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101 AIZOACEAE [1] 3

Dennis I Morris [2], Marco F Duretto [3] 4

Annual or perennial, monoecious herbs or, less often, shrubs. Leaves opposite or alternate in false whorls, exstipulate or more rarely stipulate, sometimes reduced to scales, often succulent or subsucculent, flat, terete or triquetrous, glabrous, papillose or rarely pubescent or lepidote,. Inflorescence terminal or axillary, flowers solitary or in loose cymes, sessile or pedicellate, bracteate or ebracteate. Flowers usually actinomorphic, bisexual or rarely unisexual and the plant monecious. Sepals (3–)5–8, herbaceous, persistent, often succulent, equal or unequal. Petals 0. Staminodes 0-many, often petaloid and showy in 1–6 whorls (by many authors referred to as petals). Fertile stamens (1–)4–many, free or connate at the base, anthers small. Gynoecium of 2–5(-many) carpels united in a compound ovary, superior, half-inferior or inferior, with as many loculi as carpels; styles as many as loculi; ovules 1-many per locule; placentation usually axile but sometimes parietal or basal. Fruit usually a capsule, dehiscing loculicidally, septicidally, or circumscissile or indehiscent or a berry. Seed with a curved embryo enveloping a mealy endosperm. 5

A family of about 120 genera and 2000–2500 species. Some 100 of the genera earlier considered as constituting the large genus *Mesembryanthemum* (see Klak *et al.* 2007). The primary centres of diversity are South Africa and the Mediterranean region. In Australia there are 19 genera and about 80 species, of which 54 species in 8 genera are native. In Tasmania there are 6 genera and 10 species, of which 3 genera and 6 species are introduced. Aizoaceae are placed in the Caryophyllales near Phytolaccaceae (Americas, Africa, Asia), Sarcobataceae (SW North America) and Nyctaginaceae (tropical & warm temperate regions) (see Stevens 2007 & references cited therein). 6

Synonymy: Galeniaceae, Mesembryanthaceae, Tetragoniaceae. 7

Key references: Prescott & Venning (1984); Walsh (1996). 8

External resources: accepted names with synonymy & distribution in Australia (APC); author & publication abbreviations (IPNI); mapping (AVH, NVA); nomenclature (APNI, IPNI). 9

1.	Flowers without petaloid staminodes	2
1:	Flowers with petaloid staminodes	4
2.	Leaves opposite; fruit a circumscissile capsule	**Zaleya** +
2:	Leaves alternate or clustered; fruit indehiscent or opening by slits or valves	3
3.	Fruit indehiscent	**5 Tetragonia**
3:	Fruit dehiscent	**6 Galenia**
4.	Leaves flat	**1 Mesembryanthemum**
4:	Leaves triquetrous or semiterete	5
5.	Fruit fleshy when mature, indehiscent	**2 Carpobrotus**
5:	Fruit a capsule, dry when mature, dehiscent	6

10

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

6.	Plant erect or trailing, not rooting at nodes	**Drosanthemum** ++
6:	Plant prostrate, rooting at nodes	7
7.	Stems erect or ascending; leaves 0.9–1.4 cm long; flowers yellow	**3 Lampranthus**
7:	Stems prostrate; leaves 2–5 cm long; flowers purple	**4 Disphyma**

1

+ *Zaleya galericulata* (Melville) H.Eichler (Hogweed) was said to be naturalized in Tasmania by Walsh (1996). The species is native to all other states of Australia (see also Prescott & Venning 1984). There are no herbarium specimens from Tasmania lodged at the Tasmania Herbarium and the genus is not treated further here. See Richardson *et al.* (2006) for a description and photograph. 2

++ *Drosanthemum candens* (Haw.) Schwantes (Rodondo Creeper; from South Africa) is planted in seaside areas. It has become established in Western Australia, and is an occasional garden escape in South Australia and Victoria (see Prescott & Venning 1984; Walsh 1996). A single collection of this species was made in 2000 from the Sorrell Causeway. The species is not treated further here. See Richardson *et al.* (2006) for a description and photograph. 3

1 * MESEMBRYANTHEMUM 4

Mesembryanthemum L., *Sp. Pl.* 1: 480 (1753). 5

Synonymy: *Psilocaulon* N.E.Br., *Gard. Chron.* 78: 433 (1925). *Gasoul* Adans., *Fam. Pl. (Adanson)* 2: 243 (1763). *Cryophytum* N.E.Br., *Gard. Chron.* 78: 412 (1925). *Aptenia* N.E.Br., *Gard. Chron.* 78: 412 (1925). *Litocarpus* L.Bolus, *Fl. Pl. South Africa* 7: 261 (1927). 6

Annual or biennial herbs, succulent, sometimes prostrate or rambling; stems and branches angled or terete, conspicuously papillose, the papillae vesicular, glistening. Leaves fleshy, flat or semiterete, opposite, sometimes becoming alternate on flowering branches, sessile or petiolate. Flowers solitary, axillary, sessile or shortly pedicellate. Calyx tubular, 4–5-lobed, 3 smaller lobes with membranous margins or alternating larger and smaller. Petaloid staminodes numerous, white, mauve to reddish; fertile stamens numerous. Ovary inferior or half-inferior, 5-locular, placentation axile; styles 5, free. Fruit a hygroscopic capsule, the valves winged. Seeds numerous, compressed, minutely tuberculate. 7

A genus of about 100 species distributed along the coasts of western North America, southern Europe, Africa and the Middle East. 3 species naturalized in Australia. Several species are grown as ornamentals. Klak *et al.* (2007) presented a cladistic analysis of the Mesembryanthemoideae and showed that *Mesembryanthemum* was not a natural group if the other members of the tribe were not included in it and so reduced 11 genera, including *Aptenia* and *Psilocaulon* (both represented in Australia by naturalized species), to synonymy. 8

1.	Petaloid staminoides white, sometimes with pink tips; sepals 5; leaves alternate on flowering branches	**1 M. crystallinum**
1:	Petaloid staminoides purple; sepals 4; leaves opposite throughout	**2 M. cordifolium**

9 10

1 * Mesembryanthemum crystallinum L., *Sp. Pl.* 1: 480 (1753) *Ice-plant, Common Ice-plant* 11

Cryophytum crystallinum (L.) N.E.Br. in E.P.Phillips, *Gen. S. Afr. Fl. Pl.*: 245 (1926); *Gasoul crystallinum* (L.) Rothm., *Notizbl. Bot. Gart. Berlin-Dahlem* 15(3): 413 (1941). 12

Illustrations: Prescott & Venning, *Fl. Australia* 4: 22, fig. 5e-g (1984); Walsh, *Fl. Victoria* 3: 104, fig. 22f (1996); Jacobs & Highet, *Fl. New South Wales* 1, rev. edn: 196 (2000); Harris *et al.*, *One Hundred Islands: the Flora of the Outer Furneaux* 190 (2001); Richardson *et al.*, *Weeds of the South-East, an Identification Guide for Australia* 89 (2006). 13

Prostrate annual or biennial forming patches to 1 m diam.; stems and branches terete. Leaves to 15 cm long, upper leaves much shorter; petiole ± stem-clasping; lamina obovate or spathulate, acute, margins undulate, vesicles on adaxial surface smaller than those on the abaxial surface or on stems and branches. Calyx lobes tinged red, unequal; the three outer lobes fleshy, papillose abaxially rounded, ending in a fleshy point; the two inner lobes membranous with a line of papillae extending down the thicker mid-region and a fleshy point-arising below the apex. Petaloid staminodes white, pink-tipped, c. 12 mm long, fused below; fertile stamens shorter than the staminodes, arising from the staminodal tube. Ovary flat at the top, 5-ridged. Flowering Sep.-Feb.; fruiting Dec.-May. 1

Tas, (FLI, TSE); also naturalized in WA, SA, NSW, Vic.; native of South Africa. Found growing on coastal sands and in rock crevices, often associated with sea-bird nesting sites, eg. on Iron Pot (Derwent Estuary) and the islands of Bass Strait. 2

2 * **Mesembryanthemum cordifolium** L.f., *Suppl. Pl.* 260 (1782) 3 *Heart-leaf Ice-plant* 4

Litocarpus cordifolius (L.f.) L.Bolus, *Fl. Pl. South Africa* 7: 261 (1927); *Aptenia cordifolia* (L.f.) Schwantes, *Gartenflora* 77: 69 (1928). 5

Illustrations (as *A. cordifolia*): Prescott & Venning, *Fl. Australia* 4: 22, fig. 5c-d (1984); Walsh, *Fl. Victoria* 3: 104, fig. 22d-e (1996); Jacobs & Highet, *Fl. New South Wales* 1, rev. edn: 196 (2000); Richardson *et al.*, *Weeds of the South-East, an Identification Guide for Australia* 87 (2006). 6

Scrambling or spreading and mat-forming perennial; stems 30–60 cm long, minutely papillose. Leaves opposite, exstipulate, petiolate, minutely papillose; lamina ovate-cordate, 8–15(–25) mm long. Flowers solitary, axillary, shortly pedicellate. Calyx densely papillose, 4-lobed, of 2 unequal pairs, the larger pair 8–12 mm long, obovate, narrowing to the base, the smaller pair c. 2.5 mm long, rounded, with a fleshy linear protuberance c. 4 mm long arising from about the middle of the abaxial surface. Petaloid staminodes purple, 4–8 mm long, united at the base; stamens numerous, 2–4 mm long, anthers pale yellow. Capsule obconical, 9–12 mm long, 4-locular. Seeds lenticular, tuberculate. Flowering & fruiting? Nov.-May (Jul.). 7

Tas. (FLI, TSE); also naturalized in SA, Qld, NSW, Vic.; native in South Africa. Doubtfully naturalized and known from a few widely spaced collections from disturbed areas near roadsides, tip sites etc, in the Hobart and Scamander areas as well as from Flinders Island. 8

2 CARPOBROTUS 9

Carpobrotus N.E.Br., *Gard. Chron.* 78: 433 (1925). 10

Succulent creeping perennials; the stems rooting at the nodes. Leaves acutely triquetrous, thick and fleshy, opposite, connate. Flowers large, showy, solitary, terminal at the ends of short axillary branches. Calyx 5-lobed, the lobes unequal, 2 larger and opposite, 3 smaller with expanded membranous margins. Petaloid staminodes numerous, linear, free, in one or more whorls; fertile stamens numerous. Ovary inferior 6–14(–16?)-locular, placentation parietal; stigmas as many as locules, short subulate. Fruit indehiscent, fleshy, often edible. Seeds numerous, obovoid, elliptical or oblong, slightly compressed laterally, mucilaginous on long funicles. 11

A genus of about 25 species, mainly South African but also in North America, Chile and Australia; in Australia there are 7 native and 4 introduced species. 12

1.	Petaloid staminodes yellow, fading to pink	**3 C. edulis**
1:	Petaloid staminodes purple, paler or white at the base	2
2.	Leaves deeper than wide at the mid-point; flowers 3.5–5.5 cm diam.; petaloid staminodes white at the base	**1 C. rossii**
2:	Leaves ± as deep as wide at the mid-point; flowers 3.5–8 cm diam.; petaloid staminodes paler but never white at the base	**2 C. aequilateralus**

1 Carpobrotus rossii (Haw.) Schwantes, *Gartenflora* 77: 68 (1928) *Karkalla, Native Pigface, Pigface*

Mesembryanthemum rossii Haw., *Revis. Pl. Succ.*: 120 (1821).

Illustrations: Curtis & Morris, *The Student's Flora of Tasmania* 2: 238, fig. 64 (1963); Walsh, *Fl. Victoria* 3: 113, fig. 23g-h (1996); Cameron, *A Guide to Flowers and Plants of Tasmania,* 3rd edn, 101, pl. 248 (2000); Corrick & Fuhrer, *Wildflowers of Victoria* 1, fig. 2 (2000); Harris *et al.*, *One Hundred Islands: the Flora of the Outer Furneaux* 129 (2001); Woolmore *et al.*, *King Island Flora* 21 (2002); Woolmore *et al.*, *King Island Flora* 21 (2002); Whiting *et al.*, *Tasmania's Natural Flora* 14 (2004); Simmons *et al.*, *A Guide to Flowers and Plants of Tasmania,* 4th edn, 158 (2008).

Fleshy perennial herb; stems prostrate, to 1 m long. Leaves fleshy, linear, 3–7 cm long, triquetrous, usually deeper than wide at the mid-point, keel smooth or crenulate in the distal portion. Flowers 3.5–5.5 cm diam., solitary, terminal at the ends of short lateral branches, pedicellate or subsessile within the uppermost pair of leaves. Calyx lobes fleshy, the 2 longer ones 1–1.5(–2.5) cm long, triquetrous, the line of the keel decurrent down the receptacle and pedicel, the 3 smaller lobes with wide membranous margins, these often brown-dotted. Petaloid staminodes purple, white at the base; fertile stamens white or pale cream, numerous, in 3–4 whorls, filaments shorter than the staminodes, with a tuft of clavate papillae at the base; anthers versatile. Carpels 6–10; ovary 6–10-locular, ovules numerous on long funicles; stigmas subulate, shorter than the stamens. Fruit green or reddish, cylindrical-ovoid, c. 2.5 cm long. Flowering Jul.-Feb.; fruitin Nov.-Mar.

Tas. (FLI, KIN, TSE, TSR, TWE); also WA, SA, Vic. Widespread in near coastal areas in sandy and rocky areas.

2 * Carpobrotus aequilaterus (Haw.) N.E.Br., *J. Bot.* 66: 324 (1928) *Pigface, Angled Pigface, Angular Pigface*

Mesembryanthemum aequilaterum Haw., *Observ. Mesembryanthemum* Pt 1: 390, 477 (1794); *M. edule* var. *aequilaterum* (Haw.) Moss, *Cambr. Brit. Fl.* 2: 151 (1914). *Mesembryanthemum aequilaterale* Willd., *Sp. Pl.*, ed. 4, 2(2): 1051 (1799), *nom. illeg., non* Haw. (1794); *Carpobrotus aequilateralis* (Willd.) J.Black, *Trans. & Proc. Roy. Soc. South Australia* 56: 40 (1932), *nom. illeg. Mesembryanthemum aequilaterale* var. *decagynum* Haw. ex DC., *Prodr. (DC.)* 3: 429 (1828), *nom. illeg. Mesembryanthemum aequilaterale* Benth., *Fl. Austral.* 3: 324 (1867), orth. var. *Carpobrotus disparilis* N.E.Br., *J. Bot.* 66: 324 (1928).

Illustrations: Walsh, *Fl. Victoria* 3: 113, fig. 23c-e (1996); Jacobs & Highet, *Fl. New South Wales* 1, rev. edn: 198 (2000); Richardson *et al.*, *Weeds of the South-East, an Identification Guide for Australia* 87 (2006).

Fleshy, prostrate perennial herb; stems stout, to 2 m long. Leaves fleshy, linear, 3–9 cm long, triquetrous, usually as deep as long at the mid-point, keel crenulate throughout or at the distal end only. Flowers 3.5–8 cm diam., solitary, terminal and in the upper axils of short lateral branches; pedicels 5–40 mm long. Longer calyx lobes to 5 cm long. Petaloid staminodes purple, paler at the base but not white; fertile stamens numerous, in 4–6 whorls. Styles 6–14-locular, turbinate, somewhat compressed laterally. Fruit purple, obovoid to ellipsoid, 15–30 mm long. Flowering Oct.-Jan.; fruiting ?

Tas. (TSE); also naturalized in WA, SA, Qld, NSW, Vic.; native to Chile. Occasional in populated areas as a garden discard. Known from few collections around Hobart only.

3 * Carpobrotus edulis (L.) N.E.Br., *Gen. S. Afr. Fl. Pl.*: 249 (1926) subsp. **edulis** 1 *Hottentot Fig* 2

Mesembryanthemum edule L., *Syst. Nat. ed. 10,* 2: 1060 (1759); *Carpobrotus edulis* (L.) L.Bolus, *Fl. Pl. South Africa* 7: Subt. 247 (1927), *nom. illeg.*, *non* N.E.Br. (1926). 3

Illustrations: Prescott & Venning, *Fl. Australia* 4: 35, fig. 6c-d (1984); Walsh, *Fl. Victoria* 3: 113, fig. 23a-b (1996); Jacobs & Highet, *Fl. New South Wales* 1, rev. edn: 198 (2000); Richardson *et al.*, *Weeds of the South-East, an Identification Guide for Australia* 88 (2006). 4

Fleshy prostrate perennial herb; stems stout, to 2 m long. Leaves fleshy, linear, 4–10 cm long, triquetrous, bright green, angles often tinged red, surfaces distinctly concave, keel crenulate throughout or in the distal portion only. Flowers 7–9 cm diam.; pedicles 10–20 mm long. Petaloid staminodes yellow, fading to pink; fertile stamens numerous in 6–7 whorls; anthers golden-yellow. Ovary turbinate; styles 8–10. Fruit green, becoming yellowish-red, subglobose, c. 3 cm long. Flowering & fruiting? Oct.-Jan. 5

Tas. (FLI, TSE, TWE); also naturalized in WA, SA, Qld, NSW, Vic.; native to South Africa. Occasional as a garden discard. A number of subspecies are recognised in Europe. 6

3 * LAMPRANTHUS 7

Lampranthus N.E.Br., *Gard. Chron.* 87: 211 (1930). 8

Glabrous perennials or subshrubs, erect, spreading or prostrate; stems and branches ± compressed or winged. Leaves opposite, succulent, shortly connate, laterally compressed, keels acute. Flowers solitary or in cymes, usually pedicellate. Sepals 5, fleshy, subequal, 2 triangular-lanceolate, 3 ± ovate with broad membranous margins. Petaloid staminodes numerous, white, yellow or purple; stamens numerous. Ovary inferior, 5-locular, placentation parietal; styles 5. Fruit a dry capsule, hydroscopic, dehiscing loculicidally, the valves divergent at maturity, loculi roofed by out-growths from the locular septa; seeds many, pyriform. 9

A genus of about 180 species, endemic in South Africa; 4 species introduced to Australia. 10

1 * Lampranthus glaucus (L.) N.E.Br., *Gard. Chron. ser. 3* 87: 212 (1930) 11

Mesembryanthemum glaucum L., *Sp. Pl.* 1: 486 (1743). 12

Illustration: Prescott & Venning, *Fl. Australia* 4: 35, fig. 6g (1984). 13

Erect perennial herb; stems 15–20(–30) cm high, somewhat woody at the base; branches terete, grey, branchlets reddish, ± compressed, the angles narrowly winged. Leaves 9–15 mm long, 2–3 mm wide, dark green or glaucous, prominently gland-dotted, the glads at the margins giving the leaf edges a denticulate appearance. Flowers solitary, yellow, 4–5 cm diam. Sepals 5–7 mm long, fleshy. Petaloid staminodes golden yellow, 20–25 mm long; anthers sulphur-yellow. Capsule c. 1 cm diam. Seeds orange-brown, rugulose. Flowering Sep.-Nov.; fruiting ?. 14

Tas. (FLI); also naturalized in WA, SA; native to South Africa. Known only from rocks around the lighthouse at Devonport. 15

4 DISPHYMA 16

Disphyma N.E.Br., *Gard. Chron.* 78: 433 (1925). 17

Prostrate succulent perennials rooting at the nodes and forming dense mats. Leaves opposite, connate, clustered in small rosettes on short lateral branches, weakly triquetrous or subterete, claviform, obtuse or acute. Flowers 18

solitary, terminal on the lateral branches, pedicellate. Calyx-lobes 5, unequal, 2 leaf-like, ± triquetrous, 3 with broad membranous margins. Petaloid staminodes numerous, pink or purple, white at the base; stamens numerous, filaments hairy at the base; anthers versatile. Ovary inferior, 5-locular, placentation parietal; stigmas 5, plumose. Fruit a hydroscopic capsule, dehiscing by 5 keeled valves with membranous wings, the valves reflexing on opening; loculi roofed by extension of the locular septa; placentas expanded at the apex to form a bifid tubercle. 1

A genus considered monotypic here and found in South Africa, New Zealand and Australia. Lang *et al.* (2006) recognise three species for the genus. 2

1 Disphyma crassifolium (L.) L.Bolus, *Fl. Pl. South Africa,* 7: t. 276 (1927) subsp. **clavellatum** (Haw.) Chinnock, *Fl. S. Australi. (ed 4)* 1: 194 (1986) *Rounded Noon-flower; Round-leaved Pigface, Pigface* 3

Mesembryanthemum crassifolium L., *Sp. Pl.* 1: 484 (1753), *p.p. Mesembryanthemum clavellatum* Haw., *Misc. Nat.* 79 (1803); *Disphyma clavellatum* (Haw.) Chinn., *New Zealand J. Bot.* 14: 78 (1976). *Mesembryanthemum australe* Aiton, *Hort. Kew. (W. Aiton)* 2: 187 (1789); *Disphyma australe* (Aiton) N.E.Br., *Gard. Chron. 3* 87: 14 (1930). 4

Illustrations (often as *D. crassifolium*): Prescott & Venning, *Fl. Australia* 4: 35, fig. 6e-f (1984); Walsh, *Fl. Victoria* 3: 104, fig. 22j (1996); Jacobs & Highet, *Fl. New South Wales* 1, rev. edn: 195 (2000); Cameron, *A Guide to Flowers and Plants of Tasmania,* 3rd edn, 101, pl. 248 (2000); Corrick & Fuhrer, *Wildflowers of Victoria* 1, fig. 3 (2000); Harris *et al.*, *One Hundred Islands: the Flora of the Outer Furneaux* 150 (2001); Woolmore *et al.*, *King Island Flora* 21 (2002); Whiting *et al.*, *Tasmania's Natural Flora* 14 (2004); Simmons *et al.*, *A Guide to Flowers and Plants of Tasmania,* 4th edn, 161 (2008). 5

A fleshy perennial herb with stout prostrate stems to 1 m long rooting at some of the nodes. Leaves fleshy, linear and terete or trigonous, opposite but apparently clustered because of the development of the leaves on very short axillary branches, 2–5 cm long, apex usually blunt, base stem-clasping, glabrous, often reddish in colour at least at the tip. Flowers showy, 3–4 cm diam., solitary and terminal; pedicel arising between the 2 leaves of a very short axillary flowering branch, usually longer than the leaves and thicker towards the top, below the flower; receptacle-tube turbinate, c. 5 mm long. Sepals fleshy, unequal, the 2 longer ones about as long as the tube, the 3 shorter ones with membranous wings. Petaloid staminodes magenta or the proximal third almost white, numerous, narrow-linear, 15–20 mm long; stamens numerous, in several rows, white, filaments shorter than the petaloid staminodes and with a tuft of slender hairs at the base; anthers versatile. Stigmas 5, ending in filiform appendages. Fruit a capsule; valves prominent, rounded, at first red and succulent, later dry and hard, when turned back, the valves each with 2 horny longitudinal ridges arising on either side of a septum and with membranous marginal wings. Flowering Oct.-Jan. (Apr.); fruiting Dec.-Aug. 6

Tas. (FLI, KIN, TSE, TWE); also WA, SA, Qld, NSW, Vic, New Zealand. Found in all coastal regions on sand, rocky shores and outcrops, margins of lagoons, etc. The typical subspecies is endemic to South Africa. *Disphyma australe* is treated as a distinct species with two subspecies endemic to New Zealand by Lang *et al.* (2006). 7

5 TETRAGONIA 8

Tetragonia L., *Sp. Pl.* 1: 480 (1753). 9

Synonymy: *Demidovia* Pallas, *Enum. Hort. Demidof* 150 (1781). *Tetragonella* Miq., *Pl. Preiss.* 1(2): 245 (1845). 10

Annual or perennial herbs or undershrubs, sprawling or climbing. Leaves flat, entire, alternate, exstipulate, usually somewhat succulent, surfaces covered in vesicular papillae. Flower axillary in clusters of 1–5 or terminal and solitary, sessile or pedicellate, ebracteate, bisexual or functionally unisexual. Calyx tube adnate to the ovary, lobes (3)4–5, adaxial surface coloured. Stamens 4-many, inserted on the calyx-tube, alternating with the lobes or 11

scattered. Carpels joined; ovary inferior or half-inferior, 2–8-locular, each locule with one pendulous ovule; stigmas free, as many as the loculi. Fruit indehiscent, dry or succulent, ridged, winged or papillose, endocarp bony. 1

A genus of about 50 species; chiefly in the Southern Hemisphere centred in South Africa but also in South America, Australasia and Polynesia. In Australia there are 7 to 9 species (5 native). Some authors placed the genus in its own family, the Tetragoniaceae. 2

1.	Flowers sessile or subsessile; fruit green, becoming hard, the angles of the ovary extended as hard erect horns	**1 T. tetragonoides**
1:	Flowers on filiform pedicels 1–2.5 cm long; fruits red or blackish, globose, succulent	**2 T. implexicoma**

3

1 Tetragonia tetragonoides (Pall.) Kuntze, *Revis Gen. Pl.* 1: 264 (1891) *New Zealand Spinach* 4

Demidovia tetragonoides Pall., *Enum. Hort. Demidof*: 151 (1781); *Tetragonia expansa* Murray, *Commentatio de Arbuto ... Gottingae* 6: 13 (1783), *nom. illeg.*, based on *D. tetragonoides*. *Tetragonia inermis* F.Muell., *Linnaea* 25: 384 (1853). 5

Illustrations: Prescott & Venning, *Fl. Australia* 4: 43, fig. 11f (1984); Walsh, *Fl. Victoria* 3: 117, fig. 24d (1996); Jacobs & Highet, *Fl. New South Wales* 1, rev. edn: 194; 213, pl. 14 (2000); Harris *et al.*, *One Hundred Islands: the Flora of the Outer Furneaux* 238 (2001); Woolmore *et al.*, *King Island Flora* 22 (2002); Woolmore *et al.*, *King Island Flora* 21 (2002); Whiting *et al.*, *Tasmania's Natural Flora* 15 (2004); Richardson *et al.*, *Weeds of the South-East, an Identification Guide for Australia* 91 (2006). 6

Annual or perennial herb, decumbent or ascending; stems to 1 m long. Leaves broadly hastate, rhomboid or lanceolate; petiole 10–45 mm long, papillose, decurrent; blade 1–8(–10?) cm long, 0.5–5 cm wide, dark green above, paler below with larger papillae. Flowers axillary, solitary or rarely 2 together, 8–10 mm diam.; pedicels to 5 mm long. Calyx lobes 4–5, 1 or 2 of them ovate-semiorbicular, larger than the rest, the smaller lobes ovate-triangular to lanceolate, obtuse or acute; adaxial surface yellowish, minutely papillose; abaxial surface green, papillose. Stamens 8–16, in groups alternating with the calyx lobes. Stigmas 3–8(–10?) in 2 groups, equal in number to the loculi. Fruit indehiscent, at first green, becoming dry and bony, to 13 mm long and 12 mm wide, globular or turbinate variously ridged at the summit; ridges produced into short equal or unequal horns. Seeds in 2 rows, c. 2.5 mm long, pyriform. Flowering & fruiting throughout year. 7

Tas. (TSE, FLI); also in WA, SA, Qld, NSW, Vic., New Zealand; naturalized in Europe and Africa. Found on coastal sands and rocks in the eastern part of the state. This species can become weedy. 8

2 Tetragonia implexicoma (Miq.) Hook.f., *Bot. Antarct. Voy. III.* (*Fl. Tasman.*) 1: 148 (1856) *Ice-plant, Bower Spinach* 9

Tetragonella implexicoma Miq., *Pl. Preiss.* 2(2–3): 235 (1848). *Tetragonella amplexicoma* Miq. *Pl. Preiss.* 1(2): 246 (1845). *Trianthema maidenii* S.Moore, *J. Linn. Soc., Bot.* 45: 207 (1920). *Tetragonia trigyna* Banks & Sol. Ex Hook.f., *Handb. N. Zeal. Fl.* 1: 84 (1864). 10

Illustrations: Curtis & Morris, *The Student's Flora of Tasmania* 2: 241, fig. 65 (1963); Prescott & Venning, *Fl. Australia* 4: 43, fig. 11e (1984); Walsh, *Fl. Victoria* 3: 117, fig. 24a-b (1996); Corrick & Fuhrer, *Wildflowers of Victoria* 2, fig. 4 (2000); Jacobs & Highet, *Fl. New South Wales* 1, rev. edn: 194 (2000); Harris *et al.*, *One Hundred Islands: the Flora of the Outer Furneaux* 236 (2001); Woolmore *et al.*, *King Island Flora* 21 (2002); Woolmore *et al.*, *King Island Flora* 21 (2002); Whiting *et al.*, *Tasmania's Natural Flora* 15 (2004). 11

Prostrate, scrambling or climbing undershrub; younger parts of the plant with a mixed indumentum of papillae and soft spreading hairs; branches to 2 m long; short branchlets produced in most leaf axils. Leaves scattered or clustered; petiole to 1.5 cm long; lamina 1–5 cm long, 0.6–4.5 mm wide, ovate, obovate, rhomboid, lanceolate or oblanceolate, densely papillose. Flowers on long slender pedicels, solitary or 2(3) together in the axils of young leaves. Perianth segments 4, oblong-lanceolate, to 3.5 mm long, shrinking as the fruit matures, adaxial surface yellow, abaxial surface variously hairy-papillose. Stamens 12–25, in groups of 3–5, alternating with the perianth 12

lobes. Ovary half-inferior, the free summit domed; stigmas 2(3), equal in number to the loculi of the ovary. Fruit orange-red to blackish, globular, succulent, 5–8 mm long. Flowering & fruiting throughout year. 1

Tas.(FLI, KIN, TNS, TSE, TSR, TWE); also WA, SA, NSW, Vic., New Zealand. Found on all coasts and estuaries, sandy or rocky shores, dunes, cliffs, among rocks. 2

6 * GALENIA 3

Galenia L., *Sp. Pl.* 1: 359 (1753). 4

Perennial herbs or undershrubs, galabours, hairy or papillose. Leaves opposite or alternate, entire; stipules 0 or small and caducous. Flowers bisexual, small, sessile, solitary and axillary or sometimes in terminal cymes. Calyx of (3)4–5 segments, united at the base in a short tube, the segments spreading, abaxial surface hairy. Petals 0. Stamens 8–10, in pairs alternating with the calyx lobes. Ovary superior, (1)2–5-locular, each locule with a solitary ovule suspended from an axile apical funicle. Fruit a capsule, compressed or angular, dehiscing loculicidally. Seeds compressed, reniform to orbicular. 5

A genus of about 30 species, native to South Africa; 2 species introduced to Australia. 6

1 * Galenia pubescens (Eckl. & Zeyh.) Druce, *Bot. Soc. Exch. Club Brit. Isles* 1916: 624 (1917) var. **pubescens** 7

Aizoon pubescens Eckl. & Zeyh, *Enum. Pl. Afric. Austral.* 3: 326 (1837). *Galenia secunda sensu* W.M.Curtis, *The Student's Flora of Tasmania* 2: 241 (1963), *non* (L.f.) Sond. (1862). 8

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Greyish undershrub, stems to 1 m long, younger parts and leaves with an indumentum of appressed silvery, hairlike peltate scales; stems prostrate or ascending, woody at the base. Leaves 5–20 mm long, grey-green, alternate, obovate-spathulate, obtuse, rather thick. Flowers 5–6 mm diam., sessile, axillary, mostly on short lateral branches. Perianth lobes yellowish or pinkish, 5, adaxial surface glabrous, abaxial surface hairy; shortly hooded at the tips. Stamens 10. Stigmas 5. Capsule angular, truncate, the valves inflated at the tip. Seeds c. 1–2 mm long, reniform, black, tuberculate. Flowering Oct-Apr. 10

Tas, (FLI, TSE); also naturalized in WA, NT, SA, NSW, Vic.; native in South Africa. Known from two collections: one in 1947 from a roadside near Whitemark, Flinders Island, and another made in 2007 from the Hobart Show Grounds. 11

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