



110 BORAGINACEAE ¹

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Annual, biennial or perennial herbs, rarely shrubs, usually with a well-developed indumentum. Leaves alternate, rarely opposite (not in Tasmania), simple, entire, exstipulate, petiolate or sessile. Inflorescence a terminal or axillary cyme, cymose panicle or much reduced to a few or solitary flowers. Flowers actinomorphic or zygomorphic, bisexual; sepals 5, fused at the base or nearly to the apex; petals 5, usually fused to form a distinct tube; occasionally united only at the base, often with saccate protrusions or scales (faucal scales) in the throat or at the base of the tube; stamens 5, included within the corolla tube to variously exerted; anthers dehiscing by longitudinal slits; gynoecium 2-carpellate; ovary superior, 2-locular, divided into 4 chambers. Fruit a schizocarp, splitting into 4 single-seeded mericarps (nutlets); seed with or without endosperm.

A cosmopolitan family of approximately 100 genera and c. 1800 species with its centre of diversity in Eurasia. Boraginaceae sits within the Boraginales as a sister family to Wellstediaceae, in a clade also including the Codonaceae. For a discussion on the infrafamilial classification of Boraginaceae see Weigend *et al.* (2016). Twenty-six genera and 164 species in Australia (92 species of *Heliotropium*); eleven genera and 19 species in Tasmania (including 14 naturalised species).

Key references: Weigend *et al.* (2016)

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. Leaves pinnately compound | Phacelia + |
| 1: Leaves simple | 2 |
| 2. Inflorescence bracteate; nutlets without barbed trichomes | 7 |
| 2: Inflorescence ebracteate or if bracteate then nutlets with barbed trichomes (<i>Hackelia</i>) | 3 |
| 3. Flowers nodding; corolla more than 15 mm long | 5 Symphytum |
| 3: Flowers erect or spreading; corolla less than 10 mm long | 4 |
| 4. Mericarps with barbed trichomes | 5 |
| 4: Mericarps rugose to smooth but without barbed trichomes | 6 |
| 5. Inflorescence ebracteate; nutlets with trichomes concentrated into a marginal ring, outer surface of nutlets with discontinuously distributed trichomes | 11 Cynoglossum |
| 5: Inflorescence bracteate (bracts leaf-like in <i>H. latifolia</i>); nutlets without marginal ring of trichomes, these evenly spaced and continuously distributed across outer surface | 8 Hackelia |
| 6. Flowers bright yellow to orange; plants hispid; nutlets wrinkled | 9 Amsinckia |
| 6: Flowers white, yellow or blue; plants softly hairy; nutlets black and shiny | 10 Myosotis |

1 This work can be cited as: Baker ML (2020). Boraginaceae, **version 2020:1**. In MF de Salas (Ed.) *Flora of Tasmania Online*. 16 pp. (Tasmanian Herbarium, Tasmanian Museum and Art Gallery: Hobart). <https://flora.tmag.tas.gov.au/treatments/boraginaceae/>

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

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| 7. Nutlets without well-developed plug-shaped elaiosome at base; surface of nutlets calcified, hard | 8 |
| 7. Nutlets with well-developed plug-shaped elaiosome; surface of nutlets not calcified | 11 |
| 8. Corolla zygomorphic | 3 <i>Echium</i> |
| 8: Corolla actinomorphic | 9 |
| 9. Corolla cream to white | 10 |
| 9: Corolla blue | <i>Glandora</i> ++ |
| 10. Plants perennials; throat of corolla not hairy | 2 <i>Lithospermum</i> |
| 10: Plants annual; throat of corolla hairy | 1 <i>Buglossoides</i> |
| 11. Anthers exerted from the corolla tube | 7 <i>Borago</i> |
| 11: Anthers included in corolla tube | 12 |
| 12. Corolla blue | 13 |
| 12: Corolla pale yellow | <i>Nonea</i> +++ |
| 13. Flowers sessile; corolla zygomorphic | 4 <i>Anchusa</i> |
| 13: Flowers on slender pedicels; corolla actinomorphic | 6 <i>Pentaglottis</i> |

+ *Phacelia tanacetifolia* Benth. is known in Tasmania from a small number of specimens. The earliest is from Smithton and was collected in 1966. Three are records of weeds in agricultural crops, two from turnip crops in 1998 and the third from a canola crop in 1992. One is from a municipal tip and the last from a suburb of Hobart. The lack of contextual collecting notes and lack of evidence showing that it persisted at any of the sites makes it difficult to assign a meaningful status and therefore it is considered doubtfully naturalised in Tasmania.

++ *Glandora diffusa* (Lag.) D.C.Thomas, a commonly cultivated garden plant, is known in Tasmania from a single population from a grassy roadside verge in the north west of the State. The highly localised and barely persisting population suggests it is not naturalised and should not be considered part of the flora.

+++ *Nonea lutea* (Desr.) Rchb. ex A.DC. was first recorded from the Royal Tasmanian Botanical Gardens in 1948. However, it is not clear from the notes as to whether it was from a cultivated plant or a weed in the garden. It was later collected from weedy pasture at Four Mile Creek on the State's east coast in 1974. The area has not been surveyed to determine if it is still present at this site. The most recent record is from the Queens Domain, close to the Botanical Gardens, where it was recorded as a rare species on a roadside. It is possible that the species has persisted at the Queens Domain since it was first recorded. It is considered doubtfully naturalised in Tasmania due to its localised and rare distribution.

1 BUGLOSSOIDES

Buglossoides Moench., *Methodus* (Moench) 418 (1794).

Annual or perennial herbs or sub-shrubs; indumentum hispid to strigose. Leaves basal and cauline or cauline only when shrubs; basal leaves petiolate; cauline leaves alternate, sessile. Inflorescences cymose, bracteate. Flowers sub-sessile; calyx divided nearly to base, without hooked trichomes, slightly accrescent in fruit; corolla actinomorphic, funnel-shaped, blue to pink or white, faucal scales absent; stamens included in the corolla tube; style included. Nutlets without plug-shaped elaiosome, without glochidiate trichomes.

Approximately 10 species, in the Mediterranean and Asia. One species naturalised in Australia.

Key reference: Johnston (1954)

1 * Buglossoides arvensis (L.) I.M.Johnst., *J. Arnold Arbor.* 35: 42. (1954)

Corn gromwell

Lithospermum arvense L., *Sp. Pl.* 1: 132 (1753).

Illustrations: Jeans, *Fl. Victoria* 4: 398, fig. 79c (1999); Richardson *et al.* *Weeds of the South East*, ed. 2: 208 (2011); Wilson, *Fl. New South Wales* 3: 395–396 (1992).

Erect to ascending annual herb up to 50 cm tall with a dense indumentum of appressed antrorse trichomes. Leaves sessile, lanceolate or oblanceolate to narrow-elliptic, up to 55 mm long and 15 mm wide, reducing in size up the stem; both surfaces covered in antrorse scabrous tubercle based trichomes; base attenuate; margin entire; apex rounded. Inflorescence bracteate; axis with antrosely appressed trichomes; pedicels up to 4 mm long in fruit, erect. Calyx extending up to 15 mm in fruit; exceeding corolla; indumentum of appressed antrorse trichomes. Corolla actinomorphic, funnel-shaped, c. 3 mm diameter, cream; tube 4–5 mm long, lobes spreading to erect, c. 1.5 mm long; faucal scales absent. Stamens included in corolla tube. Style included in corolla tube. Nutlets 3.5–4.2 mm long, 2.3–2.5 mm wide, ivory, foveate on abaxial and adaxial surfaces; abaxial surface with a conspicuous raised ridge. Flowering and fruiting Sep.-Feb.

Tas. (FLI, KIN, TNM, TSE); naturalised in all Australian States. Uncommon in Tasmania but with a widespread distribution. It has been recorded in and around the major population areas of Hobart and Launceston but with occurrences also on King Island, at Scamander and in the Derwent Valley. The species has been recorded growing as a weed in a range of habitats including gardens, paddocks, waste ground, roadsides and in open *Eucalyptus* forest. The small white flowers and bone-coloured wrinkled seeds distinguish this from other members of the Boraginaceae family in Tasmania.

2 LITHOSPERMUM

Lithospermum L., *Sp. Pl.* 1: 132 (1753).

Perennial or rarely annual herbs and subshrubs; indumentum hispid or silky. Leaves cauline and sometimes basal; cauline leaves alternate, subsessile. Inflorescence cymoid or rarely thryoid, bracteate. Flowers pedicellate; calyx divided nearly to base, without hooked trichomes, slightly accrescent in fruit; corolla usually actinomorphic, tubular, funnel-shaped or salver-shaped, white, yellow or orange, faucal scales present or absent; stamens included in corolla tube or exerted; style includes or sometimes exerted. Nutlets without plug-shaped elaiosome, without glochidiate trichomes.

Approximately 80 spp. in Eurasia, Africa and N and S America. One species naturalised in Australia.

Key references: Zhu *et al.* (1995); Al-Shehbaz (1991). Baker *et al.* (2019).

1 * Lithospermum officinale L., *Sp. Pl.* 1: 132 (1753)

Gromwell

Illustrations: Richardson *et al.* *Weeds of the South East*, ed. 2: 212 (2011).

Erect perennial herb up to 1 m tall with a dense indumentum of antrorse appressed trichomes. Leaves sessile, elliptic to lanceolate, up to 65 mm long, up to 15 mm wide, reducing in size along the stems; surfaces with a moderate covering of antrorse appressed trichomes; base attenuate; margin entire; apex rounded to acute. Inflorescence of bracteate cymes; axis with antrosely appressed trichomes. Flowers shortly pedicellate, erect. Calyx up to 6 mm in fruit; lobes at first shorter than the corolla but expanding in fruit to be longer than the nutlets; indumentum of appressed trichomes. Corolla actinomorphic, salver-shaped, c. 3.5 mm diameter, pale-cream; tube c. 2.5 mm long; lobes spreading, c. 1 mm long; faucal scales present. Stamens included within corolla tube. Style included within the corolla tube. Nutlets up to 3.8 mm long, up to 2.7 mm wide, ivory in colour, shiny; abaxial surface rounded; adaxial surface keeled. Flowering Sep.-Nov.; fruiting Oct.-Nov.

Tas. (TNM). Native to Europe and SW and W Asia. Locally naturalised in the Launceston area, particularly near the Cataract Gorge. This species can be recognised by its small cream flowers and shiny bone-coloured seeds.

3 ECHIUM

Echium L., *Sp. Pl.* 1: 139 (1753).

Annual, biennial or perennial herbs, rarely shrubs; indumentum hispid or occasionally silky. Leaves basal and cauline or cauline only when shrubs; basal leaves petiolate; cauline leaves alternate, sessile. Inflorescences thryoid, bracteate. Flowers sessile; calyx divided nearly to base, without hooked trichomes, often accrescent in fruit; corolla zygomorphic, funnel-shaped, mostly blue, rarely white, yellow, red or pink, faucal scales absent; stamens included in the corolla tube and/or exerted; style exerted. Nutlets without plug-shaped elaiosome, without glochidiate trichomes.

Approximately 60 species, in Europe, Macaronesia, N Africa and W Asia. Six species naturalised in Australia, three naturalised in Tasmania.

Key reference: Stace (2019).

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| 1. Annual or biennial herbs; flowers arranged in a loosely flowered cyme | 2 |
| 1: Shrub with woody stems; flowers densely arranged forming large conical inflorescence up to 3 m tall | 3 |
| 2. Annual herbs; corolla up to 30 mm long; 2 stamens exerted from the corolla | 2 <i>E. plantagineum</i> |
| 2: Biennial herbs; corolla up to 20 mm long; 4 stamens exerted from the corolla | 3 <i>E. vulgare</i> |
| 3. Plants branched with many conical inflorescences; inflorescences up to 50 cm long | 1 <i>E. candicans</i> |
| 3: Plants unbranched with a single inflorescence; inflorescence up to 300 cm long | <i>E. pininana</i> + |

+ *Echium pininana* Webb & Berthel., a monocarpic shrub from the Canary Islands with a very tall inflorescence (up to 3.5 m), is known in Tasmania from a small number of specimens collected from two locations in the SE of the State. Both populations are highly localised and barely naturalised and are most likely the result of dumped garden refuse or from plants that have spread from adjacent gardens.

1 * *Echium candicans* L.f., *Suppl. Pl.*: 131 (1782)

Pride of Madeira

Illustrations: Richardson *et al. Weeds of the South East*, ed. 2: 210 (2011).

Perennial subshrub up to 2.5 m tall with a dense indumentum of fine spreading to appressed trichomes. Leaves cauline, with a short pseudo-petiole less than half the lamina length; lamina lanceolate, up to 250 mm long, up to 40 mm wide; surfaces with a moderate covering of spreading to antrosely appressed trichomes; base slightly wider than the pseudo-petiole; margin entire; apex acute. Inflorescence of numerous boragoids densely arranged into a cylindrical panicle, bracteate, up to 50 cm long; axis with spreading and antrosely appressed trichomes; pedicels very short, extending up to 2.5 mm long in fruit, erect. Calyx c. 5.5–7 mm long, extending up to 10 mm in fruit; lobes ± free to the base; indumentum of antrosely appressed trichomes. Corolla zygomorphic, funnel-shaped, blue to purple; tube 8.0–10.5 mm long, with a fine appressed pubescence on outer surface; tube exceeding calyx; faucal scales absent. Stamens ± equal, exerted from the corolla. Style exerted from corolla tube. Nutlets 2.5–3.1 mm long, 2–2.5 mm wide, brown to blackish-brown, covered with sharp tubercles on both surfaces, surfaces without prominent ridge. Flowering and fruiting throughout the year but peaking Oct.-Nov.

Tas. (TSE); also naturalised in SA. Endemic to the Island of Madeira where it grows in mountain gullies and ravines > 800 a.s.l. In Tasmania, it is widely cultivated as a garden and amenity plant. Naturalised along roadsides and creek banks and in grassy and coastal woodlands adjacent to urban areas of greater Hobart. It is expected to be more widely naturalised than herbarium specimens indicate. This species is immediately recognizable by its large blue to purple inflorescences and shrubby habit.

2 * *Echium plantagineum* L., *Mant. Pl.* 2: 202 (1771)*Patterson's curse**Echium lycopsis* L., *Fl. Angl.* 12 (1754).

Illustrations: Jeans, *Fl. Victoria* 4: 398, fig. 79d (1999); Richardson *et al.* *Weeds of the South East*, ed. 2: 210 (2011); Wilson, *Fl. New South Wales* 3: 398 (1992); Parsons & Cuthbertson, *Noxious Weeds of Australia* ed. 2: 326–327 (2001).

Erect to ascending annual herb up to 50 cm tall with a dense indumentum of hispid spreading trichomes. Basal leaves with an attenuate pseudo-petiole that is almost as long as lamina; lamina ovate to broad-ovate, up to 250 mm long, up to 70 mm wide, reducing in size along the stems; surfaces with a moderate covering of antrorsely appressed to spreading trichomes; base auriculate, decurrent; margin entire; apex acute. Inflorescence cymose, bracteate; axis with antrosely appressed trichomes; pedicels up to 2.5 mm long in fruit, erect. Calyx extending up to 10 mm in fruit; lobes exceeding tube; indumentum of antrorsely appressed to spreading trichomes. Corolla zygomorphic, funnel-shaped, purple to purplish-blue, rarely white; tube 25–30 mm long, slightly hairy on outer and inner surfaces; tube exceeding calyx; faucal scales absent. Stamens of three lengths, two exerted from the corolla, two level to slightly exerted and one included. Style exerted from corolla tube. Nutlets c. 2.8 mm long, c. 2 mm wide, mottled brown to blackish-brown, warty; abaxial surface with a ridge on distal half; adaxial surface with a prominent ridge. Flowering and fruiting (Jul.-)Jan.-Feb.(–Mar.).

Tas. (BEL, FLI, KIN, TNM, TNS, TSR, TSE); also naturalised in WA, SA, Qld, NI, NSW, ACT, Vic. Native to Europe. Widespread in rural, urban and peri-urban habitats throughout the state. Most often associated with degraded pastures and waste areas. Uncommon in the higher rainfall parts of Tasmania such as the west coast and north west. This species may be confused with the less common *E. vulgare*.

3 * *Echium vulgare* L., *Sp. Pl.* 1: 139 (1753)*Viper's bugloss*

Illustrations: Jeans, *Fl. Victoria* 4: 398, fig. 79e (1999); Wapstra *et al.*, *Tasmanian Plant Names Unravelling* 64 (2010); Richardson *et al.* *Weeds of the South East*, ed. 2: 211 (2011); Wilson, *Fl. New South Wales* 3: 398 (1992); Parsons & Cuthbertson, *Noxious Weeds of Australia* ed. 2: 331–332 (2001).

Erect to ascending biennial herb up to 70 (100) cm tall with a dense indumentum of retrorse appressed trichomes and stouter spreading trichomes. Leaves sessile; lamina linear to narrow-linear, up to 200 mm long, up to 35 mm wide, reducing in size along the stems; surfaces with a moderate covering of retrorse appressed trichomes and stouter spreading trichomes; base attenuate; margin entire; apex acute. Inflorescence bracteate cymes; axis with retrorsely appressed trichomes and stouter spreading trichomes. Flowers sessile, erect. Calyx up to 10 mm in fruit; lobes exceeding tube; indumentum of appressed trichomes and stouter spreading trichomes. Corolla zygomorphic, funnel-shaped, blue; tube 10–20 mm long, hairy on outer surface; tube exceeding calyx; faucal scales absent. Stamens of two lengths, four exerted from the corolla, one included. Style exerted from corolla tube. Nutlets c. 2.3–2.5 mm long, 1.5–2 mm wide, whitish to blackish-brown, tuberculate; abaxial surface without a ridge; adaxial surface with a prominent ridge. Flowering Oct.-Feb.; fruiting Nov.-Mar.

Tas. (TNM, TNS, TSE); also naturalised in SA, NSW, ACT, Vic. Native to Europe. Widespread in rural, urban and peri-urban habitats throughout the state. Most often associated with degraded pastures and waste areas. It is less common and less widespread than the related species *E. plantagineum*. This species may be distinguished from *E. plantagineum* by its biennial habit, smaller corolla and arrangement of stamens.

4 ANCHUSA*Anchusa* L., *Sp. Pl.* 1: 133 (1753).

Annual, biennial or perennial herbs; indumentum hispid to strigose. Leaves basal and cauline; basal leaves in a rosette, petiolate; cauline leaves alternate, sessile. Inflorescences thryoid, bracteate. Flowers sessile or subsessile; calyx divided to $\frac{1}{3}$ or to the base, without hooked trichomes, slightly accrescent in fruit; corolla actinomorphic or zygomorphic, salver-shaped to funnel-shaped, blue, purple or white; faucal scales

present; stamens mostly included in corolla tube; style included to slightly exerted. Nutlets with plug-shaped elaiosome, without glochidiate trichomes.

Anchusa is a genus of approximately 35 species native to Europe, Africa and W Asia (Weigand *et al.* 2106). Two species are naturalised in Australia, one species is naturalised in Tasmania.

Key references: Stace (2019).

1 * *Anchusa arvensis* (L.) M.Bieb., *Fl. Taur.-Caucas.* 1: 123 (1808)

Bugloss

Lycopsis arvensis L., *Sp. Pl.* 1: 139 (1753).

Illustrations: Jeans, *Fl. Victoria* 4: 404, fig. 78g (1999); Richardson *et al.* *Weeds of the South East*, ed. 2: 208 (2011); Wilson, *Fl. New South Wales* 3: 395 (1992).

Erect to ascending annual herb up to 60 cm tall with an indumentum of hispid, bulbous based, spreading trichomes. Leaves with a pseudo-petiole up to 20 mm long but becoming shorter up the stem; lamina narrow-oblongate, up to 140 mm long, up to 12 mm wide, reducing in size up the stem; base attenuate; surfaces with coarse hispid spreading trichomes; margin irregularly wavy; apex acute to rounded. Inflorescence bracteate; axis with spreading trichomes; pedicels up to 7 mm long in fruit, but generally very short, erect to spreading. Calyx up to 4 mm long, extending up to 7 mm in fruit; lobes exceeding tube in fruit; indumentum hispid. Corolla weakly zygomorphic, salver-shaped, c. 6 mm diameter, pale blue; tube up to 4.5 mm long; lobes spreading, up to 2 mm long; faucal scales present. Stamens included in corolla tube. Style included in corolla tube. Nutlets up to 4 mm long, up to 2.5 mm wide, pale brown, prominently wrinkled; abaxial surface slightly convex; adaxial surface with a prominent wrinkled rim. Flowering and fruiting Mar.

Tas. (TSE); also naturalised in SA, NSW, Vic. and doubtfully naturalised in ACT. In Tasmania, it is an uncommon and localised weed of disturbed, dry sandy soils. It is most abundant at South Arm and Opossum Bay and it has been recorded at one location on Bruny Island. *Anchusa capensis* Thunb., a weed of disturbed sandy soils, is naturalised in WA, SA and Vic. It differs from *A. arvensis* by having a regular corolla, sepals that are fused for at least half of their length and entire leaf margins.

5 SYMPHYTUM

Symphytum L., *Sp. Pl.* 1: 136 (1753)

Perennial herbs; indumentum hispid. Leaves basal and cauline; basal leaves in a rosette, petiolate; cauline leaves alternate or sub-opposite, subsessile or decurrent. Inflorescences thyrsoid, usually ebracteate. Flowers pedicellate; calyx divided to ½ or to the base, without hooked trichomes, accrescent in fruit; corolla actinomorphic, tubular to campanulate, sometimes salver-shaped, purplish, pink, white or yellowish; faucal scales present; stamens included in corolla tube, rarely exerted; style exerted. Nutlets with plug-shaped elaiosome, without glochidiate trichomes.

Approximately 35 species native to Europe, N Africa and W Asia. One species naturalised in Australia.

Key reference: Stace (2019).

1 * *Symphytum officinale* L. subsp. *officinale* Sp. Pl. 1: 136 (1753)

Comfrey

Symphytum peregrinum Ledeb., *Del. Sem. Hort. Dorpat.* 1820: 4, adnot. (1820) [originally in Curtis 1967 as this with the common name Russian Comfrey]. *Symphytum* × *uplandicum* Nyman, *Syll. Fl. Eur.* 80 (1855) [this name appeared in Buchanan (1995) as the current name for what was referred to as *S. peregrinum*].

Illustrations: Richardson *et al.* *Weeds of the South East*, ed. 2: 21 6 (2011).

Erect perennial herbs to 100 cm tall, with a dense indumentum of spreading trichomes. Leaves with long narrow attenuate bases; lamina ovate to lanceolate, up to 250 mm long, up to 100 mm wide, decreasing in size and becoming sessile along the stems; base attenuate and decurrent; surfaces with a moderate covering of appressed trichomes; margin entire; apex acute to rounded. Inflorescence a branched scorpioid

cyme, ebracteate; axis with spreading trichomes; pedicels up to 8 mm long in fruit, pendant. Calyx up to 8 mm long in fruit; lobes longer than the tube; indumentum of spreading trichomes. Corolla actinomorphic, tubular, 4–8 mm diameter, cream, purplish or pink; tube exceeding the calyx; lobes spreading to erect, up to 17 mm long; faucal scales present. Stamens included in corolla tube. Style exerted from corolla tube. Nutlets up to 5 mm long, up to 2 mm wide, brown, shiny, abaxial and adaxial surface convex, keel present.

Tas. (BEL, FLI, TNM, TNS, TSR, TSE); also naturalised in NSW, ACT and Vic. Native to Europe. Occasionally cultivated in Tasmania, it is a widespread but uncommon weed of stream banks, roadsides, and waste ground. The name *Symphytum peregrinum* Ledeb. (a taxonomic synonym of *S. officinale* L.) was used by Curtis (1967), though she mistakenly attached to it the common name of “Russian comfrey”. Buchanan (1955, as well as subsequent authors) mistakenly used the name *S. × uplandicum* Nyman (which has the common name Russian comfrey) to refer to Tasmanian populations of this taxon. Baker *et al.* (2019) considered *S. × uplandicum* doubtfully naturalised in Tasmania based on a small number of specimens and limited notes regarding the status of the plants. However, they did not take into account that specimens in the Tasmanian Herbarium identified as *S. officinale* were the same taxon. The species is now considered sparingly naturalised in Tasmania.

6 PENTAGLOTTIS

Pentaglottis Tausch., *Flora* 12(2): 643 (1829).

Perennial herb; indumentum hispid. Leaves basal and cauline; basal leaves in a rosette, petiolate; cauline leaves alternate or sub-opposite, sessile. Inflorescences thrysoids, bracteate. Flowers pedicellate; calyx divided to the base, without hooked trichomes, accrescent in fruit; corolla actinomorphic, salver-shaped, blue, faucal scales present; stamens included in corolla tube; style included. Nutlets with plug-shaped elaiosome, without glochidiate trichomes.

Monotypic genus native to SW Europe and naturalised in Australia.

Key reference: Stace (2019)

1 * *Pentaglottis sempervirens* (L.) Tausch ex L.H.Bailey, *Man. Cult. Pl.*, ed. 2: 837 (1949)

Alkanet

Anchusa sempervirens L., *Sp. Pl.* 1: 134 (1753).

Illustrations: Jeans, *Fl. Victoria* 4: 398, fig. 78i (1999); Richardson *et al.* *Weeds of the South East*, ed. 2: 215 (2011).

Erect perennial herbs to 100 cm tall with a dense indumentum of spreading trichomes. Leaves with long narrow attenuate bases; lamina ovate to lanceolate, up to 425 mm long, up to 150 mm wide, decreasing in size and becoming sessile along the stems; base attenuate; surfaces with a moderate covering of spreading trichomes; margin entire; apex acute to rounded. Inflorescence bracteate; axis with spreading trichomes; pedicels up to 2.5 mm long in fruit, erect to spreading. Calyx up to 10 mm long in fruit; lobes longer than the tube; indumentum of spreading trichomes. Corolla actinomorphic, salver-shaped, c. 11 mm diameter, blue, tube slightly shorter than calyx; lobes spreading to erect, up to 5 mm long; faucal scales present. Stamens included in corolla tube. Style included in corolla tube. Nutlets up to 4 mm long, up to 2 mm wide, olive to brown with darker brown mottling, minutely papillose, reticulate; abaxial and adaxial surface convex, keel absent. Flowering Nov.-Feb.; fruiting Feb.

Tas. (BEL, TNM, TNS, TSE); also naturalised in Vic. Native to W Europe. In Tasmania, it is widespread and occasional as a weed of stream banks, roadsides, waste ground and wet forest.

7 BORAGO

Borago L., *Sp. Pl.* 1: 137 (1753).

Annual or occasionally perennial herbs; indumentum hispid, hirsute to strigose. Leaves basal and cauline; basal leaves in a rosette, petiolate; cauline leaves alternate, petiolate and opposite but becoming alternate

and sessile or semi-stem clasping along the stem. Inflorescences cymoids, bracteate. Flowers pedicellate; calyx divided nearly to base, without hooked trichomes, accrescent in fruit; corolla actinomorphic, rotate or campanulate, blue or whitish; faucal scales present; stamens included in the corolla tube or exerted; style included. Nutlets with plug-shaped elaiosome, without glochidiate trichomes.

Five species, mainly in W Europe. One species naturalised in Australia.

Key references: Stace (2019)

1 * *Borago officinalis* L., *Sp. Pl.* 1: 137 (1753)

Borage

Illustrations: Jeans, *Fl. Victoria* 4: 398, fig. 76c (1999); Wapstra *et al.*, *Tasmanian Plant Names Unravelling* 63 (2010); Richardson *et al.* *Weeds of the South East*, ed. 2: 208 (2011); Wilson, *Fl. New South Wales* 3: 389 (1992).

Annual herb up to 40 cm tall, with a dense indumentum of fine and coarse trichomes; coarse trichomes needle like with swollen bases. Stems with spreading trichomes. Leaves petiolate, reducing in size up the stem; petiole winged with a stem sheathing articulate base, up to 100 mm long; lamina ovate to lanceolate, up to 195 mm long, up to 65 mm wide; base broadly auriculate; surfaces with antrorsely appressed trichomes; margin irregularly undulate; apex acute to obtuse. Inflorescences bracteate, axis with spreading trichomes; pedicels up to 25 mm long in fruit, erect at first but nodding in fruit. Calyx c. 10 mm long, extending up to 25 mm in fruit; lobes joined only at the base. Corolla 15–25 mm diameter, joined only at the base; petals blue or pink or blue and suffused with pink, spreading, up to 11 mm long. Stamens and pistils exerted from the corolla. Nutlets obovate, up to 6 mm long, up to 2.6 mm wide, dark brown, wrinkled, abaxial surface convex, adaxial surface slightly 2-angled and minutely keeled. Flowering Aug.-Oct.(-Mar.); fruiting Aug.-Oct.(-Mar.).

Tas. (FLI, TNM, TSE); also naturalised in WA, SA, NSW, Vic. Native to S Europe. Widespread in Tasmania where it is occasionally cultivated for ornamental, culinary and medicinal uses. It is occasionally naturalised in disturbed ground, along creek banks and in gardens, particularly in urban areas. Stems of this species are stout and hollow.

8 HACKELIA

Hackelia Opiz, *Oekon.-Techn. Fl. Böhm.* [Berchtold & al.] 2(2): 146 (1839).

Perennial herbs; indumentum hispid, pubescent or silky. Leaves basal and cauline; basal leaves in a rosette, petiolate; cauline leaves alternate, shortly petiolate to sessile. Inflorescences thryoid or rarely cymose, mostly ebracteate or with an occasional bract in the lower parts of the inflorescence. Flowers pedicellate; calyx divided nearly to base, without hooked trichomes, not accrescent in fruit; corolla actinomorphic, salver-shaped, white or occasionally blue, faucal scales present; stamens included in corolla tube; style included. Nutlets without plug-shaped elaiosome, with glochidiate trichomes.

A genus of approximately 45 species with a widespread distribution in W North America, South America, Asia, Australia and Europe (Weigend *et al.* 2016). Two species native to Australia.

Key references: Mill (1989); Dimon & Renner (2017)

1 *Hackelia latifolia* (R.Br.) Dimon & M.A.M.Renner, *Aust. Sys. Bot.* 30: 121–122 (2017) *Forest hounds-tongue*

Cynoglossum latifolium R.Br., *Prodr. Fl. Nov. Holland.*: 496 (1810). *Austrocynoglossum latifolium* (R.Br.) Popov ex R.R.Mill, *Notes Roy. Bot. Gard. Edinburgh* 46: 44–47 (1989).

Illustrations: Jeans (as *A. latifolium*), *Fl. Victoria* 4: 398, fig. 77c (1999); Wapstra *et al.* (as *A. latifolium*), *Tasmanian Plant Names Unravelling* 63 (2010); Wilson (as *A. latifolium*), *Fl. New South Wales* 3: 391 (1992).

Straggling perennial herb with a sparse covering of prominent, thorn-like, recurved trichomes. Leaves petiolate; lamina ovate to broad-ovate, 15–61 mm long, 9–40 mm wide, reducing in size up the stem; petiole 5–

12 mm long; abaxial surface glabrous except for retrorse and antrorse prickly like trichomes on the midrib and secondary veins; adaxial surface with scabrous, tubercle-based, antrorse trichomes; base cuneate; margin entire with prickly like antrorse trichomes of two distinct sizes; apex apiculate. Inflorescence bracteate with widely spaced leaf-like bracts; axis with recurved prickly-like trichomes; pedicels up to 12–20 mm long in fruit, recurved, densely antrorsely hairy. Calyx c. 2 mm long; lobes exceeding the tube; indumentum of antrorse appressed trichomes. Corolla actinomorphic, salver-shaped, c. 2 mm diameter, white to pale blue; tube c. 0.75 mm long; lobes spreading, c. 1 mm long; faucal scales present. Stamens included in corolla tube. Style included in corolla tube. Nutlets 2.5–3 mm long, c. 2 mm wide, dark brown, covered in barbed trichomes on the abaxial surface; abaxial surface convex; adaxial surface without trichomes. Flowering Aug.-Dec.(-Apr.); fruiting Oct.-Dec.(-Apr.).

Tas. (BEL, KIN, TNS, TSE); also in SA, Qld, NSW, Vic. A rare species in Tasmania known from a small number of sites in the State's north including King Island. Recorded from riparian habitats in wet sclerophyll forest and *Melaleuca ericifolia* Sm. swamps. *Hackelia latifolia* can be readily identified by its flowers that are usually borne slightly below where the leaf-like bracts join the stem, fruits with a covering of short barbed bristles, and its straggling habit.

2 *Hackelia suaveolens* (R.Br.) Dimon & M.A.M. Renner, *Aust. Sys. Bot.* 30: 122 (2017) Sweet hound's-tongue
Cynoglossum suaveolens R.Br., *Prodr. Fl. Nov. Holland.*: 495 (1810).

Illustrations: Jeans (as *C. suaveolens*), *Fl. Victoria* 4: 398, fig. 77a (1999); Richardson *et al.* (as *C. suaveolens*) *Weeds of the South East*, ed. 2: 209 (2011); Wilson (as *C. suaveolens*), *Fl. New South Wales* 3: 390 (1992).

Erect perennial herbs up to 45 cm tall with an indumentum of scabrous spreading and antrorse trichomes. Leaves sessile; lamina narrow-oblongate to narrow-lanceolate, up to 170 mm long, up to 20 mm wide, reducing in size up the stem; abaxial surface with a prominent midrib, covered in erect tubercle based trichomes; adaxial surface scabrous with antrorse trichomes; base attenuate, becoming amplexicaul in upper leaves; margin entire, slightly thickened; apex acute to rounded. Inflorescence bracteate; axis with antrorse and retrorse appressed trichomes; pedicels up to 2.5 mm long in fruit, erect at first but becoming recurved in fruit. Calyx up to 3 mm long; lobes equalling to slightly exceeding tube; indumentum of appressed antrorse trichomes. Corolla actinomorphic, salver-shaped, up to 5 mm diameter, white, pale yellow to cream; tube c. 2.5 mm long, shorter than or equalling calyx; lobes spreading, c. 1.8 mm long; faucal scales present, pubescent. Stamens level with the top of corolla tube. Stigma level with the top of corolla tube. Nutlets c. 4 mm long, c. 4.5 mm wide, pale brown to yellow, spiny-like trichomes on upper surface and on the margin, with an attachment scar on the lower surface, margin without a wing; trichomes barbed at apex; abaxial surface convex; adaxial surface flat, without rim. Flowering Aug.-Oct.(-Mar.); fruiting Aug.-Oct.(-Mar.).

Tas. (FLI, TNM, TSR, TSE); also in WA, SA, Qld, NSW, ACT, Vic. Widespread in the eastern half of Tasmania in coastal and near coastal habitats but also inland in the Derwent Valley, Midlands and Fingal Valley. It is most often associated with dry forest and grassy woodland. The flowers of *H. suaveolens* have a pleasant fragrance. *Hackelia suaveolens* may be confused with white/cream flowered *Myosotis australis*. However, the seeds and indumentum of the calyx of *M. australis* are quite different. The seeds of *M. australis* are shiny and without spines and the calyx has a covering of hooked trichomes.

9 AMSINCKIA

Amsinckia Lehm., *Del. Sem. Hort. Hamburg.* 3, 7 (1831).

Annual herbs; indumentum hispid. Leaves basal and cauline; basal leaves in a rosette, petiolate; cauline leaves alternate, sessile. Inflorescences cymose or thyrsoid, mostly ebracteate or with an occasional bract in the lower parts of the inflorescence. Flowers subsessile; calyx free for most of their length, without hooked trichomes, not accrescent in fruit; corolla actinomorphic, salver-shaped to funnel-shaped, yellow to orange; faucal scales usually absent; stamens included in corolla tube or partially exerted; style included or exerted. Nutlets without plug-shaped elaiosome, without glochidiate trichomes.

Amsinckia is a genus of 15 species native to SW North America and SW South America (Weigend et al. 2016). Three species are naturalised in Australia, one in Tasmania.

Key references: Weigend et al. (2016), Al-Shehbaz (1991).

1 * *Amsinckia calycina* (Moris) Chater, *Bot. J. Linn. Soc.* 64: 380 (1971)

Hairy fiddleneck

Lithospermum calycinum Moris, *Enum. Sem. Hort. Taur.* 21 (1831). *Amsinckia hispida* I.M. Johnst. *Contr. Gray Herb.* 73: 75 (1924).

Illustrations: Jeans, *Fl. Victoria* 4: 398, fig. 77i (1999).

Erect annual herb up to 70 cm tall with an indumentum of sharp translucent spreading trichomes and appressed recurved trichomes. Leaves sessile, ± stem clasping; lamina lanceolate to oblanceolate, up to 110 mm long, up to 30 mm wide, reducing in size along the stems and becoming less attenuate; surfaces with a mix of coarse and fine appressed trichomes; base stem clasping; margin unevenly undulate; apex acute. Inflorescence ebracteate or with an occasional leaf like bract at the base; axis with appressed recurved trichomes; flowers ± sessile, erect to spreading. Calyx up to 5 mm long, extending up to 17 mm in fruit, somewhat unequal with one lobe slightly shorter; indumentum hispid. Corolla actinomorphic, salver-shaped, c. 5 mm diameter, bright yellow with five orange markings at the throat; tube up to 6 mm long; lobes spreading, up to 1 mm long; faucal scales absent. Stamens included in corolla tube. Style included in corolla tube. Nutlets up to 2.4 mm long, up to 1.6 mm wide, dark grey-brown with white concretions, wrinkled; abaxial surface convex; adaxial surface concave with dorsal ridge. Flowering and fruiting Jun.-Jan.

Tas. (FLI, TNM, TSE); also naturalised in WA, NT, SA, NSW, Vic. Native of S South America. Widespread but localised in the drier parts of Tasmania, found in a range of habitats including dry pasture, crops and roadsides. Its spread has been linked to the movement of land fill and roadworks operations. One specimen collected from Hobart in 1915 has corolla tubes constricted by hairy saccate scales and anthers located near the base of the tube. This specimen is referable to *A. lycopsoides* (Lehm.) Lehm. The brief notes associated with this specimen do not indicate where the specimen was collected from in Hobart. There is also no information accompanying the collection that offers any detail regarding its status at the site and there is insufficient evidence to suggest it naturalised in Tasmania and it should be considered doubtfully naturalised.

10 MYOSOTIS

Myosotis L., *Sp. Pl.* 1: 131 (1793).

Annual, biennial or perennial herbs; indumentum pubescent or rarely glabrescent. Leaves basal and cauline; basal leaves in a rosette, petiolate; cauline leaves alternate, sessile. Inflorescences cymose, ebracteate. Flowers pedicellate; calyx divided 1/3 to 1/2 to the base, often with hooked trichomes, accrescent in fruit; corolla actinomorphic, salver-shaped to funnel-shaped, white, yellow or blue to pink, faucal scales present; stamens included in corolla tube or occasionally partially exerted; style included or rarely exerted. Nutlets without plug-shaped elaiosome, without glochidiate trichomes.

Approximately 80–100 species, almost cosmopolitan with centres of diversity in New Zealand and the Mediterranean region. Two species native in Australia and four species naturalised.

Key references: Stace (2019)

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| 1. Stamens included in the corolla tube | 2 |
| 1: Stamens exerted from the corolla tube | 4 <i>M. exarrhena</i> |
| 2. Calyx with hooked trichomes | 4 |
| 2: Calyx without hooked trichomes | 3 |
| 3. Fruiting pedicels up to 25 mm long; calyx up to 6 mm long in fruit; corolla up to 8 mm diameter | <i>M. scorpioides</i> + |

- | | |
|--|-----------------------|
| 3: Fruiting pedicels up to 10 mm long; calyx up to 8 mm long in fruit; corolla up to 5 mm diameter | 5 <i>M. laxa</i> |
| 4. Corolla bright blue with yellow throat; pedicel up to 10 mm long in fruit | 5 |
| 4: Corolla white to pale-yellow, sometimes turning pale-blue; pedicels up to 5 mm long in fruit | 6 |
| 5. Corolla up to 5 mm diameter; style shorter than stamens | 1 <i>M. arvensis</i> |
| 5: Corolla up to 11 mm diam; style as long as stamens | 6 <i>M. sylvatica</i> |
| 6. Inflorescence axis with spreading trichomes | 2 <i>M. australis</i> |
| 6: Inflorescence axis with antrorse appressed trichomes | 3 <i>M. discolor</i> |

+ *Myosotis scorpioides* L. is recorded in Tasmania from three specimens collected from marshy habitats at Deloraine and Port Sorell in the north of the State. Little information is associated with the specimens regarding the status of the species and it has not been recorded for nearly four decades, as such it is considered to be doubtfully naturalised in Tasmania. It has been confused in Tasmania with *M. laxa* subsp. *caespitosa*. The two taxa can be distinguished using the above key.

1 * *Myosotis arvensis* (L.) Hill., Veg. Syst. 7:55 (1764)

Common forget-me-not

Myosotis scorpioides var. *arvensis* L., *Sp. Pl.* 1:131 (1753).

Illustrations: Jeans, *Fl. Victoria* 4: 404, fig. 78c (1999); Richardson *et al.* *Weeds of the South East*, ed. 2: 213 (2011).

Erect annual or biennial herb up to 40 cm tall with a dense indumentum of appressed to spreading trichomes. Lower leaves sessile, ± decurrent; lamina oblanceolate, 15–100 mm long, 6–20 mm wide, reducing in size along the stems; surfaces with a moderate covering of antrorsely appressed simple trichomes (some trichomes spreading); base attenuate; margin entire; apex rounded to acute, often with a thickened tip. Inflorescence ebracteate; axis with antrorsely appressed trichomes; pedicels up to 8 mm long in fruit, erect to deflexed. Calyx c. 2 mm long, extending up to 5.7 mm in fruit; lobes equalling to slightly exceeding tube; indumentum of spreading hooked trichomes confined to the tube and appressed and spreading trichomes throughout, some trichomes ferruginous. Corolla actinomorphic, salver-shaped, up to 6 mm diameter, blue; tube shorter than or equalling calyx; lobes spreading, 1.8–4 mm long; faucal scales present. Stamens included in corolla tube. Style included in corolla tube. Nutlets 1.4–2 mm long, 1–1.6 mm wide, dark brown, lustrous; abaxial surface convex; adaxial surface 2-angled. Flowering and fruiting Oct.-Mar.

Tas. (TSE, TWE); also naturalised in Vic. Native to Europe and W Asia. A weed of gardens and other disturbed habits in and around the Hobart area. It has also been recorded in the remote garden at Melaleuca in the State's South West. This species may be distinguished from other species of *Myosotis* by its small bright blue flowers.

2 *Myosotis australis* R.Br., Prodr. Fl. Nov. Holland.: 495 (1810)

Austral forget-me-not

Illustrations: Jeans, *Fl. Victoria* 4: 404, fig. 78f (1999); Wilson, *Fl. New South Wales* 3: 394 (1992).

Erect annual or perennial herb up to 40 cm tall, with an indumentum mostly spreading trichomes. Leaves sessile, ± decurrent; lamina oblanceolate, 5–70 mm long, 2–6 mm wide, reducing in size along the stems; surfaces with a moderate covering of mostly antrorsely appressed simple trichomes (spreading on margin), some trichomes ferruginous; base attenuate; margin entire; apex acute to rounded. Inflorescence ebracteate or with an occasional leaf like bract; axis with a moderate to dense indumentum of spreading trichomes; pedicels up to 1.2 mm long in fruit, deflexed to recurved. Calyx c. 2 mm long, extending up to 3 mm in fruit; lobes equalling the tube; indumentum of long spreading hooked trichomes mostly confined to the tube and appressed simple trichomes throughout, ferruginous trichomes common. Corolla actinomorphic, salver-shaped, 3–3.8 mm diameter, white; tube length exceeding the calyx; lobes spreading, 1.3 mm long; faucal scales present. Stamens included in corolla tube. Style included in corolla tube. Nutlets 1.4–1.7 mm long, 0.9–1.2 mm wide, dark brown, lustrous; abaxial surface convex; adaxial surface convex to slightly 2-angled, rim present. Flowering Oct.-Jan.; fruiting Oct.-Mar.

Tas. (BEL, FLI, KIN, TCH, TNM, TNS, TSE, TSR, TWE); also WA, SA, NSW, ACT, Vic. Widespread throughout the state in a range of habitats from coastal sand dunes to inland habitats including stream banks, grassy woodland and high altitude rock screes. 0–1230 m a.s.l. A highly variable species, ranging in habit from tiny, mature plants up to 2 cm tall through to large plants up to 40 cm tall. The seeds are enclosed by the calyx forming a very small burr-like structure. This species can be distinguished from other species of *Myosotis* by the very short pedicels and spreading trichomes on the inflorescence axis.

3 * *Myosotis discolor* Pers., *Syst. Veg.*, ed. 15 (J.A.Murray): 190 (1798) *Blue-and-yellow forget-me-not*

Myosotis versicolor (Pers.) Sm. *Engl. Bot.* 7: 480 (1798), *Myosotis arvensis* var. *versicolor* Pers. *Syn. Pl.* [Persoon] 1: 156 (1805).

Illustrations: Jeans, *Fl. Victoria* 4: 404, fig. 78d (1999); Richardson et al. *Weeds of the South East*, ed. 2: 213 (2011); Wilson, *Fl. New South Wales* 3: 394 (1992).

Erect annual or biennial herb up to 40 cm tall, with a dense indumentum of spreading trichomes. Leaves sessile, ± decurrent; lamina linear to oblanceolate (mostly narrow), 2–31 mm long, 1–11 mm wide, reducing in size along the stems; surfaces with a moderate covering of appressed and spreading simple trichomes; base attenuate; margin entire; apex acute to rounded. Inflorescence ebracteate; axis with antrosely appressed trichomes; pedicels up to 3(–3.7) mm long in fruit, erect, spreading to recurved. Calyx 2.3–3 mm long, extending up to 5.2 mm in fruit; lobes exceeding tube; indumentum of short spreading hooked trichomes mostly confined to the tube and appressed and spreading simple trichomes throughout, some trichomes ferruginous. Corolla actinomorphic, salver-shaped, c. 2.7 mm diameter, white or pale yellow, becoming blue; tube slightly exceeding the calyx; lobes spreading, up to 1.1 mm long; faucal scales present. Stamens included in corolla tube. Style included in corolla tube. Nutlets up to 1 mm long, up to 0.9 mm wide, brown, lustrous; abaxial and adaxial surfaces convex, rim present. Flowering Oct.–Apr.; fruiting Dec.

Tas. (BEL, FLI, KIN, TCH, TNM, TNS, TSE, TSR, TWE); also naturalised in WA, NSW, ACT, Vic. Native to Europe, NW Africa and W Asia; also considered native in South Australia (as *M. discolor* subsp. *discolor*). Widespread in Tasmania particularly in the Central Highlands and adjacent areas where it grows in a range of mostly open habitats including grassland, grassy woodlands, roadsides and pastures. It is largely absent from coastal areas. From near sea level to 1280 m a.s.l. The calyx of this species is often tinged partially or wholly blue in herbarium specimens.

4 *Myosotis exarrhena* F.Muell., *Syst. Census Austral. Pl.* Suppl. 4: 7 (1889) *Sweet forget-me-not*

Exarrhena suaveolens R.Br., *Prodr.*: 495 (1810); *Myosotis suaveolens* (R.Br.) Poir. In Lam., *Encycl. Suppl.* 4:44 (1816) *nom. illeg., non.* Waldst. & Kit. *Ex Willd., Enum. Pl. Berol.*: 176 (1809).

Illustrations: Jeans, *Fl. Victoria* 4: 404, fig. 78a (1999); Wilson, *Fl. New South Wales* 3: 394 (1992).

Erect perennial herb up to 50 cm tall, with a dense indumentum of mostly spreading trichomes. Leaves sessile, ± decurrent; lamina oblanceolate, 15–110 mm long, 3.5–12 mm wide, reducing in size along the stems; surfaces with a dense covering of antrosely appressed simple trichomes (some trichomes spreading especially on the margin); base attenuate; margin entire; apex blunt to acute, often with a blunt apiculate tip. Inflorescence ebracteate; axis with dense indumentum of mostly antrosely appressed trichomes; pedicels up to 4.5 mm long in fruit, erect at first but deflexed in fruit. Calyx 2–3 mm long, extending up to 5.5 mm in fruit; lobes equalling tube; indumentum of spreading hooked trichomes confined mostly to the tube and antrosely appressed simple trichomes throughout, some trichomes ferruginous. Corolla actinomorphic, salver-shaped, up to 11 mm diameter, white or pale blue; tube equal to exceeding calyx; lobes spreading, 1.8–6 mm long; faucal scales present. Stamens exerted from corolla tube. Style exerted from corolla tube. Nutlets 1.8–2 mm long, 1.2–1.3 mm wide, dark brown, lustrous; abaxial surface convex; adaxial surface 2-angled, narrow rim present. Flowering and fruiting Nov.–May.

Tas. (TCH, TNM, TNS, TSE, TSR); also NSW, ACT, Vic. Widespread but very uncommon in Tasmania. The majority of specimens held at the Tasmanian Herbarium were collected prior to 1902 and are accompanied by very limited information regarding their location, habitat and population details. Information from the

small amount of more recent material indicates that the species grows at mid-level altitudes in *Eucalyptus* woodland. This species is immediately recognisable by being the only *Myosotis* with fully exerted stamens. Flowering details have been taken from Jeanes (1999). In Victoria, large variation in the flower size and shape, and degree of exertion of the stamens is seen in some populations. This variation has not been observed in Tasmanian material.

5 * *Myosotis laxa* Lehm., *Pl. Asperif. Nucif.* 1: 83 (1818) subsp. ***caespitosa*** (Schultz) Hyl. ex Nordh., *Norsk. Fl.* (Nordhagen). 529 (1940) *Common forget-me-not*

Myosotis cespitosa Schultz, *Prodromus Flora Stargardiensis Suppl.* 1: 11 (1819). *Myosotis scorpioides* var. *arvensis* L., *Sp. Pl.* 1:131 (1753);

Illustrations: Jeans, *Fl. Victoria* 4: 404, fig. 78e (1999); Wapstra *et al.*, *Tasmanian Plant Names Unravelling* 65 (2010); Richardson *et al.* *Weeds of the South East*, ed. 2: 213 (2011); Wilson (as *M. caespitosa*), *Fl. New South Wales* 3: 394 (1992).

Erect to ascending annual or biennial herb up to 25 cm tall, with a dense indumentum of antrorse appressed trichomes. Leaves sessile, ± decurrent; lamina oblanceolate, 21–90 mm long, 3–12 mm wide, reducing in size along the stems; surfaces with a sparse covering of antrorsely appressed simple trichomes; base attenuate; margin entire; apex obtuse to sub-acute. Inflorescence ebracteate; axis with antrorsely appressed trichomes; pedicels up to 6 mm long in fruit, erect to spreading. Calyx 2–3 mm long, extending up to 6 mm in fruit; lobes equalling the tube; indumentum of antrorse appressed simple trichomes, some trichomes ferruginous. Corolla actinomorphic, salver-shaped, 2–2.3(–5) mm diameter, blue, pink or white; tube equalling the calyx; lobes spreading, 0.8–1 mm long; faucal scales present. Stamens included in corolla tube. Style included in corolla tube. Nutlets c. 1.6 mm long, c. 1.4 mm wide, brown, lustrous; abaxial surface convex; adaxial surface convex to slightly 2-angled, rim present. Flowering Sep.-Nov.; fruiting Sep.-Nov.

Tas. (BEL, FLI, KIN, TCH, TNM, TNS, TSR); also naturalised in NSW, ACT, Vic. Native to temperate parts of Europe and Asia. In Tasmania, it is widespread but occasional in wet habitats including stream banks and in low flowing waterways, roadsides, areas subject to seasonal inundation, disturbed *Melaleuca* forest, lake and dam margins, soakage areas and marshy areas. This species has been confused with the less common *M. scorpioides*. To differentiate between these species see the key to the species of *Myosotis* and the note after the key.

6 * *Myosotis sylvatica* Hoffm., *Deutschl. Fl.* (Hoffm.): 61 (1791) *Wood forget-me-not*

Myosotis arvensis var. *sylvatica* (Hoffm.) Pers., *Syn. Pl.* [Persoon] 1: 156 (1805).

Illustrations: Jeans, *Fl. Victoria* 4: 404, fig. 78b (1999); Richardson *et al.* *Weeds of the South East*, ed. 2: 214 (2011); Wilson, *Fl. New South Wales* 3: 394 (1992).

Erect to ascending biennial or perennial herb up to 50 cm tall, with a dense indumentum of spreading trichomes. Leaves sessile, ± decurrent; lamina spatulate to oblanceolate, 15–115 mm long, 6–23 mm wide, reducing in size along the stems and becoming less attenuate; surfaces with a moderate covering of mostly appressed simple trichomes; base attenuate; margin entire; apex acute to rounded, often with a thickened tip. Inflorescence ebracteate; axis with antrorsely appressed trichomes; pedicels up to 15 mm long in fruit, erect, spreading to recurved. Calyx 3–4 mm long, extending up to 7 mm in fruit; lobes exceeding tube; indumentum of short spreading hooked trichomes mostly confined to the tube and appressed and spreading trichomes throughout, some trichomes ferruginous. Corolla actinomorphic, salver-shaped, up to 11 mm diameter, blue or rarely white; tube shorter than the calyx; lobes spreading, up to 4 mm long; faucal scales present. Stamens included in corolla tube. Style included in corolla tube. Nutlets up to 2.3 mm long, up to 1.5 mm wide, brown, often wrinkled; abaxial surface convex; adaxial surface 2-angled, rim obvious on adaxial surface. Flowering Sep.-Nov. (occasionally throughout the year); fruiting Sep.-Dec.

Tas. (KIN, TNM, TNS, TSE, TWE); also naturalised in WA, SA, NSW, ACT, Vic.; Native to temperate parts of Europe and Asia. In Tasmania, it is widespread and occasional and has been recorded as a weed in gardens,

vegetated dunes, roadsides, stream banks and waste places. This species is recognisable by having relatively large flowers with bright blue corolla lobes and a yellow throat.

11 CYNOGLOSSUM

Cynoglossum L., *Sp. Pl.* 1: 134 (1753).

Biennial, perennial or rarely annual herbs; indumentum hispid to strigose. Leaves basal and cauline; basal leaves petiolate, attenuate; cauline leaves alternate, sessile or shortly petiolate. Inflorescences thryoid, mostly ebracteate. Flowers pedicellate; calyx divided nearly to base, without hooked trichomes, accrescent in fruit; corolla actinomorphic, funnel-shaped or campanulate, blue, purple, yellow, red or white, faucal scales present; stamens included in the corolla tube or exerted; style included. Nutlets without plug-shaped elaiosome, with glochidiate trichomes.

Approximately 80–100 species, with a subcosmopolitan distribution. Two species in Australia, one native and one naturalised. One species native in Tasmania.

Key references: Weigend *et al.* (2016)

1 *Cynoglossum australe* R.Br., *Prodr. Fl. Nov. Holland.*: 495 (1810)

Australian hound's-tongue

Illustrations: Jeans, *Fl. Victoria* 4: 398, fig. 77b (1999); Wapstra *et al.*, *Tasmanian Plant Names Unravalled* 64 (2010); Richardson *et al.* *Weeds of the South East*, ed. 2: 209 (2011); Wilson, *Fl. New South Wales* 3: 390 (1992).

Erect perennial herb up to 80 cm tall with a dense indumentum of retrorse trichomes. Leaves sessile, mostly in a basal rosette but cauline leaves present; lamina narrow-oblongate, up to 270 mm long and 38 mm wide but usually much smaller, reducing in size up the stem; abaxial surface with a prominent midrib, covered in erect and retrorse scabrous, tubercle based trichomes; adaxial surface similar but with fewer retrorse trichomes; base attenuate; margin entire, slightly thickened; apex acute. Inflorescence ebracteate; axis with antrosely appressed trichomes; pedicels up to 7.5 mm long in fruit, erect at first, becoming recurved in fruit. Calyx c. 1.5 mm long, extending up to 2.5 mm in fruit; lobes exceeding tube; indumentum of appressed antrorse trichomes. Corolla actinomorphic, salver-shaped, 4–5 mm diameter, blue; tube c. 2 mm long; lobes spreading, c. 1.5 mm long; faucal scales present. Stamens included in corolla tube. Style included in corolla tube. Nutlets c. 4 mm long, c. 3.5 mm wide, dark brown, spiny trichomes on upper and lower surface but with a large attachment scar on the lower surface; margin of nutlets with a conspicuous spinous wing around its entirety; trichomes barbed at apex. Flowering and fruiting throughout the year but peaking Sep.-Oct.

Tas. (KIN, FLI, TNS, TNM, TSE); also in: WA, NT, SA, Qld, NSW, NI (formerly naturalised), ACT, Vic. Widespread especially in Tasmanian coastal areas but not recorded on the west coast. It is commonly associated with sandy disturbed sites such as dunes, mutton bird rookeries, sandy roadsides and coastal scrub. It is also known from inland habitats including native grasslands, unimproved pasture and lightly wooded hillsides. It is listed as rare under the TSPA 1995 probably owing to its affinities with disturbed habitats. However, given its widespread distribution and presence in a number of Tasmanian reserves its listing in such legislation may be unwarranted. Occasionally this species has been mistaken for *Myosotis* especially when the plants are immature and do not have the characteristic spiny fruit. When not in fruit it can be distinguished from *Myosotis* by its sepals having only appressed unhooked trichomes and leaves with a covering of trichomes that are retrorsely appressed and tubercle based. For a distinction between this and *Hackelia latifolia* see notes after that species.

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