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C. E. LANE POOLE MEMORIAL TRUST

LANE POOLE AWARD
STUDY TOUR, MAY 1988



A REPORT TO THE TRUSTEES

By
P. KEPPEL

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C.E. Lane Poole Memorial Trust

The Lane Poole Memorial Trust was established to commemorate the work of Charles Edward Lane Poole and, in particular, the connection between the former Conservator of Forests and the late Thomas Cullity.

Lane Poole was appointed Inspector-General of the Woods and Forests Department in Western Australia in 1916, and was responsible for establishing the legal framework on which the State's forestry operations have since been carried out.

That legal framework was the 1918 Forests Act. Before the Act was introduced there was no legislation to control the amount of timber cut, the place and manner of cutting, or to regenerate the forest after cutting.

When Thomas Cullity graduated from the University of Western Australia in 1918, Lane Poole offered him the newly created position of Utilisation Officer in the Forests Department, which he held for one year before leaving to start up Millars' new commercial kilns at Yarloop.

Thomas Cullity maintained an interest in forestry and timber for the rest of his life and founded Cullity Timbers in 1928 and Westralian Plywoods in 1943. From these companies WESFI was formed.

The Trust was initiated by WESFI Chairman, Denis Cullity in 1983, and developed by a Board of Trustees representing the former Forests Department and WESFI.

The current Chairman of the Board is the Executive Director of the Department of Conservation and Land Management, Dr. Syd Shea.

The WESFI connection resulted from a belief held by Lane Poole that forestry needed to be inter-disciplinary to cater for the needs of society.

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Objectives

The objective of the study tour was to broaden my knowledge of forestry and land management. This was achieved by looking at HOW and WHY operations are carried out in other states and COMPARE this with the way operations are carried out in Western Australia.

The following areas were visited:

- **South Australia:** Mt Gambier, Adelaide Hills.
- **Victoria:** South East Gippsland, Dandenong Range, Mornington Peninsula, Victorian Alps.
- **Queensland:** Gympie, Maryborough, Conondale Ranges, Glasshouse Mountains.

Whilst at these areas the following forest types were inspected:

- **P. radiata Plantations:** Mt Gambier, Adelaide Hills, South East Gippsland including APM's private plantation.
- **Hoop Pine and Bunya Pine Plantations:** Conondale Ranges, South East Queensland.
- **P. ellioti and P. caribea Plantations:** South East Queensland.
- **Dry Scherophyll Forests:** Mixed Stringybark Forests of South East Gippsland, and Mixed Blue Gum, Red Gum forests of South East Queensland.
- **Wet Scherophyll Forests:** Ash forests of South East Gippsland and Victorian Alps, mixed Blue Gum and Bloodwood Forests of South East Queensland.

During visits to these forests a large number of operations were inspected; some of these being:

- Plantation Establishment - including second rotation.
- Plantation Silvicultural Tending Operations.

- Plantation Logging and Sawmilling Operations.
- Protection - Fire and Environmental.
- Eucalyptus Forest Logging Operations and Silvicultural Treatment.
- Eucalyptus Pulpwood Establishment Trial Plantings.
- National Parks, Conservation Lands and Recreation Facilities.

There are many ways to carry out operations work which vary according to forest type, organisational structure, logistics and the objectives applicable to the specific area. Therefore I will highlight the variable techniques and objectives that I observed.

Plantation Silviculture

2.1 Objectives of Establishment.

This is to get maximum growth and survival for the first 2-3 years of the rotation; thus enabling the pines to achieve rapid canopy closure and site dominance. This ensures the trees are vigorous and well formed (straight boles and small branches) with no competition from weed species.

2.2 Methods of Ground Preparation.

These were variable depending on the site type and machinery availability. Some of the equipment used included, chopper roller, chain and windrow, rough heap with dozer, large mound plough, strip plough, stump jump plough, rip subsoil and contour strip plough with a wide track dozer. Generally the objective in first and second rotation was to do the minimum number of passes over the ground with machinery, retain as much debris in situ as possible and provide a cultivated planting bed in the planting row. The minimum soil depth acceptable for pine planting in all areas is 900mm and this is achieved in many areas by either mounding, deep ripping or a combination of these. In all second rotation areas the pine stumps are retained in the ground. This reduces cost of reestablishment and provides an easier ground surface to work on.

2.3 Planting and Fertilisation.

This is carried out either by hand or machine depending on the ground conditions. Currently all second rotation planting is carried out by hand and most areas are fertilised using strip fertilisation techniques over the planting row at time of planting.

2.4 Stocking.

All areas are planted to between 1400-1600 stems per hectare (sph) [no drought evident] and culled to 800-1200 sph at age 5-7 years. The first commercial thinning varied according to

marketability of the resource and the vigour of the stand. Generally 1-2 thinnings are carried out to retain a final crop of 150-250 sph which is clearfallen at age 27-40 years.

With the ability of the sites to carry a high stocking per hectare throughout the rotation very little pruning is carried out. Limited areas are pruned for fire protection reasons or to produce small volumes of clear veneer logs.

2.5 Weed Control.

This is carried out to a high standard for a minimum planting strip of 1.5m wide in all areas. The method of achieving this can be ploughing, or use of herbicides by strip, broadcast or spot application of liquid or granulated herbicide. Very little subsequent weed control is carried out after planting as this is considered less effective and more expensive.

2.6 Subsequent Fertilisation.

During the rotation fertilisation is at present only carried out on an experimental basis. Most organisations are however aiming to use fertiliser to lift site productivity during the second rotation.

2.7 Erosion Control.

Most areas have some problems and this is generally controlled by site preparation on the contour if necessary and the use of control drains and cover crops if required.

2.8 Pest Control.

The importance of being prepared for Sirex control was stressed and this can be done by:

- Education of forest users to be able to identify the insects and the symptoms of attack.
- Establishment of Trap tree plots in Spring and early Summer.
- Control in the movement of pine timber.
- The commencement of a Biological Control Programme.
- Maintain a vigorous and healthy pine stand.

The improvement of the genetic base for plantation trees is being done by tree breeding, hybridization and cloning.

Hardwood Silviculture

The Hardwood Industry did not appear to be highly organised or integrated with many small operators only cutting products for their own requirements. The utilisation of the waste material after sawlog removal was as a result poor in many places. Resource data and planning was sporadic; this appeared so because of the difficult terrain, lack of staff to plan the operations in advance and the lack of interest by foresters in what happened to the resource once removed from the forest. The cutting prescriptions were silviculturally sound with good examples of crop tree release, gap creation, clearfell with subsequent aerial seeding, crop tree thinning, enrichment planting and seed tree retention inspected. Unfortunately in many areas there was a lack of follow-up treatment work and this appeared to be due to a lack of staff and finance. The level of environmental protection and amenity planning was below the acceptable standards set in W.A. with examples of very narrow stream reserves being damaged in harvesting, very little landing and snig track rehabilitation, no amenity reserves on main public roads, and cutover coupes within since gazetted National Parks not regenerated.

Generally I was disappointed with the attitude of the foresters responsible for hardwood operations as they were not interested in the impact of the logging operation in their forest or the maximisation of the harvested resource.

Logging and Sawmilling

The logging operations in most areas were supervised by Specialist staff or District staff whose sole duties were logging control. It was evident that this resulted in a lack of concern of the impact of logging by other operations staff. The methods of logging varied from antiquated to modern mechanized processing. In all situations other than South Australia the logging contractors worked for the sawmiller who purchased his logs from the Government.

The method of log resource allocation and control varied from manual systems to a computer spreadsheet programme and delivery note control programme which allocated and controlled the log supply for many contractors and major processors in the south east of South Australia.

All hardwood operations visited were required to have a substantial stockpile to reduce the amount of winter logging. This was due to the inaccessibility of the forest in winter. All pine sawmills visited did not carry a stockpile and relied on the availability of logs direct from the forest to the mill throughout the year.

Protection - Fire and Environmental.

Fire Control planning and organisation is complex and requires a great deal of coordination and liaison with other fire protection agencies such as the Country Fire Authority. The emphasis is largely on fire suppression with very little fuel reduction being carried out. This appears to be due to their lack of prescribed burning skills and the difficult terrain and variable fuel types encountered over much of the land. The use of part-time mobile fire suppression crews employed during the summer to bolster the full-time component of Departmental crews is common. They are used particularly in the more inaccessible terrain such as the Victorian Alps.

Environmental Protection is controlled by each authority on their own lands and includes work such as noxious weed control, erosion control, feral animal control. In many areas the work of noxious weed control is carried out by contract labour to be able to adequately control the large areas of weeds such as Blackberries and Lantana.

Eucalyptus Pulpwood Establishment.

Except for APM FORESTS who have 23 000 ha of plantation, all agencies are currently establishing trial planting of pulpwood species such as *E. globulus*, *E. nitens*, and *E. regnans*. Growth on some of these plots of up to 7 years of age is very impressive and generally has outgrown the adjoining *Pinus* species.

There are no sharefarming schemes operating in any of the areas visited except that of the Victorian Government. APM and the Forest Service provide free plants and advice to farmers in South East Gippsland for small amenity type plantings. This scheme does not appear to work well as several areas visited were poorly maintained and the farmers saw the scheme as an opportunity to get trees on farms without very much thought to future wood production or maintenance.

An interesting sidelight to pulpwood plantings is that APCEL Pulp Factory in Mt Gambier is currently importing *E. globulus* pulp from Chile to mix with its *P. radiata pulp* and will continue to do so until there is a supply of pulpwood available locally.

National Parks, Conservation Areas and Recreation Facilities.

Generally the management of the parks was very intense, people orientated and well organised, using the user pays principle on most occasions. The parks adjacent to the large population centres such as Melbourne, Adelaide and Brisbane were very heavily used and had good facilities. It was noticeable in these parks that people control was very important and this was generally done by good engineering of facilities, access and signage with the minimum use of Rangers as necessary. This allowed the Rangers and support staff to work on providing and maintaining facilities throughout the park.

Conclusion.

During the visit some techniques, equipment and management methods were noted as having potential in Western Australia. I suggest they be considered to enable the continual improvement to our operations work. I also saw some examples of what not to do which highlighted the need for us to maintain a high standard of operations work at all times.

Suggestions for investigation in our works situation which I have or will discuss with the relevant Branches of CALM as the occasion arises are: (* Discussed to date)

1. Use of a computer spreadsheet to allocate and control the supply of logs by contractors to customers.*
2. The use of granulated herbicides for weed control in plantation establishment,* it is safer and cleaner to use with very good results.*
3. The need to be prepared for Sirex Infestation.*
4. The production of Short log products from plantations in multiple lengths thus reducing logging and processing costs.*
5. The acceptance of 90cm soil depth for all plantation establishment as a prerequisite to site acceptance. If soil depth is limiting it can be increased by deep ripping or mounding.*
6. The early fast growth of *E. nitens* pulpwood trial plantings relative to *E. globulus*; this was observed in several areas.*
7. The use of Sprayseed and Garlon herbicide at 4-6lts/ha for pine wilding control in second rotation establishment.*

8. The use of large tractors and implements in second rotation establishment; this allowed for retention of pine stumps in the soil and faster ground speeds in ground preparation.*
9. The development of multiple pump and tank spray units on one tractor to enable the application of variable herbicides for different target weeds in one pass.
10. The engraving of Road Sign Names down the upright post thus having a more vandal proof and cheaper road sign.
11. The use of programme budgeting and the drafting of the budget into fortnightly units at the beginning of the year to enable the budget document to be used as a works programme and cost control too.

In viewing such a diversity of operations work in the 3 states it was extremely worthwhile to see how the operations are carried out in specific areas and compare them with what is done in CALM. I believe that we are a more environmentally conscious organisation and in production forestry are more aware and interested in the end product of our forests. This in main, I believe, means that we are more professional in our attitude.

The study tour has certainly broadened my understanding and knowledge of forestry in Australia and will assist myself in maintaining a high degree of professionalism in my work for years to come.