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WORKSHOP - PRODUCTION OF SPECIALITY TIMBERS IN THE WHEATBELT - DECEMBER 1989

List of those at meeting - last page.

INTRODUCTION

The idea of utilizing wheatbelt timbers on a commercial basis has arisen several times over the past 10 years. Brown mallet and sandalwood are already cut commercially in the region, and a number of other timbers - such as jam *(Acacia acuminata)* and wandoo *(Eucalyptus wandoo)* - are utilised at a very low level for fencing and craftwood.

More recently Ross Gobby has proposed that a viable industry may be based on speciality timbers from the goldfields and wheatbelt.

At the same time, organisations such as CALM perceive potential for both production and conservation objectives to be achieved through timber production on private land in the wheatbelt.

In this context it was decided to hold a workshop at Narrogin to:

1. assess whether or not it is realistic to establish a speciality industry based on wheatbelt timber production;

2. draft objectives for specialist timber production from woodlots in the wheatbelt;

3. select species which should, as a matter of priority, be trialled for specialist timber production;

4. establish the best planting design and techniques for wheatbelt woodlots; and

5. establish broad guidelines for the development of a specialist timber industry.

These notes from the workshop do not reflect the sequence or development of discussion, nor have I attempted to source information to specific people. Rather, I have presented the information and ideas that arose in a form which seems to me logical. A list of workshop participants is given in the Appendix.

1. IS IT REALISTIC TO ESTABLISH A SPECIALITY INDUSTRY BASED ON WHEATBELT TIMBER PRODUCTION?

This question arose a number of times during the workshop, and the consensus was that:

(a) the local market for speciality timbers is too small to support, in the wheatbelt, woodlots on private property for their timber value alone;

(b) at this stage no overseas market for wheatbelt timbers has developed. It may or may not be possible to develop one. Substantial overseas markets for wheatbelt speciality timbers are a pre-requisite for a commercial industry;

(c) overseas, commercial timber industries exist in areas with a similar climate and soils to that of the wheatbelt. However, in these areas the standing crop for the first cut existed at the time an industry developed;

(d) within the next twenty years, the only practical means of developing a commercial industry would be as a secondary use of timbers planted for another purpose - e.g. soil conservation; and

(e) despite the poor short-term outlook for a commercial enterprise based on wheatbelt timbers, it is worthwhile exploring the potential for an industry given the long lead times involved in researching and proving such an industry.

2. OBJECTIVES/DEFINITIONS

2.1 Definitions

The following definitions were used during discussion.

Speciality Timber: any timber which has a relatively high value per cubic metre and is for a unique or "special" end-use.

Woodlot: generally a small woodland on private land. It is possible to have public woodlots.

Local Species: native plants grown within 15 kilometres of their natural, seed source.

Regional Species: species growing naturally within a geographic unit - e.g. wheatbelt (Figure 1) or goldfields.

Australian Species: species native to Australia.

Exotic Species: species introduced from abroad.

Wheatbelt: generally the agricultural areas where annual rainfall is less than 5-600 mm (see Figures 1 and 2).

2.2 Objectives

Objectives and strategies for timber production in the wheatbelt were discussed. Two strategies are of particular relevance. These are:

(a) to determine speciality timber opportunities outside the wheatbelt which might be exploited by a regional industry based on regional species; and

(b) to establish a wood resource, based on woodlots, which supplies both local timber needs (e.g. fenceposts, firewood) and speciality timbers for external markets.

3. ECONOMIC FACTORS

It has been proposed that a means of developing an industry is to develop a market based on the goldfields where there is a timber resource consisting of species which also occur in the wheatbelt, or will readily grow in the wheatbelt. While it may be possible to establish a sustained yield industry based in the goldfields alone, it is unlikely to be practicable given competing land uses. This makes the wheatbelt (private land) more attractive as an on-going source of timber, particularly as the wheatbelt is also:

(i) closer to major export centres;

(ii) likely to produce faster growth rates;

(iii) likely to produce a timber which is less affected by insect attack; and

(iv) more ancillary timber uses (e.g. firewood, fencing material) occur in the wheatbelt.

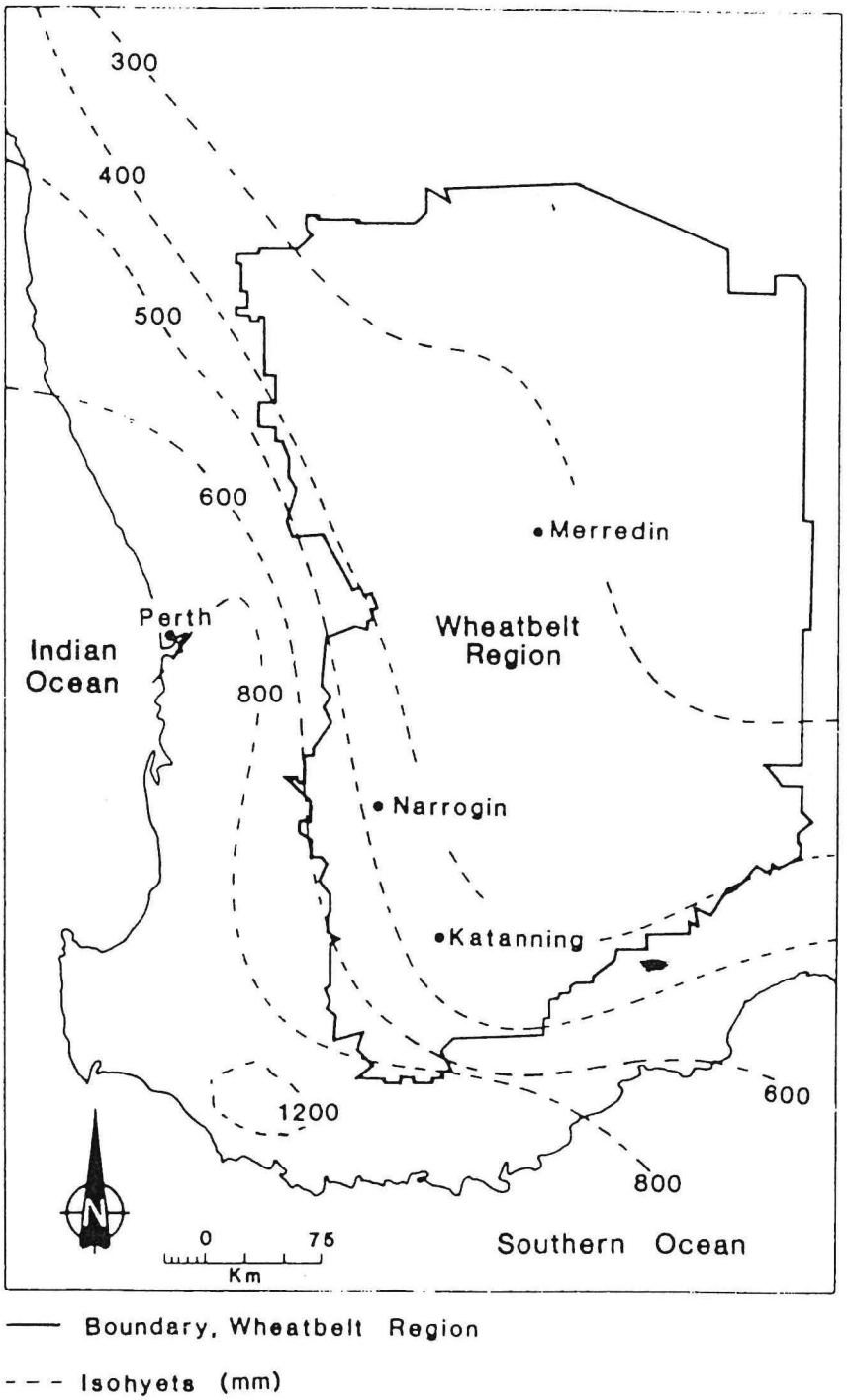
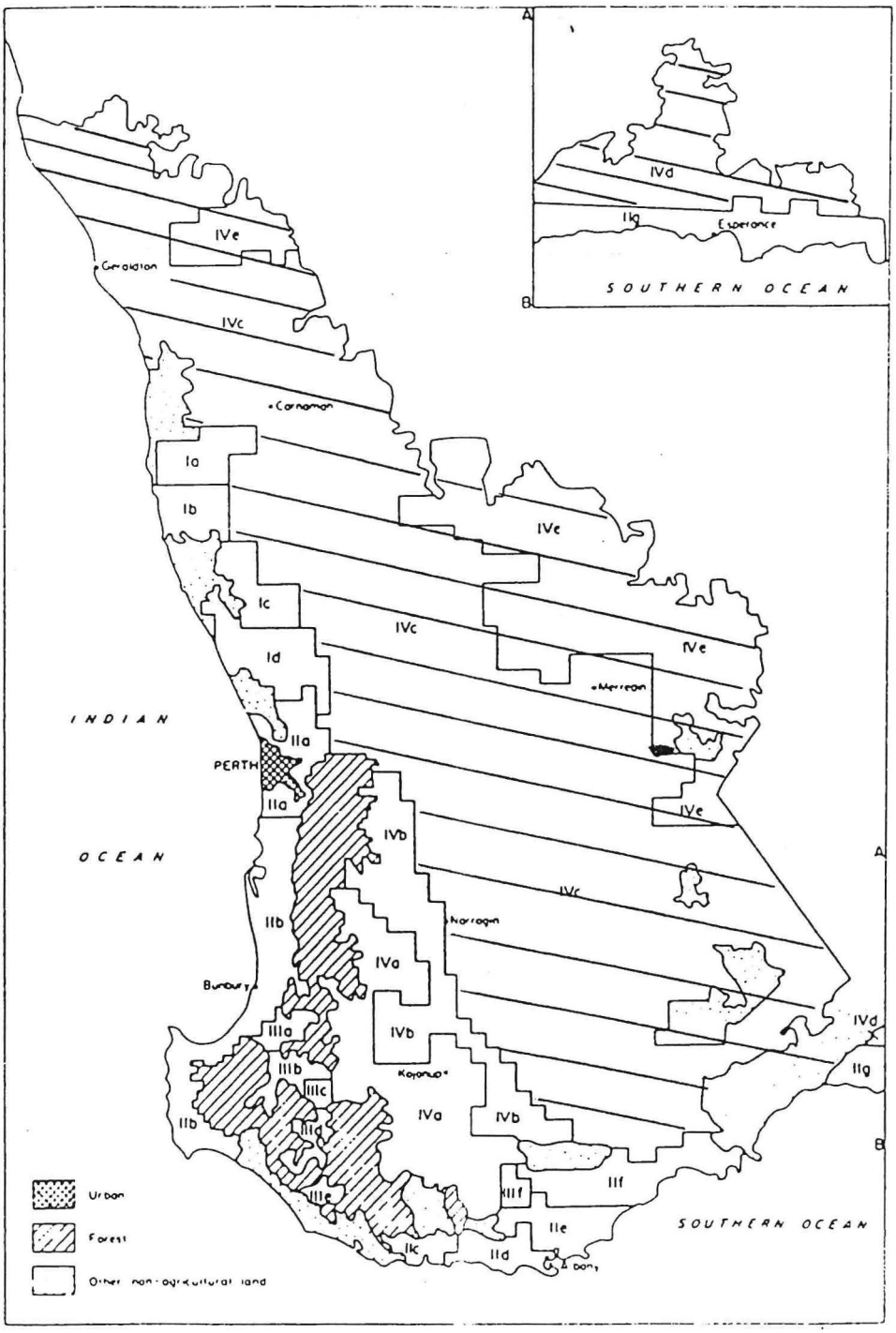


FIGURE 1: Wheatbelt Region of the Department of Conservation and Land Management (taken from paper by Wallace and Moore in "Nature Conservation - The Role of Remnants of Native Vegetation" ed Saunders *et al*, Surrey Beatty and Sons, 1987)



"True" Wheatbelt

FIGURE 2: The "true" wheatbelt - that is, the area within which wheat is the main cereal grown.

The required economics for an industry must be viewed in the context of current market prices for speciality timbers. These can be separated into five broad groups.

	TIMBERS (A few examples given only)	WOOD USERS/IMPORTANT CHARACTERISTICS	RETAIL PRICE ($ per cubic metre)
1.	Ebony	Musical products and other highly specialised uses	22 000
	Sandalwood	incense, craftwood	8 000
2.	Teak, European Beech	Highly priced largely because of their special characteristics, such as high stability	4 000
3.	American Cherry	Aesthetic appearance	2 000 - 3 000
	American Oak	Aesthetic appearance	
	American White Ash	Strength	
	Basswood	Carving	
4.	Jarrah (high quality, dry dressed)	? furniture	1 500 - 1 800
	Jelutang	Carving	
5.	Green Jarrah		400 - 600
	Radiata Pine		
	Poplar		

To have any chance of being economically viable, timber must be sold in categories 1-3.

Other details concerning the economics are that wholesale prices are, at best, 66% of retail and production costs are generally about 50% of retail.

Major problems with establishing an industry in the wheatbelt are:

(a) there is no early financial return from plantations equivalent to the thinning phase for pine and karri, such thinnings are important in helping to pay for establishment costs;

(b) there are no high volume industries available (except perhaps firewood) in the wheatbelt to utilise the large volume of wood remaining after the prime material has been cut. A major secondary industry is required to help pay for the production costs of speciality timbers;

(c) the recovery rate from timber samples taken from the goldfields is very low. It is likely to be higher in the wheatbelt, but still poor.

(d) the $/ha return from timber production has to exceed that for normal farm products before farmers would even consider growing woodlots for speciality timbers. No realistic figures for $/hectare return from wheatbelt woodlots are available, and none will be available for some time.

4. SPECIES SELECTION

Given the lack of information concerning: wheatbelt/goldfields timbers; their values as speciality timbers and; potential markets; it is difficult to assess which species should be trialled in woodlots. There are far too many potential species to allow all to be tested in the short-term.

Based on the little that is known concerning hardness, durability, stability, appearance; together with the workshop groups intuitive beliefs, the following species were considered the highest priority for assessment and woodlot trials.

York gum (attractive and stable timber).

Gimlet *(Eucalyptus salubris)*

Dundas blackbutt *(Eucalyptus dundasii,* second grade York gum)

Jam *(Acacia acuminata,* attractive, dense durable, number of secondary uses)

Wandoo (durable, strong, hard, dense etc)

Brown mallet *(Eucalyptus astringens,* strong, dense)

Yate *(Eucalyptus occidentalis)*

Sandalwood *(Santalum spicatum)*

Rock sheoak *(Allocasuarina huegeliana,* an attractive timber, but considered by many to be too similar to the cheaper, Darling Scarp sheoaks)

The traits of the "ideal" tree were discussed, and the following list drawn up. It is most unlikely that the "best" tree would fit all the requirements, but the list provides a means of scoring species for comparative purposes. The ideal species for speciality timber purposes in the wheatbelt will be:

* a local or regional species
* fast growing
* fire tolerant
* one with other production values (e.g. fodder, firewood fenceposts etc)
* if not a fodder species, then unpalatable so that no fencing required
* one which out-competes grasses
* of suitable form
* good for nature conservation
* easy to grow
* high value wood per cubic metre
* valuable for soil conservation
* aesthetically pleasing
* coppicing
* resistant to insect attack
* highly site adaptable
* the best available provenance

4. WOODLOT DESIGN

At a regional scale plantations like those at Dryandra would be the optimum size (200-400 hectare blocks totalling 8,000 hectares). However, this is not practicable and woodlots on private farmland are the most likely alternative in the present social and economic climate. Farm woodlots could be developed on degraded land or on better soils - the former is most likely.

The "ideal: " woodlot would be:

: about 5 ha in area

: grown on sandy loam

: south or east facing

: well drained

: sited below an interceptor bank and/or dam to allow irrigation as an option

: within 5 km of a major transport system

: close to the manager's house (to increase likelihood that woodlot is maintained)

: protected from stock

: planted at 5 x 2 metre spacing, that is 1 000 stems/ha

: deep-ripped prior to planting

: sprayed with a weedicide prior to planting

: have a palatable legume or acacia understorey

: fertilised at planting and perhaps at one later time

: 3-4 species of trees in composition

: re-filled to about 800 stems/ha following juvenile mortality

: reduced to about 500 stems/ha after 5-6 years.

: pruned to produce 1.5-2 m clear boles

: grazed when seedlings are old enough.

Everyone agreed that the "ideal" woodlot is currently impractical given expensive establishment costs and the lack of commercial return in the short term. Woodlots, as stated before, are most likely to be grown near saline or other poor soils unless a farmer wishes to plant a re-charge area on better soils. Therefore woodlots must be incorporated into farm design, particularly farm conservation programs.

Discussion then focussed on the best design for woodlots. It was argued that the minimum size for a woodlot is 0.5 ha, and that they should be a minimum of 20 rows by 20 rows. This would provide a central core of high quality trees protected from edge effects. However, it was pointed out, this minimum requirement is species specific. In the case of wandoo, and probably York gum, specimens with useful wood can be grown in very narrow strips of only a few rows.

It was generally agreed that, ideally, a woodlot would be pruned at some stage. However, it was also recognised that this degree of management would not be practicable for farmers, although if planting is sufficiently close it may be possible to "stick prune" - that is side branches die due to lack of light in a dense woodlot so that pruning can be accomplished by breaking them off with a stick. At least one participant believes that pruning would be unnecessary for the species listed above.

For <u>demonstration</u> woodlots planted specifically to examine timber production potential, woodlots would be:

: 3-5 ha in area

: 800-1 000 stems/ha

: deep-ripped prior to planting

: treated with herbicides

: fertilised at planting to speed seedling growth through the phase during which they are most vulnerable to insect attack

: on better soil types to provide an indication of optimum growth rates

: planted as mono-cultures of those species listed in section 3. Each 5 ha woodlot should consist of, say, 0.5 ha blocks of particular species, though mixed species plantings involving jam, wandoo, York gum and sandalwood could be tested

: planted using seedlings, not by direct seeding. The latter would not grow woodlots useful for research purposes.

With regard to advising farmers concerning woodlots, it was agreed that farmers should be encouraged to select species and design tree plantings which provided for a variety of options, including the possibility of some commercial use, if this is compatible with the primary purpose of the woodlot.

It should be stressed to farmers that, at this stage, woodlots in the wheatbelt have no commercial value apart from on farm uses such as firewood and fencing material.

5. PROPOSED ACTIONS

PROPOSED ACTION	TO BE UNDERTAKEN BY:
(a) find a marketable speciality wood: : assess wood characteristics : assess craft value	 Gobby/CALM Gobby
(b) Assess the markets for speciality wood	Gobby
(c) Assess the non-speciality, timber values of wheatbelt/goldfields trees and describe how these correlate with speciality values	Gobby/CALM
(d) Select species which should be developed as a first priority	Interim list prepared - see Section 3 above
(e) Implement woodlot trials at Katanning, Narrogin, Merredin and other localities in the wheatbelt	CALM, WADA, Interested farmers
(f) Assess wood growth per annum for: : brown mallet within 6-12 months : goldfields timber	 CALM, Narrogin CALM (? Ian Kealley)
(g) develop information systems to provide a data base	CALM (Wallace)
(h) Publish, if practicable, the tests recently undertaken in goldfields timbers	CALM (Peter Beatty)

SUMMARY

The most important points made at the workshop were:

(i) currently there is no market nor is there a timber resource upon which to base a wheatbelt speciality timber industry;

(ii) major issues for commercial woodlots in the wheatbelt include low recovery rates, poor knowledge of seasoning requirements, the lack of production from an early thinning, the lack of a commercial use for second grade wood, and the paucity of information concerning wood characteristics and growth rates;

(iii) despite (i) and (ii) above, there are wheatbelt timbers, such as wandoo and York gum, which may be developed into speciality timbers. These timbers do have secondary values - e.g. firewood, fencing material;

(iv) farmers are planting millions of trees annually, largely for soil conservation purposes. These plantings generally involve little or no consideration of values such as nature conservation and timber production;

(v) given (iii) and (iv), farmers should be encouraged to plant trees which fulfil not only their primary purpose - generally soil conservation - but also other values where these are compatible with the primary purpose. At this stage there should be no suggestion that wheatbelt woodlots will ever have commercial value apart from on farm uses.

(vi) world-wide trends of increasing timber demand and environmental degradation, and the presence overseas of commercial woodlots under conditions similar to our wheatbelt, mean that it is highly desirable that we assess wheatbelt and goldfields timbers now so that we can meet demands and take the opportunities which will inevitably arise in the next 20-50 years.

K J Wallace
CHAIRPERSON

APPENDIX

LIST OF THOSE ATTENDING THE SPECIALITY TIMBER WORKSHOP AT NARROGIN ON 14 DECEMBER, 1989

BEATTY, Peter	Rural Adviser, Silvicultural Branch, CALM
BICKNELL, David	Research Officer, CALM, Esperance
BRADSHAW, Jack	Manager, Silvicultural Branch, CALM
DURELL, Greg	Forester, CALM, Narrogin
EDMISTON, Roger	Forestec Pty Ltd
GOBBY, Ross	Forestec Pty Ltd; Woodstock Pty Ltd
HAWKER, Phil	Adviser, Department of Agriculture, Narrogin
HILDER, Dennis	District Manager, CALM, Narrogin
HUMPHREYS, John	Rural Adviser, CALM, Narrogin
HUNTER, Geoff	AGK Quality Woodware, Cuballing
TIEDEMANN, Wolf	Forester, CALM, Katanning
VLAHOS, Steve	Research Officer, Department of Agriculture, Narrogin
WALLACE, Ken	Regional Manager, CALM, Narrogin