



108 LOGANIACEAE ¹

Miguel F de Salas ²

Terrestrial annual or perennial, glabrous or pubescent herbs or (not in Tasmania) shrubs, lianes or trees, sometimes epiphytic (not in Tasmania). Leaves simple, decussate, petiolate, connected at the base by interpetiolar lines, stipules, or sheaths; lamina entire. Inflorescence terminal or axillary, cymose or of solitary flowers. Flowers actinomorphic, bisexual, hypogynous, 4–5-merous. Calyx fused at the base, or free (not in Tasmania), or absent. Corolla sympetalous, sometimes hairy on inner surface; lobes imbricate or valvate. Stamens epipetalous, isomerous, alternating with corolla lobes; filaments free or partially fused to corolla tube; anthers free, basifixed or subdorsifixed, versatile, longitudinally dehiscent. Ovary bicarpellate, rarely 3–5-carpellate, bilocular, superior or semi-inferior, placenta axile, ovules ∞. Fruit a septicidal capsule, or (not in Tasmania) a berry or drupe. Seeds with endosperm, sometimes winged (not in Tasmania).

A largely pantropical family of 16 genera and approximately 500 species. Nine genera (8 native, 1 naturalised) and approximately 100 species in Australia, three genera and 6 species (1 endemic) in Tasmania. Loganiaceae was previously a catch-all family for many asterid genera that shared a superior ovary, and lacked interpetiolar stipules, latex, and a contorted corolla in bud. Recent molecular studies have dramatically reduced the size of the family by showing that many genera belong in different families and orders (Antonelli *et al.* 2021). Loganiaceae is in the Gentianales, in a clade that includes Apocynaceae (inc. Asclepidaceae), sister to a clade that includes Gelsemiaceae and Gentianaceae, with Rubiaceae as a sister family to all the others. Loganiaceae is a family with many ethnobotanically important taxa, of which the genus *Strychnos* is the most economically important, being the source of various complex indole alkaloids such as strychnine and brucine. Various taxa in the Loganiaceae have also been used as sources of *curare* (a traditional arrow poison), for poisoning fish, for various pharmacological applications, and for executing criminals (Struwe *et al.* 2018).

Synonymy: Strychnaceae DC. ex Perleb, *Vers. Arzneikr. Pfl.* 244 (1818).

Key references: Conn *et al.* (1996).

External resources: accepted names with synonymy & distribution in Australia (APC); author & publication abbreviations (IPNI); mapping (ALA, AVH, NVA); nomenclature (APC, APNI, IPNI).

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| 1. Flowers with a calyx-like involucre with two lobes | 2 Phyllangium |
| 1: Flowers with a true calyx of four lobes | 2 |
| 2. Calyx lobes fused into a tube; all four lobes similar in shape and size | 1 Mitrasacme |
| 2: Calyx lobes only fused at the extreme base; lobes dimorphic | 3 Schizacme |

1 MITRASACME

Mitrasacme Labill. *Nov. Holl. Pl.* 1: 35 (1805).

Annual or perennial, glabrous or pubescent terrestrial herbs or subshrubs (not in Tasmania). Leaves exstipulate, joined across the stem by an interpetiolar sheath. Flowers often solitary, terminal and in the axils of

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² Tasmanian Herbarium, Tasmanian Museum & Art Gallery, PO Box 5058, UTAS LPO, Sandy Bay, TAS 7005, Australia.

distal leaves. Calyx 4-lobed, fused at the base into a tube. Corolla white, cream, or yellow, campanulate to urceolate or (not in Tasmania) salver-shaped or tubular, lobes shorter than tube. Ovary superior; styles free at the base, fused distally at and after anthesis, forming an arch over the ovary, rarely free (not in Tasmania). Fruit a 2-horned capsule, dehiscent septically between the bases of the horns. Seeds many, minute.

A genus of c. 55 species primarily in Australia, but also east and south Asia, Malesia, and New Caledonia. Forty-three species in Australia (2 in Tasmania). *Mitrasacme* is closely related to both *Schizacme* and *Phyllangium*.

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| 1. Branches hirsute with stiff, spreading to patent hairs; inner surface of corolla with a dense rim of hairs at the throat | 1 <i>M. pilosa</i> |
| 1: Branches glabrous or with scattered, ± appressed hairs; inner surface of corolla with only a few scattered hairs on the lobes | 2 <i>M. serpyllifolia</i> |

1 *Mitrasacme pilosa* Labill., *Nov. Holl. Pl.* 1: 36, t.49 (1805). *Hairy mitrewort*

Illustrations: B.J.Conn, *Fl. Victoria* 4: 308, Fig. 60g-h (1999).

Low-growing, tufted perennial herb to 10(–15) cm tall, forming clumps to 20 cm diameter. Stems prostrate, densely to sparsely hirsute with stiff, spreading to patent hairs, rarely glabrous. Leaves ovate or elliptical to lanceolate, (2–)3–5(–6) mm long, 2–3(–4) mm wide, narrowing at the base; petiole pale, ciliate; lamina glabrous or hirsute, margins recurved, ciliate near the base, sometimes paler than lamina, apex rounded to acuminate, often with an apical hair or tuft. Flowers single, terminal and axillary in the axils of distal leaves, on pedicels shorter or much longer than the leaves. Calyx 2–4(–5) mm long; tube 1.5–2 mm long; lobes triangular to ovate, from c. as long as the tube to twice as long, hispid or glabrous, margin ciliate or rarely glabrous, apex acute to acuminate. Corolla white, 3–5 mm long; tube broad, campanulate, slightly constricted and internally hairy at the throat; lobes shorter than the tube, broadly ovate to orbicular, apex truncate to acute. Stamens attached to the base of the corolla tube; anthers included within the tube. Ovary with styles c. 1 mm long, free at the base but connate for up to 1/2 their length at the apex; stigmas capitate. Fruit obovoid to ellipsoidal, 3–4(–5) mm diameter. Seed black, ovoid, c. 1 mm long, testa densely papillose. Flowering and Fruiting Oct.–Dec.(–Mar.).

Tas. (all regions except MI); also SA, Vic., NSW. Common and widespread throughout Tasmania, especially in heathlands and habitats with nutrient-poor, sandy, peaty or skeletal soils, generally at lower elevations but up to c. 1,200 m. Normally easy to distinguish from *M. serpyllifolia* by its larger, tufted habit, much denser indumentum, hairy corolla throat, and included stamens. Some individuals can be nearly glabrous, in which case hair length and orientation (long, spreading to patent in *M. pilosa*, short and semi-appressed to appressed in *M. serpyllifolia*) are useful distinguishing characters. Two varieties are recognised here, of which var. *pilosa* may be slightly more common. There is occasional morphological overlap between them, and some authors choose to treat *M. pilosa* as a single, variable taxon (e.g. Curtis 1967), however the vast majority of individuals are easily assigned to a variety and so they are retained here.

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| 1. Pedicels shorter than the leaves; calyx hirsute externally | 1a var. <i>pilosa</i> |
| 1: Pedicels much longer than the leaves; calyx glabrous or nearly glabrous externally | 1b var. <i>stuartii</i> |

1a *Mitrasacme pilosa* Labill. var. *pilosa* *Hairy mitrewort*

Illustrations: B.J.Conn, *Fl. New South Wales* 3: 480 (1992). B.J.Conn, *Fl. Victoria* 4: 308, Fig. 60g (1999). Howells (ed.), *Tasmania's Natural Flora*, ed. 3: 224 (2021) (as *M. pilosa*). C.R.Dunlop, *Fl. Australia* 28: 38, Fig. 37B (1996).

Pedicels shorter than the leaves. Sepals hirsute, very rarely glabrous, apex obtuse to acute during fruiting.

Tas. (KIN, TNS, FUR, BEL, TSE, TSR, TWE, TCH); also SA, Vic., NSW.

1b *Mitrasacme pilosa* var. *stuartii* Hook.f., *Bot. Antarct. Voy.* III (Fl. Tasman.) I: 274 (1857).

Stalked hairy mitrewort

Illustrations: W.M.Curtis, *The Student's Flora of Tasmania* 3: 476, Fig. 110 (1967). B.J.Conn, *Fl. New South Wales* 3: 480 (1992). B.J.Conn, *Fl. Victoria* 4: 308, Fig. 60h (1999). C.R.Dunlop, *Fl. Australia* 28; 38, Fig. 37A (1996).

Pedicels much longer than the leaves, up to 4 cm long. Sepals glabrous, apex acute to acuminate during fruiting.

Tas. (KIN, TNM, FUR, BEL, TSE, TSR, TWE, TCH); also Vic., NSW.

2 *Mitrasacme serpyllifolia* R.Br., *Prodr. Fl. Nov. Holland.* 454 (1810).

Thyme mitrewort

Illustrations: B.J.Conn, *Fl. New South Wales* 3: 480 (1992). C.R.Dunlop, *Fl. Australia* 28; 38, Fig. 37G (1996).

Low-growing perennial herb to 5 cm tall, forming sparse, short mats. Stems prostrate, glabrous, rarely with a few hairs, especially at nodes. Leaves ovate to oval or elliptical, 2–4(–5) mm long, 1–2.5(–3) mm wide, lamina glabrous, with base cuneate to rounded, sparsely ciliate, margin sometimes inflated and paler, apex rounded to obtuse, with a terminal hair or small tuft. Inflorescence terminal and axillary, flowers subsessile. Calyx glabrous; tube 1–1.5 mm long; lobes triangular to ovate, 1–1.5 mm long, apex acute to obtuse, with a terminal hair or tuft. Corolla white to cream, scarcely protruding beyond the calyx; tube very short, glabrous, with a thickened, shortly papillose throat; lobes spreading, triangular to ovate, sparsely pilose adaxially, glabrous abaxially, margin densely and conspicuously papillose, apex acute to obtuse. Stamens attached to the wall of the corolla tube, with anthers exerted. Ovary 2-lobed, with styles free at the base but fused near the apex for up to half their length; stigmas capitate. Fruit ovoid, slightly flattened, 1.5–2 mm diameter. Seed rounded. Flowering Nov.–Feb.

Tas. (FUR, BEL, TSE, TWE, TCH, TNS); also Vic., NSW. Occasional at higher-elevation heathland and grassland to c. 1,500 m elevation, especially in the northern half of the State, but seemingly rarer than *Mitrasacme pilosa*. It can be distinguished from the latter by its much smaller habit, glabrous stems, only shortly papillose corolla throat, and exerted stamens.

2 PHYLLANGIUM

Phyllangium Dunlop, *Fl. Australia* 28: 59–62, 315 (1996).

Synonymy: *Mitrasacme* sect. *Dichelocalyx* G.Don *Gen. Hist.* 4: 172 (1837). *Mitrasacme* sect. *Anisomitra* Endl., *Gen. Pl.* [Endlicher] 8: 606 (1838).

Annual terrestrial or aquatic, glabrous or pubescent herbs. Leaves sessile, opposite, exstipulate but joined at the base across the stem. Inflorescence a few-flowered terminal umbel or a single flower. Flowers on wiry, filiform pedicels, enclosed in a 2-lobed involucre. Calyx absent. Corolla white, 4-lobed, lobes valvate in bud. Ovary semi-inferior. Styles free at the base, upper part free or fused. Fruit enclosed by involucre. Seeds many, minute.

A temperate Australian genus of 5 species (2 in Tasmania). *Phyllangium* has close affinities with *Mitrasacme* and *Schizacme*.

Key reference: Dunlop (1996).

- 1. Styles connate; corolla 2.5–5.4 mm long, longer than involucre
- 1: Style free; corolla 1.4–1.7 mm long, shorter than involucre

- 1 *P. divergens*
- 2 *P. distylis*

1 *Phyllangium divergens* (Hook.f.) Dunlop, *Fl. Australia* 28: 62, 315 (1996).

Wiry mitrewort

Mitrasacme divergens Hook.f., *London J. Bot.* 6: 276 (1847). *M. paradoxa sensu* Curtis, *The Student's Flora of Tasmania* 3: 476 (1967), non R.Br. *Prodr. Fl. Nov. Holland* 454 (1810).

Illustrations: C.R.Dunlop, *Fl. Australia* 28; 60, Fig. 42B (1996).

Annual, herb to 9(–12) cm tall. Branches terete, glabrous, filiform and flimsy, mostly basal. Leaves elliptic, oblanceolate or lanceolate to narrowly ovate, 2–6(–9) mm long, 1–2(–3) mm wide, glabrous, base tapering slightly, margins flat, apex acute to rounded. Inflorescence an irregular 2–5(–8)-flowered umbel, rarely a solitary flower; pedicels filiform, to 5 cm long. Involucre campanulate, c. 2–3 mm long at anthesis, 2-lobed; lobes broadly triangular, shorter to almost as long than the tube, with apices obtuse, often recurved. Corolla white, 2.5–4 mm long, slightly longer than the involucre; lobes triangular, normally shorter than the tube. Stamens included in the tube. Styles separate at the base, connate at the apex, with stigmas diverging. Capsule 2–4 mm long, surrounded by an enlarged, persistent involucre. Seeds dark brown, angular, approximately in the shape of a trapezoidal prism, to 0.4 mm long; testa finely reticulate. Flowering Sep.–Jan.

Tas. (KIN, TNS, FUR, BEL, TNM, TSE); also SA, Vic. A herb of seasonally wet sandy and clayey soils with sparse vegetation, often over rock plates; in Tasmania, much more common near the coast. A small, and probably often overlooked, ephemeral herb. Normally much more robust than *Phyllangium distylis*, from which it's most reliably distinguished by its fused styles.

2 *Phyllangium distylis* (F.Muell.) Dunlop, *Fl. Australia* 28: 61, 315 (1996).

Tiny mitrewort

Mitrasacme distylis F.Muell. *Trans. Philos. Soc. Victoria* 1: 20 (1854).

Illustrations: C.R.Dunlop, *Fl. Australia* 28; 60, Fig. 42D, H–J (1996).

Annual herb 5 to 50 mm tall. Branches rare, when present, terete, filiform, glabrous. Leaves linear-elliptic or narrowly ovate-lanceolate, 3–5(–7) mm long, 1–1.5 mm wide, glabrous, lamina somewhat thickened, base not or scarcely narrowed, margins flat, apex rounded. Flowers solitary, terminal or axillary; pedicels filiform, 0.25–20 mm long. Involucre campanulate, 2–3.5 mm long at anthesis; lobes short, broadly triangular, apex rounded. Corolla white, c. 1.5 mm long, often hidden within the involucre; lobes 1/4–1/2 as long as tube. Stamens included in corolla tube. Styles separate and parallel during and after flowering. Capsule 2–2.5 mm long, globular, surrounded by the persistent involucre. Seeds brown, angular, irregular in shape, ridged, to 0.5 mm long; testa finely reticulate. Flowering & fruiting Oct.–Nov.

Tas. (KIN, FUR, BEL, TNM); also SA, Vic. A tiny herb of open heath, especially on seasonally-flooded sandy sites near the coast. Less common and much smaller than *Phyllangium divergens*, from which it's distinguished by its entirely separate styles.

3 SCHIZACME

Schizacme Dunlop, *Fl. Australia* 28: 58, 315 (1996).

Perennial, prostrate, mat- or cushion-forming, glabrous or pubescent herbs or subshrubs. Leaves sessile, opposite, joined together by a connate sheath. Flowers solitary, terminal, 4-merous; Calyx lobes (in Tasmania) fused only at the extreme base, heteromorphic. Corolla campanulate, white. Stamens included within corolla throat. Ovary superior; styles 2, parallel or connivent but not fused. Fruit flattened with erect, conical horns. Seeds few.

A genus of five species in Australia and New Zealand (two in Australia, both in Tasmania). *Schizacme* has close affinities with *Phyllangium* and *Mitrasacme*.

Key reference: Dunlop (1996b).

1. Leaves rigid, glossy, with a tough, hyaline margin

1 *S. archeri*

1: Leaves thick and fleshy, not glossy, without a hyaline margin

2 *S. montana*

Schizacme archeri (Hook.f.) Dunlop, *Fl. Australia* 28: 58, 314 (1996).

Cushion mitrewort

Mitrasacme archeri Hook.f., *Bot. Antarct. Voy. III* (Fl. Tasman.) 2(10): 368 (1857).

Illustrations: Howells (ed.), *Tasmania's Natural Flora*, ed. 3: 225 (2021).

Low-growing, cushion-forming perennial herb. Stems prostrate, much-branched, 2–6 cm long. Leaves imbricate, very crowded, oblong to elliptic or obovate to broadly spatulate, 2–5 mm long, 1–1.5 mm wide, lamina rigid, glossy, with prominent midnerve, base ciliate, rarely glabrous, margin tough, hyaline, apex obtuse to rounded, usually with a small mucro. Flowers solitary, terminal and in the axils of the uppermost leaves, subsessile, glabrous. Sepals fused only at the extreme base, dimorphic; outer ones leaf-like, 2–3 mm long and 1–1.5 mm wide, oblong to ovate, margin usually ciliate near the base, apex obtuse to acute; inner ones 2–3 mm long, < 1 mm wide, margin glabrous, apex narrowly acute. Corolla white; tube 1.5–2 mm long; lobes erect, triangular, 1–2 mm long, apex acute, slightly recurved. Stamens with very short pedicels, inserted in the sinuses; anthers held at the level of the corolla throat. Ovary tapering into styles; styles distant or connivent but separate throughout. Fruit flattened, 2-lobed with persistent styles, c. 2 mm long and 4–5 mm wide. Seed not seen. Flowering Oct.–Jan.

Tas. (TSE, TSR, TWE, TCH), endemic. An uncommon small plant of high-elevation peaty soils in western and central Tasmania. Easily distinguished from *Schizacme montana* by its more compact, cushion-forming habit, and its tough, almost plastic-like hyaline leaf margin.

Schizacme montana (Hook.f. ex Benth.) Dunlop, *Fl. Australia* 28: 58, 314 (1996). *Mountain mitrewort*
Mitrasacme montana Hook.f. ex Benth., *J. Proc. Linn. Soc., Bot.* 1(2): 93 (1856).

Illustrations: C.R.Dunlop, *Fl. Australia* 28; 60, Fig. 42K-M (1996). B.J.Conn, *Fl. Victoria* 4: 308, Fig. 60d (1999).

Low-growing, mat- to loose cushion-forming perennial herb. Stems much-branched, 2–6 cm long, rooting proximally at the nodes. Leaves somewhat thickened, glabrous, spatulate or obovate to elliptic or orbicular, 3–6(–15) mm long, 2–4 mm wide, base ± tapered, occasionally ciliate, margins recurved, apex rounded. Flowers terminal or in the axils of upper leaves, pedicels variable in length, 1–15(–30) mm long, variably pilose, becoming glabrous. Sepals fused only at the extreme base, dimorphic; outer ones leaf-like, 2.5–3.5 mm long and 1.5–2 mm wide, elliptic to ovate or spatulate, base ± pilose and ciliate, sometimes glabrous, apex recurved, obtuse; inner ones 2.5–3 mm long, 1–1.5 mm wide, lanceolate to oblanceolate, base rarely ciliate, apex recurved, acute. Corolla white; tube 2.5–3 mm long; lobes triangular, 1–1.5 mm long. Stamens inserted in the sinuses; anthers almost sessile, inserted in the throat of the corolla. Ovary tapering into styles; styles parallel or connivent but separate. Fruit 2-lobed with persistent styles, flattened, c. 3 mm long, 4–7 mm wide. Seed tan- to mid-brown, c. 0.8 mm long, ellipsoidal, rounded, testa smooth. Flowering & fruiting Oct.–Feb.

Tas. (BEL, TSE, TSR, TWE, TCH), also Vic., NZ. A small herb of usually peaty soils from low elevation in the southwest to montane and alpine habitats. Its leaves are thickened but much less rigid and plastic-like than in *Schizacme montana*, with a recurved margin, and usually forms loose mats or cushions instead of tight cushions.

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NOTE: Web addresses can and do change: a list of current web addresses is maintained in the web version of this treatment on the *Flora of Tasmania Online* website at <https://flora.tmag.tas.gov.au/>

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