

Fig. 1. Locality map for Kauwahaia Island

LEAF STRUCTURE OF MERYTA* SPECIES

R.O. Gardner

On a visit to Norfolk Island last year I made collections of Meryta angustifolia, a small subcanopy tree common in the Araucaria excelsa forest on the higher parts of Mt Pitt. The other species described from the island, M. latifolia, is rare; Mr Owen Evans kindly made a trip along the coast at Anson Bay to get me a specimen.

* A generic name characteristic of the Forsters' learnedness, from a Greek word referring to the appearance of the male flowers, like furled sails. The pronunciation "màyríta" is preferable to our usual "mwriter".

I had wondered just how similar these plants might be to our M. sinclairii, and was able to check that immediately, having located a tree of the latter in one of the island's parks.

Firstly it should be stated that although M. latifolia has a wider heavier leaf and a more congested inflorescence than M. angustifolia, they are otherwise so alike that they might best be placed together as varieties, being the extremes in a variable species that before the deforestation of the island would have been found from shore to summit.

In the comparison, then of the Norfolk plants on the one hand with M. sinclairii on the other, these differences were seen : one, the Norfolk plants have entire leaves while those of M. sinclairii are crenate; and two, the petioles and midrib of these plants appeared, at least at first sight, to be of quite different construction.

The petiole of M. angustifolia and M. latifolia has a swelling — a pulvinus — at its base and where it joins the blade, and there are usually two or three less obvious pulvini along the midrib on its underside. On drying these areas shrink more than the adjacent tissue. Leaves drying naturally on the ground develop kinks at the midrib pulvini; press-dried leaves are not nearly so informative. Sectioning the relevant areas showed notable differences in the amount of stiffening-tissue present.

M. sinclairii leaves examined fresh on Norfolk Island showed no obvious pulvini. Instead (and what must surely have been seen before, but apparently never described or figured), the clasping petiole base is swollen laterally, and on its upper side has a deep curved groove, like the mark that might be made by a thumbnail. The whole arrangement resembles a ball-and-socket joint, and perhaps does give this heavy leaf extra flexibility.

Back home I examined M. sinclairii again; seeing that leaves drying on the ground had a strong tendency to "kick up" at the petiole apex, I looked more closely at them and realized that just as in the Norfolk species, both ends of the petiole were more shrunken than the length between. To my pleasure, sectioning the M. sinclairii petiole showed a pulvinate anatomy as in the Norfolk plants.

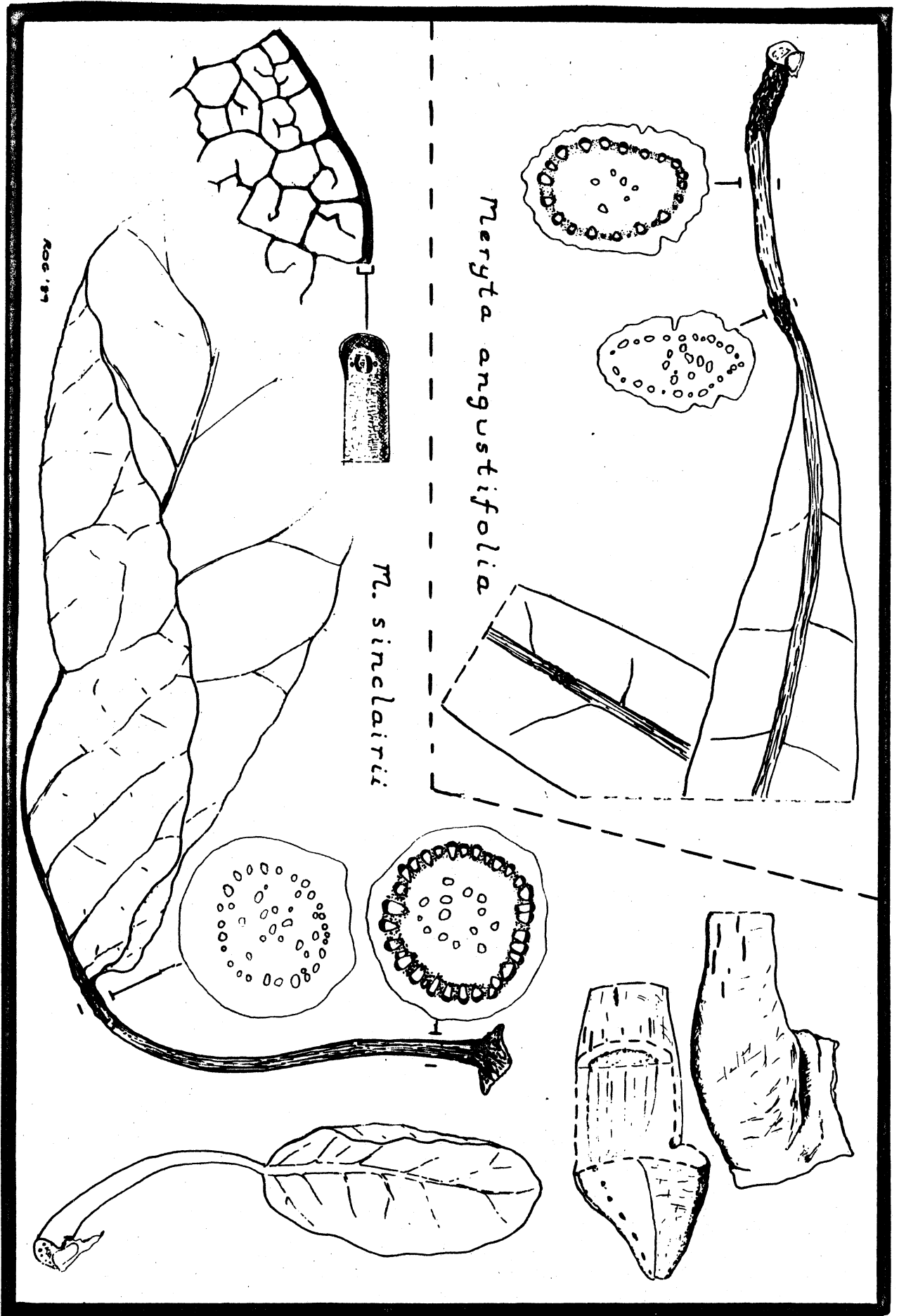
Subsequently I have seen on juvenile M. sinclairii leaves an occasional swelling on the midrib. Also, in herbarium specimens of M. pauciflora from Rarotonga there is the indication of a pulvinus at the petiole base at least, while M. capitata from Samoa perhaps shows an apical pulvinus. Both have midrib pulvini.

These structures then do not seem likely to be an indication of especially-close affinity between the Norfolk and New Zealand plants, but rather a generic feature, like the marginal vein in the leaf and the deciduous ligule. In view of the absence of Meryta from the Kermadec Islands the lack of affinity is perhaps not surprising.

Casual observations on some exotic araliads (e.g. Tetrapanax papyrifera, Schefflera spp.) suggest that a pulvinate or "cryptopulvinate" petiole structure might be widespread in the family.

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I am very grateful to Owen Evans for showing me many Norfolk Island Merytas, and to Bruce Irwin for venturing into the Lions' Park there at Burnt Pine to collect M. sinclairii.



M. angustifolia

Dry leaf showing shrunken areas (pulvini) at each end of petiole and on leaf midrib below.

Section of "normal" part of petiole, vascular tissue prominent in a ring of sclerenchyma (fibre bundle caps dark, other lignified extra-xylary cells stippled), a few unlignified bundles centrally; on right, section of apical pulvinus, bundles smaller, surrounding cells not lignified.

Leaf x 0.7 sections x 7

M. sinclairii

Dry leaf, showing some slight indication of pulvini especially at apex. x 0.7

Sections of petiole, showing variation as in M. angustifolia. x 7

Left: Leaf from below showing margin vein x 3; section of leaf edge showing margin vein, two mucilage ducts, collenchyma (cross-hatched) of margin and upper hypodermis x 15

Right: Young leaf, the ligule still attached to sheathing petiole base x 0.7

Top: Petiole of mature leaf (lower drawing of part-section) at attachment to stem, showing groove and swellings on upper side, and loss of ligule x 1.5

**GINGERS, BAMBOO, AUSTRALIAN CABBAGE TREES AND CYPERUS
USTULATUS FORMA GRANDISPICULOSUS**

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Hedychium species

Healy and Edgar (1980) treat two naturalized species, H. flavescens (yellow ginger) and H. gardnerianum (Kahili ginger). Their excellent comparative descriptions make up for the unhelpful key and the awful and wrong illustration.

They say that other cultivated gingers may eventually be found wild and mention a collection from the Kaiwaka-Mangawhai road "tentatively identified by Orchard (Rec.Auckland Inst.Mus. 10: 116 1973) as a cream-flowered cultivar of H. coccineum var. carneum."

In late February this year I was able to re-collect this plant. Though assisted by the precision of a label in Herb. Esler (now in AK) "8 km from Kaiwaka .." I found it to be the only ginger colony on this scrubby roadside. It is not H. coccineum, but a variant of H. gardnerianum, as can be told from the wide oblong glabrous leaves, the calyx glabrous except at its tip, the colours of the floral parts typical of this species, the ciliate tube orifice, the pollen yellow (not golden orange) &c.

The flower has a tube a centimetre or so longer than in the common form, but its stamen is only two-thirds the size. Whether the colony makes seed I do not know.