

## Glands, bands and stipules

R.O. Gardner

A. Araujia hortorum (Asclepiadaceae). Shoot, x 2.5. A "stipular line" marks the upper edge of the somewhat swollen node, and bears a pair of dark red horn-shaped structures (glands?); two or more similar structures lie at the petiole apex.

B. Ligustrum lucidum (Oleaceae). Shoot and leaf underside, x 0.6, x 3. There is usually a pair of glandular areas at the base of the leaf blade below. (In L. sinense the glands are often more numerous, occurring mostly in the basal half of the blade).

The glands in this genus are aggregations of squat multicellular-headed hairs, slightly sunken below the surrounding surface. These hairs also occur singly all over the leaf underside.

C. Nothofagus spp. (Fagaceae). Above: N. solandri. To left, a bud scale, which resembles a stipule rather than a leaf, x 12; right, a stipule (inner face shown) -- stipule is slightly peltate, with dark brown colleters (multicellular mucilage-secreting hairs) above the attachment area (cross-hatched), x 6.

Lower left: N. obliqua. Stipule leaf-like, attached + basally, colleters few, x 4.

Lower right: N. fusca. Node with attachment scar, x 3; above, peltate stipule with numerous colleters around the attachment area, x 4.5.

D. Carica pentagona, babaco (Caricaceae). Base of leaf blade, x 2. Small outgrowths are found at the petiole apex both above and below the junction with the leaf blade, and also here and there along the veins on the upper surface; they may be sugar-rich tissue designed to be detached and eaten by ants, which in turn protect the plant from herbivores and even sometimes from other competing plants.

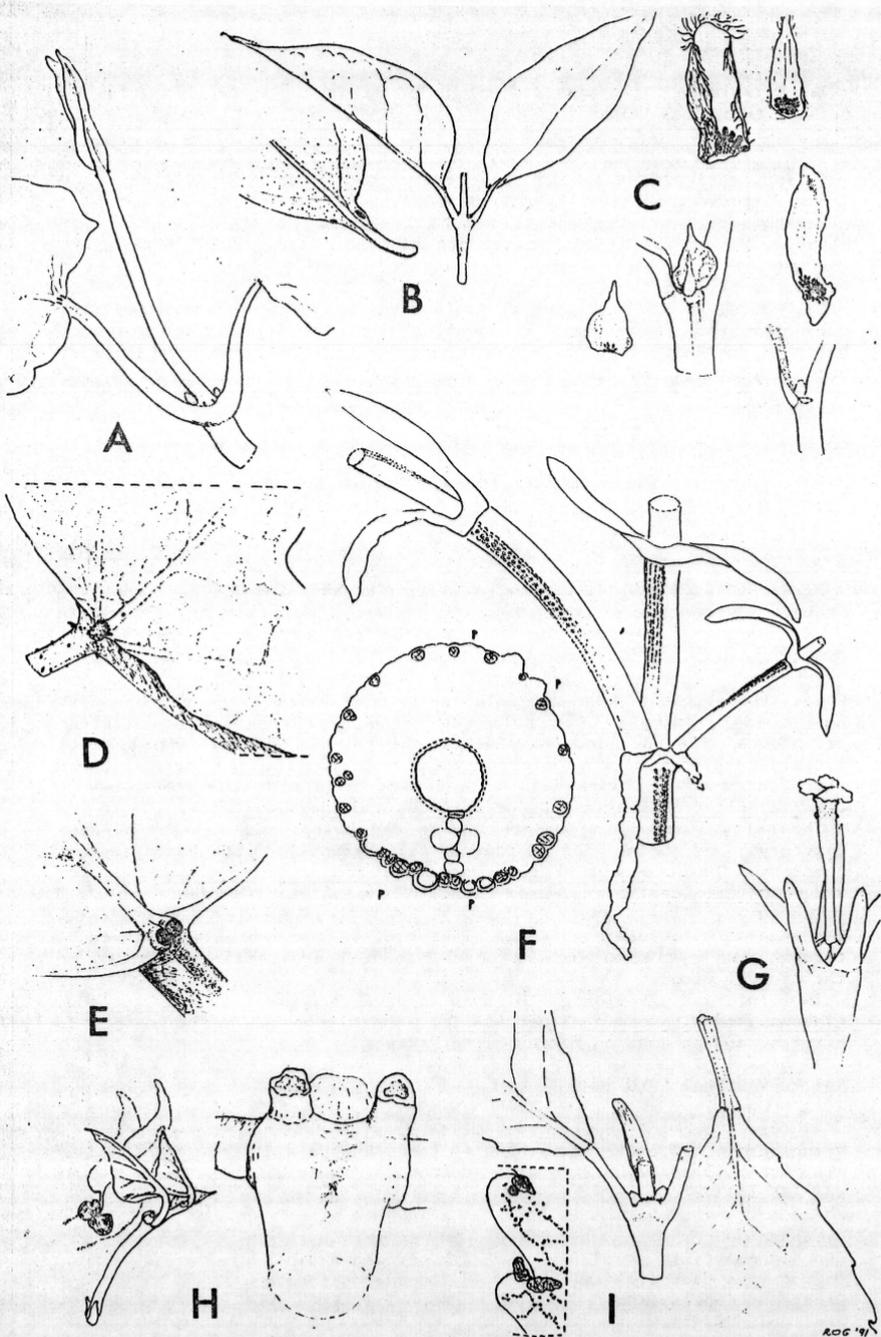
E. Homalanthus populifolius (Euphorbiaceae). Base of leaf blade, x 5. This material was rendered transparent with alkali and bleach, then stained with safranin, making the two glands on the margin show clearly.

F. Crassula decumbens (Crassulaceae). Shoot, x 6, t.s. shoot, x 40. A band of papillae (p-p) runs along each side of the internode from below the junction of the leaves part way down to the leaf below. None of the native species show this feature.

The epidermis contains cells filled with some kind of reddish substance, and these too run in vertical arrangement. As in many wet-habitat plants the stem has an endodermis ringing the vascular core.

G. Wahlenbergia gracilis (Campanulaceae). Flower with corolla detached, x 6. At the apical part of the style there are small hemispherical glands below the stigma sinuses. Perhaps their secretion nourishes the pollen, which is first shed onto this area.

H. Erythrina spp., coral trees (Fabaceae). Left: E. caffra, young leaves, showing stipules at the petiole base and stipels at the leaflet bases, x 1.5 and to rear x 3. Right: E. crista-galli. Junction of the two side leaflets with the rachis, showing the pair of stipels, x 9.



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The stipels in this genus are unique in the family in being glandular, perhaps secreting nectar for ants.

I. Weinmannia spp. (Cunoniaceae). Left: W. silvicola, margin of young leaf, x 25. Central and right: W. racemosa, shoot apex with front stipule removed, and leaf base from above, x 6.

Red-coloured colleters occur around the base of attachment of the stipule, low on the inner face of the stipule, also at the junction of the petiole and blade, and then appear (usually in pairs) as the glandular tips to the leaf teeth.

Colleters, which produce a protective mucilage or varnish, are characteristic of a number of flowering plant families. They are best known in the Rubiaceae, where they occur on the edges and inner face of the stipules and sometimes the calyx.

### Field trip to Te Arai Scenic Reserve

Maureen Young

Prior to travelling in convoy to Te Arai Reserve from Te Hana, the ABS members visited Kauri Point, a small peninsula which juts into the Te Hana river, not far from SH 1. Kauri Point is owned by the Becroft family, and access is through the Becroft orchards. Drivers followed instructions such as: drive past the Granny Smiths, turn left at the Galas, then right through the Splendours. The kauri trees on the point have roots growing in the salt water and have mangroves as nearest neighbours. On the landward side of the point is a salt marsh flat, largely covered with the jointed restiad Leptocarpus similis. Between this flat and the kauri bush is a narrow band of estuarine plants - Olearia solandri, Plagianthus divaricatus and Phormium tenax.

The party lunched in sunshine among the headstones of the Te Arai cemetery, and being Bot Soccers, felt compelled to botanise the cemetery. Large clumps of the comb fern, Schizaea fistulosa, and the sedge Tetraria capillaris, grow there in a miniature tea-tree forest.

The reserve itself covers almost 52 ha of leached clay gumland soil. The vegetation covers a range of plant types, from umbrella fern scrub, through manuka/kanuka/tanekaha scrub, to regenerating kauri forest on the central ridge.

Two interesting plants in the reserve are toatoa, Phyllocladus glaucus, and Alseuosmia x quercifolia. The alseuosmia had abundant red berries, and an amazing range of leaf shapes.

#### NATIVE VASCULAR SPECIES

A total of 161 native vascular species has been recorded; 7 gymnosperms, 110 angiosperms, and 44 ferns and fern allies. Recorded by A.E. Esler 13.10.82, 8.2.86 with additions by F. Hudson, M. Young 1.1.91 and ABS 16.3.91.

#### Gymnosperms

<u>Agathis australis</u>	<u>P. trichomanoides</u>
<u>Dacrycarpus dacrydioides</u>	<u>Podocarpus totara</u>
<u>Dacrydium cupressinum</u>	<u>P. hallii</u>
<u>Phyllocladus glaucus</u>	