Australian Plants Society NORTH SHORE GROUP





CLIMBING PLANTS



INTRODUCTION

Climbing plants **search for sunlight**, require the support of others to grow because their **stems lack the central thickening** which gives rigidity to shrubs and trees. Their **stems can twist and turn** in convolutions without affecting the transport of nutrients and water for their survival.

Weak climbers may need only support of grasses, like *Glycine clandestina*, however treetop climbers like water Vines (*Cissus hypoglauca*) are large heavy plants which require one or more canopies of trees for support.

Botanical classification of plants is based on floral structure, not on habit, so it is impossible to estimate the number of species worldwide, it would be in the tens of thousands with lots yet to be discovered.

DISTRIBUTION AND HABITAT

The **majority of climbers occur in the tropical regions**, in the hot humid conditions of low-lands and also in mountains and tablelands above 2000m altitude. Rainforests provide shrubs and trees for the climbers to reach the sunshine, so from the various types of vegetation found in the world, the densest, diverse and prolific growth occurs in rainforests.

In temperate regions climbing plants are less common and less diversified, they could be deciduous to avoid winter climate. Generally, are absent from vegetation type without trees like grasslands, tundra, alpine meadows and desert vegetation.

GROUPS - FAMILIES

Climbers occur in most group of plants including ferns and palms. Many monocotyledons are vigorous climbers found in the families Philesiaceae (Chile) and Smilacaceae, also some orchids (*Erythrorchis cassythoides*) grasses (*Entolasia* sp.) are climbers. The woody dicotyledons hold many thousands of climbing species, the climbing habit predominates in some families like Vitaceae, Cucurbitaceae and Aristolochiaceae. Climbers are rare in Myrtaceae family, may be absent in the Proteaceae family.

Important families of woody Dicotyledons (Ref 1, 3):

Family	Climbing genera	Climbing species
Fabaceae	29	95
Convolvulaceae	12	60
Pittosporaceae	4	28
Apocynaceae	19	86
Cucurbitaceae	13	27
Vitaceae	5	24
Menispermaceae	13	24

Some examples of climbing plants in the Ku-ring-gai Wildflower Garden are described below:

MONOCOTYLEDONS	Family	Modes of Climbing
Eustrephus latifolius	Philesiaceae/	Twining stems t0 >3m
	Laxmanniaceae/	
	Luzuriagaceae	
Smilax australis	Smilacaceae	Stems to 8m long, twining, prickly, stipules modified
		into tendrils arising in pairs at the base of petiole.
Smilax glyciphylla	Smilacaceae	Stems to 5m long, twining, not prickly, stipules
		modified into tendrils arising in pairs at base of petiole.
DICOTYLEDONS		
Parsonsia straminea	Apocynaceae	Young stems by adventitious roots, adult stems
		twining, minutely hairy
Pandorea pandorana	Bignoniaceae	Older Stems twining, ridged. Variable sp. from weak
		shrub climber to vigorous tree- top climber.
Pandorea jasminoides	Bignoniaceae	Stems twining, hairless
Cassytha glabella	Lauraceae	Stem twining hairless, attached to host by haustoria
, -		(suckers).
Cassytha pubescens	Lauraceae	Stem twining, smooth to finely wrinkled, hairy,
		attached to host by haustoria (suckers).
Hibbertia dentata	Dilleniaceae	Young stems trail, older stems twine (Darwin's study).
Hibertia scandens	Dilleniaceae	Young stems twine, older stems branched at right
		angles.
Hibbertia empetrifolia	Dilleniaceae	Scandent with wiry stems and minute hooked hairs
,		underside of leaves.
Dioscorea transversa	Dioscoreaceae	Stems twinning, hairless, 2-4m long.
Glycine clandestina	Fabaceae	Slender, wiry, twining stems
Hardenbergia violacea	Fabaceae	Bushy trailer or climber with wiry twining stems.
Kennedia rubicunda	Fabaceae	Stems twinning, rusty hairy, vigorous climber.
Stephania japonica	Menispermaceae	Slender climber, wiry stems, without prickles
Passiflora herbertiana	Passifloraceae	Tendril climber (axillary, unbranched). Stems slender,
		twining, finely hairy, wiry, several meters long.
Passiflora suberosa	Passifloraceae	Tendril climber (axillary, unbranched). Stems twining
		sparsely hairy, older stems corky. (Weed)
Passiflora edulis	Passifloraceae	Tendril climber (axillary, unbranched). Stems hairless.
Billardiera scandens	Pittosporaceae	Light twiner, wiry stems, young shoots very hairy.
Comesperma volubile	Polygalaceae	Light climber, twiner. Stems slender, wiry, angled,
•		hairless.
Clematis glycinoides	Ranunculaceae	Long slender stems twining, to 3m high, are supported
- ,		by sensitive petioles and petiolules which twist around
		supports.
Morinda jasminoides	Rubiaceae	Subclimber and twiner, long slender stem.
Cayratia clematidea	Vitaceae	Slender stems supported by leaf-opposed, branched
-		tendrils. Older stems angular, fleshy.
Cissus antarctica	Vitaceae	Vigorous Stems to >20mx 15 cm across, supported by
		leaf- opposed tendrils simple or two branched. Young
		stems grey/ rusty hairs.
Cissus hypoglauca	Vitaceae	Vigorous Stems to> 15mx 20 cm across, supported by
-		leaf-opposed tendrils two branched, rarely simple.
		Young stems rusty hairs.
FERNS species		
Pyrrosia rupestris	Polypodiaceae	Epiphytic, long creeping branched rhizome
Davallia solida var.	Davalliaceae	Long creeping rhizome
pyxidata		

SPECIAL FEATURES OF CLIMBING PLANTS.

Climbing plants use a variety of specialized aids such as **twining stems**, **twining petioles**, **tendrils**, **clinging roots**, **prickly branches**, **apex of leaves modified as tendrils**. Some times stems of some plants develop a curved hook, some main branches act as tendrils and after gripping the support, the branches thicken, maintaining the function of a normal branch. All these features allow them to scramble over other plants. Sometimes they adapt the feature to their advantage according to the environment.

IDENTIFICATION

Features helping identification are:

- Observe adult leafy shoot representative of plant.
- Field observation (hand lens, ruler, notebook) growth habit, habitat, features of stem, bark, prickles, spines, milk sap, ferns (spores in scattered sori).
- Plant leafless or scale-like leaves.
- Leaf Arrangement: opposite, alternate, whorls, 2-ranked.
- Leaf Form: simple, 1- foliate, type of compound leaf.
- Leaf Lamina: shape, margins, shape of apex and base, colour of fresh leaf surfaces, hairy or hairless, leaf venation, domatia, stipules, oil glands.
- Climbing mechanisms: type of tendrils, stems twining, presence of thorns, prickles.

The above information would help identification using the books on Climbing Plants listed in the Reference.

Eustrephus latifolius Wombat Berry

Eustrephus=Gk.well-twined; latifolius=Lat. Broad-leaved

Stems wiry, twining, hairless to 6 m long, sometimes much branched. **Tendrils** absent.

Leaves alternate, variable in shape and size, elliptic or ovate to lanceolate or linear, mostly 3–10 cm long and 3–35 mm wide, apex acute, base ± tapered to a twisted leaf base, no distinct petiole, lamina ± discolorous, longitudinal veins. **Flowers** bisexual, clustered in leaf axils, pedicels 8–15 mm long. Tepals 5–8 mm long, pink to mauve or white.

Fruit a capsule ± globose, 10–20 mm diam., yellow-orange, fleshy; seeds numerous, black with a white aril. **Flowering:** spring-summer.



Occurrence: Grows in sclerophyll forest, woodland, heath and on margins of rainforest. NC CC SC NT CT NWS CWS; Qld, Vic., Pac.Is, Malesia.

Smilax australis Barbed-wire Vine

Smilax = Greek name for the plant. Australis = Lat. Southern.

Dioecious climber. **Stems** to 8 m long, usually prickly, twining, hairless. **Tendrils** are modified stipules, arising in pairs at the base of the petiole, often breaking early. **Leaves** lanceolate to broad-elliptic or ovate, mostly 5–15 cm long, 3–10 cm wide, apex acute to rounded and emarginated; lamina ± concolorous, glabrous, leathery, 5-veined, reticulate venation prominent; petiole 5–15 mm long, twisted. **Inflorescence** axillary, simple or compound umbels; pedicels 15–25 mm long. Tepals 3–4 mm long, green or reddish. **Fruit:** Berry globose, 5–8 mm diam., shiny black; seeds 1 or 2. **Flowering:** all year, but chiefly spring–summer.



Occurrence: Common in rainforest, sclerophyll forest, woodland and heath, often forming dense thickets. NSW subdiv: NC, CC, SC, NT, CT, ST, CWS, LHI. Qld Vic. N.T.

Smilax glyciphylla Sweet sarsaparilla / Sweet tea

Glyciphylla= Gk. Sweet-leaved

Dioecious climber. **Stems** twining, hairless, to c. 5 m long, not prickly. **Stipular tendrils** coiling up to 8 cm long. **Leaves** alternate ± lanceolate, mostly 4–10 cm long, 1.5–4 cm wide, apex ± acute; lamina discolorous with lower surface glaucous, glabrous, 3-veined; petiole 5–10 mm long, twisted. **Inflorescence** axillary, simple or compound umbels; pedicels 5–12 mm long. Tepals c. 3 mm long, creamish. **Fruit:** Berry globose, 5–8 mm diam., shiny black; seed 1. **Flowering:** late spring to summer.



Occurrence: Widespread in rainforest, sclerophyll forest and woodland; chiefly in coastal districts. NSW subdivisions: NC, CC, SC, NT. Qld.

Parsonsia straminea Monkey Rope, Common Silkpod

Parsonsia = after James Parson, a London doctor who wrote on botanical matters. Straminea = Lat. Chaffy straw-coloured.

Woody vine climbing by adventitious roots and twining **stems**, sap watery. **Leaves** dimorphic; adult leaves elliptic to oblong-ovate, 4–24 cm long, 1.5–8 cm wide, (larger in shade leaves), base rounded or slightly cordate, lower surface



glaucous, yellowish green, leathery to stiff, thick; finely reticulate on both surfaces;

leaves on juvenile plants 1–5 cm long, cordate, thin, purple on lower surface; petiole 5–45 mm long.

Flowers bisexual, pale yellow or pinkish in terminal and axillary panicles, minutely pubescent. **Fruit** a follicle, terete 10–20 cm long, slender, finely hairy. **Seeds** numerous with a silky tuft of hairs. **Flowering:** most of year.

Occurrence: Common in most types of rainforest and sclerophyll forest. NSW subdivisions: NC, CC, SC, NT, CT, CWS. Old

Pandorea pandorana Wonga-Wonga Vine

Pandorea = Pandora, Gk. Mythology. Pandorana = also Pandora.

Woody scrambler or climber with ± twining branches, glabrous; older branches ± longitudinally ridged, with fawnish bark. **Leaves** mostly opposite, pinnately compound; **juvenile leaves** 2–8 cm long with 8–17 small bluntly toothed leaflets; **adult leaves** 8–16 cm long, mostly 3–9-foliolate, leaflets linear to ± ovate, 2.5–8 cm long, 0.2–3 cm wide, apex acuminate with a mucro, base rounded to cuneate, margins usually entire, glabrous; petiole 1–4.5 cm long. **Inflorescences** 5–15 cm long. **Flowers** bisexual, tubular, 1.5-2.5



cm long, whitish and often with purple blotches or stripes in throat, bearded inside, glabrous outside. **Fruit** a capsule oblong-ovoid, 4–6 cm long, beaked. **Seeds** numerous, flat, winged, 10–15 mm diam. **Flowering:** June–Dec.

Occurrence: Grows to a large woody climber in coastal rainforest or as a scrambler or climber in moist gullies in sclerophyll forest and woodland, frequently in rocky sites. NSW. Other Australian states: Qld Vic. N.T. S.A. W.A.

Pandorea jasminoides Bower Vine

Tall woody climber. **Leaves** mostly opposite pinnately compound, sometimes in whorls of 3, 12–17 cm long; **leaflets** 4–7, ovate to ± lanceolate, 4.5–6 cm long, 15–30 mm wide, apex acuminate, base cuneate to rounded with basal leaflets asymmetric, margins entire, surfaces glabrous; petiole 2–4 cm long; petiolules 2–4 mm long. **Inflorescences** 6–12 cm long. **Flowers** bisexual, tubular 4-6 cm long white or pink with throat red, hairy inside, minutely hairy outside. **Fruit** a capsule oblong-ovoid, 4–7 cm long, beaked; **Seeds** numerous, flat, winged 10–15 mm diam.

Flowering: Sept.-Mar



Occurrence: Grows in subtropical, littoral and dry rainforest. NSW: NC, CC, SC. Qld.

Cassytha glabella Slender Devil's twine

Cassytha = kastas, Gk name of a parasitic plant. Glabella = Lat. Hairless.

Semi-parasitic twiner. **Stems** hairless, yellow green or orange to dark red, c. 0.5 mm thick, **haustoria** (suckers) commonly less than 1 mm long. **Flowers and fruit** sessile in crowded, stalked heads. **Bracts and sepals** neither ciliate nor fimbriate. **Fruit** ovoid to globose, glabrous 3–6 mm long, green, yellow to reddish. **Flowering:** throughout the year.

Occurrence: NSW: NC, CC, SC, CT, ST. Qld Vic. Tas. S.A. W.A



Cassytha pubescens Devil's Twine, Downy Dodder- Laurel

Synonyms: Cassytha paniculata R.Br. APNI Semi-parasitic twiner. Stems smooth to finely wrinkled usually 0.5–1.5 mm thick, young shoots white or red, retrorsely pubescent to woolly; haustoria 2–3 mm long. Leaves alternate < 1mm long.

Inflorescence a spike, raceme or panicle. Flowers bisexual, sessile or almost so, clustered on stalked head, peduncles single or paired, hairy, petals pubescent.

Fruit globose to obovoid, 8–10 mm long, pubescent, dull green-grey to red-brown, drying grey-black. Flowering: summer.

Distribution and occurrence: Widespread. NSW: NC, CC, SC, NT, CT, ST, NWS, CWS, SWS, NWP, SWP. Qld Vic. Tas. S.A.



Hibbertia dentata Twining Guinea Flower

dentata = Latin toothed

Twiner with wiry stems to c. 2 m long, grows in sheltered gullies on sandstone and clay soils. **Leaves** ovate, 40–70 mm long, 15–30 mm wide, apex acute to obtuse, base obtuse, margins toothed, pubescent when young, often glabrescent with age; petiole c. 10 mm long. **Flowers** axillary or terminal on short shoots, peduncles 6–15 mm long. Sepals 7–8 mm long, ± glabrous except for ciliate margins. Petals 20–30 mm long. Stamens > 30, surrounding carpels. Carpels 3, glabrous.

Flowering: Chiefly spring



Hibbertia empetrifolia Trailing Guinea Flower

empetrifolia = empetrum - leaved

Decumbent to spreading shrub to 60 cm high; stems wiry to trailing, pubescent with a few simple or stellate hairs, found in open heath, sclerophyll forest, on sandy soils. **Leaves** generally oblong to oblanceolate, 5–7 mm long, 1–3 mm wide, apex ± rounded, rarely mucronate, base tapering, margins recurved to revolute; hairs often soon wearing off both surfaces **Flowers** terminal, solitary, or rarely 2 flowers; peduncle 2–10 mm long. Sepals 3–5 mm long, outer

surface pubescent. Petals 3–6 mm long. Stamens 5–9, on one side of carpels. Carpels 2, stellate-hairy. **Flowering:** Spring to early summer.



Hibbertia scandens Climbing Guinea Flower scandens = Lat. climbing

Climber with stems to 4 m long, scrambling on coastal sand dunes and sunny moist forest. **Leaves** obovate, oblanceolate or elliptic, 30–80 mm long, 15–25 mm wide, apex acute to obtuse, base tapering and stem-clasping, margins usually entire, upper surface usually glossy, lower surface silky; sessile. **Flowers** axillary, peduncles 2–4 mm long. Sepals 15–25 mm long, silky to ± glabrous. Petals mostly 20–30 mm long. Stamens > 30, surrounding carpels. Carpels 3–7, glabrous.

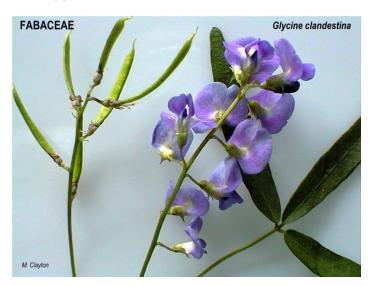


Flowering: Usually spring and summer, also other times.

Glycine clandestina Love Creeper

Glycine = Gk glykys, sweet leaves/roots of some spp. Clandestina = hidden

Twiner, **stems** non-stoloniferous; hairy with white, grey or dark rusty, soft hairs. Leaves palmately 3-foliolate, dimorphic; leaflets of upper leaves linear to ± narrow-elliptic or oblong-lanceolate, 1-8 cm long, 2-10 mm wide, apex obtuse or acute; leaflets of lower leaves oblanceolate to broad-obovate, 0.5-3.0 cm long, 2–8 mm wide; stipels absent on median petiolule, also absent of extra segment. Racemes 4-18 flowers, pealike, bisexual mauve to rose-purple or white. **Pod** straight, 1.2-5.3 cm long, 2.5-4 mm wide, without purple flecks, sparsely hairy to glabrous; seeds 4-12. **Flowering:** all year.



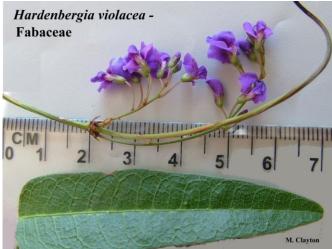
Occurrence: Widespread from coast to subalpine situations. NSW: NC, CC, SC, NT, CT, ST, NWS, CWS, SWS, NWP, SWP, NFWP. Qld

Hardenbergia violacea False Sarsaparilla

Hardenbergia = after Franziska, Countess of Handerberg. Violacea = violet-like

Description: Climbing or prostrate, glabrous shrub; stems often to 2 m long. Leaves 1foliolate, lamina ovate to narrow-lanceolate, 3-10 cm long, 1-5 cm wide, \pm leathery, venation prominently reticulate, glabrous; petiole c. 10 mm long, articulated 1 mm from lamina; stipels filiform. Inflorescences racemose, upper racemes often forming a terminal panicle, 20–30-flowered, pea-like mostly purple; standard with a yellowish spot. **Pod** oblong, 20–45 mm long; seeds 6–8, 4–5 mm long. Flowering: mostly spring.

Occurrence: Widespread in a variety of habitats; also cultivated. NSW: NC, CC, SC, NT, CT, ST, NWS, CWS, SWS, NWP, SWP, NFWP. Qld Vic. W.A. S.A.



Kennedia rubicunda Dusky Coral Pea

Kennedia = after Mr. John Kennedy, London nurseryman. Rubicunda = Lat. ruby-red

Twining or sometimes prostrate herb. **Stems** to 4 m long, ± rusty-pubescent. **Stipules** lanceolate 2-4mm long; **stipels** present. **Leaves** 3-foliolate; leaflets ovate to lanceolate, occasionally ± circular, 3–12 cm long, 2–8 cm wide, ± glabrous to rusty-pubescent on both surfaces. Racemes mostly 4-5 cm long, 2-12flowered; peduncle mostly 2–7 cm long; bracts caducous. Flowers bisexual pea-like, Calyx 10-15 mm long, densely rusty-hairy. Corolla 30–40 mm long, dark red or purple; standard narrowobovate Stamens: 9 united and 1 free. Pod compressed, 5-10 cm long, densely rusty-hairy; seeds c. 14. **Flowering:** late winter to spring.



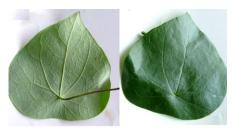
Occurrence: Widespread in a variety of habitats, especially in coastal districts.

NSW: NC, CC, SC, NT, CT. Qld Vic. Tas.

Stephania japonica var. discolor Snake Vine, Tape Vine

Stephania = Gk. Stephanos, a crown. Japonica = Japanese, Discolor = paler on one side.

Climber or twiner, dioecious. **Stems** slender without prickles. **Leaves** peltate, lamina circular to ovate or triangular, petiole inserted in from the edge of the lamina, apex acuminate, entire margins, upper surface dark green hairless, lower surface pale green finely hairy. **Flowers** unisexual small in axillary racemes. **Fruit**: drupe ± obovoid, red at maturity. **Flowering**: Flowers from Sep. through summer. **Occurrence:** Widespread N. Eden, South Coast, Qld and from India, throughout Asia to southern Pacific. Grows in or near all types of WTRf, in open forest or in coastal dune communities. NSW, NT, QLD.



Stephania japonica Menispermaceae

Passiflora herbertiana subsp. herbertiana Native Passion Fruit

Passiflora=Lat. passion-flower (shape of crucifix), herbertiana = family name of Lord Carnarvon in whose garden this species was raised from seeds send by A. Cunningham.

Twiner. **Stems**, petioles and lower surface of leaves finely hairy. **Tendrils** unbranched, axillary. **Leaves** usually 3-lobed; lamina mostly 6–12 cm long, lobes broad and shallow, usually acute at apex; juvenile plants with lamina 2-4 cm long and lobes rounded (similar to Passiflora aurantia); petiole mostly 1.5-4 cm long, with 2 glands at the apex. **Stipules** linear 3-5mm long. **Flowers** bisexual, c. 6 cm. diam. yellow to orange. Fruit: Berry ellipsoidal, c. 50 mm

long, green with spots. Flowering: spring-early summer. Occurrence: Widespread in moist forest on coast and ranges, N Narooma, NSW, Old

Passiflora suberosa Small Passion Fruit, Corky Passion Vine

Suberosa = Lat. abounding in cork

Slender vine naturalized, native to S. America. **Stems** twining, sparsely hairy with older stems becoming corky. **Tendrils** unbranched axillary. **Leaves** usually deeply and acutely lobed, sometimes unlobed, lamina 3–10 cm long; petiole 0.5–2 cm long, with 2 glands near middle or near apex. **Stipules** linear usually 4–6 mm long. **Flowers** bisexual, c. 15 mm diam., pale greenish yellow; petals absent. Fruit: Berry globose, c. 15 mm diam., purple-black. **Seeds:** numerous **Occurrence:** Sometimes cultivated as an ornamental; occasionally



naturalized in disturbed rainforest in warmer areas. NSW: *NC, *CC* Qld *N.T.

Billardiera scandens var. scandens Apple Berry, Dumplings

Billardiera = after James J. la Billardiere botanist French Expedition. scandens = Lat. climbing.

Slender climber or scrambler, light twiner. Mostly small shrubs. **Stems** about 3m long, new shoots densely silky hairy, older surfaces scab rid. **Leaves** alternate, narrowly ovate, hairy, pale green, undulate; petiole 1–4 mm long. **Flowers** bell shaped solitary or paired; peduncles 5–12 mm long, hairy, angular, down-turned. Sepals unequal, almost linear, yellow with tinge of pink. Petals, clawed, bright yellow, apex hairy. Stamens equal; anthers white. Ovary silky hairy. Fruits indehiscent, berry-like, obovate to oblong in outline, 20-28 mm long. Seeds many, redbrown. Edible fruit. Flowering: mainly in summer

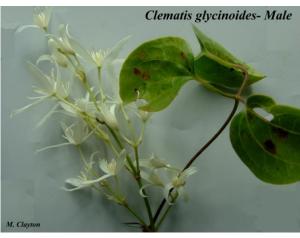
Billardiera scandens - Apple Berry, Dumplings **PITTOSPORACEAE**

Occurrence: Occurs from south-eastern Qld to near the NSW-Vic border. Common in open eucalypt forest and woodland, particularly at higher altitudes.

Clematis glycinoides var. glycinoides Forest Clematis, Headache Vine, Old Man's Beard

Clematis = Gk Klema diminute vine branch. Glycinoides = like glycine small climber.

Stems long slender, twining, to 3m high, supported by sensitive petioles and petiolules which twist around supports functioning as tendrils. **Leaves** opposite ternate. Leaflets 3, ovate to oblonglanceolate, margins entire or with few teeth near the base. Flowers unisexual (dioecious) with 4



white petaloid tepals. Anthers with an obtuse appendage 0.1-0.5 mm long (C. aristata has an elongated appendage 1-3 mm long). Fruit mature achenes ellipsoid to ovoid in side view, not curved, sparsely hairy to hairless, feathery persistent style; clustered in globose heads. Flowering: Aug.- Oct. Occurrence: in forest, woodland, or sometimes heath; often in drier sites than C. aristata. NSW, Qld, Vic.

Cissus hypoglauca Water Vine, Native grape, Five-leaved Water Vine

Cissus= Gk. Kissos, ivy. hypoglauca= Gk not quite blue-green.

Large woody climber with new growth rusty-pubescent; tendrils 2-branched. Vigorous stems > 15mx 20 cm across. Leaves palmately compound; leaflets usually 5, elliptic to obovate or ovate, 3-15 cm long, 15-40 mm wide, apex acuminate, base obtuse, margins entire or sparsely toothed (regularly toothed on juvenile), upper surface green and glabrous, lower surface glaucous and often pubescent, domatia absent; petiole 2-4 cm long, petiolules 5-20 mm long. **Inflorescences** paniculate with terminal umbels 4–7 cm long. **Flowers** bisexual yellow. Fruit globose, c. 10 mm diam., purple. Flowering: mostly springsummer. Occurrence: Widespread and



common in moister rainforest; chiefly in coastal districts, inland to Rylstone district NSW, Qld, Vic.

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