GROWTH HABITS OF KARRI

11/29

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Form F.D. 808

FORESTS DEPARTMENT

INVENTORY & PLANNING
MANJIMUP Office,

To SDFO A.R. LUSH 2ND JULY 1982

Western Australia

R/L PLANNING - fyi

Reference–H.O.

Local M.9.2 M.7.6

SUBJECT: GROWTH HABITS OF KARRI

Recent work done to gather data for the determination of site quality in the Karri forest involved the stem analysis of several large seed trees. You will find attached the graphic representation of the stem analysis of seed trees from Westcliffe, Beavis and Wattle blocks. An overlay has been added illustrating the stem analysis of a selection of trees taken from even aged regrowth stands and represents the spread of height/age data gathered to date.

A short report has been collated to put this information in the perspective of present management for your information.

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RA:CDM

FORESTS DEPARTMENT
16 AUG 1982
WALPOLE

All staff to note

OFF.	INF.	ACT.	OFF.	INF.	ACT.
OIC		11/10	F/A		
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F/R			F/G		
			C/A		

Current work with Karri regrowth includes definition of the various site potentials for possible stratification for future management. The work has involved aging of numerous regrowth stands and stem analysis to determining growth rates with time and a small selection of seed trees was included to verify the upper age limits. These data have been graphed and a copy is enclosed for your interest (graph 2).

Of particular interest is:

1. Ages

Barney White reported in Research Note 1, "Karri Silvics, 1971"

"Most of the virgin forest is aged between 150 and 200 years. Physical maturity is considered to be approximately 250 years. Degrade is frequently rapid after 400 years, although an occasional sound tree is considered to exceed 700 years.

"Growth rings can be counted on selected stumps and butts with an accuracy of $\pm$ 5%. In average forest a tree of 150" GBH can be said to be roughly 150 years old. Dominants can be considered to grow at 1" girth per annum - unthinned."

The seed trees selected had an age range 151 - 238 years, and were among the larger, better formed trees in the original stand. The largest trees age upward of 250 years but as White noted, are often degraded and difficult or impossible to age due to butt rot.

2. Growth

The seed trees do not show the rapid early growth of regrowth stems, probably due to early suppression of the sapling and pole stages by surrounding overwood.

The lack of age/height co-ordinates at the older end of the seed trees from Westcliffe and Wattle is due to severe crown damage resulting from felling. It is almost impossible to get a "countable" ring from the smashed branches of the crown and when it is possible the height co-ordinate is difficult to pinpoint accurately. Even so, the plot would suggest that the trees are still growing vigorously at 230 years of age. Beavis 11 and Westcliffe 10 are considered particularly good karri sites by Foresters experienced in Southern Region mensuration. The samples from both blocks came from pure karri stands.

3. Thinnings

Very little thinning data has been gathered for regrowth stands but what has suggests that Karri has quite a marked ability to respond to thinning (see graph 1).

Immediately after thinning the stand goes into a settling down phase for 3 or 4 years. After this period the remaining crop trees grow vigorously, utilizing the space and nutrients that would have previously been used by the removed trees.

Using one of the Treen Brook thinning plots as an example, a crop tree in a thinned stand can put on twice as much volume as its counterpart (a tree of similar size at time of thinning) in an unthinned stand, all else being equal (see graph 1).

On a stand basis, the sawlog volume in a thinned stand will increase by approximately 50%/ha whereas the sawlog volume in the unthinned stand will increase by approximately 15% (over the 9 year period).

e.g.

	Thinned Stand		Unthinned Stand	
	1981	1972	1981	1972
Sawlog volm^3/ha	266	171.25	308	266
% increase	55.3%		15%	

The timing and intensity is also important in determining the response. For example, a thinning was done in 7 year old regrowth in 1963 at Crowea Block. Four intensities were tested and the response measured in 1980.

Treatment	Mean tree volume m^3
Unthinned	0.57
750 stems/ha	0.72
500 stems/ha	0.75
335 stems/ha	0.95

This shows the marked effect of an early thinning and the variation that can be achieved by varying the intensity of treatment.

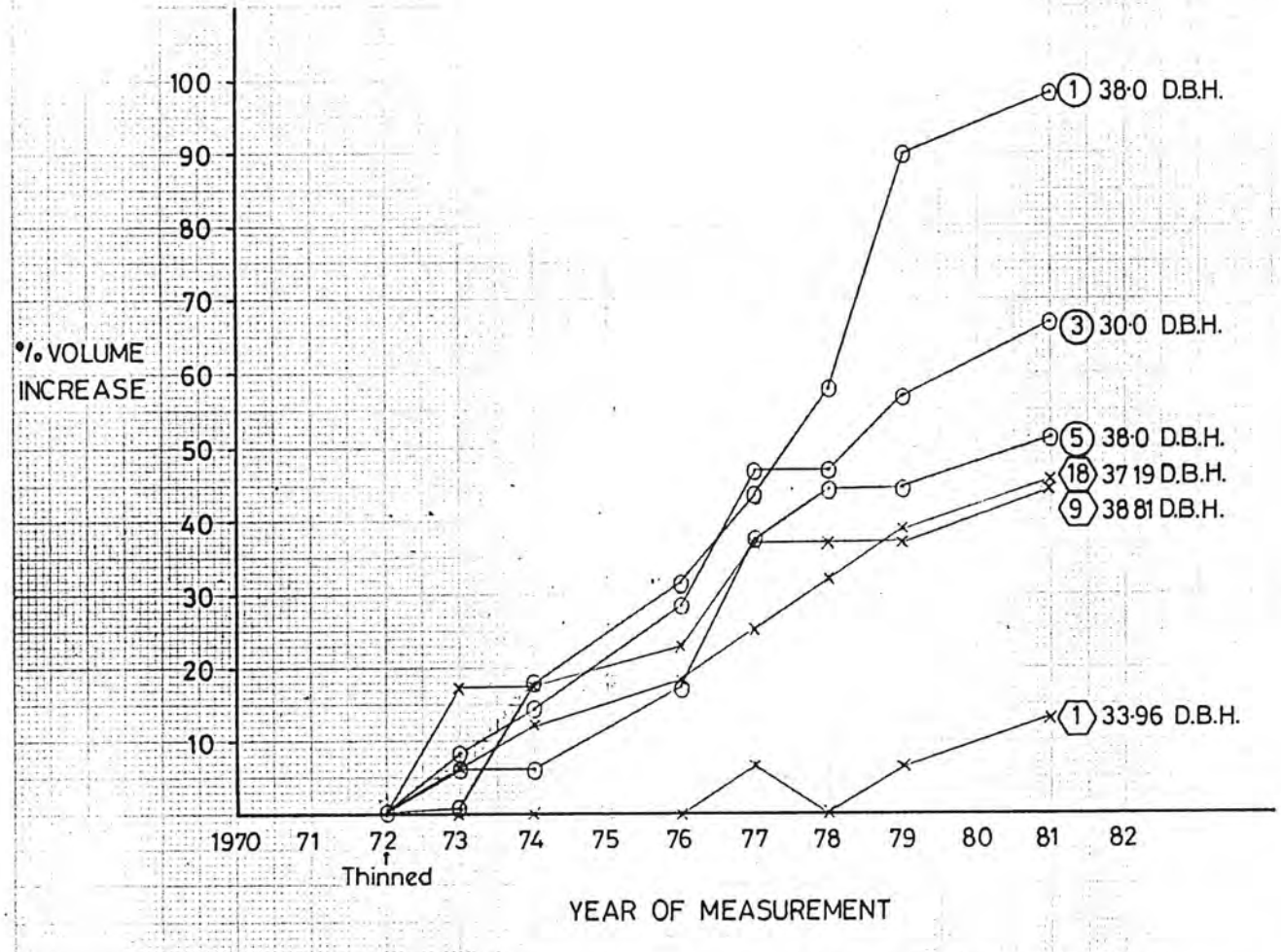
GRAPH 1 TREEN BROOK PAIRED PLOTS 656 & 657

ALL GRAPHED TREES ARE IN THE DOMINANT STRATA

TREE (1) (3) (5) FROM THINNED STAND

TREE ⟨1⟩ ⟨9⟩ ⟨18⟩ FROM UNTHINNED STAND

D.B.H. SHOWN IS THAT AT 1972

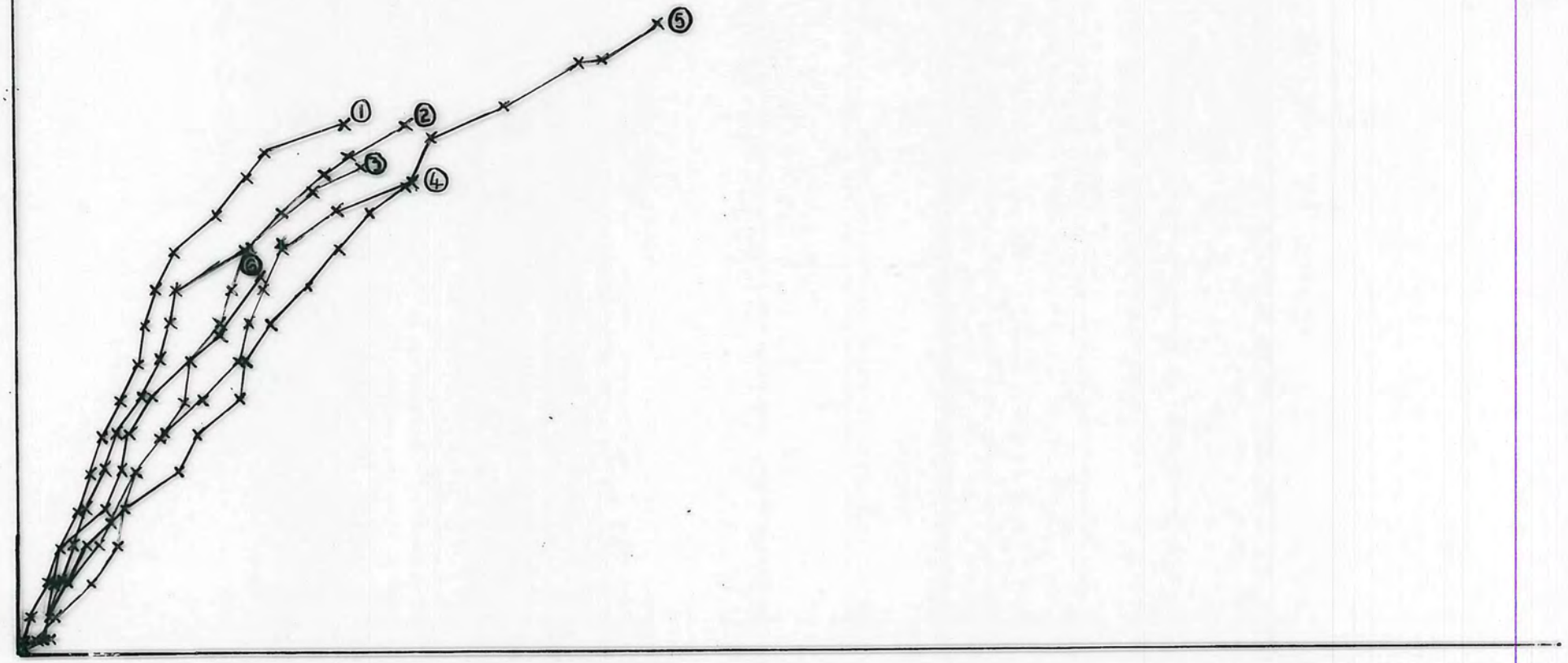


REGEN. YEAR: 1937 THINNED PLOT 656 : 1972 Age: 35

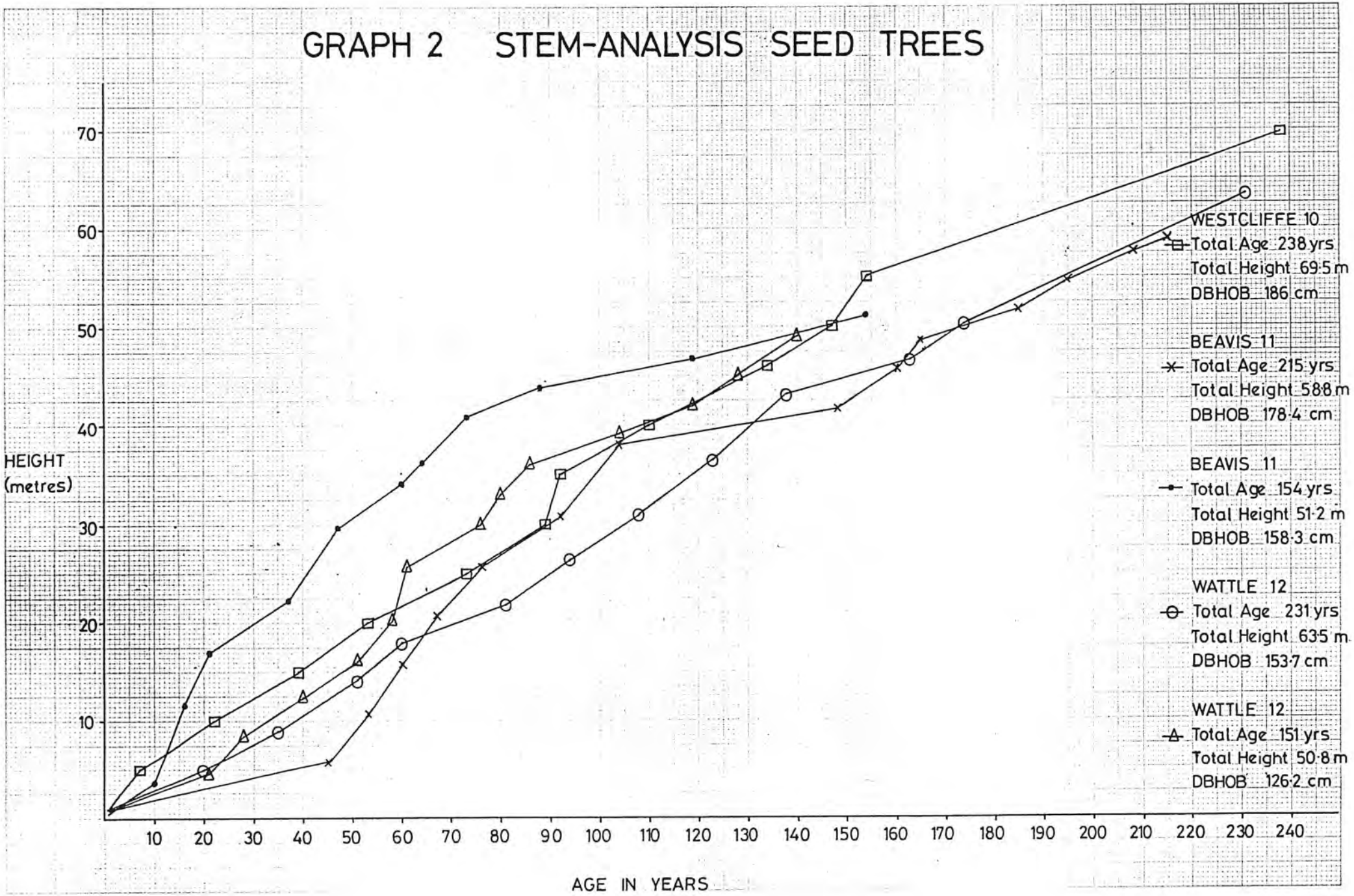
Ra 6·82

STEM ANALYSIS - KARRI REGROWTH

1. YANMAH 1
2. YANMAH 5
3. DINGUP 2
4. HAREWOOD
5. CAREY 9
6. BURNETT



GRAPH 2 STEM-ANALYSIS SEED TREES



BIG BROOK

THINNED MAY 1982

Volume Removed = 116·26 m^3/ha

Volume Remaining = 242 m^3/ha

B.A. Remaining = 22 m^2/ha

Stocking Remaining = 130 stems/ha

THINNED STAND

UNTHINNED STAND

SEED TREES

STEM ANALYSIS

SEED TREES

STEM ANALYSIS