PLANTING KARRI WILDINGS II

by P. Christensen.

This article is the second in a series dealing with the planting of Karri wildings on failed regeneration burned areas. Previous results from earlier trials carried out in 1968 showed little differences in survival between carefully lifted plants and plants merely pulled out of the ground. Plants varying in size from 6" high to over 3' could be transplanted with equal success and it mattered little whether they were lightly trimmed or not. However, stumping, although it had little effect on the survival rate of plants under 3', did tend to increase the mortality rate in plants over 3' high. Two to three foot, lightly trimmed plants were favoured above 2' - 3' stumped plants only because of their quicker initial growth due to their greater size.

This year a further set of trials were put in an attempt to determine approximately the most favourable planting date and also the effect of scrub removal. Four planting dates were considered; 1st June, 1st August, 15th September and 1st October. Two forms of scrub removal were tried. Spraying the area with 245 T before planting; manual removal of scrub by light cultivation of an area within an 18" radius of the plant.

Every treatment was based on a unit of 49 plants replicated in each of 3 separate areas of one year old scrub. The last three plantings were repeated on 3 areas burnt in Spring 1968/69 to simulate late planting after a failed regeneration burn. The plants used were 2' high, lightly trimmed which had shown best promise in the previous trials. Espacement was at 7' x 7' and all plants received 2oz. of Nutrifert at the time of planting.

Results:

Table 1 - Percentage survival of wildings at the end of the 1st Winter.

Treatment	Site	Planted 4/6/69	Planted 5/8/69	Planted 16/9/69
Control	I	72	0	2
	II	95	0	0
	III	77	24	0
Cultivated	I	95	14	4
	II	95	4	0
	III	89	10	0
Sprayed	I	38	6	0
	II	45	2	0
	III	41	8	0

The sprayed results are interesting; the spraying was done 1 week before planting but appears to have adversely affected survival. The second planting was sprayed two weeks prior to planting but it is difficult to judge the effects since survival at this date is generally poor. It is evident that plants transplanted on or after 1st July have not succeeded in becoming established. Results on the 1968/69 Spring burned areas were virtually 100% mortality in the early August and mid-September plantings. The October planting was abandoned due to these poor results.

It is interesting to record the percentage survival in three plots of open rooted nursery stock from Nannup Nursery planted on the same sites during early August. They were 75%, 57% and 77%. The only apparent difference between these plants and the wildings is the root pruning that they had some time prior to being lifted. The nutrient treatments given in the nursery could also perhaps be a factor. These results have special significance since the wildings were undoubtedly superior stock as far as general appearance goes.

Since the soil appeared to be as moist at the second planting as it was at the first and a reasonable amount of rain was received after planting, it is difficult to attribute the high mortality entirely to lack of moisture. It seems possible that other factors could be partly responsible. Wind is particularly prevalent at that time and experiments have shown that as far as pre-planting drying out of plants is concerned it appears to be one of the most important factors. It is also possible that pulling up plants and transplanting them at this time of the year just prior to Spring might in some way interfere with their physiological processes. At this time the plants reserves are probably being mobilised and differentiation of bud primordia going on in readiness for Spring. This could result in extra sensitivity to disturbance.

A further trial testing different sizes of planting stock was put in at the end of July. Trimming of the foliage was also included as an additional factor. A basic unit of ten plants per treatment was replicated twice on each of three separate sites.

Table II Mean percentage survival of transplants at the end of Winter.

Plant Size	Lightly Trimmed	Not Trimmed
6"	53	67
12"	62	53
24"	15	20
36"	18	7
48"	7	7
60"	3	0
72"	2	0

Once again the same pattern of high mortality experienced in the other July/August planting is evident. Only the smaller plants have managed to establish themselves and light trimming appears to be of no real benefit.

Discussion.

A number of trends have emerged from these trials.

1. It appears that the best results are likely to be achieved with early planting. How early? This is a question that still needs answering. It may be of interest to mention a small spot trial of only 25 plants, which were put in on 10th April, after the first autumn rain ($3\frac{1}{2}$ ins.). Thirteen of these plants have survived and appear to be reasonably well established despite the fact that the soil appeared to have been wet to only 3" at the time of planting and no further rain fell for the next two weeks. It is not suggested that planting should be done at this early date, rather the results indicate that earlier planting dates should be investigated.

2. If planting is done late in the season it seems that two factors may be of importance:

(i) Transplant size - although fairly large plants may be planted early in the season a smaller plant appears to be more successful later in the season.

(ii) Pre-treatment - Nursery plants 'hardened off' by root pruning some time prior to lifting appear to stand a better chance of establishing themselves than wildings.

It should be borne in mind that the above results are based on establishment at the end of winter, and many plants may not survive the summer months. However, it seems from last year's trials planted in June that plants that appear to be well established by the end of winter should survive the summer.

It had been thought possible that the injury incurred by cutting back plants might induce stem rot or cause deformity. Some Karri wildings planted some years ago were inspected, and it was found that although a 'dog's leg' may be formed in some cases this deformity soon disappears as new wood is put on by the stem. A number of trees were split open but in none of the stems was there any sign of rot.

Conclusions:

If planting is done early in the season requirements appear to be much less exacting than they became later. There seems to be little difficulty in establishing plants of up to 2' or 3' in height in early June.

Also it appears to make little difference to survival whether the plants are lifted or pulled and left untrimmed, trimmed or stumped. Thus one should aim for the largest possible transplant so as to give it the best chance in competition with scrub. If late planting is envisaged then smaller stock or nursery stock previously root pruned may be more desirable.

These are the indications at this stage, however further work needs to be done on planting dates and the interaction between this and transplant size and pre-treatment. This season was an exceptionally dry one and this is possibly the cause of the heavy casualties amongst the late planted stock. However, since there is never any guarantee that such a season may not reccur at any time it seems unwise to plant later than the end of June or possibly mid-July. If planting must be done later it might be wise not to use wildings at least until further work has been done on this problem.