

Calopogonium

Twining perennial. Leaves pinnate, with three leaflets; stipels present. Flowers small, bluish purple. Stamens 8-10, 1 filament free, the others joined in a dorsally split tube. Style hairless. Pods several-seeded.

Calopogonium mucunoides

Calopo

Twining perennial with stems to several metres long. Stems densely covered with coarse 1.5mm brown spreading hairs, the nodes well separated along the stem. Stipules 3-4mm long, 2-3mm wide, triangular to heart-shaped, hairy, adpressed, persistent. Petiole 25-100mm long, rachis 5-20mm long, both covered with brown, spreading hairs. Stipels prominent, hairy, up to 3mm long. Leaflets dull green, 35-90mm long, 30-70mm wide, the laterals asymmetrical but similar in size to the terminal leaflet, broadest about the mid-point, rounded or broadly angled at the base and the tip, mucronate, covered with soft, spreading hairs on both surfaces.

Inflorescence a usually dense cluster of flowers borne in leaf axils or at the end of a hairy peduncle up to 160mm long or with clusters of up to 6 flowers at intervals along an elongated peduncle. Flowers 6-10mm long, single or in groups of 2-3 within the axils of c. 2.5mm hairy bracts. Calyx 5-6mm long, a pair of bracteoles at the base, densely covered with spreading 1mm brown hairs, the sepals joined for less than $\frac{1}{2}$ their length, the teeth tapering to fine points, the lower 3 teeth longer than the upper 2. Standard bluish purple, yellow-green towards the centre, c. 5mm wide, 5mm tall, markedly indented at the tip. Wings 6-10mm long from base of calyx, pale blue, 2mm longer than the pale blue keel.

Pod 25-40mm long, 4-5mm wide, usually straight, densely covered with spreading brown 1.5-2mm hairs, narrower along the mid-line than



Calopogonium mucunoides, Cape York, 12°45'S, 142°43'E.

the strongly thickened margins, when young darker between the seeds giving a ladder-like appearance, becoming dark brown when ripe, containing 2-7 seeds. Seeds c. 4mm long, 3mm wide, plump, more or less kidney-shaped to oval, yellow-brown, the surface dull.

Distribution: Co. A native of tropical America, naturalized in various wet tropical regions including Indonesia and P.N.G. Tends to favour heavy soils.

Notes: A productive and high-yielding species introduced as a pasture legume for the wet tropics but not readily eaten by cattle while green; more palatable in the dry season. Overseas an important cover crop for plantation crops such as rubber and cassava. May become a weed in cane fields. Nodulates. Self-pollinating.

References: 3, 16, 46, 50, 121, 141, 303, 306.

Canavalia

Robust twining or prostrate herbaceous annuals or perennials. Leaves pinnate, with three leaflets. Stipels present. Flowers large, purple. Stamens 10, the filaments all more or less joined or the upper one free. Style hairless. Pods more than 20mm wide.

Key to species

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|--|-------------------|
| 1. Standard c. 40mm long; lower leaf surface densely silky-hairy | <i>C. sericea</i> |
| Standard 15-35mm long; lower leaf surface sparsely to moderately hairy | 2 |
| 2. Leaflets thick, nearly circular; pods mostly less than 30mm wide; plants restricted to the seashore | <i>C. rosea</i> |
| Leaflets more or less pointed; plants not occurring along the seashore | 3 |

3. Upper calyx lip c. 3mm long, much shorter than the tube; pods 28-45mm wide
Upper calyx lip nearly equalling the tube *C. cathartica*
4
4. Leaflets bluntly pointed, pods up to 350mm long, 35mm wide, seeds pale yellow to white
Leaflets usually narrowly pointed at the tip; pods up to 200mm long, c. 25mm wide, seeds brown *C. ensiformis*
C. papuana

Canavalia cathartica

Vigorous herbaceous or sometimes woody vine with hairless stems to several metres long. Stipules deciduous. Petiole up to 100mm long, rachis to 40mm long, both hairless. Stipels present at base of terminal leaflet, minute. Leaflets up to 200mm long, 120mm wide, broadest at or below the mid-point, the tip extended into a short, broad, c. 5mm point, hairless to very sparsely hairy on both surfaces.

Inflorescence a hanging axillary raceme up to 300mm or more long, the pale purple flowers borne in groups of 1-3 in the upper part, each on a 3-13mm pedicel with a pair of deciduous 1mm bracteoles beneath the calyx. Calyx c. 10-14mm long, sparsely covered with minute white hairs, the upper lip much shorter than the tube, the lowermost tooth 2mm long. Standard c. 25-30mm long, purple fading to bluish, with white guidelines. Wings and keel lighter purple, white at the base.

Pod 80-125mm long, 28-45mm wide, somewhat inflated, on each side ribbed along the margins, and with an additional rib just below the upper margin, becoming dark brown with age. Seeds c. 18 × 12 × 10mm, oblong, slightly compressed, dark reddish brown.

Distribution: Co., N.K. Also N.T. A plant of the wet tropics, including rainforest margins and monsoon forest. Also widely distributed in near-coastal situations of P.N.G. and throughout the Old World tropics and Oceania.

Notes: Of no agricultural significance. Nodulates.

References: 3, 141, 274, 306.

Canavalia ensiformis

Jack bean

Robust annual or weak perennial, usually distinctly shrubby, but sometimes developing into a vine. Stems almost hairless. Stipules minute, deciduous. Petiole 25-110mm long. Leaflets 60-200mm long, 30-120mm wide, broadest below the

mid-point, bluntly pointed, sparsely covered with short hairs on both surfaces.

Inflorescence an axillary raceme 150-450mm long, including the 100-340mm peduncle, the flowers pinkish or white, fragrant, borne on 2-5mm pedicels with 2mm bracteoles below the calyx. Calyx c. 14mm long, sparsely covered with short, white hairs, the upper lip as long as the tube, the lowermost tooth 2.5mm long. Standard 15-25mm tall, purple.

Pod 150-350mm long, 25-35mm wide, with a rib on each side along each margin and an additional rib just below the upper margin; compressed, tan-coloured when ripe, containing 12-20 seeds. Seeds c. 21 × 15 × 10mm, oblong, pale yellow to white, with a brownish mark near the point of attachment.

Distribution: Bur., rarely collected. Also W.A. Originally from the New World, now widespread as a cultivated plant or escape throughout the tropics.

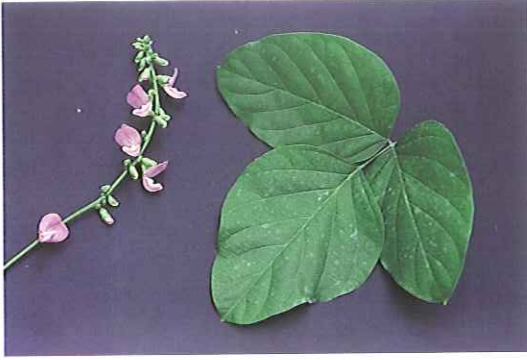
Notes: A species cultivated for the past 700 years for its edible seeds and young pods, now usually grown as a cover crop. Palatability of forage is mediocre. The seeds, which contain canavanine, may be toxic to cattle. Nodulates. Self-pollinating.

References: 3, 16, 17, 46, 121, 130, 141, 157, 174, 274, 306.

Canavalia papuana

Wild jack bean

Robust perennial with prostrate or twining stems to several metres long. Stems covered with minute, more or less adpressed hairs. Stipules c. 2mm long, spreading, rigid, deciduous. Petiole 30-80mm long, rachis to 25mm long, both densely covered with minute hairs. Stipels 0.5-1.5mm long, insignificant. Leaflets 50-150mm long, 20-110mm wide, the laterals a little smaller, broadest below the mid-point, usually with the tip acutely pointed, with scattered short adpressed



Canavalia papuana, Home Hill, 19°46'S, 147°31'E, Cult.

hairs or moderately densely hairy on both surfaces, the veins prominent beneath.

Inflorescence an axillary raceme 200-450mm long, including the 90-280mm peduncle, the flowers borne in groups of 3 on a raised cushion, each on a 2mm pedicel which bears two 1mm very deciduous bracteoles beneath the calyx. Calyx 8-10mm long, minutely hairy, the two dorsal teeth pointed, the upper lip almost as long as the calyx tube, the three lower teeth much shorter, the central one c. 2mm long. Standard pink, c. 18mm tall, 20mm wide, strongly indented at the tip. Wings pink, c. 21mm long from base of calyx, narrower than but the same length as the pink keel.

Pod c. 140-200mm long, 25-28mm wide, flattened, woody, with a rib on each side along each margin and an additional rib just below the upper margin, usually sparsely hairy, brown when ripe, containing 8-14 seeds. Seeds oval, c. 12mm long, 8-10mm wide, 6mm thick, flattened, yellow to reddish brown.

Distribution: Bk., Bur., Co., Lei., Mo., N.K., P.C., S.K., W.B. Also N.T., W.A. and P.N.G. A widely distributed but rarely abundant species in subcoastal districts with moderate to high rainfall.

Notes: Not noted to be toxic; unlikely to be an important species for grazing. Cross- or self-pollinating.

References: 274, 287, 306.

Canavalia rosea Coastal jack bean

Trailing or sometimes twining perennial. Stems up to several metres long, covered with minute hairs when young, becoming hairless. Stipules c.

1mm long, spreading, broadly triangular, deciduous. Petioles 20-100mm long, rachis 10-20mm long, both sparsely covered with minute adpressed hairs. Stipels 0.5-2mm long at base of terminal leaflet, shorter or sometimes absent at base of laterals. Leaflets dark green, 25-115mm long, 15-100mm wide, broadest about the midpoint, more or less rounded to very broadly angled at each end, hairless or sparsely hairy on both surfaces, particularly along the veins.

Inflorescence an axillary raceme, usually erect but curved in the upper part, up to 400mm long including the 100-210mm peduncle. Flowers purplish-pink, borne singly or in pairs on a prominent raised base within the axil of a deciduous bract. Pedicels c. 3mm long, with rounded, very deciduous 1.5mm bracteoles below the calyx. Calyx minutely hairy, c. 12-14mm long, the dorsal teeth large, rounded, shorter than the tube, the other three teeth c. 2mm long. Standard c. 20mm tall, 25mm wide, deeply indented at the tip. Wings c. 25mm long from base of calyx, the same length as the keel.

Pod 90-150mm long, 20-25mm (rarely to 45mm) wide, quite compressed, with a rib along each margin on each side and an extra rib just below the upper margin, hairy when young, becoming hairless, pale brown and woody when ripe. Seeds 14-20mm long, 9-14mm wide, 5-11mm thick, oval, brown to yellow-brown, sometimes with darker marbling.



Canavalia rosea, Port Douglas, 16°29'S, 145°28'E.

Distribution: Bk., Co., Mo., N.K., P.C., S.K., W.B. Also N.T., W.A., N.S.W. A pan-tropical species occurring in beach and coastal dune situations in the New World and Old World.

Notes: Occasionally cultivated as a cover crop or as a sand-binder. Beans are edible when cooked but were rarely consumed by Aborigines. Of no

grazing significance. Naturally an important species for beach and dune stabilization. Cross- or self-pollinating, nodulates.

References: 23, 25, 70, 91, 106, 130, 141, 154, 224, 285, 287, 306, 331; as *C. maritima*, 3, 16, 17, 26, 97, 274. Also T. Low (1988), *Wild Food Plants of Australia*, Sydney: Angus & Robertson.

Canavalia sericea

Robust plants with long trailing or twining stems. Stems densely covered with short spreading hairs. Stipules c. 3mm long, very deciduous. Petiole c. 15-50mm long, rachis c. 5mm long. Stipels at base of terminal leaflet c. 5mm long, very hairy. Leaflets up to 110mm long, 100mm wide, broadest about the mid-point, usually nearly circular or slightly tapering towards the base, sparsely to densely hairy on the upper surface, densely covered with loosely adpressed silky hairs on the lower surface.

Inflorescence an axillary raceme, 40-80mm or

more long including the peduncle. Flowers borne on 5-8mm pedicels, each with two bracteoles c. 2mm long. Calyx c. 16mm long, quite densely covered with minute white hairs, the upper lip as long as the tube, the lower tooth c. 2.5mm long, exceeding the lateral teeth. Petals pink to dark reddish purple, the standard c. 40mm long from base of calyx.

Pod 90-170mm long, 25-35mm wide, flattened, sparsely and minutely hairy, with a rib on each side along each margin and an additional rib just below the upper margin, opening late or not at all, brown when ripe. Seeds up to 17mm long, 10mm wide and 7mm thick, oblong, dark brown.

Distribution: P.C. A relatively uncommon indigenous species, but widely distributed through the south Pacific. Grows on coastal dunes and strand-lines.

Notes: Of no grazing significance.

References: 274.

Cassia

Low or tall-growing shrubs, herbs or trees. Leaves pinnate, lacking a terminal leaflet, or reduced to phyllodes. Flowers yellow. Calyx tube very short, the sepals almost free. Stamens 10, often with anthers differing in size, or 5. Pods usually many-seeded. The tree species have not been included in this key.

The genus *Cassia* includes a number of species grown as flowering shrubs or trees in tropical and subtropical gardens.

Key to species

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| 1. Flowers solitary | 2 |
| Flowers in racemes, or clusters at the end of a peduncle, or panicles | 5 |
| 2. Leaves with 2 oval or round leaflets | <i>C. rotundifolia</i> |
| Leaves with 5-60 pairs of leaflets | 3 |
| 3. Leaves with 20-60 pairs of leaflets; stamens 10 | <i>C. mimosoides</i> |
| Leaves with 5-18 pairs of leaflets; stamens 5 | 4 |
| 4. Hairs on stems and leaves curved, spreading or loosely adpressed | <i>C. concinna</i> |
| Hairs on stems and leaves straight, erect | <i>C. longipes</i> |
| 5. Leaflets 0, the leaf reduced to a phyllode | 6 |
| Leaflets 2-many | 8 |
| 6. Phyllodes cylindrical, often clustered | <i>C. circinnata</i> |
| Phyllodes flat | 7 |
| 7. Phyllodes grey from dense covering of minute hairs; pod usually curved | <i>C. phyllodinea</i> |
| Phyllodes hairless or covered with short hairs but not as above; pod straight | <i>C. nemophila</i>
var. <i>platypoda</i> |
| 8. Leaf rachis distinctly flattened | 9 |
| Leaf rachis not distinctly flattened | 10 |