

COMMON WEEDS OF GRAIN CROPPING



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THE UTE GUIDE

COMMON WEEDS OF GRAIN CROPPING

THE UTE GUIDE



Title: Common Weeds of Grain Cropping: The Ute Guide

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Acknowledgements: The GRDC would like to thank all the various individuals (who have been acknowledged with their photos) who provided images for use in this guide.

ISBN: 978-1-922342-02-7 (print) 978-1-922342-03-4 (online)

Published: April 2020

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Cover: Caltrop

Photo: Jason Emms (GRDC)

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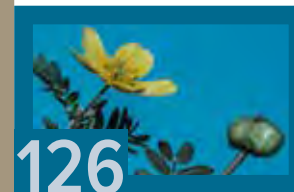
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99



126

One of the toughest challenges facing Australian grain growers is the management of weeds. The issue costs growers an estimated \$3.3 billion every year. Identification of actual weed species is important for correct management decisions to be taken.

This guide aims to help growers, advisers, researchers and students to identify the most common weeds of grain cropping systems in Australia. Due to the capacity of weeds to evolve and adapt and move into new geographic areas, distinct regional and seasonal guides are becoming less relevant for many weed species. Therefore, this guide has taken a national focus. Seedling descriptions and photographs have been provided to enable the identification of early growth stages to ensure effective and timely control. Seed descriptions and images will help identification of weed seed contamination in grain.

Some weed species that are closely related and virtually impossible to physically distinguish in the field are included on the same page. For example, hairy panic (*Panicum effusum*), Hillman's panic grass (*Panicum hillmanii*) and witch grass (*Panicum capillare*) are all included on one page under 'witch grass'.

This guide is designed for relatively rapid weed identification in the paddock. Not all weeds are included in this guide. More detailed information can be obtained from the references listed in the 'Useful resources' section on the outside back cover of this guide. This guide concentrates solely on identification. For control measures, contact your local adviser/agronomist or refer to the *Integrated weed management in Australian cropping systems* (www.grdc.com.au/IWMM) manual or up-to-date publications for your area.

Grass weeds

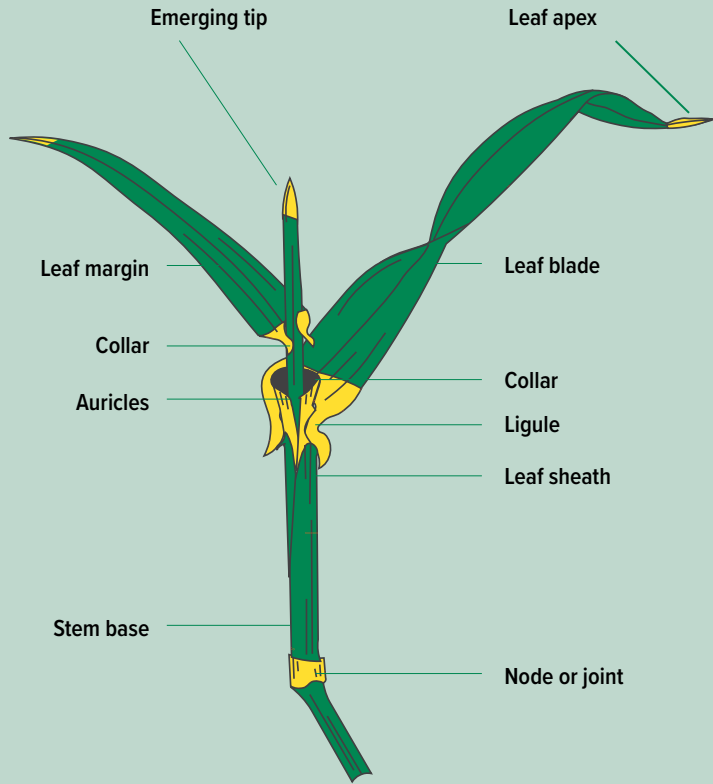
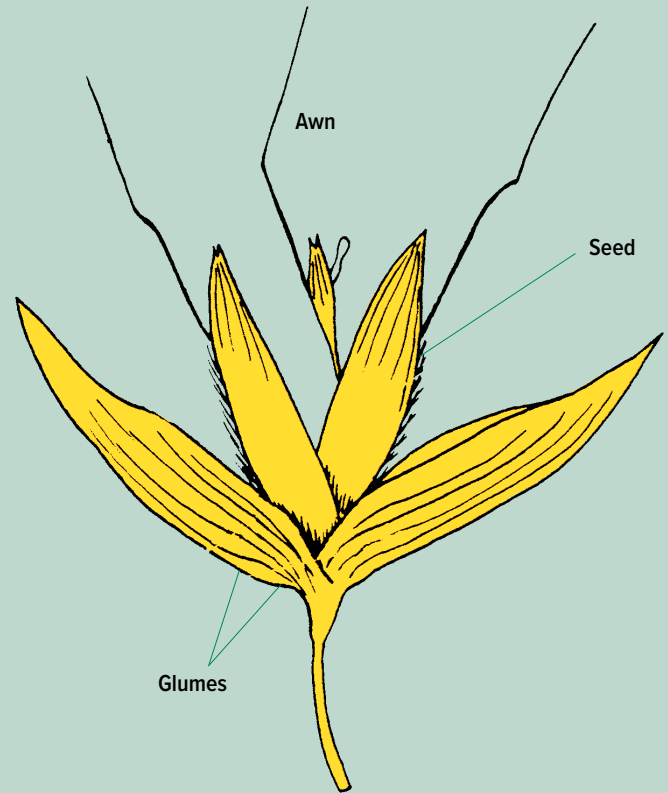
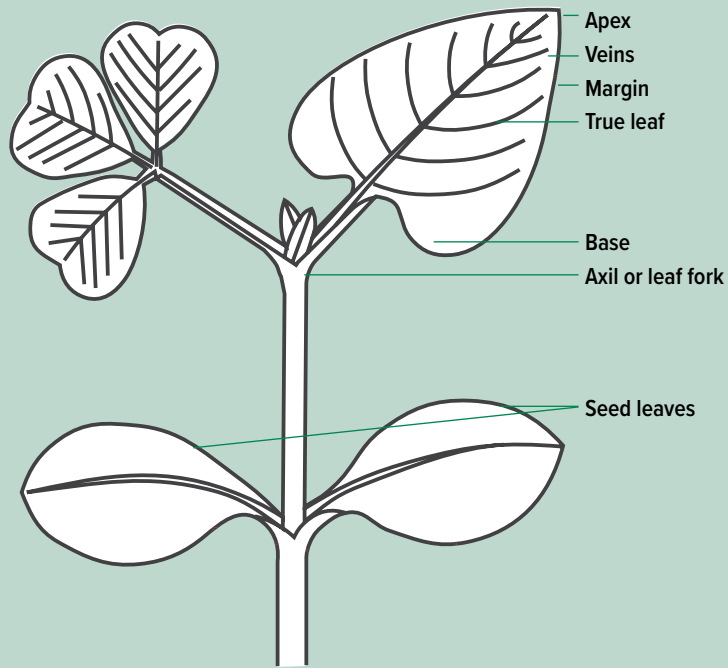


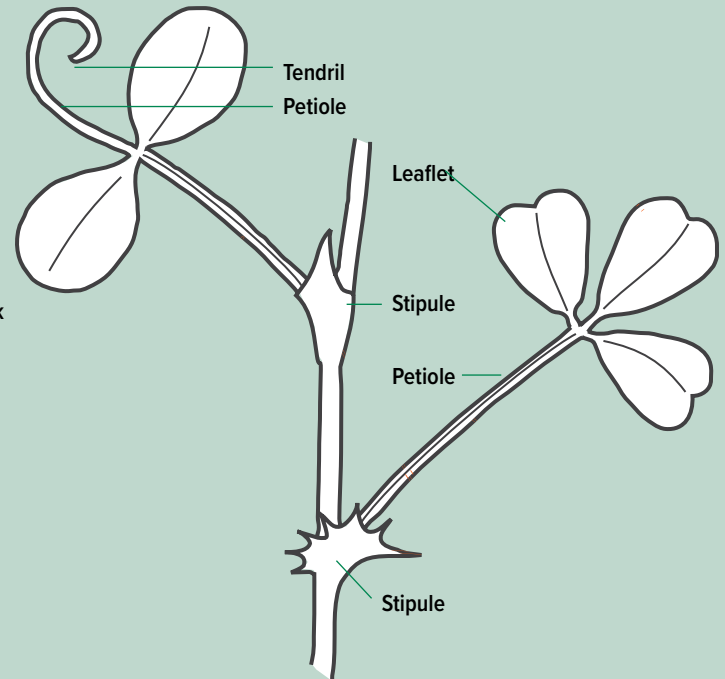
Diagram of floret



Broadleaf weeds

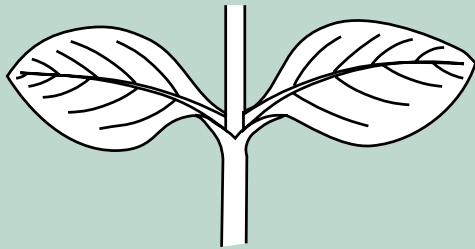


Parts of a legume leaf

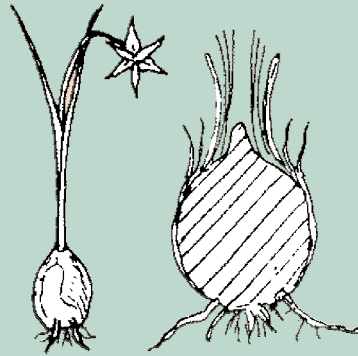


Leaf arrangements, corm and bulb

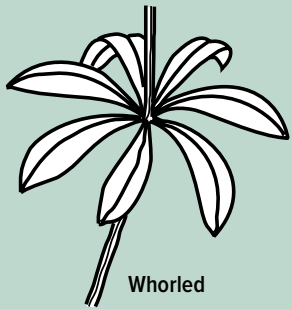
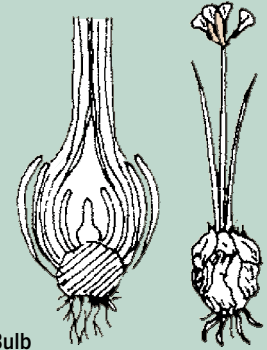
Opposite



Corm

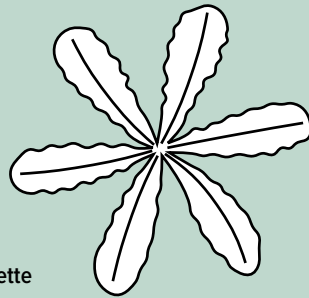


Bulb

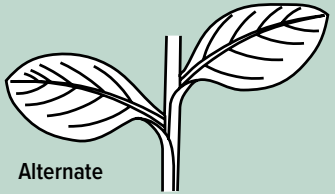


Whorled

Rosette



Basal leaves



Alternate

Leaf shapes



Oval
(widest point
at the middle)



Elongated oval



Oblong



Spear



Linear



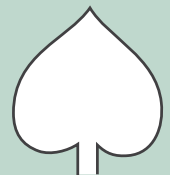
Egg
(widest point at
the lower half)



Club
(widest point at
the upper half)



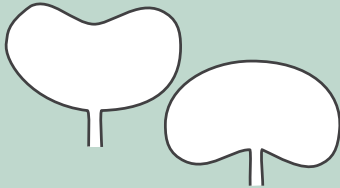
Heart



Reverse
heart



Triangular



Kidney



Round



Arrowhead

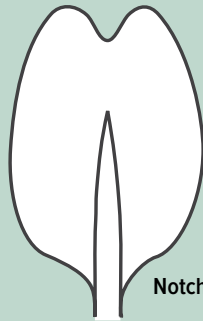


Leaflets

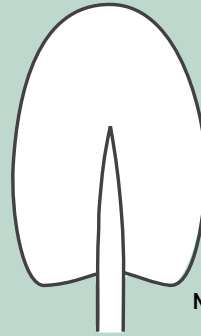


Trifoliate

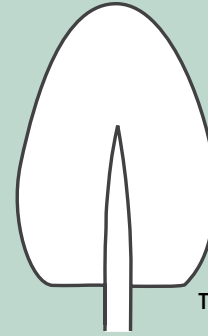
Leaf apex and base



Notched tip

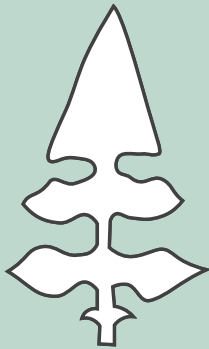


Notched base

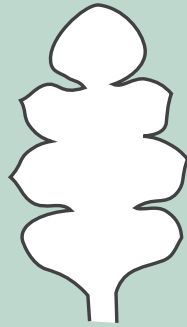


Truncated base

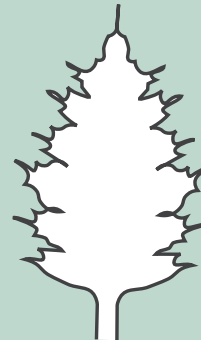
Leaf margin



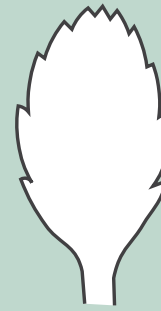
Deeply lobed



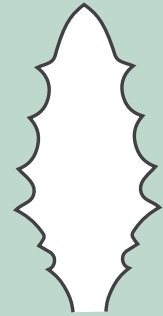
Lobed



Spiny



Toothed



Scalloped

PHOTO: JASON EMMS



PHOTO: GEOFF SAINTY



PHOTO: JASON EMMS

Annual ryegrass

Lolium rigidum Poaceae

- Tufted cool-season annual grass to 90cm.
- One to 3-leaf seedlings have red base, however red sap cannot be extracted by pinching, unlike *Phalaris* spp.
- Leaf blade is hairless, to 8mm wide. Underside of leaf is shiny, ligules are 1–2mm long and auricles about 2mm.
- Seed head is a narrow curved or straight spike to about 30cm long, with 4–8 flowers per spikelet. The husk (glume) on the outer edge of the spikelet is generally similar in length to the spikelet.
- Flowers late winter to mid-spring. Flowering time will be extended with cool conditions and sufficient soil moisture.
- Can be confused with perennial ryegrass (*Lolium perenne*), Italian ryegrass (*Lolium multiflorum*), paradoxa grass, lesser canary grass (*Phalaris minor*), silver grass. Hybrids with other *Lolium* species exist.

PHOTO: BRUCE WILSON



PHOTO: BRUCE WILSON



PHOTO: BRUCE WILSON



PHOTO: BRUCE WILSON

Awnless barnyard grass

Echinochloa colona Poaceae

- Erect or prostrate subtropical annual grass to 70cm high.
- Seedling tillers are flattened and purplish at the base, ligule absent.
- Leaves are flat, hairless, 5–30cm long, 3–8mm wide, tapering upwards to a fine point with thickened margins, dull green, often purplish red or blackish bands across the leaves, sparsely hairy at sheath and blade junction.
- No rhizomes.
- Flower head is a narrow compact or spike-like panicle, 4–15cm long, 6–20mm wide, several erect or slightly spreading spikes that tend to be arranged on one side of the seed head. Spikelets in 4 irregular rows with no awns and bristles.
- Seeds whitish and 1.5–2.5mm long.
- Flowers in summer and autumn.
- Can be confused with barnyard grass. Small seedlings can be confused with dirty dora (*Cyperus difformis*) seedlings.

PHOTO: GEOFF SAINTY

PHOTO: AGRICULTURE VICTORIA



PHOTO: GEOFF SAINTY

Barley grass

Hordeum leporinum Poaceae

- Erect cool-season annual to about 40cm high.
- Dense spike-like head to 7cm long and 1cm wide (not including awns).
- Seedlings are erect, leaves narrow with emerging leaf rolled.
- Leaves are narrow, tapering to a long point with prominent auricles, soft hairs on both surfaces to 0.5mm long, often bluish-green. Leaf blade flat to 7mm wide.
- Auricles are membranous. Pale anthers in the central spikelet protrude at flowering. Glumes of central spikelet have long hairs on the margin.
- Seed heads are often sheathed in the upper leaf sheath. Spikelets have 1 flower, 20–50mm long. Spikelets usually occur in threes at each node of axis. Awns of the florets of all 3 spikelets are much longer than the awns of the outer husk, giving 3 long awns and 6 shorter ones.
- Flowers in spring.
- Can be confused with other barley grasses, wild oat in the vegetative stage.

PHOTO: BRUCE WILSON



PHOTO: GEOFF SAINTY



PHOTO: GEOFF SAINTY

Barnyard grass

Echinochloa crus-galli Poaceae

- Extremely variable summer-growing annual grass to 1.5m high.
- Basal leaf sheaths flattened and purplish tapering to a point. Leaf blade to 20mm wide, hairless, often crinkled on the margins with variable red markings. Margins narrowly thickened and often rough. Ligules absent.
- Hairless stems that are purplish at the base.
- Erect seed head with spikelets arranged in rows with bristles, awns of variable length or absent, 6–22cm long, to 80mm wide, with up to 15 spreading 'spikes' 20–100mm long, each loosely or densely crowded with spikelets.
- Spikelets become smaller towards the tip, green sometimes tinged with purple.
- Flowers all year in the tropics and in summer and autumn in temperate areas.
- Can be confused with awnless barnyard grass, rice seedlings, dirty dora (*Cyperus difformis*) seedlings.

PHOTO: BRUCE WILSON



PHOTO: BRUCE WILSON



PHOTO: BRUCE WILSON

Button grass

Dactyloctenium radulans Poaceae

- Native, spreading, warm-season annual to about 30cm high.
- Seedlings are initially erect but tend to sprawl as they get older.
- Ligule is a low, papery rim capped with short hairs.
- Leaves to 4mm wide with obvious hairs scattered along the lower leaf margins.
- Seed head with 3–10 crowned spikes to 1.5cm long that fall in one piece. Spikelets with short hairs in regular rows on one side of a flattened axis.
- Hays off quickly in summer.
- Flowers between October and June.
- Can be confused with other summer grasses (*Digitaria* species).

PHOTO: BRUCE WILSON



PHOTO: GEOFF SAINTY

PHOTO: BRUCE WILSON

Couch

Cynodon dactylon Poaceae

- Creeping, prostrate, warm-season perennial to 40cm.
- 2–3 leaves per node on horizontal stems. Leaves are borne in small tufts on the stolons. Leaf blades are usually grey-green, and the ligule is a conspicuous ring of hairs.
- Seed head consists of spikes radiating out from one or more points, 3–7 terminal spikes, 3–8cm long.
- Stems creep along the soil surface and take root where the joints touch the ground forming dense patches. It has subterranean rhizomes as well as stolons.
- Spreads by seed, plant fragments.
- Flowers mid to late summer and autumn.
- Can be confused with summer grasses (*Digitaria* species), windmill grass.

PHOTO: BRUCE WILSON

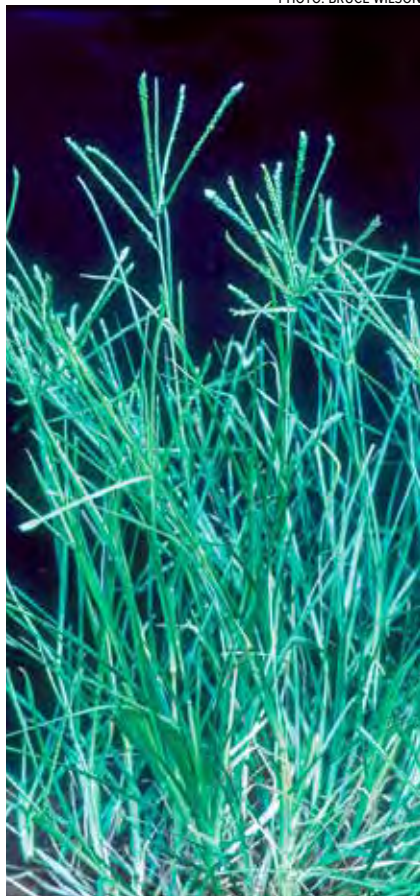


PHOTO: BRUCE WILSON



PHOTO: BRUCE WILSON

Crowsfoot grass

Eleusine indica Poaceae

- Tough, subtropical annual or perennial grass to 70cm.
- Young leaves are bluish-green. Leaves remain close together and the young leaf sheath is flattened, giving each tiller a flattened-like appearance.
- Leaves are hairless, shiny, 6mm wide with blunt tips. Ligule is short and papery with a rim of short hairs to 1mm.
- Seed heads have 2–7 spreading finger-like spikes 5mm wide and up to 15cm long. One spike is usually lower on the stalk than the rest.
- Mature plants form tussocks.
- Seeds are red or black.
- Can be confused with button grass and *Digitaria* species.

PHOTO: GEOFF SAINTY



PHOTO: BRUCE WILSON

PHOTO: BRUCE WILSON

Feathertop Rhodes grass

Chloris virgata Poaceae

- Short-lived, warm-season annual or perennial grass to 1m high.
- Seedlings are mid-green, erect with a flattened appearance. Ligule is a low membranous rim that splits to resemble a rim of tiny hairs.
- Leaves are about 15cm long with sharp edges. There are tufts of long hairs on the leaf blade margins.
- Stems are branched, hollow and bent at the nodes.
- Mature plants are tufted, branched, erect or semi-prostrate, with stems that can take root where the joints touch the ground.
- Florets have white hairs near the tip giving an overall feather-like appearance. Seed head consists of 7–19 feathery spikes held upright.
- Seeds germinate in spring and plants will set viable seed within 4–6 weeks of germination in high temperatures, resulting in reduced soil-available moisture. Seed sheds readily from the head.
- Can be confused with awnless barnyard grass at the seedling stage.

PHOTO: AGRICULTURE VICTORIA



PHOTO: AGRICULTURE VICTORIA



PHOTO: GEOFF SAINTY



PHOTO: PETER BOTSALIS

Brome grass, rigid brome, great brome

Bromus diandrus, *Bromus rigidus* Poaceae

- Tufted, cool-season annual grass to about 1m high.
- Seedlings are erect with dull, hairy leaves that display reddish-purple stripes following the leaf vein.
- Leaves are rough and flat, with some hairs, 10–25cm long and 4–8mm wide, with a prominent membranous ligule, no auricles, and a tubular sheath with well-defined veins.
- Flower head is erect when young, soon becoming loosely nodding to one side, 8–25cm long, nodding. Spikelet branches are longer than the spikelets.
- Seeds are mid to dark brown, overlapping, rigid and rough, 20–25mm long, with rough awns 35–60mm long covered in short stiff hairs. The awn is a similar length to the seed. Scar on base of seed is circular. Seed spikelets are sharp and can cause injury to livestock.
- Flowers in spring.
- Some taxonomists refer to rigid brome (*Bromus rigidus*) and great brome (*Bromus diandrus*) as separate species. It is virtually impossible to tell the two species apart in the field.

Panicum effusum

PHOTO: YUCHI CHEN

*Panicum hillmannii*

PHOTO: HERBIGUIDE

Panicum capillare

PHOTO: YUCHI CHEN

Witch grass, Hairy panic, Hillman's panic grass

Panicum capillare, *Panicum hillmannii*,
Panicum effusum Poaceae

- Tufted warm-season annual to 1m high.
- Broad leaf blades to 15mm wide. Leaf sheaths covered with tubercle-based hairs. Auricles are absent.
- Flower head is an open panicle up to 80cm long.
- Seed head is normally half the plant height. Seed heads break off and are dispersed by the wind.
- *Panicum capillare*, *Panicum hillmannii*, and *Panicum effusum* are very difficult to distinguish in the field.
- *Panicum effusum* is native to Australia
- Can be confused with blown (blow-away) grass (*Lachnagrostis aemula*).



PHOTO: YUCHI CHEN



PHOTO: YUCHI CHEN



PHOTO: PETER BOTSALIS

PHOTO: BRUCE WILSON



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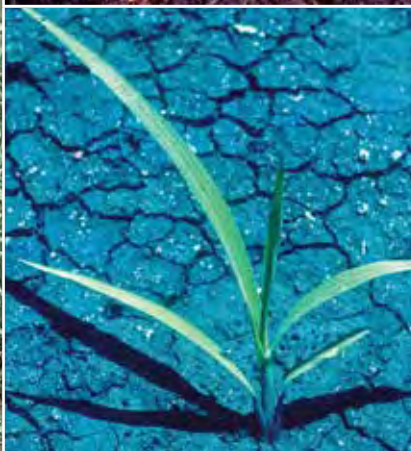
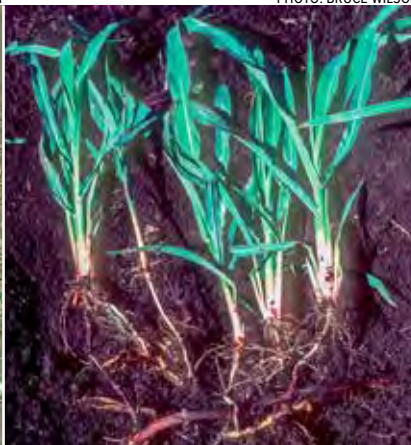


PHOTO: BRUCE WILSON

Johnson grass

Sorghum halepense Poaceae

- Erect, warm-season, rhizomatous perennial grass to 3m high.
- Seedlings are erect, robust and mid-green with purplish leaf sheaths. The ligule is membranous with short hairs at the top and surrounded by very small hairs.
- Leaf blades are hairless, up to 4cm wide and 9cm long. Ligule is 5mm long, with or without hairs to 1mm long.
- Seed head is large, multi-branched with an open panicle with oval, red-brown seeds about 3mm long that are enclosed in the glumes at maturity.
- Mature plants have strong, thick stems and many white or reddish rhizomes underground.
- Spreads by seed, physical movement of rhizomes and rhizome growth.
- Can be confused with Columbus grass (*Sorghum x alnum*), Sudan grass (*Sorghum x drummondii*). Will hybridise with other sorghum species.

PHOTO: BRUCE WILSON



PHOTO: BRUCE WILSON



PHOTO: BRUCE WILSON

Liverseed grass

Urochloa panicoides Poaceae

- Spreading, prostrate or ascending, annual warm-season grass to about 50cm.
- Seedlings are yellowish-green, with hairs on the leaf sheaths and margins.
- Hairy leaf sheath with the leaf blade densely or lightly hairy on both surfaces. Leaf blade to 11mm wide, very broad with a crinkled margin. Ligule is a rim of hairs about 2mm long.
- Spikelets are evenly arranged and slightly overlapping.
- Seed head has 2–7 spikes up to 5cm long. Seeds occur in 2 rows on one side of the spike.
- Stems can take root where the joint hits the ground.
- Flowers summer and autumn.
- Can be confused with signal grass (*Urochloa decumbens*) and other *Urochloa* species and *Brachiaria* species.

PHOTO: GURJEET GILL



PHOTO: GURJEET GILL



Northern barley grass

Hordeum glaucum Poaceae

- Cool-season annual with spreading habit to about 30cm high.
- Leaves are narrow and taper to a long point with soft hairs.
- Membranous auricles and black anthers in the central spikelet not protruding.
- Leaf blade flat to 7mm wide, scattered hairs to 0.5mm long.
- Seed head is a dense 2-row, barley-like spike up to 70mm long and 10mm wide (not including awns), partly enclosed or close to the flag leaf sheath.
- Flowers in spring.
- Can be confused with other barley grasses. Seedlings can be confused with wild oat.

PHOTO: GEOFF SAINTY

PHOTO: BRUCE WILSON



PHOTO: BRUCE WILSON

PHOTO: GEOFF SAINTY

Paradoxa grass, wild canary, phalaris

Phalaris paradoxa Poaceae

- An invasive, tufted, cool-season annual grass capable of producing a large number of tillers. It thrives in moist conditions growing to a height of 1.2m.
- Seedlings become semi-prostrate, tillers form with purplish-red tinges remaining on the lower leaf sheath. Distinct reddish-purple sap at the base of the stems of seedlings and around the nodes.
- The leaf blade is flat, hairless and approximately 20cm long. The ligule, to 5mm long, is translucent and thinly membranous, and there are no auricles. Leaves have a slightly rough feel.
- Seed head is partly enclosed in the sheath and is 2–9cm long, dense and cylindrical. Spikelets fall in clusters of 7. Produces large numbers of seed that readily shed. Seeds smooth and shiny, often remaining in floral parts.
- Can be confused with other *Phalaris* species, and annual ryegrass as a seedling.

PHOTO: BRUCE WILSON



PHOTO: GEOFF SAINTY



PHOTO: GEOFF SAINTY



PHOTO: GEOFF SAINTY

Prairie grass

Bromus catharticus Poaceae

- Tufted, naturalised, cool-season annual to 1m high.
- Seedlings have a hairy base and hairs on the lower parts of leaves. The ligule is rounded and papery with narrow, sharp teeth.
- Leaves are covered in short hairs, becoming less dense on older leaves. The emerging leaf is rolled with slightly rough veins and margins.
- Leaf sheaths are densely hairy, papery and tubular, becoming purple-tinged with age.
- Has flattened spikelets with strongly keeled lemmas. Awns are usually absent or short. Flower heads are large, up to 40cm long. Spikelets are 15–40mm long, turning patchily purple at maturity.
- Seeds are pale, grooved, oblong, pointed at both ends with a hairy apex.
- Can be confused with other brome and wild oat species in the vegetative stage. Seedlings are very similar to wild oat seedlings and difficult to distinguish, however prairie grass seedlings are generally more hairy and have a tubular leaf sheath.

PHOTO: GEOFF SAINTY



Sea barley grass

Hordeum marinum Poaceae

- Cool-season annual to 30cm high.
- No auricles. Leaf sheaths are covered in minute hairs to 0.3mm long. Leaf blades are 3mm wide.
- Awns of the florets of the 2 outer spikelets are shorter than the awns of the outer husks of the spikelets, giving 5 long awns and 4 shorter ones.
- Seed head is a dense spike smaller than other barley grass species.
- Flowers and sets seed in spring.
- Can be confused with other barley grasses.

PHOTO: GEOFF SAINTY



Silver grass, squirrel-tail fescue

Vulpia bromoides Poaceae

- Tufted, cool-season annual to about 30cm high.
- Leaves of young seedlings and mature plants are stiff, folded or rolled, hairless and slightly shiny on both sides.
- Seedlings are similar to annual ryegrass from which they are distinguished by a white or green base, folded leaves, narrower leaf blades and being shiny on both surfaces.
- Ligule is membranous and <0.5mm long. Leaf blade is rolled in the bud, about 2mm wide when expanded.
- Stalks can be branched.
- Flower head is narrow, one-sided, erect to slightly drooping, up to 10cm long. The lower glume is 50–75 per cent of the length of the upper glume. Glumes have a slender, rough awn at the top.
- Seeds are yellow to 6mm long. Awns are up to twice the length of the seed. Seed head is usually well above the upper leaf.
- Flowers in spring.
- Can be confused with other *Vulpia* species. Seedlings can be confused with annual ryegrass and toadrush seedlings.

PHOTO: JOSEPH M. DITOMASO



PHOTO: JOHN BROSTER



PHOTO: D. WALTERS AND C. SOUTHWICK

Spiny burr grass

Cenchrus longispinus and *Cenchrus spinifex*
(synonym *C. incertus*) **Poaceae**

- Erect grass 10–30cm high.
- Many stems arise from the base.
- Leaves are folded as they emerge and stay fairly erect, tapering to a fine point.
- Stems are erect or ascending, branching, flattened and hairless.
- Seeds are pale green, burr-like, 4–5mm long and covered with stout spines that point outwards at maturity.
- Can be confused with Mossman River grass (*Cenchrus echinatus*).

PHOTO: BRUCE WILSON



PHOTO: BRUCE WILSON



PHOTO: BRUCE WILSON

Stink grass, black grass

Eragrostis cilianensis Poaceae

- Tufted summer annual to 90cm high.
- Seedlings are erect and bright green with purplish-red leaf sheaths. As the seedlings age they become sprawling and the leaf sheath colour reduces to purplish-red veins.
- Leaves 4–5mm wide, mostly hairless with some soft hairs near ligule, which is 1.5mm long. Leaf margins and the midnerve have pitted or wart-like glands.
- Erect or ascending stems.
- Has a ring or cluster of glands just below the node on flowering stems that give off a strong, pungent odour when crushed or following rain.
- Panicles open or compact, axils of inflorescence with swollen, bearded glands.
- Can be confused with *Poa* species, other *Eragrostis* species and *Fescue* species.

PHOTO: BRUCE WILSON



PHOTO: BRUCE WILSON



PHOTO: BRUCE WILSON



PHOTO: BRUCE WILSON

Summer grass

Digitaria ciliaris Poaceae

- Sprawling, summer, subtropical annual to 60cm high.
- Seedlings are bluish-green. The underside of the leaf is very hairy as is the leaf sheath.
- The ligule is papery and 1–2mm long in the mature leaf.
- Leaf blade to 8mm wide. The leaf sheath has a few tubercle-based hairs but leaves are hairless with a reddish tinge.
- Rarely roots at the nodes and has smooth nerves on the sterile spikelet floret with fine lines of hairs between the nerves and along the margins (compare with *Digitaria sanguinalis*).
- Seed head purplish with 4–9 branches with spikelets to 3.5cm long.
- Flowers any time of year in warmer areas and summer in southern areas.
- Can be confused with crab grass (*Digitaria sanguinalis*), windmill grass and couch.

PHOTO: BRUCE WILSON

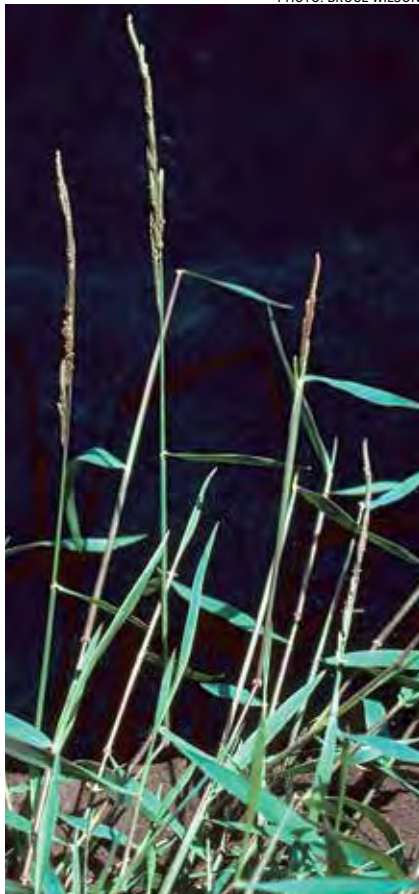


PHOTO: BRUCE WILSON



PHOTO: BRUCE WILSON

Sweet summer grass

Moorochloa eruciformis (synonym *Brachiaria eruciformis*) **Poaceae**

- Upright to prostrate, robust summer-growing annual to 60cm high.
- Seedlings are purplish-red.
- Culms, leaf margins and leaf sheaths are strongly reddish-purple, while the leaf blades are dark green. The ligule is a row of hairs approximately 0.8mm long.
- Seed head is 5cm long with 2–12 spikes that point upwards, parallel with the stem.
- Roots develop where nodes touch the ground.
- Can be confused with vegetative summer-growing grasses, especially liverseed grass and other *Urochloa* species but sweet summer grass has finer leaves.

PHOTO: BRUCE WILSON



PHOTO: BRUCE WILSON



PHOTO: BRUCE WILSON



PHOTO: GEOFF SAINTY

Wild oat

Avena fatua Poaceae

- Robust, upright annual grass to 1.6m high.
- Seedling leaves usually twist anti-clockwise, the opposite direction of wheat and barley.
- Ligule is up to 8mm long and papery. Auricles are absent, unlike barley.
- Leaves are bluish-green with variable amounts of hair.
- Lemma has a minute split at the end.
- Large pyramid-shaped flower heads do not lean to one side. Spikelets occur on both sides of the flower head. Spikelets have 2–3 flowers, separating at maturity.
- Seeds are 18–20mm long with gold or brown hairs on lower half, a shallow apical notch. The awn is brown or black, less than 50mm long, twice as long as the spikelet. The seeds are not as hairy and lack the bristles of bearded oat seeds.
- Can be confused with bearded oat (*Avena barbata* species) and *Avena sterilis* ssp. *ludoviciana*. Seedlings can be confused with brome grasses.

PHOTO: ANDREW STORRIE



PHOTO: BRUCE WILSON



PHOTO: GEOFF SAINTY

Wild oat, black oat

Avena sterilis ssp. *ludoviciana* Poaceae

- Robust winter-growing annual grass to 1.6m high.
- Lower leaf sheaths are slightly hairy. Ligule is a membrane to 8mm long.
- Flower head is a loose but narrow panicle. Spikelets with outer husk 25–35mm long, which is longer than other species.
- Seeds have a long apical notch with brown hairs on lower half, awn dark, twisted spirally in the lower part and 50–75mm long.
- At maturity the florets (paired seeds) remain firmly attached and fall together. The lower half of the lemma is covered by silky hairs.
- Can be confused with bearded oat (*Avena barbata* species) and *Avena fatua*. Seedlings can be confused with brome grasses.

PHOTO: BEN O'BRIEN



PHOTO: BEN O'BRIEN



PHOTO: BEN O'BRIEN

PHOTO: GEOFF SAINTY



Windmill grass, umbrella grass

Chloris truncata Poaceae

- Native, short-lived, hairless, tussock-forming perennial to 40cm high.
- Scattered long hairs occur on the leaf blade margins where the blade meets the sheath. Basal leaves spreading.
- Leaves 2–5mm wide.
- Flat terminal seed head with 5–10 horizontal spikes, to 20cm long, radiating from a common point. Spikes usually 12–20cm long and hairy at the base.
- Seeds are flat at one end.
- Stems root at the nodes when in contact with soil.
- Mature plants form a dense tuft of folded leaves, with seed heads on short stems about as long as the seed head spikes.
- Can be confused with *Digitaria* species and couch.

PHOTO: USDA APHIS PPO



PHOTO: AGRICULTURE VICTORIA



PHOTO: GEOFF SAINTY



PHOTO: GEOFF SAINTY

Onion weed, onion grass, asphodelus

Asphodelus fistulosus Asphodeliaceae

- Seedlings grass-like.
- Hollow onion-like stems that come to a point.
- Fleshy fibrous roots that are brownish-orange.
- Flowers are white, 6-‘petalled’ with a prominent brown stripe down middle of each ‘petal’.

PHOTO: GEOFF SAINTY



PHOTO: GEOFF SAINTY

Purple nutsedge, nutgrass

Cyperus rotundus Cyperaceae

- Rhizomatous perennial sedge to 30cm high when rain-fed, but to 70cm high in wet, fertile soils.
- First leaves are shiny, bright green, tapering to a point. Seedlings are erect and grow from tubers. True seedlings are rarely produced.
- Leaves in a cluster at ground level, 2–6mm wide.
- Dark brown flower head borne on triangular stems, 1–2mm in diameter, a loose umbel, brown to purple, flattened, surrounded by 2–4 leaf-like bracts shorter than the flower head.
- Nuts egg-shaped, up to 25mm long, underground, purple, formed on scaly rhizomes, and give rise to new shoots and rhizomes on a chain.
- Can be confused with western nutgrass (*Cyperus bifax*) and yellow nutgrass (*C. esculentus*).

PHOTO: GEOFF SAINTY



PHOTO: GEOFF SAINTY



PHOTO: GEOFF SAINTY

Toadrush

Juncus bufonius Juncaceae

- Mature plants erect, up to 20 cm with fine hairless stems.
- First leaves very small, narrow, hairless, grooved on one side, pointed apex.
- 3 per stem.
- Flowers in a panicle 15 to 120 mm long, arranged along the stem either singly or in clusters of 2 to 6.
- Fruit appears as a reddish brown oblong capsule.
- Seeds red-brown, smooth and egg-shaped to 0.5 mm long.
- Can be confused with annual ryegrass and some silver grasses (*Vulpia myuros* and *V. bromoides*).

PHOTO: BRUCE WILSON



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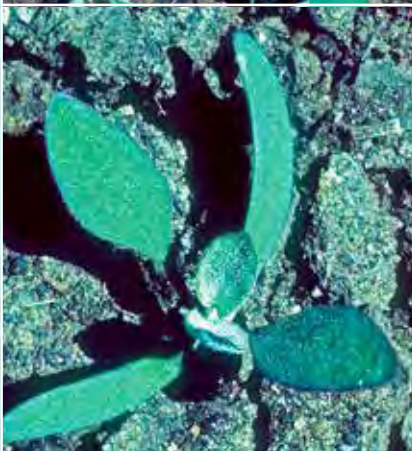


PHOTO: BRUCE WILSON

Annual saltbush

Atriplex muelleri Chenopodiaceae

- Native annual herb.
- Cotyledons are curved, spear-shaped and blue-green.
- Seedling leaves are linear, curved, blue-green with purple-red margins and white waxy scales.
- Later leaves are woody to 7cm long, opposite, mealy with shallow scalloped lobes.
- Rigid, ascending stems to about 40cm high.
- Has both male and female flowers, cream coloured and clustered in the leaf forks.
- Fruits contain 1 seed and are greyish-green, fan shaped and flattened, about 3mm x 3mm.
- Can be confused with other annual saltbushes.

PHOTO: BRUCE WILSON



PHOTO: BRUCE WILSON



PHOTO: GEOFF SAINTY

Bathurst burr

Xanthium spinosum Asteraceae

- Annual warm-season herb to 1m high.
- Cotyledons are elongated, oval-shaped, apex rounded.
- First leaves are triangular, apex pointed, with short hairs particularly on the lower surface, dark green above and paler below.
- Stems of mature plants have pronged spines, 1 or 2 occurring at the base of each leaf or branchlet.
- Male flower heads are in terminal spikes while female heads are in leaf axils. Straw-coloured burrs are oval and 8–15mm long, covered in hooked spines.
- Flowers all year in frost-free areas.
- Burrs are spread by attaching to animals, machinery and in soil. Burrs can float.
- Can be confused with Noogoora burr and other *Xanthium* species.

PHOTO: AGRICULTURE VICTORIA



PHOTO: GEOFF SAINTY



PHOTO: AGRICULTURE VICTORIA

Bedstraw

Galium tricornutum Rubiaceae

- Sprawling, cool-season, branched annual with weak square stems to 1m long.
- Cotyledons are oval with an indented apex and hairless.
- First leaves are oval with a pointed apex and scattered hairs along the margin.
- Leaves and stipules are in a whorl of 4, then 6–8 at flowering. Leaves to 5cm long and 4mm wide, the upper surface without hairs while the mid-veins on the lower surface and leaf margins have backward-pointing hairs.
- Stems are square with downward-directed prickles on the corners, giving the whole plant a sticky feel.
- Small 5-petalled white flowers occur in groups of 3 on a stalk to 1.5cm long.
- Fruits globular, to 5mm wide, covered with wart-like projections, not hooked hairs.
- Almost impossible to clean from cereal grain.
- Can be confused with cleavers (*Galium aparine*).

PHOTO: AGRICULTURE VICTORIA



PHOTO: JASON EMMS



PHOTO: GEOFF SAINTY



PHOTO: AGRICULTURE VICTORIA

Bifora, carrot weed, bird's eye, European bishop

Bifora testiculata Apiaceae

- Temperate annual herb to 35cm high with a strong coriander-like odour when crushed.
- Cotyledons are spear-shaped and hairless with a round to pointed apex.
- Seedling leaves are hairy and deeply divided into 3 segments. Each segment is further divided into 3.
- Stem leaves are heavily dissected. Basal leaves to 10cm long on a stalk with a winged base.
- White flowers with 5 petals, 1–2cm wide in terminal clusters.
- A pair of testicle-shaped fruits, beaked at the apex, with 2 holes near the beak and 3 brown stripes on the back.
- Flowers spring and early summer.
- Can be confused with coriander (*Coriandrum sativum*); seedlings confused with other fumitory species.

PHOTO: GEOFF SAINTY



PHOTO: GEOFF SAINTY

Blackberry nightshade

Solanum nigrum Solanaceae

- Variable, bushy, summer-growing annual or short-lived perennial to 80cm high.
- Cotyledons are oval with a pointed apex and short hairs on leaf margin and stalk.
- First leaves are oval with a pointed apex, prominent veins and short hairs on leaf margin and stalk.
- No prickles and almost hairless or sometimes with long, shaggy hairs.
- Leaves to 8cm long and 5mm wide, dark green with an undulating margin. Leaf stalks to 3cm and can be narrowly winged higher in the plant.
- Green to purple stems.
- Flowers are white to purple tint, tomato-like, in groups of 4–12.
- Fruit is a smooth globe-shaped berry changing from green to dull black to purple-black, to 8mm wide. Seeds are pale yellow and up to 35 in each fruit.
- Will flower throughout the year in frost-free areas.
- Can be confused with American black nightshade (*Solanum americanum*), whitetip nightshade or velvety nightshade (*S. chenopodioides*), green-berry nightshade (*S. opacum*), West Indian nightshade or eastern black nightshade (*S. ptychanthum*) and hairy nightshade (*S. physalifolium*).

PHOTO: GEOFF SAINTY



PHOTO: BRUCE WILSON



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Bladder ketmia, flower-of-an-hour

Hibiscus trionum Malvaceae

- Mature plants erect or sprawling to 60cm high, sparsely covered with star-like hairs.
- Cotyledons are variable in appearance. Some are broadly oval, others are triangular with either indented or truncated base and some have a notched tip. All have a rounded apex and a long stalk.
- Leaves are alternate, oval, 3–5 unevenly toothed deep lobes, often with a red margin, with stalks approximately 20mm long.
- Flowers are borne singly from leafy stalks about 30mm long, having 5 white to pale yellow-orange petals with a purple-red centre. Outer part of flower is bladder-like with prominent purple veins.
- Fruit is a globular, hairy capsule with numerous seeds.
- Seeds are dull red-brown to black, 2–3mm long.
- Can be confused with other *Malvaceae* species.

PHOTO: BRUCE WILSON



PHOTO: BRUCE WILSON



PHOTO: BRUCE WILSON

Blue heliotrope

Heliotropium amplexicaule Boraginaceae

- Perennial that may grow and flower at any time of the year, to 15cm high.
- First true seedling leaves have indented veins and sparse, soft hairs.
- Leaves are dark, alternate, soft, mostly 40–50mm long, dull green with long greyish hairs and wavy margins, conspicuous veins under the leaf and bases clasping the stem.
- Flowers are tubular, small, lilac with a tiny yellow centre, closely arranged in rows along one side of a spike, which curls back from the tip.
- Fruit are spherical with a succulent outer covering, becoming wrinkled and separating into 2 two-celled nutlets, each with a seed.
- Plants can germinate from seed or shoot from a lateral root system.
- Can be confused with white heliotrope in early growth stages.

PHOTO: GEOFF SAINTY



PHOTO: BRUCE WILSON

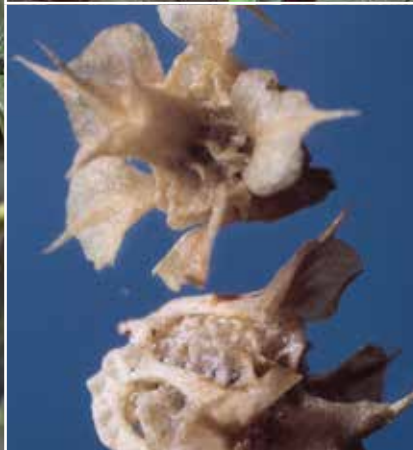


PHOTO: PETER ABELL/GEOFF SAINTY

Boggabri

Amaranthus mitchellii **Amaranthaceae**

- Bushy, hairless, native annual herb to 50cm, erect to semi erect.
- Seedling leaves are elongated, oval-shaped.
- Mature plants are hairless, yellowish to reddish.
- Leaves alternate to 6cm long with a leaf stalk to 5cm long and may have notched tips.
- Greenish-white flowers in axillary clusters or short spikes at the leaf fork. Both male and female flowers.
- Seeds orb-shaped, 2mm long and shiny black.
- Flowers summer and autumn.
- Can be confused with dwarf amaranth.

PHOTO: AGRICULTURE VICTORIA



PHOTO: AGRICULTURE VICTORIA



PHOTO: GEOFF SAINTY



PHOTO: AGRICULTURE VICTORIA

Branched broomrape

Orobanche ramosa Scrophulariaceae

- Erect parasitic annual or perennial herb to 30cm high with no chlorophyll.
- Leaves are scale-like to 8mm long.
- Stems are straw to light brown, either single or up to 10 or more, branching at or near ground level, covered in glandular hairs.
- Flower tubes are 22mm long with purplish edges in an erect spike.
- Lower flowers are on stalks to 5mm long.
- The seed capsule remains enclosed in the flower tube. Seeds are extremely fine and covered in a net-veined pattern. Fruit is an oval capsule about 5mm long containing 500 or more minute seeds, 0.3mm long.
- Mature plants are root parasites with a thickened underground stem (up to 8mm in diameter) attached to the host plant root and numerous root-like structures spreading into the soil.
- Flowers in summer.

PHOTO: GEOFF SAINTY



PHOTO: BRUCE WILSON



PHOTO: BRUCE WILSON

Camel melon, Afghan melon, pie melon

Citrullus lanatus Cucurbitaceae

- Warm-season annual vine with hairy stems to 3m long.
- Cotyledons are oval, indented apex, veined, hairless.
- First true leaf has a long bristly stalk and is round with rounded apex and indented base. Its margin is toothed and lobed, veined and hairless on upper surface.
- Leaves are alternate, to 8cm long, deeply lobed into 3–5 round opposite lobes with the middle lobe longest. The lower surface is covered in short hairs and rough while the upper surface is hairless or a few hairs.
- Stems are covered in soft hairs and woolly new growth.
- Flowers with 5 yellow petals to 10mm long, hairy to densely woolly on single stalks in the leaf axils. Flowers are either male or female.
- Fruit is a smooth and hairless melon of variable shape to 15cm long, mottled green with patches of white. Contains numerous flattened seeds to 10mm long and 6mm wide that mature to brown with black stripes.
- Can be confused with prickly paddy melon when small.

PHOTO: GEOFF SAINTY



Climbing fumitory, white fumitory, ramping fumitory, white-flowered fumitory

Fumaria capreolata Papaveraceae

- Winter-growing, hairless annual herb with stems to 1m, sometimes climbing.
- Cotyledons long, spear-shaped, hairless with pointed apex.
- First leaves divided, leaflets deeply lobed, hairless, light green with reddish stems.
- Leaves carrot-like, divided, alternate with segments to 5mm wide. Leaf stalks aid in climbing.
- Flower head with up to 20 tubular flowers, usually white or cream with purplish tips, gradually turning pink following pollination. Also has hidden flowers that self-pollinate.
- Fruit is spherical to 2.5mm across, smooth to slightly wrinkled at the base when dry.
- Flowers mainly in the spring.
- Can be confused with other fumitory species.

PHOTO: JOHN HOSKING



PHOTO: BRUCE WILSON



PHOTO: BRUCE WILSON

Cobbler's pegs, beggar-ticks, farmer's friends

Bidens pilosa Asteraceae

- Warm-season, erect annual herb to 1.2m high.
- Cotyledons are oblong to elongated, oval-shaped about 13mm long and 1.5mm wide.
- The first true leaves are divided into 3–5, toothed, elliptic lobes.
- Leaves opposite, the lowest ones often simple, middle ones with 3, 5 or 7 leaflets, uppermost ones often simple or with 3 leaflets.
- Stems are red, square and hairless to hairy. Leaves are hairless to hairy.
- Yellow, daisy-like flower heads 5–15mm wide. Flowers all year in warmer areas.
- Long black seeds, 5–12mm, narrow angled with 2 barbed spikes. Seeds readily adhere to clothing.
- Will form roots where the stem touches the ground.
- Can be confused with other *Bidens* species

PHOTO: GEOFF SAINTY



PHOTO: GEOFF SAINTY

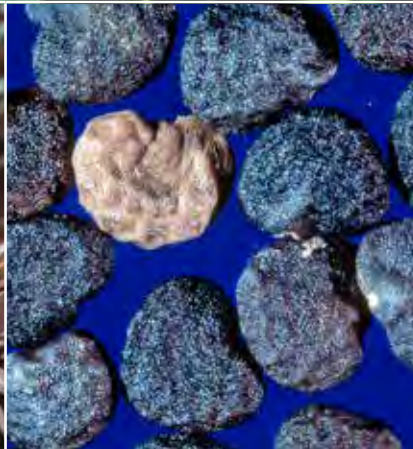


PHOTO: PETER ABELL/GEOFF SAINTY

Common thornapple, castor oil

Datura stramonium Solanaceae

- Summer-growing annual herb to 1.5m with hairless or sparsely hairy stems.
- Cotyledons spear-shaped on top of a green stem.
- First true leaves are oval.
- Leaves to 36cm long with deeply lobed margins. Leaves have an unpleasant odour when crushed.
- Stems are smooth and repeatedly forked.
- Flowers are 5-lobed, trumpet-shaped, white to lavender, to 10cm long. Stigma below the anthers.
- Fruit is an erect spiny capsule with more than 100 spines of variable length (6–16mm). Seeds grey or black, pitted, to 4.5mm long.
- Can produce up to 30,000 seeds per plant.
- Can be confused with other *Datura* species. Known to hybridise with fierce thornapple.

PHOTO: GEOFF SAINTY



PHOTO: JOHN HOSKING

Crownbeard

Verbesina encelioides Asteraceae

- Erect grey-green annual herb to 1m high.
- Cotyledons are oval.
- True leaves are egg-shaped, opposite near the base and alternate above, white hairy below and less hairy above, triangular with toothed margins.
- Leaf stalk is winged.
- Flower heads are solitary or a few together on hairy stalks. Bracts around the head are in 2 rows. Flowers are yellow 1–2cm long. Flower heads are 2.5–5cm wide and bracts around heads are 7–15mm long. Flowers resemble a small sunflower, but with a yellow centre.
- Seeds from ray florets about 5mm long with no wings or pappus. Seeds from disc florets are 5–8mm long with 2 pale wings about 1.5mm wide and a pappus of 2 narrow awns.
- Flowers late spring to autumn.
- Can be confused with volunteer sunflowers.

PHOTO: GEOFF SAINTY



PHOTO: GEOFF SAINTY



PHOTO: AGRICULTURE VICTORIA

Cut-leaf mignonette

Reseda lutea Resedaceae

- Perennial herb to 80cm high with a robust root system that is spread by seed and root and shoot fragments.
- Cotyledons and first leaves are hairless and oval, and have a round apex.
- Rosette leaves to 12cm long with a wavy margin.
- Stem leaves are deeply divided into pointed lobes.
- Stems are ribbed and hairless, branching from the base then many branched.
- Flowers are in spikes, bright greenish-cream with 6 petals. The uppermost petal has 3 lobes.
- Fruit is an oblong capsule. Seeds are brown, shiny and smooth to 2mm long. Unripe capsules are difficult to separate from wheat and barley grain. Plants can produce more than 200,000 seeds.
- Can be confused with wild mignonette (*Reseda luteola*).

PHOTO: GEOFF SAINTY



PHOTO: GEOFF SAINTY

Dense flowered fumitory, narrow-leaved fumitory

Fumaria densiflora Papaveraceae

- Erect or spreading, hairless, winter-growing annual herb to 60cm.
- Cotyledons spear-shaped and hairless with pointed apex.
- First leaves are divided, leaflets deeply lobed, hairless, light green on a long stalk with green stems.
- Leaves carrot-like, 4mm long and 2mm wide, deeply cut into lobes that can also have deep incisions, hairless.
- Soft, 5-sided, hairless stems.
- Flower head with 20–27 narrow, tubular flowers. Petals are dark pink with a darker purplish tip, the inner petals with a lengthwise yellow streak.
- Fruit is spherical, about 2mm across, turning finely warty when dry.
- Flowers winter and spring.
- Can be confused with other pink-flowered fumitory species.

PHOTO: GEOFF SAINTY



PHOTO: GEOFF SAINTY



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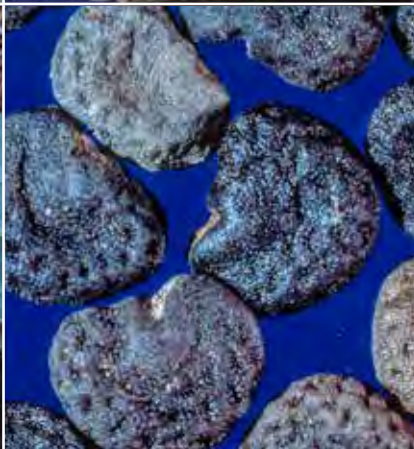


PHOTO: PETER ABELL/GEOFF SAINTY

Downy thornapple

Datura innoxia Solanaceae

- Summer-growing annual to perennial herb to 1m high and 2m wide.
- Stems are covered with erect glandular hairs.
- Leaves to 20cm long and 12cm wide with smooth margins.
- Flowers are slender, trumpet-shaped, white with green veins, to 19cm long. The stigma sits well above the anthers.
- Fruit is a globe-shaped capsule to 5cm long covered in slender spines of the same length.
- Can be confused with other *Datura* species.

PHOTO: GEOFF SAINTY



PHOTO: JOHN HOSKING



PHOTO: GEOFF SAINTY

Dwarf amaranth

Amaranthus macrocarpus Amaranthaceae

- Prostrate to spreading, native, hairless annual herb to 30cm.
- Small seedlings have purplish veins and leaf margins.
- Leaves alternate to 2.5cm long and 1.5cm wide and notched at the tip.
- Mature plants are prostrate to semi-erect with hairless, reddish-white stems.
- Globe-shaped, reddish-white flowers in clusters at the leaf fork.
- Seeds are 1.5mm long, red-brown, pear-shaped and shiny.
- Flowers summer and autumn.
- Can be confused with boggabri.

PHOTO: BRUCE WILSON



PHOTO: BRUCE WILSON



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PHOTO: PETER ABELL/ GEOFF SAINTY



Fat-hen, lamb's quarters

Chenopodium album Chenopodiaceae

- Erect, annual, warm-season herb to 3m high.
- Cotyledons are narrow, oval, hairless with a round apex.
- First leaves diamond-shaped, pointed apex, margin slightly serrated, truncated base, covered in bluish-green bloom due to tiny 'pimples'.
- Leaves are alternate and triangular, silvery green on the lower surface from a waxy coating. Margin tends to be toothed.
- Flowers small, greyish-green in a cluster.
- Seed round, small, flat, smooth and shiny, enclosed in the flower remnants.
- Flowers summer to autumn.
- Can be confused with nettle-leaf goosefoot.

PHOTO: GEOFF SAINTY



PHOTO: BRUCE WILSON



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Fierce thornapple, longspine thornapple

Datura ferox Solanaceae

- Summer-growing annual herb to 1m high.
- Cotyledons lance-shaped to 3cm long, 4mm wide.
- First true leaves egg-shaped with a leaf stalk.
- Leaves large to 14cm, triangular and dark green with shallow scalloped edges. Leaves have an unpleasant odour when crushed.
- Flowers are white, 5-lobed, trumpet-shaped to 6cm long with the stigma below the anthers.
- Fruit is an elliptic capsule to nearly 5cm long covered with 40–60 stout spines. Seeds are either grey or black, to 5mm long.
- All parts of the plant are toxic.
- Can be confused with common thornapple, with which it is known to hybridise.

PHOTO: GRAHAM CENTRE



PHOTO: GRAHAM CENTRE



PHOTO: GRAHAM CENTRE

PHOTO: GRAHAM CENTRE



Goatweed, billygoat weed

Ageratum spp. Asteraceae

- Tropical to subtropical sprawling annual or perennial herb to 1m high.
- Early seedling leaves are hairy and egg-shaped, about 3mm long by 3.5mm wide at the 2 true leaf stage. First 2 true leaves are broadly egg-shaped with widely spaced, shallow, rounded teeth on the margins with scattered hairs.
- Mid green leaves are up to 10cm long and 6cm wide with regularly toothed margin and are softly hairy. Leaves are opposite. Crushed leaves have a characteristic odour.
- Flowers are small, pale lavender blue, clustered at the end of the stems with florets longer than surrounding bracts.
- Heads are 5–7cm across.
- Seeds are black, 3mm long and spread by the wind.
- Flowers mainly in summer.
- Blue billygoat weed (*Ageratum houstonianum*) and billygoat weed (*A. conyzoides*) are difficult to tell apart. Blue billygoat weed has sticky (glandular) hairs on the bracts surrounding its flower heads while billygoat weed has very few hairs on the bracts surrounding its flower heads.

PHOTO: GEOFF SAINTY



PHOTO: PETER ABELL/GEOFF SAINTY



Green amaranth

Amaranthus viridis **Amaranthaceae**

- Erect to spreading semi-tropical to tropical herb to 1m high.
- Leaves are alternate, oval to triangular, to 10cm long with a leaf stalk up to 7cm long.
- Stems are hairless or shortly hairy in the upper parts, often streaked with purple.
- Flower spikes and clusters are usually terminal or in the upper leaf axils.
- Mature fruit is wrinkled. Seeds are minutely warty, globe-like, dull to shiny brown.
- Can be confused with *Amaranthus blitum*.

PHOTO: BRUCE WILSON



PHOTO: GEOFF SAINTY



Groundcherry

Physalis angulata Solanaceae

- Summer-growing, erect, bushy annual herb to 70cm high.
- Normally hairless but may have minute simple hairs.
- Leaves to 6cm long, shallowly toothed or lobed, on a leaf stalk to 5cm long.
- Flowers are similar to a tomato but creamy-yellow to white with large dark spots in the throat of the flower. Flower stalk to 12mm long.
- Fruit is contained in a 10-angled covering that turns papery and brown when dry. Seeds are kidney or disc-shaped, to 2mm long.
- Can be confused with other *Physalis* species.



PHOTO: BRUCE WILSON



PHOTO: BRUCE WILSON

PHOTO: AGRICULTURE VICTORIA



PHOTO: GEOFF SAINTY



PHOTO: AGRICULTURE VICTORIA

Horehound, white horehound

Marrubium vulgare Lamiaceae

- Spreading temperate perennial shrub to 80cm.
- Cotyledons are round, hairless with notched base, hairy stalks and a rounded apex.
- First leaves are oval with small lobes and prominent vein. Their upper surface is wrinkled with fine hairs, lower surface has long hairs.
- Leaves are aromatic, opposite, round to egg-shaped, irregularly lobed, finely wrinkled and covered with white hairs. Lower leaves are on long hairy stalks.
- Hairs on leaves and stems are long and star-shaped.
- Stems are square in cross-section and hairy.
- Flowers small, 12mm long, white in dense many-flowered clusters around the stem in the upper leaf axils.
- Fruit consists of 4 nutlets that are blackish and about 2mm long.
- Flowers all year.
- Can be confused with stagger weed (*Stachys arvensis*) as a seedling.

PHOTO: ANDREW STORRIE



PHOTO: ANDREW STORRIE



PHOTO: BRUCE WILSON

Khaki weed

Alternanthera pungens **Amaranthaceae**

- Warm-season prostrate herb with a perennial root system and annual top growth.
- Cotyledons are spear-shaped or elongated oval-shaped.
- Leaves are opposite and pairs of leaves are of unequal size with very few hairs.
- Prostrate habit with hairy stems that root at the nodes.
- Flowers in small, yellow-brown clusters in the leaf forks. Within the flower clusters are numerous tiny, smooth fruits that mature as straw-coloured prickly burrs.
- Flowers spring to autumn.
- Can be confused with small matweed (*Guilleminea densa*), gomphrena weed (*Gomphrena celosioides*).

PHOTO: AGRICULTURE VICTORIA



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PHOTO: AGRICULTURE VICTORIA



PHOTO: AGRICULTURE VICTORIA

Lincoln weed, sand rocket

Diplotaxis tenuifolia Brassicaceae

- Erect, branching, hairless perennial to 60cm.
- Cotyledons heart-shaped with an indented apex and hairless.
- First leaves oval with a rounded apex.
- Leaves fleshy, emitting an unpleasant fox-like smell when crushed. Leaves deeply lobed with a pointed apex. Upper leaves are smaller, linear, entire or with small lobes.
- Stems and leaves often with a blue-green bloom that rubs off.
- Flowers with 4 pale yellow petals to 15mm long, borne on tips of the stems.
- Fruit a straight 2-celled cylindrical pod to 60mm long and 2mm wide on a secondary stalk. Two rows of seeds in each cell.
- Seeds egg-shaped and yellow-brown, 2mm long and 1.5mm wide.

PHOTO: JOHN HOSKING



Longhead poppy

Papaver dubium Papaveraceae

- Erect, winter-growing, much-branched annual herb to 60cm high.
- Cotyledons are spear-shaped, hairless with a pointed apex.
- First leaves are oval with scattered hairs on upper surface, apex pointed.
- Leaves alternate, deeply lobed with long hairs on the upper surface and main veins on the lower surface. Flowers with 4 salmon-coloured petals to nearly 2cm long on a flower stalk with erect or flattened fine hairs below the flowers.
- Fruit is a hairless, cylindrical capsule to 25mm long and 10mm wide and opening at the top. Seed is small, brown and spherical with a pitted surface.
- Can be confused with other poppy species.

PHOTO: BRUCE WILSON



PHOTO: BRUCE WILSON

PHOTO: BRUCE WILSON

Marshmallow, small flowered mallow

Malva parviflora Malvaceae

- Mature plants erect or sprawling to 60cm high, sparsely covered with star-like hairs.
- Cotyledons variable in appearance, some broadly oval, others triangular with either indented or truncated base. Some have a notched tip, all have a rounded apex and a long stalk.
- Leaves are alternate, oval, 3–5 unevenly toothed deep lobes, often with a red margin and stalks approximately 20mm long.
- Flowers are borne singly from leafy stalks about 30mm long, having 5 white to pale yellow-orange petals with a purple-red centre. The outer part of the flower is bladder-like with prominent purple veins.
- Fruit is a globular, hairy capsule with numerous seeds.
- Seeds are dull red-brown to black, 2–3mm long.
- Can be confused with other *Malvaceae* species.

PHOTO: R. SANDERCOCK



Matricaria, calomba daisy

Oncosiphon suffruticosum Asteraceae

- Erect, cool-season, annual aromatic herb to 60cm high.
- Grey-green leaves are alternate, 2–4cm long and 1–2cm wide, divided feather-like to the midrib, covered with short, soft, glandular and non-glandular hairs.
- Stems are erect and not usually branched below the inflorescence.
- Dense-branched, flat-topped flower heads, 0.5cm wide, with yellow, tubular florets. Bracts around heads in 2 rows.
- Seeds are asymmetrically wedge-shaped. Receptacle is conical.
- Can be confused with globe chamomile.

PHOTO: ANDREW STORRIE



PHOTO: GEOFF SAINTY



PHOTO: ANDREW STORRIE

Matricaria, globe camomile, stinknet

Oncosiphon piluliferum Asteraceae

- Erect annual cool-season herb up to 80cm high.
- Cotyledons are oval, apex rounded, hairless.
- First leaves are spear-shaped, apex pointed with long hairs.
- Leaves are alternate, deeply lobed with a pointed apex.
- Stem has longitudinal grooves and many branches. Stem and leaves have fine hairs and minute glands.
- Yellow, globe-shaped flower heads consisting of yellow disc florets.
- Plant has a strong unpleasant odour.
- Can be confused with calomba daisy.

PHOTO: BRUCE WILSON



PHOTO: BRUCE WILSON



PHOTO: BRUCE WILSON

Mintweed, narrow-leaf sage

Salvia reflexa Lamiaceae

- Warm-season, blue-green, branched, erect, aromatic annual herb to 70cm high.
- Cotyledons are triangular with a truncated, notched apex.
- First leaves are oval with a few shallow teeth and very fine hairs on the margin.
- Leaves are opposite, have glands on both surfaces, 6cm long, and covered with grey-white hairs giving a grey-green colour.
- Flowers are pale mauve-blue, tube-like and carried in opposite pairs or clusters of 3 or 4 at the ends of stems.
- Fruit is made up of 4 nutlets, pale brown to cream, about 2mm long.
- Flowers in spring to early winter.
- Strong mint smell when crushed.
- Can be confused with wild sage (*Salvia verbenaca*).

PHOTO: GEOFF SAINTY



PHOTO: BRUCE WILSON

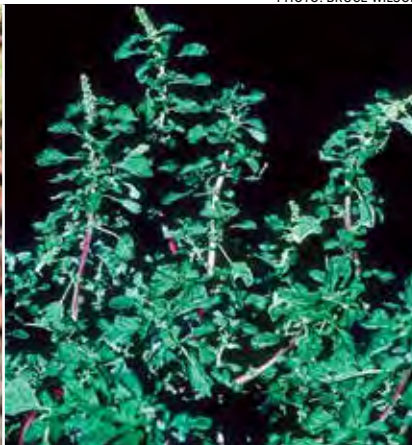


PHOTO: BRUCE WILSON



PHOTO: BRUCE WILSON

Australian amaranth

Amaranthus interruptus Amaranthaceae

- Warm-season sprawling annual herb to 60cm.
- Seedlings have reddish veins and true leaves are rounded with a notched tip.
- Oval, alternate leaves with a pointed tip, to 3cm long.
- Stems with a few hairs, which are often reddish.
- Flowers with 5 segments, clustered in leaf forks or on spikes at the tops of the stems.
- One seeded, hairless fruit about 2–2.5mm long.
- Flowers throughout the year.
- Can be confused with Powell's amaranth, redroot amaranth (*Amaranthus retroflexus*), redshank amaranth.



PHOTO: HERBIGUIDE

Nettle-leaf goosefoot, green fat-hen

Chenopodium murale Chenopodiaceae

- Annual herb to 60cm.
- Cotyledons are oblong to 7mm long and 2mm wide on stalks less than 1mm, paired with a waxy coat.
- First leaves are opposite, oval, toothed, light green and the petioles glisten whitish.
- Leaves are alternate, bright green and often shining above and mealy white beneath, triangular with margins coarsely toothed. Leaves have an unpleasant odour when crushed.
- Stems are ribbed, erect or ascending, green when young and turning red with age.
- Flowers are small, clustered in short loose panicles, green and mealy when young, turning red as they mature.
- Seed is round, flattened and black, fully enclosed within the fruit.
- Flowers spring to autumn.
- Can be confused with fat-hen.

PHOTO: BRUCE WILSON



PHOTO: BRUCE WILSON



PHOTO: BRUCE WILSON



PHOTO: BRUCE WILSON

Noogoora burr, cockle burr

Xanthium occidentale Asteraceae

- Annual warm-season herb to 2.5m high.
- Cotyledons are yellowish-green and narrowly egg-shaped on stalks about 6mm long at the first 2 true leaf stage.
- First and second true leaves are initially narrowly egg-shaped and become more triangular with wavy, toothed margins. Older leaves are large (5–15cm) with 3 or 5 lobes and rough to touch.
- Stems are without spines and rough to touch, green and usually blotched or streaked purple.
- Male flowers are at the end of branches. Female flowers are in the lower parts of the branches and develop into hard, woody burrs 7–25mm long and covered with hooked spines. Two embryos per burr.
- Flowers summer and autumn.
- Can be confused with other *Xanthium* species.

PHOTO: GEOFF SAINTY



PHOTO: GEOFF SAINTY



PHOTO: PETER ABELL/GEOFF SAINTY

Potato weed, white heliotrope

Heliotropium europaeum Boraginaceae

- Summer-growing hairy annual herb to 30cm.
- Cotyledons are round, rounded apex and fine hairs on both surfaces.
- First leaves are oval, tapering apex, small hairs on both surfaces, with veins becoming prominent. First leaves are paired.
- Leaves are grey-green, alternate, oval-shaped, hairy, to 5cm long with a leaf stalk.
- Flowers are white, tubular and as long as the calyx, with 5 equal lobes in 2 rows on a curled flower head that straightens as the flowers develop.
- Fruit are rough and wrinkled nutlets that are sometimes hairy.
- Flowers late summer–autumn.
- Can be confused with spreading heliotrope (*Heliotropium supinum*) and blue heliotrope.

PHOTO: JOHN HOSKING



Powell's amaranth

Amaranthus powellii Amaranthaceae

- Erect or spreading warm-season annual herb to 1.5m high.
- Seedlings are erect with reddish-green to very red stems and leaf stalks.
- Egg-shaped leaves alternate, to 10cm long and sometimes with a spine-like tip.
- Stems are strongly ribbed or grooved with few short lateral branches towards the top. Stems and leaves can be hairy or hairless.
- Flower heads are dense green, spike-like clusters that turn brown with age. Flowers are mostly unisexual.
- Fruits are smooth capsules, 2–2.5mm long, that split horizontally halfway up. Clusters of capsules occur on spikes at upper forks and at the tops of the stem.
- Can be confused with redroot amaranth (*Amaranthus retroflexus*), redshank amaranth.

PHOTO: ANDREW STORRIE



PHOTO: ANDREW STORRIE

Prickly paddy melon

Cucumis myriocarpus Cucurbitaceae

- Annual prostrate vine with slender, rough stems to 2m, branching at the base.
- Cotyledons are oval, indented apex and hairless.
- First leaves are round with an indented base, a rounded apex and toothed leaf margins.
- Leaves are alternate, to 6cm long, some hairs on upper surface but a hairy undersurface. Leaves are 3–5 lobed.
- Flowers are yellow, 6mm across and borne in leaf axils. Male flowers occur in clusters of 2–4 on short stalks while female flowers are either single or in pairs.
- Fruit is globular up to 25mm diameter and covered in long, soft bristles. Fruit begins with dark and light green stripes and turns yellow as it matures. Seeds are pale yellow to 4mm long.
- Flowers summer–autumn.
- Can be confused with camel melon when small.

PHOTO: GEOFF SAINTY



PHOTO: GEOFF SAINTY

Prickly saltwort, roly-poly, buckbush

Salsola australis **Chenopodiaceae**

- Erect, bushy, warm-season native herb to at least 60cm high.
- Leaves are narrow-cylindrical, tipped with spines, alternate, to 40mm long and 0.5–6mm wide.
- Flowers are stalkless in upper leaf axils, sometimes crowded towards the end of branches, subtended by a pair of the leaf-like bracts.
- Fruit is to 7mm wide with 5 fan-like wings or 3 longer than the other 2. Fruit usually remains attached.
- Flowers late spring–autumn.
- Whole plant breaks off at ground level when mature, becoming a tumbleweed.
- Can be confused with Kochia (*Bassia scoparia*), black roly-poly (*Sclerolaena muricata*).

PHOTO: GEOFF SAINTY



PHOTO: BRUCE WILSON



PHOTO: BRUCE WILSON



PHOTO: JOHN HOSKING

Redshank amaranth

Amaranthus hybridus Amaranthaceae

- Warm-season annual herb to 1.5m high.
- Seedlings are erect with reddish-green to very red stems and stalks.
- Leaves are mostly hairless and egg-shaped with wavy margins to 15cm long.
- Flower head is branched consisting of many densely flowered spikes. Green flowers turn whitish with age.
- Fruit is a capsule that splits horizontally half-way up and is surrounded by scales.
- Can be confused with Powell's amaranth, redroot amaranth (*Amaranthus retroflexus*), South American amaranth.

PHOTO: GEOFF SAINTY



PHOTO: GEOFF SAINTY



PHOTO: GEOFF SAINTY



PHOTO: PETER ABELL/GEOFF SAINTY

Silverleaf nightshade

Solanum elaeagnifolium Solanaceae

- Erect, summer-growing, silvery perennial herb to 50cm high, suckering from a vigorous lateral root system.
- Cotyledons are spear-shaped (rarely seen as regrowth occurs from root fragments), pointed apex and hairless.
- First leaves are oval, pointed apex and hairs on both sides of the leaves.
- Leaves to 10cm long and 3cm wide with undulating margins. Lower leaf surface looks silver to white because it has more hairs than the upper surface. Leaves are duller green than those of quena.
- Lower stems, leaf stalks and lower leaf surface veins often have sparse reddish to yellow prickles to 5mm long. The plant is also covered with star-shaped hairs.
- Flowers are tomato-like, with 5 lobes, and to 30mm wide in groups of up to 4. Flower colour is mainly blue and less often pink, purple or white.
- Fruit is a globe-shaped berry, mottled green at first then ripening to an orange-brown. Berries often have green stripes running from the fruit stem to the base.
- Seeds are flattened, rounded and light brown to 4mm wide.
- Can be confused with quena (*Solanum esuriale*) and *S. ellipticum*.

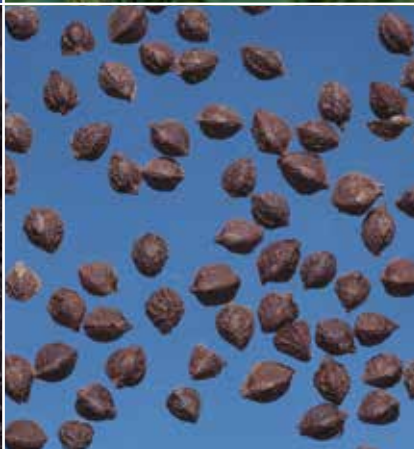
PHOTO: GEOFF SAINTY



PHOTO: DOUG DOOHAN



PHOTO: OHIO STATE WEED LAB



PETER ABELL/GEOFF SAINTY

Sorrel, red sorrel, sheep sorrel

Acetosella vulgaris (synonym *Rumex acetosella*)

Polygonaceae

- Slender erect perennial herb to 50cm high with a rhizomatous root system.
- Cotyledons are long, narrow and club-shaped with a round apex. Their upper surface has a frosted appearance.
- First leaves are oval, hairless with a frosted appearance and rounded apex.
- Leaves are spear-shaped to 10cm long on a stalk to 1.5cm. Upper leaves are spear-shaped with a pointed apex. Lower leaves are triangular on long petioles with a pointed apex and long lobes at the base. Stipules are small and triangular.
- Flower head is a leafless reddish panicle about half the length of the stem. Flowers are in whorls of 5–8. Male and female flowers are on different plants.
- Fruit is a small angular nut to 1.5mm.
- Vigorous weed of acidic soils forming dense stands in pastures.
- Can be confused with some docks (*Rumex* species) and spiny emex.

PHOTO: BARRY RICE



PHOTO: BARRY RICE

Soursob

Oxalis pes-caprae Oxalidaceae

- Perennial winter-growing herb with flower head held above the leaves to 35cm.
- Young plants arise from bulbs, not seeds. Has a white tuberous rhizome below an ovoid bowl and produces bulbils on both the rhizome and in the axils of the basal leaves. Bulbs are surrounded by a brown sheath.
- First leaves are trifoliate, the leaflets heart-shaped on a long petiole, with a few hairs on the margin and lower surface and dark brown flecks on upper surface.
- Trifoliate leaves on long stalks have 3 heart-shaped leaflets. They can have dark flecks on the upper leaflet surface and short hairs on the lower surface. Leaves fold in poor light and at night.
- Flower head is an umbel of 3–25 yellow, trumpet-shaped flowers. Seed is rarely produced in Australia.
- Flowers winter and spring.
- Can be confused with some clovers and larger *Oxalis* species.

PHOTO: GEOFF SAINTY



Wall fumitory

Fumaria muralis Papaveraceae

- Branched, spreading, hairless, winter-growing annual herb.
- Cotyledons are long, spear-shaped and hairless with a pointed apex.
- First leaves are divided with deeply lobed leaflets and hairless.
- Leaves are carrot-like with the largest end segments to 5mm long and 3mm wide. Sometimes with leaf stalks that aid in climbing.
- Flower heads with 7–15 flowers. Petals pink with a dark purplish tip on upper and inner petals. No lengthwise yellow streak in the middle of the inner petals. Also has pale hidden flowers that are self-pollinating and remain closed.
- Fruit is tapered from middle to the base, smooth to finely warty when dry, 2mm in diameter.
- Flowers late winter to spring.
- Can be confused with other pink-flowered fumitory species particularly bastard fumitory (*Fumaria bastardi*).

PHOTO: AGRICULTURE VICTORIA



PHOTO: AGRICULTURE VICTORIA



Yellow-flowered devil's claw, devil's claw

Ibicella lutea **Martyniaceae**

- Annual spreading plant to 30cm high that appears 'pumpkin-like'.
- Leaves are mostly entire, round or heart-shaped and up to 20cm across.
- Stems and leaves are covered in sticky, short hairs.
- Flowers are deep yellow with dark spot, trumpet-shaped, borne in groups at the top of the plant.
- Seed pods are 10–25cm long with short spines at the base. The beak splits to form 2 woody claws.



PHOTO: AGRICULTURE VICTORIA



PHOTO: AGRICULTURE VICTORIA

PHOTO: BRUCE WILSON



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PHOTO: BRUCE WILSON

Australian bindweed

Convolvulus graminetinus Convolvulaceae

- Native perennial with trailing, entwining branches to greater than 1m long.
- Seedling leaves are square with a rounded base and a deeply notched tip.
- First 3–4 true leaves are oblong with rounded or bluntly pointed tips. The next 3–4 leaves are arrowhead-shaped and similar to European bindweed. Leaves are hairy, deeply lobed, up to 6cm long and 3.5cm wide.
- Stems are cylindrical and often ribbed, creeping or twining. Has a thick taproot and plants can grow from roots.
- Has a pair of leaf-like bracts at or above the middle of the flower stalk. Flower heads of 1–4 flowers, which are pink to white, 2cm long and 2cm wide.
- Fruit is a globular capsule with a persistent style.
- Flowers all year round but mostly spring and summer.
- Can be confused with other bindweeds including European bindweed.

PHOTO: GEOFF SAINTY



PHOTO: BRUCE WILSON



PHOTO: GEOFF SAINTY

Bellvine

Ipomoea plebeia Convolvulaceae

- Hairy native annual vine with twining stems, prostrate or climbing.
- Cotyledon is v-shaped with broad flat extended base to 3cm long by 3cm wide.
- First leaves are egg-shaped with a notched base.
- Leaves are alternate, triangular with a notched base, to 8cm long and 6cm wide, with scattered hairs. The notched leaf base formed by large basal lobes is very pronounced (unlike cow vine).
- White funnel-shaped flowers to 13mm long borne on leaf stalks in clusters of 1–3.
- Fruit is a globe-shaped capsule to 9mm wide with 2 chambers splitting into 4 valves. Seeds are brown to 4.5mm long and covered in hairs.
- Can be confused with cow vine.

PHOTO: GEOFF SAINTY



PHOTO: BRUCE WILSON



PHOTO: PETER ABELL/GEOFF SAINTY

Black bindweed, climbing buckwheat

Fallopia convolvulus Polygonaceae

- Cool-season annual twining or trailing vine with branching stems to 1.5m long.
- Cotyledons are narrow and club-shaped with rounded tips.
- First true leaves are egg-shaped with a notched base or arrowhead-shaped.
- Stems are hairless, with spear-shaped leaves and a nectary at the base of the leaf stalk.
- Leaves are to 7cm long, heart-shaped and tapering to a narrow point with a prominent mid-vein.
- Flowers are small, 3–4mm, with 3 greenish-white petal-like parts in slender clusters in the leaf axils or at the end of the stems.
- Fruit is a hard black 3-angled nut to 4mm long with a rough surface. Seeds are difficult to separate from some crop seed. Can produce up to 1000 seeds per plant.
- Can be confused with European bindweed and Australian bindweed.

PHOTO: BRUCE WILSON



PHOTO: BRUCE WILSON



PHOTO: BRUCE WILSON

Black or giant pigweed

Trianthema portulacastrum Aizoaceae

- Prostrate to spreading fleshy annual herb with stems to 1m long.
- Seedling leaves are fleshy and elongated oval-shaped. First true leaves are club-shaped, waxy with purple margins.
- Leaves are opposite, round and flattened, to 5cm long and 4cm wide, with purple margins and notched at the tip. One leaf of each pair is smaller than the other.
- White to purple flowers are single and occur in cup-like structures in the leaf forks.
- Fruit is a capsule about 4mm long and 2.5mm wide. Seeds are flattened, ridged and dull black.
- Can be confused with wireweed.

PHOTO: BRUCE WILSON



PHOTO: BRUCE WILSON

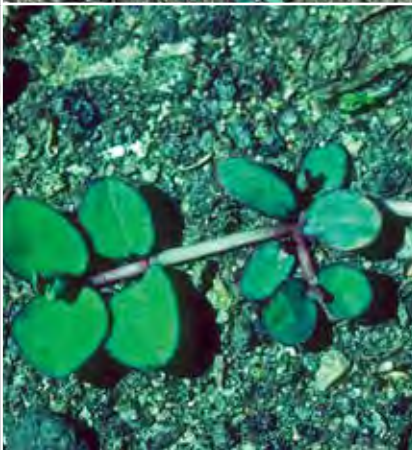


PHOTO: BRUCE WILSON

Caustic weed, doily weed

Euphorbia drummondii Euphorbiaceae

- Native prostrate perennial herb with stems to 20cm high.
- Cotyledons are oval, with round apex and short petiole, hairless.
- First leaves are opposite, oval, blue-green, with edge smooth to slightly toothed and a reddish margin.
- Leaves are hairless, opposite, oval, to 5mm wide, with edges smooth or finely toothed on a short stalk. Leaves and stems are blue-green with a red edge.
- Hairless stems have milky sap.
- Small flowers are green to red with pink or white. Flower heads (cyathia) in leaf axils.
- Fruit is a 3-celled pod. Seeds are brown with 4 ridges.
- Flowers in summer.
- Can be confused with other *Euphorbia* species.

PHOTO: BRUCE WILSON



PHOTO: BRUCE WILSON

PHOTO: BRUCE WILSON

Clammy goosefoot, mintweed, crumbweed

Dysphania pumilio Chenopodiaceae

- Strongly aromatic native annual or short-lived prostrate or ascending perennial herb to 25cm high.
- Cotyledons are oval, apex pointed, reddish on the lower side, with sparse small hairs.
- First leaves are diamond-shaped, apex pointed, margin toothed, with small hairs.
- Leaves are opposite, pale green, to 2cm long on slender stalks with margins toothed or lobed covered with grey-white hairs giving a grey-green colour.
- Tube-like flowers, pale mauve-blue, are very small and crowded in small clusters in the leaf axils opposite pairs, or in small groups on a spike at the end of stems.
- Fruit is globe-shaped, downy to 1.5mm wide. Seed is reddish-black and shiny.
- Flowers spring and summer.
- Can be confused with other goosefoots.

PHOTO: GEOFF SAINTY



PHOTO: GEOFF SAINTY

Common ice plant

Mesembryanthemum crystallinum Aizoaceae

- Prostrate annual or biennial to 40cm high.
- Cotyledons are diamond-shaped, pointed apex, hairless and covered with large water-filled warts 1–2mm wide.
- First leaves are also diamond-shaped, pointed apex with water-filled pustules.
- Stems are often reddish.
- Leaves are thick and succulent, flat, wavy, heart-shaped, tapering to a narrow point. Basal leaves are up to 12cm long with a short broad stem-clasping stalk, while stem leaves are up to 4cm long.
- White flowers are on short stout stalks at the ends of the branches or opposite a leaf with thin hair-like petals 15mm long.
- Fruits are 5-celled capsules.
- Flowers spring to early summer.
- Can be confused with other ice plants.

PHOTO: BRUCE WILSON



PHOTO: GEOFF SAINTY



PHOTO: BRUCE WILSON

Cow vine, peach vine

Ipomoea lonchophylla Convolvulaceae

- Native subtropical spreading annual vine with trailing stems to 2m long.
- Cotyledons are v-shaped to 3.5cm long.
- First true leaves are long and spear-shaped with subsequent leaves becoming more triangular with flat to notched bases and wavy margins, 7cm long and 7cm wide.
- Young stems can be purplish.
- Flower head with 1 or 2 flowers in leaf axils. Flower is a white funnel to 2cm in diameter.
- Fruit is a globe-shaped capsule to 9mm diameter splitting into 4 valves. Seeds are brown, to 4mm long, covered in short hairs.
- Seed bank is long-lived. Will germinate any time of year but seedlings are frost sensitive. Can start flowering at 2–3 true leaf stage.
- Can be confused with bellvine.

PHOTO: BRUCE WILSON



PHOTO: BRUCE WILSON



PHOTO: BRUCE WILSON

Deadnettle, henbit

Lamium amplexicaule Lamiaceae

- Cool-season annual herb to 40cm high.
- Cotyledons are oval and hairless with notched base and rounded apex.
- First leaves are opposite, oval with lobed margins and notched base, with small hairs on upper surface and prominent veins.
- Leaves are opposite, toothed, with lobed margins and on long narrow stalks. Upper leaves are stem claspings with small hairs.
- Stems are square in cross-section.
- Flowers are arranged in 12-flowered whorls in the leaf axils. Flower tube is 5-lipped, 3 lower and 2 upper, up to 2cm long, pink to mauve, anthers hairy. There are darker spots on the lower lobe.
- Fruit composed of 4 pear-shaped brown nutlets that have white spots on the inner face.
- Flowers most of the year.
- Can be confused with stagger weed (*Stachys arvensis*).

PHOTO: JOHN HOSKING



PHOTO: GEOFF SAINTY

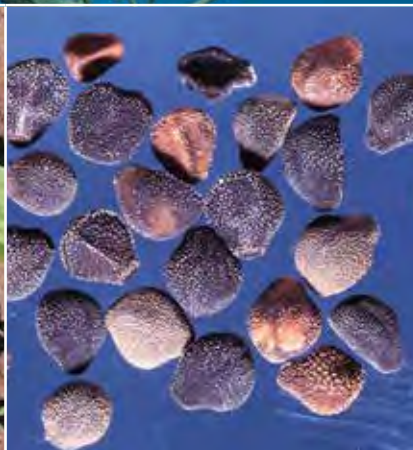


PHOTO: PETER ABELL/GEOFF SAINTY

European bindweed

Convolvulus arvensis Convolvulaceae

- Perennial herb, prostrate or trailing.
- Cotyledons are round with indented apex and base, hairless and veined.
- First leaves are triangular, with a round apex and indented base, and hairless.
- Bluish-green leaves are uniform in shape, oval to oblong and often arrowhead-shaped.
- Stems are cylindrical, hairless to a few hairs.
- Flower head with up to 4 flowers, solitary in the leaf axils with the flower stems cylindrical. Flowers are white to pink and trumpet-shaped to 15mm wide.
- Fruit is a globe-shaped capsule to 6mm in diameter with a style. Seeds are to 4mm long and covered in small, irregular bumps.
- New plants are also produced from lateral roots.
- Flowers mid-spring to early autumn. Seeds are long-lived and can germinate any time of year.
- Can be confused with Australian bindweed, black bindweed and blushing bindweed.

PHOTO: BRUCE WILSON



Native jute

Corchorus triocularis Malvaceae

- Mature plants are prostrate or spreading.
- Cotyledons are oval to round, dark green, shiny and on small stalks.
- First true leaves are oval with notched margins.
- Leaves with indented veins. The lowest pair of marginal teeth is occasionally elongated.
- Flowers are yellow and 4–5mm long.
- Fruits are cylindrical, up to 70mm long, and split into 3 or 4 sections.



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PHOTO: JASON EMMS



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Pigweed, munyeroo, purslane

Portulaca oleracea Portulacaceae

- Native, fleshy, prostrate or partly ascending annual to short-lived perennial herb.
- Cotyledons are succulent, spear-shaped with a rounded apex.
- First leaves are succulent, wedge-shaped with a rounded apex on a short petiole, and purplish-green with purple leaf margins and a red stem.
- Leaves are arranged in a spiral to almost opposite, fleshy, club-shaped and often clustered towards the end of branches.
- Red or green stems to 50cm long and a taproot.
- Flowers are yellow, 5-petalled in heads of 2–30, with no flower stalk in leaf axils. Petals fall off the same day the flower opens.
- Fruit is a capsule 6mm long with a lid that comes off revealing small black seeds. Seeds with rough star-shaped bumps. Long-lived seedbank.

PHOTO: JOHN HOSKING



PHOTO: JOHN HOSKING



PHOTO: GEOFF SAINTY

Round-leaved toadflax

Kickxia spuria Plantaginaceae

- Prostrate to ascending perennial herb covered in hairs.
- Cotyledons are round with indented apex. Leaf stalk and stem below cotyledons are hairy.
- First leaves are oval, opposite, slightly toothed, shiny with a rounded apex. Long scattered hairs on a short leaf stalk.
- Leaves on main branches are broad to 38mm long and 30mm wide with a pointed tip. Leaves get smaller towards the end of branches and short laterals.
- Flower to 8mm long with a curved spur to 5mm long. Upper petal has a purple edge and the lower lip is yellow.
- Fruit is a globe-shaped capsule to 4mm long, light brown, covered in glandular hairs. Seeds are dark brown, broad-ellipsoid and pitted.
- Flowers spring to autumn.
- Can be confused with pointed toadflax (*Kickxia elatine* ssp. *crinita*).

PHOTO: GEOFF SAINTY



PHOTO: BRUCE WILSON

Take-all, clumped bindweed, polymeria

Polymeria longifolia **Convolvulaceae**

- Native perennial herb with erect, or spreading then erect, stems to 25cm high.
- Leaves grey-green to silver, narrow with a pointed tip, to 8cm long and up to 1cm wide, base often spear-shaped, hairless to silky hairy. Leaves are carried on very short stalks.
- Bell-shaped flowers on a long stalk in leaf axils, solitary, pink or whitish. Fruit a globe-shaped capsule to 8mm wide with 1 or 2 seeds.
- Seeds to 5mm long, brown and black, and hairy.
- Has a deep rhizome system and usually reproduces from young shoots arising from the root system.
- Flowers most of the year.
- Can be confused with cow vine, bellvine.

PHOTO: CATHERINE BORGER, DPIRD



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Tarvine/Tar vine

Boerhavia coccinea Nyctaginaceae

- Native prostrate perennial herb with outer stems growing upwards.
- Early leaves are variable in shape, oval to egg-shaped, sometimes with a truncated base, and may have reddish glands. One leaf of each pair is smaller than the other in both seedlings and adults.
- Leaves are lance-shaped to oval, to 4cm long, and hairy on both surfaces, with a leaf stalk to 3cm long.
- Purple-brown stems.
- Flowers occur singly or in clusters on long stalks. Flowers are small, pink, mauve or white, on a stalk to 1cm long, with 2–4 stamens.
- Fruit is elongated, to 4mm long, with 5 ribs. Seed attaches readily to clothing or livestock.
- Flowers late spring to autumn.
- Can be confused with *Boerhavia schomburgkiana* (1 stamen), *B. coccinea* (3 stamens).

PHOTO: BRUCE WILSON



PHOTO: BRUCE WILSON



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PHOTO: PETER ABELL/ GEOFF SAINTY

Wireweed, hogweed

Polygonum aviculare Polygonaceae

- Prostrate to climbing tap-rooted herb, often forming mats, to 100cm long.
- Cotyledons are spear-shaped with a pointed apex and hairless, to 7mm long.
- First leaves are spear-shaped with a pointed apex and hairless. Stem is pinkish-white.
- Leaves are narrow-elliptic to narrow-ovate, to 50mm long. Leaf tip can be pointy to rounded. Has a membranous sheath (stipule) around stem at leaf base. Branch leaves are about half the size of stem leaves. This is different to *Polygonum arenastrum* in which all leaves are approximately the same size.
- Pinkish-white stems to 100cm long and rooting at the nodes. Stems are tough and wiry with longitudinal grooves and hairless. At the base of each leaf is a membranous sheath that surrounds the stem.
- Flowers are found in leaf axils, 3mm long and pinkish-white.
- Fruit is a nut with 3 equal concave faces, to 4mm long, dark brown, with a pitted dull surface.
- Flowers late spring to autumn.
- Can be confused with *Polygonum arenastrum* as being the same species.

PHOTO: BRUCE WILSON



PHOTO: BRUCE WILSON



African turnip weed

Sisymbrium thellungii Brassicaceae

- Erect, annual, temperate herb to 1m high.
- Seedling leaves are squarish with a notched tip.
- True leaves are very coarsely hairy.
- Plants are covered in hairs. Leaves are variable with a basal rosette, becoming progressively more lobed, 3–7 pairs. Terminal lobe is larger than others.
- Stem leaves clasp the stem (stalkless), are not lobed and have toothed margins.
- Flowering stems are branched. Flowers have 4 yellow petals.
- Fruit is a 2-celled pod, 22mm long and 2.5mm wide, with 3 veins per valve. The beak does not contain seeds. Seeds are tan in colour, about 1mm long.
- Favours clay soils.
- Can be confused with tall mustard (*Sisymbrium altissimum*), Indian hedge mustard and smooth mustard (*Sisymbrium erysimoides*).

PHOTO: BRUCE WILSON



PHOTO: GEOFF SAINTY



PHOTO: BRUCE WILSON

Blue crowfoot, native crowfoot, blue heron's bill, wild geranium, native geranium, storksbill, blue storksbill

Erodium crinitum Geraniaceae

- Cool-season native hairy annual or biennial herb with robust sprawling or upright stems to 90cm long arising from a taproot.
- Cotyledons are oval with a very small basal lobe.
- First leaves are oval, hairy, with a toothed and lobed margin, prominent veins and long petiole.
- Leaves are to 6cm long and 3cm wide, and have 3 main oval-shaped lobes that are further toothed or lobed. Both leaf surfaces have scattered hairs. Stem leaves are smaller, opposite, and the stipules narrow quickly to a point.
- Flowers are deep blue with 5 petals, about 10mm long, borne in clusters of 2–6 in the leaf axils. Individual flowers are on hairy stalks 30mm long. The common stalk is to 60mm long.
- Fruit is a tapering beak to 7cm long, splitting when ripe into 5 sharp-pointed 'seeds', covered in long white flattened hairs. 'Seeds' have a coiled awn with long bristles.
- Flowers in spring.
- Can be confused with other *Erodium* and other *Geraniaceae* species.

PHOTO: BRUCE WILSON

PHOTO: GEOFF SAINTY



Canadian fleabane

Conyza canadensis Asteraceae

- Erect annual herb to 1.5m high.
- Seedling forms a rosette with spear-shaped leaves.
- Basal leaves are lance-shaped with the margins shallowly toothed.
- Stems have numerous long, spreading hairs.
- Flowering stems are usually only branched in the upper part (unlike flaxleaf fleabane).
- Flower heads are 3–4mm long (half to one-third the size of flaxleaf fleabane). Bracts around the heads with few hairs.
- Pyramid-shaped flower head with numerous heads with light green, fluffy, pale-coloured seed heads.
- Flowers most of the year.
- Fleabane species can hybridise.
- Can be confused with flaxleaf fleabane.

PHOTO: BRUCE WILSON



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Capeweed, Cape dandelion

Arctotheca calendula Asteraceae

- Annual cool-season herb to 80cm wide and 40cm high.
- Cotyledons are club-shaped and hairless with rounded ends.
- First leaves grow as a pair and are spear-shaped. Subsequent leaves emerge singly and are deeply lobed with downy white underneath.
- Seedlings form a rosette.
- If stems are present they are sparsely hairy.
- Daisy-like flowers are produced singly, with a ring of yellow petals with a brown blotch at the base and a blackish-purple centre.
- Seeds are covered in pale brown fibres.
- Germinates autumn to winter.
- Can be confused with dandelion (*Taraxacum officinale*), Indian hedge mustards and skeleton weed.

PHOTO: ANDREW STORRIE



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Charlock

Sinapis arvensis Brassicaceae

- Erect, temperate, annual herb to 1.5m high.
- Cotyledons are kidney-shaped, apex indented, hairless.
- First leaves are club-shaped, apex rounded with margins slightly lobed and hairs on the upper surface and petiole.
- Leaves are bristly.
- Basal leaves are stalked, lobed on the side with a large, toothed terminal lobe. Upper stem leaves are narrower and toothed.
- Flowers are sweet smelling, bright yellow, with 4 petals to 12mm long, and borne in heads at the end of stems.
- Fruit is a cylindrical 2-celled pod, not angled close to the stem, to 45mm long including the beak and 4mm wide.
- Seeds red-brown to black, 6–12 per cell. Pods open when mature.
- Can be confused with white mustard (*Sinapis alba*).

PHOTO: BRUCE WILSON



PHOTO: BRUCE WILSON



PHOTO: BRUCE WILSON

Flaxleaf fleabane

Conyza bonariensis Asteraceae

- Warm-season annual herb to 1m high.
- Cotyledons are bluish-green, hairless, elongated and oval-shaped.
- First true leaves are almost circular to broadly oval and softly hairy.
- Leaves have short hairs facing forward plus longer spreading hairs, and later form a rosette.
- Erect multi-branched stems covered with long spreading soft hairs.
- Side branches of inflorescence, often overtopping the main axis, with heads 5–6mm long. Bracts around heads are hairy with some long hairs at the apex.
- Fleabane species can hybridise.
- Can be confused with Canadian fleabane.

PHOTO: BRUCE WILSON



FOREST AND KIM STARR

Geranium, common storksbill, crowfoot

Erodium cicutarium Geraniaceae

- Cool-season annual or biennial herb with prostrate, ascending to erect stems to 40cm high.
- Cotyledons are oval with a notched base, deeply lobed margin and round apex.
- First leaves are deeply divided and lobed with fine hairs.
- Rosette leaves, 55mm long and 40mm wide, are deeply divided into segments, which are again deeply lobed or toothed. Stem leaves are divided and deeply lobed, dull light green, with stipules spear to egg-shaped.
- Whole plant is covered in short hairs.
- Flowers with 5 pinkish-purple club-shaped petals in clusters of 2–5 in the leaf axils. Individual flowers are 2cm long on stalks 9–22mm long, with the common stalk 40–80mm long.
- Fruits have a tapering beak and are to 4.5cm long, splitting into 5 pointed ‘seeds’ when ripe. Each ‘seed’ has a hairy spiral awn.
- Flowers in spring.
- Can be confused with long storksbill.

PHOTO: GEOFF SAINTY



PHOTO: GEOFF SAINTY

Long storksbill, geranium

Erodium botrys Geraniaceae

- Robust annual cool-season herb to 50cm high.
- Cotyledons are oval, almost hairless with notched base, lobed margin and round apex.
- First leaves are oval with lobed margin, prominent veins and longish hairs on upper surface and veins.
- Leaves are dark shiny green, deeply lobed, 6–14cm long, with scattered hairs mostly on the veins.
- Upper parts of stems with glandular hairs, whereas lower parts are non-glandular and coarse.
- Flowers are 5-petaled, pinkish-mauve petals, in an umbel of 2–3 flowers, sometimes solitary.
- Fruit is a long, tapering beak, to 11cm long, splitting into 5 sharp-pointed hairy 'seeds' with a hairy awn 10–12cm long.
- Flowers in spring.
- Distinguished from common heron's bill (*Erodium cicutarium*) by less deeply lobed cotyledons and first leaves, dark shiny green leaves and the long beak on the fruit.
- Can be confused with other *Erodium* species.

PHOTO: BRUCE WILSON



PHOTO: BRUCE WILSON



PHOTO: BRUCE WILSON



PHOTO: BRUCE WILSON

Indian hedge mustard

Sisymbrium orientale Brassicaceae

- Erect temperate annual or biennial herb to 1m high.
- Cotyledons are oval with apex slightly indented, hairless.
- First leaves are oval with apex slightly pointed, margin toothed with a few hairs.
- Leaves are variable with basal leaves forming a rosette, which is not persistent. Leaf margins are toothed with lower leaves pinnately lobed with 1–5 pairs of lateral lobes. The terminal lobe is larger than the others and pointed. Leaves are covered in soft downward-directed simple hairs, giving a downy appearance.
- Flowers have 4 pale yellow petals to 10mm long.
- Fruit is a straight 2-celled pod, slender and cylindrical, to 10cm long and 1.5cm wide, on a thick stalk. Seeds are yellow-brown, flattened, oblong, 1mm long. Fruit opens when seed is ripe.
- Can be confused with African turnip weed, turnip weed and other *Brassica* species.

PHOTO: BRUCE WILSON



PHOTO: GEOFF SAINTY



PHOTO: BRUCE WILSON



PHOTO: BRUCE WILSON

London rocket

Sisymbrium irio Brassicaceae

- Erect temperate annual or biennial herb to 1 m high that does not form a rosette. Branched at the base, strong taproot.
- Cotyledons club shaped and grow in pairs, round apex, hairless with a long petiole.
- The second pair of leaves have a pointed apex and serrated margin.
- Leaves alternate to 20cm long, lower leaves stalked, long triangular, apex pointed, deeply lobed with 6 pairs of side lobes bent towards the base. They are slightly toothed, large terminal lobe, upper leaves smaller and some not lobed, very small hairs on leaves and stem.
- The terminal lobe is larger and pointed.
- Flowers yellow with 4 petals born at the ends of the stems on the ends of 2 to 4 mm long branches.
- Pods 30 to 50 mm long, narrow, curved and somewhat spreading on 10 mm stalks, overtopping the open flowers. Older pods are found lower down the seed head.
- Fruit is a curved 2-celled cylindrical pod to 60 mm long and 1 mm diameter. Seeds oval, flattened, 1 mm long, yellowish-brown. Pods open when ripe.
- Can be confused with tall mustard (*Sisymbrium altissimum*) and flixweed (*Descurainia sophia*).

PHOTO: GEOFF SAINTY



PHOTO: BRUCE WILSON



PHOTO: BRUCE WILSON

Mexican poppy

Argemone ochroleuca Papaveraceae

- Erect summer-growing annual herb to 1.5m high.
- Cotyledons are blue green and spear-shaped with the apex tapering to a point.
- First leaves are club-shaped with a prominently toothed margin and pointed apex.
- Leaves are alternate, stem-clasping, to 12cm long and 3–10cm wide, mottled white and blue-green, hairless and waxy with yellow sap. They are deeply divided into 7–11 coarse, irregular, spiny yellow lobes, with wavy leaf margins.
- Flowers are pale yellow to creamy white, to 6cm wide and 25–30mm long, with 4–6 petals, and stalkless at the end of branches.
- Fruit is a prickly egg-shaped to oblong capsule, 20–30mm long, opening at the top. Seeds are dark brown or black with a finely pitted surface.
- Can flower all year round.
- Can be confused with American poppy (*Argemone subfusiformis* ssp. *subfusiformis*) and Mexican prickly poppy (*Argemone mexicana*).

PHOTO: GEOFF SAINTY



PHOTO: BRUCE WILSON



PHOTO: BRUCE WILSON

Parthenium weed

Parthenium hysterophorus Asteraceae

- Erect annual warm-season herb to 2m high.
- Cotyledon leaves are broadly oval.
- First 2 true leaves are egg-shaped and hairy.
- Later leaves form a rosette with longitudinally grooved stems and deeply grey-green lobed leaves, covered in short hairs on both surfaces.
- Flower heads are white, 4mm across and clustered on large branched stalks. Seeds are black.
- Flowers all year. Can set seed in as little as 6 weeks after germination.
- Can be confused with Bishop's weed (*Ammi majus*) and fleabanes.

PHOTO: AGRICULTURE VICTORIA



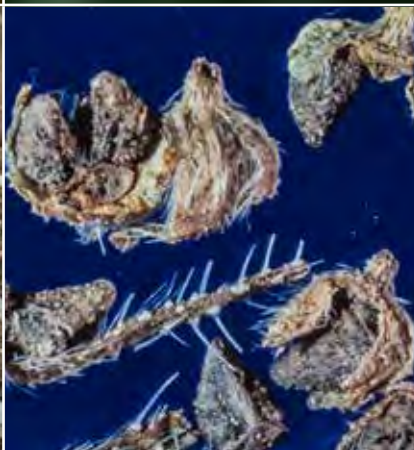
PHOTO: AGRICULTURE VICTORIA



PHOTO: AGRICULTURE VICTORIA

SEEDLINGS FORMING A ROSETTE

PHOTO: AGRICULTURE VICTORIA



Paterson's curse, Salvation Jane

Echium plantagineum Boraginaceae

- Erect annual temperate herb to 1.5m high.
- Cotyledons are oval with rounded apex and short hairs.
- First leaves are oval with pointed apex and longish hairs.
- Leaves are in a basal rosette to 30cm, long stalked, with distinct lateral veins.
- Several stems arising from a short, stout taproot. Stems are branched and covered in bristles.
- Flowers are purple to pink, sometimes white, funnel-shaped with 2 stamens projecting outside the flower. Flowers are arranged in a caterpillar-like head along one side of a curled spike.
- Fruit is small and enclosed in the flower, separating into 4 brown to black triangular nutlets.
- Flowers in spring.
- Can be confused with Viper's bugloss (*Echium vulgare*) and Italian bugloss (*Anchusa azurea*).

PHOTO: AGRICULTURE VICTORIA



PHOTO: JASON EMMS



PHOTO: GEOFF SAINTY



PHOTO: AGRICULTURE VICTORIA

Prickly lettuce, wild lettuce

Lactuca serriola Asteraceae

- A surface-germinating, erect, annual, cool-season herb to 2.5m high.
- Seedling and initial leaves are club-shaped and softly hairy. Seedling forms a rosette with toothed margins.
- Later leaves are blue to pale green, variable, oval and coarsely toothed.
- Lower stems are bristly, and leaves usually with spines on margins and the lower midrib with milky sap.
- Basal and lower stem leaves to 30cm long. Upper stem leaves are smaller and usually twisted at the base and clasping the stem.
- Flower heads are pale green with long stalk, forming fluffy hemispheres with white to pinkish hairs. Seeds are pale brown to grey.
- Germinates from autumn to spring. Flowers spring to autumn.
- Can be confused with willow-leaved lettuce (*Lactuca saligna*).

PHOTO: GEOFF SAINTY



PHOTO: GEOFF SAINTY

Saffron thistle

Carthamus lanatus Asteraceae

- Erect cool-season annual to 1m high.
- Cotyledons are oval with rounded apex and hairless.
- Early leaves have sharp, pointed margins, with young plants forming a rosette.
- Stem leaves are alternate, stiff, triangular with prominent veins and spiny lobes with a pointed apex.
- Stems are ribbed with stem leaves clasping the stem.
- Florets are yellow and solitary, surrounded by thorny structures 30mm long.
- Seeds are ovoid, 4–6mm long and about 3mm wide, grey, 4-angled, hairs on the points of the seed heads.
- Flowers spring to autumn.

PHOTO: BRUCE WILSON



PHOTO: BRUCE WILSON



PHOTO: BRUCE WILSON



PHOTO: BRUCE WILSON

Shepherd's purse

Capsella bursa-pastoris Brassicaceae

- Mature plant erect to 40cm high.
- Cotyledons are oval with a round apex and hairless.
- First true leaves are oval with a round apex and short hairs on both surfaces and petiole.
- Leaf shape is variable. Leaves are up to 15cm long and 3cm wide, in a basal rosette, variably deeply lobed and with long petioles. The few stem leaves are smaller, toothed and stem clasping.
- Stems are slender.
- Flowers are white, 2.5mm across, at end of branches, petals 2–3mm long with a short stalk twice as long as the hairy sepals.
- Fruit is a heart-shaped capsule, 6–9mm long, on a stalk longer than the capsule.
- Seeds number 10–15 in each side of the pod, and are oval, flattened, orange to brown, 1mm long with a hexagonal pattern of fine, raised veins.
- Can be confused with other *Brassica* species.

PHOTO: RANDALL WILKSCH



PHOTO: AGRICULTURE VICTORIA



PHOTO: HERBIGUIDE



PHOTO: GEOFF SAINTY

Skeleton weed

Chondrilla juncea Asteraceae

- Warm-season perennial herb to 1.2m high.
- Cotyledons are oval with a rounded apex and hairless.
- First leaves are oval with a rounded apex and small spines on the margins.
- Leaves are mainly as a basal rosette with tips of lobes pointing towards the base of the leaf, usually hairless.
- When flowering it has an erect open-branched flowering stem with a skeletal appearance.
- Plants have deep tap roots and creeping roots that form new plants.
- Flowers are yellow with a pitted receptacle.
- Seeds are pale to dark brown, ribbed and cylindrical.
- Flowers summer and autumn. Rosettes appear in spring and flowering parts die in autumn to early winter.

PHOTO: BRUCE WILSON



PHOTO: PENNY HEUSTON



PHOTO: JASON EMMS



PHOTO: BRUCE WILSON

Sow thistle, milk thistle

Sonchus oleraceus Asteraceae

- Annual herb to 1.2m high.
- Cotyledons are oval with rounded apex, hairless and bluish-green.
- First leaves are oval with rounded apex, slightly toothed margins and a few spines. Sparse hairs on the upper surface.
- Leaves are thin and soft with margins lobed to toothed. Basal leaves form a rosette and do not clasp the stem while upper leaves do.
- Stems are hollow with milky sap.
- Flower heads are flat-topped panicles with yellow flowers.
- Seeds are 2.5–4mm long, ovoid, compressed and transversely wrinkled.
- Flowers all year and will establish any time of the year as long as sufficient soil moisture is available.
- Can be confused with prickly sow thistle (*Sonchus asper*), false sowthistle (*Reichardia tingitana*).

PHOTO: BRUCE WILSON



PHOTO: BRUCE WILSON



PHOTO: BRUCE WILSON

PHOTO: BRUCE WILSON



Spiny emex, doublegee, three-corned jack

Emex australis Polygonaceae

- Hairless, winter-growing annual herb, mostly prostrate with stems to 75cm long.
- Cotyledons are elongated, club-shaped with a round apex.
- First leaves are oval with a round apex.
- Leaves are dark green, alternate and ovate with wavy margins to 6cm long on long stalks. Petiole is shorter than the leaf blade, in contrast to lesser jack (*Emex spinosa*).
- Female flowers are found in clusters in the leaf axils while male flowers are in terminal spikes.
- Fruits are hard and woody when mature, triangular in cross-section, 3-spined and to 11mm long. Fruits can be difficult to grade out of commercial grain crops.
- Can be confused with sorrel, lesser jack (*Emex spinosa*).

PHOTO: GEOFF SAINTY



Stative, winged sea-lavender

Limonium lobatum Plumbaginaceae

- Annual, winter-growing, drought-tolerant herb to 1m high.
- Cotyledons are spear-shaped with a rounded apex and hairless.
- First leaves are opposite, oval, hairy with lobed margins and wavy.
- Leaves to 10cm long and 4cm wide with 5–7 lobes in a basal rosette.
- Flowering stems have 3 wings to 8mm wide. Each wing ends in a stiff triangular globe. Flowers are pale blue to whitish in dense spikes.
- Seeds are long, tan to dark brown and shiny with a black point.
- Can be confused with Sicilian sea lavender (*Limonium hyblaenum*).

PHOTO: AGRICULTURE VICTORIA



PHOTO: AGRICULTURE VICTORIA

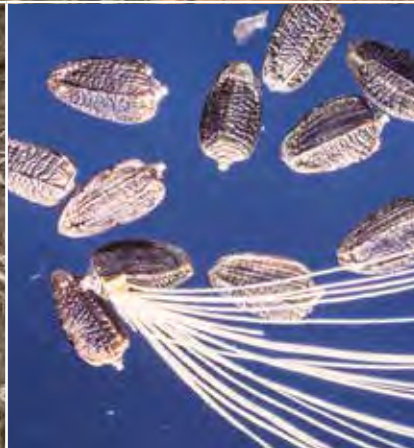


PHOTO: PETER ABELL/GEOFF SAINTY

Stemless thistle

Onopordum acaulon Asteraceae

- Annual to biennial cool-season prostrate thistle to 80cm in diameter.
- Cotyledons are oval and spiny with a pointed apex.
- First leaves have a pointed apex and spiny leaf margin.
- Leaves are in a rosette, up to 50cm long and 12cm wide, oval and deeply divided into triangular lobes, woolly white hair on both surfaces with yellow spines.
- The mature plant remains as a rosette.
- White to purple flower heads can be solitary or clustered, 4–6cm wide on stalks to 3cm.
- Flowers spring and early summer.
- Can be confused with other thistles at the rosette stage.

PHOTO: BHAGIRATH CHAUHAN



PHOTO: GEOFF SAINTY



PHOTO: BHAGIRATH CHAUHAN

Tall fleabane

Conyza sumatrensis Asteraceae

- Erect annual herb to 2.5m high.
- First and second leaves are opposite and spear-shaped, with long hairs on the upper surface and few hairs on the lower surface. Apex is pointed with the margin slightly toothed. Subsequent leaves emerge alternately.
- Pyramid-shaped, 4–5mm flower heads with many heads with side branches not overtopping the main axis.
- Bracts around heads have short, straw-coloured hairs at the apex of the inner bracts. Receptacle is rough-pitted.
- Flowers summer to winter.
- Can be confused with other fleabane species. Fleabane species can hybridise.

PHOTO: BRUCE WILSON



PHOTO: GEOFF SAINTY



PHOTO: BRUCE WILSON



PETER ABELL/GEOFF SAINTY

Turnip weed

Rapistrum rugosum Brassicaceae

- Erect annual or biennial herb up to 1m high.
- Cotyledons are heart-shaped with an indented apex and hairless.
- First leaves are oval with a rounded apex, toothed margin and hairs on all surfaces. Leaves at base form a rosette.
- Lower leaves to 25cm long, stalked, with 3 pairs of side lobes and a larger terminal lobe. Upper leaves alternate, smaller, often stalkless, with toothed margins. Short hairs on both surfaces. Long hairs near the base, shorter hairs near the top.
- Flowers to 10mm long and have 4 yellow petals with dark veins.
- Fruit is a 2-section pod about 10mm long with a beak as long as the pod, not splitting when ripe. Pods are held closed to the stem. Seeds are brown with a dimpled surface.
- Can be confused with wild turnip, wild radish.

PHOTO: BRUCE WILSON

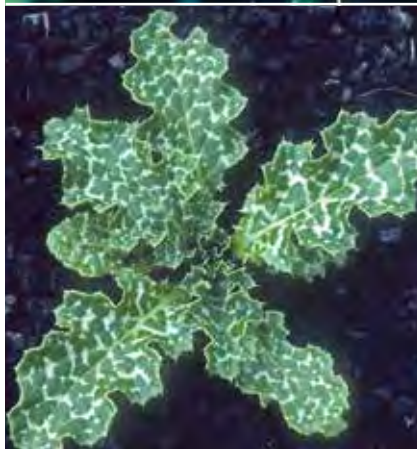


PHOTO: BRUCE WILSON



PHOTO: PETER ABELL/GEOFF SAINTY

Variegated thistle

Silybum marianum Asteraceae

- Annual or biennial thistle to 2m, sometimes 3m, high.
- Cotyledons are oval and stalkless.
- First true leaves are oval, mottled with prickly toothed margins. Hairs on both sides.
- Leaves are in a rosette arranged alternately on the stem, spiny, and variegated green and white.
- Stems are longitudinally ribbed and hollow, and pithy except at the top.
- Typical purple 'thistle' flowers are 4–13cm wide with a hairy receptacle and found singly on the end of stems.
- Seeds are 6–8mm long, black or brown and mottled with grey. Pappus consists of a number of barbed bristles to 20mm long. Seed and pappus fall together.
- Flowers spring and summer.
- Can be confused with a range of other thistles, but has variegated leaves that are unique.

PHOTO: BRUCE WILSON

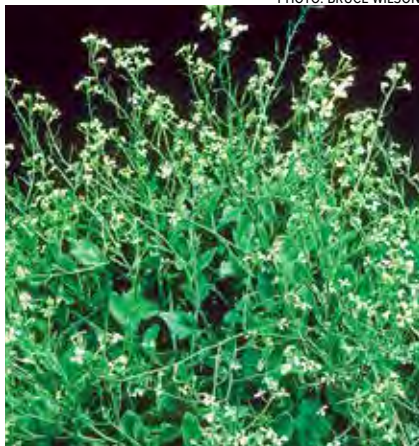


PHOTO: BRUCE WILSON



Wild radish

Raphanus raphanistrum Brassicaceae

- Erect annual or biennial herb to 1.5m high.
- Cotyledons are heart-shaped and hairless.
- First leaves are oval with a rounded apex and toothed margin, sometimes lobed, with prominent veins and short, stiff hairs.
- Leaves are variable with bristle-like hairs. Basal leaves are lobed and to 40cm long on a stalk. Stem leaves are often undivided.
- Flower colour can vary to yellow, white or mauve, with prominent purple veins. Flowers are to 24mm long with 4 petals.
- Fruit is a 2-celled cylindrical pod to 9cm long and 6mm wide borne on erect spreading stalks. Constrictions between the seeds. The beak is seedless to 12mm long. When ripe pod breaks into ribbed one-seeded (4mm) globular sections.
- Will germinate and flower most of the year if soil moisture available.
- Can be confused with wild turnip.

PHOTO: BRUCE WILSON



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PHOTO: BRUCE WILSON



PHOTO: GEOFF SAINTY



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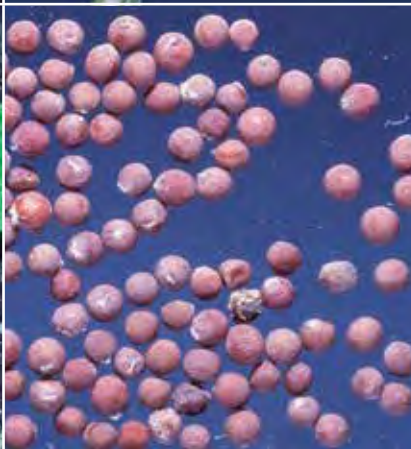


PHOTO: PETER ABELL/GEOFF SAINTY

Wild turnip

Brassica tournefortii Brassicaceae

- Upright, annual, cool-season plant to 60cm high.
- Cotyledons are kidney-shaped with a long petiole.
- First leaves are club-shaped with a hairy petiole. Following leaves are up to 14cm long and deeply lobed with a large terminal lobe pointing towards the leaf base.
- Stiff, white hairs mainly on the lower stems and undersides of mid-veins and leaf stalks
- Flowers are 4-petaled, up to 8mm long, and pale yellow fading to whitish. Compared with other brassicas, flowers are sparse.
- Fruit is a 2-celled cylindrical pod to 70mm long and up to 3mm wide, stalked and constricted between the seeds.
- Pods are spreading. Seeds are globular, red-brown and about 2mm wide.
- Flowers winter and spring.
- Can be confused with wild radish and turnip weed.

PHOTO: GEOFF SAINTY



PHOTO: ANDREW STORRIE



PHOTO: PETER ABELL/GEOFF SAINTY

Yellow burr weed

Amsinckia spp. **Boraginaceae**

- Temperate annual herb to 1m high.
- Cotyledons y-shaped with a round apex, a few fine hairs and small 'pimples' on the upper surface.
- First leaves are spear-shaped with a round apex and long stiff hairs on the upper surface.
- Leaves are alternate, stalkless, lance-shaped, to 20cm long and forming a rosette.
- Stem varies from hairy with stiff hairs to almost hairless.
- Yellow trumpet-shaped flowers to 10mm long in caterpillar-like heads with sided hairy spikes. The end of the flowering stems are curled like a fern frond.
- Fruit is small and enclosed in the flower, separating into 1–4 brown to black triangular nutlets to 3.5mm long.

PHOTO: GEOFF SAINTY



Barrel medic

Medicago truncatula Fabaceae

- Cool-season, softly hairy prostrate to ascending annual herb with stems to 30cm long.
- Cotyledons are club-shaped and bent with a round apex.
- First leaf is round with a toothed margin and fine hairs on leaf and petiole.
- Leaves are composed of 3 leaflets with the middle leaflet on a longer stalk. Leaves are wedge-shaped, coarsely toothed and often with a brown blotch in the centre. Stipules are deeply toothed.
- Flowers are pea-like, yellow, to 8mm long and in clusters of 2–3 in the leaf axils.
- Fruit is a hairless, kidney-shaped pod to 12mm long, creamy white to pale yellow. Pod is tight and compact with straight, thickened spines to 2mm long.
- Can be confused with other *Medicago* species.

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Burr medic

Medicago polymorpha Fabaceae

- Hairless cool-season prostrate to climbing annual herb with stems to 50cm long and trailing branches.
- Cotyledons are club-shaped with rounded apex and hairless.
- First leaf is kidney-shaped, with an indented apex and base, and hairless. Second and older leaves are trifoliate and alternate.
- Leaves have 3 leaflets borne on short stalks with the terminal leaflet on a longer stalk than the others.
- Leaflets are slightly hairy to hairy, sometimes blunt at the tip but usually notched. Margins are toothed towards the tip. Stipules to 10mm long, either finely toothed or deeply cut into narrow segments.
- Flowers are pea-like and yellow to 6mm long in racemes of 5–10 flowers in the leaf axils.
- Fruit is a pod with up to 3.5 coils covered in slender, spreading hooked spines to 4mm long.
- Flowers in spring.
- Can be confused with other *Medicago* species.

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Caltrop, catheads

Tribulus terrestris Zygophyllaceae

- Warm-season, prostrate, much-branched annual to perennial herb with stems to 2m long extending from a stout taproot.
- Leaves with 4–8 pairs of leaflets, each to about 1cm long. The upper surface is dark green and often with hairy leaf edges. The lower surface is pale and hairy.
- Flowers are yellow, 5-petaled, and found singly in leaf axils. Flowers are smaller than those of Yellow Vine (*Tribulus micrococcus*).
- Fruit is a woody burr composed of 5 hairy segments, each with 2 larger outward-pointing spines and 2 smaller downward-pointing spines. Each segment contains up to 5 yellowish seeds about 2mm long.
- Can be confused with yellow vine.

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PHOTO: HERBIGUIDE

Cluster clover

Trifolium glomeratum Fabaceae

- Temperate, spreading, annual herb to 30cm high.
- Cotyledons are oval with a round apex and hairless.
- First leaves are round with a round apex and flat base, hairless and have a long petiole.
- Leaves are alternate, to 2cm long and 1cm wide, with 3 leaflets and finely toothed margins.
- Leaflets are borne on short stalks of the same length at the end of the main leaf stalk. Leaflets are oval to wedge-shaped or pointed, smooth, with a slightly toothed margin and may have white crescent-shaped markings. Leaf veins are strong, straight and with very little branching.
- Stems are hairless.
- Flower head is dense and globe-shaped in the leaf axils with up to 20 pink, pea-like flowers.
- Seeds are kidney-shaped, yellow-brown and about 1mm long.
- Flowers spring and summer.
- Can be confused with rough clover (*Trifolium scabrum*), which is hairy, and woolly clover (*Trifolium tomentosum*).

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Common vetch, tares

Vicia sativa ssp. *nigra*,

Vicia sativa ssp. *sativa* Fabaceae

- Cool-season downy annual herb with twining or climbing stems to 80cm high.
- Cotyledons do not emerge.
- First leaves are a pair of spear-shaped hairless leaflets with pointed apex, 30mm long.
- Leaves are alternate, composed of 3–8 pairs of leaflets with either a broad, blunt, notched or sometimes fine point at the tip. Leaves end in a tendril, and stipules are toothed.
- Square stems branch from the base resulting in a tangled mass. Stems have longitudinal ridges.
- Flowers are pink to dark red-purple, pea-like, to 30mm long. Flowers are almost stalkless, either single or as a pair.
- Fruit is a compressed pod to 70mm long, brown or yellow-brown, hairy and constricted between the seeds. Seeds are spherical, often mottled brown to 7mm diameter.
- There are three subspecies of *Vicia sativa* and many intermediate forms of *Vicia sativa* exist. Can be confused with other vetch species.

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Hexham scent

Melilotus indicus Fabaceae

- Warm-season, erect, hairless annual herb to about 60cm high, usually fragrant.
- Cotyledons are oval with a round apex and hairless.
- First leaves are heart-shaped with an indented apex and hairless.
- Leaves are alternate and composed of 3 leaflets. The central leaflet stalk is longer than the side ones.
- Flowers are pea-like, yellow, to 2mm long in dense racemes slightly longer than the leaves.
- Fruit is an almost spherical pod, to 3mm long, net-veined and slightly wrinkled, containing 1 seed, and has a strong smell.
- Can be confused with lucerne, Bokhara clover (*Melilotus albus*).

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Rhynchosia

Rhynchosia minima Fabaceae

- Subtropical native trailing or climbing vine.
- Cotyledons are dark green and egg-shaped with notched bases.
- Leaves with 3 leaflets, to 4cm long, with 2 green, hairy outgrowths at the leaf fork. Apex of terminal leaf is normally rounded. The lower surface of leaflets is golden in colour and dotted with glands.
- Hairless to velvety stems.
- Flowers are pea-like, yellow with reddish-brown markings, around 0.5cm long in a raceme of 2–15 flowers.
- Fruit is a flattened seedpod, 2cm long, covered in short fine hairs, usually with 2 seeds and opening at maturity. Seeds are kidney-shaped, mottled and to about 5mm long.
- Above-ground parts are annual while the root system is perennial.
- Can be confused with Tinaroo glycine (*Neonotonia wightii*).

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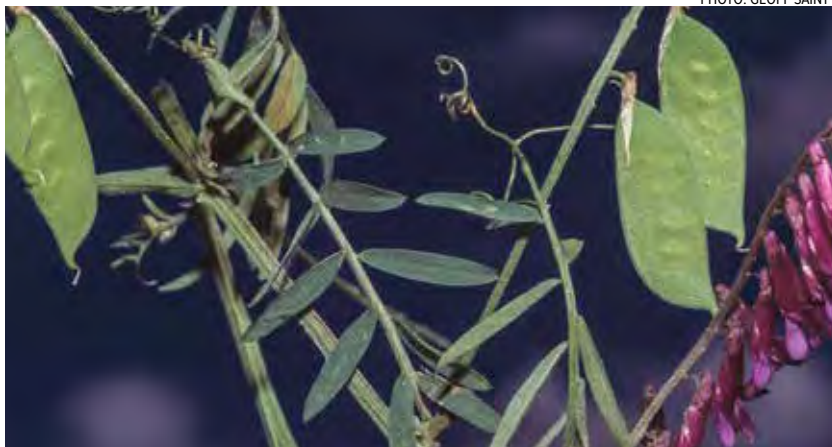


PHOTO: BRUCE ACKLEY, BUGWOOD.ORG

Russian vetch, woolly pod vetch, hairy vetch, Namoi woolly pod vetch

Vicia villosa Fabaceae

- Climbing or trailing cool-season annual with stems to 2m long.
- Cotyledons do not emerge.
- Seedlings have 2 pairs of narrow juvenile leaflets, 30mm long.
- Leaves consist of 6–8 pairs of narrow, oblong leaflets 10–20mm long, arranged along a common stalk with 1 hairy tendril at the end of the leaf. Stipules are not toothed and have 2 points and no spots.
- Stems are variable in hairiness.
- Flowers are pea-like, violet to blue, and to 20mm long. Flower head is an axillary raceme to 40 flowers. Stipules are arrow-shaped.
- Fruit is an oblong seedpod with 2–8 seeds. Seeds are spherical, brownish-black and 4mm in diameter, and bright yellow when split.
- There are three subspecies of *Vicia villosa*. Can be confused with other vetch species.

PHOTO: ANDREW STORRIE



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Sandplain lupin, blue lupin

Lupinus consentinii Fabaceae

- Erect, much-branched annual herb to 1.2m high.
- Leaves with 7–13 leaflets on the same point on the leaf stalk.
- Leaflets are covered in silky hairs on both surfaces. Stem hairs to 1mm long.
- Blue pea-like flowers, 12–17mm long, in clusters that are 5–15cm long at the tips of the branches.
- Seedpod to 6cm long and covered in dense hairs. Five seeds per pod. Seeds are pea-like, brown to grey with black mottling.
- Flowers in spring.
- Can be confused with other lupin species prior to flowering.

PHOTO: GEOFF SAINTY



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Sesbania, sesbania pea, yellow pea-bush

Sesbania cannabina Fabaceae

- Erect, hairless, native annual shrub to 3.5m.
- Cotyledons are about 12mm long and 5mm wide, oblong and on short stalks.
- First leaves are elliptic, about 20mm long on a short stalk. The second true leaf has 3 pairs of leaflets. Following leaves have progressively more leaflets. Leaves with up to 45 pairs of leaflets, with leaflets to 3cm long. There is no terminal leaflet.
- Flowers are yellow, streaked with purple on the back, pea-like to 15mm long. Flowers in racemes of 1–9 flowers emerging from the leaf axil.
- Pod is cylindrical, straight and hairless with up to 40 seeds. Seeds are oblong, brown to olive, sometimes mottled, to 4mm long.
- Can be confused with *Senna* species.

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PHOTO: JASON EMMS

Snail medic

Medicago scutellata Fabaceae

- Cool-season, hairy, prostrate annual herb to 50cm high.
- Cotyledons are oval-shaped with a round apex and no petiole.
- First leaves are oval to wedge-shaped, with a hairy margin, lower surface and petiole. Second and subsequent leaves are trifoliate.
- Leaves with 3 leaflets, with middle leaflet stem longer than the others and the margin toothed almost to the base. The upper surface is hairless with some dark flecks. Stipules are strongly toothed and hairy on both sides.
- Flowers are pea-like, yellow-orange to yellow, and 1–3 in a small cluster on a stalk shorter than leaf.
- Seedpod has 5–8 coils and no spines. It is large and contains 7–10 large seeds.
- Can be confused with other *Medicago* species.

PHOTO: JASON EMMS



PHOTO: JASON EMMS



PHOTO: JASON EMMS

Sub clover

Trifolium subterraneum Fabaceae

- Temperate annual herb that is prostrate or spreading with ends of branches erect to 30cm high.
- Cotyledons are oval with a round apex, and are hairless with a long petiole.
- First leaf is single and kidney-shaped with long petiole. Second leaf is trifoliate.
- Leaves consist of 3 leaflets, up to 3cm long and 3cm wide, with finely toothed margins. Markings vary with different cultivars. All leaflet stalks are the same length.
- Stems are usually sparsely hairy. Stipule is at the base of the leaf stalk.
- Inflorescence consists of 3–6 fertile white pea-like flowers with pink stripes. Calyx is often red or pink.
- Seedpods are oval, about 3mm long, containing 1 black to creamy white seed. Seed head turns downward after fertilisation and pushes the globe-shaped burr towards or into the soil.
- Burrs consist of 3–5 one-seeded pods.
- Flowers late winter to spring.
- Can be confused with white clover (*Trifolium repens*) and strawberry clover (*Trifolium fragiferum*).

PHOTO: JOHN HOSKING



Yellow vine

Tribulus micrococcus Zygophyllaceae

- Native warm-season prostrate to partly ascending annual with stems to more than 1m long.
- Cotyledons are oval with a flattened tip.
- First true leaf has 2 pairs of leaflets. The second leaf has 3 pairs of leaflets.
- Leaves are shiny and composed of 4–7 pairs of leaflets. Each leaflet is oblong to about 1cm with prominent hairs on the margins.
- Flowers are yellow with 5 petals to 15mm long.
- Fruit is slightly hairy, to 8mm wide, breaking into 5 segments with 2 short spines. Each segment contains up to 3 seeds.
- Can be confused with caltrop and *Tribulus minutus*.

Adventitious	Adventitious roots grow from an area of the plant other than the root zone.	Pedicel	A stem that attaches a single flower to the inflorescence.
Apical	Pertaining to the apex on the leaf.	Pinnate	Having leaflets arranged on either side of the stem, typically in pairs opposite each other.
Bloom	A fine white or bluish waxy powder occurring on plant parts, usually stems, leaves and fruits. It is easily removed by rubbing.	Prostrate	Growing along the ground.
Bulbils	A small bulblike structure produced in the place of a flower or in a leaf axil, and having the ability to develop into a new plant.	Raceme	A flower cluster with the separate flowers attached by short equal stalks at equal distances along a central stem.
Calyx	The sepals of a flower, typically forming a whorl that encloses the petals and forms a protective layer around a flower in bud.	Ray floret	‘Outside’ florets with strap-shaped petals surrounding the disk of tubular florets in the flower heads of certain Asteraceae species e.g. sunflowers.
Culms	The stem of a grass, sedge or similar plant	Rhizome	A continuously growing horizontal underground stem which puts out lateral shoots and adventitious roots at intervals.
Cyathia	An inflorescence consisting of a small cuplike structure enclosing a female flower and several male flowers, characteristic of plants in the genus <i>Euphorbia</i> .	Sepals	Each of the parts of the calyx of a flower, enclosing the petals and typically green and leaflike.
Disc florets	‘Inside’ floret with tubular petals e.g. sunflower	Spiklet	The basic unit of a grass flower, consisting of two glumes or outer bracts at the base and one or more florets above.
Elliptical	Leaves having no divisions or subdivisions rounded - curving and somewhat round in shape rather than jagged.	Truncated	Ending abruptly as if cut off across the base or tip.
Nectary	Any of various glandular structures secreting nectar that occur in the flowers, leaves, stipules, etc, of a plant.	Tubercle	Round nodule or warty outgrowth that can be found on the roots as well.
Orb shaped	A spherical shape.	Tubers	A thickened underground part of a stem or rhizome.
Ovoid bowl	Resembling an egg in shape.	Umbel	Flower cluster where a number of flower stalks or pedicels are nearly equal in length and spread from a common center.
Panicle	A loose branching cluster of flowers.	Whorl	An arrangement of leaves, sepals, petals etc that radiate from a single point.
Pappus	The tuft of hairs on each seed of thistles, dandelions, and similar plants, which assists dispersal by the wind.		

Note: Bold page numbers refer to major descriptions.

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Useful resources

- **Integrated Weed Management Manual – www.grdc.com.au/IWMM**
- **WeedSmart – www.weedsmart.org.au**
- **Australian Herbicide Resistance Initiative (AHRI) – www.ahri.uwa.edu.au**
- **Weeds in Australia – www.environment.gov.au/biodiversity/invasive/weeds/identification**

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