ASSESSING JARRAH FOREST STOCKING BY SEQUENTIAL SAMPLING

by M.C. Mason

INTRODUCTION

Sequential sample lines have been used in assessing jarrah forest areas in the Dwellingup division recently to ascertain the present stocking, and what treatments to apply to increase stocking and productivity.

The areas sampled to date can be put into two groups. Areas of 50 percent canopy, and areas of 40 percent canopy cover, as classified on A.P.I. plans. The areas with over 50 percent total canopy cover are assumed to be well stocked. However, they will also be checked by sampling in the future. The information collected will enable more accurate estimates, and costings to be made for the necessary operations required.

The procedure employed in this sampling method is outlined below:

1. Lines are selected in the office and are restricted to the A.P.I. type being assessed. Where the shape of the area allows, the line is plotted across the contours. The line may be divided into sections if necessary. To obtain plot distances the length of the line is divided by the maximum 100 plots, i.e. 1500 yds ÷ 100 plots = 15 yds. This figure is the distance from the start of one plot, to the start of the next. By subtracting the plot length, (9 yds.) from the distance between start points of plots, the distance between plots is obtained. In this case the distance is (15 yds. - 9 yds.) = 6 yds. The desirable minimum distance between plots being 5 yds. (this is not always possible). The area being sampled can be any size considered necessary.

2. Two men are required for the field work, one being the recorder, and the other as compass man.

   To obtain the plot size a tape is run out to 9 yds., this is then tied to the compass man, and held at the other end by the person recording. The distance between plots is paced by the compass man, who marks the start of each plot, before walking on. When the tape is taut the plot is assessed either to the left or right of the line, the side chosen for assessing is constant throughout the line.

3. Assessment of stocking is done optically, though where necessary the tape is used, i.e. for trees that are too close to the plot edge for accurate optical assessment. This is not usually necessary.

4. - Recording of data is done on a graph which has an elliptical line marked on it. Points representing stocking levels at 5% intervals are marked on this line. (See figure 1). Plotting is done with symbols placed on the intersections of the graph squares. The plots that are unstocked are recorded on the next intersection across the graph, and stocked plots are recorded across one and up one. So that unstocked plots would give a line across, but as soon as a stocked plot was recorded the line would rise at 45 degrees on the graph. (see figure 2).

In addition to recording stocked plots, notes are made on the number of veteran marri and jarrah, banksias, sheoak and blackboys in the area. Suggested treatments are recorded at the time, to aid in the final drawing up of a prescription for the area.

Due to the minimum use of figures and the direct recording of data onto the graph, the margin of error is greatly reduced.

The symbols employed on the graph are:--

			Required Number Per Plot
Piles 45-90 inches	recorded by girth in feet	5'	one with vigorous crown + 20 foot defect free bole
Poles 16-44 inches	recorded by the letter	P	two
Sapling 10 ft. plus (height)	recorded by the letter	S	two
Large advance growth	recorded by the letter	R	seven - with 5 stocks
Small advance growth	recorded by the letter	O	ten fully established
Unstocked plots		X	

Where one pole or one sapling scours in a plot, and is accompanied by at least three large advance growths, the plot is then considered stocked and is recorded thus - R^S = regrowth sapling, or R^P = regrowth pole. $_tP$lots containing poles which require thinning are recorded - ^tP.

Saplings, poles, and piles must be free of fire damage to the bole, for them to contribute to the stocking of a plot. When areas of fire-damaged stems are traversed, a note to this effect is made on the graph.

Trees over 90" gbh are considered mature and are noted for trade cutting.

The results from the sample lines done to date are of interest only to the Dwellingup division. Of more general interest is the time spent on each phase of the sampling.

The areas for sampling are already selected, so this does not effect the time allowed for different phases. The percentages quoted are based on one eight hour day for 2 men. The average 250 plots per day, is used as a base for the following figures.

(1) The plotting of lines, and making notes on, line length, A.P.I. type, plot interval, and the 6 figure reference on starting point. Average of 8 percent.

(2) The field work, assessing plots, if the described practise is followed, would require 75 percent of time.

(3) Plotting the lines permanently on the map and summarising of data collected, is done in the office. This usually requires 8 percent.

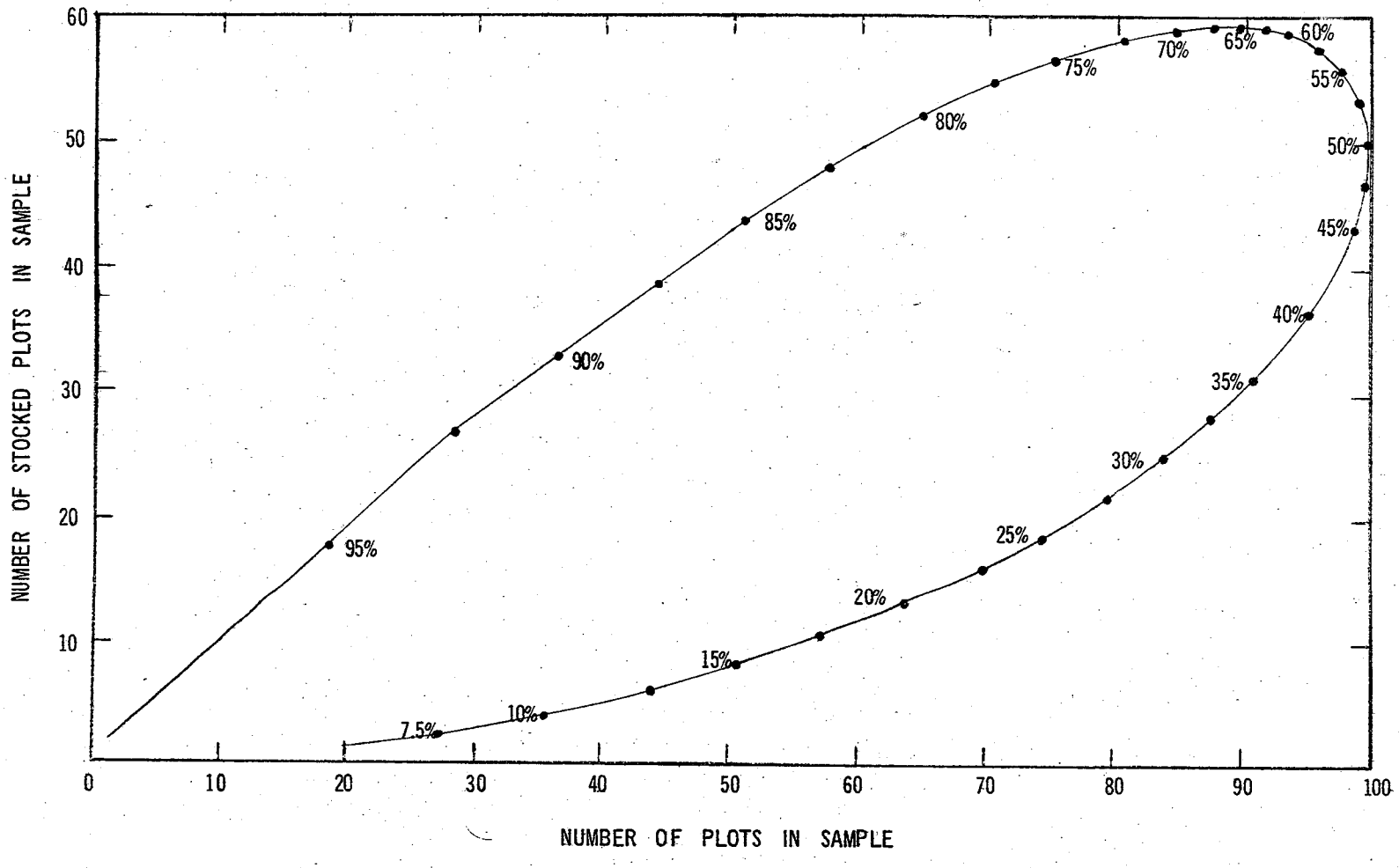
(4) The remaining 9 percent is spent travelling and locating start points.

Office	16
Travel	9
Field	75
	100%

The final formulation of a treatment prescription, for the understocked areas from the sample, is done by a senior officer.

SEQUENTIAL STOCKED – QUADRAT TALLY

FIG 1



ENLARGED PORTION OF GRAPH SHOWING TALLY OF STOCKING

FIG 2