



## 128 MENYANTHACEAE <sup>1</sup>

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Annual or perennial, aquatic or amphibious herbs; stems floating or erect and emergent, often rhizomatous or stoloniferous. Leaves alternate, simple (Australia) or compound, radical or cauline and often clustered at the base of the stem, exstipulate; petioles often with expanded or sheathing bases. Inflorescence a solitary flower (Tas.) or a fascicle or panicle or a raceme (not in Australia). Flowers actinomorphic, bisexual, sometimes heterostylous, 4(not in Tas.)–5-merous. Sepals free or united at the base, persistent. Corolla short-lived and deliquescent; tube short; lobes spreading, valvate or induplicate-valvate, usually with entire or lacinate lateral wings and a transverse fringe of hairs or papillae near the base, sometimes with a papillose or lacinate median keel. Stamens alternating with the petals, attached at or near the throat of the tube; anthers longer than the filaments, 2-celled, linear-oblong, dehiscence introrse. Ovary superior to semi-inferior, often with 4(not in Tas.)–5 nectary lobes at the base, 1-locular with 2–5 parietal placentae; style simple, persistent; stigmas 2–5, each with a papillate or lacinate wing. Fruit a capsule, ellipsoid to spherical, dehiscence apical, 4-valved, or fleshy and indehiscent. Seeds few or numerous, with endosperm.

A family of 6 genera and about 60 species found throughout tropical to cold temperate regions of the world. In Australia there are 3 genera and about 35 species. In Tasmania there are 2 genera and 5 species. Recent molecular work has resulted in the erection of new genera and re-circumscription of existing ones in Australia (Tipperry & Les 2009). Menyanthaceae are placed in Asterales near Goodeniaceae (mainly Australian), Calyceraceae (S America) and Asteraceae (cosmopolitan) (see APG II 2003).

The family is of little economic importance, apart from some species of *Menyanthes* L. from which certain anti-fever and arthritis medicines are extracted. Some species have minor horticultural use as pond or aquarium ornamentals. In Australia, a few species of *Nymphoides* have become minor environmental weeds in waterways while in some Asian countries some species cause serious problems, affecting navigation, irrigation and fish culture (Aston 1986).

Due to the mainly aquatic habitat preference of shallow, fresh water which in many localities may vary seasonally from permanent or intermittent inundation, to moist or dried out mud-pans, the general habit of some plants in this family may differ according to the prevailing weather. Some species, stranded for various periods, may not develop stolons or other adventitious structures and the internodes may be much contracted so that the plants may be considerably smaller and of a tufted habit. As well, petiole and leaf characteristics may show some departures from the typical (aquatic) forms.

In Tasmania, further critical collections of *Ornduffia umbricola* (Aston) Tipperry & Les and *Liparophyllum exaltatum* (Sol. ex Sims) Tipperry & Les, in particular, are required to more accurately determine their distribution.

Key reference: Aston (1986).

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

1 This work can be cited as: Gray AM & de Salas MF (2019). Menyanthaceae, **version 2019:1**. In MF de Salas (Ed.) *Flora of Tasmania Online*. 6 pp. (Tasmanian Herbarium, Tasmanian Museum and Art Gallery: Hobart). <https://flora.tmag.tas.gov.au/treatments/menyanthaceae/>

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

1. Leaves ovate to orbicular, approximately as long as broad, > 2 cm diameter 1 *Ornduffia*  
 1: Leaves linear or saggitate, much longer than broad, or if rounded, then < 1 cm diameter 2 *Liparophyllum*

## 1 ORNDUFFIA

*Ornduffia* Tippet & Les, *Novon* 19(3): 409 (2009)

Perennial, aquatic herbs, but sometimes stranded for various periods during dry periods. Leaves radical, erect or floating, on long, supple petioles, variously expanded and/or sheathing at the base; lamina simple, ovate or broad-ovate to orbicular, margins entire to crenate. Inflorescence erect or semi-erect, paniculate. Flowers bracteate, pedicellate, heterostylous or homostylous. Sepals 5, persistent. Corolla yellow (in Tas.), often showy, gamopetalous with 5 spreading lobes; lobes deliquescent, induplicate in bud, spreading. Stamens 5, epipetalous; anthers 2-celled. Ovary semi-inferior, 1-locular with 2 parietal placentae; style solitary, with 2 stigmas. Capsule mostly ripening in air, dehiscent into 4 apical valves. Seeds with or without a caruncle; testa smooth, granular or tuberculate.

An endemic Australian genus of 7 species; 2 species in Tasmania.

Key reference: Aston (1969).

2. Plants stoloniferous; leaf blades usually floating and strongly discolorous; scapes robust and usually erect; mature capsules on erect pedicels 1 *O. reniformis*  
 2: Plants not stoloniferous; leaf blades usually erect to reclining, weakly discolorous; scapes lax, spreading; mature capsules on recurved pedicels 2 *O. umbricola*

**1 *Ornduffia reniformis*** (R.Br.) Tippet & Les, *Novon* 19: 410

*Running Marshflower*

*Menyanthes sarmentosa* Sims, *Bot. Mag.* 32: t. 1328 (1810); *Villarsia sarmentosa* (Sims) Roem. & Schult., *Syst. Veg. edn 16*, 4: 180 (1819). *Villarsia reniformis* R.Br., *Prodr. Fl. Nov. Holland* 457 (1810); *Villarsia parnassiifolia* (Labill.) R.Br. var. *reniformis* (R.Br.) Griseb., *Gen. Sp. Gent.* (1838). *Villarsia parnassiifolia* var. *reniformis* Schldl., *Linnaea* 20: 607 (1847), *nom. illeg., non* (R.Br.) Griseb. (1838). *Limnanthemum stygium* J.M.Black, *Trans. & Proc. Roy. Soc. South Australia* 42: 52, t. VI (1918); *Nymphoides stygia* (J.M.Black) H.Eichler, *Taxon* 12: 296 (1963) [as *N. stygium*]. *Villarsia exaltata* p.p. *sensu* W.M.Curtis, *The Student's Flora of Tasmania* 3: 483 (1967).

*Illustrations* (as *V. reniformis*): Aston, *Muelleria* 2: 47, fig. 30 (1969); Sainty & Jacobs, *Waterplants of New South Wales* 310 (1981); Aston, *Fl. S. Austral.* 2, edn. 4: 1050, fig. 514c (1986); Jacobs, *Fl. New South Wales* 3: 508 (1992); Aston, *Fl. Victoria* 4: 384, fig. 74f (1999); Corrick & Fuhrer, *Wildflowers of Victoria* 141, fig. 496 (2000); Spencer, *Horticultural Flora of South-Eastern Australia* 4: 134 (2002); Gilfedder *et al.*, *The Nature of the Midlands* 83 (2003); Simmons *et al.*, *A Guide to Flowers and Plants of Tasmania*, 4th edn, 100 (2008).

A perennial herb with fleshy roots, stoloniferous when in permanent water, stolons usually not developing on plants growing in temporary or shallow water; stolons to 2 m long. Radical leaves typically floating but lax to erect and emergent on plants in shallow water; petioles up to 65 cm long; blades broadly ovate to orbicular, or reniform-cordate, 3–8(–12) cm long, as long as or slightly longer than broad, basal sinus broad to very narrow or the lobes sometimes overlapping; floating leaves strongly discolorous, abaxial surface deep green and glossy, adaxial surface pale, dull green or purplish and strongly gland-dotted; emergent leaves similar to the floating leaves but less strongly discolorous, adaxial surface dull, abaxial surface greener with the glands almost inconspicuous; texture thick, margins entire to shallowly dentate-crenate. Scapes erect, or in deeper water reclining. Inflorescence a many-flowered panicle; bracts subtending the flowers ovate, acute c. 3–5 mm long. Flowers homostylous, pedicellate. Calyx 5-lobed, 6.5–12 mm long. Corolla yellow, 20–40 mm diam., lobes (4)5(6), not keeled, wings broad, entire to crenulate. Filaments short, 1–2 mm long, anthers 3–4(–5) mm long. Ovary with 2 placentae, ovules numerous. Style 0.5–3.0 mm long; stigma 2-lobed, papillose. Fruiting pedicels erect, 7–25(–35) mm long. Capsule 6–12 mm long, about as long as the calyx, adnate to the calyx tube only at the base. Seeds ellipsoid to sub-globular, fawn to pale brown, testa smooth or sometimes granular; without caruncle. Flowering Oct.–Mar.; fruiting Oct.–May.

Tas. (BEL, FUR, KIN, TCH, TNM, TNS, TSR, TWE); also SA, NSW, Vic. Widespread and mostly aquatic in still, fresh water 50–100 cm deep but also amphibian in wetland areas and low lying land subject to occasional or seasonal inundation, usually in association with emergent sedges and other semi-aquatic vegetation.

**2 *Ornduffia umbricola*** (Aston) Tippet & Les, *Novon* 19: 410 (2009) var. **umbricola** *Lax Marshflower*

*Villarsia umbricola* Aston var. *umbricola*, *Muelleria* 2: 1 (1969).

*Illustrations* (as *V. umbricola*): Aston, *Muelleria* 2: pl. 2 (1969); Aston, *Fl. S. Austral.* 2, edn. 4: 1050, fig. 514d (1986); Aston, *Fl. Victoria* 4: 384, fig. 74e (1999).

A tufted perennial or sometimes annual to 110 cm high, erect or reclining, without stolons. Leaves radical; petioles 2.5–45 cm long; blades 1.8–12 cm long, ovate to broad ovate or almost circular, mostly aerial, erect to partially floating when in water, the blades more or less undulate and not lying flat on the surface, erect to spreading or reclining on land plants, concolorous, thin textured, base rounded to shallowly cordate, margins entire. Scapes often many, usually much longer than the leaves. Inflorescence paniculate, slender, lax, semi-erect to reclining on land plants, the panicle occupying much of the flowering stem; pedicels 5–40(–60) mm long. Flowers homostylous. Calyx (3–)6–9 mm long. Corolla yellow, 11–22(–30) mm diam.; lobes (4) 5 (6), not keeled, wings broad, entire to crenulate. Filaments short, 0.5–1.5 mm long; anthers 1.5–2.5 mm long. Ovary with 2 placentae, ovules 11–50 per placenta; style 1.5–2.0 mm long; stigmas 2, fleshy and papillose. Fruiting pedicels recurved, pendulous. Capsule 5–11 mm long, usually noticeably exerted by  $\frac{1}{3}$  to  $\frac{1}{2}$ , or more the length of the calyx. Seeds ellipsoid to sub-globular, slightly laterally compressed, 0.8–1.4–1.6 mm long, testa pale fawn to light brown, smooth or tuberculate; without caruncle. Flowering & fruiting Dec.–Jan.

Tas. (FUR?, TSE?, TWE); also SA, Vic. A poorly collected species found in damp, boggy areas, shallow fresh water pools and the edges of slowly flowing streams to 45 cm deep. In 2006, specimens from a population of this species were collected from Tiger Creek, just south of the Arthur River, on the Tasmanian west coast. More recently (2008), specimens, yet to be confirmed as this species, were collected from a number of localities on the east coast of the state. The species is perhaps more widespread but overlooked because of its resemblance to *O. reniformis*.

The other variety, *O. umbricola* var. *beaugleholei* (Aston) Tippet & Les, differs mainly in the character of the seed testa, this being strongly tuberculate, the tubercles cylindrical, slightly expanded and minutely papillate at the apex.

## 2 LIPAROPHYLLUM

*Liparophyllum* Hook.f., *Hooker's J. Bot. Kew Gard. Misc.* 6: 472 (1847).

Aquatic or wetland annual or perennial herbs. Leaves radical, alternate, erect, sessile and linear or petiolate with ovate to orbicular laminae. Inflorescence a panicle, or reduced to a group of 1–5 flowers. Calyx pentamerous, persistent. Corolla yellow or white, gamopetalous with 5 lobes. Stamens epipetalous; filaments short, broad; anthers 2-celled, introrse. Ovary 1-locular with 2(–3) parietal placentae; style solitary; stigmas 2. Fruit a capsule, dehiscent into 4 valves, spherical to sub-spherical. Seeds orbicular to ellipsoid.

An Australasian genus of 7 species, 3 of these in Tasmania.

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|--|-----------------------|
| 1. Leaves linear   | 1 <i>L. gunnii</i>    |
| 1: Leaves ovate to orbicular   | 2                     |
| 2. Leaves < 1 cm wide. Flowers 1–2, pedicels shorter than leaves               | 2 <i>L. exiguum</i>   |
| 2: Leave > 3 cm wide. Flowers $\infty$ , on panicle held well above the leaves | 3 <i>L. exaltatum</i> |

**1 *Liparophyllum gunnii*** Hook.f., *Hooker's J. Bot. Kew Gard. Misc.* 6: 473 (1847) *Alpine Marshwort*

*Limnanthemum gunnii* (Hook.f.) Hook.f., *Bot. Antarct. Voy. III (Fl. Tasman.)* 2(10): 368, 421 (1860); *Villarsia gunnii* (Hook.f.) Hook.f., *Bot. Antarct. Voy. III. (Fl. Tasman.)* 2(10): 368, 421 (1860).

*Illustrations*: Kirkpatrick, *Alpine Tasmania* 104, fig. 46b (1997); Whiting *et al.*, *Tasmania's Natural Flora* 205 (2004).

Glabrous aquatic or amphibious herbs, the plants often covering area several metres in diameter; rhizomes long, fleshy, branching; roots large, fleshy, submerged in mud. Leaves mostly crowded at the ends of emergent stems up to 5 cm tall; blade (10–)30–40(–50) mm long, thick, fleshy, terete or bi-convex, narrow lanceolate, linear-lanceolate or linear-spathulate, apex bluntly pointed and obscurely gland-tipped, with membranous, sheathing bases. Flowers solitary or in pairs, terminal, c. 5 mm diam., on stout pedicels, as long as, or shorter than, the leaves. Sepals persistent, narrow linear, lobes 3–5 mm long, fleshy, obscurely gland-tipped. Corolla subrotate, the lobes longer than the calyx, narrow ovate, undulate, white, inner surface slightly hairy. Stamens epipetalous; filaments relatively broad and scarcely longer than the anthers. Ovary superior, tapering to a short, persistent style; stigmatic lobes 2, broad. Capsule spherical to sub-spherical, c. 4–6 mm diam.; seeds numerous, lenticular; testa yellowish, smooth, glossy, minutely reticulate. Flowering & fruiting Dec.–Mar.

Tas. (TCH, TSR, TWE); also New Zealand. Locally frequent in higher areas in the west of the state, around the margins of shallow tarns, pools, and slowly flowing streams, in sand or mud, either submerged or emergent in seasonally dry periods.

## **2 *Liparophyllum exiguum* (F.Muell.) Tippet & Les, *Novon* 19: 408 (2009)**

*Dwarf Marshwort*

*Limnanthemum exiguum* F.Muell., *Fragm. (Mueller)* 1(2): 40 (1858); *Villarsia exigua* (F.Muell.) F.Muell., *Fragm. (Mueller)* 2(15): 137 (1861), *nom. illeg. Nymphoides exigua* Kuntze, *Revis. Gen. Pl.* 2: 429 (1891).

*Illustrations* (as *N. exigua*): Stones & Curtis, *The Endemic Flora of Tasmania* 6: t. 135, No. 223 (1978); Kirkpatrick, *Alpine Tasmania* 104, fig.46a (1997); Gilfedder *et al.*, *The Nature of the Midlands* 83 (2003); Aston, *Muelleria* 18: 41, figs 24–27 (2003), detail of seed.

Small, perennial herbs. Stems rhizomatous or floating, often tangled and forming large masses in still, fresh or brackish water, or in wet mud. Leaves arising from a stout rootstock, and from subtending runners which root at the nodes and produce tufts of emergent leaves along long, floating stems; petioles 1–3(–5) cm long, filiform but expanded at the base; blade obovate or broadly elliptical, or nearly orbicular, (2–)4–5(–8) mm long, margins entire, texture thin in submerged leaves, fleshier in emergent leaves or on exposed plants growing in mud. Flowers small, solitary, or two together at the nodes; pedicels shorter or seldom as long as than the leaves. Calyx persistent, lobes broadly triangular, obscurely gland-tipped, 0.5–2.0 mm long. Corolla pale yellow, tube scarcely as long as the sepals; lobes entire, rotate, as long as the sepals. Style short, with 2 short stigmatic lobes, persistent. Capsule broadly ovoid to spherical, c. 3 mm diam. Seeds c. 1 mm long, ellipsoid-lenticular; pale fawn, smooth, shining. Flowering Nov.–Feb.; fruiting Feb.–Mar.

Tas. (KIN, TCH, TSE, TSR, TWE); endemic. Locally abundant from sea level to c. 800 m alt., in shallow pools and along the banks of slowly flowing streams, either submerged, in mud, or in herb 'lawns', with other small, semi-aquatic herbs; also tolerates brackish water in coastal lagoons.

## **3 *Liparophyllum exaltatum* (Sol. ex Sims) Tippet & Les, *Novon* 19: 408 (2009)**

*Erect Marshflower*

*Menyanthes exaltata* Sims. Soland. ex Sims, *Curtis's Bot. Mag.* 26: t. 1029 (1807); *Villarsia exaltata* (Sims) G.Don, *Gen. Hist.* 4: 169 (1838); *Limnanthemum exaltatum* (Sims) F.Muell., *Fragm.* 9 (72): 165 (1875); *Renealmia exaltata* (Sims) Kuntze, *Revis. Gen. Pl.* 2: 430 (1891).

*Illustrations* (as *V. exaltata*): Aston, *Muelleria* 2: 39, fig. 26; 40, fig. 27 (1969); Jacobs, *Fl. New South Wales* 3: 508 (1992); Aston, *Fl. Victoria* 4: 384, fig. 74g (1999).

Perennial, non-stoloniferous herb with fleshy roots. Radical leaves emergent, not floating; petioles up to 75 cm long; blades erect, broadly ovate to ovate-elliptic, 5–15 cm long, usually longer than broad, concolorous, surfaces dull, although sometimes with the abaxial surface a little darker, texture thick and sometimes more or less succulent, base narrowed to rounded or truncate, occasionally shallowly cordate, margins entire to

crenate dentate or undulate. Scapes 1 to many, erect and held well above the radical leaves. Inflorescence an open, many-flowered panicle; bracts ovate, acute, (2-)4-5 mm long. Flowers heterostylous, pedicellate. Calyx 5-lobed, 3-5 mm long. Corolla bright yellow, 16-20(-30) mm diam., lobes (4)5, variable in shape, rarely with an obscure keel, wings broad, entire or crenulate. Ovary usually with 2 or occasionally 3 placentae, 10-20 ovules per placenta. Long-styled flowers: style slender, (3-)4-6 mm long; stigmas papillose, 1-2.5 mm long, longer than broad, erect and with recurved edges, presented well above the anthers; filaments short, inconspicuous, 1 mm long; anthers 1.6-2.2 mm long. Short-styled flower: style thicker, stigmas papillose, 0.5-2.0 mm long, 1.0-1.8 mm broad, semi-erect to widely divergent, irregularly rounded, slightly undulate, hardly reaching the level of the anthers; filaments conspicuous; anthers 2-3 mm long. Fruiting pedicels erect, 4-12(-18) mm long; capsule 5-13 mm long, nearly equal to calyx, subglobular, to broad ellipsoid, the lower third to half adnate to calyx tube. Seeds broad ellipsoid, laterally compressed, (1.5-)1.7-2.6(-3) mm long, pale fawn to dark grey-black, usually with crowded, terete tubercles, to c. 0.3 mm or sometimes smaller, rarely absent, apices of tubercles minutely papillate; caruncle large, whitish or translucent, conspicuous. Flowering Nov.-Feb.; fruiting Feb.-Mar. (3 records only).

Tas. (BEL, FUR); also Qld, NSW, Vic. In Tasmania, known only from a few localities on the east coast, near St Helens and a little farther north at The Gardens. Mostly aquatic in still, fresh water to c. 60 cm deep; occasionally amphibian in wet-land areas and low-lying areas subject to occasional or seasonal inundation, usually in association with other wet-land sedges and other semi-aquatic vegetation. Listed as Rare under the *Tasmanian Threatened Species Protection Act 1995*.

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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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