

## A Tale of Two Stipules

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This story comes out of a holiday to Cairns in northern Australia earlier this year. As a rule, tropical beach resorts hide Nature behind palm phalanxes and variegated thickets of dracaena and shell ginger, but there is usually one habitat left to botanize, the sandy ground between lawn or barbecue area and the sea. Goat's-foot convolvulus (*Ipomoea pes-caprae*) will be plentiful here, as will be two legumes that also have the creeping habit, *Canavalia rosea* and *Vigna marina*. The former has magenta-coloured flowers, the latter yellow, and their fruits are quite different. But in herbaria vegetative pieces of the two can be confused.

Because the twining stems are several metres long, collections of these plants often consist just of a terminal piece and the flowers or fruit. The youngest growth is of course the best place to see those taxonomically valuable structures, the stipules. As usual for legumes, both species have paired stipules at each node, like elves' ears, and together they cover and protect the shoot apex. The stipule of *V. marina* is broadly triangular, with a pair of short lobes each side of a basal attachment zone. The stipule of *C. rosea* is a peltate one, being rather clearly divided into a triangular upper part and a thicker and blunter basal part (Fig. 1).

At Cairns I was at leisure to follow the vegetative growth of these structures. In *V. marina* the ageing stipule recurves and eventually erodes away to leave an inconspicuous arching scar. By contrast, the stipule of *C. rosea* accresces (gets larger with age); it sheds its apical two-thirds and extends the basal part into a robust truncate-ended projection a couple of millimeters long (Fig. 2). In perhaps the original reference to such a development Verdcourt (1979: 470) refers to the stipules in the genus as "small, deciduous, sometimes spurred and swollen beneath".

Whether these retrorse stubs are now helping *C. rosea* overscramble its two ubiquitous competitors can be left for working botanists to determine. At least, it does not seem that this morphology merely represents a vestigial condition; that is, there are no modern climbing canavalias with even larger (hooked or tendril-like) stipules.

We are on more solid ground in noting that peltate stipules are not unusual in the Leguminosae, and that they also characterize genera elsewhere, in particular, *Nothofagus*.

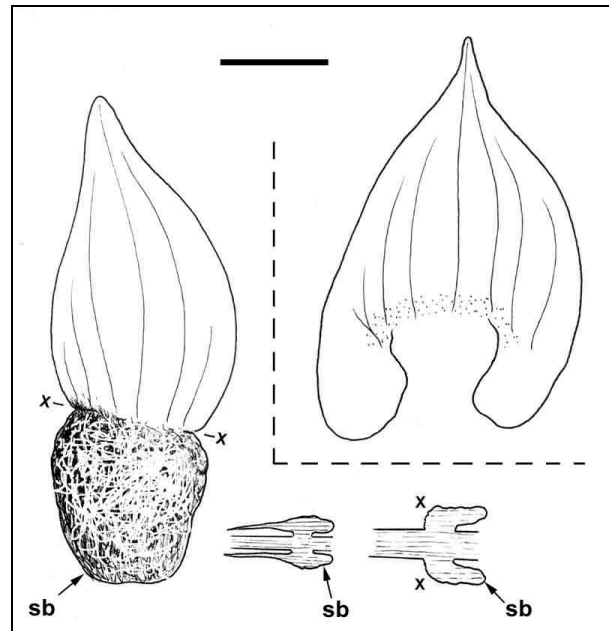


Fig. 1. Stipules in early maturity. Left: *Canavalia rosea*. Sequence of development shown on lower right; x--x marks line of abscission above swollen stipule base (sb). Right: *Vigna marina*. Scale bar 1 mm. Sketch by ROG.

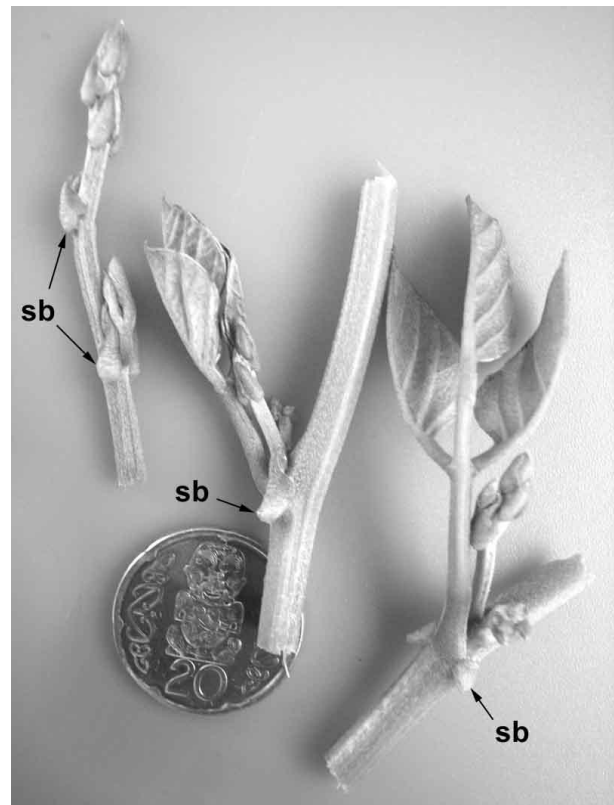


Fig. 2. *Canavalia rosea*. Stipule base (sb) development in successive pieces of shoot, from apex to older part. Scale: coin is c. 20 mm diam. Photo: ROG 10 June 2013.

### Reference

Verdcourt, B. 1979: *A manual of New Guinea legumes*. Botany Bulletin 11. Office of Forests, Lae.

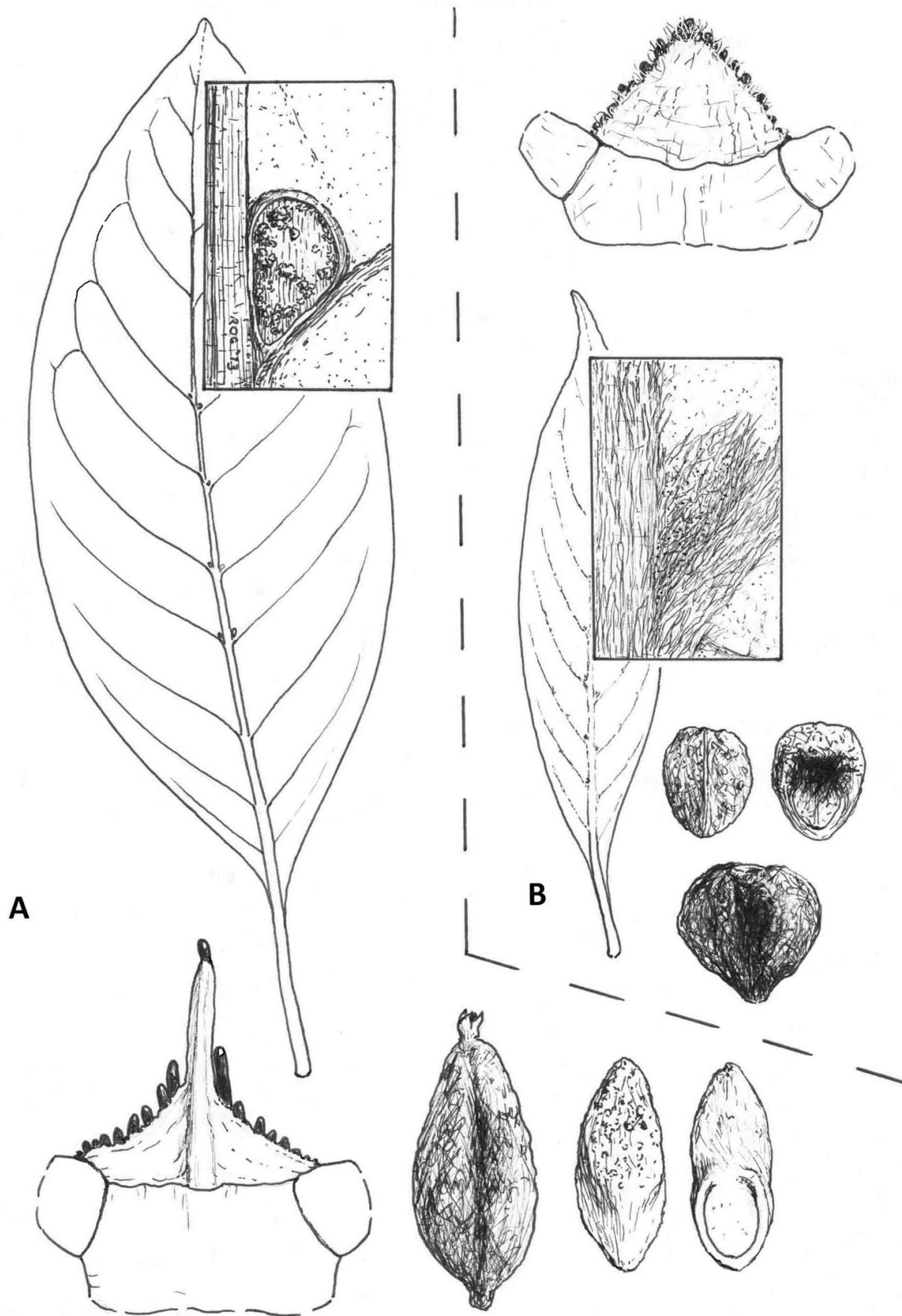


Fig. 1. A: *Coprosma savaiensis* Leaf (lower surface) x 1.4; enlargement of a domatium x 40; stipule x 5; fruit and pyrenes (left, abaxial surface; right, adaxial) x 5 [From AK 28263]

B: *Coprosma strigulosa* Leaf (lower surface) x 1.4; enlargement of a domatium x 80; stipule x 10; fruit and pyrenes (left, abaxial view; right, adaxial) x 5 [from Whistler 12816 (AK)].