"STOCKTAKING IN THE JARRAH FOREST"

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Introduction.

Every forester would like to know what the stocking of the forest is at the present time and what it is likely to be in a given period of time. The object of major forest assessments therefore, is to gain satisfactory information of the available timber at that time and by judicious selection of growing stock and subsequent remeasurement gain a reasonable idea of what is likely to be available in future years.

Upon figures so obtained is based the calculation of cut for many years ahead. Apart from present stocking, rate of growth in given girth classes becomes of paramount importance. Only a thorough assessment and regular measurement of growth rates will give us any idea of the present and future crop.

Forest Area.

The dedicated forest area is some 3.34 million acres, of which some three million acres carry Jarrah forest. This area is not one compact belt of timber of even growth and density. Closer examination reveals that three broad types occur, viz.:—

1. The prime Jarrah forest of the laterite hills.
2. The Jarrah forest bordering on and intermixed with the Karri forest.
3. The coastal plain Jarrah forest.

1. **The Prime Jarrah Forest Belt.**—This belt, some 20-30 miles wide, extends from approximately Mundaring in the north to Bridgetown in the south. Although fine Jarrah is common south of the Blackwood River, the quantity of laterite gravel is reduced and the percentage of Marri in the forest as a whole increases, while belts of Karri occur as one proceeds south and south-east.

It is this belt of prime Jarrah upon which most of the present day assessment is concentrated and to which the methods used apply more closely.

2. **The Jarrah forest bordering on and intermixed with the Karri forest** is more complex both in soil types and forest types associated with them. Almost pure stands of Jarrah, Marri, Karri and Blackbutt may occur and mixed stands of two or more species are often met with. Allowance is made for such stands in the assessment instructions.

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3. **The Coastal Plain Jarrah Forest.**—Only a small portion of the coastal plain is held as State Forest and as it carries a relatively low volume of merchantable timber no stocktaking is being carried out on this belt at present.

History of Stocktaking.

Prior to the passing of the Forests Act in 1918 estimates of the volume of merchantable timber were hazy and over optimistic.

Just prior to and about the time of the passing of the Act measurement plots were laid down in isolated areas, mostly in virgin forest.

From 1919 onwards for a few years, the first effort was made to get out of the guessing stage. A rapid if crude classification of the forest was made and gave very approximate values of the merchantable timber available according to the standards of sawmilling at that time.

In the 1930's considerable work was done on heights and site qualities. Although the forest crop itself is the best measure of site or quality co-dominant height is usually accepted as the most reliable index of site. In an endeavour to tie in soil type with site quality a girth-height index was used. Co-dominant trees were girthed, their total heights measured and from a table the heights were adjusted to read the height they attained or would attain at 94 inches G.B.H. The resultant figure was called index height. Five acre sample plots were laid down on the major soil types and detailed measurements of present stocking plus the record of timber removed, were taken. However, considerable variation in total volume for the same soil type occurred and the work lapsed during the early war years. It was not until 1942 that the basic method for the present day type of assessment was laid down.

The Present Method.

This consists essentially of gridding the forest with assessment strips two chains wide at one mile intervals, the strips being run across the contours of the country and allowance being made along base lines for a closer assessment if required. Strips at one mile intervals give a two and a half per cent. assessment.

The base lines are started by compass and pegged or poled through, offsets being laid down at every 20 chains. A 6 in. x 6 in. peg is placed at these 20-chain marks, the chainage stamped on them and direction trenches dug. Tie-in points are recorded wherever possible.

The strip lines are run in a similar manner, but 4 in. x 4in. pegs are set at five-chain intervals and the strip number and chainage stamped on them. Direction trenches are dug at each peg.

In the actual assessment a five-chain band is laid along the strip from peg to peg and trees positioned by reference to the chainage and offset distance either side of the chain.

The following measurements are recorded:—

Removed Volume—R1 logs with butt girth 90 in. U.B. or over.
R2 logs with butt girth < 90 in. U.B.

Where more than one trade cutting operation has taken place a certain percentage of the strips include all removed timber, the earlier removal being shown in the booking with a circle around the letter, e.g. 

Standing Merchantable Volume.

90 in. + G.B.H. o.b.	A_1 Retained as growing stock.
	A_2 Merchantable volume that should have gone to the sawmill.
	A_3 Doubtful.
72 in. — 90 in. G.B.H. o.b.	B_1 Growing stock.
	B_2 Poor.
60 in. — 72 in. G.B.H. o.b.	C_1 Growing stock.
	C_2 Poor.

Piles and Poles—D. Recorded at such—minimum size for pole is 20 ft. length 6 in. top diam. u.b.

Girths and log lengths are recorded and also estimated volumes where measurement is impossible.

Remeasurement.—The A_1, B_1 C_1 and D trees are painted for subsequent remeasurement, the paint mark facing the centre of the strip and the top of the mark representing the point of measurement.

Other Species, with the exception of Karri, are recorded as for Jarrah. Karri has higher girth limits, viz.:—

A—120 in. G.B.H. o.b.

B—90 in.—120 in. G.B.H. o.b. Minimum size pole 35 ft. 9 in. top diam.

C—65 in.—90 in. G.B.H. o.b.

The Time Factor.

Until recently an assessment gang of three men carried out most of the work, but arrangements are now being made for the general Divisional staff to do most of this work. This not only speeds up the job but enables the tree marker to keep a check on his own work and the staff are able to learn first hand just what is (and has been) in the forest which they control.

Conclusion.

It is hoped than in 10 years' time the whole of the cut-over forest of the prime Jarrah belt will be assessed, giving us a reasonable knowledge of the growing stock above 60 in. G.B.H. o.b. plus a more accurate idea of what piles and poles are available, while the foundation for rate of growth information will be well laid. More detailed information involving smaller sizes can be obtained at any time.