



# Flora of South Australia

5th Edition | Edited by Jürgen Kellermann

## BRASSICACEAE (partly)<sup>1</sup>

N.H. Scarlett<sup>2</sup> & H.J. Hewson<sup>3</sup> (family description; key to genera amended by N.H. Scarlett)

Annual to perennial herbs or rarely at least partly woody; leaves alternate, exstipulate, simple; entire to deeply dissected. **Inflorescence** a usually ebracteate raceme or panicle; flowers bisexual, regular; sepals 4, in 2 whorls, free, imbricate, usually caducous; petals 4, rarely 0, alternate with the sepals, usually clubbed, the limb spreading in the form of a cross; stamens 6, rarely 4 or 2, 4 usually longer than the other 2; ovary superior, usually divided into 2 cells by a membranous septum connecting the 2 parietal placentas; style 1; stigma usually bilobed; ovules 1-many. **Fruit** usually dehiscent into 2 valves leaving the persistent septum, termed a siliqua when long or a silicula when broad; seeds lacking endosperm.

About 337 genera and 3,400 species, cosmopolitan but especially in the Northern Hemisphere; about 52 genera and 160 species in Australia. There are many horticultural representatives grown as vegetables (e.g. *Brassica*) and ornaments. Several are treated here as naturalised.

References: Hewson (1982b, 1986), Appel & Al-Shehbaz (2003).

1. Fruit a siliqua (length, excluding beak, at least 3 times width)
  2. Siliqua differentiated into valve and beak; cotyledons conduplicate
    3. Seeds in two rows in each locule
      4. Petals with purple veins; stigma bilobed; beak sabre-like ..... **Eruca**
      - 4: Petals without purple veins; stigma capitate; beak conical to 2-edged ..... **Diplotaxis**
    - 3: Seeds in one row in each locule
      5. Siliqua indehiscent, constricted between the seeds, often breaking in to 1-seeded units ..... **Raphanus**
      - 5: Siliqua dehiscent, not constricted between the seeds, not breaking in to 1-seeded units
        6. Valves with 1 prominent mid-vein
          7. Valves slightly keeled; all leaves entire and stemclaspings ..... **Conringia**
          - 7: Valves rounded; at least some leaves not entire or stemclaspings ..... **Brassica**
        - 6: Valves with 3 or more prominent veins.
          8. Siliqua spreading; beak cylindrical, conical or sabre-like ..... **Sinapis**
          - 8: Siliqua appressed to the stem; beak swollen ..... **Hirschfeldia**
  - 2: Siliqua with valve region only (style persistent or not, but not developed into a beak); cotyledons not conduplicate.
    9. Plants with simple hairs, or glabrous

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- 10. Seeds with incumbent radicle
  - 11. Septum incomplete or absent ..... **Menkea**
  - 11: Septum complete
    - 12. Seeds mucous
      - 13. Seeds finely papillose ..... **Arabidella**
      - 13: Seeds finely reticulate ..... **Irenepharsus**
    - 12: Seeds not mucous.
      - 14. Valves with 3 veins ..... **Sisymbrium**
      - 14. Valves with 1 indistinct vein ..... **Irenepharsus**
- 10: Seeds with accumbent radicle
  - 15. Siliqua valves flat; replum margin flanged ..... **Cardamine**
  - 15: Siliqua valves convex; replum margin not flanged
    - 16. Valves with the mid-vein distinct to the apex ..... **Barbarea**
    - 16: Valves with the mid-vein fading below the apex ..... **Rorippa**
- 9: Plants with branched hairs
  - 17. Seeds in 1 row in each locule
    - 18. Petals 10 mm long or longer
      - 19. Stigma deeply bilobed; lobes erect, each with a dorsal swelling or horn ..... **Matthiola**
      - 19: Stigma not deeply bilobed; lobes without a swelling or horn ..... **Erysimum**
    - 18. Petals less than 10 mm long.
      - 20. Leaves bi- to tripinnatisect; petals yellow ..... **Descurainia**
      - 20: Leaves entire to dentate; petals white ..... **Irenepharsus**
  - 17: Seeds in 2 rows in each locule
    - 21. Siliqua 2 cm long or longer ..... **Blennodia**
    - 21: Siliqua less than 2 cm long
      - 22. Siliqua subterranean ..... **Geococcus**
      - 22: Siliqua aerial
        - 23. Petals thread-like, not clawed ..... **Stenopetalum**
        - 23: Petals obtuse, somewhat clawed
          - 24. Siliqua linear; petals white ..... **Pachymitus**
          - 24: Siliqua fusiform; petals yellow or with some lavender
            - 25. Pedicels recurved; petals yellow ..... **Scambopus**
            - 25: Pedicels erect to spreading; petals with some lavender ..... **Harmsiodoxa**
- 1: Fruit a silicula (length, excluding beak, less than 3 times width).
  - 26. Silicula distinctly differentiated into 2 parts (valve region and beak)
    - 27. Beak flattened and leaf-like ..... **Carrichtera**
    - 27: Beak rounded to conical.
      - 28. Silicula more than 10 mm long ..... **Cakile**
      - 28: Silicula less than 10 mm long
        - 29. Beak or upper segment containing seeds ..... **Rapistrum**
        - 29: Beak seedless
          - 30. Plant glabrous; silicula obcordate ..... **Myagrimum**
          - 30: Plant hairy; silicula not obcordate ..... **Euclidium**
  - 26: Silicula not distinctly differentiated into valve region and beak
    - 31. Silicula with one seed per locule

- 32. Silicula with a narrow septum and keeled valves
  - 33. Flowers actinomorphic, petals of equal length, often reduced or absent ..... 1. **Lepidium**
  - 33: Flowers zygomorphic with two petals much larger than the other two ..... **Iberis**
- 32: Silicula with a broad septum and flat or rounded valves.
  - 34. Silicula globose ..... **Neslia**
  - 34: Silicula flattened ..... **Lobularia**
- 31: Silicula with more than one seed per locule
  - 35. Silicula with a narrow replum; valves winged or keeled
    - 36. Plants glabrous or with simple hairs only
      - 37. Silicula keeled
        - 38. Seeds many, up to 70 per locule ..... **Carinavalva**
        - 38: Seeds few, 12 or fewer per locule
          - 39. Silicula elongate; branching of stem zigzag ..... **Hymenolobus**
          - 39: Silicula round; branching of the stem not zigzag ..... **Cuphonotus**
      - 37: Silicula winged ..... **Microlepidium**
    - 36: Plants hairy, at least some of the hairs branched
      - 40. Hairs all 2-fid ..... **Phlegmatospermum**
      - 40: Simple and stellate hairs present
        - 41. Silicula more than 5 mm long ..... **Capsella**
        - 41: Silicula less than 5 mm long ..... **Microlepidium**
- 35: Silicula with a broad replum; valves not winged or keeled
  - 42. Petals thread-like, acute, or 2-fid
    - 43. Petals entire, thread-like and/or acute ..... **Stenopetalum**
    - 43: Petals 2-fid ..... **Erophila**
  - 42: Petals somewhat obtuse (or emarginate), entire
    - 44. Silicula with septum incomplete or absent ..... **Menkea**
    - 44: Silicula with septum complete
      - 45. Silicula subterranean ..... **Geococcus**
      - 45: Silicula aerial
        - 46. Staminal filaments with an appendage; hairs stellate, appressed ..... **Alyssum**
        - 46: Staminal filaments without an appendage; hairs, if stellate, not appressed
          - 47. Hairs absent or all simple ..... **Rorippa**
          - 47: Hairs present, at least some branched ..... **Camelina**

## 1. LEPIDIUM L.

*Sp. Pl.* 2: 643 (1753).

(Greek *lepis*, a scale; referring to the appearance of the fruits.)

*Coronopus* Zinn, *Cat. Pl. Hort. Gott.*: 325 (1757); *Senebiera* DC., *Mém. Soc. Hist. Nat. Paris*: 140, t. 8–9 (1799); *Cardaria* Desv., *J. Bot. Agric.* 3: 165 (1814); *Monoploca* Bunge, *Pl. Preiss.* 1(2): 259 (1845).

Prepared by N.H. Scarlett

Annual, biennial or perennial herbs or shrubs, glabrous or with simple hairs. **Inflorescence** ebracteate, initially corymbose usually elongating into a raceme, sometimes a corymbose panicle of racemes; sepals erect to spreading, equal; petals variously developed to absent; stamens 6, 4 or 2, the 2 medians always present; nectaries 6, 4 or 2, the 2 medians always present. **Fruit** a silicula, dehiscent, rarely indehiscent, flattened at right angles to the septum or inflated and terete, with or without a terminal notch; valves keeled to rounded, usually winged, enclosing or readily releasing seed; seeds 1 (–2) per locule, pendulous, plump or flattened, sometimes winged, mucous, cotyledons simple, divided or folded; radicle incumbent, rarely accumbent. **Peppercresses.**

Around 220 species, cosmopolitan, 36 endemic and 8 introduced species in Australia.

Molecular phylogenies have consistently shown that the Australian species in *Lepidium* sect. *Monoploca* (Bunge) Prantl form a monophyletic lineage separate from all other *Lepidium* species, warranting generic status for the section (Bailey *et al.* 2001). The four South Australian species in sect. *Monoploca*, *L. leptopetalum*, *L. phlebopetalum*, *L. rotundum* and *L. strongylophyllum* are retained under *Lepidium* here, as sect. *Monoploca* cannot as yet be clearly distinguished morphologically from the other sections of the genus and thus raised to generic rank. All other endemic Australian *Lepidium* species are phylogenetically hybridogenous with South African and possibly also Californian remote ancestors contributing to their genomes (Mummenhoff *et al.* 2001, Dierschke *et al.* 2009).

*Cardaria* and *Coronopus*, formerly treated as distinct genera, are here reduced to synonymy with *Lepidium* in accordance with recent molecular data (Al-Shehbaz *et al.* 2002).

While many native *Lepidium* species are seasonally abundant in the semi-arid regions of S.A., they have become both localised and rare in the closely settled humid regions, where only the introduced *L. africanum* is widespread and common. Some species are now extinct or threatened with extinction in S.A.

Annual and short-lived perennial *Lepidium* species are very variable in overall size and leaf dimensions, which vary in relation to habitat, seasonal conditions and the growth stage of the population. The measurements given in the species descriptions apply to the majority of collections, excluding both unusually dwarfed and luxuriant plants. In the descriptions “basal leaves” includes both the rosette (if present) and lower cauline leaves to c. the mid-point of the stems; leaf length measurements include the petiole. Pedicel characters in the key and descriptions are those of the mature siliculae, as the characters of the pedicels at flowering are not always diagnostic. Measurements of siliculae and pedicels are taken from the middle section of mature racemes. The descriptions of the epidermal characters of the siliculae apply only to the adaxial surfaces.

A number of *Lepidium* species are used as vegetables by the Aboriginal people of Central Australia and northern S.A. (Latz 1995, Neville 2007). *Lepidium sativum* is cultivated in gardens occasionally as a salad vegetable, *L. latifolium* was once used as a condiment and a medicine in Europe and the seeds of *L. apetalum* Willd. are used medicinally in China (Xie *et al.* 1989).

References: Thellung (1906), Carolin & Hewson (1981), Hewson (1982a), Entwisle (1996), Retter & Harden (1990), Al-Shehbaz & Gaskin (2010).

1. Silicula indehiscent, but the valves may separate as individual articles retaining the seed
  2. Silicula puberulent to glabrous, never ridged or reticulately pitted
    3. Silicula semi-flattened, cordate to subreniform, valves glabrous ..... 8. **L. draba**
    3. Silicula globose, valves puberulent ..... 3. **L. appelianum**
  2. Silicula ridged or reticulately pitted
    4. Silicula reticulately pitted, notched at the apex ..... 7. **L. didymum**
    4. Silicula ridged, not notched at the acute apex ..... 5. **L. coronopus**
- 1: Silicula dehiscent, the valves shedding the seed on separation
  5. Stamens 6



- 6. Stems glabrous or with a few scattered hairs
  - 7. Plant rhizomatous ..... 12. **L. latifolium**
  - 7: Plant not rhizomatous
    - 8. Plant herbaceous ..... 26. **L. sativum**
    - 8: Plant shrubby
      - 9. Leaves entire; plant eremaeae ..... 27. **L. stronglylophyllum**
      - 9: Leaves dentate or further divided; plant coastal ..... 10. **L. foliosum**
- 6: Stems minutely hairy, papillose or warty (use a lense)
  - 10. Leaves markedly and abruptly dimorphic along the stem ..... 18. **L. perfoliatum**
  - 10: Leaves similar or gradually changing in shape along the stem
    - 11. Silicula with the wing broad to the base; notch about one third of the fruit length ..... 24. **L. rotundum**
    - 11: Silicula winged in the upper half; notch less than one third of the fruit length
      - 12. Petals less than 5 mm long ..... 19. **L. phlebotetum**
      - 12: Petals more than 5 mm long ..... 13. **L. leptotetum**
- 5: Stamens 2 to 4
  - 13. Stamens 4, very rarely 3
    - 14. Leaves auriculate or sagittate at the base
      - 15. Stems with papillae or vesicular hairs ..... 17. **L. papillosum**
      - 15: Stems with acicular hairs ..... 16. **L. oxytrichum**
    - 14: Leaves attenuate at the base
      - 16. Silicula 2–2.5 mm long ..... 22. **L. pseudoruderale**
      - 16: Silicula 4.5–5.5 mm long
        - 17. Silicula wings acute apically ..... 14. **L. monoplocoides**
        - 17: Silicula wings obtuse apically ..... 21. **L. pseudopapillosum**
  - 13: Stamens usually 2
    - 18. Inflorescence a corymb, not elongating ..... 9. **L. fasciculatum**
    - 18: Inflorescence an elongating raceme
      - 19. Bases of major upper cauline leaves auriculate or sagittate
        - 20. Pedicels hairy
          - 21. Pedicels hairy adaxially ..... 23. **L. pseudotasmanicum**
          - 21: Pedicels hairy circumferentially
            - 22. Stems with both patent and reflexed hairs ..... 2. **L. ambiguum**
            - 22: Stems with reflexed hairs only ..... 6. **L. desvauxii**
        - 20: Pedicels totally glabrous
          - 23. Petals ovate; silicula over 3 mm long ..... 11. **L. hypenation**
          - 23: Petals linear; silicula less than 3 mm long ..... 25. **L. sagittulatum.**
      - 19: Bases of major upper cauline leaves attenuate
        - 24. Pedicels all glabrous ..... 20. **L. pseudohyssopifolium**
        - 24: At least some pedicels hairy
          - 25. Hairy pedicels mixed with glabrous pedicels on the same plant
            - 26. Pedicels at least 3 times the length of the siliculae ..... 20. **L. pseudohyssopifolium**
            - 26: Pedicels up to twice the length of the siliculae ..... 1. **L. africanum**
          - 25: Pedicels all hairy
            - 27. Plant pubescent with long obtuse-tipped to clavate hairs ..... 15. **L. muelleri-ferdinandi**

27: Plant glabrous or puberulent

28. Upper cauline leaves serrate to pinnately lobed; plant puberulent ..... 4 **L. bonariense**

28: Upper cauline leaves mainly entire to dentate, rarely pinnately lobed and if so, the plant almost glabrous

29. Pedicels up to twice the length of the siliculae, arcuate to curved . 1. **L. africanum**

29: Pedicels at least three times the length of the siliculae, ± straight

30. Silicula 2–2.5 mm long ..... 22. **L. pseudoruderale**

30: Silicula 2.5–3 mm long ..... 23. **L. pseudotasmanicum**

1. **\*Lepidium africanum** (Burm.f.) DC., *Reg. Veg. Syst. Nat.* 2: 522 (1821). — *Thlaspi africanus* Burm.f., *Fl. Ind.*: 17 (1768). *L. hyssopifolium auct. non* Desv.: J.M.Black, *Fl. S.Austral.* 2: 252 (1924), *Fl. S.Austral.* 2: 382 (1948), partly; Carolin & Hewson in Jessop (ed), *Fl. Central Austral.*: 97 (1981). — **Illustr.:** *Fl. A.C.T.*: 187, fig. 177 (1970); *Pl. W. N.S.W.* 327 (1982); both as *L. hyssopifolium*.

Annual, biennial or perennial herb, erect, branched, to 40 cm tall, glabrous to sparsely and minutely hairy; basal leaves variably petiolate, blade broad- to narrow-lanceolate, 5–10 × 0.5–4 cm, serrate to entire, very rarely pinnatifid; major upper cauline leaves sessile, narrow elliptical to cuneate, entire, very rarely pinnatifid, 2–5 × 2–5 mm, margins sparsely ciliate, bases attenuate. **Inflorescence** an elongating raceme; sepals to 0.75 mm long; petals white, reduced, thread-like, shorter than the sepals; stamens 2, median; nectaries 4, bottle-shaped, less than a third the length of the sepals. **Silicula** dehiscent, ovate to obovate, 2–3 × 1.5–2 mm, glabrous, wings slight in the upper half with a shallow notch; mature style shorter than the notch; pedicels up to twice the length of silicula, puberulent on the adaxial surface, sometimes also glabrous within the same raceme, flattened, arcuate to curved; seeds ellipsoid, c. 1.3 mm long. **Common peppergrass, rubble peppergrass. Fig. 1A, 2A–B, Pl. 1A–D.**

S.A.: \*NU, \*FR, \*EA, \*EP, \*NL, \*MU, \*YP, \*SL, \*KI, \*SE; \*W.A.; \*N.T.; \*Qld; \*N.S.W.; \*Vic.; \*Tas. Native to South Africa. Common weed of disturbed urban areas, farmland and native vegetation. Flowers: mainly Apr.–Sep.

In this treatment Marais' delimitation of *L. africanum* (Marais 1970) is maintained, following Hewson (1982a), excluding the related *L. divaricatum* W.T.Aiton, which was reduced to a subspecies of *L. africanum* by Jonsell (1975). While S.A. populations of *L. africanum* fall into two taxa, with arcuate as opposed to curved pedicels, respectively, their relationship to the native South African populations is currently obscure.

Cows feeding on this species often produce tainted milk.

2. **Lepidium ambiguum** F.Muell., *Defin. Austral. Pl.* 2 (1855); *Trans. Philos. Soc. Victoria* 1: 34 (1855); *non* Lange *Vidensk. Meddel. Naturhist. Foren. Kjøbenhavn* 7: 74 (1865). — *L. ambiguum* F.Muell.: J.M.Black, *Fl. S.Austral.* 2: 252 (1924), *Fl. S.Austral.* 2: 382 (1948), for the major part, but excluding the cited S.A. specimens; *L. ruderale* var. (?) *spinescens* Benth. *Fl. Austral.* 1: 87 (1863), partly; *L. desvauxii* Thell., *Neue Denkschr. Allg. Schweiz. Ges. Gesamten Naturw.* 41(1): 307 (1906), partly. *L. dubium auct. non* Thell.: J.M.Black, *Fl. S.Austral.* 2: 252 (1924), *Fl. S.Austral.*: 382 (1948), partly; *L. hyssopifolium auct. non* Desv.: Hewson, *Brunonia* 4: 288 (1982), *Fl. Austral.* 8: 278 (1982), partly; Hewson in Jessop & Toelken, *Fl. S.Austral.* 1: 400 (1986); *L. ruderale auct. non* L.: Tate, *Fl. Extratrop. S.Austral.* 19 (1890), partly.

Perennial herbs, erect, to 40 cm tall, stems hairy with both short reflexed clavate hairs and spreading peg-like hairs; basal leaves unknown; major upper cauline leaves linear-subulate, 50 mm long, 2–25 mm wide basally, margins with sparse cylindrical hairs basally, bases flared to auriculate. **Inflorescence** an elongating raceme; sepals c. 1 mm long; petals white, c. 0.7 mm long; stamens 2, median; nectaries 4, bottle-shaped, less than a third the length of the sepals. **Silicula** dehiscent, obovate-rhombic, 4–5 × 2 mm, glabrous, wing narrow in the upper half with a shallow notch; mature style included in the notch; pedicel arcuate, slightly flattened, puberulent on both surfaces but sparsely so abaxially, 3–4 mm long, equal to or shorter than the silicula; seeds ellipsoid, c. 2 mm long. **Murray peppergrass. Pl. 1E, F.**

S.A.: SL (Salt marshes towards the mouth of the Murray). Known from only one 19th century S.A. collection (the lectotype: *W.B.Hillebrand s.n.*, 1849) and possibly now extinct. Targeted searches in the salt marshes of the original collection area in 2008 failed to locate the species. Currently only *L. pseudohyssopifolium* and *L. africanum* are known to occur in the Murray Mouth area. Flowers: probably late spring.

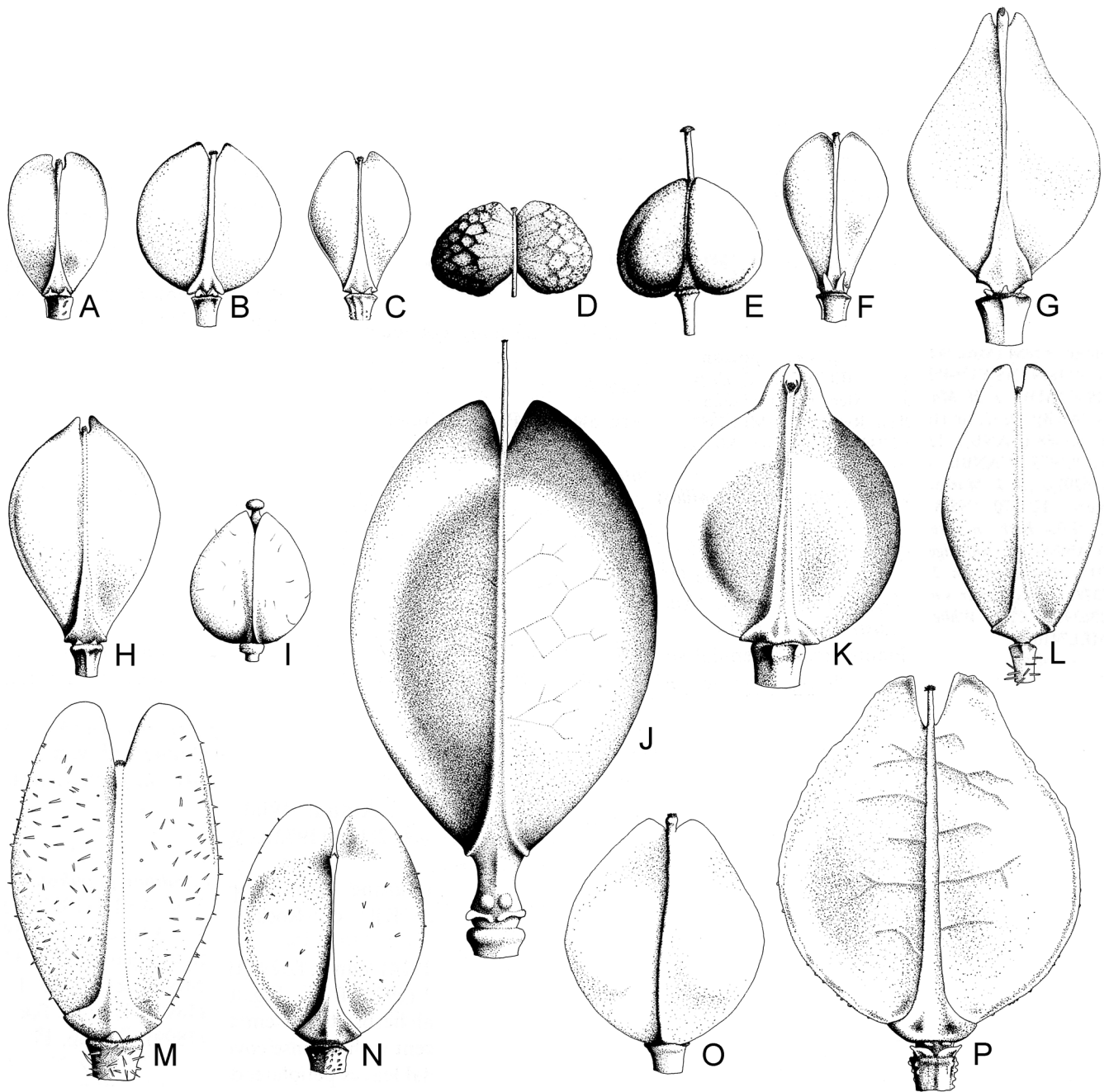


Fig. 1. Fruits of *Lepidium* species. A, *L. africanum*. B, *L. bonariense*. C, *L. desvauxii*. D, *L. didymum*. E, *L. draba*. F, *L. fasciculatum*. G, *L. foliosum*. H, *L. hypenanthion*. I, *L. latifolium*. J, *L. leptopetalum*. K, *L. monoplocoides*. L, *L. mueller-ferdinandi*. M, *L. oxytrichum*. N, *L. papillosum*. O, *L. perfoliatum*. P, *L. phlebopetalum*. Illustrations by H.J. Hewson, *Brunonia* 4(2): 217–308 (1981), reproduced with permission of CSIRO.

*L. ambiguum* differs from *L. hysopifolium*, under which name it was previously known, in its stem indumentum of mixed patent and retrorse hairs, subulate upper cauline leaves and fruit shape and size. Morphologically closest to *L. aschersonii* Thell., but without the diagnostic spine-tipped, short racemes of that species.

3. \****Lepidium appelianum*** Al-Shehbaz, *Novon* 12(1): 7 (2002). — *Hymenophysa pubescens* C.A.Mey. in Ledeb., *Icon. Pl.* 2: 20 (1830); *Cardaria pubescens* (C.A.Mey.) Jarm., *Weeds U.S.S.R.* 3: 29 (1934); *Cardaria pubescens* var. *elongata* Rollins, *Rhodora* 42: 306 (1940). *L. draba* auct. non L.: H.R.Toelken in W.R.Barker *et al.*, *J. Adelaide Bot Gard Suppl.* 1: 55 (2005), partly. — **Illustr.**: A.Francis & S.I.Warwick, *Canad. J. Pl. Sci.* 88: 379, fig. G–H (2008).

Perennial rhizomatous herbs, procumbent to erect, 10–40 cm tall, hoary pubescent; basal leaves shortly petiolate, oblanceolate to obovate, 1–7 × 0.3–2 cm, sinuate-dentate; cauline leaves sessile, oblong or lanceolate, 1–8 × 0.3–3 cm, dentate to subentire, margins with curved hairs, bases sagittate and stem clasping. **Inflorescence** a corymbose panicle of racemes, rarely elongated in fruit; sepals 1.5–2 mm long, glabrous to pubescent; petals white, 2.5–4 mm long; stamens 6, nectaries 6, sub-triangular, less than a third of the length of the sepals. **Silicula** indehiscent and sometimes separating into 1- or 2-seeded articles, globose, inflated, 3–4.5 × 3–5 mm, densely puberulent, unveined, not notched; valves not notably constricted along the septum; mature style apical; pedicels ascending to spreading, 3–9 (–12) cm long, terete, pubescent; seeds ovoid to oblong 1–1.5 mm long. **Globe-pod, hairy whitetop.**

S.A.: \*NL (Bundaleer Springs). Eurasia, introduced in North America. A rare introduction, last collected in 1934, now presumed extinct. Flowers: Sep.–Jan. **Pl. 1G.**

Closely related to the widespread weed *L. draba*, but differing in its more inflated pubescent fruits.

4. **\*Lepidium bonariense** L., *Sp. Pl.* 2: 645 (1753). — **Illustr.:** *Pl. W. N.S.W.* 326 (1981); *Fl. N.S.W.* 469 (1990).

Annual or biennial herbs, erect, to 50 cm tall, puberulent with weak or reflexed hairs; basal leaves variably petiolate, blade obovate in outline, 2–10 × 1–4 cm, bi- to tri-pinnatisect, the lobes to 2 mm wide; upper cauline leaves mainly sessile, narrow lanceolate, 3–5 × 0.5–1 cm, serrate to pinnately lobed, rarely reducing to entire, mainly tridentate apically, margins ciliate with sabre-like hairs, bases attenuate. **Inflorescence** an elongating raceme; sepals c. 0.5 mm long; petals white, shorter than the sepals; stamens 2, median; nectaries 4 (–6), rotund, less than a third the length of the sepals. **Silicula** dehiscent, broad-ovate, 2–3.5 × 2–3 mm, glabrous, narrowly winged in the upper half forming a shallow notch; mature styles shorter than the notch; pedicels ascending, 2–3 mm long, puberulous on the adaxial surface; seeds ellipsoid, c. 1.5 mm long. **Cut-leaved (or Argentine) peppergrass. Fig. 1B.**

S.A.: \*NL, \*MU, \*SE; \*W.A.; \*Qld; \*N.S.W.; \*Vic. Native to South America. A rare weed of urban areas. Flowers: May–June (2 records).

5. **\*Lepidium coronopus** (L.) Al-Shehbaz, *Novon* 14(2): 156 (2004). — *Cochlearia coronopus* L., *Sp. Pl.* 2: 648 (1753); *Senebiera coronopus* (L.) Poir. in Lam., *Encycl.* 7: 76 (1806). *Nasturtium verrucarium* Garsault, *Fig. Pl. Med.* 3: 241, t. 402 (1767); *Lepidium squamatum* Forssk. *Fl. Aegypt-Arab.*: 117 (1775); *Coronopus procumbens* Gilib., *Fl. Lit. Inch.* 2: 52 (1781); *Coronopus ruellii* All., *Fl. Pedem.* 1: 256 (1785); *Coronopus squamatus* (Forssk.) Asch., *Fl. Brandenburg* 1(2): 62 (1864); *Coronopus verrucarius* (Garsault) Muschl. & Thell., *Neue Denkschr. Allg. Schweiz. Gesamten Naturw.* 41(1): 318 (1906); *Coronopus verrucarius* subsp. *euverrucarius* Muschler, *Bot. Jahrb.* 41: 130 (1908). — **Illustr.:** Ross-Craig, *Drawings Brit. Pl.* 3: pl. 59. (1949); *Fl. Victoria* 3: 427, fig. b–c (1999); both as *Coronopus squamatus*.

Annual or biennial herb, prostrate, glabrous; stems to 30 cm long; basal leaves petiolate, blade elliptical in outline, 3–10 × 0.8–2 cm, deeply pinnatisect; upper cauline leaves shortly petiolate, narrow elliptical in blade outline, 2–5 × 0.5–2 cm, pinnatifid to entire, bases attenuate. **Sepals** c. 1 mm long; petals white, 1–1.5 mm long; stamens usually 6; nectaries 6, narrowly ovate and truncate, less than a third of the length of the sepals. **Silicula** indehiscent, not separating into 1-seeded units, broadly ovoid, 2–3 × c. 4 mm, irregularly ridged, emarginate below and narrowed to the style above, apex acute not notched, slightly constricted along the septum; mature style apical; pedicels ascending, straight, c. 1–2 mm long, glabrous; seeds ovate-oblong, 1.2–1.6 mm long. **Pl. 1H, I, 2A, B.**

S.A.: \*SE; \*Vic.; \*Tas.; Native to Europe, N. Africa and the Middle East. A weed of disturbed, usually trampled soils in urban areas. Flowers: Oct.–Nov.

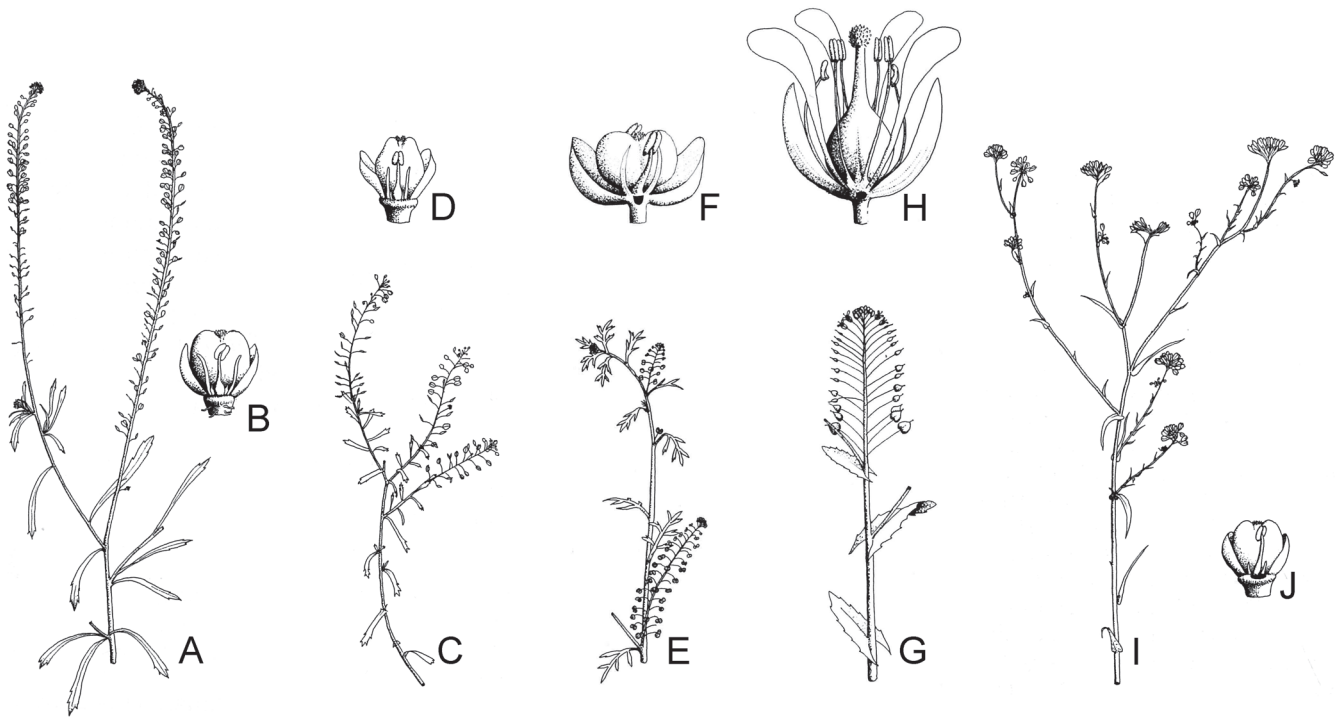
6. **Lepidium desvauxii** Thell., *Neue Denkschr. Allg. Schweiz. Ges. Gesamten Naturw.* 41(1): 307 (1906). — *L. desvauxii* var. *typicum* Thell., *Neue Denkschr. Allg. Schweiz. Ges. Gesamten Naturw.* 41(1): 308 (1906), *nom. illeg.*; *L. hyssoipifolium* var. *desvauxii* (Thell.) Domin, *Biblioth. Bot.* 89: 699 (1926). *L. ruderale* var. *robusta* Hook.f., *Fl. Tasman.*, 1: 25 (1855); *L. hyssoipifolium* f. *intercedens* Domin, *Biblioth. Bot.* 89: 699 (1926); *L. praetervisum* Domin, *Repert. Spec. Nov. Regni Veg.* 11: 199 (1912); *L. halmaturinum* J.M.Black, *Trans. Roy. Soc. South Australia.* 62: 354 (1938). *L. ruderale* auct. non L. Benth., *Fl. Austral.* 1: 86 (1863), partly; Tate, *Fl. Extratrop. S.Austral.*: 18 (1890), partly. — **Illustr.:** *Fl. S.Austral.* 2: 382, fig. 539 (1948), as *L. halmaturinum*.

Perennial herbs, erect to spreading, to 40 cm tall, scabrous with hairs usually bilobed and reflexed; basal leaves petiolate, blade obovate in outline, 4.5–8 × 2.5–4.5 cm wide, pinnate with dentate lobes; major upper cauline leaves sessile, spatulate to narrow-cuneate, 1–3.5 × 3–5 mm, serrate near the tip, margins with short, often bi-lobed hairs arising from a warty projection, bases auriculate. **Inflorescence** an elongating raceme; sepals 0.5–0.75 mm long; petals white, linear, shorter than the sepals; stamens 2, median; nectaries 4, oblong-ovate and apiculate, less than a third of the length of the sepals. **Silicula** dehiscent, elliptic to ovate, 2.5–3 × 1.75–3 mm, sparsely hirsute with acicular hairs, slightly winged in the upper half, with a small notch; pedicels spreading, 2.5–3 mm long, puberulent, hairs mainly on the adaxial face; seeds ellipsoid, c. 1.5 mm long. **Bushy peppergrass. Fig. 1C, 2C–D.**

S.A.: KI, SE; W.A.; Vic.; Tas. A rare coastal species, often growing on the fringes of salt marshes. Flowers Oct.–Dec.

Rare status in S.A.





**Fig. 2.** Habit and flowers of *Lepidium* species. **A–B**, *L. africanum*. **C–D**, *L. desvauxii*. **E–F**, *L. didymum*. **G–H**, *L. draba*. **I–J**, *L. fasciculatum*. Illustrations by H.J. Hewson, *Brunonia* 4(2): 217–308 (1981), reproduced with permission of CSIRO.

7. \****Lepidium didymum*** L., *Mant.* 1: 92 (1767). — *Coronopus didymus* (L.) Smith, *Fl. Brit.* 2: 691 (1800); *Senebiera didyma* (L.) Pers., *Syn. Pl.* 2: 185 (1806). *Senebiera pinnatifida* DC., *Mém. Soc. Hist. Nat. Paris* 144, t. 9 (1799); *S. incisa* Willd., *Enum. Pl.* 2: 668 (1809); *C. didymus* var. *incisa* (Willd.) Hook., *Companion Bot. Mag.* 1: 274 (1836). — **Illustr.:** *Fl. A.C.T.* 186, fig. 179 (1970); *Fl. Austral.* 8: 289, fig. 53A–D (1982); *Pl. W. N.S.W.* 321 (1982).

Annual malodorous herb, prostrate to ascending, to 30 cm tall, glabrous to sparsely pilose; basal leaves variably petiolate, blade oblong to oblong-ovate in outline, 5–9 × 0.8–2 cm, pinnatisect, with pinnatifid lobes; major upper cauline leaves shortly petiolate, blade narrowly elliptical in outline, 1.5–4.5 × 0.5–1.5 cm, pinnatisect to entire, margins glabrous, bases attenuate. **Sepals** 1–2 mm long; petals white, shorter than the sepals or absent; stamens 2 (–4); nectaries 4, narrowly ovate and truncate, less than a third of the length of the sepals. **Silicula** indehiscent, separating into 1-seeded articles, reniform-ovoid, bilobed, emarginate above and below, constricted along the septum, c. 1.5 mm × 2–3 mm, reticulately pitted; mature style shorter than the notch; pedicels spreading to straight, 1.5–3 mm long, terete, glabrous to slightly pubescent; seeds ovate, 1–1.2 mm long. **Lesser swine-cress, lesser wart-cress.** **Fig. 1D, 2E–F, Pl. 2C–F.**

S.A.: \*FR, \*EA, \*EP, \*NL, \*MU, \*YP, \*SL, \*SE; \*W.A.; \*Qld; \*N.S.W.; \*Vic.; \*Tas. Native to South America. Weed of disturbed, usually trampled urban sites. Flowers Sep.–Jan.

8. \****Lepidium draba*** L., *Sp. Pl.* 2: 645 (1753). — *Cardaria draba* (L.) Desv., *J. Bot. Agric.* 3: 163 (1814). — **Illustr.:** *Fl. S. Austral.* 2: 383, fig. 540 (1948); *Pl. W. N.S.W.* 321 (1982), as *Cardaria draba*.

Perennial rhizomatous herb, procumbent to erect, 15–90 cm tall, hoary-pubescent; basal leaves petiolate blade oblong-lanceolate in outline, c. 3–10 × 0.5–2 cm, with entire to sinuate margins; major upper cauline leaves sessile, obovate to ovate-oblong, 2–5 × 1–2 cm, margins sinuate-dentate with curved acicular hairs, bases stem-clasping. **Inflorescence** a corymbose panicle; sepals 1.5–2.5 mm long; petals white, 3–5 mm long; stamens 6; nectaries 6, sub-triangular and confluent at the base, less than a third of the length of the sepals. **Silicula** indehiscent, valves sometimes separating as 1- or 2-seeded articles, cordate to subreniform, semi-flattened, 3–4.5 × 3.5–5 mm, glabrous, not notched at the apex; valves constricted along the replum; mature style terminal; pedicels ascending to spreading, 4–11 mm long, terete, glabrous to sparsely puberulent adaxially; seeds ovoid c. 2 mm long. **Hoary cress, hoary pepperwort, white weed.** **Fig. 1E, 2G–H, Pl. 3A–D.**

S.A.: \*NU, \*FR, \*EP, \*NL, \*MU, \*YP, \*SL, \*KI, \*SE; \*W.A.; \*Qld; \*N.S.W.; \*Vic.; \*Tas. Native to Eurasia. A proclaimed pest-plant of agricultural land, growing on fertile soils. In the drier regions it grows in wet places and along watercourses in disturbed native vegetation. Flowers: Sep.–Jan.

9. **Lepidium fasciculatum** Thell., *Neue Denkschr. Allg. Schweiz. Ges. Gesamten Naturw.* 41(1): 306 (1906). — *L. sagittulatum* var. *fasciculatum* (Thell.) Domin, *Biblioth. Bot.* 89: 698 (1926). *L. ruderale* var. *simplicissimum* F.Muell., *Fragm.* 11: 61 (1878). *L. ruderale auct. non L.*: Benth., *Fl. Austral.* 1: 86 (1863), partly; Tate, *Fl. Extratrop. S.Austral.*: 18 (1890), partly. — **Illustr.:** *Pl. W. N.S.W.* 326 (1982).

Annual herbs, erect to 60 cm tall, glabrous, sometimes sparsely pubescent when young; basal leaves petiolate, blade ovate-elliptical in outline, 5–8 × 3–1 cm, pinnatisect to bipinnate with linear dentate lobes, with soft acicular marginal hairs; major upper cauline leaves sessile, linear-lanceolate to subulate, entire, 1.5–2 cm × c. 3 mm, margins papillate, bases auriculate. **Inflorescence** a very short corymbose panicle, not elongating; sepals 0.5–1 mm long; petals white, reduced or absent; stamens 2, median; nectaries 4, bottle-shaped, less than a third the length of the sepals. **Silicula** dehiscent, obovate, 3–4 × c. 2 mm, glabrous, wing slight in the upper half, with a shallow notch; mature style ± equal to the notch; pedicels erect, to 2 mm long, flattened, glabrous; seeds ellipsoid, 1.2–1.5 mm long. **Bundled (or fascicled) peppergrass.** **Fig. 1F, 2I–J, Pl. 3E–F.**

S.A.: LE, NU, GT, FR, EA, EP, NL, MU, YP, SL; W.A.; Qld; N.S.W.; Vic. Grows on fertile soils in semi-arid regions, commonest in seasonal wetlands and intermittently flooded riparian habitats. Flowers: May–Dec.

10. **Lepidium foliosum** Desv., *J. Bot. Agric.* 3: 164, 180 (1814). — *Nasturtium foliosum* (Desv.) Kuntze, *Rev. Gen. Pl.* 2: 937 (1891); *L. foliosum* var. *typicum* (Desv.) Thell., *Neue Denkschr. Allg. Schweiz. Ges. Gesamten Naturw.* 41(1): 295 (1906), *nom. inval.* *L. crispum* Desv., *J. Bot. Agric.* 3: 65, 176 (1814); *L. fruticosum* Desv., *J. Bot. Agric.* 3: 165, 180 (1814); *L. novae-hollandiae* Desv., *J. Bot. Agric.* 3: 177 (1814); *L. cuneifolium* DC., *Reg. Veg. Syst. Nat.* 2: 545 (1821); *L. impressum* Bunge in Lehm., *Pl. Preiss.* 1(2): 260 (1845); *L. ruderale* var. *crispum* (Desv.) Benth., *Fl. Austral.* 1: 87 (1863); *L. foliosum* Desv. var. *crispum* (Desv.) Thell., *Neue Denkschr. Allg. Schweiz. Ges. Gesamten Naturw.* 41(1): 296 (1906); *L. foliosum* var. *fruticosum* (Desv.) Thell., *Neue Denkschr. Allg. Schweiz. Ges. Gesamten Naturw.* 41(1): 296 (1906); *L. foliosum* var. *cuneifolium* (DC.) Thell., *Neue Denkschr. Allg. Schweiz. Ges. Gesamten Naturw.* 41(1): 296 (1906); *L. chrysanthemifolium* Domin, *Repert. Spec. Nov. Regni Veg.* 11: 200 (1912). — **Illustr.:** *Fl. N.S.W.* 468 (1990).

Perennial shrubs, to 90 cm tall, glabrous; basal leaves variably petiolate, blade ovate-cuneate in outline, 4.5–7 × 1–3 cm, pinnately lobed; major upper cauline leaves obovate-cuneate, c. 2 cm × 50 mm, dentate to entire, thick and leathery, margins glabrous, bases attenuate to slightly auriculate. **Inflorescence** initially corymbose, elongating to a raceme; sepals c. 1.5 mm long; petals white, variable, from ovate and longer than the sepals to lanceolate and shorter than the sepals, markedly clawed; stamens (5–) 6; nectaries 6, oblong, less than a third the length of the sepals. **Silicula** dehiscent, elliptic to rhomboidal, 4.5–6 × 3–3.5 mm, glabrous, wing narrow in the upper half, forming a shallow notch; mature style ± equal to the notch; pedicels spreading, 4–6 mm long, sometimes papillose adaxially; seeds ellipsoid, c. 1.8 mm long. **Leafy peppergrass.** **Fig. 1G, 3A–B.**

S.A.: EP, YP, KI, SE; W.A.; N.S.W.; Vic.; Tas. Growing on calcareous soils along the coast, especially on the off-shore islands, often in bird rookeries. Flowers: Nov.–Apr.

11. **Lepidium hypenantion** Hewson, *Brunonia* 4: 297, fig. 24 (1982). — **Illustr.:** H.J.Hewson, *Brunonia* 4: 296, fig. 24 (1982); *Fl. N.S.W.* 470 (1990).

Annual to perennial herbs, erect, to 40 cm tall, stems usually with sparse low papillae; basal leaves petiolate, blade obovate in outline, 5–20 × 1.5–4 cm, bipinnatifid with a few large marginal papillae; major upper cauline leaves sessile, linear-lanceolate to subulate, 1.5–4 cm × 2–3 mm, dentate to entire, margins sparsely papillate, bases flared to auriculate. **Inflorescence** an elongating raceme; sepals 0.75–1 mm long; petals white, reduced, ovate; stamens 2, median; nectaries 4, bottle-shaped, less than a third the length of the sepals. **Silicula** dehiscent, obovate, 4–4.5 × 3 mm, glabrous, slightly winged in the upper half forming a shallow, narrow notch; mature style included in the notch; pedicels erect to spreading 2–3 mm long, glabrous; seeds ellipsoid c. 2 mm long. **Fig. 1H, 3C–D.**

S.A.: MU (Pine Valley Station); Qld; N.S.W. Rare, growing on semi-arid red-soil plains. Flowers Aug.–Nov.

12. **\*Lepidium latifolium** L., *Sp. Pl.* 2: 644 (1753). — **Illustr.:** *Fl. S.Austral.* 3: 532, fig. 958 (1953).

Perennial stoloniferous herbs, erect, 50–130 cm tall, glabrous or with a few scattered hairs; basal leaves petiolate, blade ovate to elliptical in outline, 3.5–15 (–30) × 1.5–6 cm, serrate to pinnatifid; major upper cauline leaves sessile to shortly petiolate, blade oblong to lanceolate, 1–9 (–12) × 3–45 mm, often sparsely pubescent, margins glabrous, serrate to bluntly toothed, bases attenuate. **Inflorescence** a corymbose panicle, the corymbs sometimes



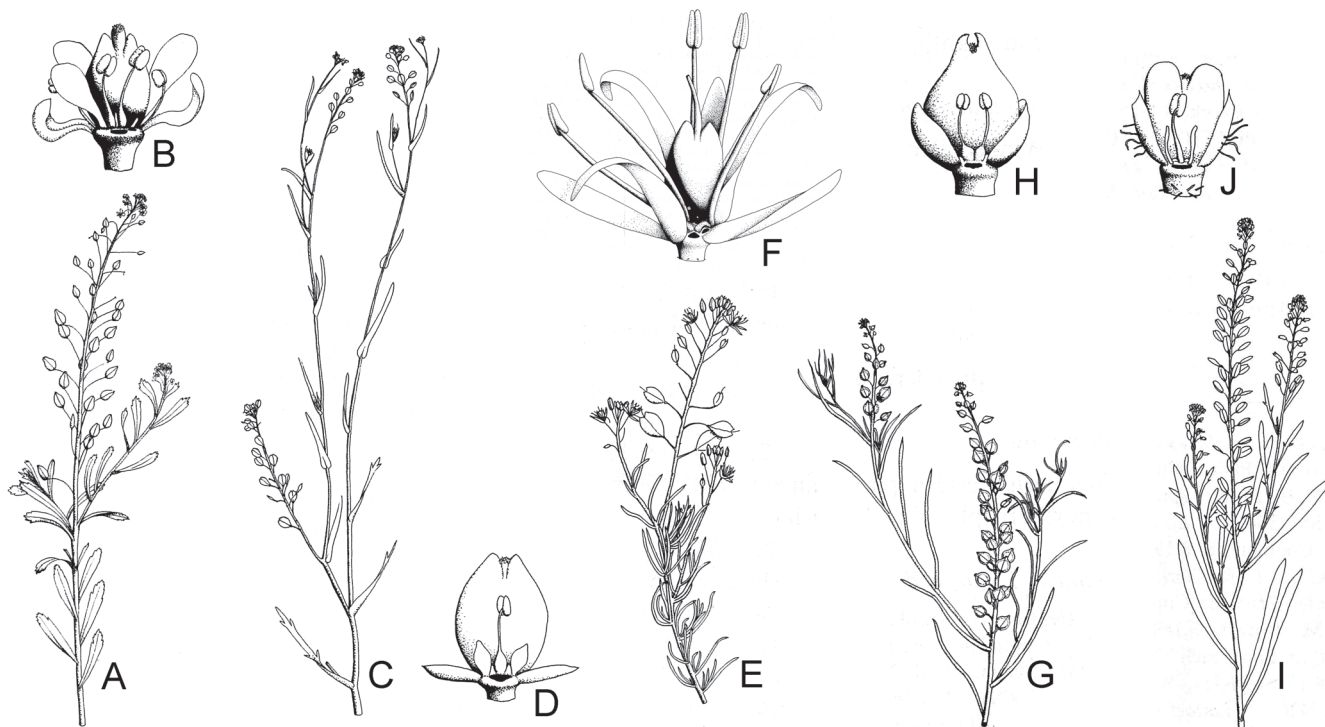


Fig. 3. Habit and flowers of *Lepidium* species. A–B, *L. foliosum*. C–D, *L. hypenanthion*. E–F, *L. leptopetalum*. G–H, *L. monoplocoides*. I–J, *L. muelleri-ferdinandi*. Illustrations by H.J. Hewson, *Brunonia* 4(2): 217–308 (1981), reproduced with permission of CSIRO.

elongating into a raceme; sepals 1–1.5 mm long; petals white, 2–3 mm long, clawed; stamens 6; nectaries 6, sub-globose, less than a third the length of the sepals. **Silicula** dehiscent, broad-ovate, mostly c. 2.5 × c. 2 mm, hirsute sometimes glabrous, not winged or notched; mature style apical; pedicels spreading, 4–5 mm long, terete and thread-like, glabrous to adaxially puberulent; seeds ellipsoid, 1–1.3 mm long. **Dittander, Perennial peppergrass. Fig. 1I, Pl. 3G–K.**

S.A.: \*SL; \*Qld; \*Tas. Native to Europe, N. Africa and W. Asia, introduced in N America. A weed of disturbed soil in moist places near settlement. Flowers: Nov.–Mar.

A serious weed of wetlands in western N America.

Once used as a condiment and a medicine in Europe.

13. ***Lepidium leptopetalum*** (F.Muell.) F.Muell., *Pl. Victoria* 1: 48 (1862). — *Monoploca leptopetala* F.Muell., *Trans. Philos. Soc. Victoria*. 1: 35 (1855); *Nasturtium leptopetalum* (F. Muell.) Kuntze, *Rev. Gen. Pl.* 2: 937 (1891). — **Illustr.:** *Pl. W. N.S.W.* 327 (1982).

Shrubs, to 60 cm tall, sparsely papillose; leaves sessile, linear, 1–3 (–5) cm × 1–2 mm, plano-convex, channelled above in dried specimens, succulent, clustered, margins glabrous, bases attenuate. **Inflorescence** a short raceme; sepals 4–6 mm long; petals white, linear and acute, 7–9 × c. 1 mm; stamens 6; nectaries 6, sub-globose, less than a third the length of the sepals. **Silicula** dehiscent, elliptic to ovate, 7–9 × 4–5 mm, glabrous, winged in the upper half, wing acute, forming an open notch, mature style markedly longer than the notch; gynophore c. 1 mm long; pedicels spreading, 6–9 mm long, glabrous; seeds ovoid, 3–3.5 mm long. **Slender peppergrass, shrubby peppergrass. Fig. 1J, 3E–F, Pl. 4A–B.**

S.A.: LE, FR, EA, EP, MU; N.S.W.; Vic. Grows in dry to semi-arid regions, rare and localised. Flowers: July–Nov.

14. ***Lepidium monoplocoides*** F.Muell., *Trans. Philos. Soc. Victoria*. 1: 35 (1855). — *Nasturtium monoplocoides* (F.Muell.) Kuntze, *Rev. Gen. Pl.* 2: 937 (1891). — **Illustr.:** *Fl. N.S.W.* 469 (1990).

Annual herbs, erect, 15–20 cm tall, glabrous to sparsely scabrous with small tubercles; all leaves sessile, entire and narrow-linear, or pinnatisect and blade lanceolate in outline, 1–5 (–10) cm long, the entire leaves 1–2 mm wide, the pinnatisect leaves 1–2 cm wide, margins glabrous, bases attenuate. **Sepals** to 1 mm long; petals white, rudimentary or absent; stamens 4, median; nectaries 6, semicircular, less than a third the length of the sepals. **Silicula** dehiscent, broad-lanceolate, 4.5–5.5 × 4–4.5 mm, glabrous, uniformly winged around the margin,

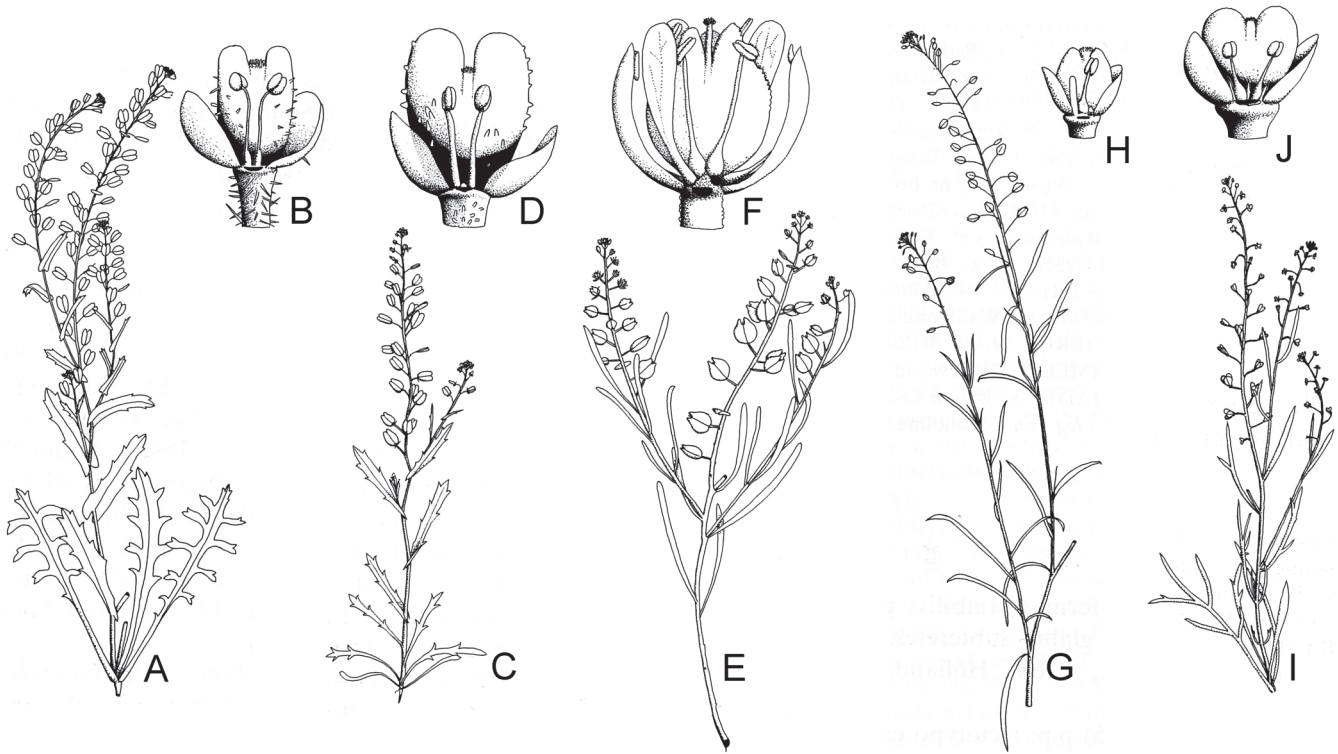


Fig. 4. Habit and flowers of *Lepidium* species. A–B, *L. oxytrichum*. C–D, *L. papillosum*. E–F, *L. phlebopetalum*. G–H, *L. pseudohyssopifolium*. I–J, *L. pseudopapillosum*. Illustrations by H.J. Hewson, *Brunonia* 4(2): 217–308 (1981), reproduced with permission of CSIRO.

attenuate-acute at the apex forming a deep narrow notch; mature style shorter than the notch and fused to the inner margins of the wings below; pedicels spreading, 2–3 mm long, flattened, glabrous; seeds ellipsoid, c. 2 mm long. **Winged peppergrass.** Fig. 1K, 3G–H, Pl. 4C–F.

S.A.: MU (Berri); N.S.W.; Vic. Presumed extinct in S.A., only one old specimen (1915) at AD. Flowers: Aug.–Oct. Listed as Endangered in S.A. and Australia.

15. *Lepidium muelleri-ferdinandi* Thell., *Neue Denkschr. Allg. Schweiz. Ges. Gesamten Naturw.* 41(1): 290 (1906). — *Lepidium papillosum* var. *pubescens* F.Muell., *Fragm.* 7: 19 (1869). *Lepidium ruderale* auct non L Benth., *Fl. Austral.* 1: 86 (1863) partly; Tate, *Fl. Extratrop. S.Austral.*:18 (1890). — **Illustr.:** *Fl. N.S.W.* 471 (1991).

Ephemeral to annual herbs, erect, 10–20 (–60) cm high, pubescent with flattened obtuse-tipped or clavate hairs, very rarely glabrescent; basal leaves variably pedicellate, blade oblanceolate in outline, 4.5–7 × 1–2 cm, pinnate; major upper cauline leaves sessile, mainly entire, linear-oblanceolate, 2–6 (–10) cm × 1.5–3 (–6) mm wide, margins with flattened cylindrical hairs, bases attenuate. **Inflorescence** an elongating raceme; sepals 0.8–1 mm long; petals white, reduced, narrow linear; stamens 2, median; nectaries 4, globose, less than a third the length of the sepals. **Silicula** dehiscent, rhomboid to ovate, 4–6 × 2.7–3.5 mm, glabrous, winged in the upper half, forming a narrow notch c. one-tenth of the fruit length; mature style included in the notch; pedicels erect to spreading, 2–3 mm long, flattened, pubescent circumferentially but often sparsely so abaxially; seeds ellipsoid c. 1.5 mm long. **Mueller's peppergrass.** Fig. 1L, 3I–J, Pl. 4G–I.

S.A.: NW, LE, GT, FR, EA; W.A.; N.T.; Qld; N.S.W. Grows in semi-arid regions, often very abundant after winter rain. Flowers July–Jan.

Steamed as a vegetable by the desert Aboriginal people.

16. *Lepidium oxytrichum* Sprague, *Kew Bull.* 1915: 123 (1915). — *L. papillosum* F.Muell. var. *normale* Domin, *Biblioth. Bot.* 89: 695 (1926); *L. papillosum* F.Muell. f. *purpureum* Domin, *Biblioth. Bot.* 89: 695 (1926). — **Illustr.:** *Fl. N.S.W.* 469 (1990).

Annual or ephemeral herbs, erect, 10–30 cm tall, hairy with aciculiform hairs, usually with purple stems in mature plants; basal leaves variably petiolate, blade obovate in outline, 5–6.5 (–10) × (1–) 2.5–3 cm, pinnate to bipinnate; major upper cauline leaves sessile, oblong to cuneate, 2–3 cm × 3–8 mm, lacinate to dentate, margins glabrous, bases auriculate to sagittate. **Inflorescence** an elongating raceme; sepals c. 1 mm long; petals absent; stamens 4,

rarely 3 or 2, median; nectaries 2, globoid to conical, less than a third the length of the sepals. **Silicula** dehiscent, elliptic to obovate, 4.5–5.5 × 3.5–4 mm, hirsute with acicular hairs, winged in the upper half with obtuse wings forming an open notch about one-fifth of the length of the fruit; mature style shorter than the notch; pedicels erect to spreading, 3–4 mm long, glabrous; seeds ellipsoid, c. 2 mm long. **Green peppercross, nalaka** (Dieri name, M.Koch, *in sched.*). **Fig. 1M, 4A–B, Pl. 5A–E.**

S.A.: NW, LE, NU, GT, FR, EA, EP, MU; W.A.; N.T.; Qld; N.S.W.; Vic. Grows in arid and semi-arid regions, often abundant after winter rain. Flowers: June–Sep.

Steamed as a vegetable by the desert Aboriginal people.

17. **Lepidium papillosum** F.Muell., *Linnaea* 25: 370 (1853). — *Lepidium papillosum auct. non F.Muell.*: Thell., *Neue Denkschr. Allg. Schweiz. Ges. Gesamten Naturw.* 41(1): 288 (1906), partly, the description applies only to *L. oxytrichum*. — **Illustr.:** *Fl. N.S.W.* 469 (1990).

Annual or ephemeral herbs, erect, to 30 cm tall, papillose with white clavate or turgid vesicular hairs, usually with purple stems in mature plants; basal leaves variably petiolate, blade obovate to elliptical in outline, 3–6 (–10) × 1–1.5 cm, bipinnatifid to dentate; major upper cauline leaves sessile, narrow oblong, 2.5–4 × 0.25–1 cm, dentate, margins glabrous or with a few short cylindrical hairs basally, bases auriculate to sagittate. **Inflorescence** an elongating raceme; sepals to 1 mm long; petals absent; stamens 4; nectaries 2, conical, less than a third the length of the sepals. **Silicula** dehiscent, obovate, 4–6 × 3–5 mm, with scattered acicular hairs, winged in the upper half, with the obtuse wings forming an open notch about one-fifth of the length of the fruit; mature style shorter than the notch; pedicels spreading, 2–3 mm long; seeds ellipsoid, 1.5–2 mm long. **Warty peppercross. Fig. 1N, 4C–D.**

S.A.: LE, GT, FR, EA, EP, NL, MU; W.A.; Qld; N.S.W.; Vic. Grows in dry to semi-arid regions, often abundant after winter rain. Flowers: June–Sep.

Steamed as a vegetable by the desert Aboriginal people.

18. **\*Lepidium perfoliatum** L., *Sp. Pl.*: 643 (1753). — **Illustr.:** *Fl. N.S.W.* 468 (1990).

Annual or biennial herbs, erect, 20–40 cm tall, hairy with sparse setulose hairs; leaves markedly dimorphic: basal leaves petiolate, blade ovate in outline, c. 15 × c. 5 cm, 2- to 3-pinnate; major upper cauline leaves sessile, 5–10 × 1–2 cm, broad-ovate to cordate, margins glabrous, serrate to bluntly toothed, bases auriculate and often amplexicaul. **Inflorescence** an elongating raceme; sepals spreading, c. 1 mm long; petals yellow, c. 1.5 mm long; stamens 6; nectaries 6, ovate, less than a third the length of the sepals. **Silicula** dehiscent, broad-elliptic, 4–5 × 3–4 mm, glabrous, slightly winged in the upper half to form a slight notch; mature style ± equal to the notch; pedicels ascending, 3–6 (–7) mm long, terete, glabrous; seeds ovoid, compressed, 1.7–2 mm long. **Clasping Peppercross. Fig. 1O, Pl. 5F–K.**

S.A.: \*SL; \*W.A.; \*Qld; \*N.S.W. Native to Eurasia; naturalised in many parts of the world. Weed of doubtful establishment near settlement. Flowers: Sep. (2 records).

19. **Lepidium phlebopetalum** (F.Muell.) F.Muell., *Pl. Victoria* 1: 47 (1862). — *Monoploca phlebopetala* F.Muell., *Linnaea* 25: 396 (1853); *Nasturtium phlebopetalum* (F.Muell.) Kuntze, *Rev. Gen. Pl.* 2: 937 (1891); *L. rotundum* var. *phlebopetalum* (F.Muell.) Maiden & Betche, *Proc. Linn. Soc. New South Wales* 30: 354 (1905). *L. eremaeum* Domin, *Repert. Spec. Nov. Regni Veg.* 11: 198 (1912), as *erameum*. — **Illustr.:** *Fl. N.S.W.* 468 (1990).

Annual to short lived perennial, decumbent to erect, 10–30 cm tall, variably papillose; leaves sessile, oblanceolate to linear, 1.5–5 cm × 2–3 mm, entire, leathery to succulent, obtuse, margins glabrous to minutely warty, bases attenuate. **Sepals** 2–2.5 cm long; petals, white, veined with purple, slightly longer than the sepals; stamens 6; nectaries 6, broadly oblong, less than a third the length of the sepals. **Silicula** dehiscent, ovate to orbicular, 6–9 × 5–7 mm, glabrous to papillose, winged in the upper half with a narrow obtuse to acute wing, forming a notch one sixth of the fruit length; mature style shorter to much longer than the notch; pedicels erect to spreading, 3–5 mm long, slightly flattened with papillate margins; seeds ovoid, c. 3 mm long. **Veined peppercross, werkandhu** (Adnyamathanha name, Neville 2007). **Fig. 1P, 4E–F, Pl. 6A–F.**

S.A.: NW, LE, NU, GT, FR, EA, EP, NL, MU; W.A.; N.T.; Qld; N.S.W.; Vic. Grows in arid and semi-arid regions, often locally abundant after rain. Flowers: most of the year.

Over much of S.A. Domin's *L. eremaeum* is separable from *L. phlebopetalum* in the strict sense by its narrow elliptical petals, adaxially smooth to mamillate silicula-valve faces and a short mature style ( $< 0.8$  mm). In contrast, *L. phlebopetalum* has obovate petals, mainly adaxially papillate silicula-valve faces and a longer mature style ( $> 0.8$  mm), frequently much longer than the silicula notch. However in the west of the NU region and across the border in W.A. apparently anomalous populations are found. Until this problem is solved, *L. eremaeum* is retained in synonymy here, following Hewson (1982).

Steamed as a vegetable by the desert Aboriginal people.

20. **Lepidium pseudohyssopifolium** Hewson, *Brunonia* 4: 281, fig. 20 (1982). — *L. peregrinum* var. *glabripes* Thell. in Hayward & Druce, *Advent. Fl. Tweedside*: 272 (1919); *L. hyssopifolium* var. *epilosum* Domin, *Biblioth. Bot.* 89: 699 (1926). *L. hyssopifolium* auct. non Desv. Thell., *Allg. Schweiz. Ges. Gesamten Naturw.* 41(1): 304 (1906); J.M.Black *Fl. S.Austral.* 2: 252 (1924), *Fl. S.Austral.* 2: 382 (1948), partly; *L. ruderale* auct. non L.: Benth., *Fl. Austral.* 1: 86 (1863), partly; Tate, *Fl. Extratrop. S.Austral.* 18 (1890), partly. — **Illustr.:** *Fl. N.S.W.* 470–471 (1990).

Ephemeral, annual or short-lived perennial herbs, erect, to 60 cm tall, glabrous; basal leaves petiolate, blade ovate in outline,  $5\text{--}13.5 \times 1.5\text{--}3$  cm, entire to bipinnatifid; major upper cauline leaves sessile, broad-lanceolate to linear,  $1\text{--}9 \times (0.1\text{--}) 0.3\text{--}1.5$  cm, dentate to entire, margins glabrous or with sparse ciliate hairs, bases attenuate. **Inflorescence** an elongating raceme; sepals c. 0.75 mm long; petals white, to 0.8 mm long or absent; stamens 2, median; nectaries 4 (–6), bottle-shaped, less than a third the length of the sepals. **Silicula** dehiscent, elliptic to ovate,  $2\text{--}3.5 \times 2\text{--}2.5$  mm, glabrous, winged slightly in the upper half, forming a shallow open notch; mature style shorter than the notch; pedicels mostly straight, spreading, longer than the silicula, terete, glabrous or rarely with sparse adaxial hairs; seeds ellipsoid, c. 1.5 mm long. **Fig. 4G–H, 5A, Pl. 6G, H.**

S.A.: NL, MU, YP, SL, SE; W.A.; Qld; N.S.W.; Vic. Rare or localised species of wetlands and riparian habitats in both humid coastal and dry inland regions. Flowers: at all times, especially Sep.–Apr.

Two taxa can be distinguished within this species. A rare coastal taxon, which has lyrate-pinnatifid basal leaves, and a commoner taxon of inland riparian sites, which has simply pinnatifid basal leaves. Further study of the species is necessary, before these taxa can be precisely delimited and formally described. Diagnostically the species has glabrous pedicels. However, in some populations there are some plants with sparse hairs on the adaxial surface of the pedicels; usually some glabrous pedicels also occur on such plants.

21. **Lepidium pseudopapillosum** Thell., *Vierteljahrschr. Naturf. Ges. Zürich* 61: 462 (1916). — **Illustr.:** *Fl. Victoria* 3: 419, fig. 84i (1999).

Perennial, seasonally re-sprouting semishrubs, erect, to 15 cm tall, stems rigid, sparsely papillose; leaves thick and leathery; basal leaves sessile, entire and linear, or distantly pinnatisect and blade narrow-lanceolate in outline, 4–5 cm long, the entire leaves 1–2 mm wide, the pinnatisect leaves 1.5–2 cm wide; major cauline leaves entire, linear-lanceolate,  $1\text{--}2 \text{ cm} \times 1\text{--}2$  mm, the margins sparsely papillate, bases attenuate. **Inflorescence** an elongating raceme; sepals c. 0.8 mm long; petals absent; stamens 4, median; nectaries 6, bottle-shaped, less than a third the length of the sepals. **Silicula** dehiscent, broad-ovate, c.  $5 \times c. 4$  mm, glabrous to sparsely papillate and markedly reticulate, the obtuse wings broadening from the silicula base to form an open notch; mature style shorter than the notch; pedicels robust, spreading, 4–7 mm long, papillate; seeds ellipsoid, 2 mm long. **Mallee peppercress. Fig. 4I–J, 5B.**

S.A.: FR (Mt. Lyndhurst); Vic. In S.A. the species habitat is unknown; grows in Grey Box Woodland and Mallee on fertile soils in Vic. Flowers: Oct.–Nov.

The type locality, “Formby”, may refer to Formby Bay in YP, but the species could not be found there nor in the Mt. Lyndhurst–Leigh Creek area of FR in 2008.

Endangered status in S.A.; Vulnerable in Australia.

22. **Lepidium pseudoruderale** Thell., *Neue Denkschr. Allg. Schweiz. Ges. Gesamten Naturw.* 41(1): 303 (1906). — *L. ruderale* auct. non L.: Benth., *Fl. Austral.* 1: 86 (1863), partly; Tate, *Fl. Extratrop. S.Austral.*: 18 (1890), partly. — **Illustr.:** H.J.Hewson, *Brunonia* 4: 286, fig. 21 (1982).

Annual or ephemeral herbs, decumbent to erect, 15–30 cm tall, hairy with short weak hairs; basal leaves variably petiolate, blade obovate in outline,  $1.5\text{--}5 \times 0.3\text{--}1.5$  cm, pinnatisect with obtuse dentate lobes; major upper



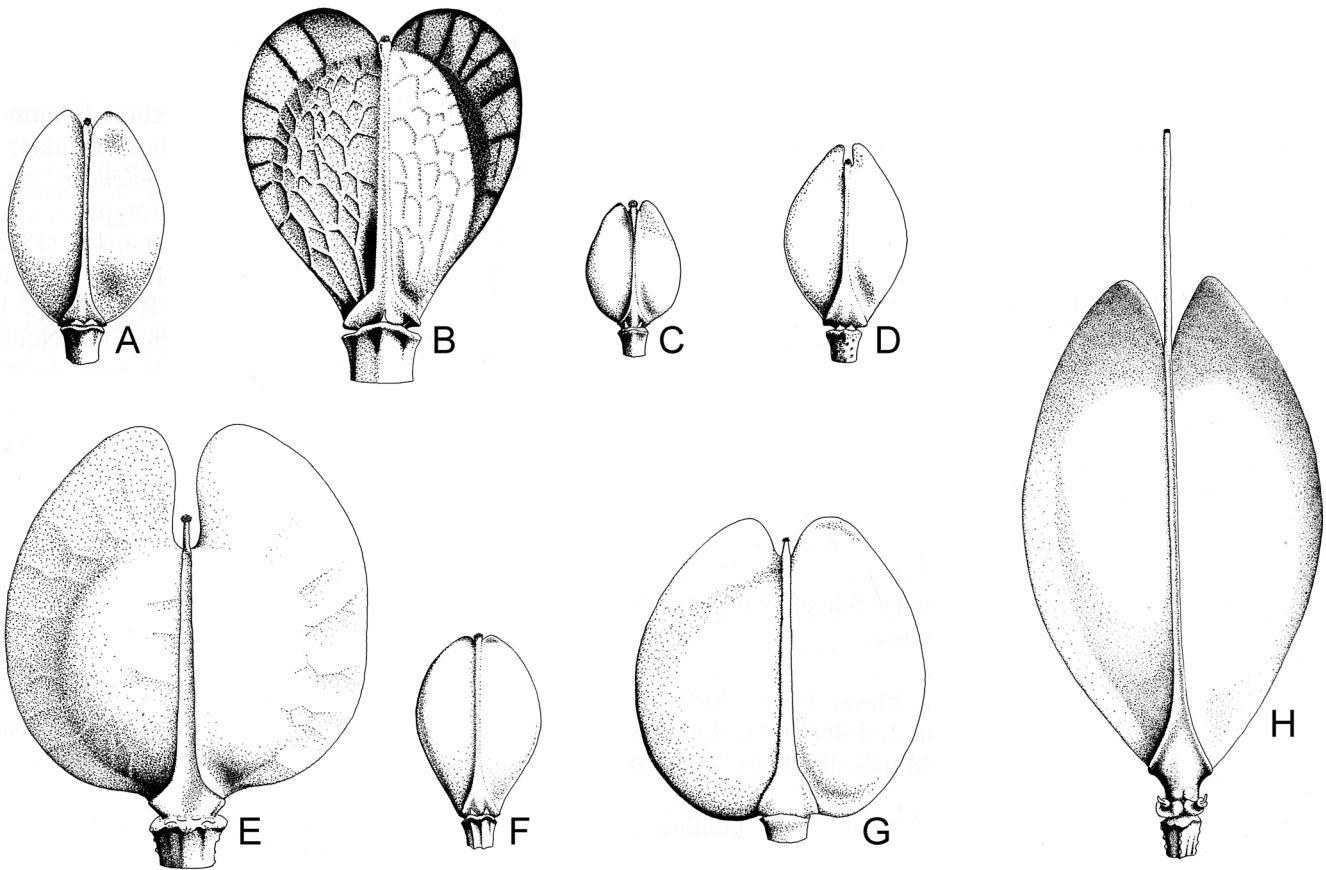


Fig. 5. Fruits of *Lepidium* species. A, *L. pseudohyssopifolium*. B, *L. pseudopapillosum*. C, *L. pseudoruderale*. D, *L. pseudotasmanicum*. E, *L. rotundum*. F, *L. sagittulatum*. G, *L. sativum*. H, *L. stronglyphyllum*. Illustrations by H.J. Hewson, *Brunonia* 4(2): 217–308 (1981), reproduced with permission of CSIRO.

cauline leaves sessile, spathulate-cuneate, 1.5–2 cm × 3–6 mm; margins with short, ciliate hairs, bases attenuate. **Inflorescence** an elongating raceme; sepals 0.6–0.75 mm long; petals white, small or absent; stamens 2 (–4), median; nectaries 4 (–6), filiform, less than a third the length of the sepals. **Silicula** dehiscent, elliptic, 2–2.5 × 1.3–1.5 mm, glabrous, with a very slight wing in the upper half, slightly notched; mature style ± equal to the notch; pedicels erect to spreading, 2.5–4 mm long, hairy on the adaxial surface; seeds ellipsoid, c. 1 mm long. **Annual peppergrass**. Fig. 5C, 6A–B, Pl. 6I–K.

S.A.: LE (Witchelina Station), NU, FR, MU; W.A. Rare species of semi-arid regions. Flowers: probably all months. Rare status in S.A.

23. ***Lepidium pseudotasmanicum*** Thell., *Neue Denkschr. Allg. Schweiz. Ges. Gesamten Naturw.* 41(1): 307 (1906). — *L. ruderale auct. non L.*: Benth., *Fl. Austral.* 1: 86 (1863) partly; Tate, *Fl. Extratrop. S. Austral.*: 18 (1890) partly. — **Illustr.**: *Fl. N.S.W.* 471 (1990).

Annual or short lived perennial herbs, erect, 20–60 cm tall, glabrate; basal leaves petiolate, blade obovate in outline, 3–9 × 1–3 cm, pinnatifid with narrow linear lobes; major upper cauline leaves sessile, 1–6.5 cm long, linear and entire and c.1.5 mm wide, or 1- to 2-pinnate with outcurved lobes and 1–3 cm wide, margins with short acute or papillose hairs, bases attenuate to slightly auriculate. **Inflorescence** an elongating raceme; sepals 0.5–1 mm long; petals white, small or absent; stamens 2, median; nectaries 4, bottle-shaped, less than a third the length of the sepals. **Silicula** dehiscent, elliptic, 2.5–3 × c. 2 mm, glabrous, slightly winged in the upper half, shallowly notched; mature style shorter than the notch; pedicels spreading, 4–6 mm long, hairy on the adaxial surface; seeds 1.2–1.5 mm long. **Tasmanian peppergrass**. Fig. 5D, 6C–D.

S.A.: FR, EA, NL, MU; W.A.; Qld; N.S.W.; Vic.; Tas. Flowers: mainly late spring to summer.

The pedicels of *L. pseudotasmanicum* are uniformly adaxially hairy, specimens with mixed glabrous and hairy pedicels are assignable to *L. pseudohyssopifolium* (see notes under that species).

*L. pseudotasmanicum* is very rare in S.A., although widespread and sometimes locally common in Vic. and Tas.

Vulnerable status in S.A.

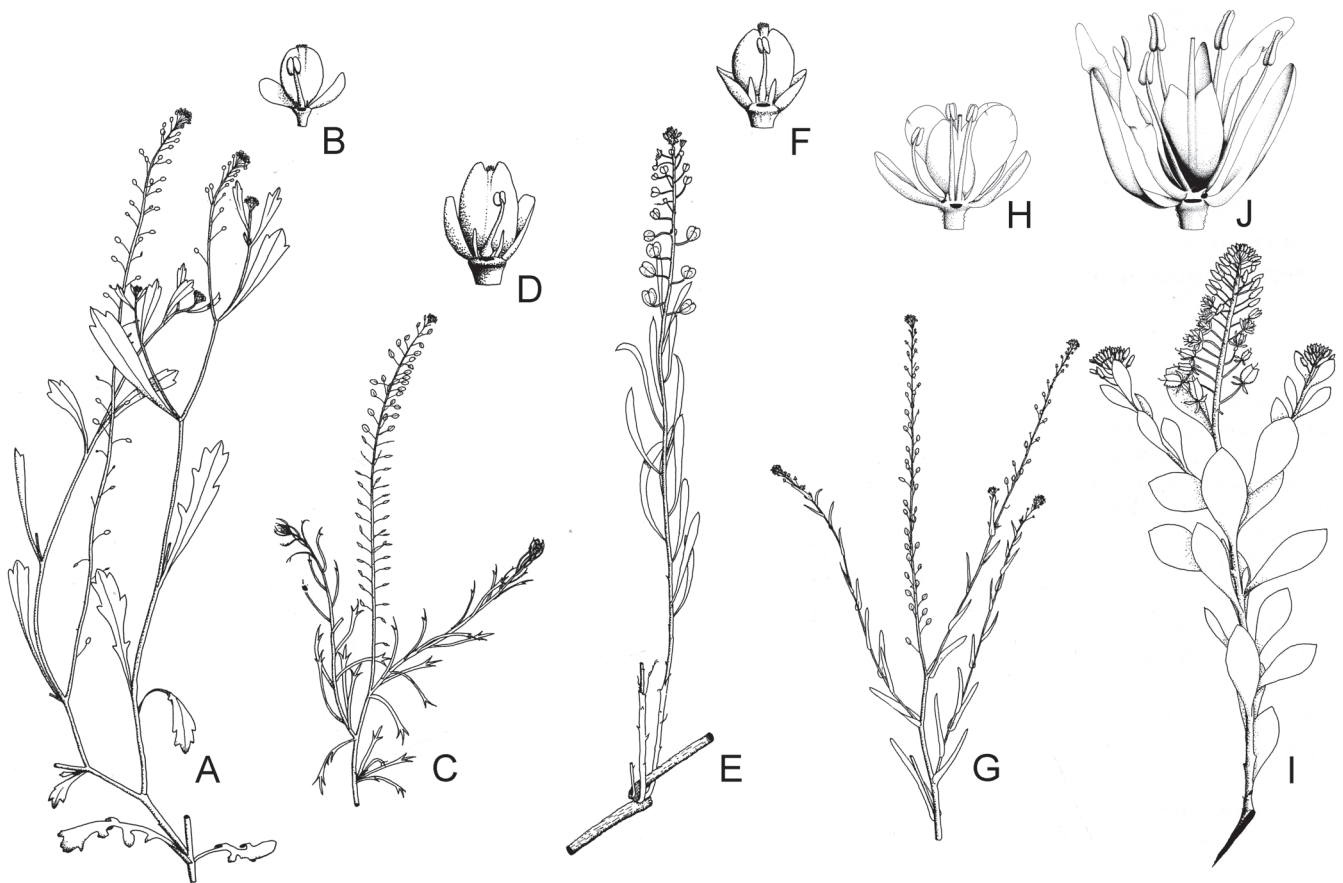


Fig. 6. Habit and flowers of *Lepidium* species. A-B, *L. pseudoruderale*. C-D, *L. pseudotasmanicum*. E-F, *L. rotundum*. G-H, *L. sagittulatum*. I-J, *L. strongylophyllum*. Illustrations by H.J. Hewson, *Brunonia* 4(2): 217–308 (1981), reproduced with permission of CSIRO.

24. ***Lepidium rotundum*** (Desv.) DC., *Reg. Veg. Syst. Nat.* 2: 537 (1821). — *Lepia rotunda* Desv., *J. Bot. Agric.* 3: 166, 181 (1814). — **Illustr.:** Hook., *Hooker's Icon. Pl.* 7: t. 609, fig. 1–8 (1844); Domin, *Biblioth. Bot.* 89: t. 28(4) (1926).

Subshrubs, erect, 10–15 (rarely to 30) cm tall, papillose, usually corky at the base and with prominent leaf scars; leaves sessile, spatulate, oblanceolate or linear-lanceolate, c. 4.1 cm × 1.5–4 mm, margins papillate, bases attenuate. **Inflorescence** an elongating raceme; sepals 2.5–3 mm long; petals white, sometimes with purple veins, 2.5–4 mm long; stamens 6; nectaries 6, ovate-oblong, less than a third the length of the sepals. **Silicula** dehiscent, orbicular to broad-obovate, 4.5–6 × 5–6 mm, glabrous, with a broad rounded wing forming a deep apical notch one-third of the fruit length, the valves somewhat inflated because of the wide septum; mature style shorter than the notch; pedicels slightly flattened, 2–3 mm long, glabrous; seeds ovoid, c. 2 mm long. **Rotund peppergrass. Fig. 5E, 6E–F.**

S.A.: NU, EP, YP, NL, MU; W.A. Mainly a near-coastal species growing on calcareous soils, sometimes on the fringe of salt marshes. Extremely rare south-east of the NU region. Flowers: recorded in Aug., Sep., Feb.

*L. rotundum* is variable in petal and silicula size over its range. The S.A. populations conform with the type collection, having short petals and small siliculae.

25. ***Lepidium sagittulatum*** Thell., *Neue Denkschr. Allg. Schweiz. Gesamten Naturw.* 41(1): 305 (1906). — *L. sagittulatum* var. *genuinum* Domin, *Biblioth. Bot.* 89: 698 (1926). — **Illustr.:** Hayward & Druce, *Advent. Fl. Tweedside*: t. 7 (1919); *Pl. W. N.S.W.* 328 (1982).

Annual herbs, erect, mostly 20–30 cm tall, glabrous except for leaf axils and leaves; basal leaves petiolate, blade obovate in outline, 5–20 × 2–4 cm, bipinnatifid, hairy with aciculiform hairs; major upper cauline leaves sessile, lanceolate to subulate, 1.5–3.5 cm × 1.5–3 mm, with papillate margins, bases auriculate-sagittate. **Inflorescence** a very elongate raceme; sepals 0.5–0.75 mm long; petals white, reduced, linear or absent; stamens 2, median; nectaries bottle-shaped, less than a third the length of the sepals. **Silicula** dehiscent, elliptic to obovate, 2–2.5 × 1.5–2 mm, glabrous, slightly winged in the upper half, forming a slight notch; mature style ± equal to the notch; pedicels erect to spreading, 3–5 mm long, glabrous; seeds ellipsoid, c. 1.3 mm long. **Fine-leaved peppergrass. Fig. 5F, 6G–H, Pl. 7A, B.**



S.A.: LE, NU, GT, FR, EA, MU, NL, SL; W.A; Qld; N.S.W; Vic. Grows in dry to semi-arid regions, often in areas subject to flooding. Flowers: Aug.–Nov.

26. \***Lepidium sativum** L., *Sp. Pl.* 2: 644 (1753). — **Illustr.:** Cronquist *et al.*, *Intermount. Fl.* 2B: 249, fig. 3 (2005).

Annual herbs, erect, unbranched, 20–40 cm tall, glabrous; basal leaves petiolate, blade broad-lanceolate in outline, 2–8 (–10) × 0.5–3 (–5) cm, 2- to 3-pinnatisect; major upper cauline leaves shortly petiolate, 2–3 × 0.5–1 cm, lanceolate to linear, lobed to dentate or entire, lamina hairy with aciculiform hairs, margins glabrous, bases attenuate. **Inflorescence** an elongating raceme; sepals 1–1.5 mm long; petals white or pink, 2–3 mm long; stamens 6; nectaries 6, ovate, less than a third the length of the sepals. **Silicula** dehiscent, broad-ovate, 5–6 × 3–5 mm, glabrous, narrowly winged in the upper half, forming a shallow notch; mature style shorter than the notch and fused with the inner margins of the wings below; pedicels ascending to erect, 2–6 mm long, glabrous; seeds ovoid, 2–3 mm long; cotyledons 3-fid. **Garden cress. Fig. 5G.**

S.A.: \*NL, \*SL, \*SE; \*Qld; \*Vic.; \*Tas. Probably native to N Africa and W Asia. Introduced as a garden plant and a contaminant of flax seed.

Domestically cultivated as a salad vegetable.

27. **Lepidium strongylophyllum** F.Muell. ex Benth., *Fl. Austral.* 1: 84 (1863). — *Nasturtium strongylophyllum* (F.Muell. ex Benth.) Kuntze, *Rev. Gen. Pl.* 2: 937 (1891). *Lepidium strongylophyllum* auct. non F.Muell. ex Benth.: Thell., *Neue Denkschr. Allg. Schweiz. Gesamten Naturw.* 41(1): 282 (1906), partly, the W.A. specimen cited and described is *L. pedicellosum* F.Muell. — **Illustr.:** Hewson, *Brunonia* 4: fig. 6 (1982).

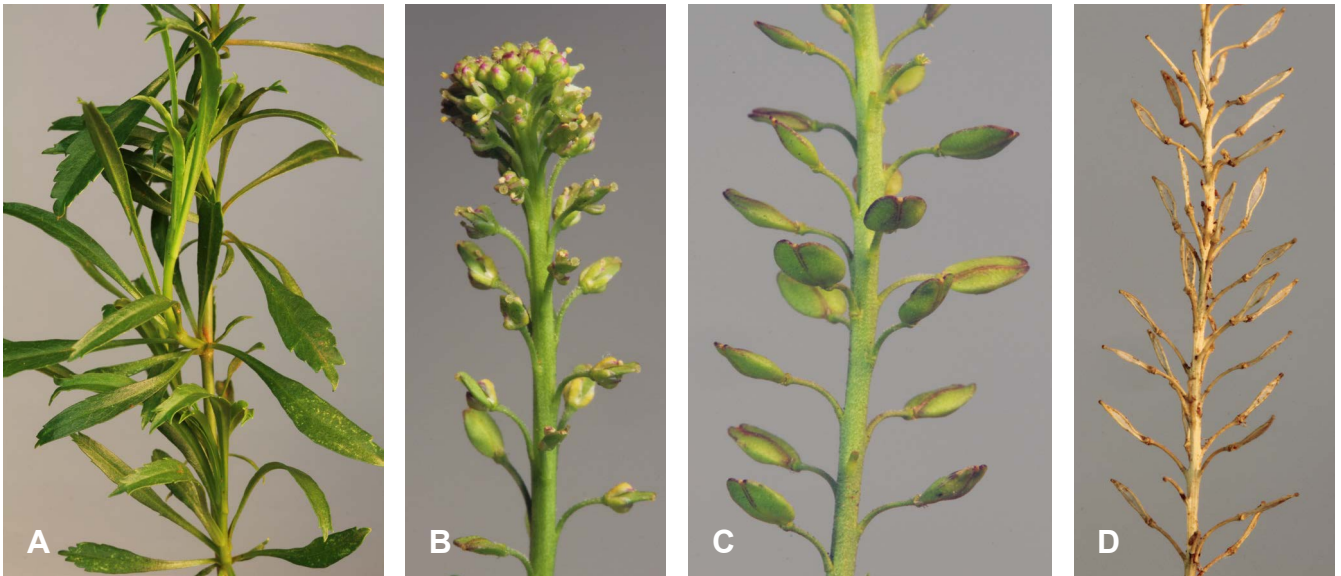
Perennial shrubs, erect, to 40 cm tall, glabrous, sometimes glaucous; leaves sessile to shortly petiolate, obovate to cuneate, 1.5–3 × 1–2 cm, leathery, margins glabrous, bases attenuate. **Inflorescence** an elongating raceme; sepals 3–5 mm long; petals white, 4–6 mm long; stamens 6; nectaries 6, sub-triangular, less than a third the length of the sepals. **Silicula** dehiscent, elliptic, 5–7 × 4–5.5 mm, sparsely pubescent; winged in the upper half of the fruit, forming a notch one-sixth of the length of the fruit; mature stigma much longer than the notch; pedicels spreading, 5–7 mm long, terete, glabrous to sparsely papillate; seeds ovoid, 2–3 mm long. **Round-leaved peppergrass. Fig. 5H, 6I–J, Pl. 7C–F.**

S.A.: LE, FR, EA; N.T.; Qld; N.S.W. Grows in arid regions, apparently rare. Flowers: Aug.–Oct.

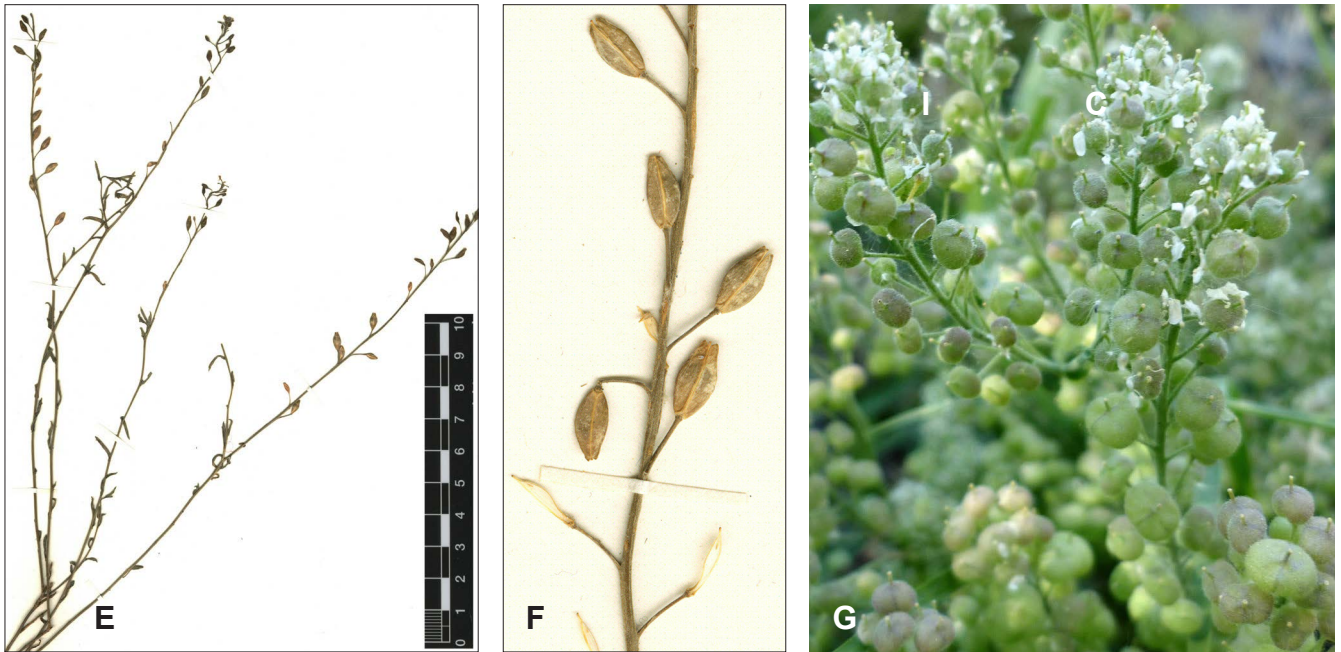
## References

- Al-Shehbaz, I.A., Mummenhoff, K. & Appel, O. (2002). *Cardaria*, *Coronopus* and *Strogonovia* are united with *Lepidium* (Brassicaceae). *Novon* 12: 5–12
- Al-Shehbaz, I.A. & Gaskin, J.F. (2010). *Lepidium*. In: Flora of North America Editorial Committee (ed.), *Flora of North America* 7: 570–595. (Oxford University Press: New York & Oxford)
- Appel, O. & Al-Shehbaz, I. (2003). Cruciferae. In: Kubitzki, K. (ed.), *The families and genera of vascular plants* 5: 75–174. (Springer: Berlin, Heidelberg, New York)
- Bailey, C.D., Koch, M.A., Mayer, M., Mummenhoff, K., O’Kane Jr., S.L., Warwick, S.I., Windham, M.D. & Al-Shehbaz, I.A. (2006). Toward a global phylogeny of the Brassicaceae. *Mol. Biol. Evol.* 23(11): 2142–2160
- Carolin, R.C. & Hewson, H.J. (1981). *Lepidium*. In: Jessop, J.P. (ed.), *Flora of Central Australia*, pp. 96–97. (A.H. & A.W. Reed: Sydney)
- Dierschke, T., Mandáková, T., Lysak, M.A. & Mummenhoff, K. (2009). A bicontinental origin of polyploidy in Australian/New Zealand *Lepidium* species? Evidence from genomic *in situ* hybridization. *Ann. Bot. (Oxford)* 104(4): 681–688
- Entwisle, T.J. (1996). *Lepidium*. In: Walsh, N.G. & Entwisle, T.J. (eds), *Flora of Victoria* 3: 415–423. (Inkata Press: Melbourne)
- Hewson, H.J. (1982a). The genus *Lepidium* in Australia. *Brunonia* 4: 217–408
- Hewson, H.J. (1982b). Brassicaceae (Cruciferae). In: George, A.S. (ed.), *Flora of Australia* 8: 231–357. (Australian Government Publishing Service: Canberra).

- Hewson, H.J. (1986). Cruciferae (Brassicaceae). In: Jessop, J.P. & Toelken, H.R. (eds), *Flora of South Australia* 1: 375–417. (Government Printer: Adelaide)
- Holmgren, N.H. (2005). *Lepidium*. In: Cronquist, A.J., Holmgren, N.H. & Holmgren, P.K. (eds), *Intermountain Flora: vascular plants of the Intermountain West, U.S.A.* 2B: 246–264. (New York Botanic Garden Press: New York)
- Jonsell, B. (1975). *Lepidium* L. (Cruciferae) in tropical Africa: a morphological, taxonomic, and phytogeographical study. *Bot. Not.* 128(1): 20–46
- Latz, P. (1995). *Bushfires & Bushtucker: Aboriginal plant use in Central Australia*. (IAD Press: Alice Springs)
- Marais, W (1970). *Lepidium*. In: L.E. Codd, De Winter, B., Killick, D.J.B. & Rycroft, H.B. (eds), *Flora of Southern Africa* 13: 83–94. (Government Printer: Pretoria)
- Mummenhoff, K., Brüggemann, H. & Bowman, J.L. (2001). Chloroplast DNA phylogeny and biogeography of *Lepidium* (Brassicaceae). *Amer. J. Bot.* 88: 2051–63.
- Neville, L. (2007). *Adnyamathanha Ngawarla*. (Australians Against Racism Inc.: Collingwood)
- Retter, L. & Harden, G.J. (1990). *Lepidium*. In: Harden, G.J. (ed.), *Flora of New South Wales* 1: 467–471. (The University of New South Wales Press: Kensington)
- Thellung, A. (1906). Die Gattung *Lepidium* (L.) R.Brown. Eine monographische Studie. *Neue Denkschr. Allg. Schweiz. Ges. Gesamten Naturw.* 41(1): 1–340
- Xie, Z., Shao, Z. & Huang, Y. (eds) (1989). *Medicinal Plants in China: A selection of 150 commonly used species; compiled by The Institute of Chinese Materia Medica, China Academy of Traditional Chinese Medicine*. (World Health Organisation, Regional Office for the Western Pacific: Manila). [*WHO Regional Publications Western Pacific Series* 2]



*Lepidium africanum* (A, B, C & D)



*Lepidium ambiguum* (E & F)

*L. appelianum*



*L. coronopus* (H & I)

**Pl. 1.** A–D, Adelaide Parklands, SL, P.J. Lang 3393. E & F, Lectotype, 'In South Australia towards the mouth of the Murray River', SL, W.B. Hillebrand s.n., Apr. 1849, MEL 73666 (scale: 10 cm). G, Washington, USA. H, Britain. I, France. Photos: A–D, P.J. Lang DEW; E & F, MEL (reproduced with permission from the Royal Botanic Gardens Victoria); G, Thayne Tuason, CC BY-SA 4.0; H, Colin Jacobs, CC BY-NC-SA 2.0; I, Jacques Maréchal, CC BY-SA 2.0 fr; all images modified from originals.





*Lepidium coronopus* (A & B)

*L. didymum* (C & D)



*L. didymum* (E & F)

Pl. 2. A, Germany. B, Belgium. C & D, Netherlands. E & F, Germany. Illustration: A, Jacob Sturm & Johann Georg Sturm, from Deutschlands Flora in Abbildungen (1796). Photos: B, Bart Wursten, CC BY-NC-SA 2.0; C & D, Rasbak, CC BY-SA 3.0; E & F, Julia Kruse, CC BY-SA 3.0; all images modified from originals.





*Lepidium draba* (A, B, C & D)



*L. fasciculatum* (E & F)



*L. latifolium* (G, H, I, J, & K)

**Pl. 3.** A, Vienna, Austria. B, NSW. C, Chile. D, France. E & F, Chowilla, MU. G–K, California, USA. Photos: A, Radio Tonreg, CC BY 2.0; B, Harry Rose, CC BY 2.0; C, Mauricio Mercadante, CC BY-NC-SA 2.0; D, Christophe Quintin, CC BY-NC 2.0; E & F, S.A. Seed Conservation Centre; G–K, Matt Levin, CC BY-SA 2.0; all images modified from originals.





**Lepidium leptopetalum** (A & B)

**L. monoplocoides**



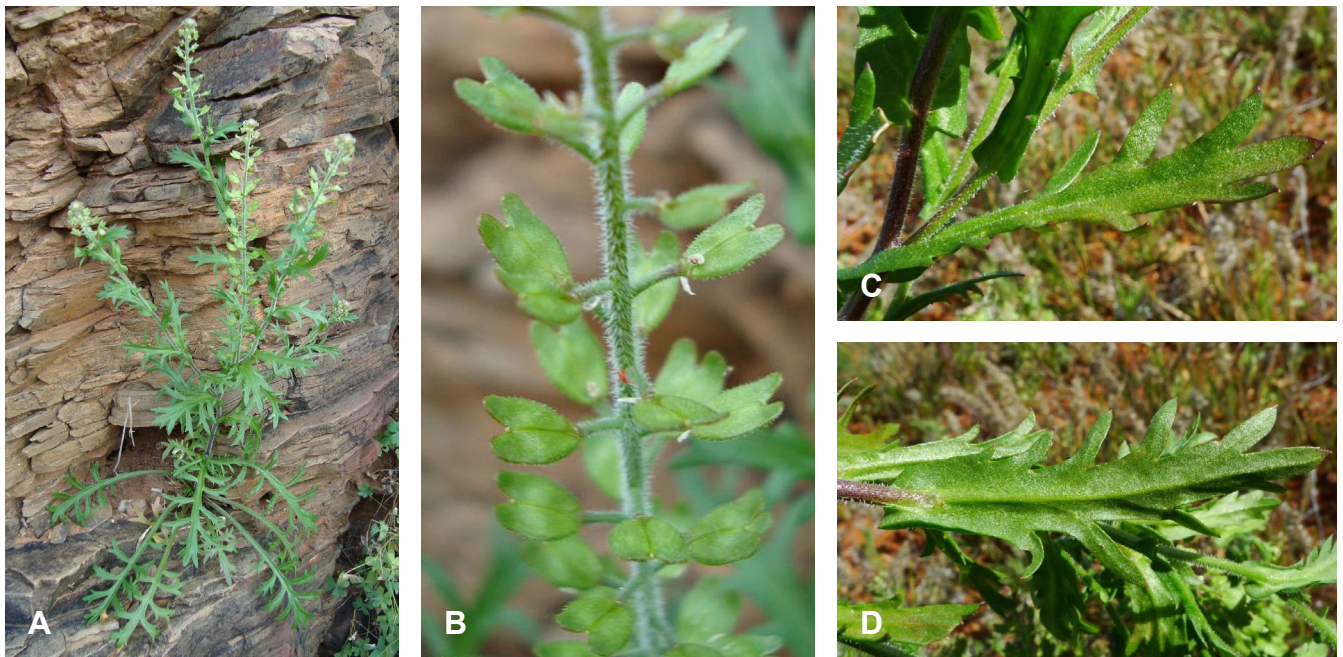
**L. monoplocoides** (D, E & F)



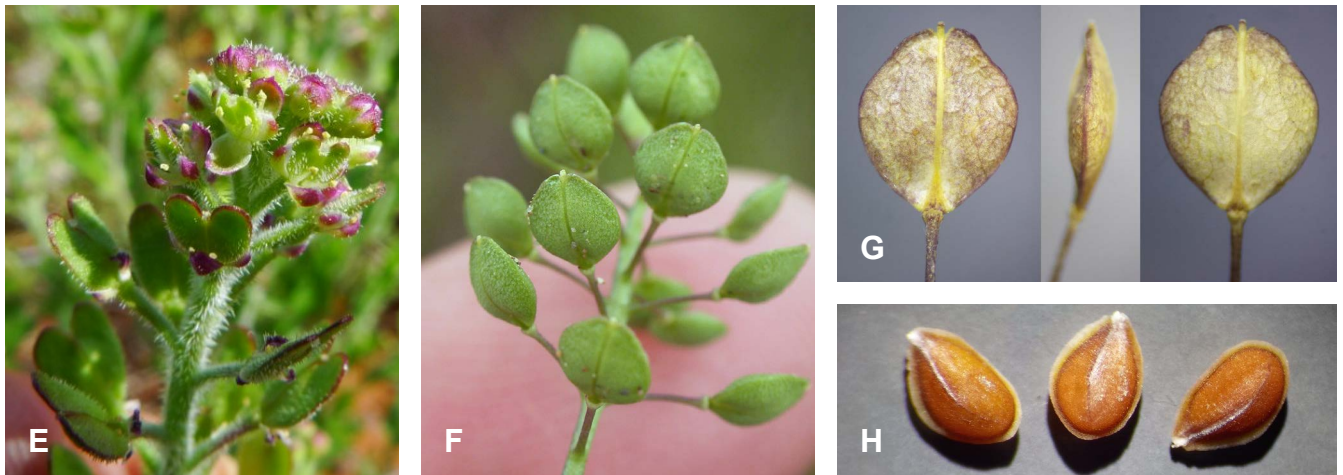
**L. muelleri-ferdinandi** (G, H & I)

**Pl. 4.** A, unknown. B, Calperum Station, MU. C, unknown. D–F, Hattah Lakes, Vic. G–I, Marla, NW, D.E. Murfet 8351. Photos: A–F, S.A. Seed Conservation Centre; G–I, D.E. Murfet, per S.A. Seed Conservation Centre.





*Lepidium oxytrichum* (A, B, C, D & E)



*L. perfoliatum* (F, G, H, I, J, & K)



PL. 5. A & B, Chambers Gorge, FR, K.H. Brewer 439. C, D & E, Marla, NW, Id, Idaho, USA. G–K, Burgenland, Austria. Photos: A & B, S.A. Seed Conservation Centre; C, D & E, D.E. Murrel, per S.A. Seed Conservation Centre; F, Matt Lavin, CC BY-SA 2.0; G–K, Stefan Jelfnaer, CC BY-SA 4.0; all images modified from originals.





*Lepidium phlebopetalum* (A, B, C, D, E & F)



*L. pseudoruderale* (I, J & K)



*L. pseudohyssopifolium* (G & H)

**Pl. 6.** A & B, unknown. C & D, Lambina Station, LE. E, Innamincka Station, LE, T.S. Te 410. F, unknown. G & H, Encounter Bay, SL, D.E. Murfet 8193. I–K, Nullarbor N.P., D.E. Murfet 8445. Photos: A, B & F, Mark Marathon, CC BY-SA 3.0, images modified from originals; C & D, A.C. Robinson; E, S.A. Seed Conservation Centre; G–K, D.E. Murfet, per S.A. Seed Conservation Centre.





**A**  
*Lepidium sagittulatum* (A & B)

**C**  
*L. stronglylophyllum* (C, D, E & F)



**D**  
**E**  
**F**  
**Pl. 7. A.** Clifton Hills Station, LE, D.E. Murfet 9178. **B.** Giddi-giddinna Creek, LE, D.E. Murfet 8558. **C.** Arkaroola, FR. **D, LE. E & F.** Arckaringa Station, LE. Photos: A, B, E & F, D.E. Murfet, per S.A. Seed Conservation Centre; C, L. Jansen; D, R.J. Bates.