DEPARTMENT OF FORESTRY
QUEENSLAND

ANNUAL REPORT 1977-78

PRESENTED TO PARLIAMENT BY COMMAND

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PRINCIPAL STATISTICS

	Hectares
FOREST AREA	
State Forest Reserve	3 443 627
Timber Reserve	616 444
Plantations—	
Total Area (Net) at 31 March 1978	113 139
Area planted (Net) 1977/78	6 622

TIMBER CUT—CROWN LANDS 1977-78	Cubic Metres (Gross)
Sawlog:	
Native Forests—	
Broadleaved	389 908
Coniferous	171 988
	561 896
Plantations—	
Broadleaved	338
Coniferous—	
Native	73 716
Exotic	90 676
	164 730
Pulpwood:	
Broadleaved	9 803
Coniferous—	
Native	10 679
Exotic	85 481
	105 963
Total Timber Cut	*832 589*

FINANCIAL	$
Receipts:	
Consolidated Revenue Fund	727
Loan Fund	766 998
Forestry and Lumbering Fund—	
Opening Balance	+42 803
Receipts	10 516 483
Balance Carried Forward	−270 348
	$10 288 938
Reforestation Trust Fund—	
Opening Balance	+192 899
Receipts	15 729 230
Balance Carried Forward	−31 502
	$15 890 627
Expenditure:—	
Consolidated Revenue Fund (including Salaries etc.)	8 273 176
Loan Fund	14 026 211
Trust and Special Funds—	
Forestry and Lumbering Fund	10 288 938
Reforestation Trust Fund	15 890 627

REPORT OF THE CONSERVATOR OF FORESTS

For the Year ended 30 June 1978

To the Honourable the Minister for Lands, Forestry and Water Resources

INTRODUCTION

A very creditable performance by the Department can be reported, despite the fact that the year under review was beset with problems.

A further 6 620 hectares of conifer plantations were established, this being the second highest annual planting ever recorded for the State.

This plantation work was complemented by the silvicultural treatment of almost 20 000 hectares of natural forest, designed to increase productivity.

The total volume of Crown log timber and pulpwood which was harvested was a record, although difficult trading conditions continued in the timber industry. It is considered that limited private log timber supplies and the growing availability of plantation grown timber from the Crown contributed to the overall high cut from Crown sources.

The levels of stumpage payments received by the Crown for its timber were, however, well down as there have been no adjustments in these levels to match the Consumer Price Index movement since July 1974. If this situation continues it seems inevitable that there must be reductions in the range of services provided for the timber industry and the general public. This is despite the fact that economies have been achieved in the Department's log sale costs by the introduction of gross measurement and computer processing of stumpage accounts throughout the State, as well as various other measures.

There has also been a significant reduction in the level of financial assistance for reforestation provided by the Commonwealth Government. Not only has support for new plantings been withdrawn but funds for maintenance of plantations established under the previous Softwood Agreements will no longer have a ten year interest free period.

As part of a continuing effort to get maximum value for money expended a new system of financial budgeting on a Department wide basis has been introduced. The emphasis has been on realistic delegation of authority and responsibility, with appropriate accountability for decisions at district and divisional levels.

Apart from finance, problems were caused by a major drought, with rainfall at most plantation centres the lowest for twenty years, and at Yarraman and Benarkin the lowest ever recorded.

There were fairly serious losses at these two centres in quite old exotic pine planted on frosted sites in these mainly hoop pine areas. Salvage logging was put in hand and is continuing satisfactorily.

In 1977 we had the worst fire season for nine years and this led to the most damaging plantation fire yet recorded. About 260 hectares of young radiata pine on the Passchendaele State Forest were destroyed in October 1977.

On the brighter side the Department was concerned with 150 wild fires less than in 1968, and this is largely attributed to our current policy of planned fuel reduction by prescribed burning of both native hardwood forests and exotic pine plantations in the cool winter months.

Mention was made in last year's report of the Department's Development programme. This was continued with success, and a Management Services Branch has now been created. This Branch will promote and encourage the implementation of improved management and administrative systems, and continue to promote staff development on a Department wide basis.

Completion of the Forestry Training and Conference Centre at Gympie this year represents an important milestone in the history of the Department, and we are very grateful to the Government for the provision of this much needed facility.

This Centre will cater for the training of subprofessional staff and will also be used extensively for a wide range of Departmental in-service training activities and conferences.

In the field of safety the lost time accident rate again showed a decrease, and has been halved since 1972–73.

The Minister's shield for the lowest accident rate and the Conservator's shield for the most improved safety record for the year were both won by Monto District.

A campaign to promote public awareness and understanding of the policies and practices of the Department was continued. Public Open Days were conducted at Beerwah and Mackay and proved very successful.

Displays were held in Brisbane and other centres on World Forestry Day and three field days were held with conservation groups to exchange viewpoints on particular areas of concern.

Three major planning projects have been commenced to provide the basic information for some aspects of future departmental policy. These involve the management of hoop pine plantations, pruning of plantations, and the development of a management information system.

The Department also maintained a significant input on forestry matters to a number of inter-Departmental and Local Authority Committees conducting local and regional land use studies.

There was a marked increase this year in the number of publications produced by the

Technical Services Division, and there has been benefit in work integration by the grouping of the Timber Utilisation Branch and the Forest Research Branch under this Division.

Plans were prepared and work commenced on sawing and peeling studies of large size plantation hoop pine, slash pine and loblolly pine, with C.S.I.R.O. and timber industry assistance. The results of these studies will assist with the management decisions which will be necessary in advance of the time when substantial volumes of final crop plantation stems become available for harvesting.

The Department pursued a vigorous policy of destroying outlier infestations of the West Indian drywood termite in suburban Brisbane. Plans, aimed at eradicating the major infestation in central Brisbane in 1979, were pushed ahead.

Studies of the impact of Phytophthora root rot fungus on tropical rain forest were continued. It has been established that this fungus is widespread, but not ubiquitous. Fortunately it appears that only rain forests on poorly drained soils of low fertility are seriously at risk.

In the silvicultural field sound research work has led to the successful planting of the fast growing Honduras Caribbean pine on well drained sites in South East Queensland. The programme of testing its suitability for establishment on poorly drained sites, using appropriate site preparation techniques, was continued.

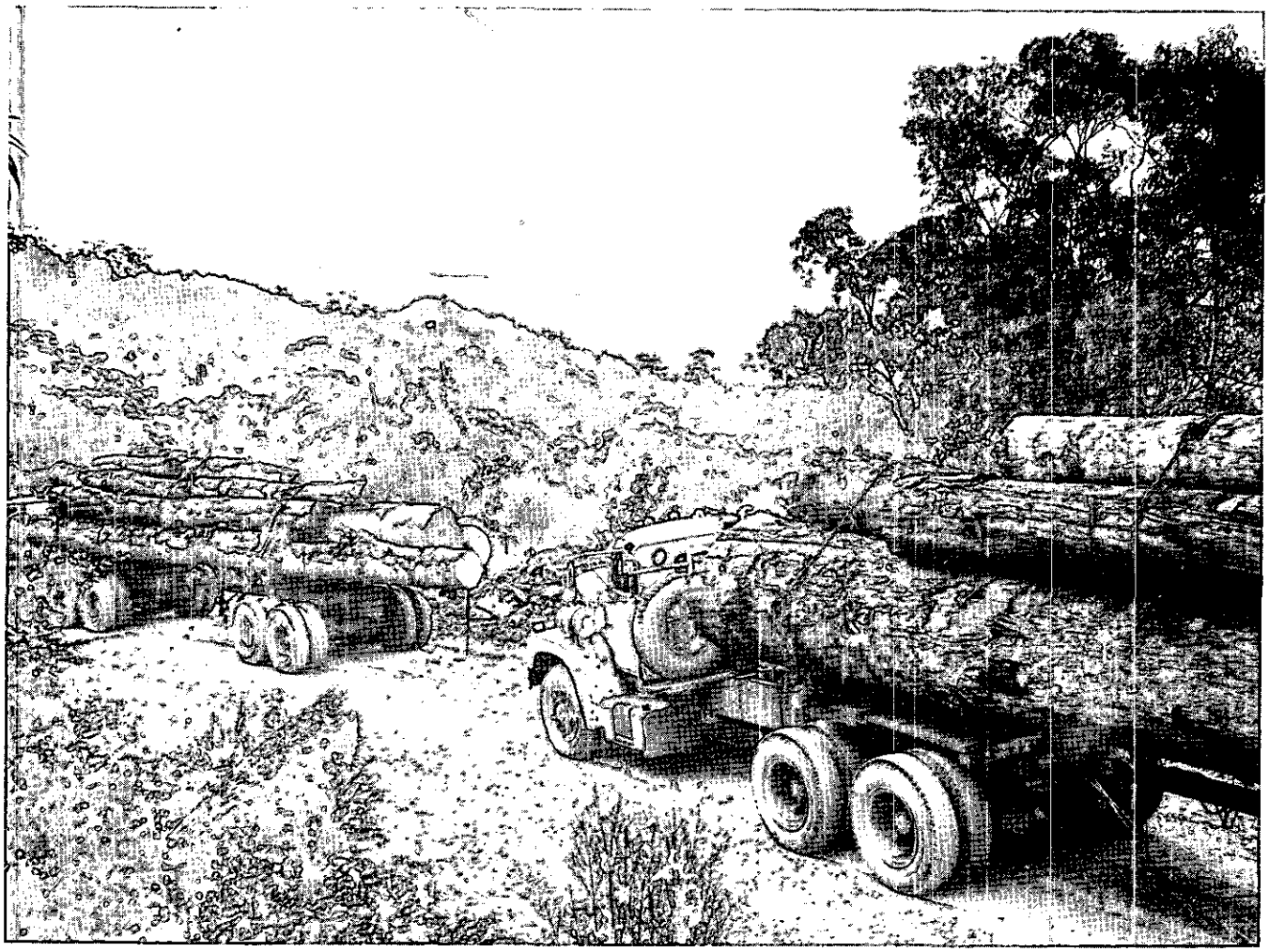
The continuing high cost of weed control in hoop pine plantations has been causing some disquiet, and work aimed at lessening this cost has been given emphasis.

Findings of the slash pine nutrition research programme were that it would be economically sound to refertilize 8–12 year old slash plantations on poorly drained sites, and this is now being put into effect.

During the year the Officer in Charge of Tree Breeding visited all continents as a consultant to F.A.O. to report on proposals to co-ordinate tree improvement in lowland tropical conifers around the world. The Department is happy to be associated with this work, which could be of immense benefit to some developing countries.

I would also like to take this opportunity to record my appreciation of the loyal and efficient services of all members of the staff during the past year.

W. BRYAN,
Conservator of Forests.



Hardwood logs leaving Blackdown Tableland—Rockhampton District.

DIVISION OF OPERATIONS

General: The Division is responsible for the approval of projects and the allocation of funds for works programmes involving silvicultural operations, road construction and maintenance, fire protection and communications, capital works including development of forest recreation facilities, maintenance to capital improvements, purchase and maintenance of vehicles and heavy plant, and road subsidies to Shire Councils.

Field operations were maintained at a high level despite the impact of a major drought which affected Central and Southern Queensland.

Record or near record low rainfalls were experienced in parts of the Yarraman, Murgon and Brisbane Districts.

Hoop pine plantings were delayed because of abnormally dry conditions, and there were some serious losses following planting.

Older hoop pine plantation areas withstood the extreme conditions very well. There were some losses in older exotic pine areas. The species worst affected was patula pine where some major salvage logging was required.

Some native rainforests in South-East Queensland were severely defoliated, and some scrub firebreaks surrounding hoop pine plantings were rendered temporarily ineffective as a result.

The dry conditions caused a very serious fire season.

SILVICULTURE

Seed Collection: Collections of exotic pine seed were made to meet Departmental requirements and to provide seed for overseas and local sale.

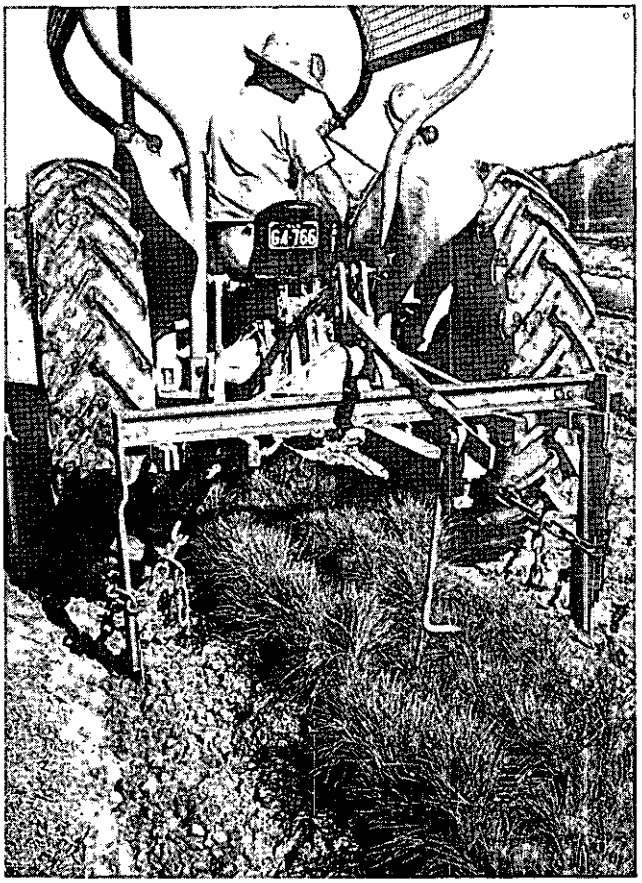
The Caribbean pine seed collection yielded 260 kg of seed, 75 kg of which came from the Kennedy seed orchard.

With the expansion and maturity of the Kennedy seed orchard and the promotion of seed yields from high quality stands at Bowenia, the Department will be able to supply all its nurseries with high quality seed. Orders from overseas countries totalled 470 kilograms. The large seed crop expected in 1978–79 will enable the Department to supply a greater proportion of the increasing orders from overseas purchasers.

Slash pine seed was collected with the aid of a mechanical tree shaker with considerable savings in cost over manual methods. Collection amounted to 550 kg and a two year supply is now held in cold storage.

No routine collection of hoop pine was made because of a poor seed crop but some five years supply is held in cold storage.

To satisfy the growing demand, a collection was made of a large number of ornamental species for sowing and sale to the public. A good seed crop combined with logging operations allowed collection of in excess of 200 kg of rose gum seed and 50 kg of swamp mahogany seed from native forests. This seed will be sold to overseas purchasers.



Mechanical lifting of seedlings—Beerburrum Nursery.

Nurseries: The exotic pine nurseries continued to produce at a very high level. Improved yields are being obtained by continuous analysis of production methods and increased mechanisation. Water supply requirements at Toolara nursery were examined following irrigation problems and installation of further water storage and supply mains is under way. The provision of new mechanical equipment such as bed lifters and bed formers is being considered.

New exotic pine nurseries are being planned for Bowenia and Maryborough to meet future requirements, and to incorporate quarantine measures needed for production of healthy stock. They will incorporate the techniques developed at the large Toolara and Beerburrum nurseries.

In line with the rationalization of the hoop pine plantation programme, nursery production is now concentrated in four major nurseries.

Two significant nursery problems occurred this year. Chlorosis problems in Caribbean pine caused by zinc toxicity have been overcome by replacement of soil in seed beds and the use of tin-plate instead of galvanised plate in the planting tubes. The occurrence of the fungus, *Dothistroma septospora*, in radiata pine plantations at Gambubal near Killarney necessitated quarantine restrictions being placed on the movement of this species from the Passchendaele and Pechey nurseries.

Plantation Establishment: A total of 6 620 ha of new plantations was established comprising 5 676 ha of exotic pines and 944 ha of hoop pine.

Major exotic pine plantations are being established on the coastal lowlands at Beerburrum, Toolara, Maryborough, Bundaberg, Bowenia and Cardwell. Slash pine continues to be the major species planted south of Maryborough with 4 171 ha planted this year, compared with 3 322 ha in 1976–77. Honduras Caribbean pine is the major species planted north of Maryborough. However, because of its faster growth rates, the recent development of successful open-root planting techniques, and achievements in genetic improvement, this species is now assuming greater importance in southern Queensland. In 1977–78, 1 459 ha were planted with Caribbean pine compared with 1 061 ha in 1976–77.

Funds made available to the Department by the Commonwealth Government to provide employment following the cessation of sand mining on Fraser Island have allowed increased plantings in the Tuan/Toolara area. A new planting front commenced to the north of Maryborough.

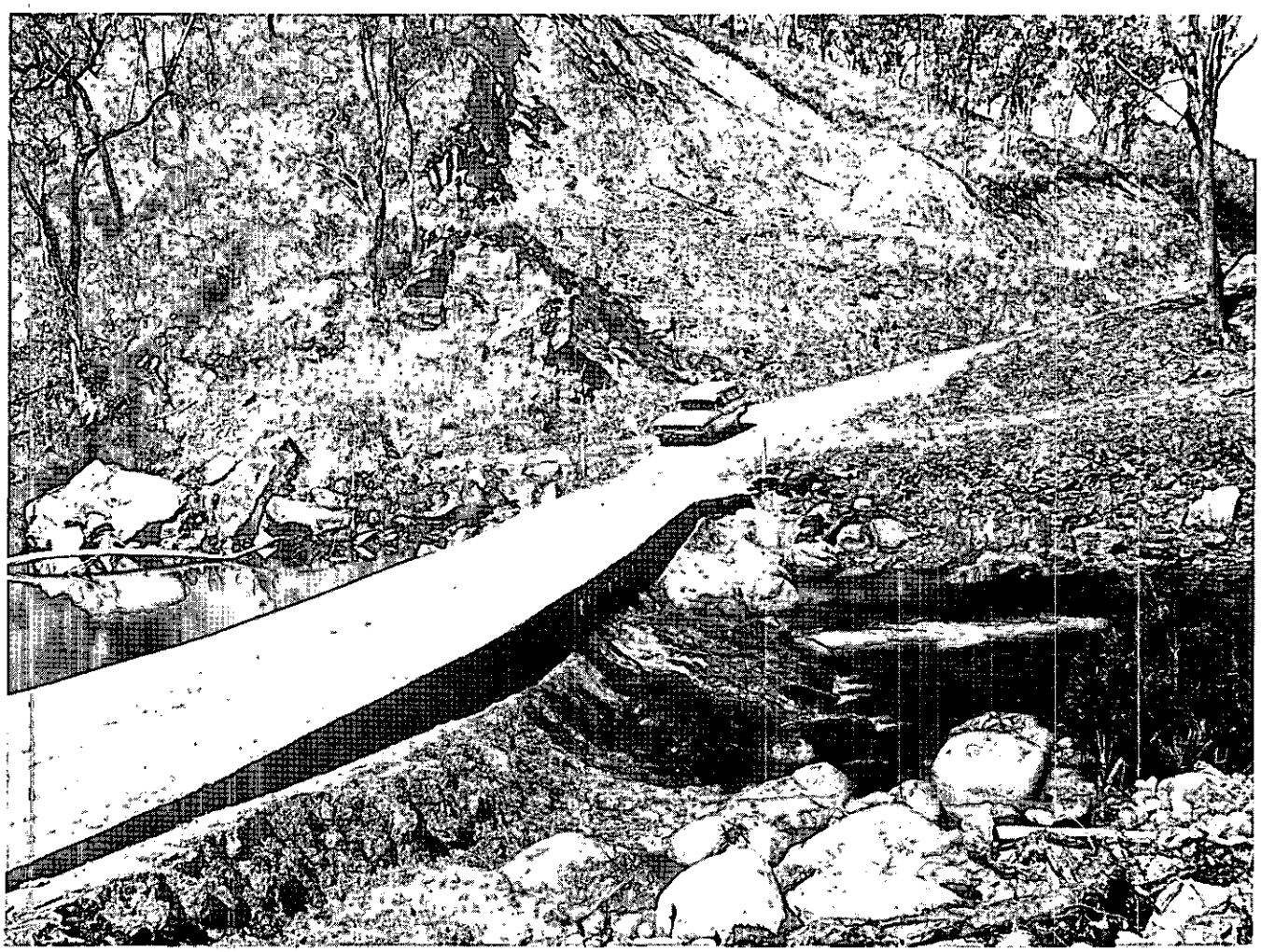
$550,000 was made available in 1977–78 for silvicultural work compared with $300,000 in 1976–77. Most of the funds have been spent on plantation establishment.

Hoop pine plantations established increased from 707 ha in 1976–77 to 944 ha in 1977–78. The availability of suitable planting land at various centres and rising establishment costs have necessitated some revision and rationalization in the hoop pine programme in recent years. Dry conditions during 1977 caused some losses and delayed plantings.

There has been continued interest in private forest plot plantings throughout the State. The high level of Departmental operations, coupled with some loss of productivity in the Toolara nursery due to irrigation problems reduced the availability of slash pine seedlings for private sale. The construction of further nursery capacity should enable the Department to supply all private planting requirements in future. Interest in private planting is encouraged through our extension advisory service, and by sale of seedlings at concessional rates.

Weed Control: Despite the drought, weed control continues to be a major operation in plantation establishment.

Weed growth is both lush and prolific on rainforest sites used for hoop pine plantation establishment. Operations are largely manual due to the steep nature of the topography. Hence expenditure is high on weed and lantana control for successful establishment and management.



Creek Crossing—Mt. Windsor Road, North Queensland.

Practices such as post plant misting, progressively introduced in recent years, have allowed costs to remain relatively static.

Lantana remains the most serious single weed. While the drought prevented the introduction of an expanded biological control programme, trials with a new herbicide showed promise. A single mist application of "Krenite" gave a kill in excess of 90 per cent.

Weeds in exotic pine plantations are controlled by the use of mechanical cultivation supported by spot application of herbicides. Research indicates that use of soil residual herbicides may be a satisfactory alternative practice. Routine application of residual herbicides to radiata pine resulted in increased survival, improved growth and good weed control at reduced cost.

Weed control management practices have been reviewed and a further series of field trials are being instituted. Training programmes have been introduced to improve work efficiency.

Nutrition: Routine application of phosphate fertilizers was made to all newly established exotic pine plantations. These involve manual, mechanical spreader and aerial applications. Some 1 800 ha of 10 year old plantations in the Tuan/Toolara area were refertilized aerially with 500 kg of processed granular superphosphate per hectare. Research findings indicated that the particular areas required additional fertilizer for satisfactory growth.

Native Forests: Silvicultural operations are carried out in native forests to improve timber production. These operations involve the removal of unwanted and useless stems to promote growth of crop stems and the regeneration of understocked areas.

Enrichment planting is carried out in some wet sclerophyll eucalypt forests. The level of activity is dependent on availability of funds and manpower.

This year, 18 983 ha of eucalypt, cypress pine and rainforest were treated in comparison with 11 582 ha in 1976–77.

GENERAL OPERATIONS BRANCH

Fire Protection: The 1977 fire season was the most serious since 1968 and resulted in the greatest single loss of established plantation in the Department's history; 213 outbreaks of fire occurred, of which 11 were in plantations.

The most serious fire occurred at Passchendaele on 1 October 1977.

It destroyed about 260 ha of young radiata pine plantation, a very fire-sensitive species. The fire originated in non-productive hardwood forest to the south of the plantation. Post-fire investigation has resulted in changes in the overall protection in the area. This includes the hazard reduction burning of the native hardwood forest country.

Replanting with slash pine and loblolly pine, which are more resistant to fire, is proposed.

Other major fires occurred at Woodford, Blackbutt, Mt. Stanley, Kenilworth, Bowenia and areas to the west of Brisbane.

Due largely to the drought conditions, fuel levels were relatively low in the cypress pine forests west of the Dividing Range and the fire season was not abnormally severe in this part of the State.

Expenditure on fire fighting was $466 252. All major fires were investigated by a committee of senior officers. These investigations resulted in recommendations for revision of protection procedures and also provided current material for a fire seminar which was held at Gympie in April. The total number of wild fires in 1977 was some 150 less than in 1968; this reduction can be attributed at least partially to the overall improved protection policy and management procedures introduced since that time. The major aspect of this improvement is the planned reduction in fuel achieved by prescribed burning in the winter months. This is a routine practice in both exotic pine plantations and native hardwood forests. Burning is carried out on a rotational basis.

The dry winter of 1977 was favourable for prescribed burning and a total of 130 000 ha of native forest was burnt using incendiaries dropped from fixed wing aircraft. In addition, trials were carried out using a helicopter to light areas having difficult terrain or irregular boundaries. Results of these trials are promising and an enlarged programme of helicopter ignition is planned for the winter of 1978.

Prescribed burning of trial areas of older plantings of radiata pine and patula pine gave promising results in 1977 and further trials are planned for 1978.

The benefit of fuel reduction burning was dramatically demonstrated when an area burnt in winter proved an effective buffer protecting residential property in the Mount Nebo area from a large wild fire which approached from the west on a 2 km front in September 1977. Unfortunately, it is not feasible in all seasons to reduce fuels by prescribed burning to such a safe level as applied in this case.

Communications: The severity of the fire season, combined with the reduction in manning of many State Forests, has reaffirmed the need for an effective communications system. Additional funds made available allowed the updating of a large proportion of the mobile transceiver fleet. This year has also seen the development of remote bases at Atherton, Rockhampton, Warwick, Inglewood, and Dalby. Development of these bases is proceeding, aiming at providing greatly improved radio coverage. Many isolated base stations have been connected to silicone solar cell power and this greatly reduces running costs and improves reliability.

Roads: Roads were constructed during the year principally to provide access to new plantations and to manage native forest stands. Major road works were carried out to improve access to old plantations at Beerburrum, Toolara and Tuan for the haulage of large quantities of log timber. These improvements will ensure that delivery of log supplies is less susceptible to interruption by wet weather and help to reduce haulage costs.

A Civil Engineer took up duty during the year. This is expected to improve the effective use of road funds, including better design of major roads and the use of improved techniques for construction and maintenance.

Road Subsidies: Payments to Shire Councils for road subsidies amounted to approximately $84,000 in 1977–78.

Mechanical Equipment: Purchases of mechanical equipment during 1977–78 amounted to nearly $1 500 000. Purchases included 40 vehicles, 3 graders, 11 rubber tyred tractors, 1 rubber tyred tractor rake and 7 dozers.

Four dozers and 29 motor vehicles ordered during the year were not supplied, and delivery is expected in 1978–79.

As a result of the low accident record, the fleet discount on the Department's Motor Vehicle Insurance Policy has been increased from 15 per cent to 40 per cent. This discount is in addition to the various no claim bonus rates which apply to each vehicle in the fleet. Considerable savings have resulted.

There has been an increase in vandalism on machines in the field. One garage was broken into and a four wheel drive vehicle and a trail bike stolen. Neither has been recovered.

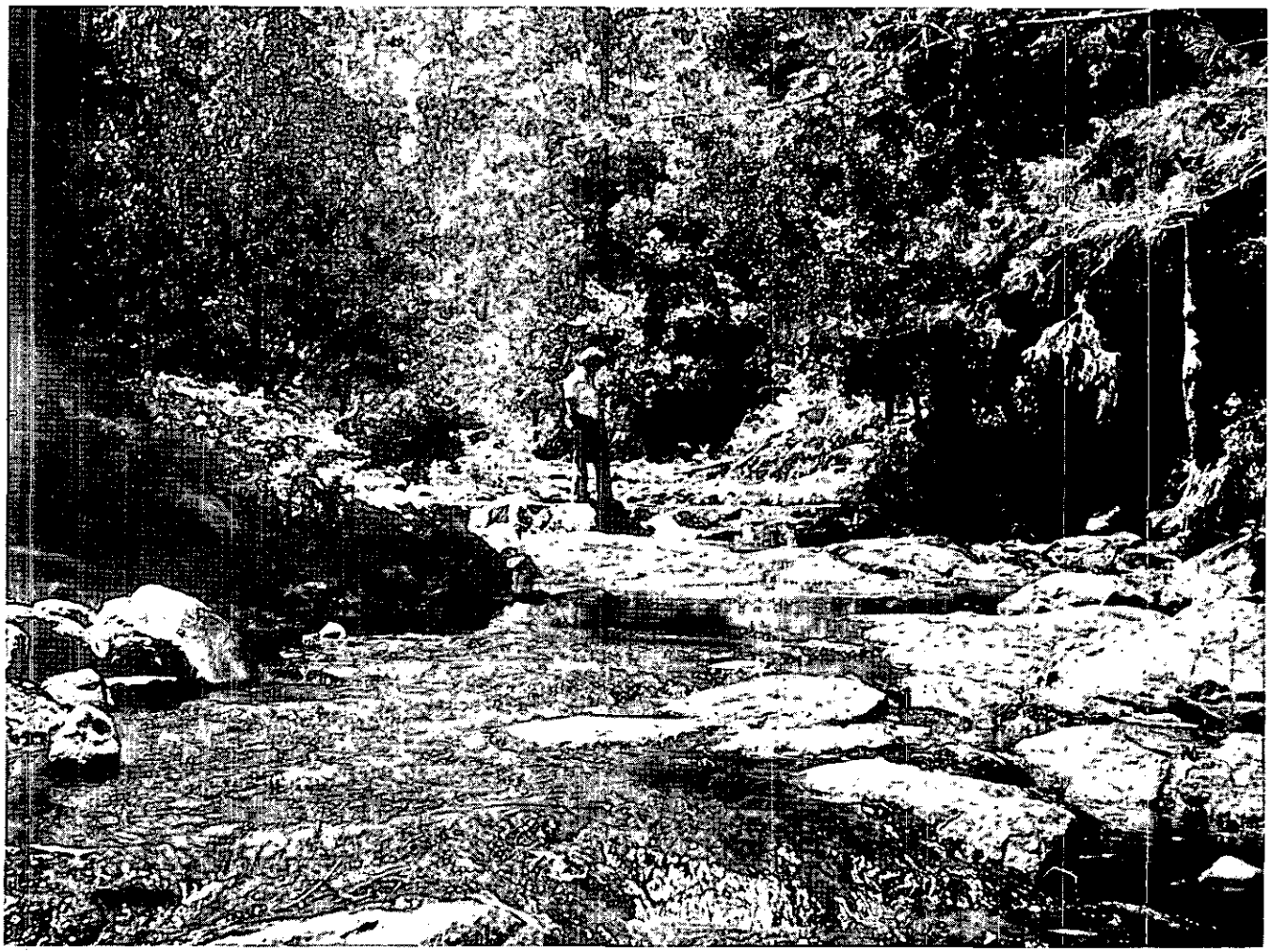
The time required for the preparation of design work associated with the calling of tenders for plant and machinery has been reduced following the appointment of a mechanical draftsman to assist the mechanical engineer. However, the need for designs and specifications for practically all tenders and purchases is still causing delays.

Roll over protection canopies to the Society of American Engineers standards are being included in all tenders for heavy plant. This will result in the level of operator and machine protection being brought to the highest available recognised standard.

Plans for the extension of the Maryborough Workshop and construction of the new Gympie Workshop have been submitted to the Department of Works.

Capital Works: The programme, commenced last year, of upgrading field accommodation facilities has been continued. This has been based on a comprehensive accommodation survey aimed at reviewing and rationalising facilities required.

Recreation: New picnic facilities were established during the year at Glastonbury near Gympie, Mullins Lookout at Toolara, Goomburra near



Creek scene, Goomburra Picnic Area, Warwick District

Cunningham's Gap, Numinbah near Nerang and Wooroi near Tewantin. Facilities provided include shelters, toilets, tables and barbecues in pleasant forest settings.

Additional facilities have been constructed at the popular Bunyaville Forest Park near Brisbane, the Glasshouse Mountains Lookout on Beerburrum State Forest and on Fraser Island.

Scenic forest drives were prepared at State Forests near Gympie, Imbil, Benarkin and Yarraman. Forest walking trails were constructed at Fraser Island and at Benarkin State Forest near Blackbutt.

Vandalism caused significant damage to Recreation Facilities during the year, the Glasshouse Mountains Lookout being most affected.

Operational Statistics	1976–77	1977–78
Total Reforestation Expenditure	$14 540 750	$15 890 627
Average Wages Staff Levels (reforestation works)	1 032	846
Nursery Stock for Plantation Establishment Purposes (number)—		
Hoop Pine—		
Container	1 081 000	1 413 000
Open Root	80 000	50 000
Caribbean Pine—		
Container	827 000	658 000
Open Root	911 000	1 172 000
Slash Pine—		
Open Root	3 850 000	4 591 000
Radiata Pine—		
Container	60 000	Nil
Open Root	243 000	92 000
Loblolly Pine	47 000	7 000
Patula Pine—Container	8 000	3 000
Eucalypts—Container	66 000	93 000
Plantation Establishment	5 224 ha	6 620 ha
Seedlings Sold—		
Number	393 220	421 064
Value	$112 241	$129 895
Seed Sold—		
Value	*$109 361*	*$83 140*
Seedlings Sold at Forest Plot Rates—		
Number	250 357	203 358
Weed Control—		
Native Pine Plantation	36 599 ha	25 020 ha
Exotic Pine Plantation	8 650 ha	8 982 ha
Fertilizing—		
New Areas Fertilized	5 591 ha	5 366 ha
Old Areas Refertilized	Nil	1 818 ha
Pruning—		
First	2 269 ha	1 996 ha
Second	2 870 ha	2 710 ha
Third	1 242 ha	Nil
Native Forest Treated	11 582 ha	18 983 ha
Fire Protection—		
Areas Prescribed Burnt—		
Natural Forests	125 920 ha	150 657 ha
Exotic Plantations	4 038 ha	9 777 ha
Wild Fires Data—		
Number of Wild Fires—		
Size Class 0– 4 ha	32	77
5– 40 ha	19	65
41– 400 ha	26	70
401–4000 ha	16	42
4001+ ha	5	7
Area Burnt by Wild Fires—		
Size Class 0– 4 ha	31 ha	66 ha
5– 40 ha	368 ha	1 149 ha
41– 400 ha	3 848 ha	10 606 ha
401–4000 ha	19 541 ha	49 760 ha
4001+ ha	125 285 ha	50 468 ha
Road Construction—		
Logging	92 km	87 km
Management	185 km	223 km
Operative Plant as at 30 June—		
Motor Vehicle and Trucks	469	469
Graders	34 (includes units being replaced)	25
Rubber Tyred Tractors and Loaders	93	101
Crawler Dozers	56	53

Major items of Plant Purchased during the year included:—

40 Replacement Motor Vehicles;
1 Additional Rubber Tyred Rake;
7 Replacement Crawler Dozers;
3 Replacement Graders;
11 Replacement Rubber Tyred Tractors.

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DIVISION OF MARKETING

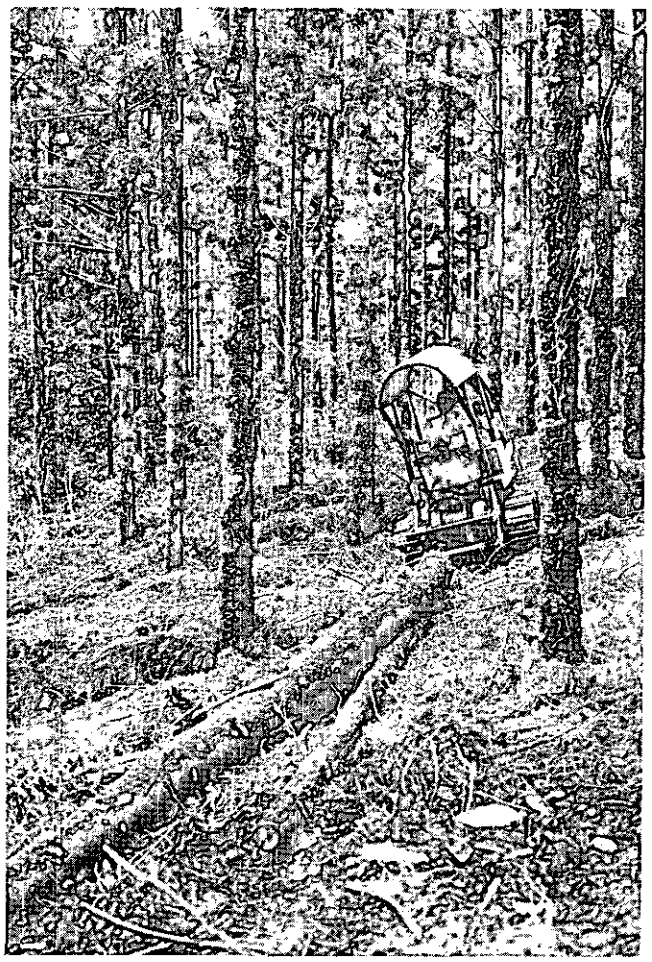
HARVESTING OPERATIONS

General: The volume of timber harvested from Crown and private lands during 1977–78 is shown in the Appendices. All figures are in gross volume. In previous Annual Reports, net volume figures, after allowance for defect, were shown.

The overall cut of timber, including pulpwood, from Crown lands during the year was a record 832 589 m^3. Compared with 1976–77, milling timber removals increased by over four per cent and pulpwood removals by nearly 14 per cent.

With milling timbers the most notable increase occurred in exotic plantation conifers with a rise of about 36 per cent. Slight increases occurred in cypress pine and forest hardwoods, but these were offset by decreases in rain forest timbers and in native plantation conifers. The increased cypress pine cut also was a record. Deliveries of naturally grown pine logs under Departmental haulage contracts were again curtailed.

Exotic conifer pulpwood removals rose by 25 per cent, but this was accompanied by a decline in native conifer and non-conifer pulpwood removals.



Snigging hoop pine thinnings from Paradise Logging Area—Yarraman District.

Plantation timbers again comprised the greatest volume cut of any species group and now provide 33 per cent of the total yield from Crown lands.

Whilst there has been some improvement in overall timber cuts, the industry is still faced with difficult trading conditions, especially in the disposal of some processed material.

The sawn board and flooring market continues to pose the greatest problem, although scantlings and dry dressed lines also face depressed market conditions. It has been necessary to extend the moratorium on the logging of small size brush box.

Salvage Logging: Severe drought losses occurred in exotic pines planted in the Yarraman, Murgon and Gympie Districts. This necessitated salvage logging of a large volume of timber. So far, some 14 000 m^3 has been salvaged, and it is estimated that a further 14 000 m^3 remains to be salvaged, mainly in the Yarraman District.

Despite the difficult market conditions purchasers of plantation timbers have made every endeavour to log dying timber before deterioriation occurs. Operations in the Yarraman District were also hampered by the loss through fire in February 1978 of a sawmill operated by W. L. Muller. This mill is a major purchaser of plantation timbers and would normally have cut a large quantity of this salvage material. It is pleasing to note that this mill is to be rebuilt.

In spite of these difficulties, outright losses have been kept to a minimum.

MARKETING PROCEDURES

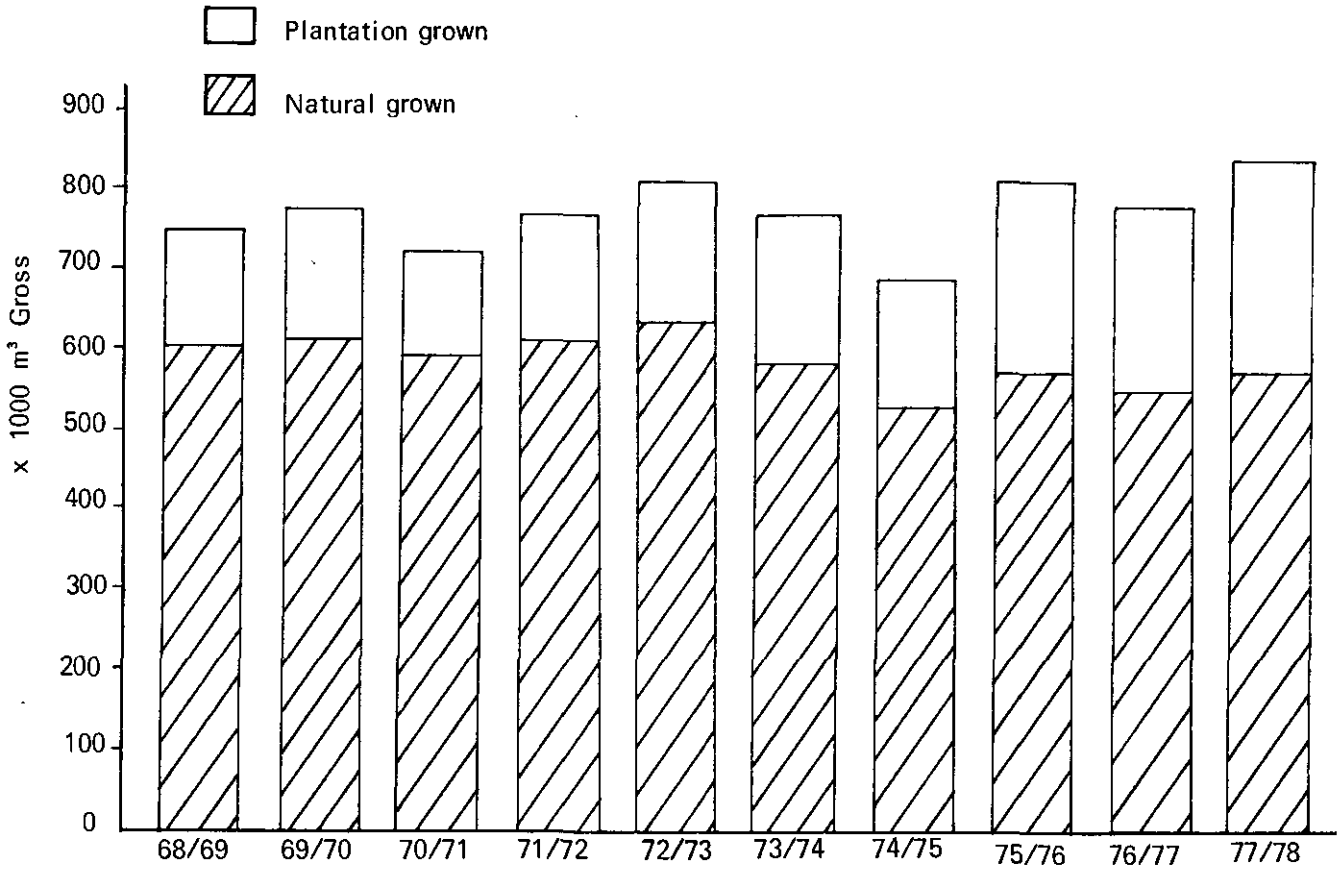
Log Pricing: The policy of the Department has been to increase Crown log prices at intervals in accordance with the movement of the Consumer Price Index. Only in this way can it be expected that timber revenues to the Government will be maintained in real money terms, after allowing for inflationary pressures.

The last full adjustment in log prices to take account of the upward movement in the Consumer Price Index was on 1 July 1974. Increases in the Index since then have been almost 50 per cent.

Because of the depressed economic conditions, increases in log prices proposed by the Department since 1974 have been deferred.

Minor adjustments to log prices were applied from 1 January 1978 to allow for variations in sawn freight charges, for the abolition of road permit fees, and for increased extraction costs. In the latter case, these were much less than usual, due to a substantial reduction in Workers Compensation premiums.

TIMBER REMOVALS FROM CROWN LANDS - INCLUDES PULPWOOD



Gross Measure: Marketing on a gross volume basis of natural hardwood and rainforest logs was introduced on 1 October 1977 in South Queensland, and on 1 April 1978 in North Queensland.

All Crown log removals in Queensland are now on a gross measure basis.

Considerable savings in the costs associated with the marketing of timber should accrue, not only to the Department, but also to industry, from the introduction and acceptance of the gross measure system. Further simplification of pricing structures is under investigation.

HARVESTING STUDIES

The Plantation Harvesting Research Committee reported on the progress of major trials involving the testing of new harvesting systems and new equipment in slash pine plantations at Tuan, and in hoop pine plantations at Benarkin and Kenilworth. A number of minor trials were conducted directed at improving the efficiency of existing logging equipment. In hoop pine plantation thinnings, these included crawler tractors, a skyline cable unit, rubber tyred skidders and forwarders. In exotic pine plantations, the use of grill delimbers and "clever hold" delimbers were investigated.

The Committee held two field days for logging crews engaged in plantation harvesting. These field days demonstrated the current stage of mechanisation of plantation thinning and likely future trends. Aspects of plantation management were also discussed.

Activity of the Cypress Pine Harvesting Research Committee was limited to a field day conducted for sawmillers and logging contractors in slash pine plantations at Tuan. The findings of harvesting research in plantation thinnings was considered to be of value to cypress pine contractors, who are involved in the harvesting of small logs.

Several committee members attended two interstate demonstrations of new logging equipment.

MISCELLANEOUS FOREST PRODUCTS

This year, the Department adopted a policy of salvaging epiphytic plants from areas being cleared for plantation purposes. The plants are then sold through central nurseries to the general public. This replaces the previous policy of permitting members of the public to collect from areas being cleared. This has resulted in a six-fold increase in the number of plants sold.

The sale of other forest products has greatly increased this year (Appendix 10); for example, pole sales increased to 62 000 lineal metres against 17 000 lineal metres in the previous year.

There has also been a considerable increase in the sale of quarry material with an increase of almost 10 per cent to 500 000 m³.

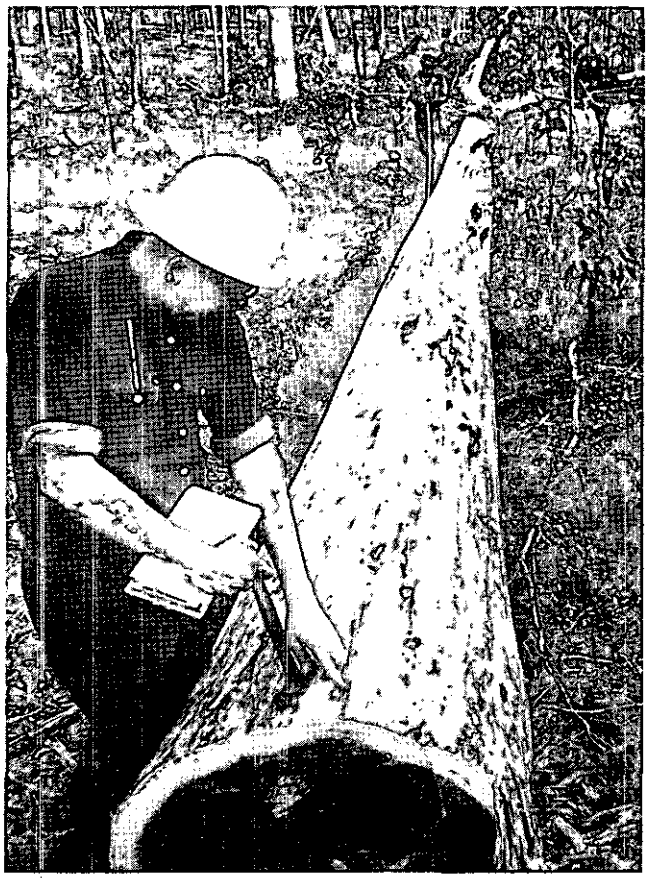
SAWMILLS LICENSING

The number of licensed sawmills decreased by 7 during the year to 413; of these, 330 were General Purpose Mills, 61 were Other Than General Purpose Mills and 22 were Portable Mills.

Other Than General Purpose Mills principally produce sleepers and similar specialised timbers.

Plants classified as Portable Mills are sophisticated transportable units where the blade is moved by mechanical means through the log and may, depending on license conditions, be used for the production of either scantlings or sleepers.

The Sawmilling Industry continued to take advantage of the Department's amalgamation policy which permits plants similarly classified and situated within appropriate zones to amalgamate upon one site to enable more efficient operation. During the year, a further ten licenses were withdrawn following amalgamation with other licenses.



Overseer measuring spotted gum log—Ballon area, Dalby District.

FOREST RESOURCES

Native Forestry Inventory: During the year, three survey camps were engaged part time on inventory in native hardwood forests in the coastal and western regions of the State. Several logging studies to assist yield calculations from the inventory were also completed.

Coniferous Plantation Inventory: Effective management of the cut from Departmental plantations calls for the regular monitoring of growth by assessment and survey, and making predictions of future yield by way of yield calculations. These yield calculations provide data for the development of both short term (1–2 years) and long term logging plans (10–20 years).

The collection of data for these purposes is a continuous operation.

During the year, 6 700 ha of young plantations were sampled by new plots, and measured for site index; plots sampling 3 200 ha of older plantations were remeasured. About 6 500 ha of plantations were stripped to obtain information on standing volume and size distribuition.

Valuation of Timber for Conversion of Tenure: Compared with 1976–77 there has been a slight decrease this year in the number of applications for freeholding of Crown land involving timber valuation. Seventy-eight applications were received in 1977–78 compared with 93 in 1976–77.

The overall situation is shown in the table below:—

	No.	Area (ha)
Applications being processed	81	327 700
Applications awaiting field assessment	54	169 000
Applications completed ..	3 329	10 441 700
Applications currently withdrawn	191	778 800
	3 655	11 717 200

DIVISION OF PLANNING

GENERAL PLANNING

Land Use Studies: The Section has maintained a Departmental input on forestry matters to inter-Departmental and Local Authority committees conducting local and regional land use studies. Some discussions have been held with District Officers and a Local Authority on the planning problems of urban development adjoining State Forests.

A departmental report covering present and proposed future forest management on Fraser Island has been prepared and submitted to the Fraser Island Management Plan Committee.

Co-operation with other Divisions on the technical aspects of Departmental land use including Mining Lease applications on Forestry Reserves and State Forest acquisition or revocation proposals, has continued.

Two officers of the Section attended a three-day school on "Land Resource Analysis and Management" at the School of Australian Environmental Studies, Griffith University.

Environmental Studies: The Section has continued the Department's role as an Advisory Body for the evaluation of Environmental Study Advices (E.S.A.) and Environmental Impact Statements (E.I.S.) submitted by Government Authorities and private developers.

Input into a range of Departmental activities, including the development of a general planning framework, the formulation of environmental policies and guidelines, and the provision of an external advisory service to educational bodies and the general public, has been maintained.

Guidelines for the selection and management of Scientific Areas on State Forests are in preparation, and a Departmental publication on the subject is expected.

A draft E.I.S. on the proposed conifer plantation project in the Ingham/Cardwell area is in preparation, following receipt of comments from other Departments and public bodies on the E.S.A. and Study Guidelines.

The Section administers the issue of Permits to Collect Biological Material for Scientific Purposes, the results of which are considered to be a valuable source of information on the biological resources of the State's Forestry Reserves. During the year, eighteen Permits to Collect were issued to local, interstate and overseas research workers in fields ranging from the taxonomy of tree species to the ecology of a microscopic organism found on freshwater crayfish.

Planning Projects: Three major planning projects have been undertaken during the year to provide information for the determination of certain policy decisions.

The first stage of the Hoop Pine Plantability Review is almost complete. The remaining areas of natural forest potentially suitable for conversion to hoop pine plantations have been identified and evaluated in terms of their capacity to produce silviculturally productive plantations. Constraints of low rainfall, poor soil type and excessive slope have been especially examined. The ultimate decision on plantability will also include statements on social and economic criteria.

The second project concerns the long term development of a management information system. The primary objective is to enable Departmental officers at all levels to readily access existing resource information for all their planning needs The system will concentrate on the collection, evaluation, storage and retrieval of resource data on Queensland forests and will be structured for eventual computer processing.

Another major study under way is the Pruning Project. Technical Services Division, Planning Division and Resources Branch are presently collating data on likely pruned wood supply, value of end products and possible future demands for this resource.

ECONOMICS

Availability of Funds: Funds available to the Department in 1977–78 totalled just over $35·5 million and were derived from the following sources:—

	$ 000
Consolidated Revenue Fund	8 273
State Loan Fund	14 026
Forestry and Lumbering Fund	10 289
Special Purpose Funds:—	
Special Projects Fund (unemployment relief)	1 000
Softwood Forestry Agreement Loan—Advance	675
Aboriginal Advancement Grant	230
Fraser Island Unemployment Relief	900
Flood and Cyclone Damage Restoration Grants	127
Total	$35 520

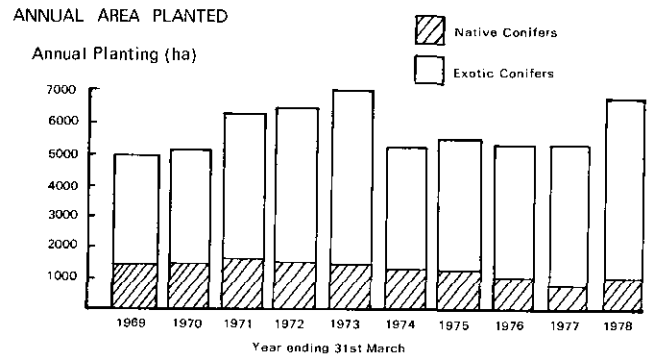
This amount represents an overall increase of 9·1 per cent on available funds in 1976–77.

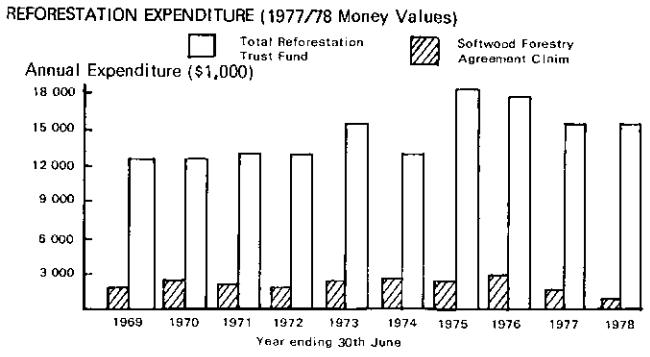
Salaries and related Administrative expenditures were the main items financed from the Consolidated Revenue Fund while the principal sources of finance for the Department's Works programme were the State Loan and Special Purpose Funds.

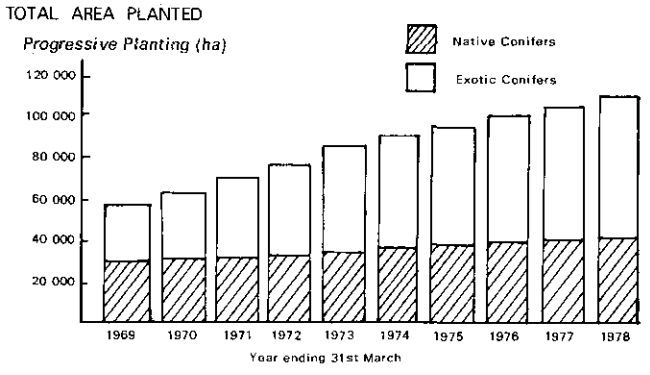
The Forestry and Lumbering Fund, which is funded mainly from the Department's timber sales activities, was used to finance expenditure on harvesting and marketing operations, maintenance of roads, plant, and other capital improvements and interest and redemption payments.

Softwood Forestry Agreements: There was a significant reduction in the level of financial assistance provided by the Commonwealth Government under the Softwood Forestry Agreements in 1977–78,

REFORESTATION INDICATORS







the first year of a new five-year Agreement. Under this Agreement, financial support for further new plantings has been withdrawn. However, the Commonwealth Government has agreed to finance the maintenance of plantations established under past Agreements.

The method of repayment of loans represents another area where there has been a radical departure from past Agreements. Previously, the States were not charged interest during the first ten years of any loan but now no such interest-free period will apply. However, the States have been given the option of capitalizing interest due during the first 15 years of a loan with interest and redemption payments on each loan commencing in the sixteenth year.

The total amount made available by the Commonwealth to the States in 1977–78 was $4·2 million which was divided among the States on a formula related to previously assisted plantings. Queensland's share of this amount was $675,400 and was $872,000 less than the amount received in 1976–77 and some $1·75 million below that received in 1975–76.

In spite of these reductions, the Department was able to increase the area of new plantations established for the year to 6 600 ha or about 1 400 ha greater than in 1976–77. This increased planting was located mainly in the Gympie/Maryborough region and was made possible only through the provision of additional Commonwealth funds for Fraser Island unemployment relief.

Economic Studies: A number of economic studies were initiated during the past year. The most important of these consists of an investigation of the State's future timber requirements designed to assist:—

(a) planning of the future planting programme of the Department, and
(b) formulation of a revised Departmental pruning policy.

The interest rate to apply to forestry investments undertaken by the Department is also being closely studied. A computer programme is being developed to provide an analysis of yearly cash flows from the Department's softwood plantations under various assumptions relating to inflation, interest rates, costs, yields and prices.

ORGANISATIONAL SERVICES

Forestry Training and Conference Centre, Gympie: The completion of the Forestry Training and Conference Centre during the year represents an important milestone in the history of the Department. It is the first stage of an integrated forestry complex being developed on the outskirts of Gympie. Detailed planning is now underway for the second stage of the complex which will house the Gympie District Office, the South-East Queensland Regional Research Station, the Gympie District Mechanical Workshop, and a Forestry Museum and Public Recreation Area.

The Forestry Training and Conference Centre will fulfill two important functions. Firstly, it will cater for the training of sub-professional field supervisors, who were previously trained in a number of forestry centres throughout the State.

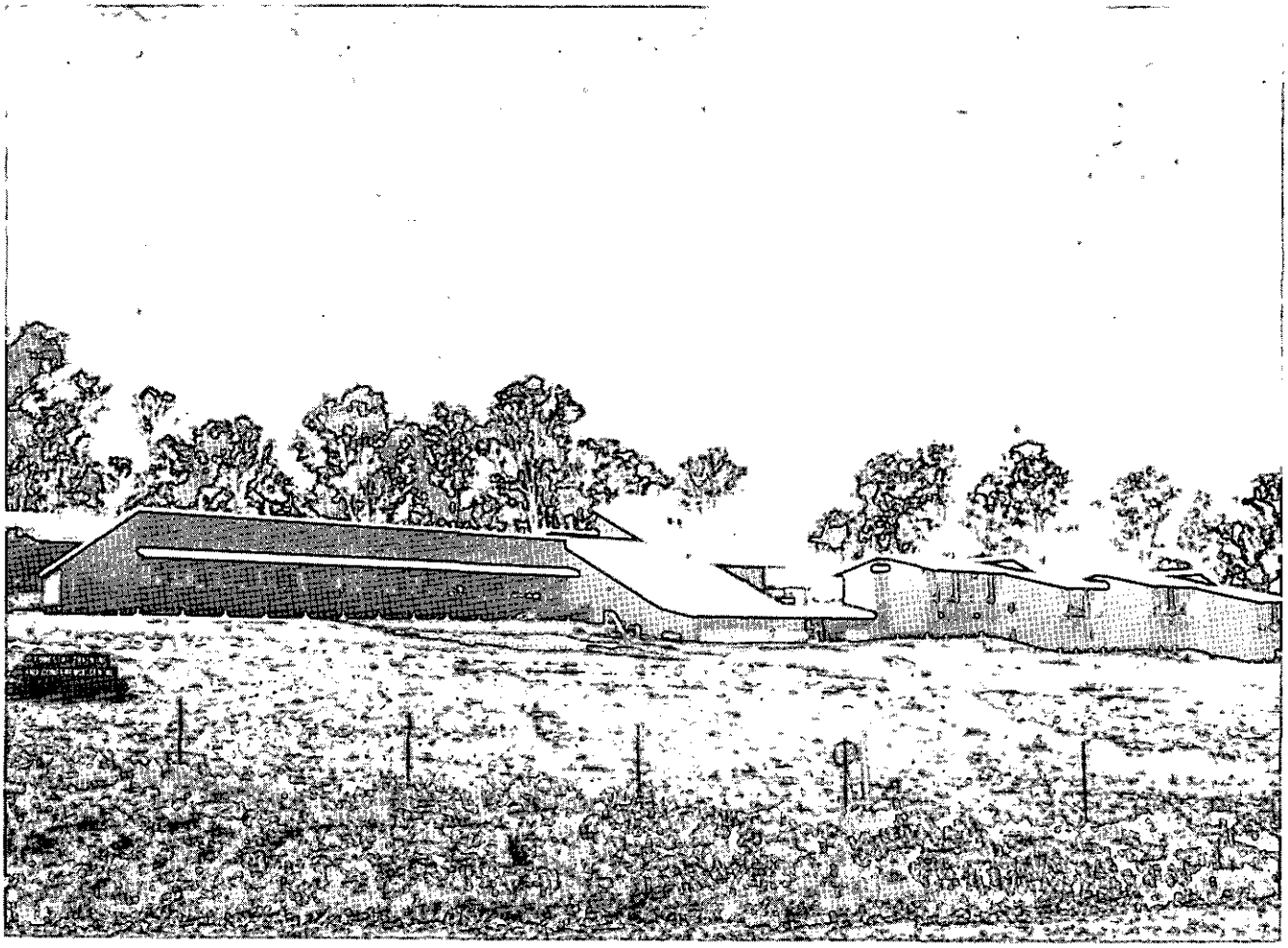
Secondly, it will be used extensively for a wide range of departmental in-service training activities, and for the conduct of departmental workshops, seminars and conferences.

In-service training activities commenced at the Centre in June 1978. The first intake of sub-professional trainees will commence in early 1979.

Publications: Technical publications have been produced covering a wide range of research findings. The summary of the publications is listed in Appendix 15.

Public Relations: The Department has developed a new logo which appears on the cover of this Report.

Activities during the year included a new concept of public open days at Beerwah on Brisbane's near North Coast and Mackay in Central Queensland. The public were invited into the forest for an educational fun day. Displays were held at Garden City Shopping Centre, City Square on World Forestry Day and at country



The new Forestry Training and Conference Centre, Gympie, which was completed during the year.

shows in Monto, Benarkin, Esk and Kilcoy. Three field days were held for conservation groups in the eucalypt forest at Bellthorpe, pine plantations at Beerwah and rainforest in Warwick District. These have led to a better understanding of departmental activities by other conservation bodies.

Recreation: A joint project with National Parks and Wildlife Service was commenced to produce a high quality sign manual for use by both Departments. The signposting of State Forest Parks and National Parks will compliment one another and avoid confusion for the visitors.

Job Safety: Although not as dramatic as over the past few years, the Department's Lost Time Accident Rate for 1977–78 again showed a decrease, with a figure of 66·7 against 69·9 for the previous year. By comparison the rate for 1972–73 was 133·7 which was double our current figure.

Both the Minister's and the Conservator's Shield for 1977–78 (Minister's for the lowest rate and the Conservator's for the most improved rate) were won by Monto District who are to be congratulated on achieving the remarkably low Lost Time Accident statistic of 34·3 as against 68·5 for 1976–77.

As most of our supervisors have undertaken the two days Accident Prevention Course over the last 4 years, only 5 of these courses were conducted during the year but the need is now seen for a cycle of one day refresher courses to be commenced.

The policy of lectures and films at workmen level was continued and the Departmental Safety Officer attended at least one Safety Committee meeting at most centres during the year. An important event was the holding of a week's Safety Seminar in Brisbane during December 1977. This was attended by one Safety representative from each District. The input by the various guest speakers and the interchange of ideas and recommendations from Districts for our future Safety programme proved to be very valuable.

MANAGEMENT SERVICES

This Branch was created in June 1978 to incorporate functions previously performed by the Organization Development Project Team. In addition to assisting Divisions and Districts with improvement projects and in-service training, the Branch will promote and encourage the implementation of improved management and administrative systems and methods on a Department wide basis.

The Development Steering Committee was reconstituted on a Divisional and District representative basis during the year, to enable

integration of local improvement intentions into an overall development plan for the Department. Role clarification and formal specification for all salaried and supervisory staff is high on the priority list for 1978–79.

During the year, emphasis was placed on extending management training to the middle management levels. In addition to supporting the Public Service Board's Management Development Programme, internal courses have commenced for staff in five Districts. Results to date have been encouraging, with demonstrated examples of improved Department effectiveness resulting from application of course learning back in the work situation.

Management and Supervisory training will continue next year as part of an active ongoing programme of technical forestry training, workshops and seminars made possible by the completion of the Forestry Training and Conference Centre at Gympie.

SURVEY AND MAPPING

Surveys: Surveys associated with the plantation programme and native forest management in the ten Forestry Districts involved a total of 15 Survey Parties.

Survey connections were made to 13 Trigonometrical Stations to provide Mapping Control. Thirteen Forest Entitlement Areas were surveyed and plans lodged with the Department of Mapping and Surveying.

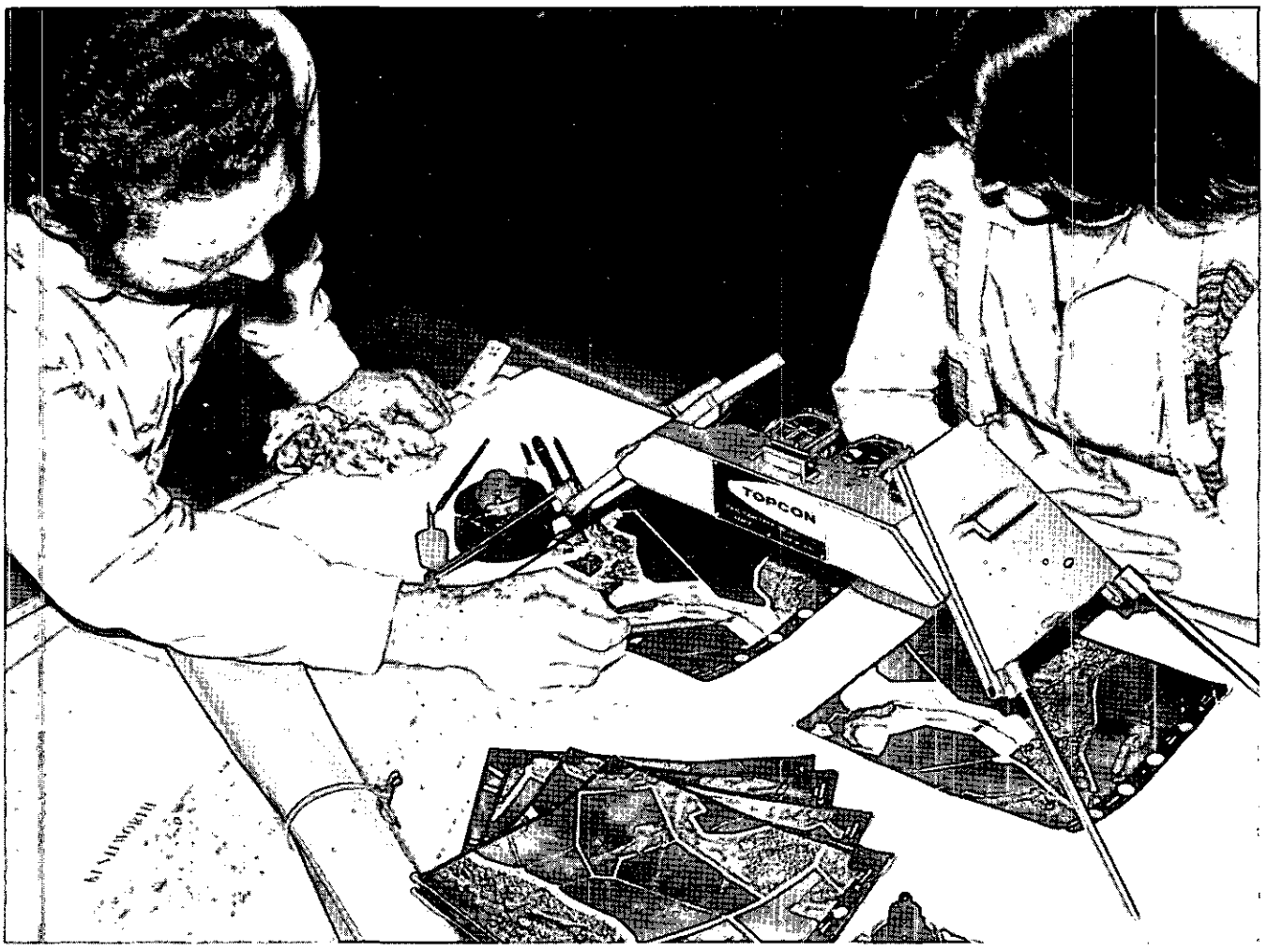
Mapping: Thirteen 1:25 000 and eleven 1:50 000 series maps were completed during the year. Ten 1:50 000 series maps were revised.

Mapping of project maps of plantation and coastal hardwoods continued, some twenty-eight map sheets being revised or compiled during the year.

Under the State Aerial Photographs programme ten 1:200 000 map sheet areas were flown for this Department. Colour photography of part of the Garrawalt area (Scale 1:10 000) was flown by contract to assist in the identification of the spread of the disease *Phytophthora cinnamomi.*

Small format photography over plantation areas was used for area calculation in the payment of falling contracts. Eight flights were made. One hundred and thirty nine interpretations from aerial photographs were carried out to assist field inspections by District staff.

During the year, 6 199 maps valued at $11,355 were sold to the public or to other Government Departments.



Mapping plantations from aerial photographs.

DIVISION OF TECHNICAL SERVICES

This Division is the research arm of the Department. It is responsible for research associated with State-owned commercial forests and the use of forest products. In the latter area there is considerable liaison with the conversion industry. Some extension services are available to private forest owners. The Division administers the Timber Users' Protection Act. It issues a separate Research Report recording its activities in detail.

FOREST RESEARCH

The scope of work within the Forest Research Branch covers a wide variety of research fields aiming to increase productivity from our native and plantation forests.

Coniferous Plantation Silviculture: The establishment of eight Honduras Caribbean pine spacing experiments was completed this year. These experiments were established on both well drained and swampy sites at four coastal centres covering a range of latitude 17°S to 27°S. As well as providing valuable data on initial espacement over a wide range of sites, these experiments will also serve as a broad data base for the development of reliable Caribbean pine growth models.

There is evidence to suggest that the growth of Honduras Caribbean pine on swampy sites improves with increase in mound size. Experiments were established this year at Bowenia and near Maryborough, to test the interaction of six different mound sizes with two fertilizer treatments.

Exotic pine nursery research broadly aims at producing a uniform, "cull free" open-root crop with a high survival capacity and suited to mechanized lifting and planting. Recent work shows that stock of Honduras Caribbean pine is more vigorous and uniform if beds are raised to a height of 10 cm before sowing. A major review of open-root planting of Honduras Caribbean pine in southern Queensland was completed during the year. Implementation of the findings of this review have led to improved efficiency and cost savings in nursery production and plantation establishment.

Although clay dipping increases survival of open-root slash pine and Honduras Caribbean pine in sub-tropical coastal Queensland, trials in the tropics indicated that clay dipping of well-conditioned Honduras Caribbean pine is not necessarily beneficial. Nevertheless, open-root planting of this species does show promise in North Queensland, particularly on drained lowland sites. Weeds pose a more serious problem on old farm sites on the *Atherton Tableland and* appear to affect open-root stock more than tubed plants.

The establishment and maintenance of hoop pine plantations involve greater expenditure than corresponding activities in the coastal exotic pine plantations. Much research effort in recent years has been directed towards reducing costs of production of suitable planting stock, and of tending weeds.

The progressive results of trials to produce cheaper hoop pine planting stock have been discussed in recent reports.

Consolidation of the results is underway, in order to clarify the future of these lines of research.

Weed management trials are continuing, with examination of new chemical control methods, including some promising developments for lantana control. Cultural control methods in early stages of plantation development are being studied.

The growth of hoop pine in relation to various thinning regimes has been under observation for many years. These data are being prepared in a form suitable to the development of growth models, which, with the aid of electronic simulation techniques, can then be used for determining optimum thinning regimes and rotation age to suit Departmental objectives.

Native Forest Silviculture: Logging damage studies in tropical rainforests generally show that, though there is scope for lessening damage, present levels can be tolerated. For example, recent trials in typically logged stands show that although 15 to 20 per cent of the basal area of commercial trees over 20 cm diameter is destroyed in logging, some 75 to 105 trees per hectare remain undamaged.

The work has been extended, in collaboration with C.S.I.R.O., to include studies of the effects of logging on soil physical and chemical properties and their long term impact on productivity.

Much of the data for the above studies were collected by use of the relascope prism. The principle behind this instrument is a most useful one in rainforest work and its adaptability to computer processing and statistical analysis is being studied.

Experiments continue to show the beneficial effects of silvicultural treatment in native forests. Investigations into the possibility of a low cost treatment to favour selected undamaged residual trees demonstrate potential for either shortening the cutting cycle or increasing yield.

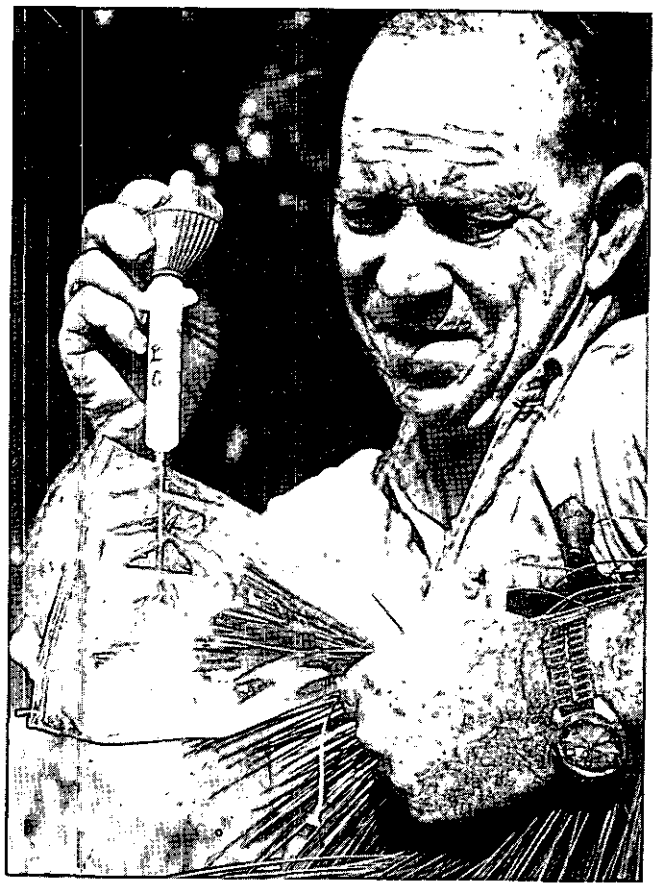
Improved pasture under a thinned spotted gum stand in a timber/pasture experiment at Neerdie near Gympie is continuing to show excellent growth despite dry conditions. As compared with native pastures, the introduction of improved pastures has not resulted in any increase in the growth of the spotted gum.

Experiments testing *the fertilizer requirements* of planted Blackbutt on sandmined sites on Fraser Island were established in early 1977: the trees are showing good survival and height growth. Within a May 1976 planting of six indigenous tree species (including satinay and blackbutt) on a sandmined site, most species have given a height increment of 1 metre per year and a survival of 90 per cent.

Five year diameter increments were analysed from a set of growth plots at Hillside, towards the western edge of the cypress pine resource. These were compared with diameter increments collected over 25 years from detailed yield plots in the intensively managed eastern cypress pine forests, and found to be similar in all size classes. Growth responses attributable to silvicultural treatment were found to vary at each major centre, being greatest at Western Creek, and least at Barakula, both on the eastern edge of the cypress pine forest belt. The short term responses at Hillside initially paralleled those at Western Creek, but they are expected to conform to results from Yuleba, in the centre of the cypress pine region, and Barakula in the long term.

Extensive dead topping of cypress pine at Hillside was attributed to the 1898 to 1902 drought, which caused heavy losses of native timber in this area. Dead topped cypress pine were evident in stands carrying basal areas as low as 6 square metres per hectare, so there seems little merit in managing these stands at lower than normal basal areas in order to prevent dead topping in times of severe drought.

Tree Breeding: Four new seed orchards of Honduras Caribbean pine have been approved for North Queensland, and are intended to provide seed for four major site types over a range of latitudes in the State. Each will have essentially the same initial composition, but will be culled differently, according to the performance of progeny trials located within these major sites.



Hand pollination of slash pine.

The testing of the 90 non-pedigreed clones in slash pine Seed Orchard No. 3 continued with the planting of the second of a series of three open-pollinated progeny tests in South-East Queensland. Four sites similar to those of the 1976 series were used. Results of these tests will enable the culling of the poorer clones in the orchard and the indentification of good parents for further controlled breeding.

The breeding programme for the promising hybrids of slash and Caribbean pines is being revised with current work being directed towards the production of many more F_1 families and investigations into the mass production of F_1 hybrid seed.

F.A.O. is involved in co-ordinating the breeding of pines in tropical countries, with emphasis on Honduras Caribbean pine and ocote pine. The Officer-in-Charge of the tree breeding section visited several centres in the Pacific and in Central and South America, as a consultant in this programme. He is currently visiting South-East Asia and Africa on a similar mission. Seed is being accumulated for an international progeny trial within the next two years.

Despite the light flowering of hoop pine which occurred in 1975–76, a small collection comprising 300 kilograms of wind pollinated seed was made from the Taromeo orchard, located near Blackbutt. Only a small quantity of pollen is produced during the early stages of orchard development and seed viability is low. Orchard investigations have shown that an increase in viability up to six times that of wind pollinated seed can be achieved by artificial dispersal of pollen collected from non-orchard sources. Supplementary pollen may be applied either dry, or in a water suspension without adversely affecting fertilization.

The additional plantation establishment cost of using seed produced by mass pollination is only $6 per hectare.

The addition of a biometrician to the staff has already demonstrated advantages in data processing and experimental design.

Forest Soils and Nutrition: Study of multiple-nutrient deficiences of southern and tropical pines on ground water podzols at Bingera and Toolara has confirmed the need for supplementary phosphorus, nitrogen, sulphur and copper. Multiple deficiences of phosphorus, nitrogen, zinc and boron have been recorded from poorly drained granite outwash soils at Cardwell. Operational requirements have been met by fertilizing at planting with appropriate mixtures.

Encouraging responses have been obtained with biosuper on the Cardwell swamp sites; height increments of Honduras Caribbean pine in two years following fertilizing at planting are 196 cm for biosuper, 260 cm for superphosphate and 103 cm for rockphosphate compared to only 83 cm for unfertilized. Biosuper is a mixture of rockphosphate and sulphur, inoculated with bacteria which produce acid from the sulphur, capable of dissolving the rockphosphate).

Prescribed burning trial in a young exotic pine plantation near Maryborough.

Slash pine on various wet sites in South-East Queensland fertilized with superphosphate at planting has shown a consistent decline in foliage phosphate to below critical levels by about age eight years; the need for refertilizing such sites is currently being assessed.

Differential fertilizing of progeny and provenance trials of tropical pines on wide-ranging sites was initiated with tree-breeding staff in the early 1970's with the aims of investigating the genotype X environment interaction and concurrently assessing nutritional needs. Responses to a range of nutrients have been measured and are being monitored using foliage analysis.

Examination of the potential of hardwood and marginal rainforest sites for hoop pine plantations was extended by establishment of two new trials at Jimna on granitic and andesitic sites. Companion experiments at Imbil and Kenilworth on metamorphic-derived grey brown forest loams confirm that nitrogen is the major limiting nurient and that grass control is essential to maximise the response. In contrast, forest soils derived from basalt at Benarkin exhibit deficiencies of nitrogen, phosphorus, sulphur and a possible requirement for potassium and trace elements.

Zinc-induced chlorosis of Honduras Caribbean pine resulting from using galvanised tubes is under investigation in several nurseries where tubed and open-root stock are being raised in old stand-down beds. Liming has been found to alleviate the problem and appropriate treatment is currently being defined.

Forest Hydrology: This research programme is centred on a pair of experimental catchments on the wet tropical coast of North Queensland near Babinda. One of the catchments carried virgin rainforest; the other has been converted to pasture. The main emphasis of the work during the past year has been a detailed study of the flow of water in the undisturbed rainforest catchment. The results have highlighted the importance of the soil physical characteristics in determining the relationship which exists between the amount of water which flows over the soil surface and the amount which infiltrates into the soil to reappear later as stream flow.

These relationships are of importance in determining the hydrological impact of various forest management practices.

Fire Research: Investigations into the prescribed burning of young exotic pine plantations continued during the year. Using a technique of strip backburning, prescribed burns were successfully conducted at Tuan, near Maryborough. The technique involves the establishment of a system of buffer strips approximately 100 m wide and surrounded by roads and/or tracks 2.0 and 2.5 m wide. Burning of these buffer strips is carried out against a wind of constant direction when the fuel moisture conditions are considered too wet by the established drying tables.

The wind flattens the flames, resulting in reduced flame and scorch heights. This system will be further investigated for burning difficult fuel types in plantations about seven years old.

Forest Zoology: The Department employs two Zoologists on wildlife studies. Ongoing research is aimed at advising on management procedures required to ensure survival of native animal populations on land conrtolled by the Department. Current research efforts are concentrated on the coastal lowlands of South-East Queensland. Research projects include a fauna survey of the region encompassing all vertebrate groups and specific studies on aboreal mammals and lorikeets, two animal groups potentially disadvantaged by the establishment of large scale exotic pine plantations within this coastal belt.

Mensuration and Biometrics: The most significant event during the year was the opening of the new State Government Computer Centre, providing greatly enhanced data processing facilities. Much time has been involved in staff training and conversion of programmes, in addition to providing the normal services to research stations. Conversion activities have been slower than anticipated because of delay in supply of visual display unit and printer.

For most general biometrical and scientific programmes, it is clear that considerable savings will result from the use of the new computer. However, the management of files of measures of long-term experiments presents some problems, and analysis shows that it would be uneconomic to maintain such files on mass storage at the computer centre. The use of a mini-computer to manage the data base locally and assemble batches for processing at the computer centre is being investigated.

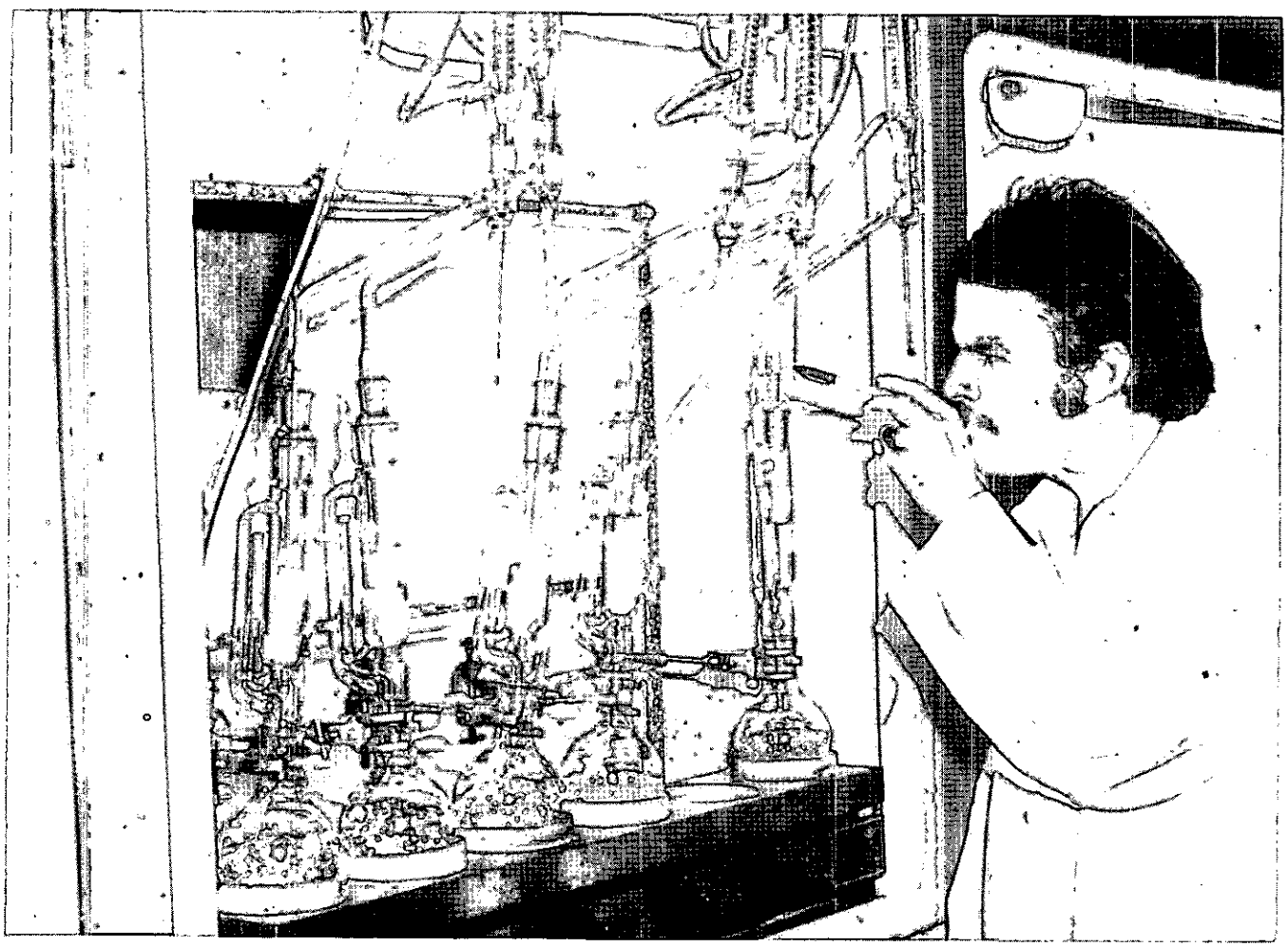
Following modifications to programmes used for coastal hardwoods experiments and detailed yield plots, rainforest data can now be processed also, and progress is being made towards summarizing the large volume of field measurement data for North Queensland rainforest experiments and yield plots.

As a part of this project, a mass storage file of species names and codes has been built and is being used within Forest Research Branch.

TIMBER UTILISATION

General: With the return of an officer who had been working overseas on secondment, the Branch has operated during most of the current year as five separate, but closely related, sections:—

(i) Wood Chemistry and Preservation.
(ii) Wood Structure and Utilisation.
(iii) Timber Mechanics.
(iv) Timber Conversion and Seasoning.
(v) Timber Users' Protection Act.



Chemist in the Department's Laboratory at George Street, Brisbane.

Close liaison and co-operation with Pathology and Entomology sections has been maintained.

More than half of the staff has been closely associated at State and National Committee levels with the revision of existing Standards or the preparation of new Standards relating to wood and wood based products. Australian Standard AS 2082 is a milestone in that a number of separate, related but not always uniformly worded Standards covering structural hardwoods have been amalgamated into one Standard offering a uniform method of visual grading.

Staff have continued to assist the Department of Education, the Timber Research and Development Advisory Council (T.R.A.D.A.C.) and other organisations by giving specialist lectures, and by participating in training courses for industry personnel.

Assistance has also been furnished to other Government Departments in framing legislation which, among other things, involves the use of timber. Fruitful co-operation with other major forest products laboratories including the Division of Building Research C.S.I.R.O., and the Division of Wood Technology and Forest Research of the New South Wales Forestry Commission, has accelerated the development of new structural timber design data.

Wood Chemistry and Preservation: A vacuum/atmospheric plant for the commercial treatment of marine and exterior grade plywood with copper naphthenate has been commissioned commercially after considerable work directed toward maximising penetration and retention while minimising material, plant and labour costs. This development is regarded as important in view of the advantages to be gained from a readily glued and water repellent material for use in association with fiberglass resins in the boat building industry, and in "high wind area" building design and construction. The search for alternatives, should they become necessary, to the conventional preservatives which are being challenged in some quarters on environmental or health grounds is continuing.

Likely materials are being assessed in preparation for field and plant trials in 1978–79.

Some thousands of analyses are being carried out to assist the electricity and telephone authorities in the search for preservatives or preservation methods which will minimise or prevent soft rot in treated hardwood transmission poles.

Wood Structure and Utilisation: This group has a major involvement in the Structural Timber Evaluation Committee in assessing strength and durability properties of Australian commercial timbers.

It has also made considerable contributions to the Departmental tree-breeding programme, to the provisions of the new Building Act, and in offering a timber utilisation extension service to the wood-producing and wood-using industries.

The work reported last year has been continued and developed. This has been assisted by the acquisition of a new and more flexible X-ray machine with the potential for extensive densitometric work. This will be of value in further assessing the wood properties of slash, Caribbean and other pines which form a large part of the Department's planting programme.

Tables have been developed in conjunction with officers of T.R.A.D.A.C. and of the Department of Local Government for publication in a form which is both readily interpreted and used, and which will extend the ability of designers, approving authorities and constructors to cater for high wind areas. This work was undertaken because of the considerable delay which is expected in preparing and publishing a high-wind expansion of the Light Timber Framing Code.

Timber Mechanics: This group works closely with the Wood Structure and Utilisation group. It has co-operated in strength testing of wood to be considered by the Structural Timber Evaluation Committee, in testing cypress pine examined during the development of the proof grading concept, and in determining the characteristics of multi-salt-impregnated hoop and slash pines proposed for use as power transmission poles.

Results of determination of modulus of elasticity and modulus of rupture in bending at the University of Queensland indicate that pruned stems from pine plantations could provide a comparatively uniform source of pole material. Figures are being furnished to the State Electricity Commission to enable their engineers to make pole design calculations.

With the considerable volume of patula pine available from plantings in the Yarraman District tests were made of its resistance to nail withdrawal. These showed patula pine to be at least as good as slash pine in this repect.

Timber Conversion and Seasoning: The high temperature/high humidity drying schedules reported last year have been put into commercial production by two major producers using high density "refractory" hardwoods. Drying times have been cut to about half of those previously required and seasoning degrade has been spectacularly reduced. The high humidity reduces both surface checking and case hardening.

Similar schedules appear to help in the case of the "problem" North Queensland silky oak species used in structural applications. Sawing pattern is also important. There are strong indications that quarter-sawing is best and this is being followed up in a commercial mill.

Sawing and peeling of pruned and unpruned slash and hoop pine is producing economic information for guidance in formulating future pruning and thinning schedules. The sawing studies are being done in commercial mills, using standard sawing patterns designed to maximise production in terms of market requirements.

Structural sizes are being produced rather than boards, and structural ply is being produced as well as the appearance grades with clear faces and backs.

Work is being carried out in North Queensland to assist the industry with better seasoning and sawing practices.

An Entomologist from the Department talking to members of the public at the Open Day held in the Beerwah State Forest.

Timber Users' Protection Act: There has been a marked reduction in the total number of complaints received under the Act although complaints involving timber imported from South-East Asia increased. Action is being taken in conjunction with trade organisations to secure immunisation, with approved preservatives to approved levels, of Lyctus-susceptible timber from this source. Routine tests show that preservation carried out in plants registered in Queensland is generally very good with few "failures" recorded. There has been a slightly higher level of test failures in seasoning where some plants occasionaly produce wood just outside the statutory limits of 10–15 per cent moisture content.

Inspectors participated in extension work some of which involved a consumer education seminar and display. This work drew very favourable comment.

ENTOMOLOGY AND PATHOLOGY

Despite the extended drought period and associated tree stress, no major insect problems occurred in plantations. Insect defoliation of native forests (mainly eucalypts) continued, although monitored populations of stick insects near Beerwah were the lowest for three years. A serious outbreak of the root-feeding African Black Beetle, *Heteronychus arator,* among exotic pine seedlings at the Toolara nursery was controlled using the insecticide "Heptachlor".

The mealy bug *Hypogeococcus festerianus,* a biological control agent of harrisia cactus, was released at Western Creek in November 1976, and is now well established.

Considerable arrest of stem growth, flowering and fruiting has cccurred in heavily attacked plants.

Surveys were continued in Brisbane, Maryborough and Bundaberg to determine the distribution of, and to assess the risk associated with, the occurrences of the West Indian Drywood Termite *(Cryptoterme brevis).* Joint plans for control, involving officers of Commonwealth and State Government Departments, and C.S.I.R.O., have been formulated. Discrete occurrences in furniture have been successfully fumigated with methyl bromide.

Studies of insect attack on underground mining timbers in the Ipswich area were continued.

This involved what are thought to be some 'firsts'—the accurate recording of air temperatures and relative humidities in a West Moreton coal mine and the construction of an underground light trap to allow weekly monitoring of species and numbers in the emerging wood borer population about one kilometre underground.

Lyctus spp. formed only a small part of the beetles attacking untreated sapwood in mining timbers. The major attackers were found to be members of the family *Bostrychidae* which were able to pass through at least three generations in the period normally taken by one generation at the surface. The uniform temperatures and humidity assisted breeding and development which were not hindered by lack of light. Simple low cost surface oil borne preservative treatments proved effective in preventing attack by beetles. If the beetles are eliminated two benefits are realised—mine timbers will last much longer and the skin irritation caused by mites, which parasitise the beetles, is no longer a problem to the miners.

In October 1977, *Dothistroma* blight *(D. septospora* syn. *D. pini)* was found in a 1973 radiata pine planting at Gambubal east of Warwick. *Dothistroma* blight, which was first detected in Australia (New South Wales) in 1975, can cause severe defoliation of young radiata pine. It is not expected that *Dothistroma* blight will significantly affect any radiata pine plantations in Queensland except those at Gambubal where the rainfall is sufficiently high to favour the disease. The possible impact of *Dothistroma* blight on other Pinus species grown in Queensland is being studied.

Surveys during the year have shown that *Phytophthora cinnamomi* is widespread but not ubiquitous in the rainforests of tropical Queensland. Death of rainforest associated with this fungus, however, has been found only on poorly drained areas on low nutrient soils.

Preliminary work has been done in co-operation with the Wood Chemistry and Preservation group to make an up-to-date assessment of the sapstain problem in timber, and to develop newer methods of control. Blue sapstain appears to be due to a complex of fungi in the Queensland situation.

DIVISION OF ADMINISTRATION

General: A review of all administrative and clerical positions within the Department was undertaken and the extent of changes in responsibilities resultant from the recent restructuring of the Department on a divisional basis assessed.

This review culminated in the amalgamation of the General Administration and Special (Operations) Administration Branches to form the Administrative Services Branch (comprising the Secretarial, Stores, Records, Estate and Legislation, Staff and Industrial, and Relieving Sections) along with certain adjustments to designations and classification levels within existing staff establishment.

Staff: At 30 June 1978, the approved salaried staff establishment was 639, four fewer than for the previous year. Actual staff level at 30 June 1978 was: Salaried officers 624, wages employees 1 249. Appendix 14 provides details of staff distribution.

Thirty-nine salaried officers left the Department including six officers who retired after lengthy periods of meritorious service. The officers who retired are:—

Mr T. F. Ryley, Deputy Conservator of Forests, with 42 years' service;

Mr R. A. T. Dollery, Forest Ranger Division II, Gallangowan, with 39 years' service;

Mr H. W. Fraser, Senior Forest Ranger, Fraser Island, with 36 years' service;

Mr T. C. R. Anderson, Forest Ranger Division I, Emerald, with 32 years' service;

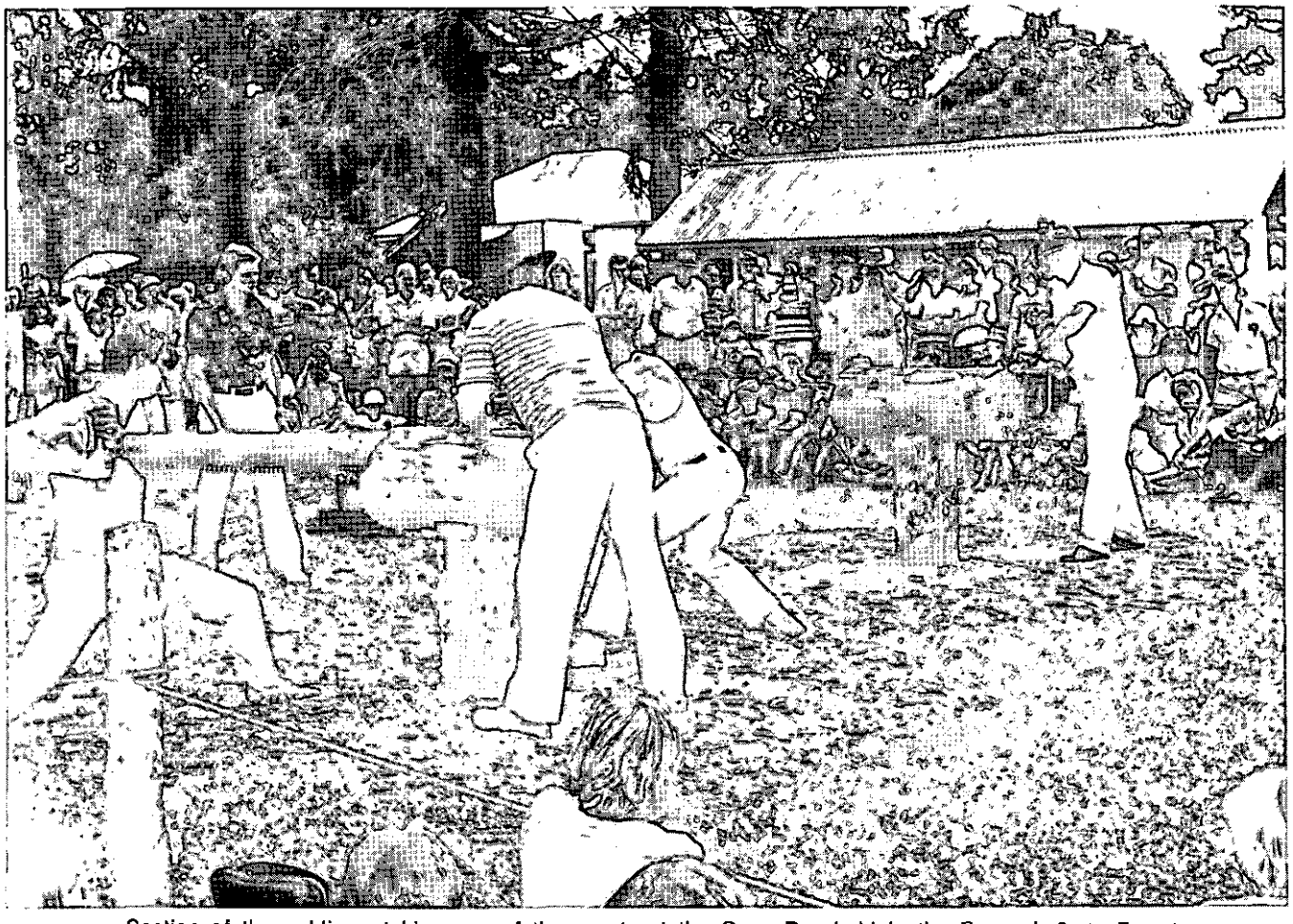
Mr W. F. Byrne, Clerk, Warwick, with 31 years' service; and

Mr N. S. H. Smith, Chemist Division I, Timber Utilization Branch, Brisbane, with 28 years' service.

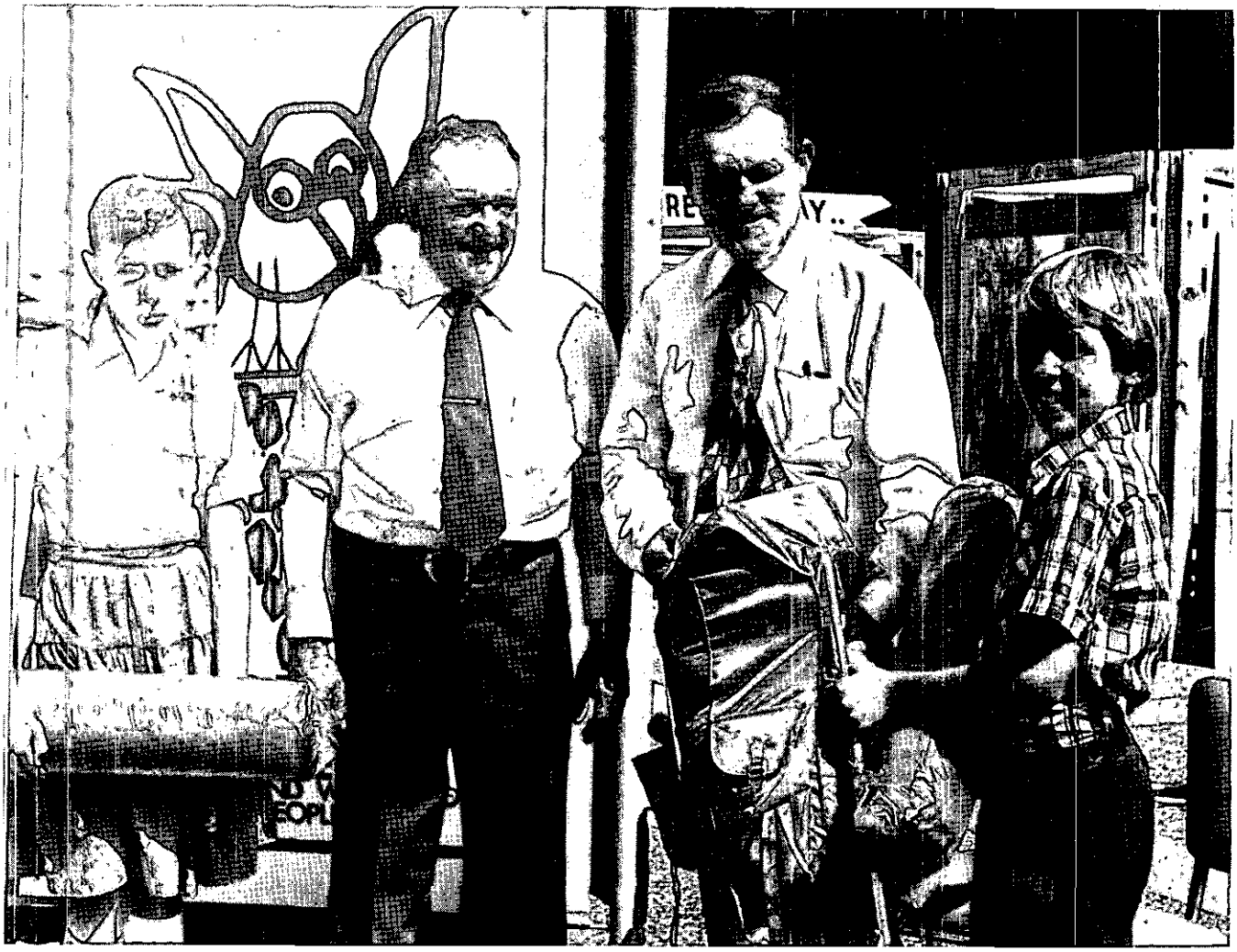
I wish these officers a long and happy retirement.

It is with deep regret that the death is recorded of Dr M. D. Higgins, B.Sc.(For), PH.D., Senior Forester. Dr Higgins had served the Department faithfully and efficiently during his period of service and his untimely death will be greatly felt by all who had served with him.

Overseas Travel: Mr J. Smart, Deputy Conservator of Forests, spent three weeks in New Zealand in January and February 1978 under the New Zealand/Australian Forest Officer Exchange Scheme; aspects of radiata pine plantation management of value to the Queensland plantation programme were investigated.



Section of the public watching one of the events at the Open Day held in the Beerwah State Forest.



The Honourable the Minister for Lands, Forestry and Water Resources, Mr N. T. E. Hewitt, presenting the two young winners of an essay competition with their prizes of camping and outdoor equipment. The competition was run in conjunction with World Forestry Day.

Dr B. Brown, Senior Pathologist, visited the New Zealand Forest Research Institute, Rotorua, in April 1978, to discuss various aspects of timber mycology and the control of timber and forest diseases, with particular reference to *Dothistroma* blight, and *Phytophthora* root rot.

Mr D. Gough, Senior Forester, resumed duty with the Timber Utilization Branch during September 1977, after a three-year secondment to the Department of Forestry, Fiji, sponsored by the Australian Development Assistance Bureau. Whilst in Fiji Mr Gough worked as a Senior Timber Utilization officer developing research techniques and training local staff on matters related to timber utilization.

Dr D. G. Nikles, Officer-in-Charge of the Tree Breeding Section, visited several countries in the Parific and in Central and South America as a consultant to an F.A.O. programme involving the co-ordination of breeding of pines in tropical countries.

Higher Degrees Awarded: Mr R. Wylie, Entomologist, was awarded the degree of Master of Science from the University of Queensland in October 1977 for studies relating to caterpillar defoliation of hoop pine in Papua New Guinea.

Dr B. Brown, Senior Pathologist, was awarded the degree of Doctor of Philosophy from the University of Auckland in May 1978 for studies relating to root rot diseases in eucalypts.

Queen's Silver Jubilee Medal: The Queen's Silver Jubilee Medal was awarded to Mr W. Bryan, Conservator of Forests, and to Mr L. Hopkins, Forester, Beerburrum Sub-District.

Industrial Relations: As a result of a variation to the Forestry Employees' Award—State Government, worker accommodation facilities throughout the State have been or are being upgraded to comply with the amended Award provisions.

This Award was also varied by consent of the parties to provide for improved remuneration and conditions for employees engaged on weekend fire detention and fire-overtime duty. The Engine Drivers' Award—State was likewise varied to include similar provisions for Departmental employees.

The flexible working hours scheme which was introduced on a trial basis in the Chief Office in June 1976, was extended to include major District and Sub-District offices during late 1977.

Records: In the light of the proposed move of the Chief Officer to new accommodation at 41 George Street, Brisbane towards the end of the 1978–79 financial year the opportunity was taken to initiate a review of the Department's record system bearing in mind space requirements in the planned new high rise building. The development of disposal schedules (or retention schedules) and a revision of the current file classification index are issues currently under consideration in this direction.

Forest Estate: The total area of land set apart as State Forests and Timber Reserves was increased by 37 126 ha and now stands at 4 060 071 hectares.

While most of the land reserved was made available for forestry purposes as a result of free-holding applications, as has been the case now for a number of years, a significant area of freehold land adjoining the Toolara plantations was purchased to augment available planting land.

The revocation of some 27 000 ha of land from existing State Forests was sanctioned by Parliament. Of this area, about 25 716 ha were excluded to be made available for National Park purposes.

An amount of $219,100 was expended on the acquisition of land for Forestry purposes as follows:—

Purchase of Land	$113 000
Survey Fees	$105 223
Real Property Fees and Lands Department Charges ..	$837
Compensation for Improvements	$40
	$219 100

Legislation: Preparatory work towards amending and recasting the Forestry Act and the Timber Users' Protection Act was continued during the year but it will be some time before approval can be sought to have draft Bills prepared.

Offences: Investigations were undertaken into 105 reported breaches of the Acts administered by the Department.

Some 40 per cent of these cases involved suspected breaches of the Timber Users' Protection Act while the remaining actions were taken under the Forestry Act, mainly for unauthorised interference with marketable timber and other forest products.

Prosecution action was taken in two related cases: One for unauthorised encroachment upon State Forest land, and the other for planting that land to sugar cane, without authority. The offender was convicted on both counts and fined a total of $300.

In other cases where it was considered there had been no deliberate attempt to defraud the Crown, or where there was insufficient evidence to sustain a prosecution, demands were made on the offenders for reimbursement of the Department's investigation costs and assessed loss of stumpage. An amount of $8 500 was recovered by this means.

In their capacity as Fire Wardens, Forest Officers also investigated three breaches of the Rural Fires Act. Prosecution action was instituted against one offender resulting in the imposition of a $50 fine.

Stores: Stores officers were involved in a specialised development programme with a view to increasing efficiency in relation to purchase and supply of goods.

Coupled with recent delegations of expenditure authorities this exercise has resulted in more effective handling of district office requisitions.

Discussions and seminars held to familiarize officers with State Stores requirements and the Treasurer's instructions were attended by senior staff and others directly involved in the purchase of stores and equipment.

Accounts: The more important of the financial accounting systems have been transferred to the recently installed Data-Saab machines. Other systems have been converted from manual to machine procedures. The two Data-Saab machines now have a full work-load.

A proposal for budgeting on a department-wide basis has been under trial and it is proposed to adopt a uniform budget system from 1 July 1978.

The emphasis will be on delegation of authority and responsibility, with appropriate accountability for decisions at district and divisional levels.

The Financial Administration and Audit Act of 1977 becomes effective from 1 July 1978 but it is not expected that any major changes will be required in current accounting systems.

Automatic Data Processing: Computer processing of Stumpage Accounts was successfully introduced into North Queensland. Stumpage Accounts for all milling timbers sold throughout the State are now produced through computer methods. The second stage of the total Timber Sales Project can now be commenced. A systems design for the maintenance and controlling of purchaser's Ledger Accounts has now been completed and programme writing will commence early in the 1978–79 year.

The year saw the installation of the first of a number of "on-line" computer terminal devices heralding a new era in computer involvement for our programming staff. These devices, connected directly to the State Government UNIVAC Computer System, permit the use of modern and highly sophisticated techniques and will dramatically speed up the process of programme and system developments. Delivery of further such devices is expected in the near future.

Training of personnel to equip them to handle the advanced technologies available through the UNIVAC system, has continued throughout the year and conversion of systems to UNIVAC standards has proceeded at a satisfactory rate. It is anticipated that all systems will be fully converted before the end of December 1978.

A redesign of the (Mechanical) Plant Accounting system has been commenced and a target date of 1 July 1979 has been set for the implementation of the new system.

APPENDIX 3

NET AREA OF SOFTWOOD PLANTATION ESTABLISHED
1 APRIL 1977 TO 31 MARCH 1978—hectares

District	Native Conifers			Exotic Conifers				Total Conifers
	Hoop Pine	Bunya Pine	Total Native	Slash Pine	Caribbean Pine	Other Exotic Conifers	Total Exotic	
Brisbane	50	..	50	496	215	..	711	761
Gympie	267	..	267	1 875	304	..	2 179	2 446
Maryborough	86	3	89	1 768	235	..	2 003	2 092
Monto	49	..	49	..	..	..	..	49
Murgon	166	..	166	..	..	..	..	166
Rockhampton ..	..	..	..	1	239	..	240	240
North Queensland ..	13	..	13	..	392	1	393	406
Warwick	..	..	..	..	..	45	45	45
Yarraman	311	..	311	31	75	..	106	417
Total	942	3	945	4 171	1 460	46	5 677	6 622

APPENDIX 4

NET AREA OF EFFECTIVE SOFTWOOD PLANTATION
AS AT 31 MARCH 1978—hectares

District		Native Conifers			Exotic Conifers				Total
	Hoop Pine	Bunya Pine	Other Native Conifers	Total Native Conifers	Slash Pine	Caribbean Pine	Other Exotic Conifers	Total Exotic Conifers	
Brisbane	1 332	6	4	1 342	12 297	760	1 941	14 998	16 340
Gympie	11 256	231	37	11 524	20 015	749	268	21 032	32 556
Maryborough ..	1 504	3	29	1 536	20 512	2 147	43	22 702	24 238
Monto	2 572	1	1	2 574	22	3	13	38	2 612
Murgon	7 331	130	1	7 462	..	..	47	47	7 509
Rockhampton ..	262	..	1	263	1 010	4 223	58	5 291	5 554
North Queensland	1 032	1	123	1 156	5	2 404	50	2 459	3 615
Warwick	13	2	..	15	330	..	2 255	2 585	2 600
Yarraman	13 240	119	3	13 362	464	213	1 936	2 613	15 975
Total	38 542	493	199	39 234	54 655	10 499	6 611	71 765	110 999

APPENDIX 5

NET AREA OF EFFECTIVE BROADLEAVED PLANTATION
AS AT 31 MARCH 1978—hectares

District	Native Forest Hardwoods					Other Broadleaved Species	Total Broadleaved Species	Miscellaneous Experimental
	Rose Gum	Grey Ironbark	Blackbutt	Other Native Forest Hardwoods	Total Native Forest Hardwoods			
Brisbane	130	84	93	42	349	1	350	37
Gympie	533	156	111	166	966	92	1 058	10
Maryborough ..	..	..	48	1	49	2	51	39
Murgon	8	6	4	..	18	9	27	1
Rockhampton ..	..	..	..	1	1	1	2	5
North Queensland	1	14	..	15	30	134	164	13
Warwick	..	..	..	..	..	..	..	10
Yarraman ..	71	137	..	4	212	122	334	39
Total	743	397	256	229	1 625	361	1 986	154

APPENDIX 6

AREAS OF NATURAL FOREST TREATED 1977–78—hectares

District	Eucalyptus	Cypress Pine	Total
Brisbane	228	..	228
Dalby	..	9 743	9 743
Gympie	592	..	592
Maryborough	4 212	..	4 212
Monto	1 131	..	1 131
Murgon	1 017	..	1 017
Warwick	..	2 048	2 048
Total	7 180	11 791	18 971

APPENDIX 7

MILLING TIMBER REMOVALS FROM CROWN LAND
(cubic metres gross measure)

1976–77 Total	Species	Brisbane	Dalby	Gympie	Mary-borough	Monto	Murgon	North Qld.	Rock-hampton	Warwick	Yarraman	1977–78 Total
43 772	Hoop, Bunya & Kauri Pine	49	..	1 292	23 057	4 680	6 196	8 676	835	347	3 841	48 973
115 775	Cypress Pine	284	93 376	8	437	..	..	..	2 381	26 100	..	122 586
62	Other Pine	..	..	..	..	..	..	369	60	..	..	429
230 882	Forest Hardwoods ..	33 509	25 814	22 068	41 595	26 240	24 884	14 168	39 601	3 994	7 329	239 202
83 412	Rain Forest Structural Timbers ..	156	..	1 150	183	44	439	63 510	9 778	1 605	163	77 028
32 211	Prime Cabinet Woods—	..	..	..	29	..	66	32 855	248	17	..	33 215
41 428	Miscellaneous Cabinetwoods	141	..	863	46	..	107	36 102	1 694	1 472	38	40 463
82 061	Native Plantation Conifers	..	..	38 432	..	4 168	7 564	..	..	..	23 552	73 716
66 586	Exotic Plantation Conifers	46 453	..	8 716	7 609	..	1 027	..	4 366	10 392	12 113	90 676
660	Plantation Non-Conifers	..	..	..	..	..	..	..	..	..	338	338
696 849	Total	80 592	119 190	72 529	72 956	35 132	40 283	155 680	58 963	43 927	47 374	726 626

APPENDIX 8

PULPWOOD REMOVALS FROM CROWN LAND 1977-78

(cubic metres gross)

1976–77 Total	Species	Brisbane	Gympie	Maryborough	Murgon	Yarraman	1977–78 Total
12 050	Native Conifers ..	..	8 076	..	2 308	295	10 679
68 508	Exotic Conifers ..	26 433	35 854	18 862	407	3 925	85 481
12 484	Non-Conifers ..	145	..	..	..	9 658	9 803
93 042	Total	26 578	43 930	18 862	2 715	13 878	105 963

APPENDIX 9

REMOVALS UNDER HAULAGE CONTRACTS

This table shows the quantities hauled and payments made for the haulage of milling timber during 1977–78 by contractors to the Department. The quantities shown are also included in Appendix Number 7.

(cubic metres gross)

South Queensland							North Queensland	
Hoop and Bunya Pine	Forest Hardwoods	Rainforest Structural Timbers	Prime Cabinet Woods	Miscellaneous Cabinet Woods	Total	$ Payments Made	Prime Cabinet Woods	$ Payments Made
22 726	12	139	29	462	23 368	448 274	760	13 975

APPENDIX 10

MISCELLANEOUS REMOVALS FROM CROWN LAND

1976–77	Product	1977–78	Unit
	Sleepers		
5 231	1·2 metres	1 747	pieces
70 000	1·5 metres	63 196	pieces
126	1·8 metres	..	pieces
1 313	2·0 metres	3 371	pieces
257 583	2·15 metres	234 188	pieces
..	2·3 metres	1 078	pieces
..	2·4 metres	540	pieces
..	2·5 metres	193	pieces
5 506	Transoms, crossings, headstocks, etc. ..	1 897	cubic metres
18 025	Girders, corbels, piles, sills, kerblogs	22 777	metres
610	Girder logs	941	cubic metres
17 286	Poles	62 256	metres
948	House blocks	137	metres
109 284	Fencing material—round	99 440	metres
111 366	Fencing material—split	111 716	pieces
80 759	Mining timbers—round	135 129	metres
4 902	Mining timbers—sawn	26 158	cubic metres
..	Mining timbers—other	4 877	pieces
543	Offcuts	249	cubic metres
5 369	Fuelwood	7 053	tonnes
467 641	Quarry Material (Sand, gravel, soil, etc.) ..	500 064	cubic metres
89	Freestone	94	cubic metres
5	Fibre, Bark, leaves etc.	6	tonnes
..	Pine Cones	12	cubic metres
689	Flora	3 710	pieces
224	Peat	210	bags
10	Lawyer Cane	10·5	tonnes
106	Boat Knees	2	pieces
5	Bee Hives	24	hives
260	Black Wattle	64	pieces
36	Charcoal	35	tonnes
393 220	Trees and Plants	421 064	number

APPENDIX 11

MILLING TIMBER REMOVALS FROM PRIVATE LAND 1977-78
(cubic metres gross measure)

1976–77 Total	Species	Brisbane	Dalby	Gympie	Mary-borough	Monto	Murgon	North Qld.	Rock-hampton	Warwick	Yarraman	1977–78 Total
4 837	Hoop, Bunya and Kauri Pines	1 562	..	227	876	163	..	18	2 686	1 288	148	6 968
71 834	Cypress Pine	61	40 976	..	80	..	..	..	283	20 953	..	62 353
154	Other Pines	175	..	59	..	..	..	1	1	22	..	258
343 262	Forest Hardwoods ..	154 664	13 285	9 758	57 944	36 248	12 600	6 371	39 860	15 690	18 524	364 944
13 267	Rain Forest Structural Timbers ..	864	..	45	93	..	..	10 278	2 168	985	..	14 433
3 550	Prime Cabinetwoods ..	81	..	..	9	..	..	3 571	123	..	..	3 784
12 396	Miscellaneous Cabinetwoods	1 753	..	3	18	..	..	7 194	1 609	..	..	10 577
186	Native Plantation Conifers	..	..	54	..	..	..	..	..	..	..	54
5 705	Exotic Plantation Conifers	22 341	..	..	..	..	..	32	..	372	1	22 746
195	Plantations, Non-Conifer	..	..	..	..	..	..	..	..	..	..	..
9 242	Imported	7 366	..	..	..	..	..	..	..	..	..	7 366
464 628	Total	188 867	54 261	10 146	59 020	36 411	12 600	27 465	46 730	39 310	18 673	493 483

N.B. Volumes shown in the above Table have been estimated due to incomplete Statistics being available at time of compilation.

APPENDIX 12

COMPARATIVE STATEMENT OF RECEIPTS BY FUNDS FOR THE YEARS 1976-77 AND 1977-78

1976–77	—	1977–78
$	CONSOLIDATED REVENUE FUND—	$
1 644	Miscellaneous	727
	LOAN FUND—	
360 517	Sale of Motor Vehicles and Plant	554 109
49 886	Plant Hire	212 889
410 403		766 998
	FORESTRY AND LUMBERING FUND—	
35 269	Opening Balance	42 803
6 063 740	Log Timber Receipts from Districts	6 355 983
690 279	Forestry and Lumbering	856 752
187 252	T.R.A.D.A.C.	188 174
2 162 752	Plant Hire	2 604 672
467 933	Other Receipts	510 902
9 607 225		10 559 286
42 803	Less Balances Carried Forward	270 348
9 564 422		10 288 938
	REFORESTATION TRUST FUND—	
717 043	Opening Balance	192 899
99 600	Commonwealth Grant for Aboriginal Advancement ..	214 137
1 547 006	Commonwealth Softwood Forestry Agreement	..
12 370 000	Loan Fund Contribution*	14 555 400
..	Special Projects Fund	959 693
14 733 649		15 922 129
192 899	Less Balances Carried Forward	31 502
14 540 750		15 890 627
24 517 219	Total All Funds	26 947 290

* Includes $675,400 temporary Loan Fund advance from State Treasury Department as the advance under the Commonwealth Softwood Forestry Agreement was not received during the financial year 1977–78.

DISPOSAL OF RECEIPTS

$		$
	The above receipts were disposed of as follows:—	
1 644	To Consolidated Revenue Fund as repayment of Expenditure ..	727
	To Loan Fund—	
360 517	Repayment of Previous Expenditure	554 109
49 886	Excess Plant Hire	212 889
410 403		766 998
	To Forestry and Lumbering Fund—	
	Expenditure on Marketing, Maintenance of Roads, Capital	
6 195 518	Improvements, Plant and T.R.A.D.A.C.	6 876 755
3 368 904	Interest and Redemption on Loans	3 412 183
9 564 422		10 288 938
	To Reforestation Trust Fund—	
	Expenditure on Reforestation, Land acquisition, Plant	
	Purchase, Road Construction and Radio and Fire fighting	
14 540 750	equipment	15 890 627
24 517 219	Total All Funds	26 947 290

APPENDIX 13

COMPARATIVE STATEMENT OF EXPENDITURE BY FUNDS FOR YEARS 1976-77 AND 1977-78

1976–77	—	1977–78
$	CONSOLIDATED REVENUE FUND—	$
6 597 197	Salaries	7 279 907
5 149	Cryptotermes Brevis Investigation	13 366
28 600	Fares, Printing and Stores	63 060
634 324	Travelling Expenses and Incidentals	811 026
10 655	Recreation Facilities—State Forests	13 413
79 248	Cash Equivalent of Long Service Leave	92 404
7 355 173		8 273 176
	LOAN FUND—	
76 097	Recreation Facilities—State Forests	146 211
12 370 000	Amount to be credited to Reforestation Trust Fund	13 880 000
35 000	Acquisition of Airstrip—Fraser Island	..
12 481 097		14 026 211
	TRUST AND SPECIAL FUNDS—	
	Forestry and Lumbering Fund—	
3 368 904	Interest and Redemption on Loans	3 412 183
628 101	Hardwood Supplies to Department of Railways and Others	755 647
2 661 338	Harvesting and Marketing Timber	2 820 347
548 693	Access Roads—Maintenance and Subsidies	538 031
1 941 488	Maintenance of Plant	2 322 917
233 404	Maintenance of Capital Improvements	258 361
182 494	Expenses—Timber Research and Development Advisory Councils	181 452
9 564 422		10 288 938
	Reforestation Trust Fund—	
11 680 614	Reforestation	13 282 591
68 880	Land Acquisition	219 100
1 999 614	Purchase of Plant	1 368 827
709 939	Access Roads	798 488
81 703	Purchase of Radio and Firefighting Equipment	221 621
14 540 750		15 890 627

APPENDIX 14

DISTRIBUTION OF PERSONNEL 30 JUNE 1978

—	Metropolitan	District	Total
Salaried Staff—			
Graduate	62	67	129
Technical	82	26	108
Field Supervisory	9	103	112
Clerical	139	123	262
Miscellaneous (Drawing Office Aides, General and Laboratory Assistants etc.)	12	1	13
Sub-Total	304	320	624
Wages Staff—			
Reforestation Works	16	869	885
Marketing and Resources	18	159	177
Road Construction and Maintenance	..	96	96
Maintenance of Plant	8	83	91
Sub-Total	42	1 207	1 249
Total	346	1 527	1 873

APPENDIX 15

DEPARTMENTAL PUBLICATIONS 1977–78

RESEARCH PAPERS

8. Mannion, E. G. 1978.	Quantitative assessment of aerial fertilization of young slash pine plantations in South East Queensland. 39 pp.
9. Simpson, J. A. 1978.	Nursery nutrition studies with slash pine at Beerburrum. 32 pp.

TECHNICAL NOTE

1. Greve, D. M. 1978.	Platform floor construction experimental results and recommendations. 4 pp.

TECHNICAL PAPERS

3. Just, T. E. 1978.	Fire control problems of the Wallum with particular reference to Cooloola. 15 pp.
4. Hawkins, P., Nikles, G. and Smith, W. 1978.	Management, wood properties and genetic improvement of Caribbean pine in Queensland. 19 pp.
5. Reilly, J. J. 1978.	The utilisation of the southern pines. 34 pp.
6. Bevege, D. I. 1978.	Biomass and nutrient distribution in indigenous forest ecosystems. 20 pp.
7. Grimes, R. F. 1978.	Crown assessment of natural spotted gum—ironbark forest. 16 pp.
8. Shea, G. M. and Armstrong, P. A. 1978.	Factors affecting survival in open-root plantings of Caribbean pine—coastal Queensland. 18 pp.
9. Just, T. E. 1978.	Extreme fire weather in Queensland. 17 pp.
10 Just, T. E. 1978.	Drying characteristics of felled scrub. 17 pp.

ADVISORY LEAFLET

1. Wylie, F. R. and Yule, R. A. 1978.	Pine Bark Weevil. 3 pp.

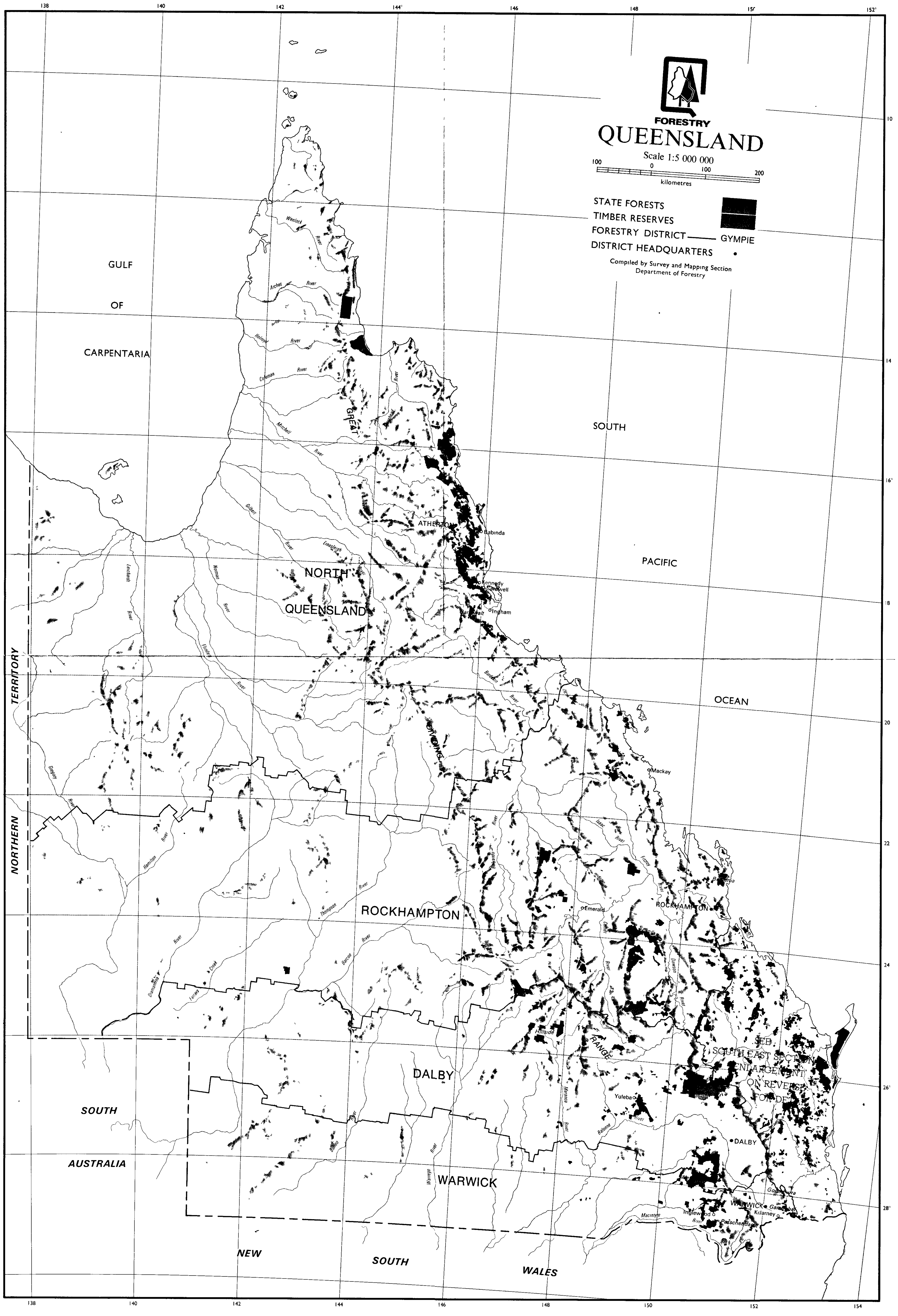
RESEARCH NOTE

22. Harvey, A. M. 1978.	Effect of seedbed cover on germination of patula pine seed. 3 pp.

APPENDIX 16

BOTANICAL NAMES

A. NATIVE CONIFERS	
Bunya Pine	*Araucaria bidwillii*
Cypress Pine	*Callitris columellaris*. Syn. *Callitris glauca*
Hoop Pine	*Araucaria cunnunghamii*
Kauri Pine	*Agathis robusta*.
B. EXOTIC CONIFERS	
Caribbean Pine	*Pinus caribaea*
Honduras Caribbean Pine	*Pinus caribaea* var. *hondurensis*
Loblolly Pine	*Pinus taeda*
Patula Pine	*Pinus patula*
Radiata Pine	*Pinus radiata*
Slash Pine	*Pinus elliottii* var. *elliottii*
Ocote Pine	*Pnus oocarpa*
C. EUCALYPTUS	
Blackbutt	*Eucalyptus pilularis*
Grey Ironbark	*Eucalyptus drepanophylla*
Rose Gum	*Eucalyptus grandis*
Spotted Gum	*Eucalyptus maculata*
Swamp Mahogany	*Eucalyptus robusta*
D. OTHER BROADLEAF SPECIES	
Brush Box	*Tristania conferta*
Satinay	*Syncarpia hillii*
E. WEEDS, GRASSES, ETC.	
Lantana	*Lantana camera*
Harrisia Cactus	*Eriocereus tortuosus*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QUEENSLAND
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DALBY
WARWICK
GREAT
DIVIDING
RANGE
ATHERTON
Babinda
Kennedy
Cardwell
Ingham
Mackay
Emerald
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Hillside
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Killarney
Passchendaele
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Coleman River
Mitchell River
Gilbert River
Einasleigh River
Leichhardt River
Norman River
Flinders River
Gregory River
Hamilton River
Thomson River
Barcoo River
Diamantina River
Farrars Creek
Burdekin River
Isaac River
Fitzroy River
Comet River
Dawson River
Maranoa River
Balonne River
Warrego River
Bulloo
Macintyre River
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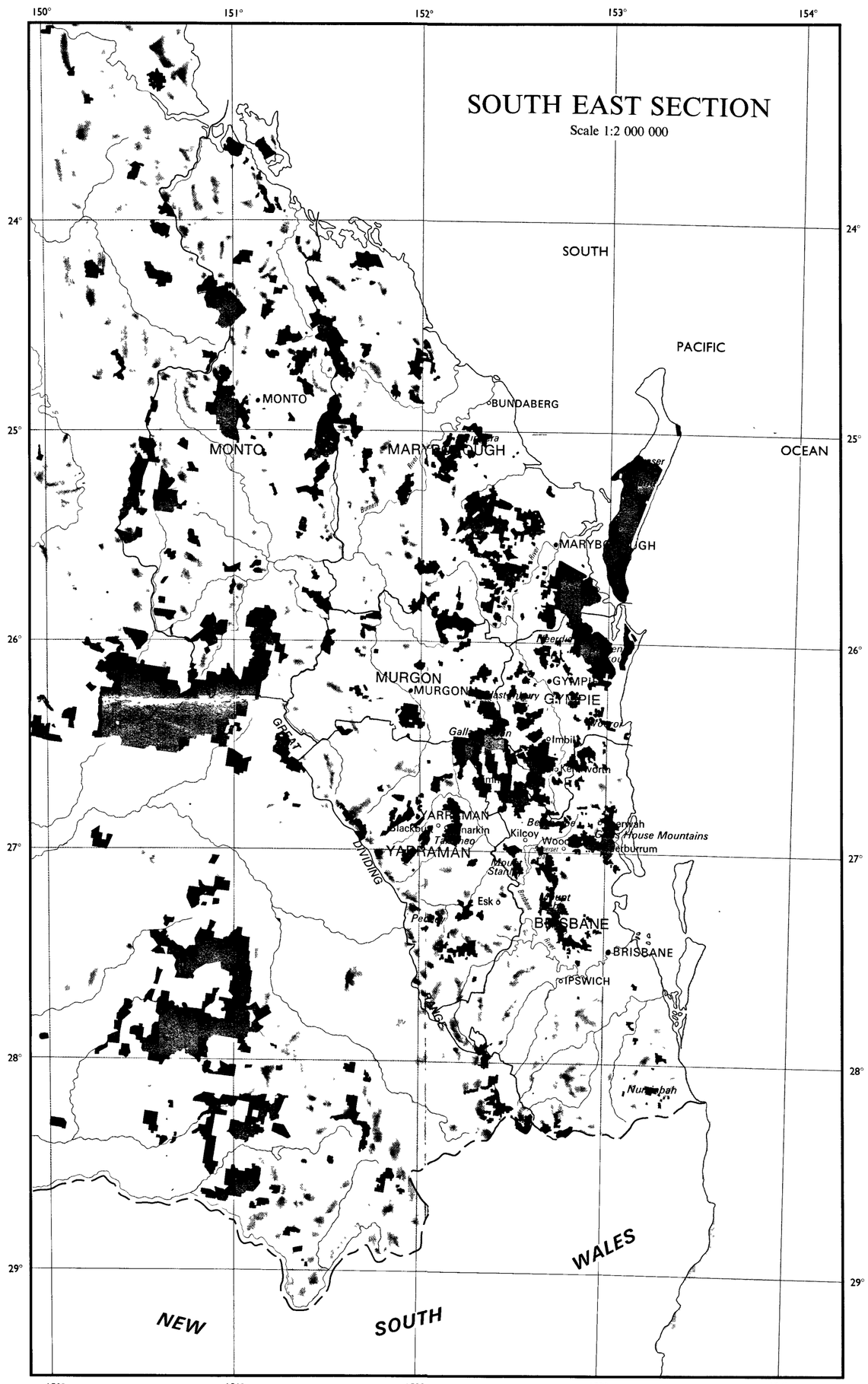
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OCEAN
MONTO
BUNDABERG
MARYBOROUGH
MURGON
GYMPIE
YARRAMAN
BRISBANE
IPSWICH
GREAT
DIVIDING
NEW
SOUTH
WALES