A LOOK AT PINUS CANARIENSIS IN THE MUNDARING DISTRICT

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Introduction

It has been my privilege to have been associated with pine establishment in the Mundaring Division long enough in some cases to observe the maturity of some species from nursery stock. Some of the characteristics of Pinus canariensis have long appeared to me to have a special significance and I have thought it worthwhile to share these observations with others and put together a few facts for the records.

Involved technical data has been purposely avoided as I felt the species alone can impress without dressing up in frills of annual increments and other growth data.

The Species at Mundaring

The first planting of Pinus canariensis was done in Greystones Block at Mundaring Weir in 1926. The source of the seed was Teneriffe Canary Islands and seedlings were raised in trays made from old four gallon petrol tins cut length ways down the middle. These trays of 1-0 stock were carried into the field and planting was done by mattocking out a small pit in roughly cleared unploughed land. The young plants were taken from the trays with the least disturbance as possible and tamped in by hand hoe. Fifty per cent deaths occurred in the first year and the area was refilled in 1927. By 1928 the planting was reported as being 8" to 4' and 5' in height with few failures even on rocky ground. The area is typical radiata type soil deriving from the decomposition of a diorite knoll blending into a granitic silt in places. 1939 records give the area a description of trees at 12' - 18' height and of excellent quality.

Towards the end of 1949 the section was hit by a fierce uncontrolled fire and a third of the stand was completely blackened and defoliated along with approximately 25 acres of radiata. Before salvage cutting was completed it was noted that the canariensis was not dying but was in fact bursting forth in masses of epicormic shoots. Some of these trees were exposed to the full heat of the fire on a rocky knoll where their boles were interlaced with old, dry Eucalyptus crowns; these old limbs burnt patches into the cambium layer of some trees and left dry areas which are visible today as partly overgrown scars and dry sides at the base. Except for these and some patches of blackened bark there is little difference in the general appearance of this section and the rest of the stand today.

The form over the 8 acres is magnificent with a codominal height of 90 feet. Three thinnings have been done over the area and approximately 100 trees per acre remain today having a volume of 46 loads per acre, 40 loads having been removed to date.

The adjacent area of radiata destroyed by fire and replanted in 1950 also covered a small number of canariensis stumps left from the salvage cut. The coppiced stems on these stumps were thinned when 8 ft high during a cleaning operation of the planted radiata. These stems are now competing with the radiata and have completely overgrown the old stump at ground level. Some have a diameter O.B.B.H. of 8 inches at 18 years. On some of the elevated granite shelves and floater strewn slopes the radiata has shown considerable mortality and has been salvaged, but in no single case has a canariensis specimen shown any signs of deterioration from drought.

Some amount of self regeneration from seed is also visible on the open patches amongst broken granite rocks.

In 1928 a small number of P. canariensis were planted in Greystones Compartment 6 in company with radiata and pinaster. The soil type is a rather poor granitic silt with lateritic intrusions. Native forest types were Wandoo, Marri and poor form Black Butt.

By 1958 the radiata was clear felled, yielding approximately 50 loads per acre. At this stage increment had ceased with the majority of trees having a dead leader and short, yellow needles. In the following year the pinaster was clear felled because of poor form, and isolation requiring expensive fire protection. Six trees of canariensis were retained on the site as no fire protection was necessary for them, and owing to their value for future observations. This small group remains today in full vigour at 80 feet.

The 1929 planting in the Beraking Block included P. canariensis amongst other species such as P. coulteri, P. halapensis, P. laricio and P. ponderosa. Canariensis has outstripped all these and has equalled the volume of P. pinaster.

In 1963 a breakaway fire from a clearing burn swept through 30 acres of radiata, pinaster, canariensis and ponderosa. There were 2 acres of canariensis in the centre of the head fire and most of this was completely defoliated and stood stark and blackened. Today it has recovered and looks vividly green with coal black stems. Some Eucalyptus patens saplings did not recover. Needless to say, the other species were salvaged.

1930 planting was done in Helena Block on a coarse gravel slope. This gravel type has a deep clay subsoil and is also supporting some high quality pinaster of excellent form. However, the dominant height of P. canariensis is now exceeding the same age pinaster and it is also exceeding the pinaster volume.

A small tenth acre plot clear felled to produce productive coppice regrowth has now produced stems of approximately 15 feet in height in eight years. The coppice stems were low pruned in 1967. Pine inventory sheets list some of this area as having 86 loads per acre though 20 loads per acre has been removed in thinnings.

In addition to these managed sections, I have observed a grove of radiata on a location at Darlington.. There are two specimens of P. canariensis also within this environment. The soil is a fine buckshot gravel on a well drained slope overlaying a laterite cap. Typical pure jarrah forest with an understory of banksia and sheoak still remains on adjacent land. This soil type is of course not suitable for good radiata growth, however the influence of stock has given sufficient fertility to permit the grove to attain a height of 80 to 90 feet.

The interesting observation here however, is that now at approximately 60 years of age, the radiata has stagnated and is slowly deteriorating but the two specimens of canariensis are still going up in a vigorous manner. One girths 6'6" G.B.H.O.B. and is 95 feet high. Four young trees have regenerated from seed up to a distance of 5 chains from the parent tree, these vary in height from six to twelve feet and appear to be making very healthy growth.

The purpose of this paper is not to hold up the species Pinus canariensis as something better than anything else, come what may, in any soil or rainfall environment. Nor is it proposed to prove anything that is not already known by those equipped to know. Rather, it is hoped by general text to bring to the fore the history of the species over the last 42 years in the situations that we are able to view today.

We know full well the great variations of our soils and the various affects of our rainfall on these soils, and we know quite a lot about where to get worthwhile results with radiata, or be rather cautious and plant pinaster. However, in between these two species and soils, lies the mediocre band - The soil that's good but the rainfall not quite enough for radiata. Or the rainfall's right but the soil doesn't quite make up to the requirements of radiata.

So often is heard the phrase "canariensis must have a radiata soil to do any good so why not stick with radiata and produce the volume at a faster rate".

Now we find that in producing this large volume of radiata - something like 200 loads per acre in 50 years - we have leached the soil to such an extent that we are in serious trouble with the second rotation and will have failed areas unless we can find the answer by heavy fertilising.

There is another expression often used "canariensis is hard to establish as tubed stock would have to be supplied to the planting site". This is quite so and some extra expense is incurred by this. What may not be realised however, is that when established, Pinus canariensis is there for all time since it has the property to coppice and reproduce a second crop on vigorous stumps.

To summarize the foregoing, the following points about P. canariensis need to be emphasized.

1. The problem of establishing 1-0 seedlings in the field is not a difficult one. Fertilising during the juvenile period as we understand it today would overcome any stagnation of root development and assist in getting young stock moving at a faster rate.

2. The drought resistant qualities of this species make it an ideal type for the planting of rocky elevation slopes, particularly on the verges of radiata areas where controlled burning may be practised to advantage.

3. The same qualities make it a worthwhile species to place under trial on good soil sites further inland to the 20 inch rainfall belt.

4. The ability of the species to survive the ravages of fire would make it the choice when planting in small pockets of high fertility soil likely to be subject to a high fire risk.

5. The quality of timber derived from both young and mature trees is high, having a much greater breaking strain than either radiata or pinaster.

6. The second rotation as expected with radiata and pinaster would not be required with P. canariensis as over a period of 80 to 100 years an uneven age forest would be established.

7. It can be estimated that P. canariensis will produce in excess of 100 loads per acre as a rotation crop in 50 years. As a perpetual stand of uneven age it could be expected to produce 2 to 3 loads per acre, per annum.

There is just one note of warning with nursery stock. If transferred from a sheltered coastal nursery to frosty inland valleys, serious damage can occur after planting out. This can be overcome by growing nursery stock in frost affected areas so that there is no change in their environment after lifting.