

# FORESTRY

## **ANNUAL REPORT 1980~81**

**Queensland Department of Forestry**

**Presented to Parliament by Command**

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# Introduction 1



Mr Jim Smart, Conservator of Forests.

It is pleasing to again record that activities of the Department during 1980-81 have continued at a generally high level of effectiveness. Special mention will be made later of several of the more significant developments which have occurred this year.

However, while it has been possible to meet major programme targets during the year, this has been achieved only by closely monitoring and improving procedures, and by omitting or deferring some lower priority requirements. In the continuing climate of financial stringency and restrictions on staffing levels, there is little additional capacity within the organization to continue to meet these programme targets, while at the same time absorbing the increasing demands imposed by a number of other activities. Indicative of this is the fact that most personnel are already carrying very heavy work loads.

This position will be exacerbated by the expanding needs of a still-developing organization.

The Department recognizes the important role that personnel management can play in such a situation. It is therefore pleasing to report that action was taken during the year to create a Personnel Services Branch. This followed a study by the Department's Development Committee and officers of the Management Services Branch. The scope envisaged for the new Branch in the management and development of staff represents a new dimension in the Department and, indeed, in the Public Service in Queensland. The assistance and co-operation received from the Department of the Public Service Board in this regard was appreciated.

The level of softwood planting decreased from the record level

of 7 917 hectares planted in 1979-80 to 6 642 hectares this year. The most significant proportional reduction was in plantings of native conifers. These reduced plantings largely reflect the decreasing real value of funds available for this work.

An important development was the first sale in this State, on a continuing basis, of high value log timber from maturing plantations. This sale in the Beerburrum area will provide 80 000 cubic metres annually for sawmilling, plywood manufacture and pulping. Preparatory work is well in hand for further similar sales at other plantation centres in the coming year. These additional volumes should assist the local timber industry to develop and meet market needs.

The first graduates from the Forestry Training Centre at Gympie received their TAFE Fellowship Certificates in June and took their places in the Department's work force as field supervisors at various centres throughout the State. Twenty-five new students commenced their two-year course at the centre early in 1981. The operation and standard of the training course and the facilities available at Gympie have attracted a deal of favourable comment and should greatly assist the Department in meeting its future staffing needs in terms of both numbers and technical expertise.

Public use of State Forests continues to grow apace, and facilities in State Forest Parks are being developed near major use centres as funds permit. Many of these Parks are being heavily over-used at peak periods, so much so that it has been necessary to introduce control measures in some cases.

The Department has continued to direct considerable effort to its public awareness programme to provide factual information on its activities by way of publications, forest visits and personal contacts. An Information Officer was appointed during the year to expedite this important work which will include preparation of educational material for schools.

Forest research activity in the Department has been further integrated by transfer of research staff from several centres to the new regional research centre at Gympie, and this has already led to improved co-ordination and communication in the research programme and in application of its results.

It is important that the present level of planting be maintained for at least the next decade. The Department would then expect to be able to meet calculated future timber demands, and assure supplies to local industry at levels which will allow it to be competitive in the market place.

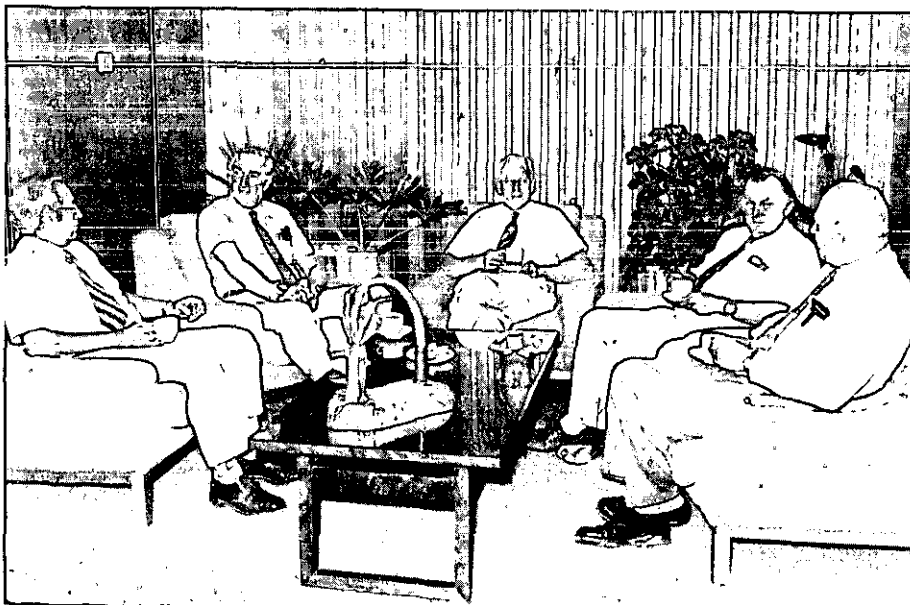
The Department is maintaining an increasingly large and more valuable forest resource with a static or reducing work force. To facilitate this, significant rationalization and upgrading of working procedures and systems, including fire protection, have been implemented. Evidence of this is demonstrated by the record

area of 11 600 hectares of plantations that was subjected to controlled low-intensity burning during the year to reduce fire hazard. The capability for early first attack on fires was also improved by purchase of four prime movers and trailers for rapid transport of heavy machinery to the fire front.

It was possible to take advantage of suitable market conditions to purchase a total of 11 663 hectares of strategically located land for the softwood planting programme. Following successful acquisition of suitable replacement land in the Gympie area, it was possible to initiate action for the release of land in the western catchment of the Noosa River for National Park purposes.

In the timber marketing area a very buoyant demand existed for most of the year, with most local producers operating at or close to the limits of capacity or of their available log supplies.

Operation of locally grown plantation pine was at a record level, but there was still some increase in sawn timber imports into the State from interstate and overseas, reflecting the rapid growth in the State economy. Returns from the sale of Crown log timber were some 16 per cent higher than for the previous year, a result in part of the higher log timber stumpage rates which came into force during the year.

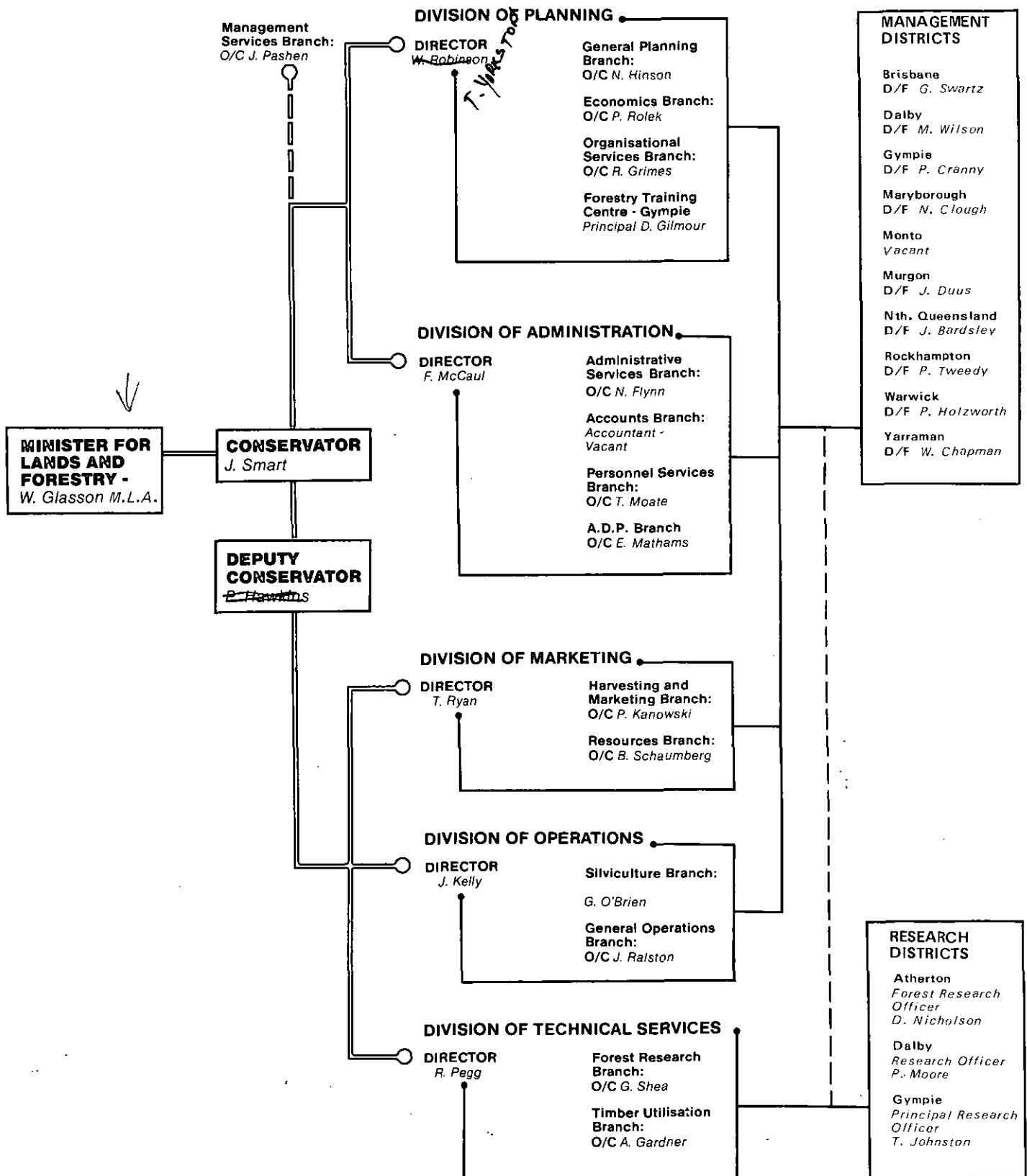


*From left. Messrs Frank McCaul (Director of Administration), Jim Smart (Deputy Conservator), Bill Bryan (Conservator), Peter Hawkins (Director of Marketing), Tony Robinson (Director of Technical Services) prior to Mr Bryan's retirement in March.*

# Departmental Structure 2

## HEAD OFFICE

## FIELD DISTRICTS



# Objectives 3

The Department's objectives are to:

- Develop and manage the State's forest resources in the best long-term interests of the general community.
- Manage the forests, including production forests, to cater for multiple use such as recreation and protection of the environment.
- Manage production forests to maintain as far as practicable adequate supplies of timber and other forest products in perpetuity.
- Contribute as appropriate to the development of effective general land use policies and practices.
- Promote the development and stability of the wood-using industry.
- Undertake research relevant to the needs of forestry and the timber industry.
- Undertake training in forestry and encourage the development of safe working practices in the forest.
- Provide extension advice to the public and the timber industry in the fields of forestry and timber utilization.



Maturing stand of exotic pine near Beerburrum 70 km north of Brisbane.

# Five Year Summary 4

	1980-81	1979-80	1978-79	1977-78	1976-77
<b>Forest Estate—</b>					
State Forest—000's hectares.....	3 713	3 716	3 610	3 444	3 399
Timber Reserve—000's hectares.....	584	595	589	616	624
<b>Plantation Management—</b>					
Total area—000' hectares .....	133	127	119	113	107
<b>Native Forest Management—</b>					
Area Treated—hectares.....	7 839	9 430	13 433	18 971	11 582
<b>Nursery Stock—</b>					
Department Use—000's.....	8 000	11 308	8 802	8 080	7 173
Amenity and Forest Plots Sales—000's ...	523	400	418	421	393
<b>Prescribed Burning—</b>					
Native Forests—000's hectares .....	159	107	58	151	126
Plantation—000's hectares .....	12	8	6	10	4
<b>Wildfires—</b>					
Number of fires.....	157	206	37	261	98
Area burnt—000's hectares.....	67	63	3	112	149
<b>Roads Constructed—kilometres.....</b>	<b>324</b>	298	280	310	277
<b>Timber Cut Crown Lands—</b>					
Native Forest—000's cubic metres .....	593	637	567	572	560
Plantations—000's cubic metres .....	350	285	229	261	230
<b>Forestry Development Fund Expenditure—</b>					
\$000's.....	22 687*	19 265	16 411	15 891	14 541
<b>Staff—</b>					
Wages .....	1 211	1 192	1 213	1 249	1 334
Salaried .....	631	632	633	624	621

\* 1981 expenditure includes special grant of \$2,250,000 for acquisition of land.

# Timber Marketing 5

## THE FOREST ESTATE

The area of land held as State Forest and Timber Reserve as at 30th June, 1981, totalled 4 296 781 hectares. This represents a net loss to the forest estate (State Forests and Timber Reserves) of some 14 376 hectares since 1979-80. The significant decrease is due to areas of both State Forest and Timber Reserve being excised for National Park purposes. These included 7 278 hectares for the Scenic Rim, 25 160 hectares for the Blackdown Tableland and 8 606 hectares for Johnstone River.

It is worthy of note that the net loss of State Forest area recorded this year is the first such loss since 1907 when Queensland's first State Forest was dedicated.

During the year, \$3,146,433 was expended on land acquisition mainly for plantation purposes, the major outlay being \$2,500,000 in part payment for the purchase of about 10 300 hectares in the Toolara area.

## FOREST RESOURCES

**Functions:** The Department's Resources Branch provides essential information to management and field staff on:

- estimates of current and future forest resources available from native forests and pine plantations;
- timber volumes available by size and species together with other management data required to ensure continual future wood supply for Queensland sawmills;
- standing timber volumes and values on land which the Department wishes to acquire for State Forests.

The branch also provides information on standing timber volumes and values for other State Government departments, particularly land involved in conversion to freehold applications.

**Native forest inventory:** In 1978-79, a computer-based management inventory system was tested in the Gympie Timber Supply Zone. Following analysis, the system was used to collect resource data for two large forest types—north and central Queensland rain forests, and central Queensland hardwoods. The data collected will be used as a basis for review of Crown log allocations in north Queensland, and to place central Queensland sawmills on the Crown log allocation system.

Inventory work has continued in south-east Queensland for the revision of Crown log (hardwood and softwoods) allocations, due in October, 1982.

**Plantation forest inventory:** A sophisticated simulation programme which allows examination of plantation yields under various thinning regimes and rotational ages was developed and is now

operating. During the year, major yield calculation and management reports were prepared to programme the harvesting of final crop plantation timbers in Brisbane, Yarraman, Gympie and North Queensland Districts. Similar reports were prepared in relation to on-going thinning commitments in Yarraman, Warwick and Maryborough Districts.

Work commenced on validation of data for all measurements of Forest Inventory Survey plots since 1965 using a computer system. This will eventually allow the inclusion of an additional 4 000 plots in the plantation yield system and should result in better yield prediction.

**Valuation of timber for conversion of tenure:** The majority of applications now being received are in the two most northern districts (North Queensland and Rockhampton). Some areas of low timber productivity are now attracting timber valuation as utilization, markets and demand change. This is especially evident in the area of new mining activity in central Queensland.

The overall situation is shown in the table below:

Applications:	No.	Area (ha)
Being processed .....	91	331 490
Awaiting field assessment .....	85	289 641
Completed .....	3,643	11 534 801
Currently withdrawn .....	188	746 451
	<hr/> 4 007	<hr/> 12 902 383

*Opposite page. Contract cutter Graham Bunn, felling a mature exotic pine near Beerburum.*





## HARVESTING AND MARKETING

**Pricing:** The real value of timber revenue is maintained by periodically increasing Crown log prices in accordance with the upward movement of logging costs and the Consumer Price Index.

No overall increase in Crown log stumpages was applied over the period 1974-1979 because of poor trading conditions. The improved economic situation over the past two years has allowed stumpage increases. The most recent increase was 19 per cent from 1st July, 1980, representing an increase of 8.6 per cent in the Consumer Price Index for the 1979 calendar year, and 10.4 per cent as part of the deficit accumulated since 1974, in accordance with recommendations by a stumpage review committee. This committee has an independent chairman, one member from the Department of Commercial and Industrial Development, six members from industry associations throughout Queensland, and two members from the Department of Forestry. It makes recommendations to the Minister on the timing of any price adjustments.

The Department and Industry recognize the need to review current pricing systems for all species groups in order to

simplify and restore price relativities which have been distorted through the application of flat percentage increases and other factors. During the year, a review of north Queensland pricing was completed and reviews of plantation timber and native pines, including cypress, were initiated.

Prices applying to sales of pulpwood were increased by 10 per cent on 1st January, 1981.

**Sales procedures:** Regular sales of naturally grown Crown log timber are made to individual mills under a non-competitive allocation system. Periodic reviews are made of the available forest resources within allocation zones to determine the rate of removals. Reviews with industry groups involved were held during the year for western cypress and hardwood areas, and new allocations came into effect in those areas in October.

A task force carried out a review of the maturing plantation log timber resources and of the available options for its sale. This led to a call for proposals to harvest and process an initial volume, on a continuing basis, at a single upset royalty price.

**Log measurement:** Major trials in selling cypress pine and plantation pine logs by weight measurement rather than

volume measurement have continued. Mass is converted to volume by using conversion factors determined and regularly checked from load samples. Bulk measurement offers advantages to both the Department and Industry. Sawmillers, for example, can arrange faster removals and immediate documentation of mill log input. The Department gains from a reduction in measuring costs.

## FOREST PRODUCE AND FOREST INDUSTRIES

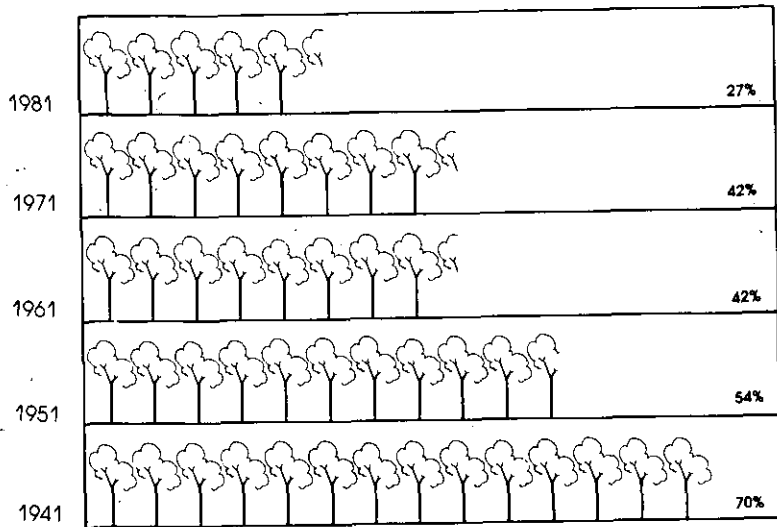
**Timber harvesting:** The volume of timber harvested from Crown and private lands during 1980-81 is provided in the Appendices. Although the milling included timber cut from native forests on Crown lands decreased by 46 300 cubic metres, the overall cut of timber from Crown lands, including pulpwood, was a record 942 999 cubic metres. This represents an increase of 2.3 per cent over the previous record year, and was made possible through the increase in plantation material. A 21.3 per cent increase in plantation sawlog sales and 26.9 per cent increase in pulpwood materials were recorded.

Timber revenue also attained a record of \$9,921,320, an increase of 15.9 per cent over 1979-80.

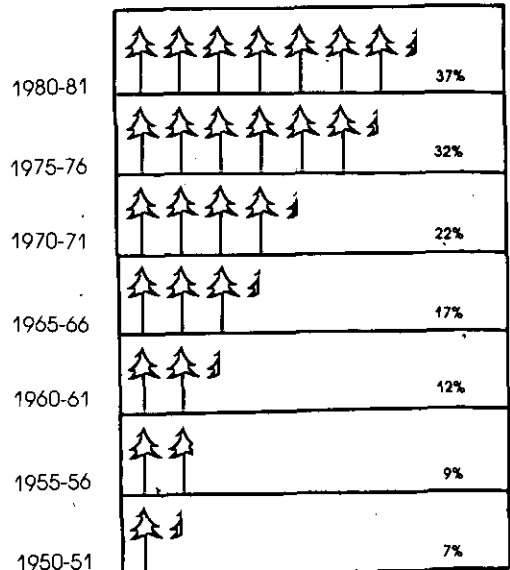


*Far left. Skyline operating in hoop pine plantations near Nanango.*

*Left. Loads of cypress pine being weighed at Dalgety's registered weighbridge Millmerran.*



Private timber as a percentage of total timber processed



Percentage of timber removals from Crown plantations compared with total Crown timber removals.

**Timber industry:** Generally favourable trading conditions occurred over most of the year, but towards the end of the period marked competition occurred from imported New Zealand and American west coast material.

Wilkinson, Day and Grimes Pty Ltd., on behalf of Queensland Pine Ltd., submitted the successful proposition for the first major sale of mature plantation timber in the State. The proposition met the upset price of \$39.70 per cubic metre (all sizes and classes) for a volume of 80 000 cubic metres per annum, to be obtained on a continuing basis from softwood plantations in the Beerburum area. Major processing will commence at Caboolture where existing facilities will be expanded to provide a fully integrated complex. Field operations are expected to commence in 1982.

Further propositions will be called shortly for the purchase and processing in Queensland of the mature-age hoop pine plantation resource in the Mary and Brisbane Valleys.

**Pulp wood sales:** A consortium involving Australian Paper Manufacturers Limited and M.I.M. Holdings Limited submitted a first stage feasibility study for the possible establishment of a world-scale Kraft pulp mill in south-east Queensland.

The establishment of a viable pulp mill operation is urgently needed and would widen the outlets for both low-grade

plantation grown roundwood and sawmill residues. It would also enable plantation forests to be managed to the best advantage by contributing significantly to improved sawlog quality through timely early thinning. It would provide an important outlet for the additional sawmill residues which become available from the new plantation log sales now being made.

**Sawmill licensing:** At the end of 1980-81, a total of 367 sawmills were operating in the State. These comprised 288 general purpose mills, 56 restricted license mills, and 23 portable mills.

Right. The new Bell Logger under trial in plantation areas throughout Queensland.

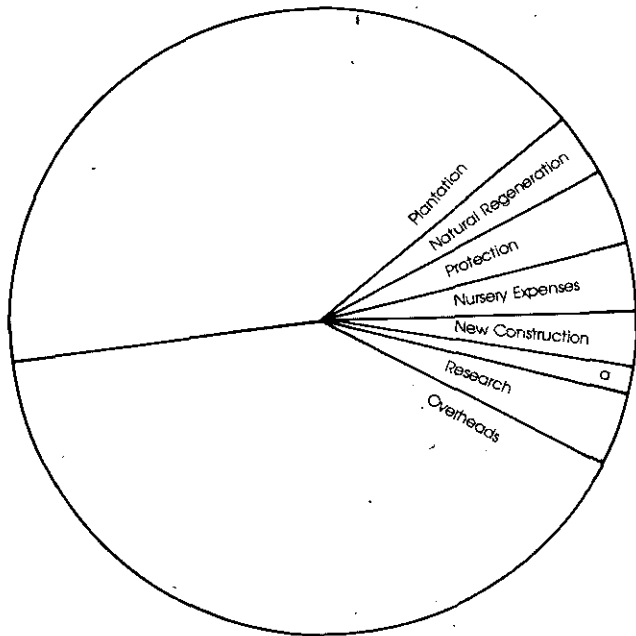
Far right. A full load of exotic pine thinnings leaves a plantation.





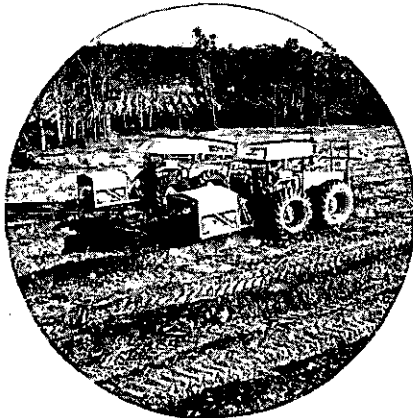
# Forest Management 6

Reforestation expenditure 1980/81  
under the Department's works programme



Item	Expenditure	Percentage of Total
Plantations	6 793 884	40.4
Natural Regeneration	539 695	3.2
Protection	655 003	4.0
Nursery Expenses	571 894	3.4
New Construction	552 686	3.3
Seed Collection * a	19 155	0.1
Survey	135 772	0.8
Research	644 383	3.8
Total Direct Expenditure	9 912 472	59.0
Overheads	6 892 622	41.0
Total Reforestation Works Expenditure	16 805 094	100

\* This refers only to seed collection expenditure incurred under the Works Programme. A further amount of \$130 855 was expended on seed collection under the Department's Forestry and Lumbering Trust Fund.

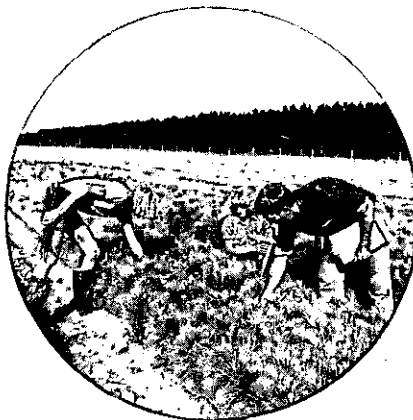


*Opposite page.* Contractors snigging exotic pine thinnings from a maturing plantation.

*Upper left.* Mechanical planters operating in the Toolara area near Gympie.

*Lower left.* A modern fire tending truck standing by during prescribed burning operations.

*Below.* Peter Gordon with trainees Nick Denman (*left*) and Peter Burton (*right*) conducting nutrition experiments in the Toolara nursery.



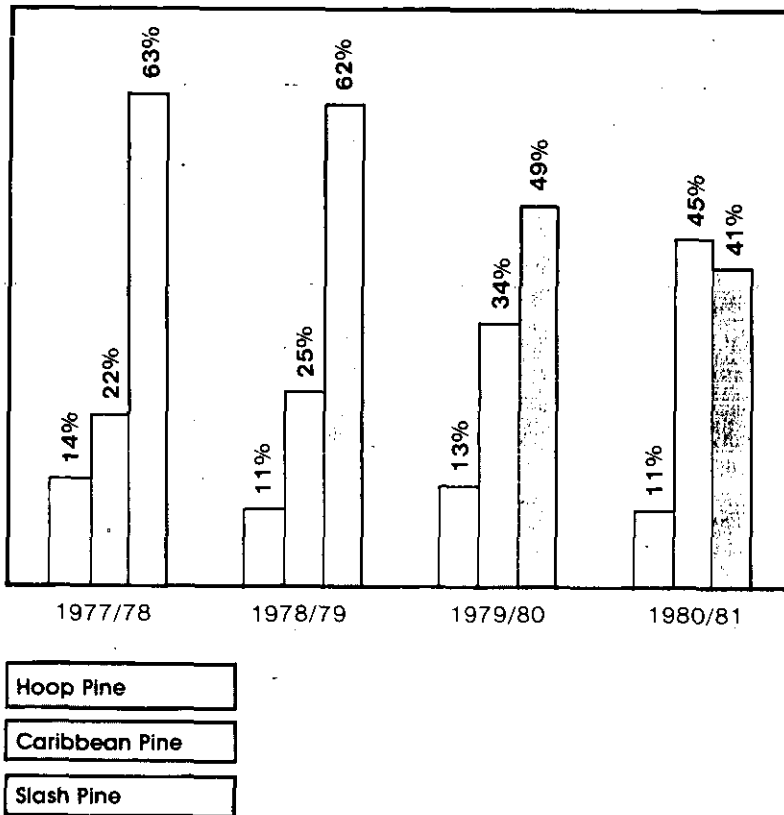
## PLANTATIONS

**Plantation resource:** The total area of Departmental softwood plantations is 131 153 hectares, comprising 89 443 hectares of exotic pines and 41 710 hectares of native species, mainly hoop pine. Forestry's aim is to establish at least 200 000 hectares of softwood plantations, for the primary purpose of meeting the State's future requirements of sawlogs and plylogs.

During 1980-81, 6 642 hectares of plantations were established, of which 5 909 hectares were exotic pine and 733 hectares hoop pine. This is a reduction from last year's very high establishment rate, and reflects the decrease in funding for this purpose experienced in 1980-81.

A total of 2 996 hectares of Caribbean pine was planted. In recent years, there has been a trend to plant Caribbean

Percentage of total plantation area established (by major species)



pine in preference to slash pine on suitable sites, as it exhibits better wood quality and faster growth rates. This trend is expected to continue and will extend the relative dominance of Caribbean pine in the plantation programme. Smaller areas of hoop pine will be planted due to the high establishment costs and decreased land availability.

Special funds were made available to purchase 10 345 hectares of land in the Gympie area for plantation purposes. This will allow the release of an area in the western catchment of the Noosa River for addition to Cooloola National Park. Some rescheduling of establishment programmes will be involved to take advantage of the new area which is already cleared and fertilized.

**Weed control:** Weed control is a major forest operation essential for economic tree

growth. The objectives and practice of weed control are reviewed annually to ensure optimum prescriptions.

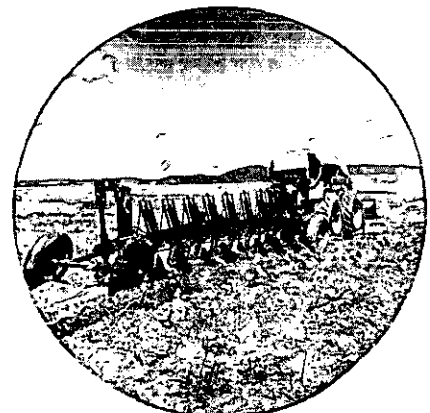
**Hoop pine:** Weed control in hoop pine plantations represents a continual and costly problem. Existing methods of control rely heavily on application of herbicides by power mister. While this is effective, trials to examine alternatives have been established. An alternative is the sowing of a low-growing pasture crop. Grass seed is 'broadcast' on the area after tree planting; a grass crop then rapidly occupies the site and greatly reduces the broad leaved weed growth. However, effective control of the grass immediately around the trees is essential. Another alternative is the application of residual herbicides in a band along the tree row. This prevents weed germination and as a result is producing superior tree growth.

Right. Stump-jump plough used for site preparation in planting areas.

In older hoop pine plantations lantana is a serious problem, requiring regular control to maintain harvesting access. Recent trials are proving the effectiveness of fosamine applied by power mister and glyphosate applied by the splatter gun technique. These chemical methods can be integrated into a revised management system involving heavier, less frequent commercial thinning to substantially reduce the cost of, and the need for, lantana control.

Trials in second rotation establishment of hoop pine plantations with chemical weed control are showing considerable promise. Here, hexazinone was applied immediately after clearfelling. Tree growth in the chemically treated area exceeded that in the area handled by routine methods. Surface soil erosion was minimized, and a cost saving of some \$200 per hectare was achieved.

**Exotic pine:** Weed control in exotic pine plantations presents fewer problems. Thorough site preparation is the key to weed control and involves multiple broadacre ploughing, with mounding on wet sites. Strip ploughing techniques were tested during the year, and these will continue. Applications of herbicides using specially modified tractor-mounted misters have successfully controlled weed growth on the strip-ploughed sites.



**Nutrition:** Phosphorus is critical to improved growth of exotic pines on poor coastal wallum soils. Plantation areas established this year were fertilized with 60 kilograms of phosphorus per hectare. Plantation stands 10 years of age are foliar sampled to determine the nutrient status, and if there is any necessity for a phosphorus supplement.

**Pre-commercial thinning:** Following an assessment of growth data, a decision was made to re-introduce pre-commercial thinning of plantations in a number of areas. The practice was discontinued in the 1960's with the expectation of early establishment of a major pulpwood industry. Removal of trees of low vigour and poorer stem form is desirable as it promotes more active growth on the retained trees.

It has become clear that log size is important to permit economic operation even for pulpwood, and this is best achieved by early pre-commercial thinning. As plantation stands attain three metres height they are thinned to 750 stems per hectare. Full implementation of this policy has been deferred in some areas where pulpwood commitments already exist and pending final assessment of requirements for a possible major new pulpwood industry. Inland hoop pine areas and exotic pine areas from Bundaberg north are being pre-commercially thinned.

**Pruning:** Conifers are pruned of their lower branches in order to produce clear (knot-free) wood. Pruned logs attract a stumpage premium as they are more suitable for sawlogs and plywood. A major review of pruning practice was completed this year, and some important changes recommended in the review are being implemented.

These changes are:

- Hoop pine plantations. Prune 400 trees per hectare to 5.4 metres from ground (in lieu of 300 trees to 5.2 metres).
- Exotic pine plantations. Prune 300 trees per hectare to 5.4 metres from ground (in lieu of 250 trees to 5.2 metres), allied with pre-commercial thinning.

Methods of tree selection for high pruning have been simplified.

**Seed collection:** During the year, a substantial quantity of seed was collected. Major collections were:

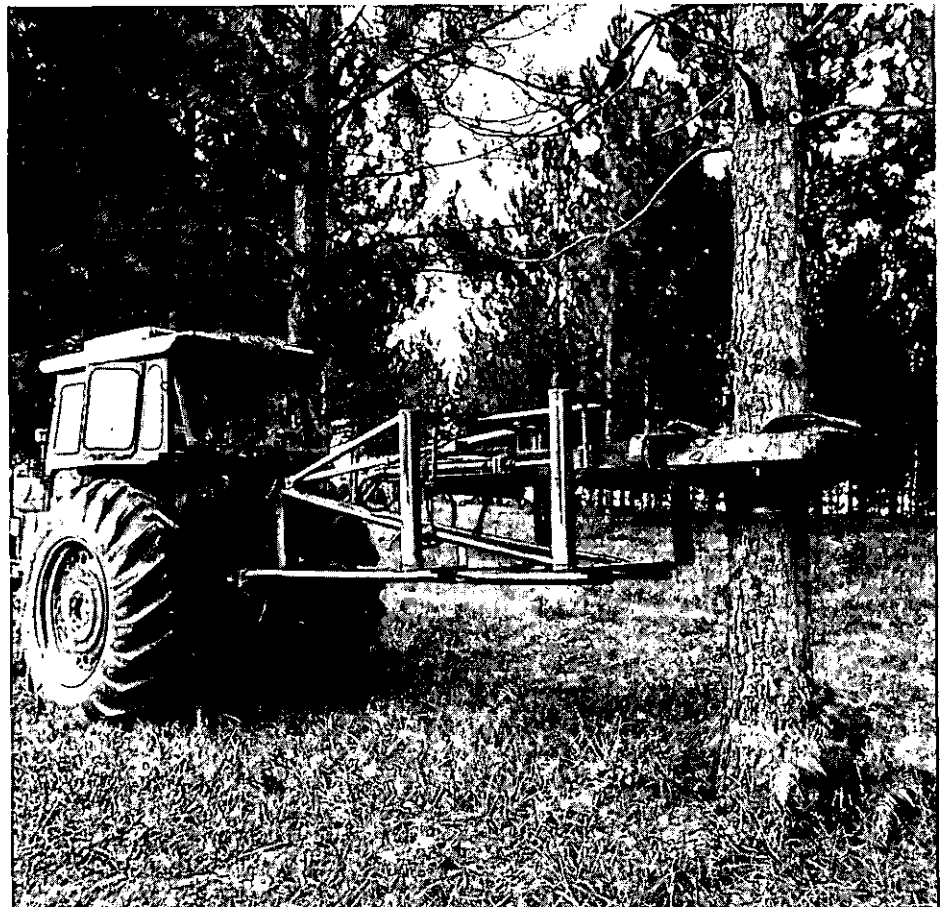
Honduras Caribbean Pine .....	548 kilograms
Bahaman Caribbean Pine .....	31 kilograms
Slash Pine .....	509 kilograms
Loblolly Pine .....	20 kilograms

All collections were from improved seed sources. The Caribbean Pine collection was reduced due to cyclonic effects and wet weather during the collection period.

Departmental needs for improved grade Honduras Caribbean Pine seed are not yet being met, and there is a continued necessity for restriction on sale of this seed. Seed sales for the year totalled \$51,293, of which \$22,600 was derived from overseas.

During the year, a seed collection workshop was held to inform district staff of the latest methods of collection and handling. An officer from Division of Forest Research, CSIRO, assisted in the workshop.

Quantities of seed of ornamental species and eucalypts were collected, including 33 kilograms of brown salwood. This species is in demand in tropical countries for fuelwood production.



*Right.* Mechanical tree shaker used for seed collection in orchards.

## NATIVE FORESTS

**Treatment:** Restricted funds available limit the areas of native forests that can be silviculturally treated. However, most native forests are treemarked for logging, and this ensures that the most desirable trees above the lower merchantable diameter limit (the prime mill logs of the future) are retained and properly spaced for optimal growth potential.

In cypress forests, the minimum staff levels that are required for basic fire protection have been maintained and are occupied when available, on silvicultural treatment. This year, 7 023 hectares of cypress pine forests and 816 hectares of hardwood forests were treated.

## PROTECTION

### Prescribed burning:

**Plantations:** A record area of plantation prescribed burning was carried out during the year with 11 600 hectares burnt. Helicopter ignition of areas at Tuan and Toolara was successful. There are indications that ignition from helicopters will be of great

benefit when large areas of plantation reach burning age, particularly in years when only a small number of suitable burning days occur.

The policy for coastal exotic plantation prescribed burning has been revised from one of separation of heavy fuel areas by burnt buffer strips, to one of burning broad areas with the emphasis on vulnerable young plantations.

**Native forests:** A total of 97 000 hectares of native forest were ignited from aircraft during the year.

**Fire damage:** The 1980-81 season was of average severity. Dry conditions were experienced during early spring with storm rains occurring during the summer and autumn months.

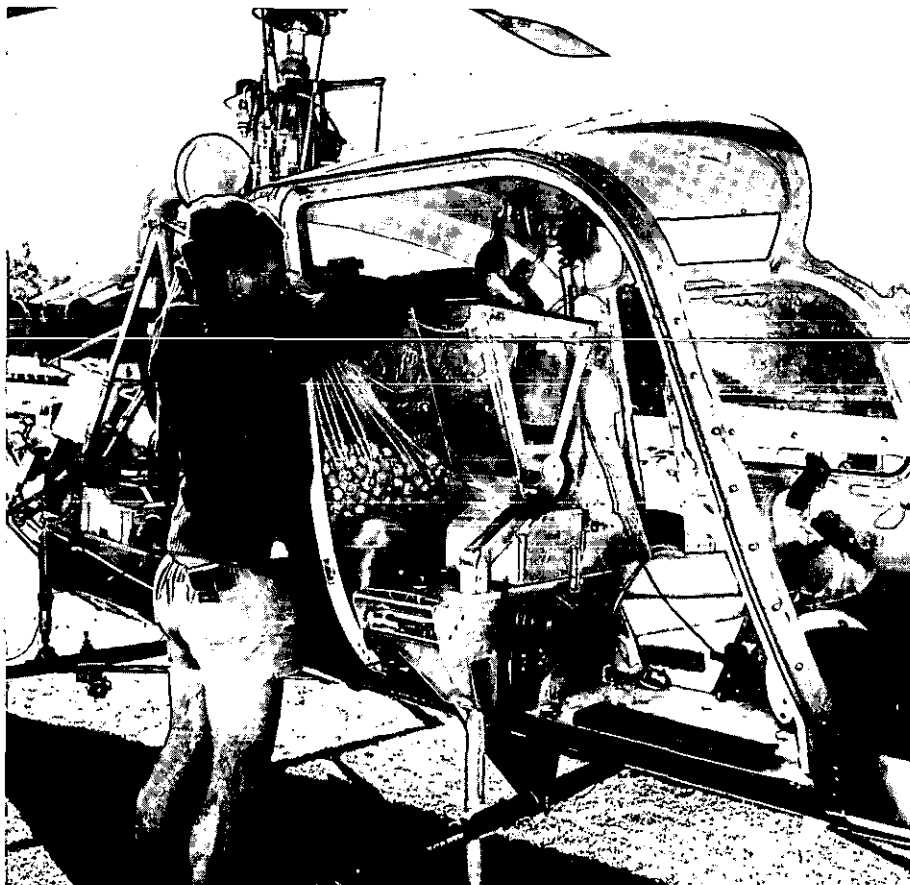
A bad fire day was experienced on 9th September with very high to extreme fire danger ratings recorded at many centres in the south-east of the State. Suppression costs for fires which started on this day amounted to \$45,000. The Weather Bureau described the conditions as a one in 10-to 20-year phenomenon.

A total of 157 fires were reported during the year, of which 15 were in plantations. The total area of plantation burnt was 175.7 hectares, of which 70 hectares resulted from a single fire at Beerburum State Forest. A total of 10.6 hectares of young radiata pine damaged in a fire at Passchendaele was clearfelled to allow replanting. This yielded 924 cubic metres of salvaged timber.

### Training and conferences:

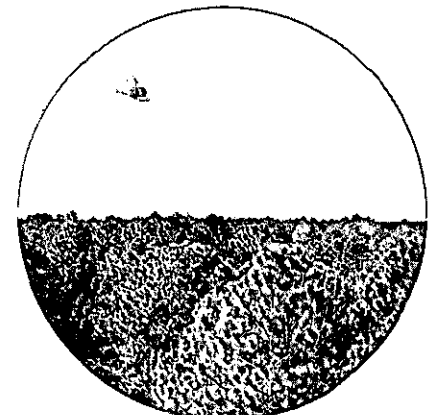
A five-day training course in fire protection was held at the Gympie Training Centre. Twenty-eight field staff including foresters, forest rangers and overseers attended. Two District Foresters attended a course on large fire administration conducted by the Victorian Forests Commission. The Fire Protection Officer attended the Australian Fire Control Officer's meeting in Sydney and the Second Australian Conference of Rural Fire Authorities in Adelaide.

**Communications:** The programme of replacement of ageing base station equipment is continuing. Very high frequency (V.H.F.) transceivers



*Left.* Loading a mechanical dispenser with incendiary capsules in preparation for aerial prescribed burning.

*Below.* Aerial prescribed burning in operation.





have now been converted to the recently allocated frequencies in seven of the 10 Districts.

New V.H.F. bases were constructed at Brisbane, Toolara and Gympie. Ultra high frequency (U.H.F.) link systems are being used increasingly at many centres. The base at Gympie Forestry Complex has been modernized, relocated and integrated with the PABX telephone exchange. A U.H.F. solar-powered link base has been completed at Durabilla 60 kilometres south-west of Dalby to control both V.H.F. and single side band transmission (S.S.B.)

Radio transceivers are now being fitted to some rubber-tyred tractors and graders for fire control purposes. Increased use is being made of radio communication between ground and light aircraft for fire protection purposes.

Single side band services now operate at Inglewood, Dalby, Roma, Yuleba, Emerald, Rockhampton and Atherton where transmission over longer distances is necessary.

## CAPITAL WORKS AND EQUIPMENT

Refer to Appendix 6 for details of Department's operative plant.

**Mechanical plant:** Plant purchased during the year included 97 motor vehicles, nine rubber-tyred tractors, one swamp dozer, five loaders and four heavy transport trailers. Expenditure for equipment was \$1,610,000. Of the nine rubber-tyred tractors purchased, six units were fitted with air-conditioned and sound-compressed cabs. Two mini-buses and 12 dual-cab trucks were put into operation. These purchases were in accordance with a continuing policy of upgrading personnel transport and operator comfort.

To improve fire fighting efficiency, four prime movers with 11-tonne trailers were purchased. This will enable crawler tractors to be transported to wildfires for first attack work.

One 150 kilowatt class M20 low ground pressure crawler tractor/dozer was purchased for land clearing operations in

swampy areas. This machine is the largest of its type in Australia and is the first air-conditioned crawler tractor to be introduced into the fleet.

The design of a hydraulic stump jump mounding plough to construct a mound up to 3.2 metres wide and 0.45 metres high is nearing completion and is expected to be ready for evaluation testing during October, 1981.

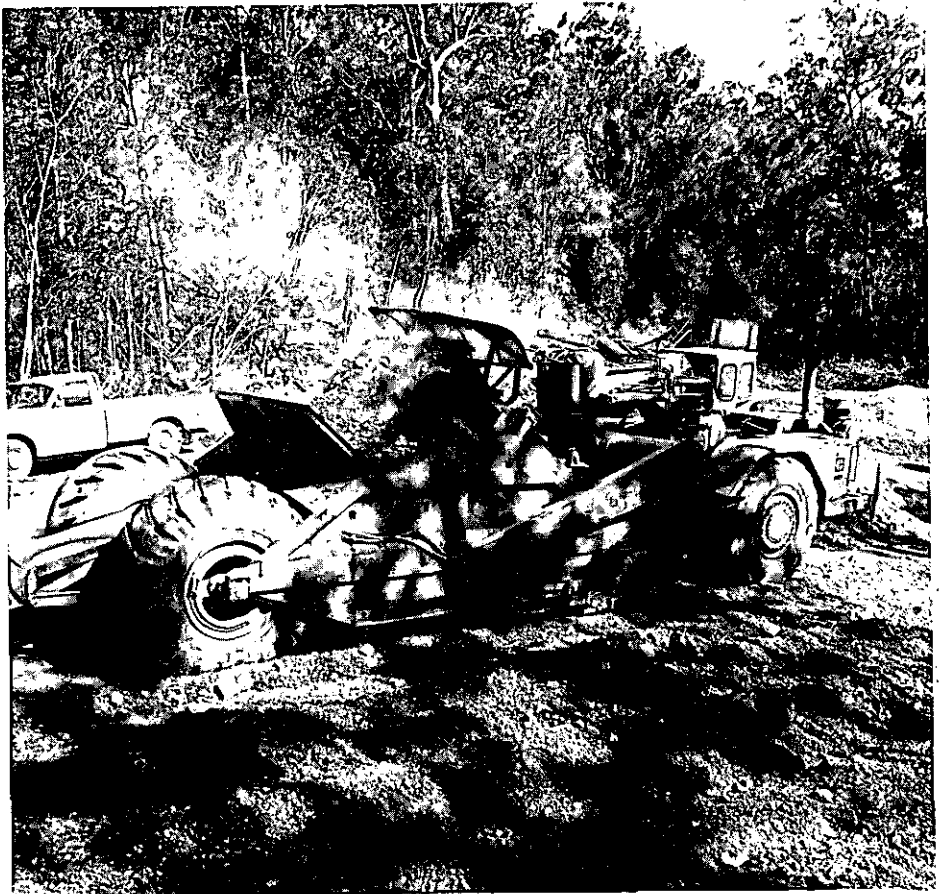
A planting machine was extensively modified for evaluation in the 1981 winter planting season, with a view to improving operator comfort and reducing fatigue.

**Roads:** With the final cut of first rotation plantings at Beerburum imminent, considerable work was carried out on upgrading major plantation roads in the area. This upgrading will allow for faster and safer haulage of logs and operation under all but extremely wet conditions.

Following irreparable flood damage to the access bridge over Bushy Creek (to Mount Lewis Forest near Mareeba), the Department constructed a

*Right.* Road scraper in operation near Imbil.

*Below.* Modified planting machine under trial; note offset seating.



new three-span bridge. This project incorporated techniques, such as using driven steel piles, that had not previously been employed by the Department.

Other work carried out in north Queensland included erosion control works on roads. This will minimize maintenance costs following heavy rainfall.

Earth-moving equipment was hired for a number of road construction jobs in south-east Queensland. A notable example was the hire of scrapers for major earthworks and gravel haulage jobs allowing, in addition to reduction in costs, high road construction standards in difficult country.

**Fire towers:** Kits for construction of two new fire towers were purchased this year. The towers are of galvanized steel web construction. One will be erected at Mount Kandanga for surveillance of hoop pine plantations in the Imbil area, and the other at Big Angle to achieve more complete coverage of the Tuan-Toolara exotic pine resource. The use of steel construction will free the skilled tower carpenter to carry out maintenance work on existing timber towers.

**Buildings:** Two major building projects were undertaken this year. The office and service buildings for a new nursery at Ingham have been completed and contracts let for the installation of the nursery irrigation system. The nursery will be opened later in 1981. Construction of a new service building at Imbil Forest Station was commenced.

## STATE FOREST PARKS

An estimated 500 000 visitors took the opportunity to enjoy picnics, camping, walks, nature studies and other activities in the State Forest Park system in 1980-81.

The major project initiated this year was a recreation plan for Daisy Hill State Forest, 29 km south of Brisbane. The plan encompassed zones and trails for nature-oriented activities such as walking and horse riding, as well as development of a large central park area with alcedo picnic facilities and open games areas. Since its opening in April, the community has demonstrated its appreciation of the Park with about 1 000 visitors on most week-ends.

A new State Forest Park is under construction at Red Rock on Byfield State Forest, north of Rockhampton. Further areas are being developed in the very popular Kenilworth parks.

The strong public demand for holiday week-end camping areas necessitated the introduction of a balloting system over the Easter holiday at three of the more popular State Forest Parks in south-east Queensland. By limiting the numbers camping in parks subject to overcrowding, the pleasant atmosphere is maintained and environmental damage minimized. Balloting was considered to be the fairest method of allocating the camping space available. Public acceptance of the system was obvious in that, although use of the three balloted parks was

reduced by 30 per cent compared with 1979-80, overall camping use of south-east Queensland State Forest Parks increased by some 40 per cent.

Regular users of State Forest Parks have come to recognize the individual character of each area. Management plans, which aim at retaining this essential character, will be prepared for each park.

## OTHER FOREST USES

**Agriculture:** With the continued deforestation of private land for agriculture, grazing and urbanization, State Forests are rapidly becoming the major source of honey producing flora for the bee-keeping industry. The Department recognizes the importance of this industry and provides for the protection, as far as possible, of honey-producing species.

**Leasing:** The Forestry Act and the Land Act provide for leasing State Forests and Timber Reserves. Most State Forest areas suitable for grazing are held under some form of permit or lease under these Acts. This is indicative of the importance placed on multiple-use management.

The direct sowing of pasture in newly established hoop pine plantations, now under trial as part of a revised weed control system, is expected to further improve grazing values. Additionally, prescribed burning of native forests is carried out in co-operation with lessees. This also improves the palatability of native grasses to the grazing stock.



Far left. Nursery Overseer Peter Schlogel (left) and Ingham sub-District Forester Ross Hamwood inspecting plants at the new Ingham Nursery.

Left. Camping in one of the Department's State Forest Parks.

Opposite page. Hon. Bill Glasson, Minister for Lands and Forestry, congratulates Peter Hawkins (Deputy Conservator) on Forestry taking out the Royal Institute of Architects (Qld. Chapter) Civic Design Award 1980, for its recreation sign system.



# Planning 7



Above. A natural stand of Gympie Messmate.

## LONG RANGE DEVELOPMENT PLANNING

**General:** Multiple use management of State Forests is an important objective, although under existing legislation the production of timber and associated products in *perpetuity*, together with the protection of watersheds, remains the principal aim.

While a variety of uses of State Forests is possible, it is of utmost importance that the protection of the native forest environment is ensured. The Department recognises this need in its planning proposals and retains substantial areas of native forest in softwood plantation areas.

The greatest proportion of future timber supplies will come from plantation forests. As a result, the demand on native forest resources will be markedly reduced. This can be demonstrated by the fact that the existing conifer plantations occupy only 3.5 per cent of the area under State Forest reservation, yet yield 37 per cent of the present cut of Crown timber. The planned plantation establishment of 200 000 hectares by the year 2000 will represent only 5.4 per cent of the area currently under State Forest reservation.

Cypress pine forests supply large quantities of timber, although much of the resource is currently beyond economic range. This resource will be tapped if the price of timber rises in real terms.

The changing nature of the resource base will have an impact on the timber industry, and the Department and industry must plan for these changes.

**Land use:** The Department is represented on an inter-departmental committee considering land use in the Ingham-Cardwell region, where there are competing land resource needs for sugar production and forest plantation establishment. The committee's work is nearing completion and it will report to Cabinet in the near future.

A major decision was taken this year on land-use in the western Noosa River Catchment. This State Forest formed part of the Toolara complex, which together with the Tuan area to the north, forms the largest exotic pine plantation in Queensland. The catchment area is also of prime conservation interest, and strong support was expressed for its retention in its natural state. The Department commissioned a study by the University of New England to evaluate the area for plantation purposes and conservation values and, following this study, action was taken to secure suitable replacement planting land. The western catchment area is in the process of being released for National Park purposes.

Land use decisions in the Scenic Rim area of the Great Dividing Range culminated in the revocation of over 7 000 ha of State Forest and the subsequent setting apart of this area as National Park. This combined with the existing State Forests and National Parks on the Rim comprise a major nature conservation and recreation area within reasonable proximity of Brisbane. The Department, together with the National Parks and Wildlife Service, is formulating a co-ordinated management plan for the area.

**Forest environment:** The Department manages a great diversity of forest environments, from tropical rainforests through to dry inland eucalypt, cypress pine forests, and man-made plantations.

Modifications to these environments occur for a variety of reasons. Natural causes such as destructive wildfires and storms can have long-term effects on habitats. Man's use of forest areas, including timber harvesting, recreation and road building, all create environmental impacts. Skill and sensitivity is needed in these operations if the basic integrity of the forest is to be maintained.

Man can, of course, create new forest environments such as pine plantations. Again, skill and sensitivity in managing these environments is required, and the Department recognizes the need to continually monitor and improve its capabilities in these areas.

External activities affect the forest and, similarly, the effect of forestry activities does not necessarily stop at the State Forest boundary. The impact of

operations and logging on aspects such as water quality, water yield, landscape values and populations of feral animals must be always taken into account.

It is important that the effects of change within the forest are monitored. Opportunity for this exists in the designation of Scientific Areas. Here, viable samples of biological communities are preserved to permit the study of various operations or management practices. Scientific Areas may also be designated as viable samples of major biological, geological and soil associations for scientific reference, and also to preserve gene reservoirs of native species. There are currently 26 Scientific Areas set aside in State Forests, the average area being 184 hectares and the largest area 750 hectares.

The Department has provided comment on several major industrial proposals where significant environmental issues arise, such as proposed aluminium smelters at Bowen and near Bundaberg, and the Theodore coal proposals.



*Right.* Forester Dave Ward explains tree breeding techniques to a group at a forest open day.



**Beauty spots:** The first Beauty Spots were set aside in State Forests in 1935 as areas of high landscape value. There are currently 94 areas ranging in size from one hectare to 809 hectares.

Beauty Spots, along with State Forest Parks and Scientific Areas, are now considered specialized management areas within the State Forests, and consideration is being given to possible improvement in their legislative status.

**Wildlife management:** State Forests are sanctuaries for all fauna and flora excluding vermin. The Department is co-operating in the Stock Routes and Rural Lands Protection Board's dingo/feral dog baiting programme on State Forests, within the dingo fence and up to 100 km outside it.

Problems relating to the control of feral pigs in sugar-cane areas were discussed during the year with sugar industry representatives and National Parks and Wildlife Service officers. A permit system satisfying practical needs for pig control, Departmental responsibilities to users of State Forests, and the sanctuary status of State Forests has been prepared.

## CAPITAL REQUIREMENTS AND FUNDING

**General:** The Loan Funds made available in 1980-81 allowed the Department to achieve its plantation establishment goal of 6 600 hectares per annum (new or replacement plantations).

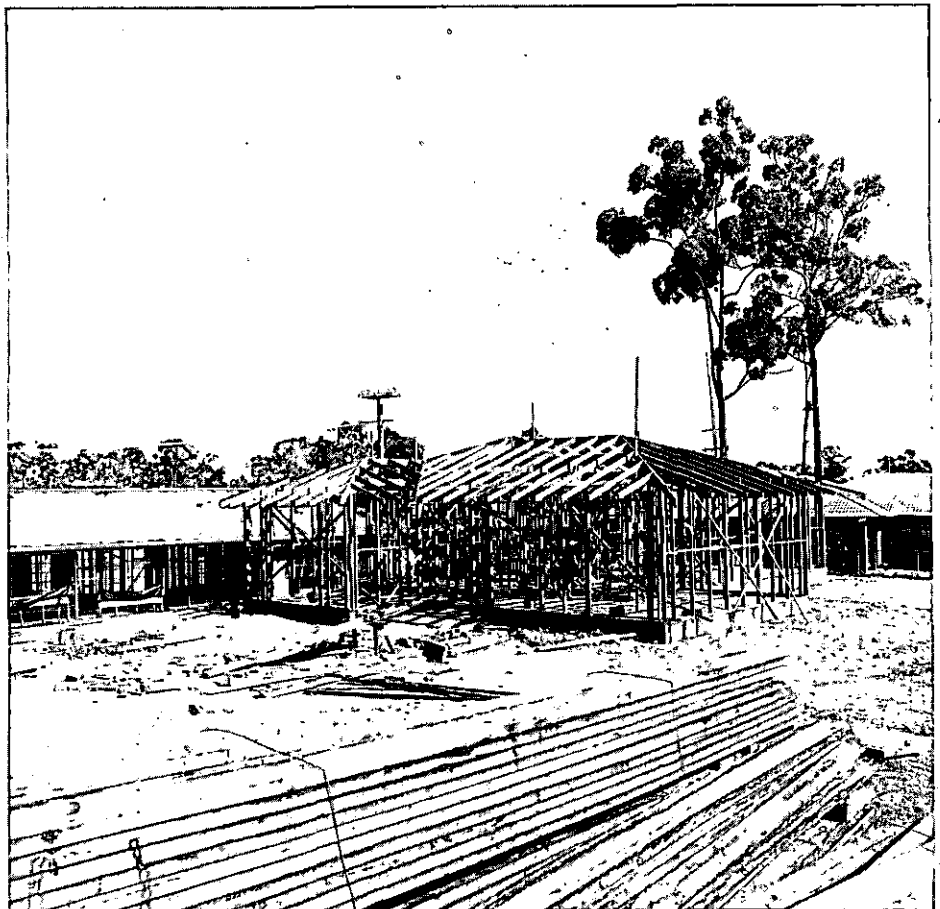
There is some concern that more restricted availability of Loan Funds in the future may adversely affect the goal of achieving broad State self-sufficiency in forest products (other than pulpwood and paper) by the end of the century. The ability to meet commitments to a pulp or paper mill of economic size, needed to profitably harvest the vast quantities of pulpwood and mill waste becoming available, may also be at risk.

Increased funding in real terms is required to support a constant planting programme for the next 20 years, and to maintain the steadily increasing plantation estate. The

Commonwealth Government, acting on the recommendation of the Committee of Review of Commonwealth Functions, has decided to terminate payments under the Softwood Forestry Agreements Acts as from 30th June, 1982. It appears also that the availability of State Loan Funds may decline in real terms. If this does occur, it may be necessary to seek a review of the targets and methods of funding the plantation programme.

**Economic conditions:** The demand for new dwellings is traditionally a good indicator of the general economic conditions within the timber industry. During the year, new dwelling approvals in Queensland increased by 24.2 per cent, compared with an increase of 10.4 per cent for the previous year, and this was reflected in a high level of demand for sawn timber.

Wage rates under the Forestry Employees Award increased on a weighted average basis by 13.6 per cent in 1980-81.



*Opposite page.* Reflections at Wongi State Forest Park, north of Maryborough.

*Right.* Increased building activity in Queensland was reflected in the high demand for sawn timber.

## FOREST RESEARCH

### Gympie Research Centre:

The Research Centre, part of the Gympie Forestry Complex, opened in June, 1980. Staff from a number of smaller field stations—Beerwah, Gympie, Yarraman and Imbil, were transferred to work in what is now one of Australia's largest regional forest research institutions. In addition, the Department's hydrologist has moved to the Centre from Atherton to begin a major programme of research in the exotic pine plantations of south-east Queensland.

Approximately 30 professional, technical and ancillary staff, under the direction of the Principal Research Officer, implement research programmes in the following areas:—

- Exotic and native conifer plantation silviculture;
- Soils and nutrition;
- Treebreeding;
- Forest fire;
- Native hardwoods silviculture;
- Tree physiology;
- Forest hydrology;
- Environmental management.

The Gympie Research Centre is ideally located, as most forestry activity in Queensland takes place within 100 km of the complex. Amalgamation has meant that better facilities can now be provided for research staff. These include:

- Two modern glasshouses with provision for controlled temperature and day length;
- A well-equipped soil and foliar sample preparation area;
- Spacious laboratories for seeds, treebreeding, soils, hydrology and some physiology research;
- Data processing room with allowance for the provision of a computer terminal;
- An herbarium incorporating collections from Gympie, Imbil and Beerwah;
- A large cold store;
- Access to a library and conference room;
- Accommodation for visiting scientists.

The Gympie Complex also fosters contacts between the forestry practitioner, educator and researcher to an extent not previously possible. A regular series of seminars aimed at disseminating research findings is in progress.



Left. Lester Perkins checks hoop pine seedling growth in newly developed plastic containers.



**Research reports:** It is not intended to highlight recent research activities and findings in any detail. Such material is fully covered in the second research report of the Division of Technical Services, 'Research Report 1979', and in the third report in this biennial series which is scheduled for publication later in 1981.

**Second rotation research:** Final crop harvesting will soon begin in both native and exotic pine plantations. Following harvesting, large scale second rotation planting will commence. Research into this area represents a challenging and significant project, and while experience of other States is valuable, Forestry's independent research is essential.

**Productivity trials:** In anticipation of future needs, a second rotation study was established at Beerwah in 1970. In this trial, growth is monitored on two permanent yield plots established early in the first rotation. A similar study at Imbil to investigate second rotation productivity in hoop pine was established in 1979, but unlike the Beerwah trial, this study contains a first rotation control. There has been no loss of growth in second rotation slash pine. It is too early to predict the position with hoop pine.

**Disease:** The possibility of fungal root rot infection in first-rotation stumps being transmitted to the second rotation crop is a cause for some concern.

It is possible that new plantations could remain vulnerable to root rot until stumps have decomposed completely. Research will continue into this area to determine appropriate courses of action.

**Site preparation:** Second rotation site preparation must investigate factors such as the disposal of litter and logging residues. There are several alternatives involved, each requiring additional research before the most suitable management technique is determined.

Some alternatives include:

- Burning debris. However, research in other States has implicated fire as a cause of serious nutrient losses and second rotation productivity decline.
- Deep ploughing and mounding. This requires that hardwood debris from the original vegetation and pine stumps be removed, and is therefore an extremely costly procedure.
- Maceration of debris by chopper plough or roller. These machines can macerate all debris including pine stumps and can incorporate material into the soil.

### **Environmental research:**

**Wildlife:** The zoologists have completed the first phases of bird and animal surveys of the coastal lowlands, and the results of the bird survey are to be published soon.

Following these surveys, it was decided to carry out intensive studies on the greater glider and the rainbow lorriquet, two species known to be sensitive to modification of the coastal lowland environment. It is likely that the information obtained from these studies can be applied to other wildlife on the coastal lowlands.

A zoology workshop for zoologists and foresters held in Gympie agreed that sufficient native forest should be retained to safeguard wildlife species. Thus, when decisions are made on the desired levels of native forest retention, areas of State Forests subject to native forest management, National Parks and other reserves as well as State Forests being converted to plantation should be taken into consideration.



*Right.* Noel Springall (*left*) with Terry Johnston, Principal Research Officer, Gympie.



*Far right.* John Kehl, Zoologist, at work in the Moggill laboratory.

*Dieback:* Since 1974, there has been a dramatic increase in reports of native tree decline and death over wide areas in the southern half of the State. This increase reflects both a growing public awareness and concern for the problem, and a worsening of dieback itself in Queensland. A broad range of eucalypt and other tree species (including some commercially important species) is known to be affected. Interestingly, dieback is not a significant problem on State Forests. To date the major problem areas have been cleared agricultural and urban lands. A variety of factors, both biotic and abiotic, seems to be contributing to the decline. The main identified agents are insect grazing and severe climatic fluctuations. Water table salinity associated with land clearing has caused tree death in parts of central and southern Queensland.

The Department's entomologists commenced a survey aimed at gathering detailed information on tree dieback from the rural community. The survey results defined the incidence of dieback in Queensland and tree species

affected. Management practices, biotic, climatic and edaphic factors that may be associated with decline are being evaluated, and community perceptions and attitudes to trees and tree decline are also being assessed.

## TIMBER UTILIZATION RESEARCH

**Treated cladding performance:** Unpainted, preservative-treated pine cladding, although widely used in modern housing, is attracting some criticism because of reported lack of dimensional stability which can result in unsightly and leaking walls. The Department, in conjunction with industry, is preparing a major exposure trial of this material.

**Timber conversion and seasoning:** Reports on graded sawn recovery of final crop material from slash and loblolly pine at Passchendaele, and younger Caribbean pine from Byfield, were completed. Results indicate that although resin streak and heart shake cause some loss of recovery in small log sizes, overall

recoveries from the Passchendaele study are comparable with those from previous studies carried out on equivalent coastal stands. Pruning was effective in reducing the amount of degrade caused by these defects. Results from the Caribbean pine study showed that recoveries were comparable with those obtained from slash and hoop pine. Pruning improved recovery compared to unpruned stems as well as providing a more valuable product. Following mechanical strength testing of Caribbean pine, it was upgraded one strength classification to SD6, equivalent to radiata and loblolly pines. Techniques used for drying both boards and framing of this important species were also developed.

*Solar kiln trials:* Trial results from the Department's experimental solar kiln indicate that, for the more dense hardwoods, this method of seasoning may be more useful for drying 25 mm dimension timber.

A small kiln is being built at the Rocklea experimental mill for investigative work in high temperature, high humidity seasoning of timber. The kiln is designed to provide temperatures up to 200°C with high speed fans and steam generators.

## HARVESTING RESEARCH

Three harvesting research committees, comprising representatives of industry, CSIRO and Forestry have been co-ordinating the trialling of new harvesting methods in coniferous plantations, and hardwood and cypress forest types. Projects including mechanized row thinning operations in slash pine, skyline extraction in hoop pine, and evaluations of stump extraction have been completed.



*Left.* An example of eucalypt dieback on the Bruce Highway, south of Gympie.

# Support Services 9

## Survey and mapping:

Increasing use is being made of aerial surveys using 70 millimetre cameras to gather field information, previously obtained using a 35 millimetre system. The new photographic equipment provides very high quality prints aiding significantly in interpretation work. Research into the use of small format aerial photography in forest management is continuing.

Sheet mapping at scales 1:50 000 on the National Grid format was continued. A new coloured map of Fraser Island was completed and published, and revision of maps of plantation areas continued. Details of maps published by the Department appear in the 'Pictorial Index of Survey and Mapping Activities' prepared and published by the Department of Mapping and Surveying.

During the year, Departmental maps valued at \$11,059 were sold to the public or to

Government authorities. The public interest is related mainly to recreation.

**Library:** Forestry staff maintained a high use of the library this year, with a total of 650 inter-library loans and 5 573 head office loans. An important, and yet indirect role of the library is servicing requests from students for information on all aspects of forestry. Over 1 000 requests for project material and information were processed during the year.

In May, a Library Assistant was appointed on a part-time basis to assist with the development of the Gympie Forestry Library.

**Records:** A new departmental file index became operational on 5th May, 1981.

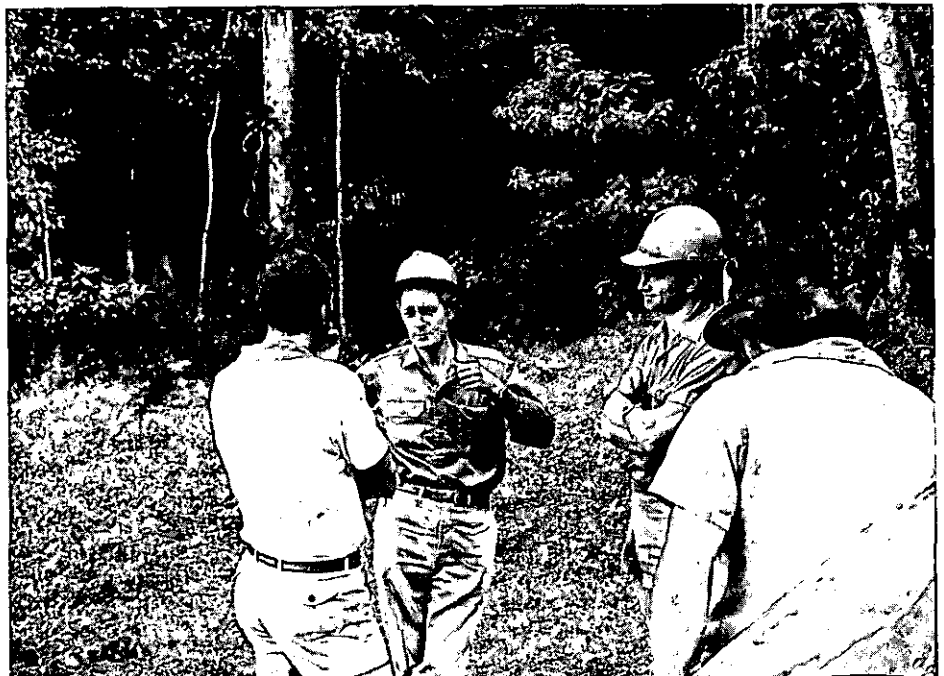
The new index system is structured on a divisional breakdown with primary, secondary and tertiary file levels. This has given the

system a broader file base enabling more specificity in file title.

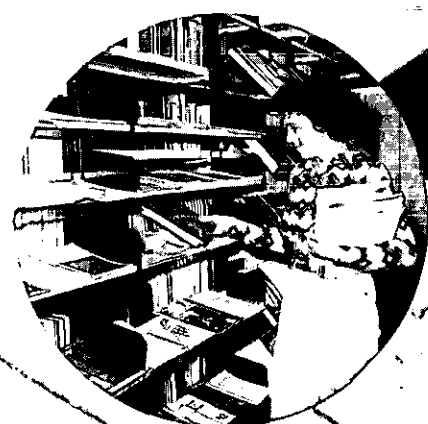
**Legislative and legal:** While no amendments to any statutes administered by the Department were submitted to Parliament during the year, Departmental Committees continued with the task of reviewing the Forestry Act and rewriting the Timber Users' Protection Act.

A total of 132 cases involving reported breaches of Acts administered by the Department were investigated. Of these, 104 were for alleged breaches of the Timber Users' Protection Act, 27 cases were alleged breaches of the Forestry Act and one alleged breach of the Sawmills Licensing Act.

Of the 27 breaches of the Forestry Act investigated, prosecution action was instituted in two cases; these involved unauthorized interference with forest products.



Right. From left to right, Dick Grimes (O/C Organisational Services), Jim Bardsley (District Forester, north Queensland), Keith Gould (sub-District Forester Atherton) and Forester Dennis Rolfe in the field along Danbulla Forest Drive.



During the year, seven prosecution actions launched in 1979-80 came to court; the nine people involved were fined a total of \$3,150.

In instances where prosecution was not considered warranted, letters of warning and/or demands for the recovery of stumpage value and costs of investigation were placed on the offenders. An amount totalling \$12,211 was recovered as a result.

Two cases involving breaches of the Rural Fires Act were investigated by Forest Officers.

### **Electronic data**

**processing:** Many manual tasks have been taken over by electronic data processing (E.D.P.), resulting in improved efficiency and time saving. One of the more important functions of E.D.P. is the timber sales system which generates stumpage accounts for invoicing, and reports on volume controls for individual sales and purchasers' entitlements.

Several important projects were undertaken during the year.

The initial stage of the plant accounting system was developed. This stage provides data to assist with the reassessment of plant hire rates, and replaces manual procedures for calculating and reporting.

As final crop harvesting is due to commence in 1981-82, officers commenced work on a plantation yield management model using linear programming. Initially, emphasis is being placed on a final crop harvest scheduling model. Additionally, a system for choosing the optional pattern of harvesting was developed to reduce the visual impact of forestry operations. Other developments in Forestry E.D.P. systems include:

- Development of a system report on injury statistics;
- Implementation of systems to report on facilities and usage within State Forest Parks.

Electronic data processing also has an important role in

research. This year, north Queensland rainforest plot measurements were processed to provide increment, mortality and ingrowth data for yield calculations. Additionally, cypress, slash, and Caribbean pine growth models were developed.

Some of the less obvious but nevertheless important applications of E.D.P. to research include:

- Computer generation of treatment plans for a number of complex herbicide experiments in native forests;
- Design of sections of Caribbean pine clonal seed orchards, and preparation of field grafting plans.

*Full page, opposite. Cartographer Brian Leavey with cadet draftsman Lyndall Little of the Survey and Mapping Section.*

*Far left, opposite page. Sharon Brady, Gympie District Office.*

*Centre, opposite page. Judy Crane of Survey and Mapping operating an artiscop machine.*

*Right, opposite page. Cathy Hunt, library assistant at the Gympie Complex.*

*Right. Warren Dickfos (Gympie Research Centre) operating data processing equipment.*





**Silvicultural services:** To encourage private forestry and reforestation, the Department offers a free advisory service on silvicultural matters. Enquiries include remedial action for declining trees, destruction of unwanted or potentially dangerous trees, and weed control in plantation forests. Additionally, under the Forest Plot and Windbreak Planting Schemes, seedlings are provided at concessional rates. Increasing interest in private forestry is demonstrated by the increase in demand in north Queensland for plantation species, where about 120 000 plants were supplied for woodlots and windbreaks.

**Amenity nurseries:** As a further service to the public, and to encourage re-vegetation of urban and rural areas, Forestry sells trees and shrubs from its amenity nurseries at reduced rates.

The Bunya nursery, on the northern outskirts of Brisbane, is currently being upgraded to increase the stocking capacity and water supply facilities.

**Timber utilization and mechanics:** The Timber Utilization Branch has continued its investigative and supportive role in the timber industry. Technical advice and assistance has been given to the public, industry, semi-government and government organizations regarding all aspects of timber identification and utilization.

There is an increasing need to provide technical advice with the aim of promoting better building practice in the use of timber. Staff have participated in committees undertaking revision of existing standards, and preparation of new standards relating to wood and wood-based products. The work of a national committee has also continued with the structural evaluation of timber, and new strength groupings allotted to many species.

**Timber users' protection:** Although Queensland is experiencing an increase in building activity, the number of complaints under the Act is decreasing. Most complaints relate to lyctus-susceptible timbers imported from outside

the State and overseas. Complaints involving unseasoned timber in cypress and exotic pine flooring and linings were also received.

Inspectors based in north Queensland (Atherton), central Queensland (Rockhampton) and south Queensland (Brisbane) have participated in seminars, displays and extension services in an effort to further improve consumer knowledge.

**Biological sciences:** Staff continued to provide a comprehensive extension service to industry and the public. Consumer education is regarded as a key area in the field of extension on biological matters. Advice was provided on topics ranging from insect attack and decay of timber in service, through to diseases of amenity plantings and preservation of historic trees. In addition, officers from the laboratory gave talks and lectures to interested groups from outside bodies, including professional societies, Shire Council organizations, Colleges of Advanced Education, community groups and schools.

*Below left.* Cathy Gabriel of the head office library at the Beerwah Open Day in May.

*Below middle.* A family enjoying a picnic lunch at the Open Day.

*Right.* Planning Division secretary Lana Barkmeyer assists with public enquiries about forest recreation areas.

*Below right.* Kay Hallt, Management Services Officer, conducting a training course.



# Personnel 11

**Development of personnel services:** An identified need for the enhancement of personnel services throughout the Department led to the creation of a Personnel Branch. The branch includes the previous Staff and Industrial Section and Safety Officer.

An aim of the Department is to develop personnel services on a decentralized basis (i.e. at district and divisional level) with specialist support being provided from the Personnel Branch in Brisbane. An important initiative being developed is a range of counselling services which will aid staff in their career and personal development.

To aid in development of the personnel concept, a project team comprising Departmental officers and a representative from the Department of the Public Service Board has been established. The role of the project team is to develop existing personnel functions and to initiate more effective approaches to personnel development through a combination of research and consultation with staff.

Significant advances in personnel management are anticipated during the next

financial year. Its development will ensure that the Department's human resources and the system for managing those resources are developed and maintained at a high level.

**Staff establishment:** In conformity with the Government's policy of zero growth in the public sector, the Department's salaried staff establishment has been maintained at 645 officers. In addition, the Department employed 1 211 wages employees as at June, 1981, compared with 1 192 in 1979-80.

Fifty-one salaried officers left the Department during the year including 20 officers who transferred to other Departments and 11 officers who retired after lengthy periods of meritorious service. Mr W. Bryan, Conservator since 1975, retired on 13th March after a distinguished career spanning 42 years in Forestry.

I take this opportunity of wishing the retired officers happiness in the years ahead. I record my appreciation of the services rendered by the staff of the Department over the past year.

There were eight officers appointed to positions within the Department from other Departments of the Public Service. Appendix 15 provides details of staff distribution.

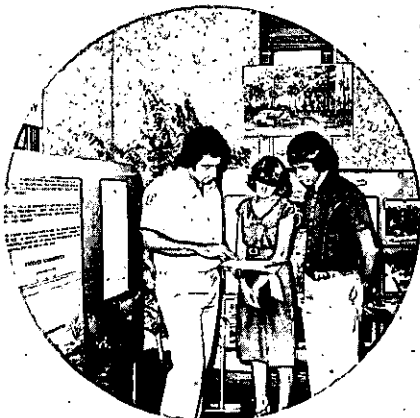
**Overseas travel:** The previous Conservator of Forests, Mr W. Bryan, visited the West Indies to participate in the Eleventh Commonwealth Forestry Conference held at Trinidad and Tobago 7th-26th September.

The present Conservator, Mr J. A. J. Smart, visited Fiji in April as a delegate to the Eleventh Session of the Asia Pacific Forestry Commission. He also inspected the Fijian Pine Commission's planting programme.

Mr R. E. Pegg, Director of Technical Services, and Dr D. I. Bevege, Officer in Charge, Soils and Nutrition Section, Forest Research Branch, visited the Peoples Republic of China to identify a number of management options to support the eucalyptus forestry industry in China.

Mr A. W. Gardner, Officer in Charge, Timber Utilization Branch, attended the 35th Australian Pulp and Paper Technical Association General Conference in New Zealand during March-April.

Mr J. J. Kelly, Director of Operations, participated in the Forest Officer Exchange Scheme to New Zealand during March, visiting forest areas in both the North and South Islands.



*Far left.* Careers advisor Arthur King explains Forestry job opportunities to school students at a careers display.

*Left.* Max Martin, Overseer Atherton.

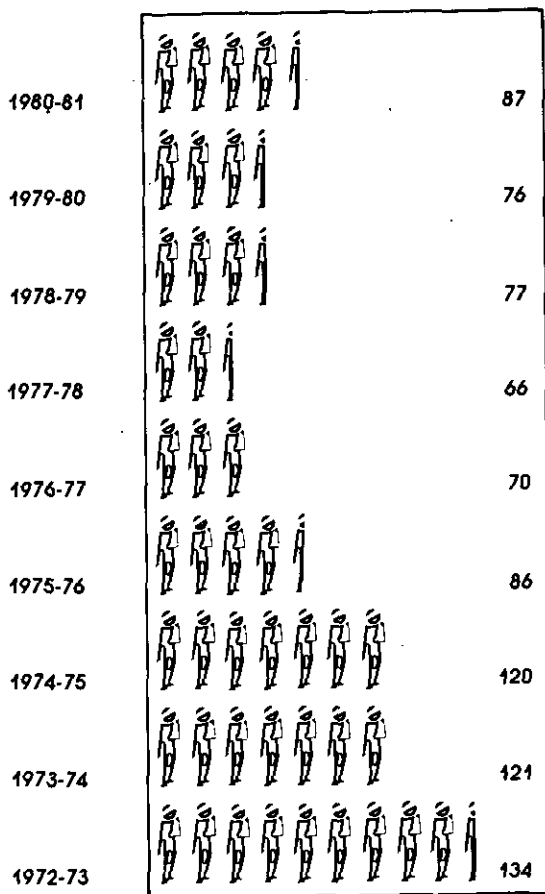


**Safety:** The safety performance of the individual Districts is graphically illustrated. It is very pleasing to note that Maryborough District, which had the highest lost time injury rate last year (116-8), achieved a 40 per cent reduction in 1980-81 (64-0). Consequently, Maryborough won both the Minister's shield and Conservator's shield for the lowest lost time injury rate and the greatest improvement respectively.

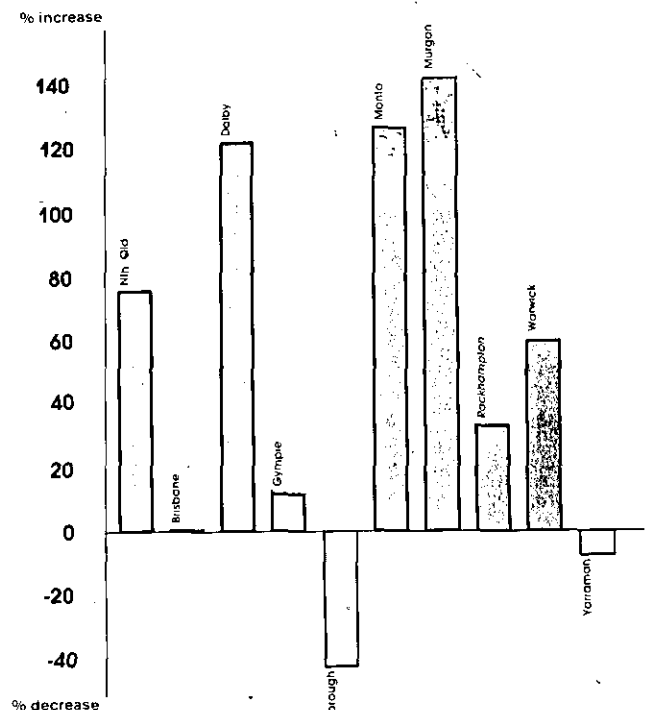
However, the overall safety record has declined this year. While no direct cause for this decline is apparent, an influencing factor may have been the absence of a full-time Safety Officer during the latter half of the year. Increased attention is to be given to safety through greater contact between the Safety Officer and field personnel, improved training, and additional safety information.



Above. Department of Labour Relations Officer Chas. McPhail instructing Brisbane District field personnel in on-the-job safety.



Lost time injury frequency rates since 1972-73 (base 40)



Accident frequency rate - change in 1980-81 compared with 1979-80 (by Districts)

### **Forestry Training Centre:**

The highlight of the year was the graduation of the first intake of trainees. At the formal graduation ceremony, the Conservator presented each graduate with a Fellowship Certificate in Forestry. This is a new level of accreditation accepted by the Technical and Further Education section of the Department of Education specifically for graduates of the training course.

The 19 successful students subsequently took up postings as overseers in the Department's work force at centres throughout Queensland. A further intake of trainees was appointed early in 1981.

The Centre continued its valuable rôle as a venue for conferences, both for in-service training and external courses organized by outside bodies. A special course on plantation management was provided for a group of Malaysian foresters and forest rangers.



*Above.* The first graduates from Gympie Training Centre.

*J. A. J. Smart,  
Conservator of Forests*



*Full page.* Gympie Forestry Complex.

*Opposite page.* Monkey puzzle pine at Danbulla Nursery in north Queensland.



# Appendices 12

## APPENDIX 1

### STATE FORESTS AND TIMBER RESERVES LISTED BY DISTRICTS AND SUB-DISTRICTS AT 30th JUNE, 1981

District	Sub-District	No. of Reservations	State Forest Areas (hectares)	No. of Reservations	Timber Reserve Areas (hectares)
Brisbane	Beerburrum	23	53 741.424 7	2	256.518 0
	Brisbane	26	48 204.713 0	5	4 567.521 1
	<b>Total</b>	<b>49</b>	<b>101 946.137 7</b>	<b>7</b>	<b>4 824.039 1</b>
Dalby	Chinchilla—				
	Barakula	18	450 961.192 0	1	5 768.000 0
	Dalby	12	224 805.325 0	2	150.203 3
	Roma	39	308 780.587 0	2	19 750.080 0
<b>Total</b>	<b>69</b>	<b>984 547.104 0</b>	<b>5</b>	<b>25 668.283 3</b>	
Gympie	Gympie	25	33 932.368 0	—	—
	Imbil	9	57 604.000 0	1	0.209 4
	Toolara	5	65 809.924 0	—	—
	<b>Total</b>	<b>39</b>	<b>157 346.292 0</b>	<b>1</b>	<b>0.209 4</b>
Maryborough	Bundaberg	17	114 507.556 0	12	18 242.786 0
	Maryborough	24	230 493.299 0	7	9 427.600 0
	Tuan	6	64 776.300 0	2	24.909 9
	<b>Total</b>	<b>47</b>	<b>409 777.155 0</b>	<b>21</b>	<b>27 695.295 9</b>
Monto	Kalpowar	9	28 800.453 0	9	18 198.374 9
	Monto	39	301 437.659 0	7	7 466.852 0
	<b>Total</b>	<b>48</b>	<b>330 238.112 0</b>	<b>16</b>	<b>25 665.226 9</b>
Murgon	Jimna	4	46 342.000 0	1	1 860.000 0
	Murgon	21	91 591.511 0	6	5 610.498 3
	<b>Total</b>	<b>25</b>	<b>137 933.511 0</b>	<b>7</b>	<b>7 470.498 3</b>
North Queensland	Atherton	29	358 922.557 0	26	311 313.198 6
	Ingham	18	237 697.423 0	2	798.400 0
	<b>Total</b>	<b>47</b>	<b>596 619.980 0</b>	<b>28</b>	<b>312 111.598 6</b>
Rockhampton	Emerald	14	112 702.980 0	8	117 817.100 0
	Mackay	20	96 158.721 0	11	28 082.220 0
	Rockhampton	37	466 000.282 0	8	29 467.899 0
	<b>Total</b>	<b>71</b>	<b>674 861.983 0</b>	<b>27</b>	<b>175 367.219 0</b>
Warwick	Inglewood	30	203 535.647 0	—	—
	Warwick	18	37 923.240 0	1	129.000 0
	<b>Total</b>	<b>48</b>	<b>241 458.887 0</b>	<b>1</b>	<b>129.000 0</b>
Yarraman	Benarkin	4	30 873.000 0	1	5.124 0
	Yarraman	20	47 600.689 0	6	4 641.698 0
	<b>Total</b>	<b>24</b>	<b>78 473.689 0</b>	<b>7</b>	<b>4 646.822 0</b>
<b>State Total</b>		<b>467</b>	<b>3 713 202.850 7</b>	<b>120</b>	<b>583 578.192 5</b>

## APPENDIX 2

### RESERVATION FIGURES FOR THE YEAR ENDING 30th JUNE, 1981

	No. Of Reservations	Area (hectares)
<b>STATE FORESTS</b>		
Figures as at 1st July, 1980 .....	463	3 715 822.835 7
Declared .....	+	5 326.989 0
Declared and added to existing State Forests .....	+	24 452.551 0
Timber Reserves declared State Forest .....	+	650
Timber Reserves declared State Forest and Amalgamated with existing State Forests .....	+	144
Reservations partially Revoked .....	-	33 620.604 0
Areas Released .....	-	100.106 6
Recomputation of Boundaries .....	-	527.185 6
Amalgamation of existing State Forests .....	-	2
<b>Total as at 30th June, 1981 .....</b>	<b>467</b>	<b>3 713 202.850 7</b>
<b>TIMBER RESERVES</b>		
Figures as at 1st July, 1980 .....	123	595 323.969 5
Timber Reserves declared .....	+	4.581
Amalgamation of existing Timber Reserves .....	-	2
Amalgamated with existing State Forests .....	-	144
Timber Reserves Revoked .....	-	851.598
Timber Reserves partially Revoked .....	-	10 770
Recomputation of Boundaries .....	+	15.24
<b>Total as at 30th June, 1981 .....</b>	<b>120</b>	<b>583 578.192 5</b>

## APPENDIX 3

### NET AREA OF SOFTWOOD PLANTATION ESTABLISHED

1st APRIL 1980 TO 31st MARCH 1981

— hectares —

District	Native Conifers			Exotic Conifers					Total Conifers	Total Conifers 1979-80
	Hoop Pine		Total Native	Slash Pine		Caribbean Pine	Other Exotic Conifers	Total Exotic		
	New Areas	Others		New Areas	Others					
Brisbane	—	—	—	261	—	141	—	402	402	713
Gympie	91	27	118	684	—	373	85	1 142	1 260	938
Maryborough	—	—	—	1 672	109	1 698	—	3 479	3 479	4 607
Monto	71	—	71	—	—	—	—	—	71	53
Murgon	217	—	217	—	—	—	—	—	217	275
North Qld	—	—	—	—	—	577	97	674	674	684
Rockhampton	—	—	—	—	—	207	5	212	212	145
Warwick	—	—	—	—	—	—	—	—	—	31
Yarraman	258	69	327	—	—	—	—	—	327	329
<b>Total</b>	<b>637</b>	<b>96</b>	<b>733</b>	<b>2 617</b>	<b>109</b>	<b>2 996</b>	<b>187</b>	<b>5 909</b>	<b>6 642</b>	<b>7 917</b>
<b>Total 1979-80</b>	<b>920</b>	<b>142</b>	<b>1 062</b>	<b>3 848</b>	<b>—</b>	<b>2 669</b>	<b>338</b>	<b>6 855</b>	<b>7 917</b>	

## APPENDIX 4

### \*NET AREA OF EFFECTIVE SOFTWOOD PLANTATION AS AT 31st MARCH, 1981

— hectares —

District	Native Conifers				Exotic Conifers				Total Conifers	Total 1979-80
	Hoop Pine	Bunya Pine	Other Native Conifers	Total Native	Slash Pine	Caribbean Pine	Other Exotic Conifers	Total Exotic		
Brisbane	1 388	7	4	1 399	13 496	1 147	1 938	16 581	17 980	17 656
Gympie	11 886	230	36	12 152	23 338	1 824	572	25 734	37 886	35 444
Maryborough	1 481	3	29	1 513	25 791	5 759	145	31 695	33 208	31 456
Monto	2 749	1	1	2 751	22	2	13	37	2 788	2 717
Murgon	8 014	124	1	8 139	—	—	47	47	8 186	7 965
North Qld	1 027	1	107	1 135	4	4 031	223	4 258	5 393	4 735
Rockhampton	262	—	1	263	1 010	4 759	63	5 832	6 095	5 865
Warwick	13	1	1	15	359	—	2 242	2 601	2 616	2 700
Yarraman	14 219	120	4	14 343	504	361	1 793	2 658	17 001	16 799
<b>Total</b>	<b>41 039</b>	<b>487</b>	<b>184</b>	<b>41 710</b>	<b>64 524</b>	<b>17 883</b>	<b>7 036</b>	<b>89 443</b>	<b>131 153</b>	<b>125 337</b>
<b>Total 1979-80</b>	<b>40 294</b>	<b>510</b>	<b>194</b>	<b>40 998</b>	<b>62 423</b>	<b>14 852</b>	<b>7 064</b>	<b>84 339</b>	<b>125 337</b>	

\*The net effective area as at 31.3.81 consists of the net effective area as at 31.3.80 plus the net area established during 1980/81 less corrections for write-offs, boundary recomputations and re-checks.

## APPENDIX 5

### \* NET AREA OF EFFECTIVE BROADLEAVED PLANTATION AS AT 31st MARCH, 1981

— hectares —

District	Native Forest Hardwoods					Other Broadleaved Species	Miscellaneous Experimental Species	Total	Total 1979-80
	Rose Gum	Grey Ironbark	Blackbutt	Other Native Forest Hardwoods	Total Native Forest Hardwoods				
Brisbane	130	84	93	42	349	1	24	374	373
Gympie	531	157	111	165	964	88	11	1 063	1 064
Maryborough	—	—	48	1	49	2	40	91	91
Murgon	8	6	4	—	18	9	1	28	28
Rockhampton	—	—	—	1	1	1	4	6	7
North Qld.	1	12	—	15	28	146	13	187	176
Warwick	—	—	—	—	—	1	9	10	11
Yarraman	45	128	—	4	177	43	33	253	324
<b>Total</b>	<b>715</b>	<b>387</b>	<b>256</b>	<b>228</b>	<b>1 586</b>	<b>291</b>	<b>135</b>	<b>2 012</b>	<b>2 074</b>
<b>* Total 1979-80</b>	<b>740</b>	<b>394</b>	<b>256</b>	<b>228</b>	<b>1 618</b>	<b>320</b>	<b>136</b>	<b>2 074</b>	

\* Previously published 1979-80 figures have been adjusted for write-offs, boundary recomputations and re-checks.

## APPENDIX 6 OPERATIONAL STATISTICS

1979-80		1980-81
7 775	Softwood Plantation Establishment (hectares) .....	6 642
	Nursery Stock *Departmental Use—	
	Hoop Pine—	
1 046 600	Container .....	712 100
	Caribbean Pine—	
688 000	Container .....	502 000
2 848 500	Open Root .....	3 404 200
	Ocote Pine—	
2 600	Container .....	101 400
	Slash Pine—	
6 304 500	Open Root .....	3 026 200
	Radiata Pine—	
23 700	Open Root .....	15 000
	Loblolly Pine—	
61 300	Open Root .....	64 700
	Caribbean/Slash Hybrid—	
266 000	Open Root .....	100 300
	Eucalypts—	
66 900	Container .....	73 500
	Nursery Stock, Sales—	
225 070	Forest Plots .....	318 800
174 898	Amenity Stock .....	204 200
\$138,618	Total value of seedlings sold .....	\$194,420
	Seed Sold—	
\$55,219	Value .....	\$51,293
	Weed Control—	
17 151	Native Pine Plantation (hectares) .....	13 494
14 092	Exotic Pine Plantation (hectares) .....	12 353
	Fertilizing—	
5 312	New Areas Fertilized (hectares) .....	5 604
4 289	Old Areas Refertilized (hectares) .....	155
	Pruning—	
1 754	First (hectares) .....	2 920
1 839	Final (hectares) .....	2 039
	Operative Plant as at 30th June—	
457	Motor Vehicles and Trucks .....	460
20	Graders .....	20
87	Rubber-tyred Tractors and Loaders .....	92
46	Crawler Dozers .....	43

\*All Departmental use information refers to the 12-month period 1st April to 31st March.

## APPENDIX 7 AREAS OF NATURAL FOREST TREATED 1980-81 — hectares —

District	Eucalyptus Forests	Cypress Pine Forest	Total	Total 1979-80
<b>Brisbane</b> .....	119	—	119	104
<b>Dalby</b> .....	—	5 096	5 096	6 534
<b>Gympie</b> .....	102	—	102	17
<b>Maryborough</b> .....	255	—	255	417
<b>Monto</b> .....	167	—	167	220
<b>Murgon</b> .....	133	—	133	—
<b>Rockhampton</b> .....	—	—	—	423
<b>Warwick</b> .....	—	1 927	1 927	1 715
<b>Yarraman</b> .....	40	—	40	—
<b>Total</b> .....	816	7 023	7 839	9 430
<b>Total 1979-80</b> .....	1 181	8 249	9 439	

## APPENDIX 8 MILLING TIMBER REMOVALS FROM CROWN LAND

— cubic metres gross measure —

JNF      R.F.      R.F.      NATIVE FORESTS      R.F.

District	Forest Hardwoods	Rainforest Structural Timbers	Prime Cabinet Woods	Misc. Cabinet Woods	Hoop, Bunya Kauri, Pines	Cypress Pine	Other Pines	Total	Total 1979-80
Brisbane	21 555	267	—	214	172	205	—	22 413	29 402
Dalby	22 065	—	—	—	—	103 205	—	125 270	128 596
Gympie	29 649	1 347	32	1 043	2 446	—	—	34 517	32 060
Maryborough	49 741	586	63	480	22 822	494	—	74 186	74 541
Monto	36 986	88	2	40	7 364	—	—	44 480	43 236
Murgon	27 492	201	15	56	5 901	—	—	33 665	37 577
North Qld.	11 764	57 260	31 688	50 904	49 948	—	745	162 309	187 476
Rockhampton	37 856	9 534	263	1 871	1 496	2 781	26	50 827	61 079
Warwick	3 937	2 395	—	—	586	25 545	—	32 463	32 990
Yarraman	4 537	543	—	115	1 714	—	—	6 909	9 381
<b>Total</b>	<b>245 582</b>	<b>72 221</b>	<b>32 063</b>	<b>54 723</b>	<b>52 449</b>	<b>132 230</b>	<b>771</b>	<b>590 039</b>	<b>636 338</b>
<b>Total 1979-80</b>	<b>264 709</b>	<b>81 925</b>	<b>36 719</b>	<b>62 578</b>	<b>55 067</b>	<b>131 975</b>	<b>1 365</b>	<b>636 338</b>	

### PLANTATIONS

District	Native Conifers	Exotic Conifers	Non-Conifers	Total	Total 1979-80
Brisbane	—	44 099	400	44 499	45 676
Gympie	31 204	10 582	282	42 068	41 909
Maryborough	698	40 960	—	41 658	28 798
Monto	6 061	—	—	6 061	5 798
Murgon	13 504	1 515	—	15 019	10 166
Nth. Qld.	411	371	—	782	155
Rockhampton	—	8 177	—	8 177	6 283
Warwick	—	15 273	—	15 273	7 214
Yarraman	38 632	26 745	468	65 845	51 273
<b>Total</b>	<b>90 510</b>	<b>147 722</b>	<b>1 150</b>	<b>239 382</b>	<b>197 272</b>
<b>Total 1979-80</b>	<b>83 317</b>	<b>110 867</b>	<b>88</b>	<b>197 272</b>	

## APPENDIX 9 PULPWOOD REMOVALS FROM CROWN LAND

— cubic metres gross measure —

Forest	Species	District					Total	Total 1979-80
		Brisbane	Gympie	Maryborough	Murgon	Yarraman		
Plantation	Native Conifers	—	6 242	—	2 134	—	8 376	11 376
Plantation	Exotic Conifers	26 938	27 186	42 110	129	6 125	102 488	75 932
Native Forest	Non Conifers	—	—	—	—	2 714	2 714	1 070
<b>Total</b>		<b>26 938</b>	<b>33 428</b>	<b>42 110</b>	<b>2 263</b>	<b>8 839</b>	<b>113 578</b>	<b>88 378</b>
<b>Total 1979-80</b>		<b>31 469</b>	<b>24 608</b>	<b>26 704</b>	<b>2 358</b>	<b>3 239</b>	<b>88 378</b>	



## APPENDIX 10

### MISCELLANEOUS REMOVALS FROM CROWN LANDS

1979-80	Product	1980-81	Unit
<b>Miscellaneous Timber Products</b>			
	Sleepers—		
1 150	1.2 metres .....	847	pieces
89 231	1.5 metres .....	129 397	pieces
360	1.8 metres .....	—	pieces
12 485	2.0 metres .....	8 643	pieces
—	2.1 metres .....	428	pieces
209 925	2.15 metres .....	192 636	pieces
15 217	2.45 metres .....	12 838	pieces
873	Transoms, Headstocks, Crossings, etc. ...	386	cubic metres
134	Turnout Timbers .....	74	cubic metres
227	Bridge Timbers .....	145	cubic metres
21 444	Girders, Corbels, Piles and Sills .....	18 292	metres
127 401	Poles .....	113 862	metres
102 894	Fencing Material — Round .....	144 561	metres
255 788	Fencing Material — Split .....	259 917	pieces
94 247	Mining Timber — Round .....	57 740	metres
412	Mining Timber — Sawn .....	4 788	cubic metres
5 090	Mining Timber — Others .....	4 368	pieces
—	Round Timber .....	113 116	metres
412	Head and Limb Logs .....	32	cubic metres
37	House Blocks .....	25	metres
698	Offcuts .....	439	cubic metres
—	Offcuts .....	3 629	pieces
—	Stakes .....	5 860	pieces
—	Boat knees .....	66	pieces
7	Black Wattle .....	6	pieces
—	Chopping Blocks .....	155	metres
3 280	Fuelwood .....	4 706	tonnes
—	Landscape Timber .....	118	pieces
11	Leaf Mould .....	5	bags
61	Charcoal .....	15	tonnes
—	Mulga Wood .....	11	tonnes
—	Pine Cones .....	2	cubic metres
—	Pine Needles .....	7	cubic metres
—	Pine Tops .....	1	tonne
42	Ironbark Bark .....	63	bags
56	Tea Tree Bark .....	48	cubic metres
6	Other Bark .....	—	tonnes
<b>Non-timber Products</b>			
22	Beehives .....	5	number
8 674	Flora .....	6 776	pieces
8	Crows Nest .....	—	tonnes
8	Lawyer Cane .....	21	tonnes
16	Peat .....	13	tonnes
926 965	Quarry Material .....	1 228 989	cubic metres
3	Slate .....	32	cubic metres

## APPENDIX 11

### MILLING TIMBER REMOVALS UNDER HAULAGE CONTRACT

This table shows the quantities hauled and payments made for the haulage of milling timber by Contractors to the Department. The quantities shown are also included in Appendix 8. The payments made are also included in Appendix 14 under Marketing.

— cubic metres gross measure —

	South Queensland							North Queensland		Total	
	Hoop Pine	Forest Hardwood	Rain Forest Structural Timbers	Prime Cabinet Woods	Misc. Cabinet Woods	Total Volume	Payments made (\$)	Prime Cabinet Woods	Payments made (\$)	Volume	Payments made (\$)
1980-81	22 404	13	688	64	590	23 759	565,314	423	11,875	24 182	577,189
1979-80	25 106	4	117	41	118	25 386	577,588	556	12,220	25 942	589,808

## APPENDIX 12

### MILLING TIMBER REMOVALS FROM PRIVATE LANDS 1980-81

— cubic metres gross measure —

Species	North Qld.	Brisbane	Dalby	Gympie	Maryborough	Monto	Murgon	Rockhampton	Warwick	Yarraman	Total 1980-81	Total 1979-80
Hoop, Bunya and Kauri Pines	2	1 216	—	1 306	1 476	40	40	254	809	355	5 498	4 812
Cypress Pine	—	20	43 227	—	9	—	—	814	20 226	230	64 526	64 331
Other Pines	59	532	—	40	87	—	—	—	450	8	1 176	402
Forest Hardwoods	5 413	77 440	7 699	14 223	57 481	25 419	10 106	38 777	7 507	21 197	265 262	254 780
Rain Forest Structural Timbers	7 964	252	—	197	93	—	—	873	30	40	9 449	8 552
Prime Cabinetwoods	1 612	7	—	—	1	—	118	51	—	—	1 789	2 246
Miscellaneous Cabinetwoods	5 088	472	—	20	23	—	—	396	—	—	5 999	6 584
Plantations— Native Conifers	6	—	—	—	—	—	—	—	—	83	89	—
Exotic Conifers	—	6 171	—	100	607	—	—	—	345	—	7 223	4 878
<b>Total</b>	<b>20 144</b>	<b>86 110</b>	<b>50 926</b>	<b>15 886</b>	<b>59 777</b>	<b>25 459</b>	<b>10 264</b>	<b>41 165</b>	<b>29 367</b>	<b>21 913</b>	<b>361 011</b>	<b>346 585</b>

N.B. Volumes shown in the above table have been estimated due to incomplete statistics being available at time of compilation.  
\* corrected figures.

**APPENDIX 13**  
**COMPARATIVE STATEMENT OF RECEIPTS FOR THE YEARS**  
**1979-80 AND 1980-81**

1979-80		1980-81
\$		\$
10,982	Consolidated Revenue Fund — (1)	4,832
	Miscellaneous	
395,883	LOAN FUND — (2)	586,258
5,600	Sale of Motor Vehicles and Plant	161,243
401,483	Plant Hire	747,501
	Forestry and Lumbering Fund —	
261,824	Opening Balance	126,889
8,560,121	Log timber Receipts from Districts	9,921,320
877,218	Forestry and Lumbering (Railway Timber Supply)	729,022
3,563,755	Plant Hire (3)	4,057,142
526,663	Other Receipts	616,830
339,210	T.R.A.D.A.C.	351,061
	Grants —	
79,720	Flood Relief	146,600
8,853	Aboriginal Advancement	6,742
213,459	Displaced Sandminers from Fraser Island	—
14,430,823		15,955,606
126,889	Less Balance Carried Forward	158,603
14,303,934		15,797,003
	Forestry Development Fund —	
216,102	Opening Balance	2,176,704
250,234	Commonwealth Grant for Aboriginal Advancement	221,990
977,311	Commonwealth Forestry Softwood Agreement	841,309
16,930,000	Loan Fund Contribution	14,880,000
2,000,000	Special Projects Fund	2,000,000
1,068,465	Grant for displaced Sandminers from Fraser Island	—
—	Flood Relief	74,506
—	Land Acquisition Grant	2,500,000
—	Other Receipts	29,240
21,442,112		22,723,749
2,176,704	Less Balance Carried Forward	37,471
19,265,408		22,686,278
33,981,807		39,235,614

*ab. 228 732  
Flood 221106  
Softwood 84 309  
105.*

\$		\$
10,982	The above receipts were disposed of as follows: —	
	To Consolidated Revenue Fund as repayment of Expenditure	4,832
	To Loan Fund —	
395,883	Repayment of Previous Expenditure	586,258
5,600	Excess Plant Hire	161,243
401,483		747,501
	To Forestry and Lumbering Fund —	
8,576,730	Expenditure of Marketing, maintenance of	
5,727,204	Roads, Capital Improvements and	9,539,844
14,303,934	Plant; T.R.A.D.A.C.	6,257,159
	Interest and Redemption on Loans	15,797,003
	To Forestry Development Fund —	
19,265,408	Expenditure of Reforestation, Land Acquisition,	22,686,278
	Plant Purchase, Road construction	
33,981,807		39,235,614

**Notes to Appendix 13**

- (1) Consolidated Revenue Fund expenditure not shown as receipts in this Appendix.
- (2) State Loan Fund expenditure on recreation facilities not shown as receipts in this Appendix.
- (3) Plant hire and the associated expenditure item 'Maintenance of Plant' should not be taken as receipts and expenditure in themselves. Other expenditure votes have already financed Maintenance of Plant through plant hire charges on them.

**APPENDIX 14**  
**COMPARATIVE STATEMENT OF EXPENDITURE BY FUNDS FOR YEARS**  
**1979-80 AND 1980-81**

1979-80		1980-81
\$		\$
8,616,912	Consolidated Revenue Fund —	
573,513	Salaries	9,988,091
77,391	Termite Eradication	143,000
1,031,180	Fares, Printing and Stores	81,296
119,436	Travelling Expenses and Incidentals	1,164,030
135,312	Recreation Facilities — Maintenance	228,977
	Cash Equivalent of Long Service Leave	204,605
10,553,744		11,809,999
33,369	Less Expenditure credited for Grant from Brisbane Forest Park Trust	41,720
10,520,375		11,768,279
440,517	Loan Fund —	
16,930,000	Recreation Facilities — Construction	338,567
	Amount to be credited to Forestry Development Fund	14,880,000
17,370,517		15,218,567
183,206	Less Expenditure credited for Grant from Brisbane Forest Park Trust	118,574
17,187,311		15,099,993
	Trust and Special Funds —	
5,727,204	Forestry and Lumbering Fund —	
785,188	Interest and Redemption on Loans	6,257,159
3,283,017	Railway Timber Supplies	667,275
799,636	Marketing	3,819,218
3,261,890	Roads — Maintenance and Subsidies	846,130
332,671	Maintenance of Plant	3,660,142
	Maintenance of Capital Improvements	375,701
275,218	Expenses — Timber Research and Development Advisory Councils	319,645
14,464,724		15,945,270
160,790	Less Expenditure credited for Apprentice Training and Miscellaneous	148,267
14,303,934		15,797,003
15,115,661	Forestry Development Fund —	
1,009,738	Reforestation	16,805,094
1,650,262	Land Acquisition	3,146,433
1,204,334	Purchase of Plant	1,610,015
329,460	Roads — Construction	1,172,539
	Purchase of Working Equipment	—
19,309,455		22,734,081
44,047	Less Expenditure credited for Miscellaneous	47,803
19,265,408		22,686,278

## APPENDIX 15

### STAFF DISTRIBUTION — 30th JUNE, 1981

	Head Office	District	Total	Total 1979-80
Salary —				
Graduate	64	72	136	137
Technical	81	29	110	108
Field Supervisory	4	103	107	109
Administrative/Clerical	134	131	265	265
Miscellaneous (Drawing Office Aides, General, Clerical and Laboratory Assistants, etc.)	12	1	13	13
<b>Sub-total</b>	295	336	631	632
Wages —				
Reforestation	16	841	857	825
Marketing and Resources	14	145	159	158
Road Construction and Maintenance	—	50	50	68
Maintenance of Plant and Capital Improvements	10	93	103	108
Recreation Facilities — Construction and Maintenance	—	40	40	31
Miscellaneous	—	2	2	2
<b>Sub-total</b>	40	1 171	1 211	1 192
<b>Total</b>	335	1 507	1 842	1 824
<b>Total 1979-80</b>	341	1 483	1 824	

## APPENDIX 16

### DEPARTMENT PUBLICATIONS 1980-81

#### RESEARCH NOTES

31. Perkins, L. R., and Armstrong, P. A. 1980. Effect of cone containerisation during transport on yield and germinability of Honduras Caribbean Pine seed.
32. Vanclay, J. K. 1980. Small tree stem volume equations for tree plantation species.

#### RESEARCH PAPERS

13. Gilmour, D. A., and Boughton, W. C. 1980. Estimation of runoff from small disturbed tropical rainforest catchments using the Boughton model.

#### TECHNICAL PAPERS

20. Wylie, F. R., and Bevege, D. I. 1980. Status of eucalypt dieback in Queensland.
21. Wylie, F. R., and Bevege, D. I. 1980. A survey method to assess incidence of, and management practices associated with native tree decline in Queensland.
22. Holzworth, P. V. 1980. Some factors influencing site indices of hoop pine plantations in south east Queensland.
23. Nicholson, D. I., and Bragg, A. L. 1980. The performance of *Pinus strobus* L. var. *chiapensis* Martinez in Queensland.
24. Gough, D. K. Timber seasoning in a solar kiln. 1981.

#### TECHNICAL NOTES

4. Drew, I. K. 1980. A 'Direct Reading' method for metric height sticks.

#### ADVISORY LEAFLETS

13. Drew, I. K., and Wylie, F. R. 1980. Tree injection with systemic insecticide to control leaf-eating and sap-sucking insects.

#### RESEARCH REPORT

2. Research Report 1979. Report of research activities for 1978, 1979.

#### INFORMATION SHEETS

1. Forestry and Conservation (Revised)  
15. Final Crop Harvesting

#### BROCHURES

##### State Forest Parks —

Lake Euramoo State Forest Park  
Mullen State Forest Park  
Daisy Hill State Forest Park  
Bunyaville State Forest Park  
Numinbah State Forest Park

##### Forest Drives —

Kalpowar Forest Drive  
Mapleton Forest Drive

#### PERIODICALS

- Between the Leaves (Departmental newsletter)

## APPENDIX 17

### SCIENTIFIC NAMES

A. NATIVE CONIFERS	
Bunya Pine .....	<i>Araucaria bidwillii</i>
Cypress Pine .....	<i>Callitris columellaris</i> syn. <i>Callitris glauca</i>
Hoop Pine .....	<i>Araucaria cunninghamii</i>
Kauri Pine .....	<i>Agathis robusta</i> <i>Agathis palmerstonii</i>
B. EXOTIC CONIFERS	
Bahamas Caribbean Pine .....	<i>Pinus caribaea</i> var. <i>bahamensis</i>
Caribbean Pine .....	<i>Pinus caribaea</i>
Honduras Caribbean Pine .....	<i>Pinus caribaea</i> var. <i>hondurensis</i>
Loblolly Pine .....	<i>Pinus taeda</i>
Ocote Pine .....	<i>Pinus oocarpa</i>
Patula Pine .....	<i>Pinus patula</i>
Radiata Pine .....	<i>Pinus radiata</i>
Slash Pine .....	<i>Pinus elliottii</i> var. <i>elliottii</i>
C. EUCALYPTS	
Blackbutt .....	<i>Eucalyptus pilularis</i>
Forest Red Gum .....	<i>Eucalyptus tereticornis</i>
Grey Ironbark .....	<i>Eucalyptus drepanophylla</i>
Narrow Leaved Red Ironbark .....	<i>Eucalyptus crebra</i>
Rose Gum .....	<i>Eucalyptus grandis</i>
D. OTHER BROADLEAF SPECIES	
Brown Salwood .....	<i>Acacia mangium</i>
E. SHRUBS, GRASSES, WEEDS, ETC.	
Dwarf Native Plum .....	<i>Podocarpus spinulosus</i>
Keys' Boronia .....	<i>Boronia keysii</i>
Lantana .....	<i>Lantana camara</i>
F. MAMMALS	
Fluffy Glider .....	<i>Petaurus australis</i>
Greater Glider .....	<i>Schoinobates volans</i>
G. BIRDS	
Rainbow Lorrikeet .....	<i>Trichoglossus haemotodus</i>