Flora of Tasmania



100 PORTULACACEAE 1

Dennis I Morris², Marco F Duretto³

Herbs or less commonly shrubs or subshrubs, often with a thick taproot, usually glabrous apart from axillary hairs in some genera. Leaves alternate, subopposite or opposite, sometimes rosetted at base, exstipulate, simple, entire, usually sessile. Inflorescence a few to many-flowered cymes or heads or cymose panicle, occasionally the flowers solitary, bracts leafy or scarious. Flowers bisexual, regular or slightly irregular. Sepals (actually bracteoles) 2, free or connate at the base, often slightly unequal, usually persistent. Petals (actually petaloid sepals) (2–)4–11, usually 5, free or shortly connate at the base, often ephemeral. Stamens 3-numerous, commonly as many as and opposite to the petals; filaments free or often connate at the base; anthers dithecal, dorsifixed, dehiscing by longitudinal slits. Ovary superior or semi-inferior, of 2–3(–9) carpels united to form a compound ovary with at first as many locules as carpels, the partitions disappearing early to form a unilocular ovary; ovules 3-many, on a basal or central placenta; style with 3–9 stigmatic branches. Fruit a capsule opening by 3 or 4 valves or circumscissile. Seeds 1-many, commonly ± lenticular, smooth and shining or tuberculate or colliculate.

A family of about 20 genera and 250 species; cosmopolitan in distribution with the main centre of development in the Americas. In Australia there are about 70 species in 7 genera. The Portulacaceae are placed in the large order Caryophyllales near Cactaceae (mainly the Americas).

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

1. Flowers yellow, sessile; ovary ¹/2 inferior; capsule circumscissile **1 Portulaca**

1: Flowers white or pink, pedicillate; ovary superior; capsule opening by values

2 Calandrinia

2. Leaves usually sessile, not expanded at the base, rarely petiolate; petals free; seeds > 10

Calaliulilla

2: Leaves ± stem-clasping; petals united at the base in a short tube; seeds 3

3 Montia

2

1 * PORTULACA

Portulaca L., Sp. Pl. 1: 445 (1753).

Succulent, annual or perennial herbs or low shrubs, often with a thickened taproot; glabrous except for tufts of hairs in the leaf axils; stems branching, prostrate or decumbent. Leaves opposite, subopposite or alternate, often spirally arranged below the inflorescence, usually sessile, flat or terete, entire. Inflorescence bracteate, terminal, cymose, 1–30-flowered. Sepals 2, united at the base, the anterior larger and overlapping the posterior. Petals 4–6, yellow or green (in Tas.), united at the base. Stamens 5-many; the filaments united at the base in a short tube. Ovary ¹/2 inferior; stigmas 2–9. Capsule circumscissile. Seeds numerous, subovoid to lenticular, smooth or tuberculate.

A genus of about 100 species in tropical to temperate regions with about 20 native to Australia.

³ Tasmanian Herbarium, Tasmanian Museum & Art Gallery, Private Bag 4, Hobart, Tasmania 7001, Australia.





¹ This work can be cited as: Morris DI, Duretto MF (2009) 100 Portulacaceae, version 2009:1. In MF Duretto (Ed.) Flora of Tasmania Online. 7 pp. (Tasmanian Herbarium, Tasmanian Museum & Art Gallery: Hobart). ISBN 978-1-921599-33-0 (PDF). www.tmag.tas.goc.au/floratasmania

^{2 (}deceased) formerly Tasmanian Herbarium, Tasmanian Museum & Art Gallery, Private Bag 4, Hobart, Tasmania 7001, Australia.

1 * Portulaca oleracea L., *Sp. Pl.* 1: 445 (1753)

Pigweed, Common Purslane, Purslane

Illustrations: Walsh, Fl. Victoria 3: 223, fig. 40a-b (1996); West, Fl. New South Wales 1, rev. edn: 179 (2000); Richardson et al., Weeds of the South-East, an Identification Guide for Australia 349 (2006).

Prostrate annual herb, glabrous, succulent; stems reddish or purplish, 5–20(–30) cm long; tap root well-developed. Leaves alternate below, subopposite or opposite above, the uppermost whorled, 1–3 cm long, obovate to oblong or cuneate, truncate or obtuse, occasionally emarginate; axillary hairs up to 1 mm long. Flowers in clusters of 2–6(–30?), bracts triangular-ovate, hyaline. Sepals ovate-lanceolate, 3–6 mm long, keeled. Petals 4–6, obovate, yellow, 4–7 mm long, deliquescent after flowering. Stamens 8–15. Style-branches 4–6. Capsule ovoid, 3–5 mm long. Seeds dark brown to black, obovate-lenticular, 0.5–1 mm long, shining or dull, tuberculate. Flowering Dec.-Mar.; fruiting Jan.-Mar.

Tas. (KIN, FLI, TNM, TNS, TSE); naturalized in all Australian states; almost cosmopolitan. Found in domestic gardens and nurseries.

2 CALANDRINIA

Calandrinia Kunth, Nov. Gen. Sp. [H.B.K.] 1(1-2): 66 (1816).

Synonymy: Parakeelya Hershk., Phytologia 84(2): 101 (1998).

Succulent annual or perennial herbs, procumbent, decumbent or erect or twining. Leaves alternate or opposite, rosulate and on aerial stems, sessile or rarely petiolate, simple, entire, terete or flat. Inflorescence bracteate, racemose or the flowers solitary; pedicles erect, spreading or reflexed in fruit; bracts alternate or opposite, usually scarious. Flowers bisexual, regular, receptacle hypogynous. Sepals 2, persistent or deciduous. Petals (4)5(–11), white, pink or purple, free, soon withering and forming a calyptra over the ovary. Stamens 3-many. Ovary ovoid to globose; ovules 1-many; stigmas 2–5, free to the base or on a short style. Capsule opening by valves or rarely by an apical pore. Seeds 1-many, smooth or variously ornamented.

A genus of 120-150 species in America and Australia; 40 native to Australia.

1. Petals 6–15 mm long, purple

3.

4 C. ciliata

1: Petals 2.5–4 mm long, white or pale pink

2

3

2. Capsule broad-ovoid to subglobose, black, opening by 3 short valves at the apex; sepals not persistent

Seeds 10-20, lenticular, shining, smooth to faintly colliculate; sepals obscurely veined

1 C. granulifera

2: Capsule narrow-ovoid, light brown, opening by valves to the base; sepals persistent

2 C. calyptrata

3: Seeds 30–55, reniform, colliculate with a metallic lustre; sepals prominently veined

3 C. eremaea

1 Calandrinia granulifera Benth., Fl. Austral. 1: 176 (1863)

Pigmy Purslane

Claytonia granulifera (Benth.) F.Muell., Syst. Census Austral. Pl., Sup. 1: 27 (1884); Parakeelya granulifera (Benth.) Hershk., Phytologia 84(2): 102 (1998). Talinum nanum Nees, Pl. Preiss. 1(2): 246 (1845); Parakeelya nana (Nees) Hershk., Phytologia 84(2): 102 (1998); Calandrinia pygmaea F.Muell., Fragm. 1(7): 175 (1859), nom. illeg.; Claytonia pygmaea (F.Muell.) F.Muell., Native Pl. Victoria 133 (1879). Calandrinia neesiana H.Eichler, Taxon 12: 295 (1863).

Illustrations: Walsh, Fl. Victoria 3: 219, fig. 39a-c (1996); Corrick & Fuhrer, Wildflowers of Victoria 181, fig. 636 (2000); West, Fl. New South Wales 1, rev. edn: 183 (2000).





Small annual herb, branching from the base; branches erect, decumbent or ascending, 1–5 cm long. Basal leaves to 10 mm long, 2–5 mm wide, oblong, oblanceolate or obovate, rapidly deciduous; stem leaves up to 5 mm long and 2.5 mm wide, oblanceolate, often becoming inflate. Bracts alternate, scarious, up to 3 mm long, rapidly deciduous. Racemes secund; pedicels 1–2 mm long, stout, erect in fruit. Sepals not persistent, broad-ovate to orbicular, navicular, usually 1.5–3 mm long. Petals 5–7, pink, fading to white, 2.5–4 mm long, broad-oblong to oblanceolate. Stamens 5–11. Capsule black, shining, broad-ovoid to subglobose, 1.5–2 mm long, slightly trigonous above, opening by 3 short valves at the apex. Seeds 20–35, c. obovate, colliculate, brown, shining, c. 0.5 mm long. Flowering Sep.-Nov.; fruiting Oct-Nov.

Tas. (FLI, TSE); also WA, SA, NSW, Vic. Occasional in the north-east of the state where found in coastal sands, skeletal soils, rocky outcrops, near sea level to c. 100 m alt.

2 Calandrinia calyptrata Hook.f., Hooker's Icon. Pl. 3: t. 296 (1840)

Pink Purslane

Claytonia calyptrata (Hook.f.) F. Muell., Fragm. 3(22): 89 (1863); Parakeelya calyptrata (Hook.f.) Hershk., Phytologia 84(2): 101 (1998). Calandrinia dipetala J.Black, Trans. & Proc. Roy. Soc. South Australia 51: 379 (1927).

Illustrations: Walsh, Fl. Victoria 3: 219, fig. 39j-k (1996); West, Fl. New South Wales 1, rev. edn: 184 (2000); Harris et al., One Hundred Islands: the Flora of the Outer Furneaux 126 (2001).

Procumbent annual with a slender tap-root, branched from the base; stems 2-25cm long. Radical leaves shortly petiolate; lamina 10-30 mm long, linear, oblong or spathulate, flat to \pm terete, fleshy; stem leaves few, alternate, smaller than the radicle leaves, usually reddish. Inflorescence a loose terminal raceme; pedicels 3-15 mm long, spreading or reflexed in fruit; bracts opposite, scarious, 1.5-3 mm long. Flowers small. Sepals white or pale pink, 1.5-3 mm long, obovate to elliptic, persistent. Stamens 5-7. Capsule narrow ovoid, slightly longer than the calyx. Seeds 10-20, reddish black, lenticular, shining, smooth, faintly colliculate towards the margins. Flowering Jul.-Jan.; fruiting Oct.-Jan.

Tas. (BEL, FLI, TNM, TNS, TSE); also WA, SA, Qld, NSW, Vic. Found in the north and east of the state in coastal and near coastal areas in rock crevices and on skeletal soils among boulders, frequently on granite, near sea level to c. 400 m alt.

3 Calandrinia eremaea Ewart, *Fl. Vict.* 486 (1931)

Small Purslane

Calandrinia pusilla Lindley in Mitchell, J. Exped. Trop. Australia 360 (1848), nom illeg., non Barneoud (1846). Parakeelya eremaea (Ewart) Hershk., Phytologia 84(2): 101 (1998).

Illustrations: Walsh, Fl. Victoria 3: 219, fig. 39n-o (1996); Corrick & Fuhrer, Wildflowers of Victoria 181, fig. 635 (2000); West, Fl. New South Wales 1, rev. edn: 184 (2000).

Decumbent to erect annual; stems to 20 cm long. Leaves basal and on the lower part of flowering stems, alternate, sessile, 1.5–4 mm long, up to 5 mm wide, lanceolate to elliptic. Inflorescence a loose terminal raceme; pedicels 1–2 cm long, erect or reflexed in fruit; bracts opposite, pinkish, scarious, c. 1.5 mm long. Calyx c. 3 mm long, segments broad-ovate, acute, green, pinkish or purplish, prominently veined, persistent. Petals 5, \pm equalling the calyx, white or pale pink, obovate. Stamens 7–20. Stigmas 3. Capsule 4–4.5 mm long, narrow-ovoid, 3-valved. Seeds 30–55, red-brown to black with a metallic lustre when fully mature, reniform, colliculate. Flowering ?-Mar.; fruiting ?-Mar. (Jul.)

Tas. (TSE); all Australian states. At present known only from the catchment of the Derwent River from 200–400 m alt. on dolerite or basalt rocks.

4 * Calandrinia ciliata (Ruiz & Pav.) DC., *Prodr. (DC.)* 3: 359 (1828)

Purple Purslane

Talinum ciliatum Ruiz. & Pav., Fl. Peruv. Prodr. 165 (1794). Calandrinia caulescens Kunth, Nov. Gen. Sp. [H.B.K.] 1(1–2): 67, t. 526 (1816). Talinum menziesii Hook., Fl. Bor-Amer. (Hooker) 1: 223, t. 70 (1832); Calandrinia





menziesii (Hook.) Torr. & A.Gray, Fl. N. Amer. [Torr. & A.Gray] 1: 197 (1838); C. caulescens var. menziesii (Hook.) A.Gray, Proc. Am. Acad. Arts 22: 277 (1887); C. ciliata var. menziesii J.F.Macbr., Publ. Field Mus. Nat. Hist., Bot. Ser. 11: 20 (1931).

Illustrations (all as *C. menziesii*): Walsh, *Fl. Victoria* 3: 219, fig. 39d-f (1996); West, *Fl. New South Wales* 1, rev. edn: 184 (2000).

Annual or over wintering herb, branched from the base; stems prostrate to decumbent or ascending, 15–40 cm long, glabrous, sometimes reddish. Rosette leaves \pm trullate on a long petiole; stem leaves alternate oblanceolate or elliptical, lamina up to 25 mm long, 5 mm wide, petiole up to 25 mm long, glabrous, sometimes papillose-ciliate on the margins. Flowers few-several per branch; pedicel elongating and erect in fruit, 5–40 mm long; bracts alternate, similar to the leaves. Sepals 5–10mm long, persistent, ovate-lanceolate, acute, sometimes papillose-ciliate on the margins and keel. Petals 5, purple, 6–10(–15) mm long, obovate. Stamens 10–13. Style c. 1 mm long; stigmas 3, a little shorter than the style. Capsule 7–9 mm long, the 3 valves acuminate, recurved. Seeds numerous, black, c. 1.6 mm long, broad-ovate, lenticular with flattened margins, glossy, faintly colliculate. Flowering & fruiting Sep.-Dec.

Tas. (FLI, TNM, TNS, TSE); also naturalized in WA, SA, NSW, Vic.; native to North America; naturalized in New Zealand. Occasional in arable and pasture paddocks, roadsides and waste areas.

3 MONTIA

Montia L., Sp. Pl. 1: 87 (1753).

Synonymy: Neopaxia Ö.Nilsson, Bot. Not. 119: 469 (1966).

Tufted or stoloniferous herbs, annual or perennial, sometimes basal internodes becoming tuberous; glabrous. Leaves opposite or alternate, never in a rosette at base. Inflorescence axillary, cymose, few-flowered or flowers solitary; bracts 1-several, alternate. Sepals free or united at base, persistent. Petals 5, united into a short tube, sometimes cleft to the base on one side after anthesis. Stamens 3 or 5, adnate on corolla tube. Ovary superior; ovules 3; style trifid. Capsule splitting longitudinally into 3 valves. Seeds 3 or less by abortion, black, smooth or tuberculate.

An almost cosmopolitan genus with 15–20 species though many of the species have, by some authors, been given subspecific or varietal rank under *M. fontana*. *Neopaxia* (1 Australian, 7 New Zealand spp.) has been recently reduced under *Montia* (see O'Quinn & Hufford 2005; Heenan 2007).

Key references: Heenan (1999, 2007); O'Quinn & Hufford (2005).

1. Leaves opposite; petals unequal, corolla tube split on one side; seeds tuberculate 1 M. fontana

1: Leaves alternate; petals equal; corolla tube not split; seeds smooth or faintly collinulate 2 M. australasica

1 Montia fontana L., *Sp. Pl.* 1: 87 (1753)

Water-blinks

Illustrations: Walsh, Fl. Victoria 3: 223, fig. 40e-i (1996); West, Fl. New South Wales 1, rev. edn: 185 (2000).

Small annual, slender, yellowish-green herbs; stems up to 20 cm long, short and erect in terrestrial forms, decumbent when aquatic, sometimes rooting at the nodes. Leaves opposite, sessile, stem-clasping, often \pm succulent, 2.5–15 mm long, to c. 4 mm wide, obovate, oblanceolate spathulate, elliptic or linear. Pedicels 2–10 mm long. Sepals 1.25–2 mm long, green, orbicular, margins narrow and membranous. Petals 5, white, 2–3 mm long, unequal, united at the base in a short tube open on one side. Stamens 3. Capsule globose, \pm equalling the calyx, the open valves exceeding the calyx. Seeds 3, obovate-lenticular. Flowering & fruiting Jul.-Feb.

Tas. (BEL, FLI, KIN, MIS, TCH, TNM, TNS, TSE, TSR); also SA, NSW, Vic.; also New Zealand, Europe, the





Americas. Widespread and locally common, usually in damp or wet sites but occasionally in drier habitats, from near sea level to over 1200 m alt. There are 4 subspecies (Moore 1963) of which 3 occur in Australia. *Montia fontana* subsp. *amporitana* Sennen is a native of New South Wales and Victoria.

1. Flowers all or mostly solitary; mature capsule c. 2.5 mm long; seeds virtually smooth, slightly tuberculate, shining, 1.3–1.8 mm diam.

1a subsp. fontana

1: Flowers both solitary and clustered; mature capsule 1.5–2.0 mm long; seeds distinctly tuberculate, dull or shining, 0.8–1.2 mm diam.

1b subsp. chrondosperma

1a Montia fontana L. subsp. fontana

Water-blinks

Illustrations: Walsh, Fl. Victoria 3: 223, fig. 40i (1996); West, Fl. New South Wales 1, rev. edn: 185 (2000).

Plants simple or few-branched from the base. Leaves oblanceolate, to 10 mm long, to 1.5 mm wide. Flowers always or mostly solitary in axils. Sepals 1.5–2 mm long. Petals 2–2.5 mm long. mature capsules c. 2.5 mm long. Seeds elliptic, 1.3–1.8 mm diam., virtually smooth. Flowering mainly Nov.-Feb.; fruiting Dec.-Feb.

Tas. (MIS); also NSW (including Lord Howe Is.), Vic.; also New Zealand, the Americas, northern Eurasia. Occurs in wet and inundated areas at most altitudes except in the more exposed areas.

1b Montia fontana subsp. **chondrosperma** (Fenzl) Walters, *Watsonia* 3: 4 (1956)

Water-blinks

Illustrations: Walsh, Fl. Victoria 3: 223, fig. 40h (1996); West, Fl. New South Wales 1, rev. edn: 185 (2000).

Plants usually freely branching from base and above. Leaves oblanceolate to obovate, to 15 mm long, to 4 mm wide. Flowers both solitary and in clusters. Sepals 1–1.8 mm wide. Petals 1.5–2 mm wide. Mature capsules 1.5–2 mm long. Seeds elliptic, 0.8-1.2 mm diam., \pm evenly covered with circular to broadly elliptic tubercles. Flowering & fruiting Jul.-Jan.

Tas. (BEL, FLI, KIN, MIS, TCH, TNM, TNS, TSE, TSR); also SA, NSW, Vic.; also New Zealand, the Americas, Europe. Widespread and locally common, though absent from Macquarie Island and the Tasmanian West, usually in damp or wet sites but occasionally in drier habitats, from near sea level to over 1200 m alt.

2 Montia australasica (Hook.f.) Pax & K.Hoffm., Nat. Pflanzenfam. edn 2, 16c: 259 (1934) White Purslane

Claytonia australasica Hook.f., Hooker's Icon. Pl. t. 293 (1840); Paxia australasica (Hook.f.) Ö.Nilsson, Bot. Not. 119: 275 (1966); Neopaxia australasica (Hook.f.) Ö.Nilsson, Grana Palynol. 7: 331 (1967). Claytonia australasica var. alpina F.Muell., Pap. & Proc. Royal Soc. Tasmania 1873: 59 (1874).

Illustrations (often as N. australasica): Walsh, Fl. Victoria 3: 223, fig. 40j-I (1996); West, Fl. New South Wales 1, rev. edn: 185 (2000); Cameron, A Guide to Flowers and Plants of Tasmania, 3rd edn, 31, pl. 32 (2000); Corrick & Fuhrer, Wildflowers of Victoria 182, fig. 637 (2000); Harris et al., One Hundred Islands: the Flora of the Outer Furneaux 193 (2001); Gilfedder et al., The Nature of the Midlands 124 (2003); Whiting et al., Tasmania's Natural Flora 259 (2004); Simmons et al., A Guide to Flowers and Plants of Tasmania, 4th edn, 39 (2008).

Prostrate aquatic or terrestrial perennial, very varied in habit, with stoloniferous or rhizomatous stems rooting at the nodes. Leaves alternate or in clusters at the nodes, linear or narrow-spathulate, the base with broad scarious shortly sheathing margins. Terrestrial plants with tufts of flowering shoots from the nodes of the stolons or rhizomes, the internodes short and the growth crowded or long and the tufts distant, internodes often swollen and \pm moniliform; flowering stems to 2.5 cm high; leaves to 1.2(–5) cm long, up to 5 mm wide. Aquatic plants with vegetative and flowering stems trailing; stems to 40 cm long; leaves up to 12 cm long by 2 mm wide. Flowers solitary or in few-flowered cymes; pedicels 5–25 mm long, subtended by scarious bract. Sepals orbicular, 1.5–3 mm long. Petals pink or white, 5–9 mm long, obovate, united at the base in a short tube. Stamens 5, opposite the petals; filaments expanded at the base and adnate to the corolla tube; anther extrorse. Stigmas 3, c. 1.5 mm





long on a style shorter or longer than the stigmas. Capsule subglobous, 2–2.5 mm in diameter. Seeds 3, 1.5–1.7 mm long, black, shining, obovate-lenticular, faintly colliculate. Flowering and fruiting throughout the year

Tas. (BEL, KIN, FLI, TCH, TNM, TNS, TSE, TSR); also WA, SA, NSW, Vic.; also New Zealand. Widespread, especially in the east if the state, in damp areas, margins of streams, dams and lakes, emergent in lakes and dams, trailing in streams, from near sea level to over 1500 m alt. When on rock plates and in crevices above 1000 m the species produces mats of stout stolons with short internodes and crowded fleshy leaves.

REFERENCES

APC (Australian Plant Census) http://www.chah.gov.au/apc/about-APC.html

APNI (Australian Plant Name Index) http://www.anbg.gov.au/cgi-bin/apni

AVH (Australia's Virtual Herbarium) (Council of Heads of Australasian Herbaria) http://www.anbg.gov.au/avh.html

Heenan PB (1999) A taxonomic revision of *Neopaxia* Ö.Nilsson (Portulacaceae) in New Zealand. *New Zealand Journal of Botany* **37** 213–234.

Heenan PB (2007) New combinations in Montia (Portulacaceae). New Zealand Journal of Botany 45 437-439.

IPNI (International Plant Name Index) http://www.ipni.org/index.html or http://www.us.ipni.org/index.html

Moore D (1963) Montia fontana L. Botanisker Notiser 116 16-30.

NVA (Natural Values Atlas) (Department of Primary Industries and Water: Hobart) http://www.dpiw.tas.gov.au/inter.nsf/WebPages/LJEM-6TV6TV?open

O'Quinn R, Hufford L (2005) Molecular systematics of Montieae (Portulacaceae): implications for taxonomy, biogeography and ecology. *Systematic Botany* **30** 314–331.

NOTE: Web addresses can and do change: a list of current web addresses will be maintained on the *Flora of Tasmania Online* website [www.tmag.tas.gov.au/floratasmania].

INDEX

В

M	
Montia	. 4
Montia australasica	. 5
Montia fontana	. 4
Montia fontana subsp. amporitana	. 5
Montia fontana subsp. chondrosperma	. 5
Montia fontana subsp. fontana	. 5
N	
Neopaxia	. 4
Neopaxia australasica	. 5
P	
Parakeelya	. 2
Parakeelya calyptrata	. 3
Parakeelya eremaea	. 3
Parakeelya granulifera	. 2
Parakeelya nana	. 2
Paxia australasica	. 5
Pigmy Purslane	. 2
Pigweed	. 2
Pink Purslane	. 3
Portulaca	. 1
Portulaca oleracea	. 2
Portulacaceae	. 1
Purple Purslane	. 3
Purslane	5





S		
Small Purslane		
Т		
Talinum ciliatum3		
Talinum menziesii3		
Talinum nanum2		
W		
Water-blinks		
White Purslane5		

