

HORTICULTURAL ASPECTS OF FORESTRY AND ORNAMENTAL TREES

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1. INTRODUCTION

This topic is regarded as appertaining to the present day problems being encountered in forestry with reference to new discoveries and results in ornamental trees, particularly native Eucalypts.

Comments therefore will refer to a wide range of problems, currently under investigation including -

- (i) Dieback disease and rehabilitation in brief.
- (ii) Rehabilitation of gravel pits mined areas.
- (iii) Rehabilitation of salt affected land.

Other areas of concern with little or no action at present are Mistletoe infestations, lerp attack on trees in watercourse situation and insect attacks of importance on other species.

2. With reference to Red Flowering Gum, there is as yet no definite results from trying to breed canker resistant strains. It appears many of the resistant strains died of other causes and it is not proven that survivors are canker resistant, as yet.

Other species of horticultural interest are -

Eucalyptus calophylla rosea
Eucalyptus haemotoxylon
Eucalyptus leucoxylon var. leucoxylon
Eucalyptus crebra
Eucalyptus wandoo (differences between inland and coastal form)
Eucalyptus laeliae

The following hybrids are also of importance -

Eucalyptus botryoides x saligna
Eucalyptus saligna x grandis
Eucalyptus wandoo (Golden Sport ?)

3. DIEBACK DISEASE (Phytophthora cinnamomi)

The basic requirements for spread of the disease in forest areas are -

- (i) a suitable dispersal agent or agents (man),
- (ii) adequate moisture - (which also acts as a dispersing agent),
- (iii) adequate food, particularly protected rootlet type species high in 'N' and other nutrients and sugars,

Briefly, the problem of rehabilitation is being tackled by natural regeneration where possible with Marri, W.A. Blackbutt and Wandoo. If necessary, exotic Eucalypts, which are highly resistant to the pathogen, are introduced.

4. REHABILITATION OF GRAVEL PITS AND MINED AREAS

Problems still exist in relation to revegetating such areas.

The reasons for revegetating are mainly those of aesthetic and erosion control plus a degree of safety in some instances.

Rehabilitation of gravel pits now involves battering of banks and ripping the pit floors to a depth of 2' to 3' at least and replanting in the rip slightly on the mound created. Stock type used in this are generally jiffy potted stock of native species, but techniques are now extending to broadcast sowing after preparation with a variety of native shrubs as well.

Mined areas require to be treated similarly however, topsoil return is an important phase of rehabilitation as well as ripping,

Coal mine areas are particularly difficult due to age of the waste heaps and easily erodable surfaces and sharp angle of repose.

5. SALT AFFECTED LAND

Although dieback itself is materially assisting in allowing salts to pass into water catchments at a higher rate than normal, the major cause of salting of water courses has been caused by excessive clearing of vegetation, particularly on or near water courses in the past.

The effects are now spreading to adjacent arable land. The 1974 Department of agriculture survey revealed 167,294 ha was previously under crops or pasture or 1.17% of all cleared land. Aerial photos may be the only way to get a precise figure of saltland extent. The extension has increased rapidly in the period 1955 to 1970.

Rehabilitation of such areas rests on the following measures -

- (1) fencing off affected areas from grazing
- (2) replanting to forageable grasses
- (3) replanting to trees

The implementation of (2) and (3) depends upon intended land use. The basic aim is to lower the water tables which causes deposition of salts on the soil surface. The planting of grasses is ineffective in rehabilitating already affected areas and does not prevent the spread of surface deposition to other areas.

Species suitable for such areas are -

- (1) Salt River Gums
- (2) Swamp Mallet
- (3) Athel Tree
- (4) Coastal Moort
- (5) River Gums (near periphery of affected areas)
- (6) Stocking Gum
- (7) Swamp Oak

Stock type recommended, is potted stock of 5-6 cm height using a pit planting method on mounds of 5-6 cm preferably.

Associated problems of wind erosion and windbreak shelter belts can be tackled using various species depending on locality.

Reference for suitable species for many different sites, should be made to Forests Department information leaflet No. 37. Generally however, results indicate replanting of naturally occurring species has better long term prospects.

6. PEST PROBLEM OF TREE SPECIES

A. Four main species regarded as of importance (perhaps economically).

- (i) Bag moths (Hymenopterous group) attack Manna Wattle and River Gum.
- (ii) Greg. gall weevils (Curculionid) attack wide range of species, but mainly River Gum and Karri "off site". Influence of range of extensions likely.
- (iii) Cerambycid Beetle (Phorcantha semipunctata) attacking Tallowood and others on drought prone sites.

- (iv) Lerps (Pysillids) as boring larvae leaf sucking attacks - prevalent on Flooded Gum and River Gums can cause deaths of trees on water courses.

The cause of most significant insect attack is due to trees concerned being primarily placed under stress due to drought and shallow or soil depth, which aggravates low moisture levels. It is thought to be connected also with a consequent change in forms of Nitrogen available in the tree tissues. Control measures are centred on boring holes into the bole to implant translocated poisons.

- B. Mistletoe - increasing observations indicate a rather rapid spread of this species (Arnyema miquelii) particularly on Marri (Gosnells area) and Wandoo and Eucalyptus rudis and patens along water courses of the lower south west generally.

Control measures not easy and most work centred in Eastern States where problem is being attacked using translocated poisons in the bole using 3.4.D & MCAB. Loss of host trees also occurs.

- C. Rusts of Poplar (Melampsora-larici-populina local spp.). Since the discovery of Poplar rusts in Adelaide in 1971, it has now spread to W.A. local occurrences being observed first about 1975-76. This problem has therefore tended to discourage poplar growing.

For your further information, I refer you to the following Brochures and pamphlets.

1. Journal of Agric. Vol. 17, No. 2, 1976, pp 42-49.
2. Information Sheets F.D. Nos. 4, 28, 37 and 38.
3. Regeneration in the Karri Forest Community 1974
Forests Department of W.A.
4. Forest Focus. No. 14, April 1975.
5. Forest Focus. No. 16, December, 1975.
6. Suitable Trees for Planting on the Wheatbelt -
Forests Department of W.A.
7. Suitable Trees for Planting in the South West and
Esperance Plains.