

NOTES ON EUCALYPTUS RISDONI, HOOKER,
(PL. X, XI AND XII.)

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The limits that shall be assigned to this species is a puzzle to the student. Hooker described the plant from material gathered at Risdon. He figured it in his *Flora Tasmaniae*. It is abundant on the dry hills from Risdon to Rokeby, besides elsewhere, exactly in the form of his description. In this type-form the leaves are opposite, sessile, connate, and so covered with pale wax as to be of a pale glaucous colour. The flowers and fruit differ in no detail from those of Peppermint (*E. amygdalina* Lab), except that they are larger. The fruit is pyriform or turbinate, even on the same tree, and ranges in diameter from about 9 m.m. to 13 m.m. In *E. amygdalina* the fruit is nearly always turbinate, and ranges from 5 m.m. to 7 m.m. diameter. These measurements appear to be constant, and may in critical cases be taken as a sign of affinity. We all recognise the close relationship of the two, and the prince amongst Australian botanists, Baron von Mueller, insisted upon combining the two under one name. This is a clubbing that is not likely to be adopted by those familiar with these trees in the forest. Another feature that appears to be constant is that *E. Risdoni* and its varieties always retain some degree of glaucosity, while in *E. amygdalina* and its varieties this peculiarity is absent.

The leaves of the typical *E. Risdoni* are arranged in opposite pairs, and each pair is broadly connate across the stem. They average in length 4 c.m., and in greatest breadth, which is at the lowest third of length, 3 c.m.; they are broadly ovate with usually an acute apex. The leaves vary greatly in shape, in response partly to heredity, partly to local conditions. In this respect the tree seems to respond to the stimulus of nutriment in a truly remarkable manner, but we can generally trace in the plexus of forms two lines of variation, one assuming the character of variety *elata*, the other of

variety *hypericifolia*. The latter was labelled *E. hypericifolia* by Robert Brown, and is in Bentham's *Flora* referred to as a variety of *E. amygdalina*.

Variety *elata* is simply a main extension from the type in the direction of an alternate, petiolate leaved condition. The primitive leaves are exactly as in the type, but the mature ones are alternate, petiolate with lanceolate, slightly oblique laminæ, often attaining a length of 15 c.m., and a breadth of 3 c.m.

The type form of *E. Risdoni* has a very restricted distribution, but var. *elata* is found almost throughout the state, where it mingles with, and often is taken for, a broad-leaved form of *E. amygdalina*.

The type appears to be only found on dry, mudstone hills; var. *elata* thrives in a similar situation, so that its form is not a mere expression of better nutriment. It would be an interesting experiment to note the extent of variation that could be induced in the type by being grown under varied cultural conditions.

Under the name var. *hypericifolia* we have to include an assortment of varied forms of an apparently unstable character, which are still closely related to one another. how much of the variation of form is hereditary and how much is merely ontogenetic are factors that remain to be proved. The central form of this variety may be considered to be the following:—

Leaves with a shining surface and of a dull glaucosity, the immature ones lanceolate, sessile in opposite pairs, usually narrowly connate at the base, or even on the same tree broadly ovate and broadly connate, but when so relatively longer than in the type; mature leaves lanceolate to nearly ovate, equal sided, alternate, with a long petiole and elongated, acute apex. The fruit is as large as in the type.

Of the forms observed the following may be referred to:—

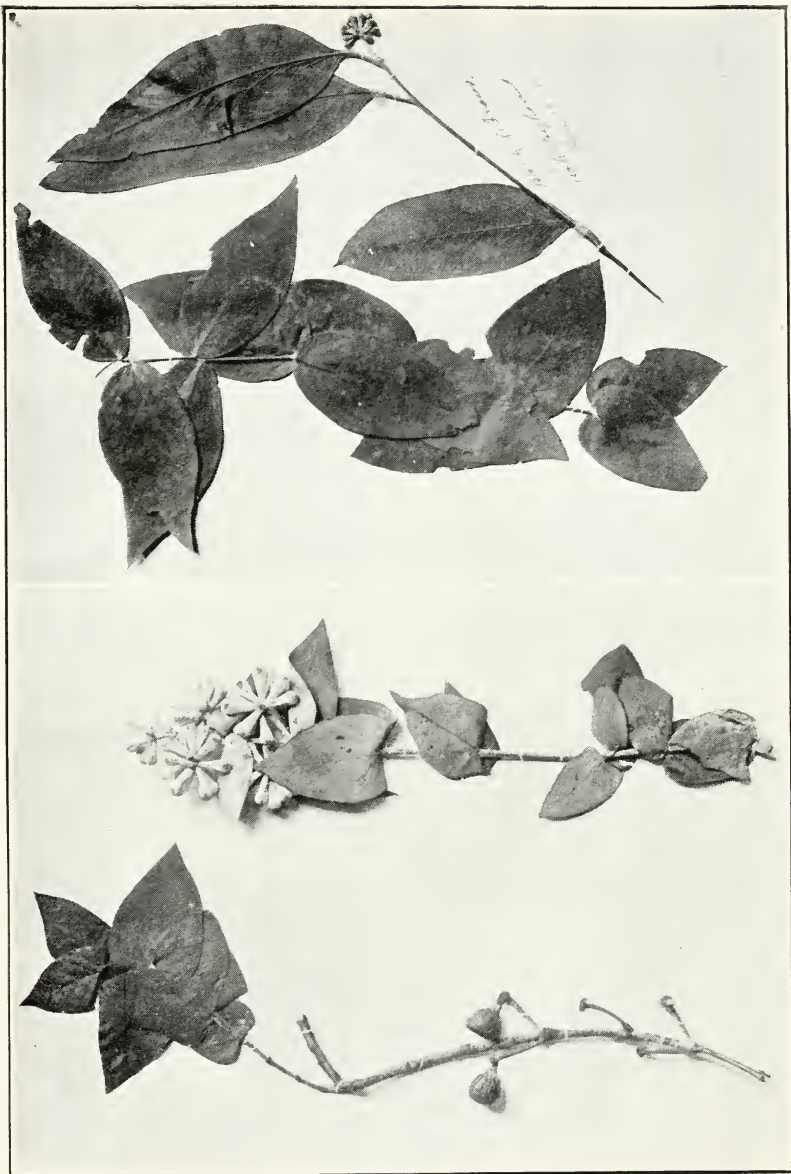
Form a.: Leaves not shining but glaucous, rather small, about 5 c.m. long, lanceolate, opposite sessile, opposite petiolate, or alternate. Fruit relatively small.

Form b.: Leaves dull, slightly glaucous, the mature ones broadly ovate, equal alternate, about 3 c.m. to 6 c.m. long. Fruit relatively small.



LOWER FIGURE—Second year of seedling of form d.

UPPER FIGURE—Third year of seedling of form d.



LOWER FIGURE--Typical Euc. Risdoni, H.

UPPER FIGURE--Rare, form c

Form c.: Leaves broadly oblong, dull, glaucous, equal, 5 c.m. to 10 c.m. long, 3 c.m. to 5 c.m. broad, the immature opposite but seldom connate, the mature ones alternate, petioled.

Form d.: Leaves dull, slightly glaucous, all opposite, sessile, or nearly so, the immature ones connate, the mature ones not so, broadly ovate, but tending to become lanceolate on the upper twigs. Flowers and fruit as large as in the type.

These are not claimed to be stable forms, but rather a statement of individual characters that are met with in the bush. At least the last is purely the result of environment. The tree described grows on the sand dunes at Adventure Bay. Three years ago I gathered seed from it, and raised ten plants in garden soil. All at first bore leaves like the mature parent. At two years seven of them bore opposite, sessile, lanceolate leaves, the other three opposite sessile ovate leaves. The most vigorous of the first lot when only eighteen months old developed a copious crop of flower buds, which have not yet opened. This tree is now six feet high, and the foliage is alternate, petioled, narrow lanceolate, and nearly indistinguishable from that of *E. amygdalina*.

Form d, as found at Adventure Bay, might well be identified as *E. dumosa*, A. Cunn, and its offspring in my garden is at present *E. amygdalina*, Lab. This is a response to changed conditions well worth the attention of students of *Eucalypts*.