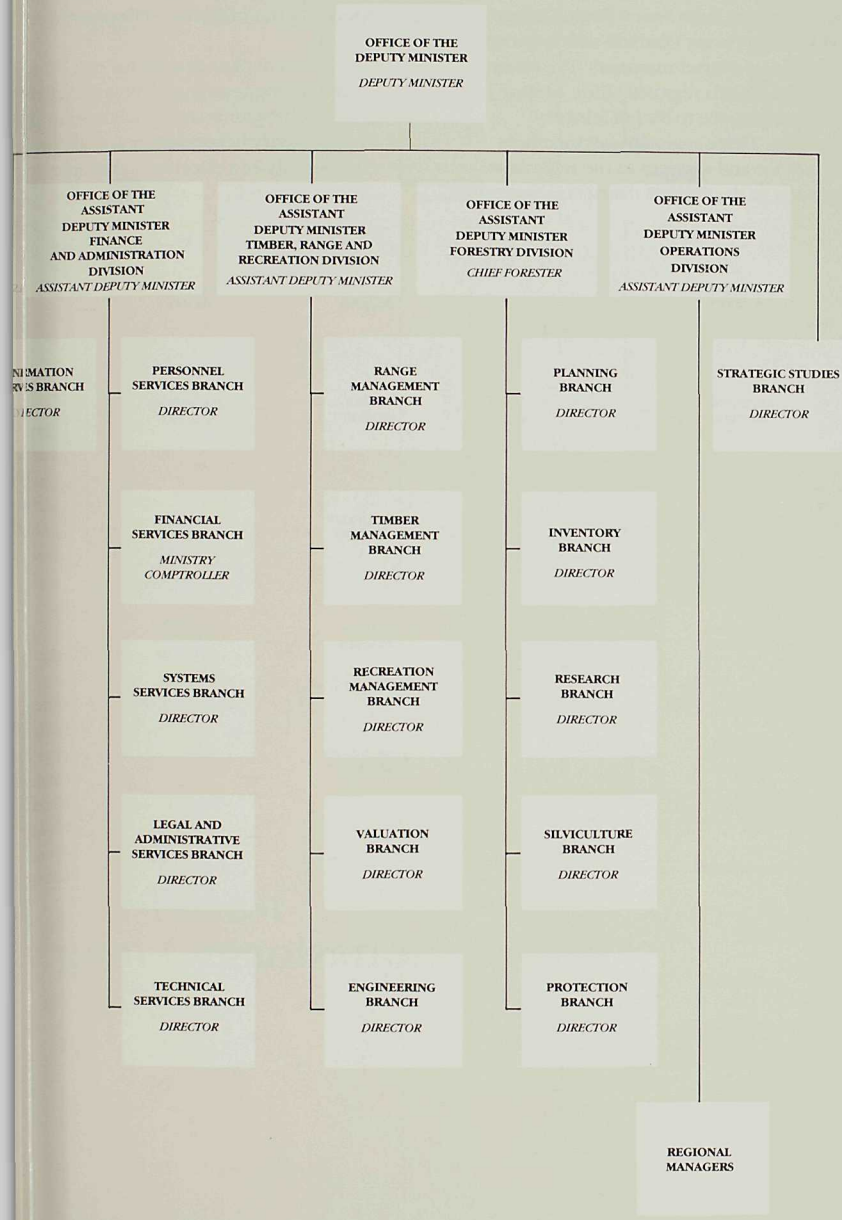
The *Finance and Administration Divisio* responsible for advising the executive in all administrative matters and for developing poli and procedures pertaining to the Ministry's general administration. The division is compos of the following five branches:

- Personnel Services;
- Financial Services;
- Systems Services;
- Legal and Administrative Services;
- Technical Services.

The *Operations Division* is responsible fo ensuring that the Ministry's policies, programs procedures are promptly and effectively implemented in the province's six Forest Regi and 46 Districts. The assistant deputy minister operations functions as the deputy minister's immediate assistant in administering and coordinating all field operations. The six Fores Regions are:

- Cariboo;
- Kamloops;
- Nelson;
- Prince George;
- Prince Rupert;
- Vancouver.

Headquarters Organization



Forest Regions

For administrative purposes, the Province is divided into six Forest Regions. Each is administered from its own regional office by a regional manager. Each Forest Region is further subdivided into Forest Districts which are under the direction of district managers. The internal organization of each regional office, as shown on page 49, is analogous to that of Ministry headquarters. Three regional staff members provide advice and services to the regional manager and to the various district managers and field personnel. Regional office personnel are responsible for servicing, coordinating and monitoring the activities of all field personnel operating out of district offices throughout each region.

The staff of each regional office develops regional programs and plans and ensures that al policies, programs and procedures originating from Ministry headquarters are administered consistently and effectively throughout the regi

Forest
legion Organization