Ecology of Sydney plant species
Part 2: Dicotyledon families Asteraceae to Buddlejaceae

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Abstract


Ecological data in tabular form is provided on 355 plant species, 187 native and 168 exotics, mostly naturalised, occurring in the Sydney region, defined by the Central Coast and Central Tablelands botanical subdivisions of New South Wales (approximately bounded by Lake Macquarie, Orange, Crookwell and Nowra). Families are Asteraceae, Avicenniaceae, Balsaminaceae, Basellaceae, Baueraeae, Berberidaceae, Bignoniaceae, Boraginaceae, Brassicaceae, Buddlejaceae.

Data is derived from herbarium collections, literature and field observations. It is hoped that the many, often alarming, gaps in the information available will stimulate much-needed research into the ecology of more of the species. Information is provided so far as available to us for each plant species in the following categories:

Life History: Growth form, vegetative spread, longevity, primary juvenile period (time from germination to fruiting), reproduction, flowering and fruiting times, fruit/seed type, dispersal, establishment and growth, fire response, interaction with other organisms.

Distribution: Status/origin (native/naturalised), botanical subregions, distribution in Sydney area, selected locations.

Habitat: Habitat, altitude, annual rainfall, typical local abundance, vegetation, substrate, exposure.

Conservation: Conservation status.

Introduction

The Ecology of Sydney Plant Species aims to provide ecological information on native and naturalised Sydney plants. Particular emphasis has been given to data that is relevant for ecologists and natural area managers, for people involved in bush regeneration, land rehabilitation and landscape design, for researchers in many fields and for a wide range of people who are interested in bushland and native plants. Species-specific information is also relevant to environmental impact assessment and to studies involving changes in drainage, water movement, wind exposure, nutrient conditions and fire regimes on plant species and plant communities. Information included covers growth form, flowering and fruiting times, longevity and maturity periods; pollination and seed dispersal data, distribution, habitat and
plant community, as well as responses to fire and disturbance where available, and is largely complementary to the descriptive texts in taxonomic handbooks such as the *Flora of New South Wales* (Harden 1990–93).

Part 2 of the *Ecology of Sydney Plant Species* covers Dicotyledon families alphabetically from Asteraceae to Buddlejaceae. Families covered are Asteraceae, Avicenniaceae, Balsaminaceae, Basellaceae, Baueraeae, Berberidaceae, Bignoniaceae, Boraginaceae, Brassicaceae, Buddlejaceae. A total of 355 plant species are included, 187 native and 168 exotics, mostly naturalised. Species for which we have good ecological data include *Avicennia marina*, *Raphanus raphanistrum*, *Cirsium vulgare*, *Chrysanthemoides monilifera*, *Chondrilla juncea* and *Xanthium spinosum*. For the majority of species, the presentation of our current knowledge shows many, often alarming, gaps in the information available. It is hoped that making the situation better known will stimulate much-needed and wide ranging research into the ecology of many more of these species.

**Methods**

Part 2 follows the format used in Part 1 — *Ferns, fern allies, cycads, conifers and Dicotyledon families Acanthaceae to Asclepiadaceae* (Benson & McDougall 1993). The Sydney region is defined as the Central Coast and Central Tablelands botanical subdivisions (i.e. approximately bounded by Lake Macquarie, Orange, Crookwell and Nowra) (Figure 1). This is the area broadly covered by *Flora of the Sydney Region* (Carolin & Tindale 1993), with the exception that the Hunter Valley is not included here since it lies within the North Coast and Central Western Slopes subdivisions.

The Sydney region includes approximately 3500 plant species, both native and naturalised. To deal effectively with this number, the work has been divided into parts each of approximately 350 species based on plant families beginning with ferns, Cycads and Gymnosperms, and then Dicotyledon and Monocotyledon families. Within these groups, families, genera and species are arranged alphabetically:

**Part 1:** Ferns, Fern allies, Cycads and Conifers

Dicotyledon families Acanthaceae to Asclepiadaceae

**Part 2:** Dicotyledon families Asteraceae to Buddlejaceae

**Part 3:** Cabombaceae to Eupomatiaceae

**Part 4:** Fabaceae

**Part 5:** Flacourtiaceae to Myrsinaceae

**Part 6:** Myrtaceae

**Part 7:** Nyctaginaceae to Rubiaceae

**Part 8:** Rutaceae to Zygophyllaceae

**Part 9:** Monocotyledon families

**Part 10:** Monocotyledon families
For each species (and generally for subspecies) a data sheet is prepared incorporating life history, distribution and habitat data from specimens in the National Herbarium of New South Wales and this information is entered in a database. To this are added data from literature sources both published and unpublished. References have been cited as appropriate but for unreferenced data responsibility has been assumed by the authors. A provisional compilation sheet with the available information is then prepared and distributed to interested persons for comments and additions/alterations. This compilation is then published in parts in *Cunninghamia*, with the subsequent long-term aim of producing a book at the completion of the ten parts. This will allow the incorporation of new and additional material.

**Information categories**

For each species or subspecies, information is presented under headings relating to different life-history aspects, each with further subdivisions. Emphasis has been given to understanding the species in its wild habitat. For this reason data on cultivation and artificial propagation, available in horticultural books, is generally not included. Likewise, information on weed control is not given. Otherwise, however, the categories are broadly interpreted and since an aim of the project is to stimulate further investigation, we welcome the addition of extra data on any other aspects of the plants' ecology.

**Botanical nomenclature**

*Family/Genus/Species*: Names currently recognised at the National Herbarium of New South Wales and mostly as used in *Flora of New South Wales*.

*Common name*: Names used in *Flora of New South Wales*.

**Life history**

*Growth form*: Brief description.
*Source*: *Flora of New South Wales*.

*Vegetative spread*: Indication of whether localised expansion or spread is possible from an individual by rhizome, stolon, rootsucker etc. Important in determining ability of species to colonise immediate local area. Does not include vegetative distance dispersal which is included under Establishment & Growth (diaspore).
*Source*: Flora descriptions, Herbarium specimens, field observations.

*Longevity*: Average potential life-span under natural conditions — range in years where possible, indefinite, where death is not a result of inherent growth e.g. continued rhizomatous growth. Longevity may be shorter in cultivation.
*Source*: Literature, authors' assessment from field observations.

*Primary juvenile period*: time taken from germination to produce first fruits or spores (Gill [1975] uses the term for the period from germination to flowering but
the period to fruit maturity is more significant ecologically). Secondary juvenile period is the time taken for an individual to recover to produce fruit after major damage e.g. from fire, but applicable only if the species regularly resprouts.

**Source:** Literature, field observations.

**Reproduction:** For Angiosperms, Reproduction separated into:

- **Flowers:** flower colour, flowering period — range of months and, where possible, peak month based on frequency of herbarium collections. Pollination vectors.
- **Fruit:** fruit shape and size, particularly with respect to potential dispersal agents. Maturation period. Seed size and number.

**Source:** Herbarium specimens, field observations, *Flora of New South Wales*, literature.

**Establishment and growth:** Diaspore type (including vegetative), dispersal agent. Germination requirements: seedbank presence, dormancy, growth rates, seasonality, deciduousness etc. [notes on propagation in cultivation may be given where these imply similar behaviour under natural field conditions e.g. insights into seed germination inhibition].

**Source:** Literature, field observations.

**Fire response:** General response of mature plant to fire, in particular whether it generally resprouts or is killed (see also Gill 1981, Gill & Bradstock 1992). Seedling recruitment associated with fire is included under establishment and growth.

**Source:** Field observations, literature.

**Interaction with other organisms:** Symbiosis, predators, diseases etc.

**Source:** Mainly literature.

**Distribution**

**Status/origin:** native or naturalised, region of origin, source and date of introduction/naturalisation

**Source:** *Flora of New South Wales*, literature.

**Botanical subregions:** occurrence of species in botanical subdivisions of N.S.W., other states and countries.

**Source:** National Herbarium of New South Wales.

**Distribution in Sydney area:** Main geographic regions occupied by species.

**Source:** Herbarium specimen records.

**Selected locations:** restricted to about 10 localities for each taxon reflecting natural geographical range of species in the Sydney area. Earliest collection dates are given for some species, particularly exotic species. Recent collection sites indicated where possible. Locality data must be interpreted carefully. The record may be based on an old specimen or observation record and the species may no longer be present at the site. However a knowledge of the original distribution may be important in showing up particular habitat requirements of the species.

**Source:** Herbarium specimen records.
Habitat

Specific data refers to Sydney area unless stated otherwise.

**Habitat**: Brief generalised description.
**Source**: Herbarium specimen records, field observations.

**Altitude**: Approximate altitudinal range (m +/- 100 m) occupied by the species.
**Source**: Herbarium specimen records.

**Annual rainfall**: Approximate annual rainfall range (mm +/- 100 mm) for sites occupied by the species.
**Source**: Bureau of Meteorology (1975, 1979).

**Typical local abundance**: Most frequent recordings (scale: dominant/frequent/occasional/rare).
**Source**: Herbarium specimen records.

**Vegetation**: Main structural type with typical associated species where available.
**Source**: Herbarium specimen records, field observations, literature.

**Substrate**: Geology, soil, moisture supply.

**Soil nutrient rating scale**: Very fertile (e.g. basalt soils)/fertile/infertile/very infertile (e.g. sands).

**Soil water-table scale**: permanently high/mostly high/mostly low/permanently low.

**Soil salinity scale**: Hypersaline/saline/brackish/fresh.
**Source**: Herbarium specimen records, field observations, literature.

**Exposure**:

**Exposure scale**: Exposed/indifferent/sheltered.

**Shading scale**: Deep shade/mid shade/light shade/no shade.
**Source**: Herbarium specimen records, field observations, literature.

Conservation

**Conservation**: National significance listing (Briggs & Leigh 1988), regional significance and adequacy of conservation within Sydney area where available.
**Source**: Herbarium records, field observations, literature.

General comments on Part 2

The majority of this part covers the family Asteraceae. There are 270 species of Asteraceae, 41% of which are exotic. Some of these are major agricultural weeds and it is these weed species, e.g. *Cirsium vulgare, Chondrilla juncea*, that are the best known ecologically. There has been virtually no serious ecological study of any of the native species. A few endangered species, e.g. *Olearia cordata*, have been the subject of Recovery Plans, but these are only based on general survey work with little intensive follow-up. Many of the Asteraceae are relatively inconspicuous or uncommon and
tend to be overlooked. Little appears to be known on many of the shrubby Asteraceae, although many are well represented in the Sydney area in a range of habitats from rainforest to heath. Of the 51 NSW species of Olearia, 23 occur in the Sydney area, as well as 15 out of 45 Brachycome species and 9 out of 14 Vittadinia species. These species do not have conspicuous fire responses like Proteaceae and Myrtaceae, although this itself may be a valid reason for studying them. Many may be short-lived and important in colonising disturbed sites and may have potential for land rehabilitation projects. Yet we have little data in regard to dispersal, growth rates or colonising behaviour, pollination vectors and propagule dispersal mechanisms.

Similar comments apply to the other families in this Part. Longevity of species, apart from annuals, is rarely noted. Data on fire responses are available for common, conspicuous species but not for the smaller, less obvious species. The conservation status of many species is unknown. Collections from the early 1900s suggest that many Asteraceae appear to have been widespread in the Sydney area but are now much more restricted. Because they are not conspicuous their disappearance has not been noted, but species like Cassinia unica, Cassinia longifolia and Ozothamnus adnatus, previously recorded in the Sydney suburban area, have not survived well in urban bush reserves, either because of more mobile populations or because they required the higher-nutrient soils that were subsequently cleared. For the many exotic weed species other than those of concern to agriculture, we have only limited knowledge of their current distributions and little idea of whether they are stable or becoming potential problems. Quite a number of species have only been recorded since the 1960s and may be spreading e.g. Acanthospermum australe, Leontodon taraxicoides subsp. taraxicoides, Senecio pterophorus and Baccharis halimifolia. For other exotic species there is virtually no data from local sources — some of these are based on only one or a few old records and may now be extinct in the region e.g. Ambrosia artemisiifolia.

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The Sydney region

For this work the Sydney region is defined as the Central Coast and Central Tablelands botanical subdivisions.
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Dicotyledon families Asteraceae to Buddlejaceae

**Acanthospermum australe**

**ASTERACEAE**

**Growth form:** Prostrate herb with stems to 60 cm long and opposite leaves.

**Vegetative spread:**

**Longevity:** 1 year.

**Primary juvenile period:** Less than 1 year.

**Flowers:** White, summer.

**Fruit/seed:** Achene 7–9 mm long with prickles, mature December–March.

**Dispersal, establishment & growth:** Diaspore: fruit, probably mammal-dispersed, human.

**Fire response:**

**Interaction with other organisms:**

**Status/origin:** Naturalised exotic, native to America.

**Botanical subregions:** NC CC.

**Distribution Sydney area:** Coastal, mainly eastern suburbs of Sydney.

**Select locations:** Malabar (1967), Little Bay, Matraville, La Perouse, Garie Beach (1987).

**Habitat:** Roadsides and lawns.

**Altitude:** 0–100 m

**Annual rainfall:** above 1200 mm

**Typical local abundance:** Occasional.

**Vegetation:** With other roadside weeds e.g. *Onopordum inaequale*. Ground stratum.

**Substrate:** Sandy, infertile soils. Watertable permanently low, moisture supply intermittent, fresh.

**Exposure:**

**Conservation:** Recently recorded weed that may be spreading along coast.

**Achillea distans**

**subsp. tanacetifolia**

**ASTERACEAE**

**Tansyleaf Milfoil**

**Growth form:** Herb to 120 cm high, with rhizome.

**Vegetative spread:**

**Longevity:** Perennial.

**Primary juvenile period:**

**Flowers:** Whitish, pink or red with yellow disc, spring–summer.

**Fruit/seed:** Achene 1.5–2.5 mm long, no pappus.

**Dispersal, establishment & growth:**

**Fire response:**

**Interaction with other organisms:**

**Status/origin:** Exotic, native to Europe. Introduced as an ornamental and may occur as a garden escape.

**Botanical subregions:** CC SC NT ST; Qld, NT.

**Distribution Sydney area:** Only record Leichhardt.

**Select locations:** Leichhardt (1941).

**Habitat:**

**Altitude:** 0–100 m

**Annual rainfall:** 1200 mm

**Typical local abundance:**

**Vegetation:**

**Substrate:**

**Exposure:**

**Conservation:** Rare, only 1 record, probably not naturalised in the area.
### Achillea millefolium (*

**Yarrow**

**ASTERACEAE**

**Growth form:** Stoloniferous herb 10–100 cm high.  
**Vegetative spread:** Regrows from rhizome fragments (Field & Kannangara 1987).  
**Longevity:** Perennial.  
**Primary juvenile period:** 
**Flowers:** White-pink, disc yellow, November–April.  
**Fruit/seed:** Achene to 3 mm long, no pappus. Seeds small 160 μg (Field & Kannangara 1987).  
**Dispersal, establishment & growth:** Wind-dispersed (Carr et al. 1992). Eight month old stand produced 243,000 seeds per m²; requires light for germination — seed at or near the soil surface germinates rapidly; seed viability increases with soil depth — estimated survival of seed buried at 32 cm is 17 years (Field & Kannangara 1987).  
**Fire response:** 
**Interaction with other organisms:**  

**Status/origin:** Naturalised exotic, native to Europe.  
**Botanical subregions:** NC SC NT CT ST SWS; Vic.  
**Distribution Sydney area:** Upper Blue Mountains and west of the area.  
**Select locations:** Mt Wilson (1896), Katoomba, Lett River, Lithgow, Orange, Milthorpe.

**Habitat**

**Habitat:** Roadside weed.  
**Altitude:** above 800 m  
**Typical local abundance:** Frequent.  
**Vegetation:** Ground stratum.  
**Substrate:** Basalt soil, very fertile. Watertable permanently low; moisture supply intermittent, fresh.  
**Exposure:**  

**Conservation**

**Conservation:** Roadside weed.

### Actites megacarpa (Sonchus megacarpos)

**Dune Thistle**

**ASTERACEAE**

**Growth form:** Fleshy herb to 40 cm high, responds to sand accumulation by vertical growth.  
**Vegetative spread:** Forms large clumps by creeping rhizome.  
**Longevity:** Indefinite.  
**Primary juvenile period:** 1 year (Clarke 1989).  
**Flowers:** Yellow, sometimes pale purple towards the base, September–May.  
**Fruit/seed:** Achene 4–8 mm long with pappus of bristles 7–13 mm long, matures September–May.  
**Dispersal, establishment & growth:** Diaspore: fruit, wind-dispersed, vegetative multiplication absent; seedlings sun-tolerant, wind-tolerant; adults wind-tolerant, drought-tolerant (Clarke 1989). Adults tolerant of salinity, secondary sand coloniser.  
**Fire response:** Unlikely to be burnt.  
**Interaction with other organisms:**  

**Status/origin:** Native.  
**Botanical subregions:** NC CC SC; Qld, Vic., Tas., S.A., W.A.  
**Distribution Sydney area:** North Avoca, Wamberal, Palm Beach, Narrabeen, Manly, Bondi, Lady Robinson's Beach (1887), Cronulla, Shoolhaven Heads.  

**Habitat**

**Habitat:** Coastal sand dunes and cliffs, on the incipient foredune and the foredune.  
**Altitude:** 0–20 m  
**Typical local abundance:** Occasional.
Vegetation:
**Substrate:** Beach sand dunes, infertile, tolerant of underdeveloped soils.
**Exposure:** Exposed to salt-laden sea breezes, full sun.

**Conservation:** Most herbarium records are pre-1950. Possibly now less common than previously due to loss of habitat.

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**Adenostemma lavenia** var. *lavenia*  
Sticky Daisy

**ASTERACEAE**

**Life history**

**Growth form:** Semi-prostrate or erect herb 0.3–1 m high.
**Vegetative spread:** No.
**Longevity:** 1 year.
**Primary juvenile period:** Less than 1 year.
**Flowers:** White, spring–early summer.
**Fruit/seed:** Achene 2–4 mm long, with pappus of bristles 1 mm long.
**Dispersal, establishment & growth:**
**Fire response:**
**Interaction with other organisms:**

**Distribution**

**Status/origin:** Native.
**Botanical subregions:** NC CC; Qld, N.T., Asia.
**Distribution Sydney area:** Chiefly north from Bulahdelah, with an old record from Botany Bay (Harden 1992).
**Select locations:** No CC specimens in Herbarium.

**Habitat**

**Habitat:** Damp, shaded places (Harden 1992).
**Altitude:** 0–100 m  
**Annual rainfall:** above 1200 mm

**Conservation**

**Habitat:** Botany Bay southern limit, but now probably extinct in area.

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**Ageratina adenophora** *

Crofton Weed

**ASTERACEAE**

**Life history**

**Growth form:** Herb, with purplish, woody stems 1–2 m high from underground crown; short, thick rootstock has carrot-like odour when broken (Parsons & Cuthbertson 1992).
**Vegetative spread:** Colonies increase in size when layering occurs; spread also occurs when pieces of root with portion of the crown attached take root (Parsons & Cuthbertson 1992).
**Longevity:** Perennial.
**Primary juvenile period:**
**Flowers:** White, spring, September–November.
**Fruit/seed:** Achene 1–2 mm long with pappus of hairs 3–4 mm long. ‘Seeds’ light (25,000 seeds/gm); mature plant can produce 10,000–100,000 seeds per year (Dyason 1986).
**Dispersal, establishment & growth:** Diaspore: fruit, wind-dispersed both locally and long distance. Also water-dispersed (M. Clarke pers. comm.). Dispersed in mud sticking to humans, animals, machinery and in agricultural produce, seeds germinate in light December–September, peak (more than 80% of viable seeds) in February and March; seedlings establish rapidly and if damaged are able to regenerate from the crown within 8 weeks of germination (Parsons & Cuthbertson 1992). Seedlings shade-tolerant, may be frost-sensitive. Coloniser.
**Fire response:** Stems killed, resprouts at ground level. Resprouted from base and flowered
within 33 weeks after high-intensity fire (1/1994) at Lane Cove and Narrabeen (P. Kubiak pers. comm.)

**Interaction with other organisms:** Suspected of poisoning but seedlings palatable to stock; biological controls (insect and fungus) have been introduced but are not highly effective (Dyason 1986). Unpalatable to cattle but horses eat it readily, and die; sheep or goats can eat it without harm if other pasture is available. Biological control effective using a combination of organisms (Parsons & Cuthbertson 1992). Current experimental work with fungus *Phaeoannularia* species at Royal Botanic Gardens (Wang Fang pers. comm. 1994).

**Status/origin:** Naturalised exotic, native to C America. Introduced to Sydney c. 1875 from England where it had been grown as a ‘stove ornamental’, first collected as a garden escape in 1904 (Parsons & Cuthbertson 1992). Story from Lismore: Mayor Crofton on his deathbed said words to the effect of ‘it wasn’t me who introduced the plant, it was my next door neighbour’ (M. Clarke pers. comm.).

**Botanical subregions:** NC CC; Qld, S.A.

**Distribution Sydney area:** Coastal, current southern limit Kiama.

**Select locations:** Morisset, Mooney Creek, Cheltenham, Lane Cove River (1918), Willoughby, Eastwood, Kurnell, Liverpool, Wollongong, Minnamurra Falls, Springwood.

**Habitat:** Moist sites, disturbed areas, roadsides, creeklines. Steeply sloping, frost-free land (Parsons & Cuthbertson 1992).

**Altitude:** 0–400 m  
**Annual rainfall:** above 800 mm

**Typical local abundance:** Dominant.

**Vegetation:** Open areas–woodland and forest. Ground stratum.

**Substrate:** Sandstone and shale soils, fertile–infertile. Watertable permanently high–mostly high, moisture supply continuous–intermittent, fresh.

**Exposure:** Sheltered situations; mid–light shade. High growth-rate of seedlings in full sun, can tolerate considerable shade but die in full shade (Parsons & Cuthbertson 1992). Full sun if moisture available (M. Clarke pers. comm.).

**Conservation:** Present in the Sydney area for more than 30 years and has spread rapidly there since the 1970s (Dyason 1986). Crofton weed control usually depends on correcting the drainage problem that allowed the weed to establish (McLoughlin & Rawling 1990). Major weed of moist sites in bushland. Declared noxious weed in many shires.

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**Ageratina riparia** *  
Mist Flower

**ASTERACEAE**

**Life history**

**Growth form:** Herb 0.3–1 m high, stems purplish, erect, or decumbent, often with adventitious roots.

**Vegetative spread:** Stems in contact with soil form new plants by rooting from nodes (L.McD.). Colonies increase in size and density by layering, forming a mat of interwoven stems (Parsons & Cuthbertson 1992).

**Longevity:** Indefinite.

**Primary juvenile period:**

**Flowers:** White, August–November.

**Fruit/seed:** Achene 1–2 mm long, with pappus of hairs 3–4 mm long, mature September–December. Mature plants produce 10,000–100,000 seeds per year (Parsons & Cuthbertson 1992).

**Dispersal, establishment & growth:** Diaspore; fruit. Wind-dispersed, both locally and long distances. Water-dispersed, in mud by humans and animals, and dispersed as stem fragments; seed germinates immediately, but only in light, best at temperatures of 25° C–15° C (Parsons & Cuthbertson 1992).

**Fire response:** Resprouted from base after high-intensity fire (1/1994) at Lane Cove, flowering within 34 weeks (P. Kubiak pers. comm.) Stems killed, resprouts at ground level (R. Buchanan pers. comm.).

**Interaction with other organisms:** May be toxic to stock; leachates from leaves and plant litter have an allelopathic effect on other plants (Parsons & Cuthbertson 1992).
**Cunninghamia** Vol. 3(4): 1994

**Distribution**

**Status/origin:** Naturalised exotic, native to Central America; garden escape. Growing in Royal Botanic Gardens Sydney 1895 (Parsons & Cuthbertson 1992).

**Botanical subregions:** NC CC; Qld.

**Distribution Sydney area:** Coastal, north from Berry.

**Select locations:** Gosford, Galston Gorge, Pennant Hills, Northbridge, Sydney (1906), Bellevue Hill, Royal NP, Albion Park, Macquarie Pass (P. Kodela pers. comm.), Jamberoo, Foxground.

**Habitat:** Disturbed gullies and creek banks.

**Altitude:** 0–200 m  
**Annual rainfall:** above 1200 mm

**Typical local abundance:** Dominant–frequent.

**Vegetation:** Ground stratum. In or near rainforest, along creeks.

**Substrate:** Creeks and gullies in sand and amongst rocks, sandstone. Soil fertile–infertile. Watertable mostly high, moisture supply continuous, fresh.

**Exposure:** Sheltered. Shade deep–mid. Seedling very shade-tolerant (R. Buchanan pers. comm.).

**Conservation:** A declared noxious weed in many shires, invading bushland along creeklines.

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**Ageratum houstonianum** *  
**ASTERACEAE**

**Growth form:** Erect or decumbent herb 0.3–1 m high.

**Vegetative spread:** No.

**Longevity:** 1 year.

**Primary juvenile period:** Less than 1 year.

**Flowers:** Blue-mauve, most of the year.

**Fruit/seed:** Achene, 2 mm long, with pappus of awned scales 2–3 mm long.

**Dispersal, establishment & growth:**

**Fire response:**

**Interaction with other organisms:**

**Status/origin:** Exotic, native to Mexico; widespread in Central America. Garden escape, rarely naturalised.

**Botanical subregions:** NC CC; Qld.

**Distribution Sydney area:** Coastal Sydney.

**Select locations:** Palm Beach (1961), Narrabeen Lake, Glenfield.

**Habitat:** Roadside, paddocks, creek bank.

**Altitude:** 0–50 m  
**Annual rainfall:** above 800 mm

**Typical local abundance:** Rare.

**Vegetation:** Weedy sites.

**Substrate:** Probably clay soils.

**Exposure:**

**Conservation:** Rarely naturalised in bushland.

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**Ambrosia artemisiifolia** *  
**ASTERACEAE**

**Annual Ragweed**

**Growth form:** Shallow-rooted herb to 2 m high.

**Vegetative spread:** No.

**Longevity:** Annual.

**Primary juvenile period:** Less than 1 year.

**Flowers:** Summer–autumn. Wind-pollinated (Ciba-Geigy 1968–).
**Fruit/seed:** Nut-like involucre, achene retained inside, one per fruit. Seed may remain viable in soil for 40 years or more in U.S.A. (Payne 1970).

**Dispersal, establishment & growth:** Dispersed by wind, water, animals and humans (with red clover seed from US); germinates in spring; tends to occur in masses (Ciba-Geigy 1968–). Considerable variability in progeny enhances survival of this species (Payne 1970).

**Fire response:** ? Resprouted — one plant flowering within 13 weeks of high-intensity fire (1/1994) at Narrabeen (P. Kubiak pers. comm.)

**Interaction with other organisms:** Known to cause hay fever and severe allergic conjunctivitis in humans, potential to cause asthma (Bass & Wrigley 1984). Potential to cause asthma in humans (Bass 1987). Cattle eating it develop sore mouths (Hurst 1942).

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**Status/origin:** Naturalised exotic, native to N America.

**Botanical subregions:** NC CC; Qld, S.A.

**Distribution Sydney area:** Only Sydney record, Cremorne (1948).

**Select locations:** Cremorne (1948)

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**Habitat:** Roadside, wasteland and cultivation.

**Altitude:** 0–50 m

**Annual rainfall:** > 1200 mm

**Typical local abundance:**

**Vegetation:**

**Substrate:**

**Exposure:**

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**Conservation:** Weed of wasteland and cultivated areas north of Sydney, no recent records for Sydney area.

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**Ambrosia psilostachya** *

**Perennial Ragweed**

**ASTERACEAE**

**Life history**

**Growth form:** Erect, stout herb to 2 m high, with rhizomes to almost 1 m deep; leaves aromatic.

**Vegetative spread:** Spread by creeping rhizomes and through cultivation — stimulation of new growth from damaged plant and pieces of rhizome (Parsons 1973). Often forms extensive colonies.

**Longevity:** Indefinite.

**Primary juvenile period:**

**Flowers:** Cream or green, late spring–summer (Parsons 1973).

**Fruit/seed:** Nut-like involucre with short spines, achene retained inside, one per fruit.

**Dispersal, establishment & growth:** Diaspore: fruit, animal-dispersed over long distance due to spines on fruit; seeds germinate in autumn, plants develop rapidly in winter and spring developing extensive perennial roots and rhizomes, flowers late spring, aerial growth dies off in summer, new growth from buds on rhizomes in autumn; seeds can survive in soil for several years (Parsons 1973).

**Fire response:** Probably resprouts.

**Interaction with other organisms:** Pollen causes hay fever and severe allergic conjunctivitis in humans (Bass & Wrigley 1984). Not grazed by stock (Parsons 1973).

---

**Status/origin:** Naturalised exotic, native to America. First recorded in Australia at Tomingley in NSW, 1924 (Parsons 1973).

**Botanical subregions:** NC CC NT CT NWS CWS SWS NWP SWP; Qld, Vic.

**Distribution Sydney area:** Mainly northern suburbs of Sydney.

**Select locations:** Lisarow, Mona Vale, Dee Why, Frenchs Forest, Willoughby, Mosman (1934), Earlwood, Orange.

---

**Habitat:** Roadside, paddock.

**Altitude:** 0–1000 m

**Annual rainfall:** above 1000 mm

**Typical local abundance:** Uncommon–prolific.
Vegetation: Roadside and wasteland weeds.
Substrate: Sandy soil, damp sites, banks, possibly disturbed soil.
Exposure:

Conservation: Declared noxious weed in some shires.

Ambrosia tenuifolia * (Ambrosia confertifolia)

Lacy Ragweed

ASTERACEAE

Growth form: Erect, aromatic herb to 75 cm high with long runner roots.
Longevity: Indefinite.
Primary juvenile period:
Fruit/seed: Nut-like involucre with minute black achenes retained inside.
Dispersal, establishment & growth:
Fire response:
Interaction with other organisms: May cause hay fever and severe allergic conjunctivitis in humans (Bass & Wrigley 1984).

Status/origin: Naturalised exotic, native to S America.
Botanical subregions: NC CC CT NWS CWS SWP NFWP; Vic., S.A., W.A.
Distribution Sydney area: Suburban areas.
Select locations: Wondabyne, Neutral Bay, Mascot, Ashfield (1932), Clyde, Granville, Albion Park, Moss Vale.

Habitat: Railway lines, disturbed areas.
Altitude: 0–900 m
Annual rainfall: above 1000 mm
Typical local abundance: Common.
Vegetation: Weedy vegetation including, e.g. Cortaderia selloana, Phragmites.
Substrate: Sandy soil.
Exposure:

Conservation: Declared noxious weed in some shires.

Ammobium alatum

Growth form: Herb 60–100 cm high.
Vegetative spread:
Longevity: Perennial or facultative annual.
Primary juvenile period: Less than 1 year.
Flowers: Yellow, November–March.
Fruit/seed: Achene 3–4 mm long, with pappus a membranous cup 0.5 mm long.
Dispersal, establishment & growth:
Fire response:
Interaction with other organisms: Suspected of causing string-halt in horses and death of stock (Hurst 1942).

Status/origin: Native.
Botanical subregions: NC SC NT CT ST NWS CWS; Qld, *S.A.
Distribution Sydney area: Mainly cooler parts of the area.
Select locations: Kanimbla Valley, Mandurama, Orange, Bowral, Moss Vale, Mittagong (1938).
**Habitat:** Grassland and woodland, roadsides.

**Altitude:** above 500 m  
**Annual rainfall:** above 800 mm

**Typical local abundance:** Occasional–frequent.

**Vegetation:** Grassland and woodland, roadsides, e.g. with *Acacia mearnsii*.

**Substrate:**

**Exposure:** Full sun.

---

**Anthemis arvensis** *

**Corn Chamomile**

**ASTERACEAE**

**Life history**

**Growth form:** Herb to 60 cm high.

**Vegetative spread:** No.

**Longevity:** 1–2 years.

**Primary juvenile period:**

**Flowers:** White, disc yellow, December–February. Insect and self-pollinated (Ciba-Geigy 1968–).

**Fruit/seed:** Achene 1.5–2.5 mm long, pappus an irregular rim, mature February.

**Dispersal, establishment & growth:** Probably wind-dispersed (is ligule persistent for long enough to aid dispersal?) Dispersed by wind, water, animals and humans (with white clover seeds); germinates in spring and autumn; moderate to vigorous user of nutrients and competitor for space (Ciba-Geigy 1968–).

**Fire response:** Probably killed.

**Interaction with other organisms:** Used in folk medicine for wound-healing and as a vermifuge (Ciba-Geigy 1968–).

**Distribution**

**Status/origin:** Naturalised exotic, native to S Europe. World-wide in temperate zones, companion since early Stone Age, now strongly regressing (Ciba-Geigy 1968–).

**Botanical subregions:** NC NT CT; Vic., Tas., S.A.

**Distribution Sydney area:** Taralga area.

**Select locations:** Wombeyan Caves (1921), Richlands (1962).

---

**Habitat**

**Altitude:** 800 m  
**Annual rainfall:** 800 mm

**Typical local abundance:** Frequent.

**Vegetation:** Grassy sites.

**Substrate:** Nitrogenous soils, moist situations, indicator of acidity (Ciba-Geigy 1968–).

**Exposure:**

**Conservation:** Localised exotic, rarely recorded.

---

**Anthemis cotula** *

**Stinking Mayweed**

**ASTERACEAE**

**Life history**

**Growth form:** Herb to 60 cm high with foetid scent.

**Vegetative spread:** No.

**Longevity:** 1 year.

**Primary juvenile period:** Less than 1 year.

**Flowers:** White, disc white–cream November–April.

**Fruit/seed:** Achene 1.5 mm long, no pappus.

**Dispersal, establishment & growth:** Dispersed by water, animals and humans (Ciba-Geigy 1968–).

**Fire response:**

**Interaction with other organisms:** ‘rather a trouble on cultivated land but good food for
horses and cattle when ripening' (James Walsh 1904 — Herbarium note). Thought to taint milk (Herbarium note).

<table>
<thead>
<tr>
<th>Distribution</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Status/origin:</strong> Naturalised exotic, native to Europe, Asia and Africa.</td>
</tr>
<tr>
<td><strong>Botanical subregions:</strong> NC CC SC NT CT ST SWS NWP SWP; Qld, Vic., Tas., S.A., W.A.</td>
</tr>
<tr>
<td><strong>Distribution Sydney area:</strong> Coast and Bathurst–Orange.</td>
</tr>
<tr>
<td><strong>Select locations:</strong> Ourimbah, Turramurra, Royal Botanic Gardens (1902), Flemington, Jamberoo, Jenolan Caves, Bathurst, Orange (1907).</td>
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<table>
<thead>
<tr>
<th>Habitat</th>
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<tbody>
<tr>
<td><strong>Habitat:</strong> Saleyards, paddocks.</td>
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<tr>
<td><strong>Altitude:</strong> 0–1000 m</td>
</tr>
<tr>
<td><strong>Typical local abundance:</strong> Occasional–frequent.</td>
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<tr>
<td><strong>Vegetation:</strong> Grasslands, cultivated land.</td>
</tr>
<tr>
<td><strong>Substrate:</strong> Agricultural soils. Nitrogenous soil, clay indicator (Ciba-Geigy 1968–).</td>
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<tr>
<td><strong>Exposure:</strong></td>
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<tr>
<th>Conservation</th>
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<tbody>
<tr>
<td><strong>Conservation:</strong> Weed of cultivated areas.</td>
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**Arctium lappa** *

Greater Burdock

<table>
<thead>
<tr>
<th>Life history</th>
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<tbody>
<tr>
<td><strong>Growth form:</strong> Herb 1–1.5 m high.</td>
</tr>
<tr>
<td><strong>Vegetative spread:</strong></td>
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<tr>
<td><strong>Longevity:</strong> 2 years.</td>
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<tr>
<td><strong>Primary juvenile period:</strong></td>
</tr>
<tr>
<td><strong>Flowers:</strong> Purplish-red, summer–autumn.</td>
</tr>
<tr>
<td><strong>Fruit/seed:</strong> Achene 6–7 mm long, with pappus 1–3.5 mm long.</td>
</tr>
<tr>
<td><strong>Dispersal, establishment &amp; growth:</strong></td>
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<tr>
<td><strong>Fire response:</strong></td>
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<td><strong>Interaction with other organisms:</strong></td>
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<thead>
<tr>
<th>Distribution</th>
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</thead>
<tbody>
<tr>
<td><strong>Status/origin:</strong> Naturalised exotic, native to Europe.</td>
</tr>
<tr>
<td><strong>Botanical subregions:</strong> CT; Qld, Vic., N.Z.</td>
</tr>
<tr>
<td><strong>Distribution Sydney area:</strong> Carcoar.</td>
</tr>
<tr>
<td><strong>Select locations:</strong> 3 miles from Orange (1968) (only record).</td>
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</table>

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<tr>
<th>Habitat</th>
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<tbody>
<tr>
<td><strong>Habitat:</strong> Roadside.</td>
</tr>
<tr>
<td><strong>Altitude:</strong> 700 m</td>
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<tr>
<td><strong>Typical local abundance:</strong></td>
</tr>
<tr>
<td><strong>Vegetation:</strong> Roadside vegetation.</td>
</tr>
<tr>
<td><strong>Substrate:</strong> Shaley soil.</td>
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<tr>
<td><strong>Exposure:</strong></td>
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<tr>
<th>Conservation</th>
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<tbody>
<tr>
<td><strong>Conservation:</strong> Only record indicates ‘isolated infestation of a few square yards’.</td>
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</table>

**Arctium minus** *

Common Burdock

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<thead>
<tr>
<th>Life history</th>
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<tbody>
<tr>
<td><strong>Growth form:</strong> Herb 0.5–1.5 m high.</td>
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<tr>
<td><strong>Vegetative spread:</strong></td>
</tr>
<tr>
<td><strong>Longevity:</strong> 2 years.</td>
</tr>
<tr>
<td><strong>Primary juvenile period:</strong></td>
</tr>
<tr>
<td><strong>Flowers:</strong> Pink or purplish, summer–autumn.</td>
</tr>
<tr>
<td><strong>Fruit/seed:</strong> Achene 5–7 mm long, with pappus 1–3.5 mm long.</td>
</tr>
<tr>
<td><strong>Dispersal, establishment &amp; growth:</strong></td>
</tr>
<tr>
<td><strong>Fire response:</strong></td>
</tr>
<tr>
<td><strong>Interaction with other organisms:</strong></td>
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</table>
**Arctotheca calendula** *(Cryptostemma calendula)*

Cape Weed, Cape Dandelion

**Growth form:** Herb to 30 cm high.

**Vegetative spread:** No.

**Longevity:** 1 year.

**Primary juvenile period:** Less than 1 year.

**Flowers:** Pale yellow, greenish or purple, September–November.

**Fruit/seed:** Achene 2 mm long with pappus of short scales.

**Dispersal, establishment & growth:** Diaspore: fruit. Wind-dispersed (Carr et al. 1992).

**Fire response:**


**Status/origin:** Naturalised exotic, native to S Africa.

**Botanical subregions:** NC CC SC CT ST NWS CWS SWS NWP SWP NFWP SFWP; Qld, Vic., Tas., N.T., S.A., W.A.

**Distribution Sydney area:** Coast, western Blue Mountains, Southern Highlands (P. Kodela pers. comm.).

**Select locations:** Gosford, Cheltenham, Brighton-le-sands, Cooks River (1912), Coogee, Cabramatta, Casula, Jenolan Caves (1899), Orange, Robertson (P. Kodela pers. comm.).

**Habitat:** Lawns, pastures and cultivated areas.

**Altitude:** 0–1000 m **Annual rainfall:** above 800 mm

**Typical local abundance:** Frequent.

**Vegetation:** Pasture, lawn, edges of bushland.

**Substrate:** Beach sand, roadside gravel. Recorded on saline sites in western NSW (Semple 1993).

**Exposure:** Exposed, full sun.

**Conservation:** Unlikely to invade bushland.
Primary juvenile period:
Flowers: Yellow, most of the year.
Fruit/seeds: Achene 5 mm long, covered with greyish wool, pappus of minute scales.

Fire response:
Interaction with other organisms:

Distribution
Botanical subregions: NC CC SC; Vic., S.A., W.A.

Distribution Sydney area: Coastline, first reported near Newcastle in 1930s (Nelson Bay 1937) and spread south to Brou Lake by 1981 (Heyligers 1983).

Select locations: The Entrance (1946), Marley Beach (1971).

Habitat
Habitat: Unstable littoral habitats, sandy hollows between dunes.
Altitude: 0–20 m
Typical local abundance: Occasional.
Vegetation: Pioneer of beach sand on front dunes with Spinifex sericeus.
Substrate: Beach sand dunes, calcareous and siliceous sand, infertile.
Exposure: Exposed to salt spray, full sun, tolerant of sand blast.

Conservation
Conservation: Suggested for beach stabilisation by Heyligers (1983) as it does not show any tendency to spread beyond the habitats to which it is confined in Africa (i.e. upper beach and mobile dunes) or compete with young native shrubs on the dunes.

Arctotis stoechadifolia *

White Arctotis

Growth form: Spreading herb to 35 cm high.
Vegetative spread: Forms mats.
Longevity: Perennial.
Primary juvenile period:
Flowers: Ray florets white above, mauve below, with a dark band at the base, disc purple-black, August–October.
Fruit/seeds: Achene 3–4 mm long, with pappus of scales 3–4 mm long.

Dispersal, establishment & growth:
Fire response:
Interaction with other organisms:

Distribution
Status/origin: Naturalised exotic, native to S Africa.
Botanical subregions: NC CC CWS; Qld, Vic., Tas., S.A., W.A.

Distribution Sydney area: Northern Illawarra coast.
Select locations: Thirroul (1946), Austinmer (1966).

Habitat
Habitat: Weed of roadsides, beach margins.
Altitude: 0–50 m
Typical local abundance: Isolated clumps.
Vegetation: Beach margins.
Substrate: Sandy soils, infertile.
Exposure:

Conservation: Garden escape unlikely to be spreading generally, though possibly spreading locally.
**Arrhenostchites mixta**

Purple Fireweed

**Growth form:** Herb to 90 cm high.
**Vegetative spread:** No.
**Longevity:** Perennial.
**Primary juvenile period:**
**Flowers:** White, December–March.
**Fruit/seed:** Achene 5–7 mm long with pappus of white bristles 10–15 mm long, mature December–March.
**Dispersal, establishment & growth:** Diaspore: fruit, wind-dispersed.
**Fire response:**
**Interaction with other organisms:**

**Status/source:** Native.
**Botanical subregions:** CC SC NT CT ST; Vic.
**Distribution Sydney area:** Blue Mountains.
**Select locations:** Clarence, Blackheath, Mt Victoria, Mt Wilson, Jenolan Caves, Hilltop, Wingello.

**Habitat:** Mostly in gullies.
**Altitude:** 700–1200 m
**Annual rainfall:** above 900 mm
**Typical local abundance:** Occasional.
**Vegetation:** Eucalypt woodland, ground stratum.
**Substrate:** Sandstone–shale, infertile soil. Watertable mostly low, moisture supply intermittent, fresh.
**Exposure:** Sheltered.

**Conservation:** Conservation status unknown.

---

**Artemisia verlotiorum** *

Chinese Wormwood, Mugwort

**Growth form:** Herb to 1 m, dying back to rootstock annually.
**Vegetative spread:**
**Longevity:** Perennial.
**Primary juvenile period:**
**Flowers:** February–March. Wind and self-pollinated (Ciba-Geigy 1968–).  
**Fruit/seed:** Achene, 1–1.5 mm long, no pappus, mature May.
**Dispersal, establishment & growth:** Diaspore: seed. Water and wind-dispersed (Carr et al. 1992). Germinates in light; moderate–vigorous competitor for space and user of nutrients (Ciba-Geigy 1968–).
**Fire response:**
**Interaction with other organisms:** Formerly used as a medicine, condiment, and for rites; unpleasant scent deters domestic animals; pollen causes hay-fever (Ciba-Geigy 1968–).

**Status/source:** Naturalised exotic, native of SW China.
**Botanical subregions:** NC CC SC NT CT ST CWS SWS SWP; Qld, Vic.
**Distribution Sydney area:** Coast and upper Blue Mountains.
**Select locations:** Manly, Vacluse, Dundas (1911), Beecroft, Katoomba, Lithgow, Wallerawang (1937), Moss Vale.

**Habitat:** Disturbed areas, often in moist sites.
**Altitude:** 0–1100 m
**Annual rainfall:** above 1000 mm
**Typical local abundance:** Frequent.
**Vegetation:** Mid stratum.
**Aster novi-belgii** *

**Life history**

**Growth form:** Herb 0.2–1.4 m high, with long rhizomes.  
**Vegetative spread:** Spreads by creeping root system.  
**Longevity:** Indefinite.  
**Primary juvenile period:**  
**Flowers:** Purplish-blue, January–March.  
**Fruit/seed:** Achene with pappus of bristles.  
**Dispersal, establishment & growth:**  
**Fire response:**  
**Interaction with other organisms:**

**Conservation**

**Status/origin:** Naturalised exotic, native to N America, garden escape.  
**Botanical subregions:** CC CT.  
**Distribution Sydney area:** Sydney suburbs and upper Blue Mountains.  
**Select locations:** Northbridge (1965), Katoomba (1979), Portland (1982).  

**Habitat**

**Habitat:** Moist swamps, gullies and on roadsides.  
**Altitude:** 0–1000 m  
**Typical local abundance:** Occasional.  
**Vegetation:**  
**Substrate:** Sandy soils from sandstone, infertile, moist sites.  
**Exposure:**

**Conservation**

**Occasional garden escape, naturalised near habitation.**

---

**Aster subulatus** *

**Life history**

**Growth form:** Herb 0.3–1.8 m high.  
**Vegetative spread:** No.  
**Longevity:** Annual, biennial or short-lived perennial.  
**Primary juvenile period:** 1 year.  
**Flowers:** White, pink or blue, at any time throughout the year.  
**Fruit/seed:** Achene, 1.5–2 mm long, with pappus of bristles.  
**Dispersal, establishment & growth:** Diaspore: fruit; water, wind, and possibly animal-dispersed (Carr et al. 1992).  
**Fire response:**  
**Interaction with other organisms:**

**Distribution**

**Status/origin:** Naturalised exotic, native to N America.  
**Botanical subregions:** NC CC SC NT CT ST NWS CWS SWS NWP SWP SFWP; LHI, Qld, Vic., S.A., W.A.  
**Distribution Sydney area:** Widespread.  
**Select locations:** Dural, Epping, Sandringham (1902), Kurnell, Milperra, Richmond, Camden, Warrimoo, Wolgan Valley, Kowmung River, Bowral.

**Habitat**

**Habitat:** Riverbanks, swamp edges and roadside drains.  
**Altitude:** 0–800 m  
**Typical local abundance:** Occasional–frequent.  
**Vegetation:** Swamp edges., e.g. with Ludwigia peploides, Paspalum distichum.
**Baccharis halimifolia** *

**Groundsel Bush**

**Growth form:** Shrub 1–6 m high.

**Vegetative spread:**

**Longevity:** Perennial.

**Primary juvenile period:**

**Flowers:** Yellowish, December–May.

**Fruit/seed:** Achene 1–1.7 mm long with pappus of numerous hair-like bristles.

**Dispersal, establishment & growth:** Diaspore: fruit, wind-dispersed.

**Fire response:**

**Interaction with other organisms:** Regarded as poisonous to sheep, suspected of poisoning other stock (Hurst 1942).

**Status/origin:** Naturalised exotic, native to eastern N America.

**Botanical subregions:** NC CC; Qld.

**Distribution Sydney area:** Illawarra coast.

**Select locations:** Wollongong (1982), Shellharbour (1984).

**Habitat:** Near the sea, also in swampy areas, low-lying pasture and disturbed sites.

**Altitude:** 0–50 m

**Annual rainfall:** above 1200 mm

**Typical local abundance:** Occasional.

**Vegetation:** Often behind mangroves, or low-lying pasture.

**Substrate:** Sands, infertile.

**Exposure:** ? full sun.

**Conservation:** Recently recorded for Sydney area, declared noxious weed in some shires.

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**Bidens pilosa** *

**Cobbler's Pegs, Pitch-forks**

**Growth form:** Woody herb to 1.5 m high.

**Vegetative spread:** No.

**Longevity:** 1 year.

**Primary juvenile period:** 18 weeks (P. Kubiak pers. comm.).

**Flowers:** Usually white, throughout the year but mainly March–May.

**Fruit/seed:** Achene with pappus of barbed awns, mature at any time but mainly March–May. Single plant can produce 3000–6000 seeds, 80% still capable of germination after 3–5 years stored in soil (M. Clarke pers. comm.). An indeterminate number capable of germination after more than 30 years (R. Buchanan pers. comm.).

**Dispersal, establishment & growth:** Diaspore: fruit, animal-dispersed (e.g. on human clothing).

**Fire response:** Probably killed, vigorous recruitment from seed after high-intensity fire (1/1994) at Narrabeen; most likely from soil-stored seed (M. Clarke pers. comm.). Mature fruit within 18 weeks of high-intensity fire (1/1994) at Narrabeen and Lane Cove (P. Kubiak pers. comm.).

**Interaction with other organisms:**

**Status/origin:** Naturalised exotic, native to S America. Used medicinally, in Asia, New Guinea, and Polynesia (Cambie & Ash 1994).
Botanical subregions: NC CC SC NT ST NWS CNSW NWP SWP; LHI, Qld, Vic., N.T., S.A., W.A.

Distribution Sydney area: Mainly coastal.

Select locations: Gosford, Palm Beach, Wahroonga, Belrose & Cherrybrook (P. Kodela pers. comm.), Port Jackson (1886), La Perouse, Cabarita, Wollongong, Albion Park, Grose Vale, Ingleburn, Razorback.

Habitat:
Disturbed sites, roadsides.

Altitude: 0–200 m  
Annual rainfall: above 700 mm

Typical local abundance: Frequent.

Vegetation:
With other weeds of frequently disturbed sites.

Substrate:
Clay soils from Wianamatta Shale, sandstones, alluvium, fill etc., any substrate (K. Buchanan pers. comm.), no special requirements for nutrient, moisture etc. (M. Clarke pers. comm.).

Exposure:
Light shade–full sun.

Conservation:
Common weed, in recently or frequently disturbed sites.

Bidens subalterans *
Greater Beggar's Ticks

Growth form:
Woody herb to 1.6 m high.

Vegetative spread:
No.

Longevity:
1 year.

Primary juvenile period:
Less than 1 year.

Flowers:
Yellow, March–April.

Fruit/seed:
Barbed achene, with pappus of barbed awns, mature February–June.

Dispersal, establishment & growth:
Diaspore: fruit, animal-dispersed, e.g. on clothing.

Fire response:
Probably killed; flowering within 12 weeks of high-intensity fire (1/1994) at Lane Cove (P. Kubiak pers. comm.)

Interaction with other organisms:

Status/origin:
Naturalised exotic, native to S America.

Botanical subregions:
NC CC NWS CNSW NWP SWP; Qld.

Distribution Sydney area:
Mainly Western Sydney.

Select locations:
Lindfield (1951), Parramatta, Cattai Creek, Emu Plains, Casula, Camden, Menangle, Albion Park.

Habitat:
Disturbed sites — along railway lines, wasteland, roadsides.

Altitude: 0–200 m  
Annual rainfall: 700–1000 mm

Typical local abundance:
Common.

Vegetation:
With other weeds, e.g. Bidens pilosa, Sida rhombifolia.

Substrate:
Sandy soils, consolidated sand dune, infertile.

Exposure:

Conservation:

Bidens tripartita *
Burr Marigold

Growth form:
Woody herb to 1 m high.

Vegetative spread:

Longevity:

Primary juvenile period:

Flowers:
Yellow, March–May.

Fruit/seed:
Barbed achene, 4–8 mm long, with pappus of barbed awns 2–4 mm long, mature March–May.

ASTERACEAE

Life history
Dispersal, establishment & growth: Diaspore: fruit, animal-dispersed.
Fire response: Probably killed; flowering and fruiting within 15 weeks of high-intensity fire (1/1994) at Lane Cove (P. Kublack pers. comm.).
Interaction with other organisms:

Status/origin: Naturalised exotic, native to Europe.
Botanical subregions: NC CC SC NT CT ST; Vic.
Distribution Sydney area: Mainly coastal.
Select locations: Centennial Park, Macquarie Pass, Bellawongarah, (1904), Cambewarra, Bowral, Wingecarribee Swamp (P. Kodela pers. comm.).

Habitat: Swampy ground, damp pasture (P. Kodela pers. comm.).
Altitude: 0–700 m
Annual rainfall: above 1200 mm
Typical local abundance: Frequent.
Vegetation: Margin of swamps.
Substrate: Moist sites, poorly-drained.
Exposure:
Conservation:

Brachycome aculeata

Hill Daisy

Growth form: Herb to 60 cm high. Populations vary in shape of leaves and branching of inflorescence.
Vegetative spread:
Longevity: Perennial.
Primary juvenile period:
Flowers: White–mauve, September–May.
Fruit/seed: Achene, flattened, 3–4 mm long, with pappus a small tuft of bristles 0.3 mm long.
Dispersal, establishment & growth: Diaspore: fruit.
Fire response:
Interaction with other organisms: Palatable to rabbits (Leigh et al. 1987).

Status/origin: Native.
Botanical subregions: NC CC SC NT CT ST NWS NWP; Qld, Vic., Tas., S.A.
Distribution Sydney area: Mostly Bathurst to Taralga, early records from Sydney area.
Select locations: Palm Beach (1916), Parramatta (von Mueller), Richmond (1913), Richlands, Black Range, Jenolan Caves, Jenolan SF, Bathurst, Wombeyan Caves, Mittagong, Barbers Creek (1899). (Some material on loan.)

Habitat: Roadside.
Altitude: 0–1000 m
Annual rainfall: above 600 mm
Typical local abundance:
Vegetation: Grassland, ground stratum.
Substrate: Well drained to dry sites.
Exposure:
Conservation: Conservation status unknown.
**Brachycome angustifolia** var. *angustifolia*  ASTERACEAE

**Growth form:** Stoloniferous, ascending herb to 35 cm high; leaves entire.

**Vegetative spread:** Stoloniferous.

**Longevity:** Indefinite, stolons up to 10 cm long forming new plants; vegetative production of new plants may allow continued replacement as old plants die.

**Primary juvenile period:**

**Flowers:** Pink, blue or mauve, November–March.

**Fruit/seed:** Achene, flattened 2 mm long, pappus 0.4 mm long.

**Dispersal, establishment & growth:** Diaspore: fruit.

**Fire response:** Possibly resprouts from stolons. Flowering within 11 weeks and fruiting within 16 weeks of high-intensity fire (1/1994) at Lane Cove (P. Kubiak pers. comm.).

**Interaction with other organisms:**

**Status/origin:** Native.

**Botanical subregions:** CC SC NT CT ST NWS; Vic., Tas., S.A.

**Distribution Sydney area:** Coast and western Sydney, Blue Mountains.

**Select locations:** Warnervale, Gordon, Ermington, Duck River, Cronulla, Appin, Douglas Park, Llandilo, Lidsdale, Katoomba, Kowmung River, Bowral. (Some material on loan.)

**Habitat:**

**Altitude:** 0–1000 m  
**Annual rainfall:** above 700 mm

**Typical local abundance:** Occasional.

**Vegetation:** Moist–dry eucalypt open-forest. Ground stratum.

**Substrate:** Clay soils from shales, also sandstone. Fertile soil. Watertable mostly low, moisture supply intermittent, fresh.

**Exposure:** Sheltered.

**Conservation:** Conserved in Western Sydney (Benson & McDougall 1991), conservation status elsewhere unknown.

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**Brachycome angustifolia** var. *heterophylla*  ASTERACEAE

**Growth form:** Stoloniferous, ascending herb to 35 cm high, leaves pinnatisect to deeply toothed.

**Vegetative spread:** Stoloniferous.

**Longevity:** Indefinite.

**Primary juvenile period:**

**Flowers:** Pink, blue or mauve, November–March.

**Fruit/seed:** Achene, flattened, 2 mm long, pappus of bristles, 0.4 mm long.

**Dispersal, establishment & growth:** Diaspore: fruit.

**Fire response:**

**Interaction with other organisms:**

**Status/origin:** Native.

**Botanical subregions:** NC CC SC NT CT ST NWS CWS SWS; Vic.

**Distribution Sydney area:** Mainly western Blue Mountains and southern Highlands.

**Select locations:** North of Windsor, Toongabbie (1859), El Dorado, Mt Costigan, Abercrombie Caves, Stingray Swamp, Wingecarribee Swamp, Joadja. (Some material on loan.)

**Habitat:** Eucalypt open-forest.

**Altitude:** 0–1000 m  
**Annual rainfall:** above 800 mm

**Typical local abundance:**

**Vegetation:** Eucalypt open-forest.

**Substrate:** Possibly associated with swampy soils.

**Exposure:**

**Conservation:** Conservation status unknown.
**Brachycome decipiens**

**Field Daisy**

*ASTERACEAE*

**Growth form:** Herb to 20 cm high.

**Vegetative spread:**

**Longevity:** Perennial.

**Primary juvenile period:**

**Flowers:** Pale blue, September–November.

**Fruit/seed:** Achene 3 mm long, with minute pappus.

**Dispersal, establishment & growth:**

**Fire response:**

**Interaction with other organisms:** Palatable to rabbits (Leigh et al. 1987).

**Distribution**

**Status/origin:** Native.

**Botanical subregions:** CT ST; Vic., Tas.

**Distribution Sydney area:** Chiefly south from Braidwood area (Harden 1992).

**Select locations:** Jenolan Caves (1899). (Some material on loan.)

**Habitat**

**Habitat:**

**Altitude:** 800 m

**Annual rainfall:** 1000 mm

**Typical local abundance:**

**Vegetation:** Subalpine and montane woodland and swamps (Harden 1992).

**Substrate:**

**Exposure:**

**Conservation:** Conservation status unknown.

**Brachycome diversifolia** var. *dissecta* 

**Large-headed Daisy**

*ASTERACEAE*

**Growth form:** Herb to 45 cm high; leaves 2-pinnatisect.

**Vegetative spread:**

**Longevity:** Perennial.

**Primary juvenile period:**

**Flowers:** White-mauve, June–December.

**Fruit/seed:** Achene 2–3 mm long, with pappus of hairs 0.5 mm long, mature February.

**Dispersal, establishment & growth:**

**Fire response:**

**Interaction with other organisms:**

**Distribution**

**Status/origin:** Native.

**Botanical subregions:** NT CT NWS NWP; Qld.

**Distribution Sydney area:** Western Blue Mountains.

**Select locations:** Ryilstone (1938), Katoomba (1932). (Some material on loan.)

**Habitat**

**Habitat:** Rocky outcrops.

**Altitude:** 700–1000 m

**Annual rainfall:** above 900 mm

**Typical local abundance:**

**Vegetation:** Ground stratum.

**Substrate:** Soil pockets in depressions of rocky outcrops.

**Exposure:**

**Conservation:** Southern limit Katoomba; possibly rare. Conservation status unknown.
**Brachycome diversifolia** var. *diversifolia*  
**ASTERACEAE**

**Life history**

**Growth form:** Herb to 45 cm high; leaves 1-pinnatisect.

**Vegetative spread:**

**Longevity:** Perennial.

**Primary juvenile period:**

**Flowers:** White–mauve, November–April.

**Fruit/seed:** Achene 2–3 mm long, with pappus of hairs 0.5 mm long.

**Dispersal, establishment & growth:**

**Fire response:**

**Interaction with other organisms:**

**Distribution**

**Status/origin:** Native.

**Botanical subregions:** NT CT ST SWS; Tas., S.A.

**Distribution Sydney area:** Western Blue Mountains.

**Select locations:** Capertee, Zig Zag, Blackheath, Mt Victoria, Sunny Corner. (Some material on loan.)

**Habitat:** Damp rocky areas.

**Altitude:** 700–1000 m  
**Annual rainfall:** above 900 mm

**Typical local abundance:**

**Vegetation:** Ground stratum.

**Substrate:** Sandy soil — damp rocky areas.

**Exposure:**

**Conservation:** Conservation status unknown.

---

**Brachycome formosa**  
**ASTERACEAE**

**Life history**

**Growth form:** Rhizomatous herb to 15 cm high. Chromosome number n = 9 (Short 1988).

**Vegetative spread:** Possibly.

**Longevity:** Perennial.

**Primary juvenile period:**

**Flowers:** Pink, September–November.

**Fruit/seed:** Achene 2–3 mm long, wing narrow, with slightly inflated, pappus 0.2 mm long. Observations of low seed set in cultivated specimens suggests self-incompatibility (Short 1988).

**Dispersal, establishment & growth:** Diaspore: fruit.

**Fire response:**

**Interaction with other organisms:**

**Distribution**

**Status/origin:** Native.

**Botanical subregions:** CT NWS CW5.

**Distribution Sydney area:** Bathurst area.

**Select locations:** Bathurst–Grattai Rd (1953), high mountains near Mudgee (1872) (Short 1988). (Some material on loan.)

**Habitat:** In grass along roadside, on sandstone ridges (Short 1988).

**Altitude:**

**Annual rainfall:**

**Typical local abundance:**

**Vegetation:** Dry eucalypt open-forest and woodland with sparse shrub understory. Under *Angophora floribunda* (Short 1988).

**Substrate:**

**Exposure:**

**Conservation:** Rare, conservation status unknown.
**Brachycome graminea**

**Growth form:** Stoloniferous herb to 70 cm high.
**Vegetative spread:** Stoloniferous.
**Longevity:** Perennial.
**Primary juvenile period:**
**Flowers:** Blue–violet, December–February.
**Fruit/seed:** Achene 2 mm long, no pappus.
**Dispersal, establishment & growth:**
**Fire response:**
**Interaction with other organisms:**

**Status/origin:** Native.
**Botanical subregions:** CC SC NT CT ST; Qld, Vic., Tas., S.A.
**Distribution Sydney area:** Western Blue Mountains, also Razorback.
**Select locations:** Razorback, Blackheath, Newnes Junction, Capertee, Gardiners Gap, Bathurst, Blayney. (Some material on loan.)

**Habitat:** Swampy ground.
**Altitude:** 0–1000 m
**Annual rainfall:** above 700 mm
**Typical local abundance:** Frequent.
**Vegetation:** Eucalypt woodland, shrub swamps.
**Substrate:** Swampy ground on shale and sandstone. Soil fertile–infertile, watertable mostly high, non-saline.
**Exposure:** No shade.

**Conservation:** Conservation status unknown.

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**Brachycome heterodonta** var. **heterodonta**

**Growth form:** Erect herb to 50 cm high.
**Vegetative spread:**
**Longevity:** Perennial.
**Primary juvenile period:**
**Flowers:** White or bluish, September–December.
**Fruit/seed:** Achene, flattened 3–4 mm long, pappus 0.7 mm long.
**Dispersal, establishment & growth:** Diaspore: fruit. Short distance wind-dispersed, probably also dispersed by water.
**Fire response:** Probably reshoots from rhizome.
**Interaction with other organisms:**

**Status/origin:** Native.
**Botanical subregions:** NC NT CT ST NWS CWS SWS NWP SWP NFWP SFWP; Qld, Vic., S.A.
**Distribution Sydney area:**
**Select locations:** Bathurst to Sofala (1910). (Some material on loan.)

**Habitat:**
**Altitude:**
**Annual rainfall:**
**Typical local abundance:**
**Vegetation:** Ground stratum.
**Substrate:**
**Exposure:**

**Conservation:** Conservation status unknown.
**Brachycome microcarpa**

**ASTERACEAE**

**Growth form:** Herb to 58 cm high.
**Vegetative spread:**
**Longevity:** Perennial.
**Primary juvenile period:**
**Flowers:** White or bluish, September–February.
**Fruit/seed:** Achene 1–2 mm long with glandular hairs, pappus of white bristles 0.1 mm long.

**Dispersal, establishment & growth:**

**Fire response:**

**Interaction with other organisms:**

**Status/origin:** Native.
**Botanical subregions:** NC NT CT NWS; Qld.
**Distribution Sydney area:**
**Select locations:** Littleton (1893), Abercrombie Caves (1951). (Specimens on loan.)

**Habitat**

**Altitude:** 600–1000 m  
**Annual rainfall:** 900 mm

**Typical local abundance:**
**Vegetation:** Open-forest.
**Substrate:** Well-drained sites.
**Exposure:**

**Conservation:** Conservation status unknown.

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**Brachycome multifida** var. *dilatata*

**ASTERACEAE**

**Cut-leaved Daisy**

**Growth form:** Herb to 45 cm high (leaf segments broad-linear).
**Vegetative spread:**
**Longevity:** 1 year.
**Primary juvenile period:** Less than 1 year.
**Flowers:** Mauve, pink or white, March–October.
**Fruit/seed:** Achene 2 mm long, pappus of spreading bristles 0.1 mm long.

**Dispersal, establishment & growth:**

**Fire response:**

**Interaction with other organisms:**

**Status/origin:** Native.
**Botanical subregions:** NC CC; Vic.
**Distribution Sydney area:** Wisemans Ferry.
**Select locations:** Wisemans Ferry (1908). (Some material on loan.)

**Habitat**

**Altitude:** 0–200 m  
**Annual rainfall:** 800 mm

**Typical local abundance:**
**Vegetation:** Sclerophyll forest. Ground stratum.
**Substrate:**
**Exposure:**

**Conservation:** Conservation status unknown.
**Brachycome multifida** var. *multifida*  
Cut-leaved Daisy  

**ASTERACEAE**  

**Life history**  

**Growth form:** Herb to 45 cm high.  

**Vegetative spread:** Sprawling stems capable of layering (L. McD.)  

**Longevity:** Annual.  

**Primary juvenile period:** Less than 1 year.  

**Flowers:** Mauve, pink or white, September–June.  

**Fruit/seed:** Achene 2 mm long, with pappus of spreading bristles 0.1 mm long.  

**Dispersal, establishment & growth:** [Easily grown from cuttings (L. McD.)]  

**Fire response:** Interaction with other organisms:  

**Distribution**  

**Status/origin:** Native.  

**Botanical subregions:** NC CC NT CT NWS CWS NWP SWP SFWP; Qld, Vic.  

**Distribution Sydney area:** Western Sydney, Minnamurra, Bathurst.  

**Select locations:** Maroota, Windsor, Minnamurra Falls, Bathurst, Mt Wargdon. (Some material on loan.)  

**Habitat**  

**Altitude:** 0–1000 m  

**Annual rainfall:** above 700 m  

**Typical local abundance:** Frequent.  

**Vegetation:** Sclerophyll forest or grassland (e.g. with *Eucalyptus piperita* at Maroota).  

**Ground stratum:**  

**Substrate:** Yellow clay, infertile soil.  

**Exposure:**  

**Conservation:** Conservation status unknown.  

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**Brachycome procumbens**  

**ASTERACEAE**  

**Life history**  

**Growth form:** Stoloniferous, ascending herb to 35 cm high.  

**Vegetative spread:** Stoloniferous.  

**Longevity:** Perennial.  

**Primary juvenile period:**  

**Flowers:** September–March.  

**Fruit/seed:** Achene 2.5 mm long, pappus 0.2 mm long.  

**Dispersal, establishment & growth:** Diaspore: fruit.  

**Fire response:** Interaction with other organisms:  

**Distribution**  

**Status/origin:** Native.  

**Botanical subregions:** NC NT CT NWS CWS; Qld.  

**Distribution Sydney area:** Ben Bullen SF.  

**Select locations:** Ben Bullen SF. (Some material on loan.)  

**Habitat**  

**Altitude:** 800 m  

**Annual rainfall:** 800 mm  

**Typical local abundance:**  

**Vegetation:** Open-forest, e.g. with *Eucalyptus dives* and grassy understorey.  

**Substrate:** Clay loam. Infertile soil. Watertable mostly low, moisture supply intermittent, fresh.  

**Exposure:**  

**Conservation:** Conservation status unknown.
Brachycome ptychocarpa

**Growth form:** Glabrous herb 5–10 cm high. Some plants from the CT differ in being stoloniferous perennial herbs and could represent a new, closely related taxon.

**Vegetative spread:** No, (some plants from CT are stoloniferous).

**Longevity:** Annual, (some plants from CT are perennial).

**Primary juvenile period:**

**Flowers:** Pink, October–April.

**Fruit/seed:** Achene 2 mm long, with broad wings and pappus of bristles 0.2 mm long.

**Dispersal, establishment & growth:**

**Fire response:**

**Interaction with other organisms:**

**Status/origin:** Native.

**Botanical subregions:** NT CT ST CWS; Vic.

**Distribution Sydney area:** Bathurst–Orange

**Select locations:** Kandos, Wattle Flat, Meadow Flat, Glenroy, Springside, Mt Canobolas, Carcoar. (Some material on loan.)

**Habitat:**

**Altitude:** 700–1400 m

**Annual rainfall:** 600–900 mm

**Typical local abundance:** Occasional.

**Vegetation:** Woodland, e.g. with Eucalyptus pulverulenta ground stratum.

**Substrate:** Moist ground, granite. Infertile soil.

**Exposure:**

**Conservation:** Conservation status unknown.

Brachycome rigidula

**Growth form:** Herb to 36 cm high.

**Vegetative spread:**

**Longevity:** Perennial.

**Primary juvenile period:**

**Flowers:** Blue, October–February.

**Fruit/seed:** Achene 2–3 mm long, winged; pappus of hairs 0.2 mm long.

**Dispersal, establishment & growth:**

**Fire response:**

**Interaction with other organisms:** Palatable to rabbits (Leigh et al. 1987).

**Status/origin:** Native.

**Botanical subregions:** NC SC NT CT ST; Qld, Vic., Tas.

**Distribution Sydney area:** Western fringe of the Blue Mountains.

**Select locations:** Mt Walker. (Some material on loan.)

**Habitat:**

**Altitude:**

**Annual rainfall:**

**Typical local abundance:**

**Vegetation:** Woodland with Eucalyptus rossii, E. mannifera, E. dives.

**Substrate:** Well-drained sites, among rocks — quartzites, siltstones.

**Exposure:**

**Conservation:** Conservation status unknown.
Brachycome scapigera

**Growth form:** Erect, glabrous herb to 40 cm high.
**Vegetative spread:**
**Longevity:** Perennial.
**Primary juvenile period:**
**Flowers:** White or mauve, November–March.
**Fruit/seed:** Achene 2–3 mm long, flattened, pappus minute (0.1 mm long).
**Dispersal, establishment & growth:** Diaspore: fruit.
**Fire response:**
**Interaction with other organisms:** Palatable to rabbits (Leigh et al. 1987).

**Status/origin:** Native.
**Botanical subregions:** SC NT CT ST NWS CWS; Qld, Vic.
**Distribution Sydney area:** Southern highlands.
**Select locations:** Jenolan Caves (1899), Wingello (1899), Wingecarribee Swamp (1969).
(Some material on loan.)

**Habitat:** Moist sites.
**Altitude:** 600–1000 m
**Annual rainfall:** 800–1000 mm

**Typical local abundance:**
**Vegetation:** Ground stratum, sclerophyll forest subalpine communities (Burbidge & Gray 1976).
**Substrate:** Moist sites, probably low nutrient sandy sites.
**Exposure:**

**Conservation:** Conservation status unknown.

Brachycome spathulata (Brachycome scapiformis)

**Growth form:** Erect, tufted herb to 60 cm high.
**Vegetative spread:**
**Longevity:** Perennial.
**Primary juvenile period:**
**Flowers:** Pale blue–mauve, rarely white, October.
**Fruit/seed:** Achene 1–3 mm long, pappus has membranous wings and a tuft of bristles 0.2–0.8 mm long.
**Dispersal, establishment & growth:**
**Fire response:**
**Interaction with other organisms:** Palatable to rabbits (Leigh et al. 1987).

**Status/origin:** Native.
**Botanical subregions:** SC NT ST CT CWS SWS; Vic., Tas.
**Distribution Sydney area:** Bathurst–Orange, Shoalhaven Heads.
**Select locations:** Hartley Vale, Mullions Range, Gurnang SF, Wombeyan Caves, Berrima, Shoalhaven Heads. (Some material on loan.)

**Habitat:** Open areas.
**Altitude:** 0–1000 m
**Annual rainfall:** above 1000 mm

**Typical local abundance:** Frequent.
**Vegetation:** Eucalypt woodland, e.g. *Eucalyptus macrorhyncha*. Ground stratum.
**Substrate:** Heavy red and brown clay soils; quartzitic soils.
**Exposure:**

**Conservation:** Conservation status unknown.
Brachycome stuartii

**Growth form:** Erect, tufted herb to 25 cm high.
**Vegetative spread:**
**Longevity:** Perennial.
**Primary juvenile period:**
**Flowers:** White, mauve or pale blue, April–November.
**Fruit/seed:** Achene 1–2 mm long with pappus of bristles 0.1 mm long.
**Dispersal, establishment & growth:**
**Fire response:**
**Interaction with other organisms:**

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**Distribution**

**Status/origin:** Native.
**Botanical subregions:** NC NT CT NWS; Qld.
**Distribution Sydney area:** North from Bathurst.
**Select locations:** Trunkey (1918). (Some specimens on loan.)

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**Habitat**

**Habitat:** Swampy ground.
**Altitude:**
**Typical local abundance:** Frequent.
**Vegetation:**
**Substrate:**
**Exposure:**

**Conservation**

**Conservation:** Conservation status unknown.

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Bracteantha bracteata (Helichrysum bracteatum)

Golden Everlasting

**Growth form:** Herb to 1 m high with shallow root system. A variable complex that requires investigation (Harden 1992).
**Vegetative spread:** No.
**Longevity:** Short. Usually annual.
**Primary juvenile period:**
**Flowers:** Yellow or straw-coloured flowers, June–March, peak January.
**Fruit/seed:** Achene 1 mm long, with pappus of bristles 4 mm long.
**Dispersal, establishment & growth:** Diaspore: fruit, wind-dispersed. Seedling recruitment fire or disturbance related.
**Fire response:** Probably killed.
**Interaction with other organisms:** Host to Root Knot Nematode Meloidogyne incognita, causes irregular swellings and galls on roots resulting in stunting and/or death of plant (Jones & Elliot 1986).

**Distribution**

**Status/origin:** Native.
**Botanical subregions:** NC CC SC NT CT ST NWS CWS SWS NWP SWP NFWP SFWP; Qld, Vic., Tas., N.T., S.A., W.A.
**Distribution Sydney area:** Coast, Upper Blue Mountains and Southern Highlands.
**Select locations:** Ingleburn, Waterfall, Mt Keira, Berry, Mt Tomah, Rydstone, Jensens Swamp, Wombeyan Caves, Wingecarribee Swamp (P. Kodela pers. comm.), The Gib, Wingello.

**Habitat**

**Habitat:** Various habitats, forest to swamplands or disturbed sites, e.g. roadsides.
**Altitude:** 0–1200 m **Annual rainfall:** above 800 mm
**Typical local abundance:** Frequent.
**Vegetation:** Open-forest, e.g. with Eucalyptus pilularis or shrubby swampland with Restio australis, Empodisma minus.
**Substrate:** Soils from basalt, shale, limestone, rarely sandstone, fertile–very fertile. Also in
peat (P. Kodela pers. comm.). Watertable mostly high, moisture supply intermittent, fresh.

**Exposure:** Sheltered situations; light—no shade.

**Conservation:** Vulnerable in Western Sydney (Benson & McDougall 1991). Conservation status elsewhere unknown.

**Bracteantha viscosa** (Helichrysum viscosum)  
**ASTERACEAE**

**Life history**

**Growth form:** Herb to 1 m

**Vegetative spread:**

**Longevity:** Usually annual.

**Primary juvenile period:** Less than 1 year.

**Flowers:** November—May, peak November.

**Fruit/seed:** Achenes 2 mm long, with pappus of golden bristles; mature February (limited data).

**Dispersal, establishment & growth:** Diaspore: fruit, wind-dispersed.

**Fire response:** Probably killed.

**Interaction with other organisms:**

**Status/origin:** Native.

**Botanical subregions:** NC SC NT CT ST NWS CWS SWP WSP; Qld, Vic ??

**Distribution Sydney area:** Mainly western Blue Mountains.

**Select locations:** Liverpool, Lithgow, Bathurst-Sofala, Mullion Range, Hill Top, The Gib.

**Habitat:** Rock crevices on dry slopes.

**Altitude:** 0–1200 m  
**Annual rainfall:** above 800 mm

**Typical local abundance:** Frequent.

**Vegetation:** Woodland, e.g. with *Stypandra glauca*.

**Substrate:** Rock crevices on dry slopes, volcanic rocks. Soil fertile. Watertable permanently low, moisture supply intermittent, fresh.

**Exposure:** Exposed situations.

**Conservation:** Possibly rare, conservation status unknown.

**Calendula arvensis**

**ASTERACEAE**

**Life history**

**Growth form:** Herb 5–40 cm high.

**Vegetative spread:** No.

**Longevity:** 1 year.

**Primary juvenile period:** Less than 1 year.

**Flowers:** Orange-yellow, November.

**Fruit/seed:** Achenes 1–1.5 mm long, with spines to 5 mm long, no pappus, mature November–January.

**Dispersal, establishment & growth:** Diaspore: fruit, probably animal-dispersed.

**Fire response:**

**Interaction with other organisms:**

**Status/origin:** Naturalised exotic, native to Mediterranean region.

**Botanical subregions:** CC NT CT CWS SWP WSP SWFP; Qld, Vic., Tas., S.A.

**Distribution Sydney area:** Western Sydney, Orange.

**Select locations:** Smithfield (1919), Seven Hills (1920), South Orange (1975).

**Habitat:** Weed of orchards.

**Altitude:** 0–1000 m  
**Annual rainfall:** 800–1000 mm
**Calendula officinalis** *

**ASTERACEAE**

**Life history**

**Growth form:** Herb 15–50 cm high.

**Vegetative spread:** No.

**Longevity:** 1 year.

**Primary juvenile period:** Less than 1 year.

**Flowers:** Yellow, May–Dec.

**Fruit/seed:** Achenes 2.5 mm long, no pappus (150 seeds per gram).

**Dispersal, establishment & growth:** Dispersal: achene, no dormancy.

**Fire response:** Probably killed.

**Interaction with other organisms:** Susceptible to Calendula Rust (Rowell 1970).

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**Calendula palaestina** *

**ASTERACEAE**

**Life history**

**Growth form:** Herb 20–40 cm high.

**Vegetative spread:** No.

**Longevity:** 1 year.

**Primary juvenile period:** Less than 1 year.

**Flowers:** Light yellow, spring.

**Fruit/seed:** Achenes 2.5–4 mm long, no pappus.

**Dispersal, establishment & growth:**

**Fire response:**

**Interaction with other organisms:**
**Substrate:**
**Exposure:**

**Conservation:** Rarely naturalised (Harden 1992).

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**Calocephalus citreus**

**ASTERACEAE**

Lemon Beauty-heads

**Growth form:** Herb, erect from tufted base, 15–60 cm high.

**Vegetative spread:**

**Longevity:** Perennial.

**Primary juvenile period:**

**Flowers:** Bright golden yellow, late spring–autumn (Harden 1992).

**Fruit/seed:** Achene 0.7–0.9 mm long, with pappus of bristles.

**Dispersal, establishment & growth:**

**Fire response:**

**Interaction with other organisms:**

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**Status/origin:** Native.

**Botanical subregions:** NC NT CT ST CWS SWS SWP; Qld, Vic., Tas., S.A.

**Distribution Sydney area:** Probably in western part of the area.

**Select locations:** Specimens unavailable.

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**Habitat:**

**Altitude:**

**Typical local abundance:** Rarely abundant (Harden 1992).

**Vegetation:** Grassland or woodland (Harden 1992).

**Substrate:** Clay or loam soils (Harden 1992). Recorded on saline sites in western NSW (Semple 1993).

**Exposure:**

**Conservation:** Status unknown.

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**Calomeria amaranthoides** (*Humea elegans*)

**ASTERACEAE**

Incense Plant

**Growth form:** Quick-growing herb to 2 m high, with woolly stem and sticky, aromatic leaves.

**Vegetative spread:** No.

**Longevity:** 2 years

**Primary juvenile period:**

**Flowers:** December–April, insect-pollinated?

**Fruit/seed:** Achene, no pappus, mature March–April.

**Dispersal, establishment & growth:** Diaspore: fruit, ? limited local dispersal, water-dispersed? Growth rate quick. Coloniser.

**Fire response:** Probably killed, recruitment from ? soil-stored seed, grows vigorously after fire.

**Interaction with other organisms:**

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**Status/origin:** Native.

**Botanical subregions:** NC CC SC CT; Vic.

**Distribution Sydney area:** Blue Mountains, Hawkesbury River (rare).

**Select locations:** Rhodes (1888), Penshurst (1894), Loftus, Minto, Douglas Park, Mt Keira, Burragorang Valley, Berambing, Mt Tomah, Mt Wilson, Wingello.

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**Habitat:** River flats, creekbanks, gullies, roadsides.
Calotis cuneifolia
Purple Burr-daisy

Growth form: Erect, sometimes prostrate, herb to 60 cm high.
Vegetative spread: No.
Longevity: Perennial.
Primary juvenile period:
Flowers: White or lilac, August–May, peak September–October.
Fruit/seed: Achene, flattened, 1–2 mm long, surmounted by 2 erect barbed spines 1–4 mm long, forming a burr. Mature October–May.
Dispersal, establishment & growth: Diaspore: fruit, animal-dispersed. In western NSW, growth commences from seed or recommences from old plants in autumn and provided soil moisture is available plants grow well into summer (Cunningham et al. 1981).
Fire response: Probably killed.
Interaction with other organisms: Grazed by stock (Cunningham et al. 1981).

Status/origin: Native.
Botanical subregions: NC CC SC NT CT ST NWS CWS SWS NWP SWP NFNP SFNP;
Qld, Vic., N.T., S.A.
Distribution Sydney area: Western Sydney, Blue Mountains.
Select locations: Hornsby, Rookwood, Chester Hill, Marsden Park, Berkshire Park, St Marys, Nortons Basin, Lapstone, Warrimoo, Blackheath, Clarence.

Habitat: Woodland.
Altitude: 0–1300 m 
Annual rainfall: 600–1200 mm
Typical local abundance: Occasional–frequent.
Vegetation: Eucalypt woodland with Melaleuca nodosa understorey or Melaleuca scrub.
Substrate: Clay soils from Wianamatta Shale, also Tertiary alluvium and occasionally on sandstone, moderate fertility. Watertable mostly low.
Exposure:

Conservation: Inadequate, most habitat is under threat.

Calotis dentex
White Daisy Burr

Growth form: Hairy herb to 80 cm high.
Vegetative spread: No.
Longevity: Perennial.
Primary juvenile period:
Flowers: White, conspicuous, November–April.
Fruit/seed: Achene 2 mm long, with barbed awns 4–6 mm long, forming a burr. Matures December–April.
Dispersal, establishment & growth: Diaspore: fruit, probably animal-dispersed.
Fire response:
Interaction with other organisms:

Status/origin: Native.
Botanical subregions: NC CC NT CT NWS; Qld.
Distribution Sydney area: Mainly along Nepean (sporadically from Bargo–Richmond) and Georges River (Glenfield, East Hills) with some outlying populations.
Select locations: Howes Valley, Richmond, Ingleburn, Homebush, Glenfield, Picton, Bargo, Yerranderie, Fitzroy Falls, Albion Park, Meryla.

Habitat: Creek banks, lower hillslopes.
Altitude: 0–600 m
Typical local abundance: Occasional–frequent.
Vegetation: Forests and grassy woodlands, e.g. with dense Bursaria thicket.
Substrate: Loamy soils, moderate to high fertility alluvium or adjacent hill sides on sandstone and shale, possibly needs good soils for initial establishment and growth.
Exposure: Mid–light shade.


Calotis glandulosa
ASTERACEAE

Growth form: Herb to 30 cm high.
Vegetative spread:
Longevity: Perennial.
Primary juvenile period:
Fruit/seed: Achene 1–2 mm long, with barbed awns 1–5 mm long, forming burr.
Dispersal, establishment & growth: Diaspore: fruit, probably animal dispersed.
Fire response:
Interaction with other organisms:

Status/origin: Native.
Botanical subregions: SC CT ST CWS.
Distribution Sydney area: Only record is Duckmaloi (1935).
Select locations: Duckmaloi (1935).

Habitat:
Altitude: 1100 m
Annual rainfall: 900 mm
Typical local abundance: Very rare.
Vegetation: Grasslands and open-forest.
Substrate:
Exposure:

Conservation: Rare.

Calotis hispidula
ASTERACEAE

Growth form: Prostrate or ascending herb with small yellow flowers, to 25 cm high, sometimes forming a dense mat.
Vegetative spread: No.
Longevity: Annual.
Primary juvenile period:
Flowers: Yellow, August (October).
Fruit/seed: Achene 1–2 mm long, with barbed awns 1.5–2.5 mm long, forming burr. Mature August–October.

Dispersal, establishment & growth: Diaspore: fruit, animal-dispersed (e.g. clothing, wool). In western NSW, a cool season annual, mainly growing on floodplains after floodwaters have receded, or following heavy winter rains (Cunningham et al. 1981).

Fire response:
Interaction with other organisms: Palatable to stock during early growth.

Distribution

Status/origin: Native.
Botanical subregions: NC CC NWS CWS SWS NWP SWP NFWP SFWP; mainland States.
Distribution Sydney area: Western Sydney.
Select locations: Cowan (1921), Parramatta (1887), Flemington, Richmond (1910), Blacktown (1910), Bringelly (1912).

Habitat

Habitat: Dry situations. Recorded beside railways, saleyards, in lawns.
Altitude: 0–200 m
Annual rainfall: 600–1100 mm
Typical local abundance: Occasional.
Vegetation: Grasslands, open-forests, roadsides.
Substrate: Probably well drained clay soils. Recorded on saline sites in western NSW (Semple 1993).
Exposure:

 Conservation: A rare species, not conserved.

Calotis lappulacea

Yellow Burr-daisy

Life history

Growth form: Much-branched, hairy herb to 50 cm high with yellow flowers.
Vegetative spread: No.
Longevity: Perennial.
Primary juvenile period:

Flowers: Yellow, throughout the year.
Fruit/seed: Achene 1–1.5 mm long, with barbed awns forming burr with bristles, developed soon after flowering.

Dispersal, establishment & growth: Diaspore: fruit, animal-dispersed.
Fire response:
Interaction with other organisms:

Distribution

Status/origin: Native.
Botanical subregions: NC CC SC NT CT ST NWS CWS SWS NWP SWP; Qld, Vic., Tas., N.T., S.A., W.A.
Distribution Sydney area: Southern Cumberland Plain and lower Blue Mountains.
Select locations: Howes Valley, Epping, Richmond, Bankstown, Glenfield, Bringelly, Camden, Lapstone, Silverdale, Jenolan River, Abercrombie Caves, Goodmans Ford.

Habitat

Habitat: 0–500 m
Annual rainfall: above 600 mm
Typical local abundance: Occasional–frequent.
Vegetation: Grassly woodland, e.g. with Eucalyptus moluccana, E. melliodora, E. albens.
Substrate: Heavy clay soils from Wianamatta Shale or Devonian Limestone Group. Fertile soil. Watertable permanently low, moisture supply intermittent, fresh.
Exposure: No shade–light shade.

Calotis scabiosifolia var. integrifolia  

**Life history**

**Growth form:** Hairy herb to 40 cm high.  
**Vegetative spread:** Spreads by stolons.  
**Longevity:** Indefinite.  
**Primary juvenile period:**  
**Flowers:** White–mauve, October–February.  
**Fruit/seed:** Achene, flattened, 3–4 mm long with 5–6 rigid spines 1–4 mm long.  
**Dispersal, establishment & growth:** Diaspore: fruit, animal-dispersed. In western NSW plants dry off during summer, but may persist in favourable situations (Cunningham et al. 1891).  
**Fire response:**  
**Interaction with other organisms:** Grazed by stock.  

**Status/origin:** Native.  
**Botanical subregions:** CT ST SWS SWP; Vic.  
**Distribution Sydney area:** Bathurst–Orange, Wingello.  
**Select locations:** Known only from old specimens, Wallerawang (1899), Wingello (1913), Orange (1907).  

**Habitat:**  
**Altitude:** 600–1100 m  
**Annual rainfall:** 900–1200 mm  
**Typical local abundance:**  
**Vegetation:** Open woodland and grassland.  
**Substrate:** Probably clay soils.  
**Exposure:**  
**Conservation:** Possibly locally extinct, only known from old records.

Calotis scapigera  

**Life history**

**Growth form:** Herb to 35 cm high.  
**Vegetative spread:** Spreads by stolons to form clumps, sometimes 1 m or more across.  
**Longevity:** Indefinite.  
**Primary juvenile period:**  
**Flowers:** White–lavender, throughout the year.  
**Fruit/seed:** Achene, flattened, about 2 mm long with 4–6 rigid spreading spines 1–4 mm long.  
**Dispersal, establishment & growth:** Diaspore: fruit, animal-dispersed. In western NSW growth occurs at most times of year, but plants may die back during summer–autumn (Cunningham 1981).  
**Fire response:**  
**Interaction with other organisms:** Grazed by stock.  

**Status/origin:** Native.  
**Botanical subregions:** NC CC NT NWS CWS SWS SWP SWP; Qld, Vic., S.A.  
**Distribution Sydney area:** Only known from Concord, possibly chance introduction by stock [West Maitland (1908) outside area].  
**Select locations:** Concord (W. Woolls probably 1860s).  

**Habitat:**  
**Altitude:** 0–50 m  
**Annual rainfall:** 1000 mm  
**Typical local abundance:**  
**Vegetation:**  
**Substrate:** Heavy soils, moist places.  
**Exposure:**  
**Conservation:** Locally extinct.
Carduus nutans subsp. nutans *

Nodding Thistle

Growth form: Herb to 70 cm high with rosettes that often exceed 1 m, and a strong, fleshy taproot (Medd 1984).

Vegetative spread: No, but plants can re-grow from old rootstock (Medd 1984).

Longevity: 2 years. Interference with normal development, e.g. grazing or spraying, causes the plant to behave as a short-lived perennial (Doig et al. 1969).

Primary juvenile period: 1–2 years depending on emergence relative to winter (Medd 1984).

Flowers: Mauve–blue, spring–autumn, but regrowth from old rootstock can flower in winter (Medd 1984). Cold temperatures required to initiate flowering (Doig et al. 1969).

Fruit/seed: Achene 4–5 mm long, with pappus of bristles 15–20 mm long. 250–400 fresh, well-developed seeds per gram (Doig et al. 1969).

Dispersal, establishment & growth: Diaspore: fruit. Short-distance wind-dispersal from parent plant, long-distance dispersal in fodder, movement of vehicles and stock (Medd 1984). Most fresh seeds germinate 14 days after sowing (Doig et al. 1969). Seed germination strongly stimulated by light, suppressed by green pasture cover; short period of innate dormancy in addition to dormancy induced by soil cover allows seed to survive in soil for up to 20 years (Popay 1987). Seedlings emerge in autumn and spring forming rosettes, but require several weeks of low winter temperature to initiate stems for flowering (Medd 1984).

Fire response:

Interaction with other organisms: Aggressive competitor of pastures (Medd 1984). Thistle-head Weevil Rhinocyllus conicus and Seed-head Fly Urophora solstitialis recently introduced for biological control, successfully limiting seed production (CSIRO Department of Entomology, no date).

Status/origin: Naturalised exotic, native to Europe, Asia, N. Africa. Recorded in eastern Australia in late 1940s (Medd 1984), establishment over present range marked by unusual sequence of wet years 1950–1961 (Doig et al. 1969).

Botanical subregions: NT CT ST NWS CWS SWS; Vic., Tas., S.A., W.A.

Distribution Sydney area: Oberon area.

Select locations: Black Springs (1950, only Herbarium record).

Habitat: Cultivated paddocks, sometimes roadsides and riverbanks (Doig et al. 1969).

Altitude: 1000 m

Annual rainfall: 800 mm

Typical local abundance:

Vegetation: Thistle communities in cultivated pastures, roadside and riverbank vegetation mainly with Cirsium vulgare, Onopordum acanthium, Carduus tenuilorum, C. pycocephalus, Silybum marianum (Doig et al. 1969).


Exposure:

Conservation: Proclaimed noxious weed in NSW (Medd 1984). Control can be achieved preventing seed germination by maintaining vegetation cover (Popay 1987).

Carduus pycocephalus *

Slender Thistle

Growth form: Herb to 80 cm high.

Vegetative spread: No.

Longevity: 1 year.

Primary juvenile period: Less than 1 year.

Flowers: Purple-pink, October–November.

Fruit/seed: Achene 4–5 mm long, with pappus of bristles 10–14 mm long, mature November–December.

Fire response:
Interaction with other organisms:

Distribution

Status/origin: Naturalised exotic, native to Europe.
Botanical subregions: NC CC SC CT ST NT NWS CWS SWS SWS NWP SWP; Qld, Vic., Tas., W.A.
Distribution Sydney area: Western Sydney and Bathurst area.
Select locations: Richmond, Liverpool (1909), Mt Annan, Bowral, Bathurst.

Habitat: Pastures, roadsides, wastelands and cultivation.
Altitude: 0–1000 m
Typical local abundance: Occasional.
Vegetation:
Substrate: Clay soil from shales, basalt.
Exposure:

Conservation: Weed of pastures roadsides, wastelands and cultivation.

Carduus tenuiflorus * (Carduus pycnocephalus)
Winged Slender Thistle

ASTERACEAE

Life history

Growth form: Herb 50–150 cm high.
Vegetative spread: No.
Longevity: 1 year.
Primary juvenile period: Less than 1 year.
Flowers: Purple, October–November.
Fruit/seed: Achenes 4–5 mm long, with pappus of bristles 11–13 mm long.
Fire response:
Interaction with other organisms:

Distribution

Status/origin: Naturalised exotic, native to Europe.
Botanical subregions: CC SC NT CT ST NT NWS CWS SWS SWS NWP SWP SFWP; Qld, Vic., Tas., S.A., W.A.
Distribution Sydney area: Bathurst area.
Select locations: Flemington Saleyards (1968), Tarana (1962).

Habitat: Weed of pastures, roadsides, wasteland and cultivation.
Altitude: 0–1000 m
Typical local abundance: Occasional–frequent.
Vegetation:
Substrate:
Exposure:

Conservation: Weed of pastures, roadsides, wasteland and cultivation.

Carthamus lanatus *
Saffron Thistle

ASTERACEAE

Life history

Growth form: Herb to 1 m high.
Vegetative spread: No.
Longevity: 1 year.
Primary juvenile period: Less than 1 year.
Flowers: Yellow–cream with dark veins, late spring–early summer.
Fruit/seed: Achenes 5–6 mm long, with pappus of stiff bristles 7–10 mm long.
Dispersal, establishment & growth: Diaspore: fruit. Animal, water and wind-dispersed (Carr et al. 1992), and as a contaminant in grain, hay and wool. Germinates autumn–early
winter (Parsons 1973). Rosettes form in late spring and erect growth in October. Germinates within 2 years but dormancy can last up to 8 years, most seed that germinates lies in the top 5 cm of soil (Gorham 1986).

**Fire response:**


**Status/origin:** Naturalised exotic, native to Europe, first naturalised in Australia in 1887 (Gorham 1986).

**Botanical subregions:** NC CC SC NT CT ST NWS CWS SWS NWP SWP NFWP SFWP; Qld, Vic., Tas., N.T., S.A., W.A.

**Distribution Sydney area:** Mainly western Sydney.

**Select locations:** Ashfield, Oakville, Penrith, Casula, Campbelltown, Jamberoo, Barralier, Bathurst (1904).

**Habitat:** Wasteland.

**Altitude:** 0–1500 m

**Annual rainfall:** more than 700 mm

**Typical local abundance:** Frequent.

**Vegetation:** Cultivated paddocks.

**Substrate:** Overgrazed paddocks with poor fertility and poor soil structure resulting from too-frequent cropping. Recorded on saline sites in western NSW (Semple 1993).

**Exposure:**

**Conservation:** Its prickly nature restricts stock grazing and reduces carrying capacity. Recognised as weed by Department of Agriculture in 1854 (Gorham 1986). A declared noxious weed in some shires (Harden 1992)

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**Carthamus tinctorius** *

*Safflower*

**ASTERACEAE**

**Life history**

**Growth form:** Herb to 60 cm high. Erect, woody-stemmed, 60–120 cm high with strong taproot to 2 m deep (Colton 1988).

**Vegetative spread:** No.

**Longevity:** 1 year.

**Primary juvenile period:** Less than 1 year.

**Flowers:** Red, orange, yellow, white, winter–summer. Abundant pollen and nectar, attracts bees but the flowers are mostly self-pollinated; individual flowers open for 2–3 days, plants flower 2–3 weeks (Colton 1988).

**Fruit/seed:** Achene 7–8 mm long, pappus absent or minute, matures December–January. Each flower head can produce up to 100 seeds but more commonly 25–50 (Colton 1988). Sharp spines on leaves and bracts of some forms deter predators, e.g. kangaroos (Colton 1988).

**Dispersal, establishment & growth:** Diaspore: fruit. Winter–spring growing, no seed dormancy; development influenced by temperature, early growth slow, several weeks in rosette stage (Colton 1988).

**Fire response:**

**Interaction with other organisms:** Predators include Cutworm caterpillars, green peach aphids, plum aphids (Colton 1988).

**Status/origin:** Exotic, native to Europe. Cultivated in Australia since 1950s as a dryland crop for its oil-yielding seeds; grown for centuries in China, India, the Near East and N Africa mainly for red dye, carthamin, which was extracted from dried and ground petals; widely used to colour food and clothing (Colton 1988).

**Botanical subregions:** CC CWS SWS SWP NFWP; Qld, Vic., Tas., W.A.

**Distribution Sydney area:** Glenfield (1967).
Select locations: Glenfield only record for area.

Habitat: Roadsides, railway line.
Altitude: 0–50 m  
Annual rainfall: 800 mm
Typical local abundance: Rare.
Vegetation:
Substrate: Grows best on neutral–alkaline soil, with good drainage, does not tolerate water-logging; tolerates salinity (Colton 1988).
Exposure:
Conservation: Not likely to be naturalised, localised establishment from spilt grain.

Cassinia aculeata

Dolly Bush

Growth form: Shrub 1-2.5 m high, with rusty hairs on stem.
Vegetative spread: No.
Longevity: Plants up to 36 years old (Lion Is) but no re-establishment in absence of fire or disturbance.
Primary juvenile period:
Flowers: November–March.
Fruit/seed: Achene 0.8 mm long, pappus 2 mm long.
Dispersal, establishment & growth: Diaspore: fruit, probably wind-dispersed.
Fire response: Killed by high-intensity fire (1/1994) at Lane Cove (P. Kubiak pers. comm.).
No seedlings recorded less than 1 year after fire (Purdie 1977).
Interaction with other organisms: Contact with flowering plant causes dermatitis and eye irritation in humans (Hurst 1942).

ASTERACEAE

Life history

Status/origin: Native.
Botanical subregions: NC CC SC CT ST CWS SWS SWP; Vic., S.A., Tas.
Distribution Sydney area: Coast and Mountains.
Select locations: Budgewoi, Woy Woy, Berowra, Como, Menangle, Kurrajong Heights, Woodford, Mt Victoria, Clarence, Kanangra, Hilltop, Bundanoon.

Cassinia arcuata

Sifton Bush, Chinese Shrub

Growth form: Shrub up to 2 m high, with short taproot and numerous stout lateral roots to 30 cm deep (Parsons & Cuthbertson 1992).
Vegetative spread: No.
Longevity: Probably 10–20 years.
Primary juvenile period: 2–3 years (Parsons & Cuthbertson 1992).
Flowers: March–April.
Fruit/seed: Achene, 0.8 mm long with pappus of bristles 2 mm long, mature March–April.
Dispersal, establishment & growth: Diaspore: fruit, wind-dispersed. Germination in winter. Non-dormant fraction 60–80 % at 1 year old, 0.3 % at 15 years. Coloniser of bare
sites. Seedlings established on soil surface, and reached 60 mm in height after 3 months. May reach 600 mm in the first year in favourable sites. Seedlings are unpalatable to stock. Plants reach 2 m in height in 5–10 years (Campbell et al. 1990) (McGowen et al. 1990). Drought-resistant.

**Fire response:** Plants killed, followed by seedling recruitment.

**Interaction with other organisms:** Unpalatable to stock and may compete with pasture species. "Chinese Shrub" originates from its use as roofing material by Chinese on the Victorian Goldfields in the 1850s (Parsons 1973).

**Cassinia aureonitens**

**Growth form:** Shrub 2-3 m high.

**Vegetative spread:**

**Longevity:**

**Primary juvenile period:**

**Flowers:** Cream-yellow, November–March, peak November–December.

**Fruit/seed:** Achene 0.5 mm long, with pappus of bristles 2 mm long.

**Dispersal, establishment & growth:** Diaspore: fruit, wind-dispersed.

**Fire response:** Probably killed.

**Interaction with other organisms:**

**Distribution**

**Status/origin:** Native.

**Botanical subregions:** NC CC SC CT.

**Distribution Sydney area:** Coast and Mountains.

**Select locations:** Wollombi, Wisemans Ferry, Mooney Mooney Creek, Cheltenham, Cooks River, Kurrajong Heights, Mt Wilson, Yerranderie, Thirlmere, Albion Park.

**Habitat:** Forest and woodland on hillsides and gullies.

**Altitude:** 0–1000 m **Annual rainfall:** above 800 mm

**Typical local abundance:** Frequent–occasional.

**Vegetation:** Mid-stratum, forest and woodland, e.g. with *Eucalyptus sclerophylla*, *E. piperita*, *E. quadrangulata*, with shrubby understorey, rarely in heath.

**Substrate:** Sandstone, shale, basalt, fertile–infertile. Watertable mostly low, moisture supply intermittent, non-saline.

**Exposure:** Sheltered sites, mid-shade.

**Conservation:** Vulnerable in Western Sydney (Benson & McDougall 1991), conservation status elsewhere unknown.
## Cassinia compacta

**ASTERACEAE**

**Life history**

**Growth form:** Woody shrub 2–3 m high.

**Vegetative spread:**

**Longevity:**

**Primary juvenile period:**

**Flowers:** Yellow, spring–summer.

**Fruit/seed:** Achene 0.5 mm long, pappus of bristles 2 mm long.

**Dispersal, establishment & growth:** Diaspore: fruit, wind-dispersed.

**Fire response:** Probably killed.

**Interaction with other organisms:**

**Status/origin:** Native.

**Botanical subregions:** NC CC NT CT CWS; Qld.

**Distribution Sydney area:** Mainly coast, localised.

**Select locations:** Colo Heights, Mt White, Cowan Creek, Lithgow, Fitzroy Falls.

**Habitat**

**Habitat:** Steep sheltered slopes.

**Altitude:** 0–1000 m  
**Annual rainfall:** above 800 mm

**Typical local abundance:**

**Vegetation:** Mid-stratum, eucalypt forest, edge of rainforest.

**Substrate:** Sandstone with shale influence, infertile soil. Watertable mostly low, moisture supply intermittent.

**Exposure:** Sheltered sites, mid-shade.

**Conservation:** Uncommon, southern limit Fitzroy Falls.

## Cassinia cunninghamii

**ASTERACEAE**

**Life history**

**Growth form:** Shrub to 1–1.5 m high, stem woolly with greyish-white hairs. Leaves have a spicy liquorice aroma when crushed (P. Hind pers. comm.).

**Vegetative spread:** No.

**Longevity:**

**Primary juvenile period:**

**Flowers:** Yellow, December–February.

**Fruit/seed:** Achene, 0.5 mm long, with pappus of bristles 1.5 mm long.

**Dispersal, establishment & growth:** Diaspore: fruit, wind-dispersed. Can establish from seed in absence of disturbance possibly due to tolerance of shade and drought (Ladd 1988). Medium growth rate.

**Fire response:** Killed, established from widely dispersed propagules (Ladd 1988).

**Interaction with other organisms:** Seed eaten by Crimson Rosella Platycercus elegans (Lepski 1993).

**Distribution**

**Status/origin:** Native.

**Botanical subregions:** NC CC SC CT CWS.

**Distribution Sydney area:** Colo River and north-west of area.

**Select locations:** Mt Monundilla, Boorai Ridge, Colo Heights, St Albans, Mount Manning, Copes Mountain, Newnes Plateau.

**Habitat**

**Habitat:** Eucalypt open-forest on sandstone.

**Altitude:** 0–1000 m  
**Annual rainfall:** 700–1000 mm

**Typical local abundance:** Frequent–occasional.

**Vegetation:** Eucalypt open-forest, e.g. with Eucalyptus crebra, *E. punctata*, *E. paniculata* and dry shrubby understorey, e.g. with Dodonea triquetra, Oxyolobium ilicifolium, Acacia terminalis.
Substrate: Sandstone with shale influence. Intolerant of waterlogging.

Conservation: Conservation status unknown.

Cassinia denticulata

ASTERACEAE

Life history

Growth form: Shrub 0.7–2 m high.
Vegetative spread:
Longevity:
Primary juvenile period:
Fruit/seed: Achene, 0.6 mm long, with pappus of bristles 2 mm long.
Dispersal, establishment & growth: Diaspore: fruit, probably wind-dispersed.
Fire response: Killed by high-intensity fire (1/1994) at Lane Cove, no seedlings seen (P. Kubiak pers. comm.). Flowered in area (at KCNP) burnt 3 years previously.
Interaction with other organisms:

Distribution

Status/origin: Native.
Botanical subregions: CC CT.
Distribution Sydney area: Coast and Blue Mountains.
Select locations: Buckety, Berowra, St Ives, Bradleys Head, Woronora River, Bulli Pass, Kurrajong Heights, Blackheath, Newnes SF, Hilltop, Fitzroy Falls.

Habitat: Hillsides and gullies.
Altitude: 0–1000 m
Annual rainfall: above 1000 mm
Typical local abundance: Frequent–occasional.
Vegetation: Mid-stratum, forest and heath with shrubby understorey, e.g. with Eucalyptus gunnifera, E. piperita, E. sieberi, E. capitata or Angophora costata.
Substrate: Sandy, infertile soils from sandstone. Watertable mostly low, moisture supply intermittent, non-saline.
Exposure: Sheltered sites.

Conservation: Endemic to Sydney area, conservation status unknown.

Cassinia laevis

ASTERACEAE

Life history

Growth form: Shrub to 3 m high with white-woolly stems.
Vegetative spread:
Longevity:
Primary juvenile period:
Fruit/seed: Achene 0.8 mm long, with pappus of bristles 2 mm long.
Dispersal, establishment & growth: Diaspore: fruit, probably wind-dispersed.
Fire response: Interaction with other organisms:

Distribution

Status/origin: Native.
Botanical subregions: CC NT CT ST NWS CWS SWS NWP SWP NFWP; Qld, S.A.
Distribution Sydney area: Currant Mountain.
Select locations: Currant Mountain (1954).

Habitat: Upper slopes.
Cassinia leptocephala subsp. leptocephala  

**ASTERACEAE**  

**Life history**  

**Growth form:** Large robust woody shrub to 3 m high.  
Vegetative spread:  
Longevity:  
**Primary juvenile period:**  
**Flowers:** Pale yellow, October-January.  
**Fruit/seed:** Achene 0.6 mm long.  
**Dispersal, establishment & growth:**  
**Fire response:**  
Interaction with other organisms:  

**Status/origin:** Native.  
**Botanical subregions:** NC CC NT.  
**Distribution Sydney area:** coast (to coast and Tablelands of N.S.W.).  
**Select locations:** Specimens unavailable.  

**Habitat**  
**Altitude:**  
**Typical local abundance:**  
**Vegetation:**  
**Substrate:**  
**Exposure:**  

**Conservation:** Rare, not well known.

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Cassinia longifolia  

**ASTERACEAE**  

**Life history**  

**Growth form:** Aromatic sticky shrub 1.2-2.5 m high.  
**Vegetative spread:**  
Longevity:  
**Primary juvenile period:**  
**Flowers:** March–April.  
**Fruit/seed:** Achene 0.8 mm long, with pappus of bristles 2–3 mm long, mature March–April.  
**Dispersal, establishment & growth:** Diaspore: fruit, probably wind-dispersed.  
**Fire response:** Seedlings not recorded within 1 year of fire (Purdie 1977).  
Interaction with other organisms:  

**Status/origin:** Native.  
**Botanical subregions:** CC SC CT ST CWS SW; Vic., Tas.  
**Distribution Sydney area:** Coast, Blue Mountains, Orange.  
**Select locations:** Arncliffe (1893), Penshurst, Royal NP, St Marys, Razorback, Lawson, Mt Tomah, Orange, Mt Canobolas, Cadia, Mt Jerrawa, Kangaloon (P. Kodela pers. comm.).  

**Habitat**  

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Altitude: 0–1000 m
Annual rainfall: above 700 mm
Typical local abundance: Occasional–rare.
Vegetation: Mid-stratum, eucalypt woodland, e.g. with *Eucalyptus macrocarpa*, or open-forest to tall open-forest, e.g. *Eucalyptus cypellocarpa*, *E. fastigata*, *E. radiata* (P. Kedela pers. comm.)
Substrate: Shale, basalt, sandstone with calcareous influence, fertile soils. Watertable permanently low, moisture supply intermittent, non-saline.
Exposure: Conservation: Vulnerable in Western Sydney (Benson & McDougall 1991), conservation status elsewhere unknown.

**Cassinia quinquefaria**

**ASTERACEAE**

**Life history**

Growth form: Shrub 1–3 m high, stems olive or yelowish, usually resinous.
Vegetative spread: No.
Longevity:
Primary juvenile period:
Flowers: White, January–May, peak April.
Fruit/seed: Achene 0.8 mm long with pappus of bristles 2 mm long, mature March–August.
Dispersal, establishment & growth: Diaspore: fruit, probably wind-dispersed.
Fire response:
Interaction with other organisms: Tested positive for anti-tumour activity (inhibited sarcoma), no alkaloids (Collins et al. 1990).

**Distribution**

Status/origin: Native.
Botanical subregions: NC CC SC NT CT ST NWS CWS SWS NWP SWP; Qld, Vic.
Distribution Sydney area: Mostly western parts of the area.
Select locations: Kogarah (1894), Razorback, Mt Annan, Cambewarrna, Mt Victoria, Newnes Junction, Capertee, Sofala, Mullion Range, Hilltop, Berrima, Wombeyan Caves.

**Habitat**

Habitat: Open sites in eucalypt forest and woodlands.
Altitude: 0–1000 m
Annual rainfall: above 700 mm
Typical local abundance: Frequent–occasional–rare.
Vegetation: Forests and woodland, e.g. with *Eucalyptus pilularis*, *E. resinifera*, and woodland, e.g. with *Eucalyptus crebra*, *E. tereticonis*.
Substrate: Clay loam on shale, fertile. Intolerant of waterlogging.
Exposure: Open sites.

Conservation: Vulnerable in Western Sydney (Benson & McDougall 1991), but probably conserved elsewhere.

**Cassinia** species *D*  

**ASTERACEAE**

**Life history**

Growth form: Shrub to 2 m high, stems olive or red with soft hairs, leaves sticky (Harden 1992).
Vegetative spread:
Longevity:
Primary juvenile period:
Flowers: At any time of year but mainly summer–autumn (Harden 1992).
Fruit/seed: Achene 0.8 mm long, with pappus of bristles 2–2.5 mm long.
Dispersal, establishment & growth:
Fire response:
Interaction with other organisms:
Cassinia trinerva

**ASTERACEAE**

**Growth form:** Shrub or tree to 8 m high.
**Vegetative spread:**
**Longevity:**
**Primary juvenile period:**
**Flowers:** Creamy-white, summer-autumn.
**Fruit/seed:** Achene 0.5 mm long, with pappus of bristles 2 mm long.
**Dispersal, establishment & growth:** Diaspore: fruit, probably wind-dispersed.
**Fire response:** Probably killed.
**Interaction with other organisms:**

**Distribution**
**Status/origin:** Native.
**Botanical subregions:** NC CC SC CT ST NWS CWS SWS; Vic., Tas.
**Distribution Sydney area:** Southern Highlands and southwest of area.
**Select locations:** Bulli, Razorback, Burragarang, Robertson (P. Kodela pers. comm.), Kangaroo Valley, Jenolan Caves (1899).

**Habitat**
**Altitude:** 0–900 m
**Annual rainfall:** above 700 mm
**Typical local abundance:** Occasional.
**Vegetation:** Mid stratum in moist eucalypt forest and edge of disturbed rainforest, e.g. with Eucalyptus quadrangulata. Mixed cool temperate/warm temperate rainfores, where there are light gaps (P. Kodela pers. comm.).
**Substrate:** Shale and silty soils; basalt (P. Kodela pers. comm.).
**Exposure:** Sheltered sites.

**Conservation:** Conservation status unknown.

Cassinia uncata

**ASTERACEAE**

**Growth form:** Sticky shrub 1–3 m high.
**Vegetative spread:**
**Longevity:**
**Primary juvenile period:**
**Flowers:** White-straw-coloured, March.
**Fruit/seed:** Achene 0.6 mm long, with pappus of bristles 2 mm long.
**Dispersal, establishment & growth:** Diaspore: fruit, probably wind-dispersed.
**Fire response:**
**Interaction with other organisms:**
**Cunninghamia** Vol. 3(4): 1994

**Status/origin:** Native.

**Botanical subregions:** NC CC SC NT ST NWS CWS SWS SWP; Qld, Vic., S.A.

**Distribution Sydney area:** Coast and northern western Sydney.

**Select locations:** Wamberal, Barrenjoey (L. McD.), Galston, Lindfield, Tempe (1899), Castlecrag SE, Windsor, Maroora.

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**Habitat:**

**Altitude:** 0–200 m  
**Annual rainfall:** above 700 mm

**Typical local abundance:** Frequent–occasional.

**Vegetation:** Open-forest, e.g. with *Eucalyptus piperita, E. eximia, Angophora bakeri* or woodland, e.g. with *Eucalyptus polyanthemos, E. macrorhyncha* (Benson & Keith 1990).

**Substrate:** Sandstone, shale, Tertiary alluvium. Soil fertile–inertile. Watertable permanently low, moisture supply intermittent, non-saline.

**Exposure:**

**Conservation:** Vulnerable in Western Sydney (Benson & McDougall 1991). Conservation status elsewhere unknown.

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**Celmisia longifolia** species complex

**Snow Daisy**

**Growth form:** Herb with dense-tufted basal stock.

**Vegetative spread:**

**Longevity:** Perennial.

**Primary juvenile period:**

**Flowers:** Florets pink or white, February.

**Fruit/seed:** Achene c. 5 mm long with pappus of barbellate bristles, February.

**Dispersal, establishment & growth:** Diaspore: fruit, probably wind-dispersed.

**Fire response:**

**Interaction with other organisms:**

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**Status/origin:** Native.

**Botanical subregions:** CT ST.

**Distribution Sydney area:** Upper Blue Mountains, mainly Newnes Plateau.

**Select locations:** Blackheath, Newnes State Forest.

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**Habitat:** Swamp and seepage areas, moist cliff faces.

**Altitude:** 1000–1200 m  
**Annual rainfall:** 1000 mm

**Typical local abundance:** Frequent.

**Vegetation:** Newnes Plateau shrub-swamps or less commonly Blue Mountains sedge swamps, e.g. with *Gynnosphaeris sphaerocephalus, Baccharis linifolia, Grevillea acanthifolia, Gleichenia*.

**Substrate:** Often on margins of poorly-drained, peaty swamps, infertile. Watertable permanently high.

**Exposure:** Full sun.

**Conservation:** Restricted, probably inadequately conserved. Habitat vulnerable to disturbance.

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**Centaurea calcitrapa** *

**Star Thistle**

**Growth form:** Erect herb with radical leaves.

**Vegetative spread:**

**Longevity:** Perennial.

**Primary juvenile period:**
**Flowers:** Florets pale purple or pink, spring–summer.

**Fruit/seed:** Achene 3 mm long, no pappus.

**Dispersal, establishment & growth:** Diaspore: fruit, animal and water-dispersed (Carr et al. 1992).

**Fire response:**

**Interaction with other organisms:** Distribution

**Status/origin:** Naturalised exotic, native to Europe, Africa and Asia.

**Botanical subregions:** NC CC NT CT ST NWS CWS SWS SWP; Qld, Vic., Tas., S.A., W.A.

**Distribution Sydney area:** Widespread but rare.

**Select locations:** Haberfield (1920), Penrith (1912), Lithgow (1967).

**Habitat:** Wasteland.

**Altitude:** 0–1000 m  
**Typical local abundance:** Frequent.

**Vegetation:** Grassland.

**Substrate:** Recorded on saline sites in western NSW (Semple 1993).

**Exposure:** Conservation

**Conservation:** A declared noxious weed in many NSW shires (Harden 1992), but rare in Sydney area.

### *Centaurea melitensis*  
**ASTERACEAE**

**Life history**

**Growth form:** Herb to 1 m high.

**Vegetative spread:** No.

**Longevity:** 1 year.

**Primary juvenile period:** Less than 1 year.

**Flowers:** Yellow, mainly spring–summer. Very late September–October (Price).

**Fruit/seed:** Achene 2.5 mm long, pappus of bristles 2.5 mm long.

**Dispersal, establishment & growth:** Diaspore: fruit, animal and water-dispersed (Carr et al. 1992).

**Fire response:**

**Interaction with other organisms:** Distribution

**Status/origin:** Naturalised exotic, native to Europe.

**Botanical subregions:** NC CC SC NT CT ST NWS CWS SWS SWP NWP SWP NFWP SFWP; Qld, Vic., Tas., S.A., W.A.

**Distribution Sydney area:** Widespread.

**Select locations:** Woy Woy, Penshurst, Cooks River, Richmond, The Oaks, Jenolan Caves, O'Connell, Bullio, Exeter, Wingello (1899).

**Habitat:** Disturbed areas, pastures, roadsides, stock routes and cultivated land.

**Altitude:** 0–1000 m  
**Typical local abundance:**

**Vegetation:**

**Substrate:** Gravel pits, poultry yards.

**Exposure:** Conservation

**Conservation:** Weed of disturbed areas with most Herbarium records collected 1900–1930.

### *Centaurea solstitialis*  
**ASTERACEAE**

**Life history**

**Growth form:** Herb to 1 m high.
Vegetative spread: No.
Longevity: 1–2 years.
Primary juvenile period: Less than 1 year.
Flowers: Yellow, late spring–summer (Parsons 1973).
Fruit/seed: Achene 2.5 mm long — two kinds: one with pappus of bristles to 5 mm long, suitable for wind-dispersal, the other without reduced pappus; spread by water and as contaminant of agricultural produce, vehicles, wool, fodder (Parsons 1973).
Dispersal, establishment & growth: Diaspore: fruit, wind, water-dispersed, human-dispersed. Germinates in autumn, remaining a rosette during winter and developing quickly to diameter of 30 cm as temperature rises in spring. Flowering commences in November and continues through summer, 'seeds' formed over long period of 4–5 months (Parsons 1973).
Fire response:
Interaction with other organisms: Spines on flower-heads deter grazing by sheep (Parsons 1973).

**Distribution**

**Status/origin:** Naturalised exotic, native to Europe, W Asia.
**Botanical subregions:** CC SC NT CT ST NWS CWS SWS NWP; Qld, Vic., Tas., S.A., W.A.
**Distribution Sydney area:** Widespread but sporadic.
**Select locations:** Denistone, Flemington Saleyards, Richmond, Bathurst (1904).

**Habitat**

**Habitat:** Weed of disturbed sites, pastures and cultivated land.
**Altitude:** 0–1000 m  
**Annual rainfall:** above 700 mm

**Conservation:** Naturalised weed, widespread but sporadic, in pastures and cultivated land. Declared noxious in some NSW shires.

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**Centipeda cunninghamii**

Common Sneeze Weed

**ASTERACEAE**

**Life history**

**Growth form:** Herb c. 20 cm high.
**Vegetative spread:**
**Longevity:** Perennial.
**Primary juvenile period:**
**Flowers:** Summer.
**Fruit/seed:** Achene 2 mm long, no pappus.
**Dispersal, establishment & growth:** Diaspore: fruit, leaf growth and flowering occurs mainly in the warmer months, with plants remaining semi-dormant in winter (Cunningham et al. 1981).
**Fire response:**
**Interaction with other organisms:** Sparingly grazed by stock, possibly strongly aromatic. Odour emitted by plants when crushed deters grazing; powdered leaves are said to act like snuff, hence common name (Cunningham et al. 1981).

**Distribution**

**Status/origin:** Native.
**Botanical subregions:** CC SC NT CT ST NWS CWS SWS NWP SWP NFWP SFWP; Qld, Vic., Tas., N.T., S.A., W.A., N.Z.
**Distribution Sydney area:** Coast, west of mountains.
**Select locations:** Pennant Hills, Windsor, Glenfield, Shoalhaven River, Capertee, Rydal (1897), Winburndale, Hilltop.

**Habitat**

**Habitat:** Wet places, river flats.
**Altitude:** 0–1000 m  
**Annual rainfall:** above 700 mm
Vegetation:
Substrate: Alluvial soil, damp areas subject to flooding.
Exposure: Full sun.
Conservation: Conservation status unknown.

**Centipeda minima** var. **minima**

**ASTERACEAE**

**Life history**

Growth form: Small aromatic herb.
Vegetative spread: No.
Longevity: Short-lived, 1 year.
Primary juvenile period: Less than 1 year.
Flowers: Small yellow flowers, January–February.
Fruit/seed: Achene 2 mm long, pappus absent, January–April.
Dispersal, establishment & growth: Diaspore: fruit, possibly water-dispersed. Coloniser.
Fire response:
Interaction with other organisms:

**Distribution**

Status/origin: Native.
Distribution Sydney area: Widespread.
Select locations: Hornsby, Devlin’s Creek, Glenfield, Elderslie, Cambewarra, Colo River, Yarramundi, Thirlmere Lakes, Coxs River, Berrima.

**Habitat**

Habitat: Floodplain wetlands, lagoon edges.
Altitude: 0–1000 m
Annual rainfall: above 700 mm
Typical local abundance: Rare–frequent.
Vegetation: Herbland, e.g. with *Percaria laphioides*, *Xanthium chinense*.
Substrate: Mainly clay and alluvium, fertile soil, watertable mostly high.
Exposure: Full sun.

**Chondrilla juncea** *

**ASTERACEAE**

**Life history**

Growth form: Herb 0.5–1 m high, with long taproot to depth of 3 m (Parsons 1973), purplish radial leaves until stem develops, then almost leafless.

Vegetative spread: Local spread by cultivation, regrowth from taproot can occur from depth of more than 1 m; cutting of taproot stimulates growth of new rosettes at almost any time of year (Parsons 1973).

Longevity: Biennial–perennial.

Primary juvenile period: Less than 1 year, although on poor soils flowering sometimes does not occur in the first year (Parsons 1973).

Flowers: Yellow, summer (January–April).
Fruit/seed: Achene 8–10 mm long, with stalked pappus of toothed bristles 6–7 mm long, mature January–April. Seed production is prolific, one plant can produce 15,000 seeds in a season, with up to 90% germination depending on conditions; high summer temperature results in maximum seed production; seed is relatively short-lived, less than 3 years (Parsons 1973).

over winter while the taproot develops rapidly (more than 1 cm/day), each taproot produces 2–3 rosettes, stem is produced in spring and rosette leaves die leaving the plant almost leafless; seedlings sensitive to competition, particularly for light (Parsons 1973).

**Fire response:**

**Interaction with other organisms:** Troublesome weed to wheat-growers, tough wiry stems have prevented harvesting of wheat and forced changes in farming practice; rosettes grazed by sheep (Parsons 1973).

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**Distribution**

**Status/origin:** Naturalised exotic, native to Europe and W. Asia. First recorded in Australia near Wagga in 1917, probably introduced in vine stocks from southern Europe (Parsons 1973).

**Botanical subregions:** NC CC SC NT CT ST NWS CWS SWS NWP SWP SFWP; Qld, Vic., S.A., W.A.

**Distribution Sydney area:** Widespread but mainly western part of the area.

**Select locations:** Emu Plains, Grose River, Albion Park, Goodmans Ford, Menangle Park, Linden, Lithgow, Bathurst, Orange (1953).

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**Habitat**

**Habitat:** Creekbanks.

**Altitude:** 0–1000 m

**Annual rainfall:** above 700 mm

**Typical local abundance:** Rare.

**Vegetation:** Open plant communities (Parsons 1973). On creekbanks with *Sigesbeckia, Persicaria, Solanum.*

**Substrate:** Deep, light-textured soils needed for development of long taproot; requires moderate calcium and phosphate levels; can withstand long periods of drought (Parsons 1973).

**Exposure:** Exposed, full sun.

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**Conservation**

**Conservation:** Declared noxious weed in several States and part of NSW. Not invasive of bushland.

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**Chrysanthemoides monilifera** subsp. *rotundata*  

**ASTERACEAE**

**Bitou Bush**

**Life history**

**Growth form:** Large sprawling shrub to 1.5 m high with extensive tap and lateral root system, more aggressive than *C. subsp. monilifera*, more extensive root system and more difficult to control (Parsons & Cuthbertson).

**Vegetative spread:** Arching branches root vigorously where they touch the sandy substrate (R. Buchanan pers. comm.), regrows from cut stump (Dellow 1988).

**Longevity:** About 7–8 years.

**Primary juvenile period:** Primary juvenile period about 2 years.

**Flowers:** Yellow, May–July, but intermittent all year.

**Fruit/seed:** Fleshy berry 6–8 mm diam., black when ripe, mature mainly June–August.

**Dispersal, establishment & growth:** Diaspore: black fleshy 1-seeded fruit, mature in summer, mainly bird-dispersed, also spread in faeces of rabbits, foxes and cattle; ants eats fleshy skins and discard the seeds; spread in contaminated gravel in Victoria; fruit and seeds dispersed by running water; soil-stored seed up to 9500/m²; 60% viability, some dormant for at least 10 years (Parsons & Cuthbertson 1992). Seeds germinate at any time of year but mostly autumn. Most seeds retain viability for at least 2 years with some up to 4 years (Dellow 1988).

**Fire response:** Mature plants resprout after fire (Dellow 1988). Generally resprouts strongly after fire; dense growth of seedlings can crowd out other plant species (Parsons & Cuthbertson 1992).

**Interaction with other organisms:** Leaf litter and fruit leachates inhibit the germination and growth of some native plant species; can form dense stands, replacing native species thus destroying habitat of native birds and animals (Parsons & Cuthbertson 1992). Eliminated when grazed or trampled by livestock — is not a problem on agricultural land (Dellow 1988). Flower and fruit production reduced 50% and 70% by introduction of Bitou Tip Moth *Comestolopsis germana* in 1990 (Tanner & Nolan 1993).
**Distribution**

**Status/origin:** Naturalised exotic, native of S. Africa. Introduced in mid 19th century, being dispersed in ships’ ballast dumped on the Hunter River banks 1908 (Parsons & Cuthbertson 1992).

**Botanical subregions:** NC CC SC; LHI, Qld.

**Distribution Sydney area:** Coastal beaches and north of Sydney.

**Select locations:** Palm Beach, La Perouse, Port Kembla (1965), Shellharbour.

**Habitat:** Sand dunes and forest margins near beaches.

**Altitude:** 0–100 m  **Annual rainfall:** above 1200 mm

**Typical local abundance:** Frequent–dominant.

**Vegetation:** Sand dune vegetation, e.g. with *Leptospermum laeavigatum*, *Acacia longifolia*, *Correa alba*.

**Substrate:** Sand dunes and sand-mined areas, infertile, well-drained. Can withstand dry conditions; coloniser of sand dunes where it competes successfully with native species (Dellow 1988).

**Exposure:** Full sun.

**Conservation:** Used as a secondary stabilising species on sand drift and mined areas in 1946–1968 but use stopped in 1971; poses a threat to native sand dune vegetation and drastically alters habitat for wildlife. Estimated to occur along 60% of the NSW coast including 12 national parks and 9 nature reserves (Parsons & Cuthbertson 1992), does not persist in cultivated areas (Dellow 1988). Selective aerial spraying techniques that do not kill native species are being developed by John Toth, Dept. of Agriculture, Biological and Chemical Research Institute, Rydalmere. Spray in winter, very low rate (M. Clarke pers. comm.).

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**Chrysanthemoides monilifera** subsp. *monilifera* *

**ASTERACEAE**

**Growth form:** Upright shrub to 3 m high; shallow rooted, no distinct tap root (Parsons 1973).

**Vegetative spread:** Regrows strongly from cut stumps (Parsons 1973).

**Longevity:** About 7–8 years.

**Primary juvenile period:** More than 18 months (Parsons 1973).

**Flowers:** Yellow, August–December.

**Fruit/seed:** Fleshy berry 6–8 mm diam., black when ripe; mature in summer (Parsons & Cuthbertson 1992).

**Dispersal, establishment & growth:** Diaspore: black fleshy 1-seeded fruit, mainly bird-dispersed, also spread in faeces of rabbits, foxes and cattle; ants eat fleshy skins and discard the seeds; spread in contaminated gravel in Victoria; fruit and seeds dispersed by running water (Parsons & Cuthbertson 1992). Fruit reported sold as pea-shooter ammunition (Parsons 1973). Seed moved in soil during roadworks (R. Buchanan pers. comm.). Large soil-stored seedbank, up to 2500/m2 (Parsons & Cuthbertson 1992). Seeds germinate at any time of year but mostly autumn; most seeds retain viability for at least 2 years and up to 4–5 years (Dellow 1988), viability increased with increased depth of burial (Parsons & Cuthbertson 1992). Seed quickly germinates after mature plants are removed.

**Fire response:** Killed by high-intensity fire (1/1994) at Lane Cove, seedlings observed (P. Kubiak pers. comm.). Mature plants killed by fire in Victoria with almost complete germination of weathered seed (Dellow 1988).

**Interaction with other organisms:** Leaf litter and fruit leachates inhibit the germination and growth of some native plant species; can form dense stands, replacing native species and destroying habitat of native birds and animals (Parsons & Cuthbertson 1992).

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**Distribution**

**Status/origin:** Naturalised exotic, native to S Africa. Introduced as an ornamental in 1850s, considered naturalised by 1910 (Parsons & Cuthbertson 1992).

**Botanical subregions:** CC SC CT NF WP SF WP; Vic., Tas., S.A., W.A.
**Distribution Sydney area:** Coast, western Sydney.

**Select locations:** Mt Colah (R. Buchanan pers. comm.), Beecroft, Chatswood, Royal Botanic Gardens (1898), Heathcote, Shellharbour, Macquarie Fields, Wallacia, Woodford.

**Habitat:** Coastal vegetation and cleared land.

**Altitude:** 0–600 m  
**Annual rainfall:** above 1000 mm

**Typical local abundance:** Occasional–frequent.

**Vegetation:** Woodland, heath and disturbed sites.

**Substrate:** Sandy infertile soils (Parsons 1973), well-drained.

**Exposure:** Full sun.

**Conservation:** Successfully competes with native vegetation for light (Parsons 1973).

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**Chrysocephalum apiculatum** (Helichrysum apiculatum)

**ASTERACEAE**

**Common Everlasting, Yellow Buttons**

**Life history**

**Growth form:** Herb to 60 cm high, usually with a woody base.

**Vegetative spread:**

**Longevity:** Perennial.

**Primary juvenile period:**

**Flowers:** Bright yellow flowers, at any time of year but mainly spring; peak in October for CC and in April and November for CT.

**Fruit/seed:** Achene, upper half with bright yellow bristles, March (limited data).

**Dispersal, establishment & growth:** Optimal germination regime 20°/10°C, germination promoted by light, strong after ripening requirement (dormancy), dormancy broken by high temperature but not cold-stratification or gibberellic acid (Willis and Groves 1991).

**Fire response:**

**Interaction with other organisms:**

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**Distribution**

**Status/origin:** Native.

**Botanical subregions:** NC CC SC NT CT ST NWS CWS SWS NWP SWP NFWP SFWP; Qld, Vic., Tas., N.T., S.A., W.A.

**Distribution Sydney area:** Widespread, but not on sandstone areas.

**Select locations:** Culoul Range, Pennant Hills, Rooty Hill, Rookwood, Badgerys Creek, Mt Annan, Appin, Moss Vale, Lithgow, Winburndale, Orange, Taralga.

**Habitat:** Grassy patches in forests.

**Altitude:** 0–1000 m  
**Annual rainfall:** above 700 mm

**Typical local abundance:** Occasional.

**Vegetation:** Woodland and open-forest, e.g. with Eucalyptus tereticornis, E. deanei, E. mannifera, E. radiata.

**Substrate:** Clay soils from shales, e.g. Wianamatta Group, fertile. Watertable permanently low, moisture supply intermittent, fresh.

**Exposure:** No shade.

**Conservation:** Vulnerable in Western Sydney (Benson & McDougall 1991), conservation status elsewhere unknown.

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**Chrysocephalum semipapposum** (Helichrysum semipapposum)

**ASTERACEAE**

**Clustered Everlasting, Yellow Buttons**

**Life history**

**Growth form:** Aromatic herb to 60 cm high. Certain forms grade into H. apiculatum.

**Vegetative spread:**

**Longevity:** Perennial.

**Primary juvenile period:**

**Flowers:** Bright yellow, October–April, peak November.

**Fruit/seed:** Achene, with barbed bristles, mature March–April.
Dispersal, establishment & growth:
Fire response: Regrowth and suckers from rootstocks and lateral roots, no seedlings recorded less than 1 year after fire (Purdie 1977).

Interaction with other organisms:

Distribution

Status/origin: Native.
Botanical subregions: NC CC SC NT CT ST NWS CWS SWS NWP SWP NFWP SFWP; Qld, Vic., Tas., N.T., S.A., W.A.
Distribution Sydney area: Western and southern Blue Mountains.
Select locations: Mt Kerry, Castle Hill, Hill End, Glannie, Lithgow, Berrima, Abercrombie, Wombeyan Caves, Kangaroo Valley, Nowra.

Habitat: Hills, mountains or isolated rocky rises.
Altitude: 0–1000 m
Annual rainfall: above 900 mm
Typical local abundance: Occasional.
Vegetation: Eucalypt open-forest with herbaceous/grassy understorey. Ground stratum.
Substrate: Clay soils from basalt, shales etc, also limestone. Fertile soil. Watertable permanently low, moisture supply intermittent, fresh.
Exposure: Sheltered situations.

Conservation: Rare, only 7/32 specimens collected since 1960, conservation status unknown.

Cichorium intybus *

Chicory

Growth form: Rosette herb with stems 30–120 cm high; well-developed tap-root (Lamp & Collet 1989).

Vegetative spread:
Longevity: Perennial.

Primary juvenile period:
Flowers: Blue, rarely white, November–April.

Fruit/seed: Achene 2–3 mm long, with minute pappus, mature May.

Dispersal, establishment & growth:
Fire response: Interaction with other organisms: Has been used as a salad, condiment or vegetable.

ASTERACEAE

Life history

Distribution

Status/origin: Naturalised exotic, native to Europe, N Africa, Asia. Cultivated for fodder and as a salad vegetable. Root roasted and ground, used to blend with coffee (Lamp & Collet 1989). Since ancient times, used as a medicine for eye ailments and for blood-purifying (Ciba-Geigy 1968–).
Botanical subregions: NC CC SC NT CT ST NWS CWS SWS NWP SWP NFWP; Qld, Vic., Tas., S.A., W.A.
Distribution Sydney area: Widespread.
Select locations: Hornsby, Ermington, Parramatta, Richmond, Menangle (1894), Kiama, Bathurst.

Habitat: Common roadside and wasteland weed.
Altitude: 0–1000 m
Annual rainfall: above 700 mm
Typical local abundance: Frequent.
Vegetation: Wasteland weeds.
Substrate: Clay soils.
Exposure: Full sun.

Conservation: Weed of disturbed sites. Not invasive of bushland.
Cirsium vulgare *  
Spear Thistle  

**ASTERACEAE**

**Growth form:** Biennial, erect to 1.5 m high with radical and cauline leaves; long, well-developed taproot (Lamp & Collet 1989). Rosette leaves up to 35 cm long, older leaves deeply lobed and armed with spines, taproot branched, fleshy (Parsons & Cuthbertson 1992).

**Vegetative spread:** No.

**Longevity:** 2 years.

**Primary juvenile period:** 1–2 years in fertile soil, but in less fertile conditions may be several years (Klinkhamer & De Jong 1993).

**Flowers:** Pink–purple, October–January. Ample nectar production, honey is light, pale and candies hard; pollen supply useful because it occurs when other sources are deficient in Yellow Box areas (Lamp & Collet 1989).

**Fruit/seed:** Achene 3–6 mm long, with pappus of feather-like bristles 2–3 cm long, mature October–April. Up to 200 flower heads and 8000 seeds counted on individual plants (Parsons & Cuthbertson 1992).

**Dispersal, establishment & growth:** Diaspore: fruit, wind-dispersed. Also animal and water-dispersed (Carr et al. 1992). Seeds germinate in autumn; most germinate rapidly with very little dormancy; seedling survival increased by rainfall but susceptible to flooding of root; rosettes withstand cold conditions but seedlings and young rosettes susceptible to drought (Klinkhamer & De Jong 1993). Extensive root system with fleshy storage develops in winter, rosette continues to grow in spring to 60 cm diam. (if rosette die off in a dry summer, new rosette develops in autumn or winter), during spring of second year a flowering stem is produced from centre of rosette (Parsons 1973).

**Fire response:** Possibly resprouted after high-intensity fire (1/1994) at Lane Cove; flower buds within 26 weeks (P. Kubik pers. comm.). Seedlings recorded less than 1 year after fire (Purdie 1977), probably result of post-fire dispersal into the area. Appears after disturbance, probably soil-stored seed (M. Clarke pers. comm.).

**Interaction with other organisms:** Seed eaten by Black Swan Cygnus atratus, Spotted Quail-thrush Cinclosoma punctatum, foodplant of Grey Teal Anas gibberifrons (Barker & Vestjens 1989, 1990). Flowers and seed eaten by Sulphur-crested Cockatoo Cacatua galerita (Lepschi 1993). Spiny stems and leaves make it unpalatable to most stock (Klinkhamer & De Jong 1993), reducing the carrying capacity of paddocks; thick patches provide effective refuge for rabbits, fleshy root used to poison rabbits; spiny leaves and bracts transmit virus diseases between animals; biological control using gall fly is being investigated (Parsons & Cuthbertson 1992).

**Distribution**

**Status/origin:** Naturalised exotic, native to N Africa, Europe and Asia. The subject of noxious weed legislation in the 1850s (Parsons & Cuthbertson 1992).

**Botanical subregions:** NC CC SC NT CT ST NWS CWS NSW SWP NFWP SFWP; LHI, Qld, Vic., Tas., S.A., W.A.

**Distribution Sydney area:** Widespread, western Sydney, upper Blue Mountains, Southern Highlands (P. Kodela pers. comm.).

**Select locations:** Wahroonga, Carlingford (M. Clarke pers. comm.), Mosman (1887), Oakville, Silverdale, Mt Annan, Lake Illawarra, Kangaroo Valley, Mt Wilson (1906), Mt Tomah, Capertee.

**Habitat**

**Habitat:** Wetland, river edges, woodland. Abundant on roadsides, common weed of pastures (Lamp & Collet 1989). Disturbed edges (M. Clarke pers. comm.).

**Altitude:** 0–1000 m  
**Annual rainfall:** above 700 mm

**Typical local abundance:** Frequent.

**Vegetation:** Pastures, remnant native vegetation. Thistle communities, mainly with Onopordum acanthium, Carduus nutans, C. tenuiflorus, C. pycnocephalus, Silybum marianum (Doig et al. 1969).

**Substrate:** Clay soils from shales, basalt, fertile–very fertile; soil rich in nutrients (Cibagey 1968–). Watertable mostly low. Recorded on saline sites in western NSW (Semple 1993). Less common on sand and soils with humus content more than 30% and almost
absent from pure clay soil; wide range of pH, peaks on almost neutral soil, rare on soil less than 4.8-5.0 pH (Klinkhamer & De Jong 1993).

**Exposure:** 55% full daylight for highest rate of growth and seed production (Klinkhamer & De Jong 1993).

**Conservation:** Common weed, plentiful throughout the State (Boorman 1921 Herbarium note). Declared noxious weed in some shires of NSW; recognised as weed in Victoria in 1856 (Parsons 1973).

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**C. albida**
*Tall Fleabane*

**Growth form:** Robust, erect herb to 2 m high.

**Vegetative spread:** No.

**Longevity:** 1 year.

**Primary juvenile period:** Less than 1 year.

**Flowers:** At any time of year, peak April–June.

**Fruit/seed:** Achene, ovoid, with pappus of minutely barbed bristles, 3 mm long. Mature at any time of year, peak March–April.


**Fire response:** Killed. Seedlings recorded less than 1 year after fire (Purdie 1977), probably recruiting from wind-blown seed.

**Interaction with other organisms:** Flowers eaten by Crimson Rosella *Platycercus elegans* (Lepschi 1993).

**Status/origin:** Naturalised exotic, native to N America.

**Botanical subregions:** NC CC SC NT CT ST NWS CWS SWS SWP; LHI, Qld, Vic., S.A., W.A.

**Distribution Sydney area:** Widespread.

**Select locations:** Dee Why, Manly, Ashfield (1916), Bondi, Ingleburn, Campbelltown, Windang, Katoomba, Coxs River, Robertson (P. Kodela pers. comm.), Barrengarry.

**Habitat:** Weed of cultivation, pasture and wasteland.

**Altitude:** 0–1000 m

**Annual rainfall:** above 700 mm

**Typical local abundance:** Frequent.

**Vegetation:** With other weedy species, or invading undisturbed areas in open sites in woodland.

**Substrate:** Very fertile–fertile soils on shale, sandstone and metamorphics. Watertable mostly low, moisture supply intermittent, fresh.

**Exposure:** Light shade–no shade.

**Conservation:** Weed of disturbed sites.

---

**C. bilbaana**
*Canadian Fleabane*

**Growth form:** Robust herb to 2 m high.

**Vegetative spread:** No.

**Longevity:** Up to 1 year.

**Primary juvenile period:** Less than 1 year.

**Flowers:** Yellow, most of the year.

**Fruit/seed:** Achene with pappus of bristles 2–3 mm long, dispersed at maturity February–April.
**Dispersal, establishment & growth:** Diaspore: fruit, wind-dispersed.

**Fire response:** Probably killed.

**Interaction with other organisms:**

**Distribution**

**Status/origin:** Naturalised exotic, native to S America.

**Botanical subregions:** NC CC SC CT ST NWS SWS; Qld, Vic., S.A.

**Distribution Sydney area:** Mainly upper Blue Mountains and Bathurst area.

**Select locations:** Morisset (1899), Como (1899), Clarence, Jenolan Caves (1899), Wallerawang, Cudgegong, Yetholme, Hilltop.

**Habitat**

**Habitat:** Roadsides and disturbed land.

**Altitude:** 0–1100 m

**Typical local abundance:** Frequent.

**Vegetation:** With other wasteland weeds.

**Substrate:**

**Exposure:**

**Conservation**

**Conservation:** Weed of roadsides and disturbed land. Widespread by 1900.

**Cymex bonariensis**

**ASTERACEAE**

**Flaxleaf Fleabane**

**Life history**

**Growth form:** Robust, erect herb to 1 m high.

**Vegetative spread:** No.

**Longevity:** Annual.

**Primary juvenile period:** Less than 1 year.

**Flowers:** At any time.

**Fruit/seed:** Achene with pappus of white–pink capillary bristles 3 mm long, mature August–April.

**Dispersal, establishment & growth:** Diaspore: fruit, wind-dispersed locally and probably long distance. Coloniser of disturbed sites.

**Fire response:** Probably killed, fruit within 15 weeks of high-intensity fire (1/1994) at Lane Cove; possibly resprouts after low intensity fire (P. Kubiak pers. comm.).

**Interaction with other organisms:** Seed eaten by Crimson Rosella *Platycercus elegans* (Lepschi 1993).

**Status/origin:** Naturalised exotic, native to S America.

**Botanical subregions:** NC CC SC NT CT ST NWS CWS SWS NWP SWP NFWP SFWP; LHI, Qld., Tas., N.T., S.A., W.A.

**Distribution Sydney area:** Coastal and western Sydney.

**Select locations:** Cheltenham, Manly, Como (1887), Little Bay, Cabarita, Windsor, Campbelltown, Albion Park, Bowral.

**Habitat**

**Habitat:** Roadside, pastures and wasteland.

**Altitude:** 0–800 m

**Typical local abundance:** Frequent.

**Vegetation:** With roadside weeds.

**Substrate:** Sandy soils. Recorded on saline sites in western NSW (Semple 1993).

**Exposure:** Full sun.

**Conservation**

**Conservation:** Weed of cultivation, pasture and wasteland. Not invasive of bushland.
**Cnyza canadensis** var. *canadensis* *

**Canadian Fleabane**

**Growth form:** Robust, erect, herb to 1 m high.

**Vegetative spread:** No.

**Longevity:** 1 year.

**Primary juvenile period:** Less than 1 year.

**Flowers:** Throughout the year, flowers cream.

**Fruit/seed:** Achene with pappus of bristles 4 mm long.

**Dispersal, establishment & growth:** Diaspore: fruit, wind-dispersed.

**Fire response:** Resprouts at ground level or below (Fox 1988).

**Interaction with other organisms:**

**Status/origin:** Naturalised exotic, native to N America.

**Botanical subregions:** CC SC NT CT ST NWS SWS; LHI, Qld, Vic., Tas., S.A.

**Distribution Sydney area:** Widespread, but mainly western Blue Mountains.

**Select locations:** Clyde, Glen Davis, Coxs River (1909), Kowmung River.

**Habitat:** Weed of cultivation, pasture and wasteland.

**Altitude:** 0–800 m

**Annual rainfall:** 700–1000 mm

**Typical local abundance:** Occasional.

**Vegetation:** Grassland, disturbed areas, river flats.

**Substrate:**

**Exposure:** Probably no shade.

**Conservation:** Minor weed of disturbed sites.

---

**Cnyza parva** *

**Growth form:** Erect herb, occasionally to 80 cm high.

**Vegetative spread:** No.

**Longevity:** 1 year.

**Primary juvenile period:** Less than 1 year.

**Flowers:** White or tinged with mauve, summer–autumn.

**Fruit/seed:** Achene with pappus of barbed bristles 2–3 mm long, dispersed at maturity, February–May.

**Dispersal, establishment & growth:** Diaspore: fruit, wind-dispersed.

**Fire response:** Probably killed.

**Interaction with other organisms:**

**Status/origin:** Naturalised exotic, native to S America.

**Botanical subregions:** NC CC SC NT ST SWS; LHI, Qld, Vic., W.A.

**Distribution Sydney area:** Widespread, but mainly suburban area.

**Select locations:** Putty, Gosford, Hornsby, Wahroonga, Kurnell (1906), Cronulla, Ashfield, Menangle Park, Hayes Crossing.

**Habitat:** Open sandy sites.

**Altitude:** 0–500 m

**Annual rainfall:** above 700 mm

**Typical local abundance:** Frequent.

**Vegetation:** Woodland, e.g. with *Angophora floribunda*, *Allocasuarina torulosa*.

**Substrate:** Sandy soil, red-brown loam, infertile. Watertable mostly low.

**Exposure:**

**Conservation:** Minor weed.
**Coreopsis lanceolata**

Coreopsis

**Growth form:** Herb, forming clumps, to 1 m high with radical and cauline leaves.
**Vegetative spread:** Spreads by stolons/rhizomes to form clumps.
**Longevity:** Indefinite.
**Primary juvenile period:**
**Flowers:** Yellow, summer.
**Fruit/seed:** Achene 2–3 mm long, with pappus of 2 awns.
**Dispersal, establishment & growth:** Diaspore: fruit, prolific seeder and germinator (Anon 1991).
**Fire response:** Resprouts and germinated after high-intensity fire (1/1994) at Narrabeen, seedlings observed (P. Kubiak pers. comm.). Resprouts from short woody rhizome (R. Buchanan & M. Clarke pers. comm.).
**Interaction with other organisms:** Causes allergy in humans where density is high (Bass 1987).

**Status/origin:** Naturalised exotic, native of N. America.
**Botanical subregions:** CC SC NT CT ST NWS SWP; Qld, Vic.
**Distribution Sydney area:** Sydney suburbs and Blue Mountains.
**Select locations:** Woy Woy, Northern Peninsula Beaches (M. Clarke pers. comm.), Terrey Hills, Belrose (P. Kodela pers. comm.), Cheltenham (1948), Northbridge, Middle Head, Camden, Linden, Wentworth Falls, Medlow Bath.

**Habitat:** Roadsides, railway lines and in disturbed areas.
**Altitude:** 0–1000 mm

**Typical local abundance:** Frequent.
**Vegetation:** With other roadside weeds, or degraded native vegetation, e.g. Eucalyptus haemastoma woodland.
**Substrate:** Sandy soils on sandstone, infertile, watertable permanently low, moisture supply intermittent, fresh.
**Exposure:** Light shade–no shade.

**Conservation:** Vigorous weed capable of invading along tracks and stormwater drainage lines in bushland areas (R. Buchanan pers. comm.).

**Cosmos bipinnatus**

Cosmos

**Growth form:** Erect herb 1 m high.
**Vegetative spread:** No.
**Longevity:** 6 months.
**Primary juvenile period:** 3 months.
**Flowers:** White, mauve, pink or red, disc yellow, mostly spring, November–May.
**Fruit/seed:** Achene with pappus of barbed awns.
**Fire response:** Probably killed.

**Status/origin:** Naturalised exotic, native to Mexico, garden plant.
**Botanical subregions:** CC NT CT; Qld.
**Distribution Sydney area:** North from Sydney, sporadic.
**Select locations:** Erina, Richmond (1902), Royal Botanic Gardens (1902), Hornsby, Cheltenham, Glen Davis.
<table>
<thead>
<tr>
<th><strong>Habitat</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Habitat</strong></td>
<td>Wasteland.</td>
</tr>
<tr>
<td><strong>Altitude</strong></td>
<td>0–300 m</td>
</tr>
<tr>
<td><strong>Annual rainfall</strong></td>
<td>above 700 mm</td>
</tr>
<tr>
<td><strong>Typical local abundance</strong></td>
<td>Occasional.</td>
</tr>
<tr>
<td><strong>Vegetation</strong></td>
<td>Wasteland weeds.</td>
</tr>
<tr>
<td><strong>Substrate</strong></td>
<td>Clay soils from shale, fertile.</td>
</tr>
<tr>
<td><strong>Exposure</strong></td>
<td>Full sun.</td>
</tr>
</tbody>
</table>

| **Conservation** | Garden plant, occurring occasionally near habitation, not invasive of bush. |

**Cotula alpina**

Alpine Cotula

**Life history**

<table>
<thead>
<tr>
<th><strong>Growth form</strong></th>
<th>Stoloniferous, herb.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Vegetative spread</strong></td>
<td>Stoloniferous.</td>
</tr>
<tr>
<td><strong>Longevity</strong></td>
<td>Indefinite.</td>
</tr>
<tr>
<td><strong>Primary juvenile period</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Flowers</strong></td>
<td>Summer.</td>
</tr>
<tr>
<td><strong>Fruit/seed</strong></td>
<td>Achene 1.5–2 mm long with thick wing undifferentiated from body, no pappus.</td>
</tr>
<tr>
<td><strong>Dispersal, establishment &amp; growth</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Fire response</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Interaction with other organisms</strong></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Distribution</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Status/origin</strong></td>
<td>Native.</td>
</tr>
<tr>
<td><strong>Botanical subregions</strong></td>
<td>CT ST; Vic Tas.</td>
</tr>
<tr>
<td><strong>Distribution Sydney area</strong></td>
<td>Lithgow.</td>
</tr>
<tr>
<td><strong>Select locations</strong></td>
<td>Littleton (near Lithgow) 1893, only record in area and northern limit. (Chiefly south from ACT.)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Habitat</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Habitat</strong></td>
<td>Wet sites.</td>
</tr>
<tr>
<td><strong>Altitude</strong></td>
<td>900 m</td>
</tr>
<tr>
<td><strong>Annual rainfall</strong></td>
<td>900 mm</td>
</tr>
<tr>
<td><strong>Typical local abundance</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Vegetation</strong></td>
<td>Sphagnum bogs.</td>
</tr>
<tr>
<td><strong>Substrate</strong></td>
<td>Poorly drained peaty soils.</td>
</tr>
<tr>
<td><strong>Exposure</strong></td>
<td></td>
</tr>
</tbody>
</table>

| **Conservation** | Probably extinct in Sydney area, last collected in 1893. |

**Cotula australis**

Common Cotula, Carrot Weed

**Life history**

<table>
<thead>
<tr>
<th><strong>Growth form</strong></th>
<th>Herb usually less than 10 cm high, weakly rooting at nodes.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Vegetative spread</strong></td>
<td>Possibly through rooting at nodes.</td>
</tr>
<tr>
<td><strong>Longevity</strong></td>
<td>Annual or short-lived perennial.</td>
</tr>
<tr>
<td><strong>Primary juvenile period</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Flowers</strong></td>
<td>August–March.</td>
</tr>
<tr>
<td><strong>Fruit/seed</strong></td>
<td>Achene, 1–1.5 mm long, with narrow wing.</td>
</tr>
<tr>
<td><strong>Dispersal, establishment &amp; growth</strong></td>
<td>Diaspore: fruit, possibly wind or water-dispersed.</td>
</tr>
<tr>
<td><strong>Fire response</strong></td>
<td>Probably killed, fruiting within 15 weeks of high-intensity fire (1/1994) at Lane Cove, seedlings observed (P. Kubiak pers. comm.).</td>
</tr>
<tr>
<td><strong>Interaction with other organisms</strong></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Distribution</strong></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Status/origin</strong></td>
<td>Native.</td>
</tr>
<tr>
<td><strong>Botanical subregions</strong></td>
<td>NC CC SC NT CT ST NWS CWS NWP SWP; LHI, Qld, Vic., Tas., S.A., W.A., N.Z.</td>
</tr>
</tbody>
</table>
**Distribution Sydney area:** Sydney suburbs and western Blue Mountains.

**Select locations:** Pennant Hills, Elizabeth Bay (1888), Cooks River, La Perouse, Burwood, Jenolan Caves, Glen Davis.

**Habitat:** Roadside, and gardens in Sydney area, cliff lines above creek at Glen Davis.

**Altitude:** 0–600 m  
**Annual rainfall:** above 800 mm

**Typical local abundance:** Frequent–rare.

**Vegetation:** Open-forest, also roadsides, lawns, pastures, garden weed.

**Substrate:** Clay soils. Recorded on saline sites in western NSW (Semple 1993).

**Exposure:** Full sun.

**Conservation:** Conserved in Western Sydney (Benson & McDougall 1991).

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**Cotula coronopifolia**

**ASTERACEAE**

**Water Buttons**

**Life history**

**Growth form:** Herb to 20 cm high, erect to spreading, with weak succulent stems rooting from nodes and yellow flowers, plants luxuriant in water forming dense floating masses but diminutive forms on damp land.

**Vegetative spread:** Spreads over short distances by rooting at nodes.

**Longevity:** 1 year.

**Primary juvenile period:** Less than 1 year.

**Flowers:** Yellow, August–December.

**Fruit/seed:** Achene 1.5–2 mm long, winged, mature October–May.


**Fire response:**

**Interaction with other organisms:** The crab *Halicarcinus laeustris* shows a distinct association with *C. coronopifolia* (Aston 1977).

---

**Status/origin:** Native to S Africa (Harden 1992) long regarded also as native to Australia but now described as naturalised exotic (Harden 1992). Reported by Robert Brown to be introduced to Sydney by 1804 (Maiden 1909).

**Botanical subregions:** NC CC SC ST SWS SWP SPWP; Qld, Vic., Tas., S.A., W.A.

**Distribution Sydney area:** Coast, also Cumberland Plain but rare.

**Select locations:** Norah Head, Cheltenham, Dee Why, Centennial Park, Kogarah (1896), Homebush Bay, Lidcombe, Doonside, Campbelltown, Mt Kembla.

---

**Habitat:** Wet mud along ephemeral creeks and saline flats.

**Altitude:** 0–200 m  
**Annual rainfall:** above 700 mm

**Typical local abundance:** Frequent–occasional.

**Vegetation:** Freshwater or brackish swamp, herbland and sedgelands, e.g. with *Triphlops procrea* and saltmarsh, e.g. with *Sarcocornia quinqueflora, Samolus repens*.

**Substrate:** Saline and freshwater areas in still or slow-flowing waters to 45 cm deep and on surrounding dampland mud. Salinity range 0.2–60.0 ppt T.D.S. (Aston, 1977). Soil fertile. Watertable mostly high, moisture supply intermittent. Recorded on saline sites in western NSW (Semple 1993).

**Exposure:** Full sun.

**Conservation:** Conserved in Western Sydney (Benson & McDougall 1991). Status elsewhere unknown.
Craspedia canens

**Growth form:** Tufted herb 15–65 cm high, with 1–5 flowering scapes, fine white hairs covering the leaves, and thick, spreading roots. Plant in standing water 80 cm high (P. Kodela pers. comm.)

**Vegetative spread:** Erect herb to 50 cm high.

**Longevity:** Short-lived (1–3 years).

**Primary juvenile period:**

**Flowers:** Yellow, mainly September–December.

**Fruit/seeds:** Achene 1.5–2 mm long with pappus of plumose bristles 4 mm long.

**Dispersal, establishment & growth:** Wind-dispersed short distances, possibly also water or stock-dispersed (J. Everett pers. comm.).

**Fire response:**

**Interaction with other organisms:** Palatable to cattle (J. Everett pers. comm.).

**Status/origin:** Native.

**Botanical subregions:** CC SC NT CT ST CWS SWS; Qld, Vic.

**Distribution Sydney area:** Thirlmere, Southern Highlands.

**Select locations:** Thirlmere, Wingeecarribee Swamp.

**Habitat:** Peatland.

**Altitude:** 0–700 m

**Annual rainfall:** above 900 mm

**Typical local abundance:** Frequent.

**Vegetation:** Eucalypt woodland, grassland and swamps, e.g. with *Caret*. Amongst sedges and along edges of drainage changes on swamp (P. Kodela pers. comm.).

**Substrate:** Sandy to peaty soils, dry–poorly-drained, fertile–infertile. Often where there is a high watertable, collection from shallow standing water (P. Kodela pers. comm.).

**Exposure:**

**Conservation:** Vulnerable in Western Sydney (Benson & McDougall 1991).

Craspedia variabilis

**Growth form:** Erect herb to 50 cm high.

**Vegetative spread:**

**Longevity:**

**Primary juvenile period:**

**Flowers:** Early spring to early summer.

**Fruit/seeds:** Achene 1.5–2.5 mm long with pappus of plumose bristles 3–6 mm long.

**Dispersal, establishment & growth:** Diaspore: fruit, probably wind-dispersed.

**Fire response:**

**Interaction with other organisms:**

**Status/origin:** Native.

**Botanical subregions:** NC CC SC NT CT ST NWS CWS SWS NWP SWP; Qld, Vic., S.A., W.A.

**Distribution Sydney area:** Western Sydney, southern Highlands.

**Select locations:** Agnes Banks, Long Swamp.

**Habitat:** Eucalypt forest and near swamp margins (P. Kodela pers. comm.).

**Altitude:** 0–800 m

**Annual rainfall:** above 700 mm

**Typical local abundance:** Frequent–occasional.

**Vegetation:** Eucalypt forest, woodland, e.g. with *Eucalyptus pararotundata* and grassland.

**Substrate:** Clay loams, alluvial or colluvial soils, infertile, watertable mostly high.

**Exposure:**

**Conservation:** Widespread but probably rare. Conservation status unknown.
Crassocephalum crepidioides *
Thickhead

**Growth form:** Erect herb 50–100 cm high.

**Vegetative spread:** No.

**Longevity:** Less than 1 year.

**Primary juvenile period:** 4 months.

**Flowers:** Reddish, April–June.

**Fruit/seed:** Achene 2 mm long, with pappus of hairs 8–10 mm long, mature May–June.

**Dispersal, establishment & growth:** Diaspore: fruit, wind-dispersed.

**Fire response:** Killed (M. Clarke pers. comm.). Seedling recruitment after high-intensity fire (1/1994) at Narrabeen, flowering within 4 months, seedlings observed (P. Kubicz pers. comm.).

**Interaction with other organisms:** Used medicinally in Fiji (Cambie & Ash 1994).

**Status/origin:** Naturalised exotic, native to Africa and Madagascar.

**Botanical subregions:** NC CC NT CT ST; Qld.

**Distribution Sydney area:** Coast and coastal suburbs.

**Select locations:** Gordon & Warrigwood (M. Clarke pers. comm.), Narrabeen (DHB), Clifton Gardens, Mosman (1966), Parsley Bay, Bellevue Hill, Otford.

**Habitat:** Weed of disturbed sites.

**Altitude:** 0–100 m

**Annual rainfall:** above 1200 mm

**Typical local abundance:** Occasional.

**Vegetation:** Eucalypt woodland.

**Substrate:** Sandy soils, moderate nutrients.

**Exposure:** Full sun to medium shade.

**Conservation:** Weed status unknown.

**Crepis capillaris** *
Smooth Hawksbeard

**Growth form:** Herb to 75 cm high, basal leaves usually a rosette.

**Vegetative spread:** No.

**Longevity:** 1–3 years.

**Primary juvenile period:**

**Flowers:** Yellow, November–April. Insect-pollinated (Ciba-Geigy 1968–).

**Fruit/seed:** Achene 2 mm long, with pappus of hairs 8 mm long.

**Dispersal, establishment & growth:** Diaspore: fruit, wind-dispersed (Carr et al. 1992), also dispersed by wind, water and people; moderate user or nitrogen and competitor for space (Ciba-Geigy 1968–).

**Fire response:**

**Interaction with other organisms:** Palatable to rabbits (Leigh et al. 1987).

**Status/origin:** Naturalised exotic, native to Europe.

**Botanical subregions:** NC CC NT CT ST; Tas.

**Distribution Sydney area:** Coast but mainly Tablelands.

**Select locations:** Hurstville, Cambewarra, Nowra, Kurrajong Heights, Lithgow, Bathurst, Blayney (1899), Orange, Wombeyan Caves, Robertson.

**Habitat:** Roadsides and disturbed areas.

**Altitude:** 0–1000 m

**Annual rainfall:** above 700 mm

**Typical local abundance:** Occasional–frequent.

**Vegetation:** Grassy slopes and banks.

**Substrate:** Gravelly soils, from limestone, basalt, shale, fertile.

**Exposure:**

**Conservation:** Weed status unknown.
**Crepis foetida** subsp. **vulgare** *

**ASTERACEAE**

**Life history**

**Growth form:** Herb 10–50 cm high, basal leaves usually a rosette.

**Vegetative spread:** No.

**Longevity:** 1–2 years.

**Primary juvenile period:**

**Flowers:** Yellow, summer.

**Fruit/seed:** Achene 12–17 mm long, pappus of hairs 5–7 mm long, mature June.

**Dispersal, establishment & growth:** Diaspore: fruit, wind-dispersed.

**Fire response:**

**Interaction with other organisms:**

**Distribution**

**Status/origin:** Naturalised exotic, native to Europe.

**Botanical subregions:** CC ST CW SWS; Vic., Tas.

**Distribution Sydney area:** Penshurst.

**Select locations:** Penshurst (1906) only record.

**Habitat**

**Habitat:** Roadsides and disturbed areas,

**Altitude:** 200 m

**Annual rainfall:** 1200 mm

**Typical local abundance:**

**Vegetation:**

**Substrate:**

**Exposure:**

**Conservation:** Rare, Sydney is northern limit.

---

**Crepis setosa** *

**ASTERACEAE**

**Life history**

**Growth form:** Herb to 80 cm high, basal leaves usually a rosette.

**Vegetative spread:** No.

**Longevity:** 1 year.

**Primary juvenile period:** Less than 1 year.

**Flowers:** Yellow, February.

**Fruit/seed:** Achene 3–5 mm long, with pappus of hairs 4–5 mm long.

**Dispersal, establishment & growth:** Diaspore: fruit, wind and water-dispersed (Ciba-Geigy 1968–).

**Fire response:**

**Interaction with other organisms:**

**Distribution**

**Status/origin:** Naturalised exotic, native to Europe.

**Botanical subregions:** CC; Vic., Tas.

**Distribution Sydney area:** Hornsby.

**Select locations:** Hornsby (1918) only record for NSW.

**Habitat**

**Habitat:** Recorded along laneway.

**Altitude:** 100 m

**Annual rainfall:** 1200 mm

**Typical local abundance:** Rare.

**Vegetation:**

**Substrate:** Soil rich in nutrients, moderately dry (Ciba-Geigy 1968–).

**Exposure:**

**Conservation:** Probably now extinct.
**Cymbonotus lawsonianus** (Arctotis australiensis)  

**ASTERACEAE**  

**Life history**

**Growth form:** Stemless herb to 25 cm diameter.  
**Vegetative spread:**  
**Longevity:** Perennial.  
**Primary juvenile period:**  
**Flowers:** Yellow, August–October, March–May.  
**Fruit/seed:** Achene 2.5 mm long, no pappus, mature September–October.  

**Dispersal, establishment & growth:**  
**Fire response:**

**Interaction with other organisms:**

**Status/origin:** Native.  
**Botanical subregions:** NC CC SC NT CT ST NWS CWS SWS NWP SWP; Qld, Vic., Tas., S.A.  
**Distribution Sydney area:** Western Sydney, western Blue Mountains to Orange.  
**Select locations:** Scheyville, St Marys, Narellan, Yerranderie, Hartley, Jenolan Caves, Winburndale, Orange, Abercrombie Caves, Moss Vale.

**Habitat:** Short grassland.  
**Altitude:** 0–1000 m  
**Annual rainfall:** 700–1000 mm  
**Typical local abundance:** Frequent–occasional.  
**Vegetation:** Eucalypt woodland with grassy ground cover, e.g. with *Eucalyptus moluccana*, *E. crebra*, *E. melliodora*, *E. macrophylla*.  
**Substrate:** Clay and sandy loams from shales, metamorphics, basalt, fertile, watertable permanently low.  
**Exposure:** Probably full sun.

**Conservation**

**Presumed extinct in Western Sydney (Benson & McDougall 1991), conservation status elsewhere unknown.**

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**Cymbonotus preissianus** (Cymbonotus lawsonianus misapl.)  

**ASTERACEAE**  

**Life history**

**Growth form:** Stemless herb to 25 cm diameter.  
**Vegetative spread:**  
**Longevity:** Perennial.  
**Primary juvenile period:**  
**Flowers:** Yellow, August–March.  
**Fruit/seed:** Achene 3–3.5 mm long, no pappus.  

**Dispersal, establishment & growth:**  
**Fire response:**  
**Interaction with other organisms:**

**Status/origin:** Native.  
**Botanical subregions:** CT ST CWS SWS SWP; Vic., S.A., W.A.  
**Distribution Sydney area:** Jenolan/Abercrombie, Orange.  
**Select locations:** Oberon, Jenolan SF, Little River, Abercrombie Caves, Mt Werong, Mullion Range.

**Habitat:** Grassy ground cover.  
**Altitude:** above 800 m  
**Annual rainfall:** above 900 mm  
**Typical local abundance:** Frequent–rare.  
**Vegetation:** Woodland or forest with grassy or open groundcover, e.g. with *Eucalyptus radiata*, *E. goniocalyx*.  

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**Cunninghamia Vol. 3(4): 1994**
**Cynara scolymus** * (Globe Artichoke)  
**Family:** ASTERACEAE  
**Growth form:** Herb to 2 m high.  
**Vegetative spread:**  
**Longevity:** Perennial.  
**Primary juvenile period:**  
**Flowers:** Purplish-blue, December.  
**Fruit/seed:** Achene 6 mm long, with pappus of hairs 3–4 cm long.  
**Dispersal, establishment & growth:** Diaspore: fruit, wind-dispersed.  
**Fire response:**  
**Interaction with other organisms:** Cultivated, young flower heads used as a vegetable.  
**Status/origin:** Naturalised exotic, native to Europe, introduced as vegetable plant.  
**Botanical subregions:** CC CT CWS SWP; W.A.  
**Distribution Sydney area:** Sporadic.  
**Select locations:** Catherine Hill Bay (1921), Minto, Bathurst Cemetery.  
**Habitat:** Earthworks, disturbed sites.  
**Altitude:** 0–1000 m  
**Annual rainfall:** above 800 mm  
**Typical local abundance:** Rare.  
**Vegetation:**  
**Substrate:**  
**Exposure:**  
**Conservation:** Naturalised sporadically, not invasive.

**Delairea odorata** * (Senecio mikanioides)  
**Cape Ivy**  
**Family:** ASTERACEAE  
**Growth form:** Climbing or scrambling plant with stems many metres long.  
**Vegetative spread:** Stoloniferous.  
**Longevity:** Perennial.  
**Primary juvenile period:** Probably less than 1 year (Lawrence 1985).  
**Flowers:** Yellow, May–August. Probably bee-pollinated, self-incompatible (Lawrence 1985).  
**Fruit/seed:** Achene 2 mm long, with pappus 5 mm long, not persistent, mature July, August. Potential seed set/plant 20 000–40 000 (Lawrence (1985).  
**Dispersal, establishment & growth:** Diaspore: stem fragments, dispersed by gravity or water (Anon 1991). Effectiveness of seed dispersal not known.  
**Fire response:** Usually fails to burn (R. Buchanan pers. comm.). Probably killed by high-intensity fire (F. Kubisak pers. comm.).  
**Interaction with other organisms:**  
**Status/origin:** Naturalised exotic, native to S Africa, introduced as garden plant.  
**Botanical subregions:** NC CC SC CT; Vic., Tas., S.A.  
**Distribution Sydney area:** Mainly coastal.  
**Select locations:** Hornsby, Narrabeen, Middle Harbour Creek (L.McD.), Woollomooloo (1902), Stanwell Park, Shellharbour 1906, Albion Park, Minnamurra, Liverpool, Douglas Park, Kangaloon.
**Habitat**: Weed in moist gullies, roadsides, riverbanks.

**Altitude**: 0–700 m  
**Annual rainfall**: above 1000 mm

**Typical local abundance**: Frequent–occasional.

**Vegetation**: Climbs on small trees or over shrubs forming dense ground cover. Moist eucalypt forest, e.g. with *Eucalyptus saligna*, *Syncarpia glomulifera*.

**Substrate**: Soils from shale, alluvium, and possibly basalt, medium to high nutrient.

**Exposure**: Sheltered, shady site.

**Conservation**: Reported as major weed, carpeting the ground and covering shrubs on Gooseberry Island (Lake Illawarra) in 1891, first reported there in 1857 — recommended control was to use goats (note with Herbarium specimen). Now a widespread and significant bushland weed, though not frequent, e.g. restricted by limited distribution of moist eucalypt forest (R. Buchanan pers. comm.).

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**Dimorphotheca pluvialis** *  
Cape Marigold  

**ASTERACEAE**  

**Life history**

**Growth form**: Herb to 20 cm high.

**Vegetative spread**:

**Longevity**: 1 year.

**Primary juvenile period**: Less than 1 year.

**Flowers**: Yellow and purplish, August–November.

**Fruit/seed**: Achene 6–8 mm long, with broad wing, no pappus.

**Dispersal, establishment & growth**:

**Fire response**:

**Interaction with other organisms**:

**Status/origin**: Naturalised exotic, native to South Africa, introduced as ornamental.

**Botanical subregions**: CC NWS; S.A.

**Distribution Sydney area**: Coastal headlands in Sydney suburbs.

**Select locations**: Bangally Head, Sith Bungan Head, Bronte/Tamarama Headland (1976).

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**Habitat**

**Altitude**: 0–1000 m  
**Annual rainfall**: above 1200 mm

**Typical local abundance**: Frequent–occasional.

**Vegetation**: Grassy shrubland with *Gazania*, *Westringia*, *Chrysanthemoides*.

**Substrate**: Sandstone cliffs, probably with clay soil influence.

**Exposure**:

**Conservation**: Locally naturalised from nearby gardens.

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**Dittrichia graveolens** *  
Stinkwort  

**ASTERACEAE**  

**Life history**

**Growth form**: Erect, densely-branched herb with characteristic conical shape, 30–60 cm high; stem with glandular hairs that exude sticky, strong-scented oil.

**Vegetative spread**: No.

**Longevity**: 1 year.

**Primary juvenile period**: Less than 1 year.

**Flowers**: Yellow, March–April.

**Fruit/seed**: Achene 2 mm long, pubescent, with pappus of bristles, mature April–June.

**Dispersal, establishment & growth**: Dispersal: fruit, wind-dispersed, reported growing to 1.2 m high after heavy rains at Ingleburn.
Fire response:
Interaction with other organisms:

**Distribution**

**Status/origin:** Naturalised exotic, native to Mediterranean region including N Africa.
**Botanical subregions:** NC CC SC NT CT ST NWS CWS SWP SWP NFWP SFWP; Qld, Vic., Tas., S.A., W.A.
**Distribution Sydney area:** Widespread.
**Select locations:** Wahroonga, Duck River (1909), Cabramatta, Five Islands, Nowra, Clarence (1900), Kowmung River, Hilltop, Carcoar.

**Habitat**

**Habitat:** Roadside, old quarries, saltmarsh.
**Altitude:** 0–1000 m
**Annual rainfall:** above 800 mm
**Typical local abundance:** Frequent–occasional.
**Vegetation:** Weedy, disturbed sites.
**Substrate:** Stony river flats, clay soils, recorded in saltmarsh indicating possible salt tolerance. Recorded on saline sites in western NSW (Semple 1993).
**Exposure:** Full sun.

**Conservation**

**Conservation:** Weed status unknown.

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**Echinops sphaerocephalus** *

**Globe Thistle**

**ASTERACEAE**

**Life history**

**Growth form:** Erect herb 0.5–2 m high.
**Vegetative spread:**
**Longevity:**
**Primary juvenile period:**
**Flowers:** White or greyish, summer–autumn.
**Fruit/seed:** Achene, with partially fused pappus, surrounded by bristles.
**Dispersal, establishment & growth:** Diaspore: fruit. Possibly animal-dispersed, e.g. sheep, in wool.
**Fire response:**
**Interaction with other organisms:**

**Distribution**

**Status/origin:** Naturalised exotic, native to Europe, Asia.
**Botanical subregions:** CT CWS.
**Distribution Sydney area:** Gulgong–Orange.
**Select locations:** Gulgong (1976), Orange (1976).

**Habitat**

**Habitat:** Disturbed sites.
**Altitude:** 800 m
**Annual rainfall:** 1000 mm
**Typical local abundance:** Rare.
**Vegetation:**
**Substrate:** Basalt, fertile soil.
**Exposure:**

**Conservation**

**Conservation:** Recently reported exotic species, status unknown.

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**Eclipta platyglossa**

**Twin-heads**

**ASTERACEAE**

**Life history**

**Growth form:** Usually prostrate herb to 25 cm high, rooting at the nodes.
**Vegetative spread:** Limited, rooting from nodes.
**Longevity:** 2 years.
**Primary juvenile period:**
**Flowers:** Yellow, January–April.
**Fruit/seed:** Achene, c. 3 mm long, pappus minute. Mature January–April.

**Dispersal, establishment & growth:** Diaspore: fruit, probably water-dispersed.

**Fire response:**

**Interaction with other organisms:**

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**Status/origin:** Native.

**Botanical subregions:** NC CC SC NT NWS CWS SWS NWP SWP SFWP; all mainland States.

**Distribution Sydney area:** Coastal and western Sydney.

**Select locations:** Narrabeen, Manly, Royal NP, Richmond, Doonside, Casula.

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**Habitat:** Swamps, creeklines.

**Altitude:** 0–200 m

**Annual rainfall:** above 700 mm

**Typical local abundance:** Frequent–occasional.

**Vegetation:** Swamp woodland, e.g. with *Eucalyptus amplifolia*, *Casuarina glauca*, *Melaleuca styphelioides*.

**Substrate:** Floodplain alluvium, fertile. Watertable mostly high.

**Exposure:** Light shade.

**Conservation:** Vulnerable in Western Sydney (Benson & McDougall 1991), rare elsewhere.

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**Enydra fluctuans**

**ASTERACEAE**

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**Life history**

**Growth form:** Herb with soft, creeping stems and opposite leaves.

**Vegetative spread:** Stem-creeping, rooting from nodes.

**Longevity:** Perennial.

**Primary juvenile period:**

**Flowers:** Yellowish, spring–summer.

**Fruit/seed:** Achene, no pappus.

**Dispersal, establishment & growth:** Diaspore: fruit.

**Fire response:**

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**Interaction with other organisms:**

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**Distribution**

**Status/origin:** Native.

**Botanical subregions:** NC CC; Qld.

**Distribution Sydney area:** Coast, Sydney Harbour to Port Hacking

**Select locations:** Kurnell, Port Hacking.

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**Habitat:** Swamps.

**Altitude:** 0–10 m

**Annual rainfall:** above 1200 mm

**Typical local abundance:**

**Vegetation:** Swamps

**Substrate:**

**Exposure:**

**Conservation:** Port Hacking is the southern limit. Rare, status unknown.

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**Epaltes australis** (*Sphaeromorpha australis*)

**ASTERACEAE**

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**Life history**

**Growth form:** Herb 3–25 cm high.

**Vegetative spread:**

**Longevity:** Probably short-lived.

**Primary juvenile period:**
Flowers: Yellowish, September–April.
Fruit/seed: Achene 1–1.5 mm long, with membranous pappus, mature September–April.
Dispersal, establishment & growth:
Fire response:
Interaction with other organisms:

Distribution

Status/origin: Native.
Botanical subregions: NC CC SC NT NWP SWP NFWP SFWP; all mainland States.
Distribution Sydney area: Coast and western Sydney.
Select locations: Roseville, Manly, Revesby, Fairfield, Richmond, St Marys, Warrimoo, Appin, Wattamolla, Albion Park.

Habitat

Habitat: Margins of swampy areas.
Altitude: 0–300 mm
Typical local abundance: Frequent.
Vegetation: Swamp vegetation.
Substrate: Sandy to clay soils, watertable periodically high, sometimes brackish.
Exposure: Full sun to light shade.

Conservation

Conservation: Conserved in Western Sydney (Benson & McDougall 1991), but status elsewhere unknown.

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Erechites valerianifolia

Brazilian Fireweed

Growth form: Erect herb 1–1.5 m high.
Vegetative spread: No.
Longevity: 1 year.
Primary juvenile period: Less than 1 year.
Flowers: White-mauve, June–November.
Fruit/seed: Achene 2.5–3.5 mm long, with pappus of numerous hairs.
Dispersal, establishment & growth: Diaspore: fruit, probably wind-dispersed.
Fire response: Probably killed, one plant flowering and fruiting within 30 weeks of high-intensity fire (1/1994) at Lane Cove (P. Kubiak pers. comm.).
Interaction with other organisms:

Distribution

Status/origin: Naturalised exotic, native to S America.
Botanical subregions: NC CC; Qld.
Distribution Sydney area: Coastal, mainly Gosford–Woyong.
Select locations: Dora Creek, Avoca, Peats Ridge, Woy Woy (1929), Red Cedar Flat (Royal NP 1984).

Habitat

Habitat: Weed of fertile soils.
Altitude: 0–100 m
Typical local abundance:
Vegetation:
Substrate: Fertile soils.
Exposure:

Conservation

**Erigeron karvinskianus**

*Bony-tip Fleabane*

**Growth form:** Sprawling herb 20–30 cm high.

**Vegetative spread:** From prostrate stems (R. Buchanan pers. comm.).

**Longevity:** Indefinite.

**Primary juvenile period:**

**Flowers:** Pale purple turning white then pink. Flowers at any time of year (R. Buchanan pers. comm.).

**Fruit/seed:** Achenes, flattened, 1 mm long with pappus of fine whitish hairs 2 mm long.

**Dispersal, establishment & growth:** Diaspore: fruit, wind-dispersed, water-dispersed (M. Clarke pers. comm.).

**Fire response:** Resprouted and flowered within 11 weeks, releasing seeds within 26 weeks of high-intensity fire (1/1994) at Lane Cove (P. Kubiak pers. comm.). Resprouts after low-moderate intensity fires, germinates after any fire (R. Buchanan pers. comm.).

**Interaction with other organisms:**

**Status/origin:** Naturalised exotic, native to America. Introduced as garden ornamental occasionally escaping from gardens and rockeries (Harden 1992).

**Botanical subregions:** NC CC CT NWS; Vic., S.A., W.A.

**Distribution Sydney area:** Widespread but near habitation.

**Select locations:** Avoca, Cheltenham, Lindfield (1960), Pymble, Foxground (1944), Leura, Katoomba, Blackheath.

**Habitat:** Watercourses, stormwater drains, slopes, path edges.

**Altitude:** 0–1000 m  **Annual rainfall:** above 1200 mm

**Typical local abundance:** Frequent.

**Vegetation:** Moist eucalypt forest, disturbed watercourses.

**Substrate:** Sandy soils, fertile-infertile. Damp sandstone rocks, garden rock walls, stormwater outlets (R. Buchanan & M. Clarke pers. comm.).

**Exposure:** Mid shade–full sun (R. Buchanan pers. comm.).

**Conservation:** Potential to invade bush along disturbed creeks, e.g. Katoomba area.

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**Euchiton gymnocephalus** *(Gnaphalium gymnocephalum)*

*Creeping Cudweed*

**Growth form:** Herb 10–35 cm high.

**Vegetative spread:** Spreads by stolons.

**Longevity:** Perennial.

**Primary juvenile period:**

**Flowers:** October–April.

**Fruit/seed:** Achenes 0.7 mm long with pappus of non-persistent bristles 3 mm long, mature December–April.

**Dispersal, establishment & growth:** Diaspore: fruit. Coloniser.

**Fire response:**

**Interaction with other organisms:**

**Status/origin:** Native.

**Botanical subregions:** CC SC NT CT ST NWS CWS SWS; Vic., Tas., W.A.

**Distribution Sydney area:** Widespread.

**Select locations:** Culoul Range, Ourimbah, Bayview, Wahroonga, Royal NP, Dapto, Razorback, Jenolan Caves, Mullion Range.

**Habitat:** Eucalypt open-forest.

**Altitude:** 0–1000 m  **Annual rainfall:** above 700 mm

**Typical local abundance:** Occasional.
Vegetation: Eucalypt open-forest, e.g. *Eucalyptus deanei*, *E. dives*, *E. eugenioides*, occasionally in dry rainforest margins.
Substrate: Sandy to clay loam from shale, granite, metasediments, infertile–fertile.
Exposure: 
Conservation: Vulnerable in Western Sydney (Benson & McDougall 1991), status elsewhere unknown.

### Euchiton involucratu (Gnaphalium involucratum)

**ASTERACEAE**

Star Cudweed

**Life history**

Growth form: Woolly, stoloniferous herb 12–50 cm high.
Vegetative spread: Spreads by stolons.
Longevity: Annual or biennial (Purdie 1977).
Primary juvenile period: 1–2 years.
Flowers: At any time of year.
Fruit/seed: Achenes 0.6 mm long, mature December–February.
Dispersal, establishment & growth: Diaspore: fruit. Coloniser.
Fire response: Seedlings recorded less than 1 year after fire (Purdie 1977).

**Interaction with other organisms:**

**Distribution**

Status/origin: Native.
Botanical subregions: CC SC NT CT ST NWS CWS SWS; Qld, Vic., Tas., S.A.
Distribution Sydney area: Coast and montane areas.
Select locations: Martinsville, Carlingford, Beecroft, Bundeena, Orange, Wingecarribee Swamp.

**Habitat**

Habitat: Creeks, roadsides, pasture, swamps.
Altitude: 0–1000 m
Annual rainfall: above 1000 mm
Typical local abundance: Frequent.
Vegetation: Moist woodland, sedgeland, grassland, alluvial or peaty soils, fertile–infertile, watertable mostly high.
Substrate: Alluvial or fibrous peaty soils, fertile–infertile. Watertable mostly high.
Exposure: 
Conservation: Conserved in Western Sydney (Benson & McDougall 1991), status elsewhere unknown.

### Euryops chrysanthemoides *(Gamolepis chrysanthemoides)*

**ASTERACEAE**

**Life history**

Growth form: Shrub 0.5–1.5 m high.
Vegetative spread: 
Longevity: Indefinite.
Primary juvenile period: 
Flowers: Yellow, June.
Fruit/seed: Achenes 0.5 mm long, no pappus.
Dispersal, establishment & growth: 
Fire response: 
Interaction with other organisms:

**Distribution**

Status/origin: Naturalised exotic, native to S Africa.
Botanical subregions: CC.
Distribution Sydney area: Northbridge to Wollongong (Harden 1992).
Select locations: (no specimens)
Facelis retusa *

**ASTERACEAE**

**Life history**

**Growth form:** Herb, 5–30 cm high, with decumbent stems.

**Vegetative spread:**

**Longevity:** Perennial.

**Primary juvenile period:**

**Flowers:** White, purple-tipped, October–January.

**Fruit/seed:** Achenes 1–1.5 mm long, with pappus of numerous papillary hairs.

**Dispersal, establishment & growth:** Diaspore: fruit, probably wind-dispersed.

**Fire response:**

**Interaction with other organisms:**

**Distribution**

**Status/origin:** Naturalised exotic, native to S America.

**Botanical subregions:** NC CC SC CWS.

**Distribution Sydney area:** Suburban area and Albion Park.

**Select locations:** Cheltenham, Northbridge, Wentworthville, Leumeah, Albion Park (1948).

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**Habitat**

**Conservation**

**Habitat:** Weed near habitation: gardens, paths, paddocks.

**Altitude:** 0–100 m  
**Annual rainfall:** above 800 mm

**Typical local abundance:** Frequent–occasional.

**Vegetation:** Wasteland weeds.

**Substrate:** Sandy, well-drained soils, fertile.

**Exposure:**

**Conservation:** Garden weed, probably not invasive of bushland, though probably actively spreading.

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Galinsoga parviflora *

**ASTERACEAE**

**Life history**

**Potato Weed**

**Growth form:** Herb 10–60 cm high, with opposite leaves.

**Vegetative spread:** No.

**Longevity:** 1 year.

**Primary juvenile period:** Flowers 4–6 weeks after germination (Ciba-Geigy 1968–), fruiting within 15 weeks (P. Kubiak pers. comm.).

**Flowers:** White, disc yellow, February–August. Self-pollinated (Ciba-Geigy 1968–).

**Fruit/seed:** Achenes 2 mm long, with pappus of short bristles. Fruits ripen on pulled out plants (Ciba-Geigy 1968–).

**Dispersal, establishment & growth:** Diaspore: fruit. Dispersed by wind, water, animals and people; germinates in light; vigorous user of nitrogen and competitor for space; sensitive to frost; 2–3 generations per year in favourable conditions (Ciba-Geigy 1968–).

**Fire response:** Killed (M. Clarke pers. comm.).flowered within 12 weeks, and fruiting within 15 weeks of high-intensity fire (1/1994) at Lane Cove, seedlings observed (P. Kubiak pers. comm.).

**Interaction with other organisms:** Cattle and sheep especially like this herb (Ciba-Geigy 1968–).
**Distribution**

**Status/origin:** Naturalised exotic, native to S America.

**Botanical subregions:** NC CC SC NT CT NWS; Qld, Vic., Tas., N.T., S.A., W.A.

**Distribution Sydney area:** Widespread.

**Select locations:** Waitara, Dural, Lane Cove, Pennant Hills (M. Clarke pers. comm.). Port Jackson (1850), Como (1887), Richmond, Heathcote, Wollongong, Albion Park, Mt Irvine, Mt Wilson.

**Habitat:** Disturbed habitats and agricultural areas.

**Altitude:** 0–1000 m  
**Annual rainfall:** above 700 mm

**Typical local abundance:** Frequent–occasional.

**Vegetation:** Moist eucalypt forests, mangrove edges, disturbed watercourses (M. Clarke pers. comm.).

**Substrate:** Fertile soil on sandstone, shale. Nitrogenous soil (Ciba-Geigy 1968–).

**Exposure:** Full sun–semi-shade (M. Clarke pers. comm.).

**Conservation:** Weed of disturbed sites, minor invader of bush. Often confused with *Bidens pilosa* or *Sigesbeckia orientalis* (M. Clarke pers. comm.).

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**Gazania rigens** *(ASTERACEAE)*

**Growth form:** Herb with decumbent stems forming mats.

**Vegetative spread:**

**Longevity:** Perennial.

**Primary juvenile period:**

**Flowers:** Bright orange–deep yellow, most of the year.

**Fruit/seed:** Achene 4 mm long, covered by hairs.

**Dispersal, establishment & growth:** Diaspore: fruit, wind-dispersed, probably also water-dispersed.

**Fire response:**

**Interaction with other organisms:**

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**Distribution**

**Status/origin:** Naturalised exotic, native to S Africa. Introduced as garden ornamental, occasionally escaping.

**Botanical subregions:** CC; S.A.

**Distribution Sydney area:** Coastal headlands and beaches.

**Select locations:** Pearl Beach (1973), Palm Beach (1972), Bangally Head, Bronte/Tamarama Headland.

**Habitat:** Coastal sand dunes and roadsides.

**Altitude:** 0–50 m  
**Annual rainfall:** above 1200 mm

**Typical local abundance:** Frequent.

**Vegetation:** Coastal herbland, e.g. with *Carpobrotus, Lampranthus, Westringia*.

**Substrate:** Beach sand and sandstone cliffs.

**Exposure:** Full sun.

**Conservation:** Localised garden escape though relatively recent collections (since 1972) possibly indicate increasing spread.

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**Glossogyne tannensis** *(Glossogyne tenuifolia)* *(ASTERACEAE)*

**Cobbler’s Tack**

**Growth form:** Herb with erect stems to 60 cm.

**Vegetative spread:**

**Longevity:** Perennial.

**Primary juvenile period:**
Flowers: Yellow, December–April.
Fruit/seed: Achene 7–8 mm long, pappus with barbed awns 1–2 mm long, mature December–April.
Dispersal, establishment & growth: Diaspore: fruit, probably animal-dispersed.
Fire response:

Interaction with other organisms:

Status/origin: Native.
Botanical subregions: NC CC SC NT CT NWS CWS NWP NFWP; all mainland States, Pac., Asia, India.
Distribution Sydney area: Western Sydney, Capertee and Shoalhaven Valleys.
Select locations: Ryde, Glenfield, Ingleburn, Doonside, Capertee Valley, Shoalhaven Gorge.

Habitat: Drier grasslands and woodlands.
Altitude: 0–600 m
Typical local abundance: Frequent–occasional.
Vegetation: Grassland and woodland, e.g. with Eucalyptus moluccana and E. fibrosa.
Substrate: Clay soils of moderate fertility, from shales, quartzite, slates.
Exposure: Probably full sun.

Conservation: Rare and vulnerable in Western Sydney (Benson & McDougall 1991), though elsewhere in NSW reported to be ‘common and abundant in large areas if there has been a high summer rainfall’ (Harden 1992).

Gnaphalium americanum *

ASTERACEAE

Growth form: Slender herb 10–35 cm high.
Vegetative spread:
Longevity:
Primary juvenile period:
Flowers: Cream–white, mainly October–January.
Fruit/seed: Achene 0.5 mm high, with pappus of bristles 2 mm long.
Dispersal, establishment & growth: Diaspore: fruit, possibly animal-dispersed.
Fire response:

Interaction with other organisms:

Status/origin: Naturalised exotic of relatively recent origin, native to Central and S America.
Botanical subregions: NC CC SC CT ST; LHI.
Distribution Sydney area: Mainly coastal.

Habitat: Disturbed areas, tracks, vacant land.
Altitude: 0–700 m
Typical local abundance: Frequent.
Vegetation: With grasses and herbs.
Substrate: Sandy to stony clay soils.
Exposure: Probably full sun.

Conservation: Weed of disturbed sites, probably still expanding range.
**Gnaphalium calviceps**

**ASTERACEAE**

**Growth form:** Herb 10–20 cm high.
**Vegetative spread:** No.
**Longevity:** 1 year.
**Primary juvenile period:** Less than 1 year.
**Flowers:** Brown, mainly October–December.
**Fruit/seed:** Achene 0.4–0.6 mm long, with a pappus of bristles 2 mm long, mature October–February.
**Dispersal, establishment & growth:** Diaspore: fruit, probably wind-dispersed.
**Fire response:** Probably killed.
**Interaction with other organisms:**

**Status/origin:** Naturalised exotic, native to S America.
**Botanical subregions:** NC CC SC ST NTS NWS; Vic., Tas., S.A.
**Distribution Sydney area:** Sydney, Cumberland Plain and Bathurst.
**Select locations:** Royal Botanic Gardens (1902), Little Bay, Cabarita, Castle Hill, Glenfield, Norton’s Basin, Mt Annan, Thirlmere, Bathurst.

**Habitat:** Disturbed sites including sheep pens.
**Altitude:** 0–1000 m  **Annual rainfall:** above 700 mm
**Typical local abundance:** Occasional.
**Vegetation:** Grassland or open woodland, e.g. with *Eucalyptus blakelyi*.
**Substrate:** Clay soils, fertile.
**Exposure:**

**Conservation:** Weed of disturbed sites, not invasive of bushland.

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**Gnaphalium coarctatum**

**ASTERACEAE**

**Purplish Cudweed**

**Growth form:** Herb 7–40 cm high.
**Vegetative spread:** No.
**Longevity:** 1–2 years.
**Primary juvenile period:**
**Flowers:** October–April.
**Fruit/seed:** Achene, 0.7 mm long, mature November–December.
**Dispersal, establishment & growth:** Diaspore: fruit, wind- and possibly animal-dispersed (Carr et al. 1992).
**Fire response:** Probably killed; fruiting within 25 weeks, seeds shed within 27 weeks of high-intensity fire (1/1994) at Lane Cove (P. Kubiak pers. comm.).
**Interaction with other organisms:** Leaves, seed, and stems eaten by Crimson Rosella *Platycercus elegans* (Lepschi 1993).

**Status/origin:** Naturalised exotic, native to America.
**Botanical subregions:** NC CC SC NT NWS CWS SWS; LHI, Qld, Vic.
**Distribution Sydney area:** Mainly coast.
**Select locations:** Narara, Point Claire (1931), Pennant Hills, Narrabeen, Manly, Granville, Lower Portland, Castle Hill.

**Habitat:** Disturbed ground, footpaths, parks, cleared areas.
**Altitude:** 0–100 m  **Annual rainfall:** above 750 mm
**Typical local abundance:** Occasional–frequent.
**Vegetation:** Lawns, grassland and with weeds of disturbed sites, e.g. *Bidens pilosa, Plantago lanceolata*.
**Substrate:** Mainly clay soils, fertile, cracks in pavements.
**Exposure:** Full sun.

**Conservation:** Weed of disturbed sites, not likely to be invasive of bushland.
**Gnaphalium pensylvanicum** *ASTERACEAE*

*Life history*

**Growth form:** Erect to procumbent woolly herb 20–50 cm high.
**Vegetative spread:** No.
**Longevity:** 1 year.
**Primary juvenile period:** Less than 1 year.
**Flowers:** White, September–October.
**Fruit/seed:** Achene 0.5 mm long, with pappus of non-persistent bristles 2 mm long, mature July–December.
**Dispersal, establishment & growth:** Diaspore: fruit.
**Fire response:** Probably killed; flowering and fruiting within 15 weeks of high-intensity fire at Lane Cove, seedlings observed (P. Kubiak pers. comm.).

**Interaction with other organisms:**

**Status/origin:** Naturalised exotic, native to America and introduced by 1805.
**Botanical subregions:** NC CC SC; LHI, Qld.
**Distribution Sydney area:** Sydney suburbs.
**Select locations:** Ettalong, Harbord, Carlingford, Lane Cove, Port Jackson (1805), Centennial Park, Sans Souci, Ingleburn, Castle Hill, Richmond.

**Habitat:** Disturbed sites, garden and lawn weed, along tracks.
**Altitude:** 0–100 m
**Annual rainfall:** above 700 mm

**Typical local abundance:** Occasional.
**Vegetation:** Weeds of disturbed sites.
**Substrate:** Sandy soil, infertile.
**Exposure:** Full sun.

**Conservation:** Long established weed of disturbed sites, unlikely to invade bushland.

**Gnaphalium polycaulon**

*ASTERACEAE*

*Life history*

**Growth form:** Erect to ascending herb to 15 cm high.
**Vegetative spread:** No.
**Longevity:** 1 year.
**Primary juvenile period:** Less than 1 year.
**Flowers:** July–December.
**Fruit/seed:** Achene 0.5 mm long, with pappus of barbed bristles 2 mm long.
**Dispersal, establishment & growth:** Diaspore: fruit, probably animal-dispersed.
**Fire response:** Probably killed.

**Interaction with other organisms:**

**Status/origin:** Native.
**Botanical subregions:** CT NWP SWP; Qld, Vic., W.A.
**Distribution Sydney area:** Newnes Plateau.
**Select locations:** Newnes Glowworm tunnel (only record for area).

**Habitat:** Along road verge though reported along watercourses further west.
**Altitude:** 1000 m
**Annual rainfall:** 1200 mm

**Typical local abundance:** Occasional.
**Vegetation:** Heath–scrub.
**Substrate:** Sandy podsolic soil on sandstone.
**Exposure:**

**Conservation:** Mainly a western species, Newnes is eastern limit. Conservation status unknown.
**Gnaphalium sphaericum**

*ASTERACEAE*

**Growth form:** Erect herb 5–50 cm high, rarely biennial.
**Vegetative spread:** No.
**Longevity:** 1–2 years.
**Primary juvenile period:** Less than 1 year.
**Flowers:** At any time of year.
**Fruit/seed:** Achene 0.7 mm long with pappus of non-persistent bristles 2 mm long, matures at any time of year.
**Dispersal, establishment & growth:** Diaspore: fruit. Coloniser.
**Fire response:** Probably killed.

**Interaction with other organisms:**

**Status/origin:** Native.
**Botanical subregions:** NC CC SC NT CT ST NWS CWS SWS NWP SWP NFWP SFWP; Qld, Vic., Tas., N.T., S.A., W.A.
**Distribution Sydney area:** Widespread.
**Select locations:** Culoul range, Windsor, Castle Hill, Wahroonga, Minto, Bulli Pass, Albion Park, Berry, Mt Bindo, Boyd Plateau.

**Habitat:** Disturbed sites, roadsides, bare ground, ridge-top, slopes, creek bank.
**Altitude:** 0–1100 m
**Annual rainfall:** above 700 mm
**Typical local abundance:** Occasional–common.
**Vegetation:** Eucalypt woodland and grassland, e.g. with *Eucalyptus demetri*, *E. tereticornis*, *E. fibrosa*, *E. paniculata*, *E. dalrympleana*, *E. dives*.
**Substrate:** Various soils from shale, volcanics, slate, metasediment, rare on sandstone.
**Exposure:** Mid shade–full sun.

**Conservation:** Conserved in Western Sydney (Benson & McDougall 1991), status elsewhere unknown.

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**Grindelia camporum** var. *australis*

*ASTERACEAE*

**Growth form:** Herb with woody crown growing 0.5–1.2 m high.
**Vegetative spread:**
**Longevity:**
**Primary juvenile period:**
**Flowers:** Yellow, summer–autumn. January–May.
**Fruit/seed:** Achene 2–3.5 mm long, with pappus of several smooth awns.
**Dispersal, establishment & growth:** Diaspore: fruit.
**Fire response:**

**Interaction with other organisms:**

**Status/origin:** Exotic, native to N America. Occasionally naturalised.
**Botanical subregions:** CT.
**Distribution Sydney area:** Bathurst–Orange.
**Select locations:** Bathurst–Orange (1932), Bathurst (1944).

**Habitat:** Pasture and stream banks.
**Altitude:** 700–1000 m
**Annual rainfall:** 600–900 mm
**Typical local abundance:**
**Vegetation:** Ground stratum, pasture and stream banks.
**Substrate:**
**Exposure:**

**Conservation:** Occasionally naturalised.
**Guizotia abyssinica** * 

**ASTERACEAE**

**Growth form:** Herb to 2 m high.

**Vegetative spread:** No.

**Longevity:** 1 year.

**Primary juvenile period:** Less than 1 year.

**Flowers:** Yellow, April-June.

**Fruit/seed:** Achene 4 mm long, no pappus.

**Dispersal, establishment & growth:**

**Fire response:**

**Interaction with other organisms:**

**Status/origin:** Naturalised exotic, native to Ethiopia. Cultivated in Africa and India for oil. The few collections have resulted from imported bird seed (Harden 1992).

**Botanical subregions:** NC CC; Qld.

**Distribution Sydney area:** Sydney suburbs.

**Select locations:** Eastwood, Earlwood, Kellyville (1974).

**Habitat:** Gardens.

**Altitude:** 0–100 m

**Annual rainfall:** above 1000 mm.

**Typical local abundance:**

**Vegetation:**

**Substrate:**

**Exposure:**

**Conservation:** Uncommon weed.

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**Gymnocoronis spilanthoides** * 

**ASTERACEAE**

**Growth form:** Rhizomatous herb 1–2.5 m high; stems ribbed, hollow and cane-like.

**Vegetative spread:** Spreading by rhizome.

**Longevity:** Perennial.

**Primary juvenile period:**

**Flowers:** White, February.

**Fruit/seed:** Achene 0.5 mm long, no pappus.

**Dispersal, establishment & growth:** Diaspore fruit, also regrows from stem nodes. Re-grew from plants raked from dam and sprayed with herbicide (Herbarium note 1985).

**Fire response:**

**Interaction with other organisms:**

**Status/origin:** Naturalised exotic, native to S America.

**Botanical subregions:** NC CC.

**Distribution Sydney area:** Sydney, Illawarra.


**Habitat:** Riverbanks and in still to slow-flowing waters in dams, drains and creeks.

**Altitude:** 0–100 m

**Annual rainfall:** above 1000 mm

**Typical local abundance:** Dominant–frequent.

**Vegetation:** Wetland.

**Substrate:** Riverbank alluvium. Soil fertile. Watertable permanently high, moisture supply continuous, fresh; grows from bank into water 1 m deep (Herbarium note 1985).

**Exposure:** No shade.

**Conservation:** A declared noxious weed in NSW. Probably spreading.
**Hedypnois rhagadioloides** subsp. *cretica* * ASTERACEAE

*Cretan Weed*

**Growth form:** Annual 3–50 cm high.

**Vegetative spread:** No.

**Longevity:** 1 year.

**Primary juvenile period:** Less than 1 year.

**Flowers:** Yellow, August–November.

**Fruit/seed:** Achene 5–7 mm long, with pappus 3–6 mm long, barbed.

**Dispersal, establishment & growth:** Diaspore: fruit, possibly animal-dispersed.

**Fire response:**

**Interaction with other organisms:**

**Status/origin:** Naturalised exotic, native to Mediterranean region.

**Botanical subregions:** CC NT NWS CWS SWS NWP SWP NFWP SFWP; Qld, Vic., Tas., S.A., W.A.

**Distribution Sydney area:** Western Sydney.

**Select locations:** Hornsby, Homebush (1909), Flemington Saleyards, Bringelly, Menangle, Camden, Albion Park.

**Habitat:** Weed of pastures and disturbed sites.

**Altitude:** 0–200 m

**Annual rainfall:** 700–1200 mm

**Typical local abundance:** Rare.

**Vegetation:** Grassland.

**Substrate:** Clay soil from shale, fertile. Recorded on saline sites in western NSW (Semple 1993).

**Exposure:**

**Conservation:** Minor weed of pastures, not invasive of bushland.

**Helianthus annuus** * ASTERACEAE

*Common Sunflower*

**Growth form:** Herb with taproot, 1–2 m high.

**Vegetative spread:** No.

**Longevity:** 1–2 years.

**Primary juvenile period:** 3 months.

**Flowers:** Bright yellow, throughout the year.

**Fruit/seed:** Achene, 5–10 mm long, no pappus.

**Dispersal, establishment & growth:** Diaspore: fruit, dispersed by humans.

**Fire response:** Flowering within 12–13 weeks of high-intensity fire 1/1994 at Lane Cove and Narrabeen, possibly growing from seed introduced to feed wildlife (P. Kubiak pers. comm.).

**Interaction with other organisms:**

**Status/origin:** Exotic, native to N America. Widely cultivated for the oil extracted from the seeds, and sometimes grown as an ornamental. Cultivated forms have larger heads than naturalised plants.

**Botanical subregions:** NC CC ST NWS CWS SWS NWP SWP NFWP SFWP; all mainland States.

**Distribution Sydney area:** Narellan.

**Select locations:** Narellan Rubbish tip (1968) only record.

**Habitat:** Roadside and disturbed sites.

**Altitude:** 0–300 m

**Annual rainfall:** above 700 mm

**Typical local abundance:**

**Vegetation:**

**Substrate:**

**Exposure:** Full sun.

**Conservation:** Probably established from split grain and unlikely to persist. Unlikely to be naturalised in Sydney area.
**Helianthus tuberosus**  *ASTERACEAE*  
**Life history**

**Jerusalem Artichoke**

**Growth form:** Erect herb with short rhizomes and tubers, 1.5–3 m high.

**Vegetative spread:** Tubers.

**Longevity:** Perennial.

**Primary juvenile period:**

**Flowers:** Yellow, summer.

**Fruit/seed:** Achenes, 4–6 mm long, with pappus of scales.

**Dispersal, establishment & growth:** Diaspore: fruit, tubers, dispersed by humans.

**Fire response:**

**Interaction with other organisms:**

**Status/origin:** Exotic, native of North and S America. Frequently cultivated for its edible tubers. Rare garden escape probably as a result of dumping tubers.

**Botanical subregions:** CC CWS SWP; W.A.

**Distribution Sydney area:** Sydney suburbs.

**Select locations:** Northbridge (1965), Campbelltown (1971).

**Habitat**

**Habitat:** Roadsides and in wasteland near habitation (Harden 1992).

**Altitude:** 0–300 m  
**Annual rainfall:** above 700 mm

**Typical local abundance:**

**Vegetation:**

**Substrate:** Clay soil.

**Exposure:**

**Conservation:** Minor weed, rare in Sydney area.

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**Helichrysum adenophorum var. waddelliae**  *ASTERACEAE*  
**Life history**

**Growth form:** Herb 20–50 cm high, grows in clumps.

**Vegetative spread:** No.

**Longevity:** 1 year.

**Primary juvenile period:** Less than 1 year.

**Flowers:** White–pink, September–March.

**Fruit/seed:** Achenes with pappus of barbed bristles, mature April.

**Dispersal, establishment & growth:** Diaspore: fruit, wind-dispersed, possibly colonising disturbed soil.

**Fire response:**

**Interaction with other organisms:**

**Status/origin:** Native.

**Botanical subregions:** NC CC CT ST; Vic., S.A.

**Distribution Sydney area:** Newnes, Putty area, Paddys River.

**Select locations:** Howes Valley, Putty, Clarence, Lithgow, Paddys River.

**Habitat**

**Habitat:** Hillsides, ridgetops.

**Altitude:** 0–1100 m  
**Annual rainfall:** above 800 mm

**Typical local abundance:** Frequent–occasional.

**Vegetation:** Eucalypt forest.

**Substrate:** Sand and sandy soil on sandstone, infertile, well-drained.

**Exposure:**

**Conservation:** Conservation status unknown.
**Helichrysum calvertianum**

**ASTERACEAE**

**Life history**

Growth form: Twiggy subshrub to 30 cm high.
Vegetative spread:
Longevity:
Primary juvenile period:
Flowers: White, often tinged pink, January–July.
Fruit/seed: Achene with pappus of bristles.
Dispersal, establishment & growth: Diaspore: fruit, wind-dispersed.
Fire response:
Interaction with other organisms:

**Distribution**

Status/origin: Native.
Botanical subregions: CT.
Distribution Sydney area: Restricted to Fitzroy Falls, Berrima and Mittagong.
Select locations: Mittagong, Berrima, Saddleback, Fitzroy Falls, Barbers Creek.

**Habitat**

Habitat: Eucalypt woodland.
Altitude: 800–1000 m  
Annual rainfall: above 900 mm
Typical local abundance:
Vegetation: Dry eucalypt woodland.
Substrate: Sandy soil.
Exposure:

Conservation: Local endemic species, uncommon, conservation status unknown.

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**Helichrysum collinum**

**ASTERACEAE**

**Life history**

Growth form: Robust, woody herb to 1 m high, grey–white woolly.
Vegetative spread:
Longevity: Perennial.
Primary juvenile period:
Flowers: Yellow, September–March, peak November.
Fruit/seed: Achene with pappus of bristles, mature October–December.
Dispersal, establishment & growth: Diaspore: fruit.
Fire response: Regrowth only from surviving rootstocks, seedlings recorded less than 1 year after fire (Purdie 1977).
Interaction with other organisms:

**Distribution**

Status/origin: Native.
Botanical subregions: NC CC SC NT CT ST NWS CWS NWP; Qld.
Distribution Sydney area: Widespread.
Select locations: Wollombi, Como, Macquarie Fields, Glenbrook, Yanderra, Yerranderie, Bomaderry, Kanangra, Hill Top, Mittagong, Wirrallago.

**Habitat**

Habitat: Ridges.
Altitude: 0–1000 m  
Annual rainfall: above 800 mm
Typical local abundance: Occasional.
Vegetation: Eucalypt woodland, e.g. with Angophora bakeri, Eucalyptus sieberi, E. punctata with shrubby understorey.
Substrate: Sandy loam from sandstone, also shale, deep, well-drained.
Exposure:

Conservation: Not common, conservation status unknown.
**Helichrysum elatum**  
ASTERACEAE  
White Paper Daisy  

**Life history**

**Growth form:** Woody shrub or subshrub 60–200 cm high.

**Vegetative spread:**

**Longevity:**

**Primary juvenile period:**

**Flowers:** White, June–November, peak September.

**Fruit/seed:** Achene with pappus of bristles 7 mm long, mature June–January, peak October.

**Dispersal, establishment & growth:** Diaspore: fruit, wind-dispersed (Westoby et al. 1990), possible coloniser of disturbed soil.

**Fire response:** Possibly killed by high-intensity fire at Narrabeen (P. Kubiak pers. comm.).

**Interaction with other organisms:**

**Status/origin:** Native.

**Botanical subregions:** NC CC SC NT CT ST; Qld, Vic

**Distribution Sydney area:** Widespread, localised.

**Select locations:** Mt Kindarun, Tuggerah, Gosford, Hornsby, Mt Keira, Thirlmere, Berry, Kangaroo Valley, Mt Wilson, Katoomba, Hill Top, Kangalloon (P. Kodela pers. comm.).

**Habitat:** Hillsides, valleys.

**Altitude:** 0–1000 m  
**Annual rainfall:** above 900 mm

**Typical local abundance:** Frequent–occasional.

**Vegetation:** In open to tall open eucalypt forest, e.g. *Eucalyptus fastigata*, *E. cypellocarpa*, *E. obliqua*, *E. globoidea* (P. Kodela pers. comm.), also edge of rainforest.

**Substrate:** High nutrient soils, disturbed sites, mostly on basalt, shale or on sandy soil from sandstone, conglomerate. On shale, sometimes sandstone, in Kangalloon area (P. Kodela pers. comm.).

**Exposure:** Sheltered.

**Conservation:** Conservation status unknown.

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**Helichrysum leucopsideum**  
ASTERACEAE  
Satin Everlasting  

**Life history**

**Growth form:** Herb 15–20 cm high, with woody rootstock.

**Vegetative spread:**

**Longevity:** Perennial.

**Primary juvenile period:**

**Flowers:** White, sometimes tinged pink in bud, November–May.

**Fruit/seed:** Achene with pappus of barbed bristles, January–April.

**Dispersal, establishment & growth:** Diaspore: fruit. Possible coloniser of disturbed ground.

**Fire response:**

**Interaction with other organisms:**

**Status/origin:** Native.

**Botanical subregions:** CC SC CT ST NWP SWP SFWP; Vic., Tas., S.A., W.A.

**Distribution Sydney area:** Widespread, but mainly upper Blue Mountains, localised.

**Select locations:** Kogarah, Cambewarra, Newnes Plateau, Bell, Hassans Walls, Hilltop, Kangalloon, Wingello.

**Habitat:** Slopes and ridges.

**Altitude:** 0–1100 m  
**Annual rainfall:** above 1200 mm

**Typical local abundance:** Frequent.

**Vegetation:** Eucalypt forest, e.g. with *Pteridium esculentum*, *Lomandra longifolia*, *Eucalyptus rossii*.

**Substrate:** Sandy loam.
Benson & McDougall, Ecology of Sydney plants 2

Exposure: Open areas.

Conservation: Conservation status unknown.

**Helichrysum rutidolepis**

**ASTERACEAE**

Pale Everlasting

**Life history**

Growth form: Decumbent, woolly herb 15–40 cm high.
Vegetative spread: Creeping rhizome.
Longevity: Perennial.
Primary juvenile period:
Flowers: Yellow, December–June, peak March–April.
Fruit/seed: Achene with pappus of bristles, mature March–April.
Dispersal, establishment & growth: Diaspore: fruit, probably wind-dispersed.
Fire response: Resprouted, a few plants flowering and fruiting within 18 weeks of high-intensity fire (1/1994) at Lane Cove (P. Kubik pers. comm.).
Interaction with other organisms:

**Distribution**

Status/origin: Native.
Botanical subregions: NC CC SC NT CT ST SWS SWP; Vic., S.A.
Distribution Sydney area: Coast and mountains.
Select locations: Eastwood, Lane Cove River, Douglas Park, Euroka, Austinmer, Mt Gibraltar, Kangaroo Valley, Mt Hay, Jenolan Caves, Kanangra.
Habitat: Hillsides, rocky gorges.
Altitude: 0–1000 m
Typical local abundance: Occasional.
Vegetation: Wet eucalypt forest and rainforest fringes, e.g. with *Eucalyptus fastigata*, *E. radiata*, *E. stellulata*, *E. punctata*, or grasslands, e.g. with *Stellaris pungens*.
Substrate: Basalt soils, less commonly sandy loam from sandstone, fertile soil.
Exposure:
Conservation: Not known.

**Helichrysum scorpioiides**

**ASTERACEAE**

Button Everlasting

**Life history**

Growth form: Herb to 30 cm high. An undescribed taxon close to *H. scorpioiides* occurs in the Robertson–Mittagong area (P. Kodela pers. comm.).
Vegetative spread: New growth from rhizomes up to 30 cm from old stem, probably with subsequent separation to form new plants. [Can be propagated by severing sucker shoots (Langkamp 1987).]
Primary juvenile period:
Flowers: Yellowish, December–June.
Dispersal, establishment & growth: Diaspore: fruit. Wind-dispersed.
Fire response: Resprouted, some plants flowering within 16 weeks and fruiting within 23 weeks of high-intensity fire (1/1994) at Lane Cove (P. Kubik pers. comm.).
Interaction with other organisms:

**Distribution**

Status/origin: Native.
Botanical subregions: NC CC SC NT CT ST NWS CWS; Vic., Tas., S.A.
Distribution Sydney area: Widespread.
Select locations: Lane Cove River, Otford, Berry, Kangaroo Valley, Castlereagh, Glenbrook, Mt Wilson, Kanangra Deep, Jenolan Caves, Hilltop, Mt Gibraltar.
Habitat: Disturbed sites, edges of wooded roadsides.
Altitude: 0–1000 m  
**Annual rainfall:** above 800 mm

**Typical local abundance:** Frequent–occasional.

**Vegetation:** Open-forest, e.g. with Eucalyptus radiata, E. punctata, E. piperita, E. fastigata, E. viminalis, E. blakelandii. Woodland, e.g. Eucalyptus sclerophylla–Angophora bakeri.

**Substrate:** Variable brown clay from basalt, sandy loam from sandstone, shale–sandstone transition. Soil very fertile–fertile. Watertable mostly low, moisture supply intermittent, fresh, sometimes moist sites, e.g. swamp edge.

**Exposure:** Sheltered situations; light shade.

**Conservation:** Conserved in Western Sydney (Benson & McDougall 1991). Status elsewhere unknown.

**Helminthotheca echioides** * (Picris echioides)

**ASTERACEAE**

**Ox-tongue**

**Life history**

**Growth form:** Herb 30–100 cm high, with taproot.

**Vegetative spread:**

**Longevity:** 1–2 years.

**Primary juvenile period:**

**Flowers:** Yellow, October–November.

**Fruit/seed:** Achene 3 mm long, with pappus of bristles 5 mm long.

**Dispersal, establishment & growth:** Diaspore: fruit, probably wind-dispersed.

**Fire response:**

**Interaction with other organisms:**

**Distribution**

**Status/origin:** Naturalised exotic, native to Europe, Asia, Africa.

**Botanical subregions:** CC SC CW S SWP; Qld, Vic., Tas., S.A., W.A.

**Distribution Sydney area:** Wollongong.

**Select locations:** Mt Ousley Road (1967) only record for Sydney area.

**Habitat**

**Hemizonia pungens** *

**ASTERACEAE**

**Spikeweed**

**Life history**

**Growth form:** Herb; glandular, hairy and aromatic.

**Vegetative spread:** No.

**Longevity:** 1 year.

**Primary juvenile period:** Less than 1 year.

**Flowers:** Yellow, summer–autumn.

**Fruit/seed:** Achene 1–2 mm long with small apically offset horn.

**Dispersal, establishment & growth:**

**Fire response:**

**Interaction with other organisms:**

**Distribution**

**Status/origin:** Naturalised exotic, native to N America.

**Botanical subregions:** CT ST SWS.
**Hypochaeris glabra** *

Smooth Catsear

**Growth form:** Herb 10–40 cm high with slender taproot.
**Vegetative spread:** No.
**Longevity:** 1 year.
**Primary juvenile period:** Less than 1 year.
**Flowers:** Yellow, October–December.
**Fruit/seed:** Achene 3–5 mm long, of two types: inner with pappus of plumose bristles, outer with scabrous bristles, 8–10 mm long. Mature October–December.
**Dispersal, establishment & growth:** Diaspore: fruit, wind-dispersed.
**Fire response:** Seedlings recorded less than 1 year after fire (Purdie 1977).
**Interaction with other organisms:** Roots eaten by Sulphur-crested Cockatoo *Cacatua galerita* (Lepsch 1993).

**Distribution**

**Status/origin:** Naturalised exotic, native to Europe, Asia, Africa.
**Botanical subregions:** NC CC SC NT CT ST NWS CWS SWS NW NWP SWP NFWP SFWP; LHI, Qld, Vic., Tas., N.T., S.A., W.A.
**Distribution Sydney area:** Sydney and lower Blue Mountains.
**Select locations:** Pennant Hills, Port Jackson (1882), Cooks River, Liverpool, Camden, Machins Crater, Bullio.

**Habitat:** Lawns, pastures, woodland and disturbed habitats.
**Altitude:** 0–800 m
**Typical local abundance:** Frequent.
**Vegetation:** Woodland, mown areas.
**Substrate:** Clay soils and sandy loam from shale, volcanic necks, fertile, well drained.

**Conservation:** Common weed though not invasive of bushland.

**Hypochaeris microcephala** var. *albiflora** *

White Flatweed

**Growth form:** Herb 10–40 cm high, with radical leaves and a fleshy taproot.
**Vegetative spread:** No.
**Longevity:** Perennial.
**Primary juvenile period:**
**Flowers:** White, October–December.
**Fruit/seed:** Achene 5 mm long, with pappus of plumose bristles 5–8 mm long, mature October–December.
**Dispersal, establishment & growth:** Diaspore: fruit, wind-dispersed, also possibly spread in grain.
**Fire response:**
**Interaction with other organisms:**
Status/origin: Naturalised exotic, native to Europe, Asia, Africa.

Botanical subregions: NC CC NWS NWP; Qld.

Distribution Sydney area: Sydney and Cumberland Plain

Select locations: Denistone, Concord (1965), Whalan, Mt Druitt, Camden.

Habitat: Disturbed native vegetation and lawns, e.g. with Hypochaeris radicata, Taraxicum officinale.

Altitude: 0–200 m

Annual rainfall: above 700 mm

Typical local abundance: Occasional–frequent.

Vegetation: Moist eucalypt forest, lawn.

Substrate: Clay soil from Wianamatta Shale, fertile. Watertable permanently low.

Exposure: 

Conservation: Weed of relatively recent introduction. Probably not invasive of bushland.

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Hypochaeris radicata *

Catsear, Flatweed

ASTERACEAE

Life history

Growth form: Herb 15–80 cm high with a basal rosette; growing from hard, thickened overwintering base, fibrous-rooted, but often with several enlarged roots and appearing tap-rooted (Turkington & Aarsen 1983).

Vegetative spread: Only by perennating buds, frequently multi-crowned in lawns; root segments do not regenerate without portion of the crown (Turkington & Aarsen 1983).

Longevity: Several years?

Primary juvenile period: Flowering plants can be produced from seed in 2 months (Turkington & Aarsen 1983).

Flowers: Yellow, at any time with peaks in June and November. Cross-pollinated and self-incompatible; sunlight essential for flower-opening — once open cannot close for at least 3 hours (Turkington & Aarsen 1983).

Fruit/seed: Achene 4–7 mm long, with plumed pappus 8–14 mm long, mature at any time.

Dispersal, establishment & growth: Diaspore: fruit, wind-dispersed, probably over long distances. Animal-dispersed (Carr et al. 1992). Coloniser of disturbed sites. Usually found as isolated rosettes, or small group probably clonal; light required for germination 33–94% from fresh seed, no dormancy; over-winters as basal rosette; true hemicyryptophyte; mowing and grazing appears to stimulate growth of new leaves and favour flowering and fruiting in N.Z. (Turkington & Aarsen 1983). Grazing by snails Helix aspersa influences plant size variability (Weiner 1993).

Fire response: Regrows from surviving rootstocks, seedlings recorded less than 1 year after fire (Purdie 1977). Resprouted, flowering and fruiting within 10–13 weeks of high-intensity fire (1/1994) at Lane Cove and Narrabeen (? Kubiak pers. comm.).

Interaction with other organisms: May have allelopathic effects on other plant species inducing reduced shoot growth rate, also autotoxic (Turkington & Aarsen 1983). Palatable to rabbits (Leigh et al. 1987). Flowers eaten by Galah Cacatua roseicapilla, roots eaten by Sulphur-crested Cockatoo Cacatua galerita, flowers eaten by Crimson Rosella Platycercus elegans (Lepski 1993). (For list of insect predators see Turkington & Aarsen 1983.)
**Typical local abundance:** Frequent  
**Vegetation:** Grassland and disturbed forest, but found on swamp margins (P. Kodela pers. comm.).  
**Substrate:** Clay to sandy soils, from shale, basalt, sandstone, coal waste, fertile–infertile. Drought-tolerance related to deep rooting, found on well-drained sites, absent from waterlogged sites, tolerant of nutrient-deficient soils, has some degree of salt-tolerance (Turkington & Aarsen 1983).  
**Exposure:** Full sun.  

**Conservation:** Widespread and common weed on edges of disturbed native vegetation and capable of invasion into open grassland areas and along tracks. Neutral to slightly alkaline soil conditions aid invasion of bushland (R. Buchanan pers. comm.).

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### Isoetopsis graminifolia

**Grass Cushion**  

| **Growth form:** | Herb to 5 cm high. | **ASTERACEAE**  
| **Vegetative spread:** | No. | **Life history**  
| **Longevity:** | 1 year. | **Distribution**  
| **Primary juvenile period:** | Less than 1 year.  
| **Flowers:** | Yellowish. | **Habitat**  
| **Fruit/seed:** | Achene 2 mm long, with outer hairs and scales, inner achenes aborted. | **Conservation**  
| **Dispersal, establishment & growth:** | Diaspore: fruit. |  
| **Fire response:** |  
| **Interaction with other organisms:** |  

**Status/origin:** Native.  
**Botanical subregions:** NT CT ST NWS CWS NWP SWP NFWP SFWP; Qld, Vic., Tas., S.A., W.A.  
**Distribution Sydney area:** Winburndale.  
**Select locations:** Winburndale (1977) only Sydney area record.

**Habitat:**  
**Altitude:** 1000 m  
**Typical local abundance:** Rare.  
**Vegetation:** With herbaceous species, e.g. *Helipterum australe*, *Anquillaria*, *Planiago*, *Ophioglossum*.  
**Substrate:** Sandy to loamy red earths.  
**Exposure:**  

**Conservation:** Chiefly a western species, rare in Sydney area.

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### Lactuca saligna *

**Willow-leaved Lettuce**  

| **Growth form:** | Herb 30–100 cm high, with long taproot. | **ASTERACEAE**  
| **Vegetative spread:** | No. | **Life history**  
| **Longevity:** | 1–2 years. | **Distribution**  
| **Primary juvenile period:** |  
| **Flowers:** | Yellow, October–May. | **Status/origin:** Naturalised exotic, native to Europe, Asia, Africa.  
| **Fruit/seed:** | Achene 5–9 mm long, with pappus of bristles 3 mm long. |  
| **Dispersal, establishment & growth:** | Diaspore: fruit, wind-dispersed. |  
| **Fire response:** |  
| **Interaction with other organisms:** |  

Lactuca seriola

Prickly Lettuce

Growth form: Erect herb 1–2 m high, with long taproot.
Vegetative spread: No.
Longevity: Less than 2 years.
Primary juvenile period:
Flowers: Yellow, September–April.
Fruit/seed: Achene 6–8 mm long, with pappus of bristles 3 mm long.
Dispersal, establishment & growth: Diaspore: fruit, probably wind-dispersed.
Fire response:
Interaction with other organisms: Seed eaten by Crimson Rosella Platycercus elegans (Lepsch 1993).

Status/origin: Naturalised exotic, native to Europe, Asia.
Botanical subregions: NC CC SC NT CT ST NWS CWS SWS NSW NWP SWP NFWP SFWP, Qld, Vic., Tas., N.T., S.A., W.A.
Distribution Sydney area: Widespread.
Select locations: Bondi, Gladesville, Richmond, Penrith (1912), Camden, Abercrombie River, Robertson (P. Kodela pers. comm.), Moss Vale.

Habitat: Gardens, roadsides, wasteland, cultivation and degraded pastures.
Altitude: 0–800 m
Annual rainfall: above 700 mm
Typical local abundance: Frequent–occasional.
Vegetation: Ephemeral weeds.
Substrate: Fertile soils, clay. Recorded on saline sites in western NSW (Semple 1993).
Exposure: Full sun.
Conservation: Minor weed.

Lagenifera gracilis

Slender Lagenophora

Growth form: Herb with short rhizome, roots fleshy.
Vegetative spread: No, rhizome short, vertical.
Longevity:
Primary juvenile period:
Flowers: White–purple, October–April.
Fruit/seed: Achene 2–3.5 mm long, no pappus, mature October–April, peak March.
Dispersal, establishment & growth: Diaspore: fruit.
Fire response: Probably resprouts at ground level or below.

Interaction with other organisms:

Distribution

Status/origin: Native.
Botanical subregions: NC CC SC CT; Qld, Vic., Tas., S.A., Malesia.
Distribution Sydney area: Widespread at lower elevations.
Select locations: Watagans, MacDonald River, Dallymply Hay NR, Scarborough, Bilpin, Berkshire Park, Kentlyn, Thirlmere, Albion Park, Kangaroo Valley.

Habitat: Moist gullies and near water
Altitude: 0–600 m Annual rainfall: above 700 mm
Typical local abundance: Occasional.
Vegetation: Various — moist open-forest, e.g. with Eucalyptus saligna, Syncarpia glomulifera, Allocasuarina torulosa, Melaleuca scrub and sedge moorland. Ground stratum.
Substrate: Sandy loam from shale enriched sandstone, or from shales. Soil fertile–infertile. Watertable mostly low, moisture supply continuous, fresh, sometimes seepage areas.
Exposure: In sheltered situations, mid-light shade.

Conservation: Conservation status unknown.

Lagenifera stipitata

Blue Bottle-daisy, Common Lagenophora

ASTERACEAE

Life history

Growth form: Stoloniferous herb to 40 cm high, roots fibrous.
Vegetative spread: Spreads by stolons.
Longevity: Perennial.
Primary juvenile period:
Flowers: White, pale pink, bluish or mauve to purple, September–April, peak November–December.
Fruit/seed: Achene 2–4 mm long, no pappus, mature November–April.
Dispersal, establishment & growth: Diaspore: fruit, no special dispersal morphology (Westoby et al. 1990).

Fire response: Stems killed, resprouted from ground level and flowered within a month at Mona Vale after high-intensity fire (1/1994) (L.McD.). Resprouted, flowering within 9 weeks and seeds shed within 12 weeks of high-intensity fire at Lane Cove in 1994 (P. Kubik pers. comm.).

Interaction with other organisms:

Distribution

Status/origin: Native.
Botanical subregions: NC CC SC NT CT ST NWS; Qld, Vic., Tas., S.A., N.Z.
Distribution Sydney area: Coast and Upper Blue Mountains.
Select locations: Mooney Mooney Creek, Mona Vale (L.McD.), Austinmer, Seven Mile Beach, Culumbo Range, Londonderry, Mt Tomah, Mt Cameron, Lithgow, Govets Leap, Robertson (P. Kedela pers. comm.).

Habitat: Moist sheltered sites.
Altitude: 0–1200 m Annual rainfall: above 1200 mm
Typical local abundance: Occasional.
Vegetation: Moist eucalypt open-forest, e.g. with Eucalyptus dawsonii, E. cypellocarpa, E. fastigata, E. tinninialis with grassy understorey. Ground stratum.
Substrate: Basalt, shale, granite, talus, sandy loam. Soil very fertile–fertile. Watertable mostly low, moisture supply intermittent, fresh.
Exposure: In sheltered places, mid-shade–full sun.

Conservation: Conservation status unknown.
**Leontodon taraxacoides** subsp. *taraxacoides*  
Lesser Hawkbit

**Growth form:** Herb 15–40 cm high, with radical leaves.  
**Vegetative spread:** No.  
**Longevity:** 2–75 years.  
**Primary juvenile period:**  
**Flowers:** Yellow, October–April.  
**Fruit/seed:** Achene 5 mm long, with pappus of plumose bristles, mature October–April.  
**Dispersal, establishment & growth:** Diaspore: fruit, probably wind-dispersed.  
**Fire response:**  
**Interaction with other organisms:**

**Status/origin:** Naturalised exotic, native to Europe. Cultivated at Royal Botanic Gardens in 1951 from seed removed as impurity from linseed apparently grown in Victoria.  
**Botanical subregions:** NC CC SC NT CT ST SWP; Qld, Vic., Tas., S.A., W.A.  
**Distribution Sydney area:** Coast, western Sydney, Southern Highlands.  
**Select locations:** Pittwater (1962), La Perouse, Yennora, Glenfield (1963), Casula, Doonside, Mt Druitt, Menangle, Camden, Wingecarribee Swamp (P. Kedela pers. comm.).

**Habitat:** Lawns, wasteland, cemeteries, swamp margins (P. Kedela pers. comm.).  
**Altitude:** 0–700 m  
**Annual rainfall:** above 700 mm  
**Typical local abundance:** Frequent.  
**Vegetation:** Weedy areas, grassland, e.g. with *Taraxicum officinale, Hymenachne radicata.*  
Pasture/sedge/land ecotone (P. Kedela pers. comm.).  
**Substrate:** Sandy soil, clayey soils from shale, possibly salt-tolerant? Damp swamp margin area (P. Kedela pers. comm.).  
**Exposure:** Full sun.

**Conservation:** Recently introduced weed species probably still spreading, but unlikely to invade bushland.

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**Leptinella longipes** (Cotula longipes)

**Growth form:** Herb with prostrate branches.  
**Vegetative spread:** Stoloniferous.  
**Longevity:** Perennial.  
**Primary juvenile period:**  
**Flowers:** April.  
**Fruit/seed:** Achene 1–2.5 mm long, no pappus.  
**Dispersal, establishment & growth:**  
**Fire response:**  
**Interaction with other organisms:**

**Status/origin:** Native.  
**Botanical subregions:** NC CC SC CT; Qld, Vic., Tas.  
**Distribution Sydney area:** Mainly coastal.  
**Select locations:** Woy Woy, Narrabeen, Dee Why, Manly, Botany, Rockdale, Stanwell Park, Mt Kembla, Jenolan Caves (1900).

**Habitat:** Swamps.  
**Altitude:** 0–1000 m  
**Annual rainfall:** above 900 mm  
**Typical local abundance:**  
**Vegetation:** Swamps, lagoon margins.  
**Substrate:** Poorly-drained sites, possibly salt-tolerant?  
**Exposure:**

**Conservation:** Rare, last collected in Sydney area in 1950, (at Dee Why).
**Leptorrhynchos elongatus**

**ASTERACEAE**

**Growth form:** Herb to 40 cm high, with woody taproot.

**Vegetative spread:**

**Longevity:** Short, perennial.

**Primary juvenile period:**

**Flowers:** White–pale yellow, November.

**Fruit/seed:** Achene with pappus of bristles, mature November.

**Dispersal, establishment & growth:** Diaspore: fruit, probably wind-dispersed.

**Fire response:**

**Interaction with other organisms:**

**Status/origin:** Native.

**Botanical subregions:** NT CT ST NWS CW NSW; Vic., Tas., S.A., W.A.

**Distribution Sydney area:** Western parts of area.

**Select locations:** Jenolan Caves (1899) only Sydney area record.

**Habitat:**

**Altitude:** 800 m

**Annual rainfall:** 900 mm

**Typical local abundance:**

**Vegetation:** Woodland and grassland.

**Substrate:**

**Exposure:**

**Conservation:** Rare, no recent records for Sydney area.

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**Leptorrhynchos nitidulus**

**ASTERACEAE**

**Growth form:** Slender, stoloniferous herb to 25 cm high.

**Vegetative spread:** Stoloniferous.

**Longevity:**

**Primary juvenile period:**

**Flowers:** Yellow, summer–autumn.

**Fruit/seed:** Achene with pappus of bristles.

**Dispersal, establishment & growth:** Diaspore: fruit, wind-dispersed.

**Fire response:**

**Interaction with other organisms:**

**Status/origin:** Native.

**Botanical subregions:** CC SC CT; Vic., Tas.

**Distribution Sydney area:** Hurstville–Yennora, Bathurst.

**Select locations:** Hurstville (1895), Auburn (1888), Yennora (1965), Bathurst (19th century).

**Habitat:** Forests, clearings and roadsides.

**Altitude:** 0–800 m

**Annual rainfall:** above 1000 mm

**Typical local abundance:**

**Vegetation:** Woodland with shrubby understorey, e.g. *Callitemon pinifolius*, *Chorizema parvifolium*, *Pultenaea pedunculata*, sometimes swammy areas.

**Substrate:** Sandy clay soil from Wianamatta Shale.

**Exposure:**

**Conservation:** Northern limit (Auburn), rare and probably extinct in Sydney area and at Bathurst.
**Leptorrhynchos squamatus** subsp. A  
Scaly Buttons  

**ASTERACEAE**  

**Life history**

**Growth form:** Herb to 25 cm high.

**Vegetative spread:**

**Longevity:** Perennial.

**Primary juvenile period:**

**Flowers:** October–December (limited data).

**Fruit/seed:** Achenes with pappus of bristles.


**Fire response:**

**Interaction with other organisms:** Palatable to rabbits (Leigh et al. 1987).

**Distribution**

**Status/origin:** Native.

**Botanical subregions:** NC NT CT ST NWS CWS SWS SWP; Vic., Tas., S.A., W.A.

**Distribution Sydney area:** Western Blue Mountains.

**Select locations:** Canobolas (1908), Hartley Vale (1913), Moss Vale (1915), Cordeaux Creek, Tuenam.

**Habitat:** Creek bank.

**Altitude:** 400–1400 m  
**Annual rainfall:** above 800 mm

**Typical local abundance:** Rare.

**Vegetation:** Grasslands and forests. Ground stratum.

**Substrate:**

**Exposure:**

**Conservation:** Rare, mostly old records (5 specimens).

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**Leucanthemum vulgare** subsp. **maximum** *

**Oxeye Daisy**

**ASTERACEAE**  

**Life history**

**Growth form:** Erect, herb 30–90 cm high.

**Vegetative spread:** Extensive creeping roots produce new aerial growth annually (Parsons & Cuthbertson 1992).

**Longevity:** Perennial.

**Primary juvenile period:** More than 1 year (Parsons & Cuthbertson 1992).

**Flowers:** White, disc bright yellow, November–February.

**Fruit/seed:** Achenes 2.5 mm long. Seed produced in summer after which the aerial growth dies back; seed production is prolific, most seed is viable even after passing through the digestive tract of animals (Parsons & Cuthbertson 1992).

**Dispersal, establishment & growth:** Diaspore: fruit. No special adaptations for dispersal but small seeds spread in mud on animals and vehicles, water, grain; wind-dispersed along roadsides possibly assisted by turbulence from heavy vehicles (A. Rodd pers. comm.); germination in autumn, develops slowly during winter and spring; an extensive root system develops with shallow laterals which produce new aerial growth each autumn; some seed remains dormant for at least 20 years (Parsons & Cuthbertson 1992). Tolerates infrequent mowing.

**Fire response:**

**Interaction with other organisms:** Grows so densely it excludes most other vegetation, not readily grazed by stock so reduces carrying capacity of farmland (Parsons & Cuthbertson 1992).

**Distribution**

**Status/origin:** Naturalised exotic, native to Europe. Introduced as garden ornamental, naturalised in Victoria by 1905 and since then in NSW (Parsons & Cuthbertson 1992).

**Botanical subregions:** NC NT CT ST; Vic., S.A., Tas.
Distribution Sydney area: Tablelands.
Select locations: Lawson (1911), Mt Wilson (1914), Kowmung River, Orange (1906), Fitzroy Falls, Robertson (P. Kodela pers. comm.), Wildes Meadow, Belanglo.

Habitat: Roadside and cleared land, creek channels, disturbed sites.
Altitude: 200–1000 m

Annual rainfall: above 800 mm

Typical local abundance: Frequent.
Vegetation: Woodland, roadsides, and pastures.

Exposure:

Conservation: 'Dreaded pest' at Mt Wilson where it has already rendered useless large areas of land (J.H. Maiden 1914). Presently spread along Bells Line of Road as far as Mt Tomah and probably still spreading (A. Rodd pers. comm. 1994).

**Leucochrysum albicans** subsp. *albicans* var. *tricolor*  
**ASTERACEAE**  
**Life history**

Growth form: Woolly herb with woody rootstock, to 45 cm high.
Vegetative spread:
Longevity: Perennial.
Primary juvenile period:
Flowers: Pale brown–white, October–April, peak October.
Fruit/seed: Achene 2–3 mm long with pappus of feather-like bristles.
Dispersal, establishment & growth:
Fire response:
Interaction with other organisms:

Status/origin: Native.
Botanical subregions: CT ST CWS; Vic., Tas.
Distribution Sydney area: West of area.
Select locations: Hill End, Abercrombie, Trunk Creek, Picton–Mittagong, Berrima, Wingello, Tallong.

Habitat: Hill End, Abercrombie, Trunk Creek, Picton–Mittagong, Berrima, Wingello, Tallong.

Altitude: 600–1000 m
Annual rainfall: above 800 mm

Typical local abundance:
Vegetation:
Substrate: Sandstone and other sedimentary rock, deep soils.
Exposure:

Conservation: Mostly old collections. Conservation status unknown.

**Leucochrysum albicans** subsp. *albicans* var. *albicans*  
**ASTERACEAE**  
**Life history**

(Helipterum albicans)

Growth form: Woolly herb with woody rootstock to 45 cm high.
Vegetative spread:
Longevity: Perennial.
Primary juvenile period:
Flowers: Pale brown–yellow, August–April.
Fruit/seed: Achene 2–3 mm long with pappus of feather-like bristles, mature March (limited data).
germination. No strong after ripening requirement. Dormancy broken by GA$_3$, high
temperature, cold-stratification.

**Fire response:**

**Interaction with other organisms:**

**Distribution**

**Status/origin:** Native.

**Botanical subregions:** NC NT CT ST NWS CWS SWS NWSP SWP NFWP; Qld, Vic., Tas.

**Distribution Sydney area:** Bathurst area.

**Select locations:** Jenolan Caves (1899), Hartley Vale, Zig Zag, Megalong Creek,
Kirkconnel/Bowenfels (1904).

**Habitat**

**Habitat:**

Altitude: 700–1000 m  
Annual rainfall: 600–1000 mm

**Typical local abundance:** Now rare in area.

**Vegetation:** Grasslands and tall forests. Ground stratum.

**Substrate:** Shallow soil over sandstone, clay soils, infertile.

**Exposure:**

**Conservation**

**Conservation:** Rare — mostly old records (8 specimens). Conservation status unknown.

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**Leucochrysum graminifolium** (Helipterum albicans var. graminifolium)  
**ASTERACEAE**

**Life history**

**Growth form:** Erect, tufted herb with woody rootstock, to 20 cm high.

**Vegetative spread:**

**Longevity:** Perennial.

**Primary juvenile period:**

**Flowers:** Yellow, November–July.

**Fruit/seed:** Achene 2–3 mm long with pappus of feather-like bristles.

**Dispersal, establishment & growth:**

**Fire response:**

**Interaction with other organisms:**

**Distribution**

**Status/origin:** Native.

**Botanical subregions:** CC CT.

**Distribution Sydney area:** Newnes Plateau.

**Select locations:** Wolgan Gap, Newnes Plateau, Glowworm Tunnel, Zig Zág, Clarence.

**Habitat**

**Habitat:** Rock outcrops, crevices, ironstone shelves and ledges.

**Altitude:** above 900 m  
Annual rainfall: 900–1100 mm

**Typical local abundance:** Frequent–occasional.

**Vegetation:** Open-heath, scrub and woodland; Pagoda rock complex of Benson & Keith 1990.

**Substrate:** Skeletal sandy soil or dry peaty soil on sandstone, among ‘pagoda’ rock formations.

**Exposure:**

**Conservation**

**Conservation:** Endemic to Newnes Plateau, conservation status unknown, habitat possibly vulnerable to cliff collapse due to underground mining.

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**Madia sativa** *

**ASTERACEAE**

**Life history**

**Growth form:** Herb to 2 m high, hairy and strongly perfumed.

**Vegetative spread:** No.

**Longevity:** 1 year.
Primary juvenile period: Less than 1 year.
Flowers: Yellow, June–September.
Fruit/seed: Achene 4–5 mm long, no pappus.
Dispersal, establishment & growth:
Fire response:
Interaction with other organisms:

Distribution
Status/origin: Naturalised exotic, native to Chile and Argentina.
Botanical subregions: CT ST SWS; Vic.
Distribution Sydney area: South from Orange district.
Select locations: Orange (1918), Milthorpe (1953), Carcoar (1922).

Habitat
Altitude: above 800 m
Typical local abundance:
Vegetation:
Substrate:
Exposure:
Conservation: Naturalised weed, status unknown.

**Matricaria matricarioides** *(Chamomilla suaveolens)*

Pineapple Weed

**Growth form:** Pineapple-scented herb 8–45 cm high.
**Vegetative spread:** No.
**Longevity:** 1 year.
**Primary juvenile period:** Less than 1 year.
**Flowers:** Disc greenish yellow, no florets. Flowers spring–autumn; insect and self-pollinated (Ciba-Geigy 1968–).
**Fruit/seed:** Achene 1.2–1.5 mm long, pappus small, scarious.
**Dispersal, establishment & growth:** Dispersed by wind, animals and humans; germinates in spring (Ciba-Geigy 1968–).
**Fire response:**
**Interaction with other organisms:** Medicinal plant (Ciba-Geigy 1968–).

**Status/origin:** Naturalised exotic, native to Europe, Asia, S Africa and possibly N America.
**Botanical subregions:** CT CWS SWS; Vic., Tas., S.A.
**Distribution Sydney area:** Orange–Molong.
**Select locations:** Orange 1983 (only Sydney area record).

Habitat
**Altitude:** 800–1000 m
**Annual rainfall:** 1000 mm
**Typical local abundance:** Occasional.
**Vegetation:**
**Substrate:** Loamy soils rich in nutrients (Ciba-Geigy 1968–).
**Exposure:**
**Conservation:** Appears to be locally naturalised weed. Status unknown.

**Melanthera biflora** *(Wedelia biflora)*

**Growth form:** Scrambling herb to 1 m high, with opposite leaves.
**Vegetative spread:** Limited spread possible by rooting at nodes.
**Longevity:** Perennial.
**Primary juvenile period:**
**Flowers:** Yellow, December–April.

**Fruit/seed:** Achene 2–4 mm long, pappus absent or with 1–3 non-persistent bristles, 1 mm long, mature December–April.

**Dispersal, establishment & growth:** Diaspore: fruit, wind-dispersed. Tertiary sand coloniser (Clarke 1989).

**Fire response:**

**Interaction with other organisms:**

**Distribution**

**Status/origin:** Native.

**Botanical subregions:** NC CC SC; LHI, Qld, N.T., Afr., Asia, Pac. I.

**Distribution Sydney area:** Sea coasts.

**Select locations:** Maroubra Bay, Cronulla, Werong, Otford, Burning Palms, Shellharbour.

**Habitat**

**Habitat:** Beach and rocky slopes near beaches.

**Altitude:** 0–1000 m  
**Annual rainfall:** above 1200 mm

**Typical local abundance:** Frequent.

**Vegetation:** Coastal herbeland, e.g. with *Lomandra longifolia, Scaevola calendulacea, Hydrocotyle bonariensis*.

**Substrate:** Sand dunes, foredune and backdune, shale embankments.

**Exposure:** Tolerant of sun and shade (Clarke 1989).

**Conservation:** Conservation status unknown.

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**Microseris lanceolata**

**ASTERACEAE**

**Life history**

**Growth form:** Herb with fleshy, tuberous root.

**Vegetative spread:**

**Longevity:** Perennial.

**Primary juvenile period:**

**Flowers:** Yellow, September–November.

**Fruit/seed:** Achene 8–10 mm long, with pappus of scales.

**Dispersal, establishment & growth:**

**Fire response:** Probably resprouts at ground level or below.

**Interaction with other organisms:** Tubers were food source for Aborigines. Palatable to rabbits (Leigh et al. 1987).

**Distribution**

**Status/origin:** Native.

**Botanical subregions:** NC CC SC NT CT ST NWS CWS SWP NWP SWP SFWP; Qld, Vic., Tas., S.A., W.A.

**Distribution Sydney area:** Bathurst–Orange area.

**Select locations:** Ryldstone, Mullion Range, Hill End, Abercrombie Caves, Barbers Creek.

**Habitat**

**Habitat:** Steep rocky hillsides.

**Altitude:** 600–1000 m  
**Annual rainfall:** 700–1000 mm

**Typical local abundance:** Frequent.

**Vegetation:** Eucalypt woodland, e.g. *Eucalyptus macrorhyncha, E. polyanthemos, E. nortonii, Angophora floribunda*.

**Substrate:** Sandy, infertile soil. Watertable permanently low, moisture supply intermittent, fresh.

**Exposure:**

**Conservation:** Conservation status unknown. Possibly needing local conservation?
Olearia argophylla

Native Musk, Silver Shrub

**Growth form:** Shrub or small tree to 9 m high, with alternate leaves; musky scent (Floyd 1983). Chromosome number: N = 54 (N. Lander pers. comm.).

**Vegetative spread:**

**Longevity:**

**Primary juvenile period:**

**Flowers:** White, September–April.

**Fruit/seed:** Achene with pappus of bristles. Matures December (Floyd 1989).

**Dispersal, establishment & growth:**

**Fire response:**

**Interaction with other organisms:** Foodplant of moth caterpillar Anthela acuta; pupation occurs in the foliage or under bark (Coupar & Coupar 1992). Timber could be used for cabinet work but usually too small (Floyd 1983).

**Status/origin:** Native.

**Botanical subregions:** NC CC SC NT CT ST; Vic., Tas.

**Distribution Sydney area:** Western Blue Mountains, Southern Highlands, Illawarra.

**Select locations:** Gosford (1888), Mt Kembla, Macquarie Pass, Robertson, Minnamurra Falls, Mt Tomah, Kanangra Walls, Mt Werong, Hilltop, Kangaroo Valley.

**Habitat:**

**Altitude:** 0–1200 m  
**Annual rainfall:** above 1000 mm

**Typical local abundance:**

**Vegetation:** Tall eucalypt forest, e.g. with Eucalyptus fastigata, E. radiata, E. dalrympleana or rainforest margins, e.g. associated with Eucryphia moorei, Doryphora sassafras and Atheneperma moschatum (Floyd 1983). Remnant patches of warm temperate/cool temperate rainforest at Robertson (P. Kodela pers. comm.).

**Substrate:** Fertile soils, well-drained but moist, e.g. from Wianamatta Shale, basalt (P. Kodela pers. comm.).

**Exposure:**

**Conservation:** Conservation status unknown.

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Olearia asterotricha

Rough Daisy Bush

**Growth form:** Shrub to 2 m high, with alternate leaves. Chromosome number N = 9 (N. Lander pers. comm.).

**Vegetative spread:**

**Longevity:**

**Primary juvenile period:**

**Flowers:** White, October–July.

**Fruit/seed:** Achene, silky; pappus of long bristles.

**Dispersal, establishment & growth:**

**Fire response:**

**Interaction with other organisms:**

**Status/origin:** Native.

**Botanical subregions:** CC CT; Vic.

**Distribution Sydney area:** Blue Mountains, Moss Vale.

**Select locations:** Wallerawang, Marangaroo, Katoomba, Megalong Valley, Bargo, Hilltop, Bowral, The Gib.

**Habitat:**

**Altitude:** 0–1000 m  
**Annual rainfall:** above 900 mm
### Olearia burgessii

**ASTERACEAE**

**Life history**

**Growth form:** Shrub to 1.8 m high, with alternate leaves.  
**Vegetative spread:**  
**Longevity:**  
**Primary juvenile period:**  
**Flowers:** White, July–November.  
**Fruit/seed:** Achene, 2 mm long, with pappus of long bristles.  
**Dispersal, establishment & growth:** Wind-dispersed.  
**Fire response:**  
**Interaction with other organisms:**

**Conservation:** Status unknown.  

**Status/origin:** Native.  
**Botanical subregions:** CC CT ST.  
**Distribution Sydney area:** Thirlmere–Hilltop (also near Tumbarumba).  
**Select locations:** Burratorang Lookout, Thirlmere, Tahmoor, Hilltop.

**Habitat**

**Habitat:**  
**Altitude:** 200–600 m  
**Annual rainfall:** 900–1000 mm  
**Typical local abundance:**  
**Vegetation:** Dry sclerophyll forest.  
**Substrate:** Sandy loam over sandstone or shale.  
**Exposure:**

**Conservation:** Rare, this species is known from two areas some 400 km apart and was last collected in 1971. It appears to warrant the category 3K of Briggs & Leigh 1988 (Lander 1991).

### Olearia chrysophylla

**ASTERACEAE**

**Life history**

**Growth form:** Shrub to 3 m high, with opposite leaves.  
**Vegetative spread:**  
**Longevity:**  
**Primary juvenile period:**  
**Flowers:** White, December–January.  
**Fruit/seed:** Achene, with pappus of bristles.  
**Dispersal, establishment & growth:**  
**Fire response:**  
**Interaction with other organisms:**

**Distribution**

**Status/origin:** Native.  
**Botanical subregions:** CC NT CT.  
**Distribution Sydney area:** Blue Mountains to Orange.  
**Select locations:** Springwood, Jenolan Caves, Oberon, Sunny Corner.

**Habitat**

**Habitat:**  
**Altitude:** 500–1000 m  
**Annual rainfall:** above 800 mm
**Olearia cordata**

**Life history**

**Growth form:** Shrub to 2 m high, with alternate leaves.

**Vegetative spread:**

**Longevity:**

**Primary juvenile period:**

**Flowers:** Deep blue-mauve, November–April.

**Fruit/seed:** Achene, silky, with pappus of bristles.

**Dispersal, establishment & growth:**

**Fire response:** Resprouts; many seedlings at Yengo (M. Matthes pers. comm.).

**Interaction with other organisms:**

**Status/origin:** Native.

**Botanical subregions:** CC.

**Distribution Sydney area:**

**Select locations:** Wollemi Creek, Big Yengo Track, Fernances Trig, St. Albans, Wisemans Ferry.

**Habitat**

**Habitat:** Sandstone rocky ridge

**Altitude:** 0–300 m

**Annual rainfall:** 800–1000 mm

**Typical local abundance:** Occasional.

**Vegetation:** Dry open sclerophyll forest and open shrubland, e.g. with *Angophora bakeri*, *Eucalyptus eugenioides*, *E. punctata*.

**Substrate:** Low-nutrient soils from sandstone, possibly with shale influence.

**Exposure:**

**Conservation:** A rare local endemic, coded 2Rc by Briggs & Leigh (1988). Known populations appear to be conserved.

---

**Olearia elliptica**

**Life history**

**Growth form:** Shrub to 2 m high, with alternate leaves.

**Vegetative spread:**

**Longevity:**

**Primary juvenile period:**

**Flowers:** White, November–May.

**Fruit/seed:** Achene, with pappus of long bristles.

**Dispersal, establishment & growth:**

**Fire response:**

**Interaction with other organisms:**

**Status/origin:** Native.

**Botanical subregions:** NC CC NT NWS CWS NWP; LHI, Qld.

**Distribution Sydney area:** Widespread.

**Select locations:** Killara, Stanwell Park, Mt Kembla, Jamberoo, Yerrinbool, Wentworth Falls, Mt Victoria, Carrington Falls, Bundanoon.
Olearia erubescens
Silky Daisy Bush

Growth form: Shrub 2 m high with alternate leaves.
Vegetative spread:
Longevity:
Primary juvenile period:
Flowers: White, September–March.
Fruit/seed: Achene with pappus of bristles.
Dispersal, establishment & growth:
Fire response:
Interaction with other organisms:

Status/origin: Native.
Botanical subregions: NC CC SC NT CT ST; Vic., Tas., S.A.
Distribution Sydney area: Blue Mountains.
Select locations: Glenbrook, Yerranderie, Springwood, Leura, Katoomba, Blackheath, Mt Banks, Clarence, Mittagong.

Habitat:
Altitude: 0–1200 m
Annual rainfall: above 900 mm
Typical local abundance:
Vegetation: Dry eucalypt forest.
Substrate:
Exposure:

Conservation: Status unknown but possibly rare. 60% of specimens collected pre 1940.

Olearia glandulosa

Growth form: Shrub to 1.5 m high with alternate leaves.
Vegetative spread:
Longevity:
Primary juvenile period:
Flowers: White, November–June.
Fruit/seed: Achene, silky; pappus of bristles.
Dispersal, establishment & growth:
Fire response:
Interaction with other organisms:

Status/origin: Native.
Botanical subregions: CT ST; Tas., S.A., W.A.
Distribution Sydney area: Mittagong southwards.
Select locations: Wingecarribee Swamp, Hanging Rock Swamp (near Penrose). (Other specimens not available)
Habitat: Near moist gullies, swamps, river banks.
Altitude: 600–700 m  
Annual rainfall: above 1000 mm
Typical local abundance: Rare–occasional.
Vegetation: Woodland, wet heathlands or sedgelands. Amongst sedges and other herbs (P. Kodela pers. comm.).
Substrate: Peat, tolerates wetness.
Exposure: Observed growing in full sun (P. Kodela pers. comm.).
Conservation: Conservation status unknown.

**Olearia megalophylla**

*ASTERACEAE*

Life history

Growth form: Shrub to 2 m high, with alternate or opposite leaves.
Vegetative spread:
Longevity:
Primary juvenile period:
Flowers: White, December–March.
Fruit/seed: Achene, with pappus of bristles.
Dispersal, establishment & growth:
Fire response:
Interaction with other organisms:

Distribution

Status/origin: Native.
Botanical subregions: CT ST SWS; Vic.
Distribution Sydney area: Widespread but rare.
Select locations: Port Kembla, Bargo, Jenolan Caves, Canobolas SF.

Habitat

Altitude: 0–1000 m  
Annual rainfall: above 900 mm
Typical local abundance:
Vegetation: Moist eucalypt forest.
Substrate:
Exposure:

Conservation: Conservation status unknown, rare. Orange is northern limit.

**Olearia microphylla**

*ASTERACEAE*

Life history

Snow Bush

Growth form: Shrub to 2 m high with alternate leaves.
Vegetative spread:
Longevity:
Primary juvenile period:
Flowers: White, June–October.
Fruit/seed: Achene with pappus of long bristles, mature June–October.
Dispersal, establishment & growth: Diaspore: fruit, wind-dispersed, possibly colonising disturbed sites.
Fire response: Mostly killed, only 1 plant observed resprouting from base after high-intensity fire, no seedlings (1/1994) at Lane Cove; probably also killed by moderate-intensity fire, flowering after moderate–high-intensity fire, most of the viable soil-stored seed probably destroyed by very high-intensity fire (P. Kubiak pers. comm.).
Interaction with other organisms:

Distribution

Status/origin: Native.
Botanical subregions: NC CC SC NT CT ST NWS CWS; Qld.
Distribution Sydney area: Widespread.
Select locations: Gordon, Lane Cove, Rookwood, Chester Hill, Campbelltown, Port Hacking, Austinmer, Hilltop, The Gib, Bundanoon.

Habitat:
Altitude: 0–1000 m
Annual rainfall: above 800 mm
Typical local abundance: Frequent–occasional.
Vegetation: Sclerophyll forest, e.g. with Eucalyptus sieberi, E. sclerophylla, and heathy scrub.
Substrate: Sandy soils on sandstone, also sandy clay soils, low nutrient.
Exposure: 
Conservation: Conserved in Western Sydney (Benson & McDougall 1991), conservation status elsewhere unknown.

**Olearia myrsinoides**

Blush Daisy Bush

Growth form: Shrub to 1.5 m high, with alternate leaves.
Vegetative spread: Possibly root suckers.
Longevity:
Primary juvenile period:
Flowers: White and violet or pale yellow, November–March.
Fruit/seed: Achene with pappus of bristles.
Dispersal, establishment & growth:
Fire response: Possibly resprouts from root suckers.
Interaction with other organisms:

Distribution

Status/origin: Native.
Botanical subregions: NC CC SC NT CT ST; Vic., Tas.
Distribution Sydney area: Mainly upper Blue Mountains.
Select locations: Glenbrook, Wentworth Falls, Blackheath, Mt York, Clarence, Portland, Ryldstone.

Habitat: Eucalypt woodland.
Altitude: 0–1200 m
Annual rainfall: above 1000 mm
Typical local abundance: Occasional.
Vegetation: Open grassland, eucalypt woodlands and swampy areas, e.g. with Eucalyptus sieberi, E. oreades, E. dives (Newnes Plateau Woodland of Benson & Keith 1990).
Substrate: Sandstone soils, medium nutrients.
Exposure: 
Conservation: Conservation status unknown.

Olearia nernstii

ASTERACEAE

Growth form: Shrub to 2 m high, with alternate leaves.
Vegetative spread:
Longevity:
Primary juvenile period:
Flowers: White, March–November.
Fruit/seed: Achene, with pappus of long bristles.
Dispersal, establishment & growth:
Fire response:
Interaction with other organisms:
Status/origin: Native.
Botanical subregions: NC CC NT CT; Qld.
Distribution Sydney area: Mainly Gosford–Wyong.
Select locations: Wyong Creek (1893), Ourimbah (1911), Gosford (1888), Yerranderie (1916).

Habitat:
Altitude: 0–200 m
Annual rainfall: above 800 mm
Typical local abundance:
Vegetation: Eucalypt forest and open woodland.
Substrate: Probably clay soils.
Exposure:

Conservation: Southern limit, old collections only. Now probably rare in Sydney area.

Olearia oliganthema

ASTERACEAE

Growth form: Shrub with alternate leaves.
Vegetative spread:
Longevity:
Primary juvenile period:
Flowers: Yellow.
Fruit/seed: Achene.
Dispersal, establishment & growth:
Fire response:
Interaction with other organisms:

Distribution

Status/origin: Native.
Botanical subregions: CT.
Distribution Sydney area: Blue Mountains.
Select locations: Collected twice from ‘Blue Mountains’ before 1866, and not recorded since (Leigh et al. 1984).

Habitat:
Altitude:
Annual rainfall:
Typical local abundance:
Vegetation: Unknown, possibly eucalypt open-forest.
Substrate: Unknown, but possibly on shale soil.
Exposure:

Conservation: Coded 2X, extinct (Briggs & Leigh 1988), last collected 1866.

Olearia phlogopappa

ASTERACEAE

Growth form: Shrub to 1 m high, with alternate leaves. Chromosome number N = 9 (N. Lander pers. comm.).
Vegetative spread:
Longevity:
Primary juvenile period:
Flowers: White, November–March.
Fruit/seed: Achene with pappus of long bristles.
Dispersal, establishment & growth:
Fire response:
Interaction with other organisms:

**Status/origin:** Native.

**Botanical subregions:** NT CT ST; Vic., Tas.

**Distribution Sydney area:** Blue Mountains and Southern Highlands.

**Select locations:** Leura Gap, Burragorang, Carrington Falls, Kangaroo River Bridge.

---

**Habitat**:

**Altitude:** 0–1000 m  
**Annual rainfall:** above 1000 mm

**Typical local abundance:**

**Vegetation:** Eucalypt woodland, forest and heath.

**Substrate:**

**Exposure:**

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**Conservation:** Possibly rare, conservation status unknown.

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**Olearia quercifolia**

**ASTERACEAE**

**Life history**:

**Growth form:** Shrub to 2 m high, with alternate leaves.

**Vegetative spread:** No.

**Longevity:**

**Primary juvenile period:**

**Flowers:** White, July, November–December.

**Fruit/seed:** Achene, silky, with pappus of long bristles.

**Dispersal, establishment & growth:** Diaspore: fruit, wind-dispersed.

**Fire response:**

**Interaction with other organisms:**

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**Status/origin:** Native.

**Botanical subregions:** CT.

**Distribution Sydney area:** Upper Blue Mountains.

**Select locations:** Mt Wilson, Mt Tomah, Newnes Plateau.

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**Habitat**:

**Altitude:** 800–1200 m  
**Annual rainfall:** above 1000 mm

**Typical local abundance:** Occasional.

**Vegetation:** Margins of shrub swamps, e.g. Newnes Plateau Shrub-swamps (Benson & Keith 1990).

**Substrate:** Peaty soils on sandstone, periphery of swamps, very infertile, watertable mostly high.

**Exposure:** Full sun–light shade.

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**Conservation:** Restricted local endemic, coded 3RC in Briggs & Leigh (1988), vulnerable to changes in water flow and water quality and in its swamp habitat.

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**Olearia ramosissima**

**ASTERACEAE**

**Life history**:

**Growth form:** Shrub to 1.3 m high with alternate leaves.

**Vegetative spread:**

**Longevity:**

**Primary juvenile period:**

**Flowers:** Blue–mauve, June–August.

**Fruit/seed:** Achene, silky, with pappus of 27–47 long bristles.

**Dispersal, establishment & growth:**

**Fire response:**

**Interaction with other organisms:**
**Olearia ramulosa**

**ASTERACEAE**

**Life history**

**Growth form:** Shrub to 1.6 m high, scabrous, pubescent, sometimes sticky. Chromosome number N = 9 (N. Lander pers. comm.).

**Vegetative spread:**

**Longevity:**

**Primary juvenile period:**

**Flowers:** Pale blue or mauve or white, October–May. Insect-pollinated (Sulman 1914).

**Fruit/seed:** Achene, with pappus of 20–40 long bristles.

**Dispersal, establishment & growth:** Wind-dispersed.

**Fire response:**

**Interaction with other organisms:**

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**Distribution**

**Status/origin:** Native.

**Botanical subregions:** CC CT NT NWS SWP; Qld, W.A.

**Distribution Sydney area:** Shoalhaven River gorge (Harden 1992).

**Select locations:** Specimens unavailable.

---

**Habitat**

**Altitude:**

**Typical local abundance:**

**Vegetation:** Sclerophyll forest (Harden 1992).

**Substrate:**

**Exposure:**

**Conservation:** Vulnerable in Western Sydney (Benson & McDougall 1991).

---

**Olearia rosmarinifolia**

**ASTERACEAE**

**Life history**

**Growth form:** Shrub to 1.6 m high, hoary or silvery.

**Vegetative spread:**

**Longevity:**

**Primary juvenile period:**

**Flowers:** White, October–December.

**Fruit/seed:** Achene, with pappus of 60–84 bristles.

**Dispersal, establishment & growth:**

**Fire response:**

**Interaction with other organisms:**
Status/origin: Native.

Botanical subregions: NT CT ST NWS CWS; Qld.

Distribution Sydney area: Western parts of area.

Select locations: Specimens unavailable.

Habitat

Habitat: Rocky areas around riverbeds and gorges (Harden 1992).

Altitude: Annual rainfall:

Typical local abundance:

Vegetation:

Substrate:

Exposure:

Conservation

Olearia stellulata (Olearia lirata)

ASTERACEAE

Life history

Growth form: Shrub to 3 m high with alternate leaves.

Vegetative spread:

Longevity:

Primary juvenile period:

Flowers: White, August–January.

Fruit/seed: Achene, silky, with pappus of bristles.

Dispersal, establishment & growth:

Fire response:

Interaction with other organisms:

Distribution

Status/origin: Native.

Botanical subregions: CC SC NT CT ST; Vic., Tas.

Distribution Sydney area:

Select locations: Specimens unavailable.

Habitat

Habitat: Hillside and creekbanks (Harden 1992).

Altitude: Annual rainfall:

Typical local abundance:

Vegetation: Sclerophyll forest (Harden 1992).

Substrate:

Exposure:

Conservation

Olearia suffruticosa

ASTERACEAE

Life history

Growth form: Shrub to 0.7 m high with alternate leaves.

Vegetative spread:

Longevity:

Primary juvenile period:

Flowers: White or pink, January–May.

Fruit/seed: Achene, silky, with pappus of bristles.

Dispersal, establishment & growth:

Fire response:

Interaction with other organisms:

Distribution

Status/origin: Native.
Botanical subregions: CT; Vic., S.A.
Distribution Sydney area:
Select locations: Specimens unavailable.

Habitat:
Altitude: Annual rainfall:
Typical local abundance:
Vegetation:
Substrate:
Exposure:

Conservation:

Olearia tenuifolia

ASTERACEAE

Life history

Growth form: Shrub to 2 m high with alternate leaves.
Vegetative spread:
Longevity:
Primary juvenile period:
Flowers: Blue or mauve, at any time of year.
Fruit/seed: Achene, with pappus of bristles.
Dispersal, establishment & growth:
Fire response:
Interaction with other organisms:

Status/origin: Native.
Botanical subregions: SC CT ST CWS SWS SWP; Vic.
Distribution Sydney area:
Select locations: Specimens unavailable.

Habitat: Rocky areas (Harden 1992).
Altitude: Annual rainfall:
Typical local abundance:
Vegetation: Dry sclerophyll forest, mallee and woodland (Harden 1992).
Substrate:
Exposure:

Conservation:

Olearia tomentosa

ASTERACEAE

Life history

Growth form: Shrub to 2 m high with alternate leaves.
Vegetative spread:
Longevity:
Primary juvenile period:
Flowers: Blue or white, August–May.
Fruit/seed: Achene, with pappus of bristles.
Dispersal, establishment & growth:
Fire response: Probably most killed by high-intensity fire (1/1994) at Narrabeen, a few suckering plants observed (P. Kubik pers. comm.).
Interaction with other organisms:

Status/origin: Native.
Botanical subregions: NC CC SC CT ST.
**Distribution** Sydney area: Widespread including exposed headlands on coast.
**Select locations:** Listed in national park areas from Brisbane Water NP to Sydney Harbour NP. Barrenjoey headland and Mona Vale (L.McD.). Specimens unavailable.

**Habitat**

**Altitude:**

**Annual rainfall:**

**Typical local abundance:**

**Vegetation:** Dry sclerophyll forest, scrub and heath (Harden 1992).

**Substrate:** Sandstone

**Exposure:**

**Conservation:** Conserved in Western Sydney (Benson & McDougall 1991).

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**Olearia viscidula**

Wallaby Weed

**Life history**

**Growth form:** Viscid shrub to 2.5 m high with alternate or opposite leaves.

**Vegetative spread:**

**Longevity:**

**Primary juvenile period:**

**Flowers:** White, July–November.

**Fruit/seed:** Achene, silky, with pappus of 27–37 long bristles.

**Dispersal, establishment & growth:**

**Fire response:**

**Interaction with other organisms:**

**Status/origin:** Native.

**Botanical subregions:** NC CC SC NT CT ST NWS CWS; Vic.

**Distribution Sydney area:** Coast to Blue Mountains.

**Select locations:** Specimens unavailable.

---

**Distribution**

**Habitat**

**Altitude:**

**Annual rainfall:**

**Typical local abundance:**

**Vegetation:** Eucalypt tall open-forest and rainforest. Dry sclerophyll forest and eucalypt woodland (Harden 1992).

**Substrate:** Medium-high nutrient soils.

**Exposure:**

**Conservation:** Vulnerable in Western Sydney (Benson & McDougall 1991).

---

**Onopordum acanthium** subsp. *acanthium* *

Scotch Thistle

**Life history**

**Growth form:** Biennial herb to 1 m high.

**Vegetative spread:** No.

**Longevity:** 2 years.

**Primary juvenile period:**

**Flowers:** Florets purple, September–December.

**Fruit/seed:** Achene 4–5 mm long, with pappus of barbed bristles 7–9 mm long.

**Dispersal, establishment & growth:** Diaspore fruit, wind-dispersed. Pioneer species, establishing on bare soil after, e.g. roadbuilding or soil erosion (Doing et al. 1969).

**Fire response:**

**Osteospermum ecklonis**

**ASTERACEAE**

**Life history**

*Growth form:* Shrub or subshrub to 100 cm high.

*Vegetative spread:* Appears to root along stems.

*Longevity:*

*Status/origin:* Naturalised exotic, native to S Africa, introduced as garden ornamental.

**Botanical subregions:** CC; Qld.

**Distribution Sydney area:** Suburban areas.

**Select locations:** Blackwall Mtn, Palm Beach, Cheltenham, Ingleburn, Macquarie Fields (1941), Campbelltown, Orangeville.

**Habitat:** Footpaths, wasteland, beaches, roadsides.

*Altitude:* 0–300 m  **Annual rainfall:** above 800 mm

*Typical local abundance:* Occasional.

*Vegetation:* Wasteland weeds.

*Substrate:* Sandy soils, e.g. beaches, and loamy soils from shales, low–moderately fertile.

*Exposure:* Full sun.

**Conservation:** Probably mainly localised garden escape from rubbish dumping.

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**Ozothamnus adnatus** (*Helichrysum adnatum*)

**ASTERACEAE**

**Life history**

*Growth form:* Heath-like shrub 1–2 m high.

*Vegetative spread:*

*Longevity:*

*Primary juvenile period:*

*Flowers:* Cream, October–December.

*Fruit/seed:* Achene with pappus of bristles, November–January.

*Dispersal, establishment & growth:*

*Fire response:*

*Interaction with other organisms:*
### Ozothamnus argophyllus (Helichrysum argophyllum)

**ASTERACEAE**

**Growth form:** Aromatic shrub to 2.5 m high.

**Vegetative spread:**

**Longevity:**

**Primary juvenile period:**

**Flowers:** Spring–summer, October–November.

**Fruit/seed:** Achene with pappus of bristles, mature December.

**Dispersal, establishment & growth:** Diaspore: fruit, wind-dispersed.

**Fire response:**

**Interaction with other organisms:**

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### Ozothamnus diosmifolius (Helichrysum diosmifolium)

**ASTERACEAE**

White Dogwood

**Growth form:** Much branched shrub to 5 m high with white flowers.

**Vegetative spread:** No.

**Longevity:** Probably medium.

**Primary juvenile period:**

**Flowers:** White or pink, October–January, peak November.

**Fruit/seed:** Achene with pappus of fine hairs, matures December–January.

**Dispersal, establishment & growth:** Diaspore: fruit, wind-dispersed (Westoby et al. 1990).

**Fire response:** Resprouted at Agnes Banks (Benson 1981). Most killed by high-intensity fire
(1/1994) at Lane Cove, a few scattered plants resprouted from base and some plants resprouted from stems after lower fire intensities, scattered occurrence of seedlings (P. Kubiak pers. comm.).

**Interaction with other organisms:** Known to cause severe contact allergy in humans (Bass 1987).

**Status/origin:** Native.

**Botanical subregions:** NC CC SC NT CT ST NWS CWS NWP SWP; Qld.

**Distribution Sydney area:** Widespread.

**Select locations:** Howes Mountain, Spencer, Cheltenham, Ottford, Minnamurra Falls, Kurrajong, St Marys, Yerranderie, Hill Top, Mt Corrigin, Kandos, Wildes Meadow (P. Kodela pers. comm.).

**Habitat:** Open-forest, a tall open-forest.

**Altitude:** 0–1000 m  
**Annual rainfall:** above 700 mm

**Typical local abundance:** Frequent–occasional.

**Vegetation:** Tall moist forests, e.g. with Eucalyptus saligna, E. cypellocarpa or E. fastigata, to dry forests, e.g. with Eucalyptus fibrosa, E. tereticornis.

**Substrate:** Clay soils, fertile, from Wianamatta Shale, volcanics, sometimes sandstones. Recorded on saline soils near Lower Boro (Kodela & Foster 1990).

**Exposure:**

**Conservation:** Probably adequate. Conserved in Western Sydney (Benson & McDougall 1991).

**Ozothamnus ferrugineus** (Helichrysum dendroides)  
**ASTERACEAE**

**Life history**

**Growth form:** Erect shrub or small tree 2–5 m high.

**Vegetative spread:**

**Longevity:**

**Primary juvenile period:**

**Flowers:** Summer–autumn.

**Fruit/seed:** Achene, with pappus of bristles.

**Dispersal, establishment & growth:** Diaspore: fruit, probably wind-dispersed locally.

**Fire response:**

**Interaction with other organisms:**

**Distribution**

**Status/origin:** Native.

**Botanical subregions:** NC CC SC NT CT; Vic., Tas., S.A.

**Distribution Sydney area:** Mainly upper Blue Mountains.

**Select locations:** Kanama (1888), Mt Corrigin, Mt Tomah, Jenolan Caves Road, Mt Murray, Foxground, Bundanoon.

**Habitat:** Ridges and hillsides.

**Altitude:** 0–1000 m  
**Annual rainfall:** above 1200 mm

**Typical local abundance:** Frequent–occasional.

**Vegetation:** Open eucalypt forest and scrub.

**Substrate:** Basalt soil, high nutrient.

**Exposure:**

**Conservation:** Conservation status unknown.
**Ozothamnus rosmarinifolius** (Helichrysum rosmarinifolium)  

**Life history**

*Growth form:* Shrub to 1.5 m high.

*Vegetative spread:* 

*Longevity:* ?

*Primary juvenile period:*

*Flowers:* Golden, January–February.

*Fruit/seed:* Achene with pappus of bristles, mature February.

*Dispersal, establishment & growth:* Diaspore: fruit, wind-dispersed.

*Fire response:*

*Interaction with other organisms:*

**Distribution**

*Status/origin:* Native.

*Botanical subregions:* CT ST; Vic., Tas.

*Distribution Sydney area:* Jenolan–Oberon area.

*Select locations:* Jenolan Caves (1899), Boyd River, Duckmaloi River, Gurnang SF.

**Habitat**

*Habitat:*

*Altitude:* 800–1200 m

*Annual rainfall:* 800–1000 mm

*Typical local abundance:*

*Vegetation:* Eucalypt forest, often beside water courses.

*Substrate:*

*Exposure:*

**Conservation:** Conservation status unknown.

---

**Picris hieracioides** *

Hawkweed Picris  

**Life history**

*Growth form:* Erect herb 30–80 cm high.

*Vegetative spread:* No.

*Longevity:* 2 years.

*Primary juvenile period:*

*Flowers:* Yellow, most of the year.

*Fruit/seed:* Achene 6–9 mm long, with pappus of plumed bristles 8 mm long.

*Dispersal, establishment & growth:* Diaspore: fruit, probably wind-dispersed.

*Fire response:*

*Interaction with other organisms:* Palatable to rabbits (Leigh et al. 1987).

**Distribution**

*Status/origin:* Naturalised exotic, native to Europe, Asia, Africa.

*Botanical subregions:* NC CC SC NT ST NWS NFWP SFWP; Qld, Vic., Tas., S.A., W.A.

*Distribution Sydney area:* Colo River area.

*Select locations:* Culoul Range (1976) only record for Sydney area.

**Habitat**

*Habitat:*

*Altitude:* 600 m

*Annual rainfall:* 800 mm

*Typical local abundance:*

*Vegetation:*

*Substrate:*

*Exposure:*

**Conservation:**
### Podolepis canescens

**ASTERACEAE**

**Life history**

- **Growth form:** Woolly herb to 80 cm high.
- **Vegetative spread:** No.
- **Longevity:** 1 year.
- **Primary juvenile period:** Less than 1 year.
- **Flowers:** Straw-coloured, March.
- **Fruit/seed:** Achenes 2 mm long, with pappus of bristles.
- **Dispersal, establishment & growth:** Fire response.

**Interaction with other organisms:**

**Status/origin:** Native.

**Botanical subregions:** CT CWS NWP SWP NFWP SFWP; Vic., N.T., S.A., W.A.

**Distribution Sydney area:** Bathurst.

**Select locations:** Hill End (1885), Bathurst (1894, 1901) only records for Sydney area.

**Habitat**

- **Habitat:**
  - **Altitude:** 800 m
  - **Annual rainfall:** 700 mm
- **Typical local abundance:**
  - **Vegetation:**
  - **Substrate:**
  - **Exposure:**

**Conservation:** Rare in area, possibly extinct.

### Podolepis hieracioides

**ASTERACEAE**

**Life history**

- **Growth form:** Herb to 70 cm high, with long taproot.
- **Vegetative spread:**
- **Longevity:** Perennial.
- **Primary juvenile period:**
- **Flowers:** Yellow, January–March.
- **Fruit/seed:** Achenes 3 mm long, with pappus of bristles, mature January–March.
- **Dispersal, establishment & growth:** Diaspore: fruit, probably wind-dispersed.
- **Fire response:**

**Interaction with other organisms:**

**Status/origin:** Native.

**Botanical subregions:** NT CT ST; Vic.

**Distribution Sydney area:** Mainly western Blue Mountains.

**Select locations:** Ben Bullen, Marrangaroo Creek, Little Hartley, Duckmaloi, Oberon/Jenolan Road, Burragorang Valley, Bargo River, Bowral.

**Habitat**

- **Habitat:**
  - **Altitude:** 500–1200 m
  - **Annual rainfall:** above 900 mm
- **Typical local abundance:** Frequent–occasional.
- **Vegetation:** Moist eucalypt forest, e.g. with *Eucalyptus cypellocarpa*, *E. viminalis*, *E. radiata*, *E. ovata*, and grassland.
- **Substrate:** Clay loam from shales and slatey shales.
- **Exposure:**

**Conservation:** Conservation status unknown (50% of Herbarium collections pre 1940).
Podolepis jaceoides

Showy Copper-wire Daisy

**Life history**

**Growth form:** Herb to 70 cm high, with several stems arising from perennial stock each year.

**Vegetative spread:**

**Longevity:** Perennial.

**Primary juvenile period:**

**Flowers:** Yellow, August–January.

**Fruit/seed:** Achene 3 mm long, with pappus of bristles.

**Dispersal, establishment & growth:** Diaspore: fruit, probably wind-dispersed

**Fire response:**

**Interaction with other organisms:** Palatable to rabbits (Leigh et al. 1987).

**Distribution**

**Status/origin:** Native.

**Botanical subregions:** NC CC SC NT CT ST NWS CWS SWS NWNP SWP NFWP SFWP; Qld, Vic., Tas., S.A.

**Distribution Sydney area:** Widespread.

**Select locations:** Otford, Mt Kembla, Nepean Dam Road, Thirmerle, Mt Victoria, Mt Werong, Moorara Boss, Bowral, Long Swamp.

**Habitat:** ‘Amongst grasses in open situations and forest land’ (Davis 1956).

**Altitude:** 0–1000 m **Annual rainfall:** above 900 mm

**Typical local abundance:** Frequent–occasional.

**Vegetation:** Grassy woodland, e.g. with Eucalyptus sieberi, E. blaxlandii, E. obliqua and grassy slopes of swamp margins.

**Substrate:** Sandy to clay soil from shale, granite, fertile–infertile.

**Exposure:**

**Conservation:** Status unknown but probably becoming increasingly rare.

Pseudognaphalium luteoalbum (Gnaphalium luteo-album)

Jersey Cudweed

**Life history**

**Growth form:** Erect, greyish–white, woolly herb to 45 cm high.

**Vegetative spread:** No.

**Longevity:** 1 year.

**Primary juvenile period:** Less than 1 year.

**Flowers:** At any time of year.

**Fruit/seed:** Achene 0.6 mm long, with pappus of bristles 3 mm long, mature September–May.

**Dispersal, establishment & growth:** Diaspore: fruit, wind-dispersed locally. Coloniser.

**Fire response:** Probably killed.

**Interaction with other organisms:**

**Distribution**

**Status/origin:** Native.

**Botanical subregions:** NC CC SC NT CT ST NWS CWS SWS NWNP SWP NFWP SFWP; Qld, Vic., Tas., N.T., S.A., W.A., almost cosmopolitan.

**Distribution Sydney area:** Coast and western Blue Mountains.

**Select locations:** Awaba, Hornsby, Como, Bulli Pass, Gerringong, Camden, Silverdale, Blackheath, Clarence, Mt Blaxland, Robertson (P. Kodela pers. comm.).

**Habitat:** Grassland, watercourses, saltmarsh flats, swamps.

**Altitude:** 0–1100 m **Annual rainfall:** above 700 mm

**Typical local abundance:** Frequent.

**Vegetation:** Grasslands and open areas, e.g. with Juncus, Cyperus. Swamps, pastures (P. Kodela pers. comm.).

**Substrate:** Sandy soils, infertile, watertable mostly high, fresh–? brackish. More fertile
situations in the Robertson area (P. Kodela pers. comm.).

**Exposure**: Full sun.

**Conservation**: Conserved in Western Sydney (Benson & McDougall 1991), status elsewhere unknown.

**Rhodanthe anthemoides** (Helipterum anthemoides)  

**ASTERACEAE**

**Life history**

**Growth form**: Erect, bushy herb with many slender stems arising from perennial rootstock.

**Vegetative spread**: Probably not.

**Longevity**: Possibly short-lived, less than 5 years.

**Primary juvenile period**: 

**Flowers**: Pale brown, May–December.

**Fruit/seed**: Achene 2 mm long, with silky pappus.

**Dispersal, establishment & growth**: Diaspore: fruit, locally wind-dispersed. Seedling recruitment probably not fire-related though in subalpine habitats is common on exposed slopes especially after fire or disturbance (Burbidge & Gray 1976). Population at Mt Annan expanding in absence of grazing and fire.

**Fire response**: 

**Interaction with other organisms**: 

**Status/source**: Native.

**Botanical subregions**: NC CC NT CT ST NWS CWS SWS ; Qld, Vic., Tas.

**Distribution Sydney area**: Southwestern Sydney.

**Select locations**: Bringelly, Mt Annan, Razorback.

**Habitat**: Woodland.

**Altitude**: 0–300 m  

**Annual rainfall**: 700–800 mm

**Typical local abundance**: Frequent.

**Vegetation**: Grasslands and tall forests, woodland of *Eucalyptus moluccana*–*E. tereticornis* with grassy understorey. Ground stratum.

**Substrate**: Fertile, clay soils from Wianamatta Shale. Watertable mostly low, moisture supply intermittent, fresh.

**Exposure**: Sheltered sites; light shade.

**Conservation**: Vulnerable in Western Sydney (Benson & McDougall 1991).

**Rhodanthe pygmaea** (Helipterum pygmaeum)  

**ASTERACEAE**

**Life history**

**Growth form**: Sparsely woolly herb to 6 cm high.

**Vegetative spread**: No.

**Longevity**: 1 year.

**Primary juvenile period**: Less than 1 year.

**Flowers**: August.

**Fruit/seed**: Achene 2.5 mm long, with pappus of bristles 5–7 mm long.

**Dispersal, establishment & growth**: Diaspore: fruit, probably wind-dispersed.

**Fire response**: 

**Interaction with other organisms**: 

**Status/source**: Native in western NSW, but introduced to Central Coast.

**Botanical subregions**: CC* ST NWS CWS SWS NWP SWP NSWPF SFWP; Vic., S.A., W.A.

**Distribution Sydney area**: Flemington.
Select locations: Flemington (1968) only record.

Habitat
Habitat: Saleyard.
Altitude: 0–100 m
Annual rainfall: 900 mm
Typical local abundance:
Vegetation:
Substrate:
Exposure:

Conservation
Conservation: Probably introduced to Flemington from western NSW with stock, and now unlikely to occur there.

Roldana petasitis *(Senecio petasitis)

ASTERACEAE

Life history
Growth form: Shrub or herb, mostly 1.5–2 m high, softy hairy.
Vegetative spread:
Longevity: Perennial.
Primary juvenile period:
Flowers: Yellow, August–October.
Fruit/seed: Achene 2.5–4 mm long, with pappus of slender hairs 8–10 mm long, not persistent.

Dispersal, establishment & growth:
Fire response: Resprouted after high-intensity fire (1/1994) at Lane Cove, flowers in bud within 30 weeks (P. Kubiak pers. comm.).

Interaction with other organisms:

Status/origin: Naturalised exotic, native to Mexico. Cultivated as an ornamental.
Botanical subregions: NC CC; LHI, Qld.
Distribution Sydney area:
Select locations: Galston (J. Howell), Epping, Lane Cove, Rookwood, Campbelltown (1969), Kembla Grange (1967), Macquarie Pass.

Habitat
Habitat: Roadsides, railway lines, disturbed areas.
Altitude: 0–300 m
Annual rainfall: above 800 mm
Typical local abundance:
Vegetation: Tall eucalypt forest.
Substrate: Medium-nutrient soils, e.g. from Wianamatta Shale.
Exposure:

Conservation: Occasionally naturalised.

Schkuhria pinnata var. abrotanoides*

ASTERACEAE

Life history
Dwarf Marigold

Growth form: Much-branched herb to 30 cm high.
Vegetative spread:
Longevity: Probably short-lived (1–2 years).
Primary juvenile period:
Flowers: Yellow, March–April.
Fruit/seed: Achene 4 mm long, with pappus of scales, mature April.
Dispersal, establishment & growth: Diaspore: fruit.
Fire response:
Interaction with other organisms:

Status/origin: Naturalised exotic, native to Chile.
**Botanical subregions:** NC CC NT NWS CWS NWP SWP; Qld, Vic.

**Distribution Sydney area:** Mainly western Sydney.

**Select locations:** Flemington, Miranda (1925), Dural, Rouse Hill, Doonside.

**Habitat:** Disturbed sites and roadides.

**Altitude:** 0–100 m  
**Annual rainfall:** above 800 mm  
**Typical local abundance:** Occasional.

**Vegetation:**  
**Substrate:** Clay soils from Wianamatta Shale.

**Exposure:**

**Conservation:** Naturalised roadside weed, rare.

---

**Senecio amygdalifolius**

**ASTERACEAE**

**Life history**

**Growth form:** Herb or shrub, mostly 80–150 cm high.

**Vegetative spread:**

**Longevity:** Perennial.

**Primary juvenile period:** Probably less than 1 year (Lawrence 1985).

**Flowers:** October. Probably native bee-pollinated, self-incompatible (Lawrence 1985).

**Fruit/seed:** Achene 4–6 mm long, with pappus of hairs 8–10 mm long, mature November. Potential seed set/plant 500–1000; seed weight without pappus 1.85 mg (Lawrence 1985).

**Dispersal, establishment & growth:** Diaspore: fruit, wind-dispersed. Germinates readily without treatment when fresh.

**Fire response:**

**Interaction with other organisms:**

**Status/origin:** Native.

**Botanical subregions:** NC CC NT NWS; Qld.

**Distribution Sydney area:** North from Morisset.

**Select locations:** Morisset (1959) only record for Sydney area.

**Habitat:**  
**Altitude:** 0–100 m  
**Annual rainfall:** 1100 mm  
**Typical local abundance:** Frequent.

**Vegetation:** Open eucalypt forest, disturbed.

**Substrate:** High nutrient soils, disturbed sites.

**Exposure:**

**Conservation:** Morisset (southern limit), conservation status unknown.

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**Senecio anacampserotis**

**ASTERACEAE**

**Life history**

**Growth form:** Herb, stems prostrate then erect, 15–50 cm long.

**Vegetative spread:** Creeping, rooting at nodes along stems.

**Longevity:** Perennial.

**Primary juvenile period:**

**Flowers:** Yellow, August–December.

**Fruit/seed:** Achene 5 mm long, with appressed white hairs and pappus 7–8 mm long.

**Dispersal, establishment & growth:** Diaspore: fruit, wind-dispersed.

**Fire response:**

**Interaction with other organisms:**

**Status/origin:** Native.

**Botanical subregions:** NC CC; Tas.
**Distribution Sydney area:** Coastal.
**Select locations:** Wamberal, Dee Why Beach, Kurnell, Cronulla Beach.

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**Habitat**

**Habitat:** Sand dunes and dune slacks.
**Altitude:** 0–50 m
**Annual rainfall:** Above 1200 mm
**Typical local abundance:** Frequent–occasional.
**Vegetation:**
**Substrate:** Beach sand dunes, bare moist areas.
**Exposure:** Full sun.

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**Conservation**

**Conservation:** Rare (60% of Herbarium records collected pre 1940). Conservation status unknown.

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**Senecio bipinnatisectus**

**ASTERACEAE**

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**Life history**

**Growth form:** Erect shrub, 60–120 cm high.
**Vegetative spread:** No.
**Longevity:** 1 year.
**Primary juvenile period:** Less than 1 year.
**Flowers:** January–March. Probably native bee-pollinated, self-compatible (Lawrence 1985).
**Fruit/seed:** Achene 2 mm long, with pappus of hairs 5–6 mm long. Potential seed set/plant 5000–15 000; seed weight without pappus 0.22 mg (Lawrence 1985).
**Dispersal, establishment & growth:** Diaspore: fruit, wind-dispersed (Westoby et al. 1990), mature March–May. Germination 70% (Lawrence 1985).
**Fire response:** Probably killed.
**Interaction with other organisms:**

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**Distribution**

**Status/origin:** Native.
**Botanical subregions:** NC CC SC NT CT ST CWS; Qld.
**Distribution Sydney area:** Coast and higher mountains.
**Select locations:** Watagan, Asquith, Blakehurst (1903), Audley, Helensburgh, Mt Keira, Minnamurra, Thirlmere Lakes, Mt Tomah, Govetts Leap, Robertson.

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**Habitat**

**Habitat:** Gullies, creek banks, swamp.
**Altitude:** 0–1000 m
**Annual rainfall:** Above 900 mm
**Typical local abundance:** Rare–occasional.
**Vegetation:** Heath, woodland and forest.
**Substrate:** Sandy soils, alluvial, infertile, watertable mostly high, fresh.
**Exposure:** Mid–deep shade.

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**Conservation**

**Conservation:** Vulnerable in Western Sydney (Benson & McDougall 1991), status elsewhere unknown.

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**Senecio biserratus**

**ASTERACEAE**

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**Life history**

**Growth form:** Erect herb, 50–100 cm high.
**Vegetative spread:** No.
**Longevity:** 1 year.
**Primary juvenile period:** Less than 1 year.
**Flowers:** Most of year.
**Fruit/seed:** Achene 2 mm long, with pappus of hairs 5 mm long.
**Dispersal, establishment & growth:** Diaspore: fruit, wind-dispersed.
**Fire response:**
**Interaction with other organisms:**
**Senecio crassiflorus**

*ASTERACEAE*

**Growth form:** Decumbent herb with silvery white stems 20–50 cm high.
**Vegetative spread:**
**Longevity:** Perennial.
**Primary juvenile period:**
**Flowers:** Throughout the year.
**Fruit/seed:** Achenes 3–5 mm long, with pappus of hairs 14–15 mm long.
**Dispersal, establishment & growth:** Diaspore: fruit, probably wind-dispersed.
**Fire response:**
**Interaction with other organisms:**

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**Senecio diaschides**

*ASTERACEAE*

**Growth form:** Erect herb, 50–100 cm high.
**Vegetative spread:**
**Longevity:** Short-lived perennial.
**Primary juvenile period:**
**Flowers:** November–March.
**Fruit/seed:** Achenes 2.5 mm long, with pappus of hairs 3–5 mm long, mature January–August.
**Dispersal, establishment & growth:** Diaspore: fruit, wind-dispersed.
**Fire response:** Killed, seedlings grow vigorously after fire.
**Interaction with other organisms:**
**Senecio glomeratus**

**ASTERACEAE**

**Growth form:** Erect herb mostly 30–100 cm high.

**Vegetative spread:** No.

**Longevity:** Short, 1 year.

**Primary juvenile period:** Less than 1 year.

**Flowers:** Spring. Probably native bee-pollinated, self-compatible (Lawrence 1985).

**Fruit/seed:** Achene 1.5–1.7 mm long, with pappus of hairs 5 mm long. Potential seed set/plant 5000–10 000; seed weight without pappus 0.1 mg (Lawrence 1985).

**Dispersal, establishment & growth:** Diaspore: fruit, probably wind-dispersed. Germination 95% (Lawrence 1985).

**Fire response:**

**Status/origin:** Native.

**Botanical subregions:** NC CC ST CWS SFWP; Vic., Tas., S.A., W.A.

**Distribution Sydney area:** La Perouse, Western Sydney.

**Select locations:** La Perouse (1965) only Herbarium record, Prospect (D.H.B.)

**Habitat:**

**Altitude:** 0–100 m  
**Annual rainfall:** above 1200 mm

**Vegetation:**

**Substrate:** Moist sites, probably on sandy soil from sandstone.

**Exposure:**

**Conservation:** Not common, vulnerable in Western Sydney (Benson & McDougall 1991).

Status elsewhere unknown.

**Senecio hispidulus var. dissectus**

**ASTERACEAE**

**Growth form:** Erect herb, mostly 30–100 cm high, with lower leaves pinnatifid, upper leaves pinnatisect to bipinnatisect.

**Vegetative spread:**

**Longevity:** Less than 1 year (Lawrence 1985).

**Primary juvenile period:** Less than 1 year (Lawrence 1985).

**Flowers:** Spring–summer. Probably native bee-pollinated, self-compatible (Lawrence 1985).
**Fruit/seed:** Achene 1.5–2.5 mm long, with pappus of hairs 5 mm long, mature January–April. Potential seed set/plant 3000–10 000; seed weight without pappus 1.2 mg (Lawrence 1985).

**Dispersal, establishment & growth:** Diaspore: fruit, probably wind-dispersed. Germination 90% (Lawrence 1985).

**Fire response:**

**Interaction with other organisms:**

**Status/origin:** Native.

**Botanical subregions:** NC CC NT CT ST NWS CWS NWP SWP; Qld, Vic.

**Distribution Sydney area:** Mainly Bathurst–Orange.

**Select locations:** Doonside, Capertee, Orange, Mandurama, Carcoar, Bowral.

**Habitat:** Disturbed sites.

**Altitude:** 0–1000 m  **Annual rainfall:** above 800 mm

**Typical local abundance:** Rare.

**Vegetation:**

**Substrate:** Clay and gravelly soil, basalt, fertile.

**Exposure:**

**Conservation:** Not known.

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**Senecio hispidulus** var. **hispidulus**

**Hill Fireweed**

**Growth form:** Erect herb, mostly 30–100 cm high, leaves more or less lanceolate or oblanceolate — margins finely to coarsely toothed or more or less pinnatifid.

**Vegetative spread:** No.

**Longevity:** Less than 1 year (Lawrence 1985).

**Primary juvenile period:** Less than 1 year (Lawrence 1985).

**Flowers:** At any time of year. Probably native bee-pollinated, self-compatible (Lawrence 1985).

**Fruit/seed:** Achene 1.5–2.7 mm long, with pappus of hairs 5 mm long, mature October–June. Potential seed set/plant 5000–10 000; seed weight without pappus 0.15 mg (Lawrence 1985).

**Dispersal, establishment & growth:** Diaspore: fruit, probably wind-dispersed. Recruitment mainly after fire (D. Keith pers.comm.). Germination 95% (Lawrence 1985).

**Fire response:** Killed by fire (D. Keith pers.comm.). Flowers within 33 weeks of high-intensity fire (1/94) at Lane Cove (P. Kubiak pers. comm.).

**Interaction with other organisms:**

**Status/origin:** Native.

**Botanical subregions:** NC CC SC NT CT ST NWS SWS; Qld., Tas., W.A.

**Distribution Sydney area:** Coast and lower mountains.

**Select locations:** Putty, Avoca, Pymble, Rookwood, La Perouse, Otford, Shellharbour, Grose Vale, Nortons Basin, Thirlmere, Mt Tomah, Bowral.

**Habitat:** Forest and coastal headlands, disturbed sites.

**Altitude:** 0–1000 m  **Annual rainfall:** above 900 mm

**Typical local abundance:** Frequent.

**Vegetation:** Moist eucalypt forest, e.g. *Eucalyptus saligna*, to drier forest, e.g. *Eucalyptus piperita*, *E. eugenioides*.

**Substrate:** Sandy loams from shaded, sandstone, infertile.

**Exposure:** Sheltered sites, light—no shade.

**Conservation:** Vulnerable in Western Sydney (Benson & McDougall 1991), status elsewhere unknown.
Senecio jacobaea *  
Ragwort  
ASTERACEAE  
Life history  
Growth form: Rhizomatous herb, mostly 30–80 cm high.  
Vegetative spread: Rhizomatous.  
Longevity: Perennial or biennial.  
Primary juvenile period:  
Flowers: Autumn.  
Fruit/seed: Achene 2 mm long, with pappus of hairs 5–6 mm long.  
Dispersal, establishment & growth: Diaspore: fruit, probably wind-dispersed.  
Fire response:  
Interaction with other organisms:  
Status/origin: Naturalised exotic, native to Europe and Asia.  
Botanical subregions: CT ST; Vic., Tas., S.A., W.A.  
Distribution Sydney area: Kangaroo.  
Select locations: Kangaroo (1938) only Sydney record.  
Habitat: Cultivated land.  
Altitude: 800 m  
Annual rainfall: 1500 mm  
Typical local abundance:  
Vegetation:  
Substrate:  
Exposure:  
Conservation: Rare, collected at Kangaroo and Goulburn, rare (Harden 1992). Weed of cultivation, unlikely to become a problem weed.

Senecio laetus subsp. dissectifolius  
Variable Groundsel  
ASTERACEAE  
Life history  
Growth form: Herb or small shrub.  
Vegetative spread:  
Longevity: Perennial (Lawrence 1985).  
Primary juvenile period: Probably less than 1 year (Lawrence 1985).  
Fruit/seed: Achene 2 mm long with pappus of hairs 5 mm long, mature March–October. Potential seed set 5000–10 000; seed weight without pappus 0.23 mg (Lawrence 1985).  
Dispersal, establishment & growth: Diaspore: fruit, probably wind-dispersed. Germination 80% (Lawrence 1985).  
Fire response:  
Interaction with other organisms:  
Status/origin: Native.  
Botanical subregions: NC CC NT CT NWS CWS SWS NSW SWP NFWP SFWP; Qld, Vic., Tas., N.T., S.A., W.A.  
Distribution Sydney area: Mainly western Blue Mountains.  
Select locations: Kincumber (1905), Tempe (1899), Jenolan Caves, South Megalong, Mt Werong, Mt Canobolas, Mt Jellore, Bowral.  
Habitat: Rocky outcrops, hillsides, creekbeds.  
Altitude: 0–1000 m  
Annual rainfall: above 900 mm  
Typical local abundance: Frequent–occasional.  
Vegetation: Dry eucalypt forest and woodland.  
Substrate: Rocky sites on granite, basalt, metamorphics.  
Exposure:  
Conservation: Status unknown.
**Senecio lautus** subsp. **lanceolatus**

Variable Groundsel

<table>
<thead>
<tr>
<th>Growth form:</th>
<th>Herb or subshrub.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vegetative spread:</td>
<td>Life history</td>
</tr>
<tr>
<td>Longevity:</td>
<td>Perennial (Lawrence 1985).</td>
</tr>
<tr>
<td>Primary juvenile period:</td>
<td>Probably less than 1 year (Lawrence 1985).</td>
</tr>
<tr>
<td>Fruit/seed:</td>
<td>Achene 3 mm long, with pappus of hairs 5 mm long. Potential seed set/plant 10 000–20 000; seed weight without pappus 0.29 mg (Lawrence 1985).</td>
</tr>
<tr>
<td>Dispersal, establishment &amp; growth:</td>
<td>Diaspore: fruit, probably wind-dispersed. Germination 85% (Lawrence 1985).</td>
</tr>
<tr>
<td>Fire response:</td>
<td>Interaction with other organisms:</td>
</tr>
<tr>
<td>Status/origin:</td>
<td>Native.</td>
</tr>
<tr>
<td>Botanical subregions:</td>
<td>NC CC NT CT; Qld, Vic., W.A.</td>
</tr>
<tr>
<td>Distribution Sydney area:</td>
<td>Select locations: Maroubra (1893), Yerranderie, Kowmung River.</td>
</tr>
<tr>
<td>Habitat:</td>
<td>Ridgetops.</td>
</tr>
<tr>
<td>Altitude:</td>
<td>0–800 m</td>
</tr>
<tr>
<td>Annual rainfall:</td>
<td>above 800 mm</td>
</tr>
<tr>
<td>Typical local abundance:</td>
<td>Occasional.</td>
</tr>
<tr>
<td>Vegetation:</td>
<td>Open-forest.</td>
</tr>
<tr>
<td>Substrate:</td>
<td>Exposed.</td>
</tr>
<tr>
<td>Conservation:</td>
<td>Not known.</td>
</tr>
</tbody>
</table>

**Senecio lautus** subsp. **maritimus**

Variable Groundsel

<table>
<thead>
<tr>
<th>Growth form:</th>
<th>Herb or small shrub.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vegetative spread:</td>
<td>Life history</td>
</tr>
<tr>
<td>Longevity:</td>
<td>Perennial (Lawrence 1985).</td>
</tr>
<tr>
<td>Primary juvenile period:</td>
<td>Probably less than 1 year (Lawrence 1985).</td>
</tr>
<tr>
<td>Fruit/seed:</td>
<td>Achene 3 mm long, with pappus of hairs 5 mm long, mature mostly July–December. Potential seed set/plant 2000–6000; seed weight without pappus 0.26 mg (Lawrence 1985).</td>
</tr>
<tr>
<td>Dispersal, establishment &amp; growth:</td>
<td>Diaspore: fruit, probably wind-dispersed. Germination 85% (Lawrence 1985).</td>
</tr>
<tr>
<td>Fire response:</td>
<td>Interaction with other organisms:</td>
</tr>
<tr>
<td>Status/origin:</td>
<td>Native.</td>
</tr>
<tr>
<td>Botanical subregions:</td>
<td>NC CC SC; Qld, Tas., N.T., S.A., W.A.</td>
</tr>
<tr>
<td>Distribution Sydney area:</td>
<td>Coastal, occasionally inland.</td>
</tr>
<tr>
<td>Select locations:</td>
<td>Norah Head, Long Bay, Kurnell, Wattamolla, Five Islands, Gerringong, Kiama, Glencorie, Yerranderie.</td>
</tr>
<tr>
<td>Habitat:</td>
<td>Coastal headlands and beaches.</td>
</tr>
<tr>
<td>Altitude:</td>
<td>0–200 m</td>
</tr>
<tr>
<td>Annual rainfall:</td>
<td>above 800 mm</td>
</tr>
<tr>
<td>Typical local abundance:</td>
<td>Occasional.</td>
</tr>
<tr>
<td>Vegetation:</td>
<td>With grasses and herbs, e.g. <em>Scaevola cataruldacea</em>.</td>
</tr>
<tr>
<td>Substrate:</td>
<td>Rocky sea coast, or sand dunes near the sea.</td>
</tr>
<tr>
<td>Exposure:</td>
<td>Conservation: Status unknown.</td>
</tr>
</tbody>
</table>
**Senecio linearifolius**

**Life history**

**Growth form:** Herb or shrub 50–150 cm high.
**Vegetative spread:**
**Longevity:** Perennial.
**Primary juvenile period:** Probably less than 1 year (Lawrence 1985).
**Flowers:** Yellow, at any time of year. Probably native bee-pollinated, self-incompatible (Lawrence 1985).
**Fruit/seed:** Achene 2–2.5 mm long, with pappus of long hairs 5–8 mm long, mature October–June. Potential seed set/plant 10 000–20 000; seed weight without pappus 0.29 mg (Lawrence 1985).
**Dispersal, establishment & growth:** Diaspore: fruit. Wind-dispersed, possibly also water-dispersed. Possibly a coloniser species of disturbed sites. Germination 75% (Lawrence 1985).
**Fire response:**
**Interaction with other organisms:**

**Distribution**

**Status/origin:** Native.
**Botanical subregions:** NC CC SC NT CT ST NWS SWS; Vic., Tas.
**Distribution Sydney area:** Coast and Blue Mountains.
**Select locations:** Gosford, Hornsby, Northbridge, Ingleburn, Bulli, Culoul Range, Bilpin, Katoomba, Kanangra, Robertson, Wingello.

**Habitat**

**Habitat:** Moist forest, disturbed sites?
**Altitude:** 0–1000 m **Annual rainfall:** above 800 mm
**Typical local abundance:** Frequent.
**Vegetation:** Rainforest and moist eucalypt forest, e.g. with Eucalyptus saligna, E. deanei, E. fastigata, E. radiana, E. dalrympleana.
**Substrate:** Clay soils from basalt, shale, occasionally sandstone gullies, fertile–very fertile.
**Exposure:**

**Conservation**

**Conservation:** Vulnerable in Western Sydney (Benson & McDougall 1991), Conservation status elsewhere unknown.

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**Senecio macranthus**

**Life history**

**Growth form:** Erect herb mostly 50–100 cm high.
**Vegetative spread:**
**Longevity:** Perennial.
**Primary juvenile period:** Probably less than 1 year (Lawrence 1985).
**Flowers:** Yellow, August–November. Probably native bee-pollinated, self-incompatible (Lawrence 1985).
**Fruit/seed:** Achene 4–5 mm long, with pappus 8–10 mm long, mature September–November. Potential seed set/plant 1000–3000; seed weight without pappus 2.4 mg (Lawrence 1985).
**Dispersal, establishment & growth:** Diaspore: fruit, probably wind-dispersed. Germination 65% (Lawrence 1985).
**Fire response:**
**Interaction with other organisms:**

**Distribution**

**Status/origin:** Native.
**Botanical subregions:** CC NT CT NWS CWs.
**Distribution Sydney area:** Western parts of Blue Mountains.
**Select locations:** Yerranderie, Mt Colong, Mt Werong, Killiecrankie Pass, Jenolan Caves, Winburndale, Upper Turon.

**Habitat**

**Habitat:** Moist gullies and hillsides.
**Altitude:** 500–1000 m **Annual rainfall:** above 900 mm
**Typical local abundance:** Frequent.

**Vegetation:** Eucalypt forest, e.g. with *Eucalyptus rossii*, *E. dives*, *Ficus rubiginosa*, *Acacia falciformis*, also rainforest gullies.

**Substrate:** Rocky hillsides on soils from shale and basalt, fertile, well-drained.

**Exposure:**

**Conservation:** Not known.

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**Senecio madagascariensis**

*Fireweed*

**ASTERACEAE**

**Life history**

**Growth form:** Herb, 20–60 cm high. Taproot shallow, branching, with numerous fibrous roots within 20 cm of soil surface (Parsons & Cuthbertson 1992).

**Vegetative spread:** Limited vegetative spread, stems may take root at nodes when in contact with moist soil.

**Longevity:** 1–2 years. Most plants are winter annuals, top growth dying off during summer and regrowing in autumn but in some situations can perennate (Sindel 1989).

**Primary juvenile period:** 6–10 weeks (Parsons & Cuthbertson 1992), 20 weeks (P. Kubiak pers. comm.).

**Flowers:** Yellow, June–October,

**Fruit/seed:** Achene 2 mm long, with pappus of fine silky white feathery hairs, 6 mm long, mature June–November. Each flower produces 100–150 seeds and one plant may produce 25,000–30,000 seeds (Watson et al. 1984). Growth rate quick.

**Dispersal, establishment & growth:** Diaspore: fruit. Mainly wind dispersed, close to parent plant (Parsons & Cuthbertson 1992), spread in hay and grain products, on clothing and vehicles and by livestock, birds and other animals (Watson et al. 1983). Soil-stored seedbank (Parsons & Cuthbertson 1992). Non-dormant fraction more than 90%, stimulated by moisture. Optimum germination occurs between 15°–27°C. At 20°C, 50% of seed germinated in light while only 8% germination in the dark; germination can take place over much of the year but most germination is from March–June and plants can produce flowers 6–10 weeks after emergence (Watson et al. 1984). Young seedlings are more sensitive to frost than older plants (Sindel & Michael 1980).

**Fire response:** Killed; flowering within 15 weeks and fruiting within 20 weeks of high-intensity fire (1/1994) at Lane Cove (P. Kubiak pers. comm.). Spreads into bushland following fire (R. Buchanan pers. comm.). Not clear whether recruitment is from pre- or post-fire seed dispersal.

**Interaction with other organisms:** Toxic to livestock (cattle and horses) if eaten (Sindel & Michael 1992), but palatable to sheep and goats (Watson et al. 1984). Host to beetle *Chalcolumpra sp.*, Magpie Moth *Nyetemena anicia*, Blue Stem Borer *Pityophonoides farinaria*, leaf and stem mining flies, and two species of flower head feeding flies (Tanner 1993).

**Distribution**

**Status/origin:** Naturalised exotic, native to S Africa and Madagascar. First recorded in the Hunter Valley 1918 (Parsons & Cuthbertson 1992).

**Botanical subregions:** NC CC SC NT CT CWS SWS; Qld.

**Distribution Sydney area:** Gosford, northern Sydney, Cumberland Plain, Western Sydney & Orange area.

**Select locations:** Wyong Creek (1954), Pennant Hills, Kurmond, Kellyville, Windsor (M. Clarke pers. comm.), Casula (1967), Campbelltown, Molong, Robertson (P. Kodela pers. comm.).

**Habitat**

**Habitat:** Heavily grazed pastures, cultivated land, roadsides and wasteland

**Altitude:** 0–1100 m

**Annual rainfall:** Above 600 mm

**Typical local abundance:** Frequent–dominant.

**Vegetation:** Exotic pastures, weedy herbaceous vegetation. Ground stratum.

**Substrate:** Sandy to clay soil from shales and sandstones. Soil fertile. Watertable mostly low, moisture supply intermittent, fresh.

**Exposure:** Indifferent–sheltered sites; light–no shade.

**Conservation**

**Conservation:** Spread in Sydney area mainly since 1960s. Not generally found in bushland areas but an agricultural weed in heavily grazed or neglected pastures and on cultivated or
disturbed ground during autumn–spring (Watson et al. 1984). Best control is to encourage competing pasture species. Declared noxious weed in some shires in NSW. Spreads into bushland following fire (R. Buchanan pers. comm.).

**Senecio minimus**

**ASTERACEAE**

**Life history**

**Growth form:** Erect herb, 20–100 cm high.

**Vegetative spread:** No.

**Longevity:** 1 year.

**Primary juvenile period:** Less than 1 year.

**Flowers:** October–March.

**Fruit/seed:** Achene 2 mm long, with pappus 4–5 mm long.

**Dispersal, establishment & growth:** Diaspore: fruit. Wind dispersed (Westoby et al. 1990). Probably quick growing coloniser species.

**Fire response:** Probably killed.

**Interaction with other organisms:**

**Distribution**

**Status/origin:** Native.

**Botanical subregions:** NC SC CC NT CT ST; Qld, Vi c, Tas., S.A., W.A., N.Z.

**Distribution Sydney area:** Mainly coastal, widespread.

**Select locations:** Mooney Mooney, Dural, Lane Cove, Otford, Mt Kembla, Bilpin, Ingleburn, Douglas Park, Razorback, Thirlmere Lakes, Mittagong.

**Habitat**

**Habitat:** Moist places, gullies, roadsides.

**Altitude:** 0–700 m

**Annual rainfall:** above 800 mm

**Typical local abundance:** Frequent.

**Vegetation:** Eucalypt forest, e.g. with *Eucalyptus pilularis*, *Syncarpia glomulifera* and margin of rainforest, also riverbanks, e.g. with *Viminaria juncea*, *Phragmites australis*.

**Substrate:** Clay loam from shale to organic soils, fertile. Watertable high to low, periodically waterlogged.

**Exposure:** Shaded sites.

**Conservation:** Vulnerable in Western Sydney (Benson & McDougall 1991).

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**Senecio pterophorus** *

**ASTERACEAE**

**Life history**

**Growth form:** Erect shrub mostly 80–150 cm high.

**Vegetative spread:**

**Longevity:** Perennial (Lawrence 1985).

**Primary juvenile period:** Probably less than 1 year (Lawrence 1985).

**Flowers:** Yellow, January–March. Probably native bee-pollinated, self-incompatible (Lawrence 1985).

**Fruit/seed:** Achene 2 mm long, with pappus of hairs 5 mm long. Potential seed set/plant 20 000–30 000; seed weight without pappus 0.17 mg (Lawrence 1985).

**Dispersal, establishment & growth:** Diaspore: fruit, probably wind-dispersed. Germination 80% (Lawrence 1985).

**Fire response:**

**Interaction with other organisms:**

**Distribution**

**Status/origin:** Exotic, native to S Africa. Recently reported as a naturalised.

**Botanical subregions:** CC; Vic., S.A.

**Distribution Sydney area:** Western Sydney — a recently reported weed.

**Select locations:** Doonside (1989), Mt Druitt (1990), Kurmond (1990).
Habitat: Remnant bush.
Altitude: 0–200 m
Annual rainfall: 700–900 mm
Typical local abundance: Frequent.
Vegetation: Remnant bush, e.g. Eucalyptus tereticornis–E. crebra woodland. Mid-stratum.
Substrate: Clay soil from Wianamatta Shale, fertile. Watertable mostly low, moisture supply intermittent, fresh.
Exposure: 

Conservation: Only recently reported as a naturalised species but its occurrence in remnant bushland areas in western Sydney suggests that it may be a potential bushland weed species.

Senecio quadridentatus
ASTERACEAE
Cotton Fireweed

Growth form: Herb to about 40–100 cm high.
Vegetative spread: No.
Longevity: Annual or biennial (Purdie 1977).
Primary juvenile period: Probably less than 1 year (Lawrence 1985).
Fruit/seed: Achenes 3–4 mm long with pappus of hairs 5–7 mm long, mature October–March. Potential seed set/plant 15 000–30 000; seed weight without pappus 0.15 mg (Lawrence 1985).
Dispersal, establishment & growth: Diaspore: fruit, probably wind-dispersed.
Recruitment fire-related (Harden 1992). Germination 95% (Lawrence 1985).
Fire response: Seedlings recorded less than 1 year after fire (Purdie 1977).

Interaction with other organisms:

Distribution:

Status/orIGIN: Native.
Botanical subregions: NC CC NT ST CWS SWS NWP; Vic.
Distribution Sydney area: Western Sydney, Bathurst.
Select locations: Denstone, Marayong, Glenfield, Grose Vale, Razorback, Thirlmere, Linden, Medlow Bath, Capertee, Bathurst, Wilfreds Meadow (P. Kodela pers. comm.).

Senecio species E
ASTERACEAE

Growth form: Erect herb 20–80 cm high. (Reported as annual at Culoul Range in 1981.)
Vegetative spread:
Longevity: Probably relatively short-lived.
Primary juvenile period:
Flowers: September–March.
Fruit/seed: Achenes 3–4 mm long, with pappus 6–7 mm long.
Dispersal, establishment & growth: Diaspore: fruit, probably wind-dispersed.
Fire response:
Interaction with other organisms:

**Status/origin:** Native.

**Botanical subregions:** NC CC NT CT ST CWS SWS; Vic., Tas., W.A.

**Distribution Sydney area:** Mainly upper Blue Mountains but widespread.

**Select locations:** Culoul Range, Tuggerah, Bobbin Head, Kentlyn, Thirlmere Lakes, Medlow Bath, Wolgan Valley, Sunny Corner, Moss Vale.

**Habitat:** Eucalypt woodland, possibly disturbed sites.

**Altitude:** 0–1200 m  
**Annual rainfall:** above 900 mm

**Typical local abundance:** Occasional.

**Vegetation:** Eucalypt forest, e.g. with *Eucalyptus punctata*, *E. beyeri*, *Syncarpia glomulifera* and woodland, e.g. with *Eucalyptus mannifera*.

**Substrate:** Sandy loam, e.g. from shale enriched sandstone, well-drained–poorly drained, infertile.

**Exposure:**

**Conservation:** Rare in coastal areas, conservation status unknown.

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*Senecio tamioides*  
**ASTERACEAE**  

**Life history**

**Growth form:** Scrambling herb.

**Vegetative spread:**

**Longevity:** Perennial.

**Primary juvenile period:**

**Flowers:** Yellow, winter.

**Fruit/seed:** Achene 2 mm long, with pappus 6–7 mm long.

**Dispersal, establishment & growth:** Diaspore: fruit, probably wind-dispersed.

**Fire response:**

**Interaction with other organisms:**

**Status/origin:** Exotic, native to S Africa. Introduced as ornamental, occasionally naturalised.

**Botanical subregions:** CC; Qld.

**Distribution Sydney area:** Northern Sydney suburbs.

**Select locations:** Narrabeen (1917), Pennant Hills (1921).

**Habitat:**

**Altitude:** 0–100 m  
**Annual rainfall:** above 1200 mm

**Typical local abundance:**

**Vegetation:**

**Substrate:**

**Exposure:**

**Conservation:** Occasionally naturalised in moist gullies in Sydney area.

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*Senecio tenuiflorus*  
**ASTERACEAE**  

**Life history**

**Growth form:** Herb, usually 30–80 cm high.

**Vegetative spread:** No.

**Longevity:** Less than 2 years.

**Primary juvenile period:**

**Flowers:** Spring–summer.

**Fruit/seed:** Achene 2.5 mm long, with pappus 6–8 mm long.

**Dispersal, establishment & growth:** Diaspore: fruit, probably wind-dispersed.
Fire response:
Interaction with other organisms:

**Distribution**

**Status/ori**gin: Native.

**Botanical subregions:** NC CT; Qld, Vic., Tas., S.A.

**Distribution Sydney area:** Western Blue Mountains.

**Select locations:** Blackheath (1899), Jenolan Caves (1899), Gibraltar Rocks Trail.

**Habitat**

**Habitat:** Dispersed sites, open woodland.

**Altitude:** 800–1000 m  
**Annual rainfall:** 900–1200 mm

**Typical local abundance:** Occasional.

**Vegetation:** Woodland, e.g. *Eucalyptus sieberi–E. blaxlandii* (Keith & Benson 1988).

**Substrate:** Well-drained sandy soil on sandstones of shoalhaven group.

**Exposure:**

**Conservation:** Localised and probably uncommon, conservation status unknown.

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**Senecio vagus** subsp. *eglandulosus*  
**ASTERACEAE**

**Life history**

**Growth form:** Herb or shrub 60–120 cm high.

**Vegetative spread:**

**Longevity:** 2–4 years.

**Primary juvenile period:** Probably less than 1 year (Lawrence 1985).

**Flowers:** Yellow, October–January. Probably native bee-pollinated, self-incompatible (Lawrence 1985).

**Fruit/seed:** Achene 5 mm long, with pappus 7–10 mm long, mature October–January. Potential seed set/plant 1000–2000; seed weight without pappus 1.92 mg (Lawrence 1985).

**Dispersal, establishment & growth:** Diaspore: fruit, probably wind-dispersed. Germination 45% (Lawrence 1985).

**Fire response:** Killed, seedlings grow vigorously after fire.

**Interaction with other organisms:**

**Distribution**

**Status/ori**gin: Native.

**Botanical subregions:** NC CC NT CT; Qld.

**Distribution Sydney area:** Coast, and Blue Mountains.

**Select locations:** Avoca, Narrabeen, Ingleburn, Stanwell Park, Wallacia, Bargo, Blackheath, Jamieson Valley.

**Habitat**

**Habitat:** Moist gullies, creekbanks, headlands.

**Altitude:** 0–1000 m  
**Annual rainfall:** above 800 mm

**Typical local abundance:** Occasional.

**Vegetation:** Chiefly rainforest or eucalypt forest, high rainfall.

**Substrate:** Med-high nutrient soils, from sandstone or alluvium.

**Exposure:** Mid-shade.

**Conservation:** Bargo is southern limit. Vulnerable in Western Sydney (Benson & McDougall 1991), conservation status elsewhere unknown.
Senecio velleioides

**ASTERACEAE**

**Growth form:** Herb or shrub 30–130 cm high.

**Vegetative spread:**

**Longevity:** Perennial.

**Primary juvenile period:** Probably less than 1 year (Lawrence 1985).

**Flowers:** Yellow, October–May. Probably native bee-pollinated, self-incompatible (Lawrence 1985).

**Fruit/seed:** Achene 2.5 mm long, with pappus 5–8 mm long. Potential seed set/plant 2000–5000; seed weight without pappus 0.54 mg (Lawrence 1985).

**Dispersal, establishment & growth:** Diaspore: fruit, probably wind-dispersed. Germination 35% (Lawrence 1985).

**Fire response:**

**Interaction with other organisms:**

**Distribution**

**Status/orIGIN:** Native.

**Botanical subregions:** NC CC SC NT CT ST CWS; Vic., Tas.

**Distribution Sydney area:** Mainly Blue Mountains and Southern Highlands.

**Select locations:** Ourimbah SF, Thirlmere Lakes, Bargo, Macquarie Pass, Mt Kerry, Mt Cameron, Mt Victoria, Kangalooh, Fitzroy Falls, Wingello.

**Habitat:** Moist Eucalypt forest.

**Altitude:** 900 m

**Annual rainfall:** above 900 mm

**Typical local abundance:** Frequent–occasional.

**Vegetation:** Eucalypt forest, e.g. with Eucalyptus gunnifera or more moist forest, e.g. with Eucalyptus smithii, E. quadranigula (Falling & Benson 1985).

**Substrate:** Sandy soils from sandstone, occasionally on basalt.

**Exposure:**

**Conservation:** Status unknown.

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Senecio vulgaris *

**ASTERACEAE**

**Groundsel**

**Growth form:** Erect herb 10–50 cm high.

**Vegetative spread:**

**Longevity:** Annual or overwintering (Ciba-Geigy 1968–).

**Primary juvenile period:**

**Flowers:** Pale yellow, throughout the year, usually self-pollinated, rarely insect-pollinated (Ciba-Geigy 1968–).

**Fruit/seed:** Achene 2 mm long, with pappus 5–7 mm long.

**Dispersal, establishment & growth:** Dispersed by wind, water, animals and humans; germinates throughout the year, often 2 or more generations in one year (Ciba-Geigy 1968–).

**Fire response:**

**Interaction with other organisms:**

**Distribution**

**Status/orIGIN:** Naturalised exotic, native to Europe.

**Botanical subregions:** CC CT ST; Qld, Vic., Tas., S.A., W.A.

**Distribution Sydney area:**

**Select locations:** Specimens unavailable.

**Habitat:**

**Altitude:**

**Typical local abundance:**

**Vegetation:**

**Substrate:** Soils rich in nutrients, nitrogen indicator (Ciba-Geigy 1968–).

**Exposure:** Disappears in closed stands for want of light (Ciba-Geigy 1968–).

**Conservation:**
**Sigesbeckia orientalis** subsp. **orientalis**

**Indian Weed**

**Growth form**: Erect herb to 80 cm high.

**Vegetative spread**: No.

**Longevity**: Short-lived.

**Primary juvenile period**: Less than 1 year.

**Flowers**: Yellow, January–May, peak March–April, flowerheads surrounded by sticky, glandular bracts.

**Fruit/seed**: Achenes 2–3 mm long; mature March–June.

**Dispersal, establishment & growth**: Diaspore: fruit, no special seed dispersal morphology (Westoby et al. 1990), but fruit-head possibly dispersed by attachment as well as individual achenes dispersed by attachment (L.McD.). Coloniser of disturbed sites.

**Fire response**: Killed, germinates vigorously from soil-stored seed immediately after fire, even in absence of rain. Grew to 30 cm high and flowered in 4 months at Culoul RANGE in 1980 drought after fire. Killed by high-intensity fire (1/1994) at Lane Cove, seedlings flowered within 11 weeks, fruiting within 16 weeks (P. Kubiak pers. comm.).


**Distribution**

**Status/origin**: Native.

**Botanical subregions**: NC CC SC NT CT ST NWP SWP; Qld, Vic., Tas., N.T., S.A., W.A., Asia, Africa.

**Distribution Sydney area**: Widespread.

**Select locations**: Watagan Mountains, Hornsby, Waterfall, Albion Park, Bomaderry, Grose Vale, Springwood, Goodmans Ford, Mount Wilson, Robertson.

**Habitat**: Deep valleys, creeks, roadsides.

**Altitude**: 0–1000 m

**Annual rainfall**: above 800 mm

**Typical local abundance**: Frequent.

**Vegetation**: Margins of rainforest; open areas in tall forest, e.g. with *Eucalyptus pilularis*, *E. puncticulata*, woodland, e.g. with *Angophora floribunda*.

**Substrate**: Fertile soils, from limestones, slate, volcanic necks, or sandy alluvium, often disturbed sites, one record indicates 'weed of cultivation'. Basalt (P. Kodela pers. comm.).

**Exposure**: Mid-shade.

**Conservation**: Conserved in Western Sydney (Benson & McDougall 1991), conservation status elsewhere unknown.

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**Silybum marianum** *

**Variegated Thistle**

**Growth form**: Herb to 2.5 m high.

**Vegetative spread**: No.

**Longevity**: 2 years.

**Primary juvenile period**:

**Flowers**: Purple, September–December.

**Fruit/seed**: Achenes 6–8 mm long, with pappus of bristles 15–20 mm long.

**Dispersal, establishment & growth**: Diaspore: fruit, wind-dispersed.

**Fire response**: Interaction with other organisms: Poisonous to stock. Seed eaten by Galah *Cacatua roseicapilla* (Lepschi 1993).

**Status/origin**: Naturalised exotic, native to S Europe & N. Africa.

**Botanical subregions**: NC CC SC NT CT ST NWS SWS SWP SWP NFWP SFWP; Qld, Vic., Tas., S.A., W.A.

**Distribution Sydney area**: Widespread.
Selected locations: Warwick Farm, Liverpool (1909), Doomsday, Mt Annan, Berry, Mt Cameron, Orange, Robertson (P. Kodela pers. comm.).

Habitat: Stockyards, paddocks, pastures.
Altitude: 0–1000 m  
Annual rainfall: 700–1000 mm
Typical local abundance: Occasional.
Vegetation: Cultivated paddocks. Grazed pastures (P. Kodela pers. comm.).
Substrate: Clay soils from Wianamatta Shale, basalt, fertile, well drained. Recorded on saline sites in western NSW (Semple 1993).

Conservation: Widespread weed.

Solenogyne belliioides (Lagenifera belliioides)

ASTERACEAE

Life history

Growth form: Herb 5–18 cm high, with radical leaves and fleshy roots; rhizome short, vertical.
Vegetative spread:
Longevity: Perennial.
Primary juvenile period:
Fruit/seed: Achene 2 mm long, no pappus. Mature October–May, peak April.
Dispersal, establishment & growth: Diaspore: fruit. Springs up after summer rain (Blakely, Herbarium note).
Fire response: Probably resprouts at ground level or below.
Interaction with other organisms:

Distribution

Status/origin: Native.
Botanical subregions: NC CC SC NT CT NWS CWS SWP; Qld.
Distribution Sydney area: Widespread — lower elevations.
Select locations: Mt Wareng, Cheltenham, Concord, Blackett, Ingleburn, Menangle, Thirlmere, Glennire, Butlers Swamp (P. Kodela pers. comm.), Goodmans Ford.

Habitat: Low growing grassy sites, often subject to some disturbance.
Altitude: 0–700 m  
Annual rainfall: above 800 mm
Typical local abundance: Frequent.
Vegetation: Low-growing grassland, e.g. burnt, compacted soil, between bricks in footpath. Sedgeland (P. Kodela pers. comm.). Understorey in woodland.
Substrate: Clay soils from Wianamatta Shale, also granite. Soil fertile. Watertable permanently low, moisture supply intermittent, fresh.
Exposure: Indifferent to exposure, light shade–full sun.

Conservation: Vulnerable in Western Sydney (Benson & McDougall 1991), conservation status elsewhere unknown.

Solenogyne domini (Lagenifera sp. B)

ASTERACEAE

Life history

Growth form: Herb 1.5–10 cm high; rhizome short, vertical, roots fleshy.
Vegetative spread:
Longevity: Perennial.
Primary juvenile period:
Flowers: Magenta-tinged.
Fruit/seed: Achene 2 long, no pappus, mature October–May, peak March.
Dispersal, establishment & growth: Diaspore: fruit.
Fire response: Interaction with other organisms:

**Distribution**

**Status/origin:** Native.
**Botanical subregions:** CC NT CT ST CWS SWS; Vic.
**Distribution Sydney area:** Coast and western Blue Mountains.
**Select locations:** Hurstville (1899), Ryde, Albion Park, Goodmans Ford, Turondale, Glenmire.

**Habitat**

**Altitude:** 0–700 m  **Annual rainfall:** 600–1200 mm
**Typical local abundance:** Frequent.
**Vegetation:** Woodland, e.g. with *Eucalyptus melliodora, E. albicans*. Ground stratum.
**Substrate:** Granite, slate. Fertile–infertile. Watertable permanently low, moisture supply intermittent, fresh.
**Exposure:**

**Conservation:** Conservation status unknown.

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**Solenogyne gunnii** (Lagenifera sp. A var. B)

**ASTERACEAE**

**Life history**

**Growth form:** Herb to 11 cm high.
**Vegetative spread:**
**Longevity:** Perennial.
**Primary juvenile period:**
**Flowers:** Magenta-tinged, November–March.
**Fruit/seed:** Achene 2–3 mm long, no pappus, mature January–May.
**Dispersal, establishment & growth:** Diaspore: fruit.

**Fire response:** Interaction with other organisms:

**Distribution**

**Status/origin:** Native.
**Botanical subregions:** NT CT ST; Vic., Tas.
**Distribution Sydney area:** Western Blue Mountains, Southern Highlands.
**Select locations:** Lidsdale, Hartley, Orange, Oberon, Abercrombie Caves, Wingecarribee Swamp.

**Habitat:** Grassland. Swamp margins.
**Altitude:** 500–1000 m  **Annual rainfall:** above 1000 mm
**Typical local abundance:** Frequent–rare.
**Vegetation:** Grassland with *Brachycome, Plantago varia* etc. Ground stratum; sedgeland/pasture ecotone area (P. Kodela pers. comm.).
**Substrate:** Sandy loam or on metamorphic rock. Infertile soil or more fertile peaty soil (P. Kodela pers. comm.). Watertable permanently low, moisture supply intermittent, fresh.
**Exposure:** Full sun.

**Conservation:**

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**Solidago canadensis var. scabra** *

**ASTERACEAE**

**Life history**

**Goldenrod**

**Growth form:** Herb 0.8–2 m high with stolons and rhizomes.
**Vegetative spread:** Spreads by stolons up to several metres.
**Longevity:** Indefinite.
Primary juvenile period:

Flowers: Yellow, summer.

Fruit/seed: Achene 1–2 mm long, with pappus of bristles 2–3 mm long.

Dispersal, establishment & growth: Diaspore: fruit, probably wind-dispersed, though establishment mainly result of human dispersal of stolons, e.g. dumping garden waste.

Fire response: Resprouted from base, flowering within 16 weeks and fruiting within 19 weeks of high-intensity fire (1/1994) at Lane Cove (P. Kubiak pers. comm.).

Interaction with other organisms:

Distribution

Status/origin: Exotic, native to N America; introduced for horticulture, localised garden escape.

Botanical subregions: NC CC NT CWS; Qld, S.A.

Distribution Sydney area: Suburban areas.

Select locations: Wyong (1961), Roseville, Maroota, Blacktown, Casula, Minto, Campbelltown.

Habitat: Roadside and disturbed sites near habitation.

Altitude: 0–200 m

Annual rainfall: Above 700 mm

Typical local abundance: Frequent.

Vegetation: Disturbed sites.

Substrate: Disturbed sites on sandstone, shale. Soil fertile–infertile. Watertable permanently low, moisture supply intermittent, fresh.

Exposure: Full sun.

Conservation: Localised garden escape, spreads vegetatively in limited areas.

**Soliva anthemifolia** *

Dwarf Jo-jo, Button Weed

ASTERACEAE

Life history

Growth form: Small, diffuse, prostrate, stemless herb with radical leaves.

Vegetative spread: No.

Longevity: 1 year.

Primary juvenile period: Less than 1 year.

Flowers: June–March, peak November.

Fruit/seed: Achene 3 mm long, with 2–3 mm spine.

Dispersal, establishment & growth: Diaspore: fruit, burr, animal-dispersed.

Fire response:

Interaction with other organisms:

Distribution

Status/origin: Naturalised exotic, native to S America.

Botanical subregions: NC CC SC NWS NWP SWP; Qld, Vic., S.A.

Distribution Sydney area: Mainly suburban areas.

Select locations: Sydney (1805), Cheltenham, Penshurst, Glenfield, Richmond, Camden, Albion Park.

Habitat: Weed of lawns and playing fields.

Altitude: 0–200 m

Annual rainfall: Above 800 mm

Typical local abundance: Frequent–occasional.

Vegetation: Grasslands, crops, pastures, lawns.

Substrate: Sandy and clay soils.

Exposure:

Conservation: Weed of lawns and playing fields.
**Soliva sessilis** * (Soliva pterosperma)  
**ASTERACEAE**

**Life history**

**Growth form:** Small, diffuse, prostrate, stemless herb; leaves radical, branches stolon-like.

**Vegetative spread:** No.

**Longevity:** 1 year.

**Primary juvenile period:** Less than 1 year.

**Flowers:** Pale greenish-yellow, August–December.

**Fruit/seed:** Achene 3–4 mm long, with wings and spine 3 mm long, forming a burr. Mature August–December.

**Dispersal, establishment & growth:** Diaspore: burr, animal-dispersed, including human feet. Seed germinates in winter, plant dies in summer unless irrigated (Commens et al. 1982).

**Fire response:**

**Interaction with other organisms:** May cause dermatitis of knees, soles of feet, and arms in humans (Commens et al. 1982).

**Status/origin:** Naturalised exotic, native to S America. First identified on the hill of Sydney Cricket Ground in 1890s (Commens et al. 1982).

**Botanical subregions:** NC CC SC ST NWS CWS SWS Vic.

**Distribution Sydney area:** Mainly coastal areas.

**Select locations:** Woy Woy, Pennant Hills, Moore Park (1899), Cabarita, Glenfield, Dural, Windsor, Albion Park, Kangaroo Valley.

**Habitat**

- Weed of lawns, disturbed sites.
- Altitude: 0–200 m
- Annual rainfall: above 800 mm

**Conservation**

- Nuisance weed of lawns.


**Sonchus asper** subsp. **glaucescens** *

**ASTERACEAE**

**Life history**

**Growth form:** Herb, 20–150 cm high, with woody taproot.

**Vegetative spread:** No.

**Longevity:** 1–2 years.

**Primary juvenile period:** Less than 2 years.

**Flowers:** Yellow, October–December. Insect-pollinated (Ciba-Geigy 1968–).

**Fruit/seed:** Achene 2–3 mm long, with pappus 8 mm long.

**Dispersal, establishment & growth:** Diaspore: fruit, dispersed by wind, water, animals and humans; moderate to vigorous competitor for space and nutrients (Ciba-Geigy 1968–).

**Fire response:** Seedlings recorded less than 1 year after fire (Purdie 1977).

**Interaction with other organisms:**

**Status/origin:** Naturalised exotic, native to Europe.

**Botanical subregions:** NC CC SC NT CT ST CWS SWS SWP NFWP SFWP; Qld, Vic., Tas., N.T., S.A., W.A.

**Distribution Sydney area:** Widespread.

**Select locations:** Colo (1911), Woy Woy (1912), Liverpool, Richmond, Mt Annan, Mt Tomah, Blackheath, Hartley, Robertson (P. Kodela pers. comm.).

**Habitat**

- Weed of roadsides, cultivation, gardens and wasteland.
- Altitude: 0–1000 m
- Annual rainfall: above 700 mm

**Conservation**

- Wasteland weeds.
**Sonchus hydrophilus**

Native Sowthistle

**Growth form:** Herb 50–120 cm high, with woody taproot.
**Vegetative spread:** No.
**Longevity:** 1–3 years.
**Primary juvenile period:** Less than 1 year.
**Flowers:** Yellow, at any time, probably insect-pollinated.
**Fruit/seed:** Achene 4 mm long, with pappus 8 mm long.
**Dispersal, establishment & growth:** Diaspore: fruit, probably wind-dispersed.
**Fire response:**
**Interaction with other organisms:**

**Status/origin:** Native.
**Botanical subregions:** CC SC; Qld, S.A., N.G.
**Distribution Sydney area:** Coast south from Sydney.
**Select locations:** Cronulla (1816), Gerringong (1928).

**Habitat:** Sea shore cliffs and rocky headlands.
**Altitude:** 0–50 m
**Annual rainfall:** above 1200 mm
**Typical local abundance:**
**Vegetation:**
**Substrate:** Temporarily wet ground.

**Conservation:** Uncommon.

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**Sonchus oleraceus**

Common Sowthistle

**Growth form:** Herb 30–110 cm high with taproot and fibrous roots.
**Vegetative spread:** No
**Longevity:** 1 year.
**Primary juvenile period:** Less than 1 year.
**Flowers:** Yellow, most of the year. Insect-pollinated (Ciba-Geigy 1968–). Insect-pollinated (Ciba-Geigy 1968–).
**Fruit/seed:** Achene 3–4 cm long, with pappus 5–8 mm long, mature March–November.
**Dispersal, establishment & growth:** Diaspore: fruit; animal, water, and wind-dispersed (Carr et al. 1992).
**Fire response:** Killed after medium to high-intensity fire, flowering and fruiting within 15 weeks of high-intensity fire (1/1994) at Lane Cove, seedlings observed (P. Kubiak pers. comm.).
**Interaction with other organisms:** Foodplant of Grey Teal Anas gibberifrons (Barker & Vestjens 1989,1990). Eaten by rabbits (R. Buchanan pers. comm.). Used as green feed for caged birds.

**Status/origin:** Naturalised exotic, native to Europe. Formerly used in folk medicine and as a salad (Ciba-Geigy 1968–).
**Botanical subregions:** NC CC SC NT CT ST NWS CWS SWS NWP SWP NFWP SFWP; Qld, Vic., Tas., N.T., S.A., W.A.
**Distribution Sydney area:** Widespread.
**Select locations:** Cheltenham, Dural, Balgowlah, Centennial Park (1901), Casula, Liverpool, Hilltop, Minnamurra, Robertson (P. Kodela pers. comm.), Cambewarra.
Stemmacantha australis (Leuza australis, Centaurea australis)  ASTERACEAE

Growth form: Erect herb to 60 cm high, branches slightly woolly.
Vegetative spread:
Longevity: Perennial.
Primary juvenile period:
Flowers: Purplish, spring–autumn.
Fruit/seed: Achenes 8 mm long, with pappus 20 mm long.
Dispersal, establishment & growth: Diaspore: fruit, probably wind-dispersed.
Fire response:
Interaction with other organisms:

Status/origin: Native.
Botanical subregions: CT ?NWP; Qld, Vic.
Distribution Sydney area: Jenolan Caves.
Select locations: Jenolan Caves (1899), only Sydney record.

Habitat:  
Altitude: 800 m  Annual rainfall: 1000 mm  
Typical local abundance:  
Vegetation:  
Substrate: Heavy soils.
Exposure:  

Conservation: Probably very rare or extinct in Sydney area, conservation status unknown.

Stuartina muelleri  ASTERACEAE

Spoon Cudweed

Growth form: Herb 2–12 cm high.
Vegetative spread:
Longevity:  
Primary juvenile period:  
Flowers: Greenish, spring.
Fruit/seed: Achenes 0.5–1 mm long, no pappus.
Dispersal, establishment & growth: Diaspore: fruit.
Fire response:  
Interaction with other organisms:  

Status/origin: Native.
Botanical subregions: CT ST NWS CWS SWS NWP SWP NFWP; Vic., S.A., W.A.
Distribution Sydney area: Abercrombie Caves.
**Select locations:** Abercrombie Caves (1951).

**Habitat:**

**Altitude:** 600 m  
**Annual rainfall:** 600 mm

**Typical local abundance:**

**Vegetation:** Grassland, woodland and sclerophyll forest.

**Substrate:** Rocky hillsides.

**Exposure:**

**Conservation:** Widespread in inland districts. Eastern limit is Abercrombie Caves, conservation status unknown.

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**Tagetes minuta** *

**ASTERACEAE**

**Stinking Roger**

**Growth form:** Strongly aromatic herb 1–2 m high.

**Vegetative spread:** No.

**Longevity:** 1 year.

**Primary juvenile period:** Less than 1 year.

**Flowers:** Yellow; February–May.

**Fruit/seed:** Achene 5–8 mm long, with pappus of scales 3 mm long

**Dispersal, establishment & growth:** Diaspore: fruit, probably animal-dispersed.

**Fire response:** Probably killed, flowering and fruiting within 20 weeks of high-intensity fire at Narrabeen (1/1994) (P. Kubiak pers. comm.). Dense stands along roadsides near Narrabeen Lakes and Ingleside after high-intensity fire (1/1994) (L.McD.), probably from soil-stored seed.

**Interaction with other organisms:** Contains a volatile oil with tagetone; reported to have an irritant effect on eyes and skin and cause contact dermatitis; taints dairy products if eaten by cows, and suspected of poisoning stock (Hurst 1942).

**Status/origin:** Naturalised exotic, native to S America.

**Botanical subregions:** NC CC SC NT NWS CWS SWP NFWP; Qld, S.A., W.A.

**Distribution Sydney area:** Mainly coastal.

**Select locations:** Kincumber, Avalon, Hornsby, Forestville (L.McD.), Sydney (1893), Kurrajong, Doonside, Picton, Bulli, Wollongong, Kiama, Berry.

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**Tanacetum parthenium** *

**ASTERACEAE**

**Feverfew**

**Growth form:** Erect, aromatic herb to 60 cm high, with rhizome.

**Vegetative spread:** No.

**Longevity:** About 5 years.

**Primary juvenile period:** Less than 1 year.

**Flowers:** White, disc yellow, spring–summer.

**Fruit/seed:** Achene 1.5 mm long, with minute pappus.

**Dispersal, establishment & growth:** Diaspore: fruit, ligule persistent for long enough to aid wind-dispersal?
Fire response:  
Interaction with other organisms:  
Distribution

Status/origin: Exotic, native to Europe, introduced as garden ornamental, rarely naturalised.
Botanical subregions: CT ST CWS; Vic., Tas., S.A.
Distribution Sydney area:  
Select locations: Campbelltown (1963).

Habitat: Gardens, roadsides, wasteland.
Altitude: 0–100 m  
Annual rainfall: above 700 mm
Typical local abundance: Rare.
Vegetation:  
Substrate: Clay soils.
Exposure:  
Conservation: Occasionally naturalised on roadsides and as a garden weed.

Tanacetum vulgare  
ASTERACEAE
Tansy

Growth form: Erect, aromatic herb to 1.2 m high, with rhizome.
Vegetative spread:  
Longevity: Perennial.
Primary juvenile period:  
Flowers: Yellow, spring–autumn.
Fruit/seed: Achene 1–2 mm long, with minute pappus.
Dispersal, establishment & growth: Diaspore: fruit. Ligule appears to be persistent for long enough to aid wind-dispersal.
Fire response:  
Interaction with other organisms:  
Distribution

Status/origin: Naturalised exotic, native to Europe, sporadic garden escape.
Botanical subregions: CC SC NT CT ST NWS NWP; Qld, Vic., Tas., S.A.
Distribution Sydney area: Coast, western Blue Mountains, Southern Highlands.
Select locations: Cheltenham, Leichhardt, Otford, Nowra, Mt Wilson (1896), Bowenfels, Bathurst, Bowral, Kangaroo (P. Kodela pers. comm.), Bundanoon.

Habitat: Roadsides and vacant land.
Altitude: 0–1000 m  
Annual rainfall: above 800 mm
Typical local abundance: Frequent–occasional.
Vegetation: Grassy areas.
Substrate: Clay soils.
Exposure: Full sun.
Conservation: Naturalised along roadsides, probably not invasive of bush.

Taraxacum officinale  
ASTERACEAE
Dandelion

Growth form: Herb 5–40 cm high, with radical leaves.
Vegetative spread: No.
Longevity: Perennial.
Primary juvenile period:  
Flowers: Yellow, most of the year.
Fruit/seed: Achene 2.5–4.5 mm long, with pappus of bristles 6 mm long.
Dispersal, establishment & growth: Diaspore: fruit. Wind-dispersed many kilometres (Buchanan 1989).

Fire response: Probably resprouted, flowering within 11 weeks and fruiting within 25 weeks of high-intensity fire (1/1994) at Lane Cove (P. Kubalik pers. comm.).


Status/origin: Naturalised exotic, native to Europe.

Botanical subregions: NC CC SC NT CT ST NWS SWS NWP SWP; Qld, Vic., Tas., S.A., W.A.

Distribution Sydney area: Widespread.

Select locations: Balgowlah, Ermington, Kurnell, Cabarita, Casula, Campbelltown, Mt Kembla (1891), Jenolan Caves (1886), Moss Vale.

Habitat: Lawns, roadides, wasteland and in cultivated and pasture areas.

Altitude: 0–1000 m

Annual rainfall: above 700 mm

Typical local abundance: Occasional.

Vegetation: Gardens, lawns.

Substrate: Clay soils, fill, moderate nutrients. Recorded on saline sites in western NSW (Semple 1993).

Exposure: Light shade–full sun (R. Buchanan pers. comm.).

Conservation: Minor weed. Rarely invades bushland (R. Buchanan pers. comm.).

Tolpis umbellata *

Yellow Hawkweed

Growth form: Herb to 40 cm high

Vegetative spread: No.

Longevity: 1 year.

Primary juvenile period: Less than 1 year.

Flowers: Yellow, rarely purple, November–March.

Fruit/seed: Achene 1–2 mm long, with hairs.

Dispersal, establishment & growth:

Fire response:

Interaction with other organisms:

Status/origin: Naturalised exotic, native to Mediterranean region, America, S Africa.

Botanical subregions: CC NT CT ST NWS CWS SWS, Vic., S.A.

Distribution Sydney area: Western Sydney and Bathurst–Blayney.

Select locations: Mt Colah, Minto, Castle Hill, Richmond (1910), Marrangaroo, Glanmire, Blayney (1899).

Habitat: Grassland, woodland.

Altitude: 0–1000 m

Annual rainfall: above 800 mm

Typical local abundance: Frequent–occasional.

Vegetation: Grassland, woodland.

Substrate: Heavy clay soils.

Exposure:

Conservation: Occasionally naturalised, not invasive of bushland.
**Tragopogon porrifolius** *  
Salsify

**Growth form:** Herb to 1.2 m high with long taproot.
**Vegetative spread:** No.
**Longevity:** 2 years.
**Primary juvenile period:** 2 years.
**Flowers:** Pale-deep purple, October–Jan.
**Fruit/seed:** Achene 10–15 mm long, with plumose pappus, 15–25 mm long.
**Dispersal, establishment & growth:** Diaspore: fruit, wind and probably animal-dispersed.
**Fire response:**

**Interaction with other organisms:**

**Status/origin:** Naturalised exotic, native to Europe, Asia. Introduced as root vegetable plant, occasionally naturalised.
**Botanical subregions:** CC NT CT ST NWS CWS SWS SWP NFWP; Qld, Vic., Tas., S.A., W.A.
**Distribution Sydney area:** Western Sydney, Tablelands.
**Select locations:** Blacktown, Revesby, Emu Plains, Liverpool, Mt Annan, Menangle (1893), Orange, Mittagong, Moss Vale.

**Habitat:** Roadside, grassland and wasteland.
**Altitude:** 0–1000 m  
**Annual rainfall:** above 700 mm
**Typical local abundance:** Frequent–occasional.
**Vegetation:** Wasteland weeds, e.g. *Echium, Papaver somniferum* and pasture grasses.
**Substrate:** Clay soils. Recorded on saline sites in western NSW (Semple 1993).
**Exposure:**

**Conservation:** Occasionally naturalised in rural areas.

**Tripleurospermum inodorum** * (Matricaria perforata)  
Scentless Mayweed

**Growth form:** Herb 15–100 cm high.
**Vegetative spread:** No.
**Longevity:** 2 years.
**Primary juvenile period:** 2 years.
**Flowers:** White, disc yellow, spring–summer. Insect-pollinated (Ciba-Geigy 1968–).
**Fruit/seed:** Achene 2 mm long, with small pappus.
**Dispersal, establishment & growth:** Diaspore: fruits dispersed by wind, water, animals, and humans (with cereals and seed); moderate–vigorous competitor for space and user of nitrogen (Ciba-Geigy 1968–).
**Fire response:**

**Interaction with other organisms:**

**Status/origin:** Naturalised exotic, native to Europe and Asia. Distribution world-wide (Ciba-Geigy 1968–).
**Botanical subregions:** CC NT CWS; Tas.
**Distribution Sydney area:** Ryde.
**Select locations:** Ryde TAFE (1966) only Sydney record.

**Habitat:** Roadsides, and waste places.
**Altitude:** 200 m  
**Annual rainfall:** 1000 mm
**Typical local abundance:** Occasional.
**Vegetation:**
**Substrate:** Nitrogenous soil (Ciba-Geigy 1968–).
**Exposure:**

**Conservation:** Uncommon in Sydney area.
Triptilodiscus pygmaeus (Helipterum australe)  

**ASTERACEAE**

**Growth form:** Herb to 8 cm high.  
**Vegetative spread:** No.  
**Longevity:** 1 year.  
**Primary juvenile period:** Less than 1 year.  
**Flowers:** Yellow, Sept–Nov.  
**Fruit/seeds:** Achene 2 mm long, with plumed pappus of 3–4 bristles.  
**Dispersal, establishment & growth:** Diaspore: fruit, probably wind-dispersed.  
**Fire response:** Probably killed.  
**Interaction with other organisms:**

**Distribution**

**Status/origin:** Native.  
**Botanical subregions:** NC CC SC NT CT ST NWS CWS SWS NWP SWP; Qld, Vic., S.A., W.A.  
**Distribution Sydney area:** Mainly western Sydney and western Blue Mountains.  
**Select locations:** Hornsby, Auburn, Newington, Leumeah, Vineyard, Richmond, Menangle Park, Hartley Vale, Winburndale, Abercrombie Caves.  

**Habitat**

**Habitat:** Grasslands.  
**Altitude:** 0–700 m  
**Annual rainfall:** 600–1200 mm  
**Typical local abundance:** Occasional.  
**Vegetation:** Grasslands and woodlands.  
**Substrate:** Clay soils, sometimes bare areas, wet places, infertile soils.  
**Exposure:**

**Conservation**

**Conservation:** Vulnerable in Western Sydney (Benson & McDougall 1991).

Vellereophyton dealbatum * (Gnaphalium candidissimum)  

**ASTERACEAE**

**Life history**

**Growth form:** Herb to 50 cm high.  
**Vegetative spread:** No.  
**Longevity:** 1–2 years.  
**Primary juvenile period:** 1 year.  
**Flowers:** Yellow, October–December.  
**Fruit/seeds:** Achene 0.4 mm long, with pappus of bristles 1.5 mm long.  
**Dispersal, establishment & growth:**

**Fire response:**

**Interaction with other organisms:**

**Distribution**

**Status/origin:** Naturalised exotic, native to S Africa.  
**Botanical subregions:** CC; Vic., S.A., Tas.  
**Distribution Sydney area:** Mainly Maroubra–La Perouse.  
**Select locations:** Maroubra Bay (1959), Malabar, Little Bay, La Perouse, Rookwood Cemetery.

**Habitat**

**Habitat:** Disturbed moist sites.  
**Altitude:** 0–100 m  
**Annual rainfall:** above 1000 mm  
**Typical local abundance:** Frequent.  
**Vegetation:** Margins of swamp.  
**Substrate:** Wet sandy or clay soils, in depressions, disturbed sites.  
**Exposure:**

**Conservation**

**Conservation:** Locally naturalised exotic, probably still spreading.
### Verbesina encelioides subsp. encelioides *

**Crownbeard**

**Growth form:** Herb to 60 cm high, shallow-rooted.  
**Vegetative spread:** No.  
**Longevity:** 1 year.  
**Primary juvenile period:** Less than 1 year.  
**Flowers:** Yellow, January–April.  
**Fruit/seed:** Achene 5–8 mm long, with pappus of bristles 1–2 mm long (obscured by wings).  
**Dispersal, establishment & growth:** Diaspore: fruit, probably wind-dispersed and/or water-dispersed. Seasonally and locally abundant.  
**Fire response:** Interaction with other organisms: Poisonous to stock if eaten.  

**Status/origin:** Naturalised exotic, native to America.  
**Botanical subregions:** NC CC ST NWS CWS SWS NWP SWP NFWP; Qld, Vic., N.T., S.A.  
**Distribution Sydney area:** Hawkesbury–Nepean Floodplain.  
**Select locations:** Wisemans Ferry (1908), Ebenezer, Windsor, Richmond, Emu Plains.  

**Habitat:** Creeks, roadsides and disturbed habitats.  
**Altitude:** 0–100 m  
**Annual rainfall:** 700–1000 mm  
**Typical local abundance:** Frequent.  
**Vegetation:** Weeds in disturbed areas.  
**Substrate:** Sandy riverbanks and rises, clay loams, fertile, watertable mostly low.  
**Exposure:**  

**Conservation:** Minor weed。

### Vernonia cinerea var. cinera

**Life history**

**Growth form:** Herb to 0.6 m high with tubular purple or white flowers and thick taproot.  
**Vegetative spread:** No.  
**Longevity:** 1–5 years.  
**Primary juvenile period:**  
**Flowers:** White or purple, October–May, peak April.  
**Fruit/seed:** Achene 1–2 mm long, with pappus 4–5 mm long. Mature October–May.  
**Dispersal, establishment & growth:** Diaspore: fruit, wind-dispersed (Westoby et al. 1990). Seedling establishment possibly related to disturbance.  
**Fire response:** Interaction with other organisms:  

**Status/origin:** Native.  
**Botanical subregions:** CC SC NT CT NWP; Qld, N.T., Africa, Asia.  
**Distribution Sydney area:** Widespread especially Cumberland Plain.  
**Select locations:** Hornsby, Silverwater, Ingleburn, Doonside, Douglas Park, Bulli, Bomaderry, Culoul Range, Grose Vale, Kowmung River.  

**Habitat:** Along roadsides and in grassland.  
**Altitude:** 0–500 m  
**Annual rainfall:** above 700 mm  
**Typical local abundance:** Frequent–occasional.  
**Vegetation:** Grassy open-forest, e.g. with Eucalyptus crebra, E. fibrosa, E. eugenioides, Syncarpia glomulifera.  
**Substrate:** Various — sandy riverbank, clay soil from basalt, shale. Soil very fertile–fertile–infertile. Watertable permanently low, moisture supply intermittent, fresh.  
**Exposure:** Light shade.  

**Conservation:** Conserved in Western Sydney (Benson & McDougall 1991).
**Vittadinia cervicularis** var. **cervicularis**

**Growth form:** Herb.

**Vegetative spread:** No.

**Longevity:** 1 year.

**Primary juvenile period:** Less than 1 year.

**Flowers:** White–purple, October.

**Fruit/seed:** Achene 8.5–10 mm long, pappus of bristles 6–9 mm long.

**Dispersal, establishment & growth:** Diaspore: fruit, wind-dispersed.

**Fire response:**

**Interaction with other organisms:**

**Status/origin:** Native.

**Botanical subregions:** CT NWS NWP SWP SFWP; Vic., S.A., W.A.

**Distribution Sydney area:** Hill End.

**Select locations:** Hill End Bridle Track (1965) only record for area.

**Habitat:** Woodland and cleared land.

**Altitude:** 600 m

**Annual rainfall:** 900 mm

**Typical local abundance:** Frequent.

**Vegetation:** Eucalypt woodland.

**Substrate:** Rocky hillside.

**Conservation:** Rare in Sydney area. Occurs mainly west of area, Hill End eastern limit; conservation status unknown.

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**Vittadinia cervicularis** var. **subcervicularis**

**Growth form:** Herb.

**Vegetative spread:** No.

**Longevity:** 1 year.

**Primary juvenile period:** Less than 1 year.

**Flowers:** White–purple, September–October.

**Fruit/seed:** Achene 8.5–10 mm long, with pappus of bristles 6–9 mm long.

**Dispersal, establishment & growth:** Diaspore: fruit, wind-dispersed.

**Fire response:**

**Interaction with other organisms:**

**Status/origin:** Native.

**Botanical subregions:** NC CC SC NT CWS NWP SWP SFWP; W.A.

**Distribution Sydney area:** Silverdale.

**Select locations:** Silverdale (1964) only Sydney record.

**Habitat:** Pasture, grassland and woodland.

**Altitude:** 200 m

**Annual rainfall:** 900 mm

**Typical local abundance:**

**Vegetation:** Pasture and grassland.

**Substrate:**

**Conservation:** Rare in the Sydney area, Silverdale only record.
**Vittadinia cuneata** var. *cuneata* forma *cuneata* (Vittadinia form b) **ASTERACEAE**

**Growth form:** Woody herb 10–40 cm high.

**Vegetative spread:**

**Longevity:** Annual or perennial.

**Primary juvenile period:**

**Flowers:** Pale blue–mauve, October–March.

**Fruit/seed:** Achene 4–7 mm long, with pappus of bristles 4–8 mm long.

**Dispersal, establishment & growth:** Diaspore: fruit, wind-dispersed.

**Fire response:** Interaction with other organisms:

**Status/origin:** Native.

**Botanical subregions:** NC CC NT ST NWS CWS SWP NWP SWP NFWP SFWP; Vic., Tas., S.A.

**Distribution Sydney area:** Western Sydney.

**Select locations:** Grose Vale, St Marys, Emu Plains, Cobbitty.

**Habitat:**

**Altitude:** 0–200 m

**Annual rainfall:** 700–1000 mm

**Typical local abundance:**

**Vegetation:** Eucalypt forest and woodland.

**Substrate:** Clay soil from Wianamatta Shale.

**Exposure:**

**Conservation:** Rare in Western Sydney, conservation status unknown.

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**Vittadinia cuneata** var. *cuneata* forma *minor* (Vittadinia form a) **ASTERACEAE**

**Growth form:** Woody herb 10–40 cm high.

**Vegetative spread:**

**Longevity:** Annual or perennial.

**Primary juvenile period:**

**Flowers:** Pale blue–mauve, most of year, September–May.

**Fruit/seed:** Achene 4–7 mm long, with pappus of bristles 4–8 mm long.

**Dispersal, establishment & growth:** Diaspore: fruit, wind-dispersed.

**Fire response:**

**Status/origin:** Native.

**Botanical subregions:** CC SC NT CT ST NWS SWS; Vic.

**Distribution Sydney area:** Widespread.

**Select locations:** Morisset, Barranjoey, Pennant Hills, Bringelly, Doonside, Silverdale, Burragorang Valley, Jenolan Crossing, Bowral.

**Habitat:**

**Altitude:** 0–1000 m

**Annual rainfall:** above 800 mm

**Typical local abundance:** Frequent.

**Vegetation:** Woodland, e.g. with *Eucalyptus fibrosa*, *E. melliodora*, *E. tereticornis* with grassy groundcover.

**Substrate:** Clay soil from shale and sandstone.

**Exposure:**

**Conservation:** Status unknown.
**Vittadinia dissecta** var. *dissecta*  

**Growth form:** Herb 10–35 cm high.  
**Vegetative spread:**  
**Longevity:** Annual or short-lived perennial.  
**Primary juvenile period:**  
**Flowers:** White–blue, most of the year.  
**Fruit/seed:** Achene 5 mm long, with pappus of bristles 5 mm long.  
**Dispersal, establishment & growth:** Diaspore: fruit, wind-dispersed.  
**Fire response:**  
**Interaction with other organisms:**  

**Status/origin:** Native.  
**Botanical subregions:** NC CC SC; Qld, Vic.  
**Distribution Sydney area:** Sporadic, mainly coastal.  
**Select locations:** Mt Kembla (1889), Kiama (1850), Penrith (1888).  

**Habitat:**  
**Altitude:** 0–300 m  
**Typical local abundance:**  
**Vegetation:**  
**Substrate:**  
**Exposure:**  

**Conservation:** Apparently rare, last collected 1889.  

**Vittadinia gracilis** (Vittadinia sp. E)  

**Growth form:** Small shrub 10–40 cm high, with woody base.  
**Vegetative spread:**  
**Longevity:** 1–5 years.  
**Primary juvenile period:** Less than 1 year.  
**Flowers:** Purple, September–December.  
**Fruit/seed:** Achene 5–6 mm long, with pappus of bristles 5–7 mm long.  
**Dispersal, establishment & growth:** Diaspore: fruit, wind-dispersed.  
**Fire response:**  
**Interaction with other organisms:**  

**Status/origin:** Native.  
**Botanical subregions:** CC SC CT ST CWS SWS NWP SWP SFWP; Vic., Tas., S.A.  
**Distribution Sydney area:** Mainly Bathurst–Orange.  
**Select locations:** Panania, Flemington Saleyards, Bathurst, Orange.  

**Habitat:** Roadsides, pastures.  
**Altitude:** 0–1000 m  
**Typical local abundance:** Frequent.  
**Vegetation:**  
**Substrate:** Clay soils from shale, fertile.  
**Exposure:**  

**Conservation:** Few collections, status unknown.
### Vittadinia hispiduala var. hispiduala

**ASTERACEAE**

**Life history**

- **Growth form:** Erect herb.
- **Vegetative spread:** No.
- **Longevity:** 1 year.
- **Primary juvenile period:** Less than 1 year.
- **Flowers:** White–purple, August.
- **Fruit/seed:** Achene 3 mm long, with pappus of bristles 5 mm long.
- **Dispersal, establishment & growth:** Diaspore: fruit, wind-dispersed.
- **Fire response:**
- **Interaction with other organisms:**

**Distribution**

- **Status/origin:** Native.
- **Botanical subregions:** NC CC CT NT; Qld.
- **Distribution Sydney area:** North of Sydney
- **Select locations:** Colo Heights (1958), Ku-ring-gai Chase (1916).

**Habitat**

- **Altitude:** 0–300 m
- **Annual rainfall:** Above 900 mm
- **Typical local abundance:** Rare.
- **Vegetation:** Eucalypt forest.
- **Substrate:** Gravelly clay.
- **Exposure:**
- **Conservation:** Apparently rare, Ku-ring-gai Chase is southern limit, conservation status unknown.

### Vittadinia hispiduala var. setosa (Vittadinia hispiduala)

**ASTERACEAE**

**Life history**

- **Growth form:** Erect herb.
- **Vegetative spread:** No.
- **Longevity:** 1 year.
- **Primary juvenile period:** Less than 1 year.
- **Flowers:** White–purple, July.
- **Fruit/seed:** Achene 3 mm long, with pappus of bristles 5 mm long.
- **Dispersal, establishment & growth:** Diaspore: fruit, wind-dispersed.
- **Fire response:**
- **Interaction with other organisms:**

**Distribution**

- **Status/origin:** Native.
- **Botanical subregions:** NC CC SC; Qld.
- **Distribution Sydney area:** Como (1896) only Sydney record.

**Habitat**

- **Altitude:** Roadsides and beach areas.
- **Annual rainfall:** Above 1100 mm
- **Typical local abundance:**
- **Vegetation:**
- **Substrate:**
- **Exposure:**
- **Conservation:** Apparently rare, conservation status unknown.
Vittadinia muelleri (Vittadinia sp. G)  

**Growth form:** Herb with woody rootstock and tufted stems.  
**Vegetative spread:**  
**Longevity:** Perennial.  
**Primary juvenile period:**  
**Flowers:** Bluish-purple, September–May.  
**Fruit/seed:** Achene 5 mm long, with pappus of bristles 7 mm long, mature September–May.  
**Fire response:**  
**Interaction with other organisms:**  

**Status/origin:** Native.  
**Botanical subregions:** CC SC NT CT ST NWS CWS SWS; Qld, Vic., Tas.  
**Distribution Sydney area:** Western Sydney and Southern Highlands.  
**Select locations:** Windsor, St Marys, Bringelly, The Oaks, Narellan, Berrima (1889), Woodhouselee.  

**Habitat:** Grassland.  
**Altitude:** 0–700 m  
**Annual rainfall:** 600–900 mm  
**Typical local abundance:** Rare.  
**Vegetation:** Grassland, Ground stratum.  
**Substrate:** Wianamatta Shale. Fertile soil. Watertable permanently low, moisture supply intermittent, fresh.  
**Exposure:** Full sun.  

**Conservation:** Probably now rare. Vulnerable in Western Sydney (Benson & McDougall 1991), conservation status unknown.

Vittadinia pustulata (Vittadinia sp. H)  

**Growth form:** Herb or small shrub 10–30 cm high.  
**Vegetative spread:** No.  
**Longevity:** 1 year.  
**Primary juvenile period:** Less than 1 year.  
**Flowers:** September–March.  
**Fruit/seed:** Achene 3–4 mm long, with pappus of bristles 5–7 mm long.  
**Dispersal, establishment & growth:** Diaspore: fruit, wind-dispersed.  
**Fire response:**  
**Interaction with other organisms:**  

**Status/origin:** Native.  
**Botanical subregions:** CC CWS NWP; Qld, N.T., S.A., W.A.  
**Distribution Sydney area:** Western Sydney.  
**Select locations:** Blacktown, Castlereagh, Penrith, Regentville, Silverdale, Ingleburn, Camden.  

**Habitat:** Disturbed sites, roadsides.  
**Altitude:** 0–300 m  
**Annual rainfall:** 700–900 mm  
**Typical local abundance:**  
**Vegetation:** Grassland, Cumberland Plain Woodland, e.g. with Eucalyptus moluccana, E. tereticornis.  
**Substrate:** Clay soils from Wianamatta Shale, fertile.  
**Exposure:**  

**Conservation:** Vulnerable in Western Sydney (Benson & McDougall 1991), conservation status elsewhere unknown.
**Vittadinia sulcata** (Vittadinia sp. F)  

**ASTERACEAE**

**Growth form:** Herb 10–30 cm high.  
**Vegetative spread:** No.  
**Longevity:** Annual.  
**Primary juvenile period:** Less than 1 year.  
**Flowers:** Purple, August–October.  
**Fruit/seed:** Achene 5–8 mm long, with pappus of bristles 6–8 mm long, matures March–April, August.  
**Dispersal, establishment & growth:** Diaspore: fruit, wind-dispersed.  
**Fire response:** 
**Interaction with other organisms:**

**Distribution**

**Status/origin:** Native.  
**Botanical subregions:** NC CC SC NWS SWS NWP 5WP NFWP; all mainland States.  
**Distribution Sydney area:** South-western Sydney.  
**Select locations:** Como, Minto, Regentville, Razorback, Douglas Park, Goodmans Ford.  

**Habitat**

**Habitat:** Open grassy areas.  
**Altitude:** 0–200 m  
**Annual rainfall:** 700–1000 mm  
**Typical local abundance:** Occasional.  
**Vegetation:** Grassland or grassy woodland, e.g. with *Eucalyptus albescens, E. melliodora, Angophora floribunda.*  
**Substrate:** Dry sites, probably clay soils.  
**Exposure:**

**Conservation**

**Conservation:** Conservation status unknown.

---

**Vittadinia tenuissima**  

Western New Holland Daisy  

**ASTERACEAE**

**Growth form:** Slender herb to more than 40 cm high.  
**Vegetative spread:**

**Longevity:** Perennial.  
**Primary juvenile period:**

**Flowers:**

**Fruit/seed:** Achene 3–4 mm long, with pappus of bristles 5 mm long, mature March.  
**Dispersal, establishment & growth:** Diaspore: fruit, wind-dispersed.  
**Fire response:** 
**Interaction with other organisms:**

**Distribution**

**Status/origin:** Native.  
**Botanical subregions:** NC CC SC NT CWS; Qld, Vic.  
**Distribution Sydney area:**

**Select locations:** Wollemi NP (1982), Grose Vale (1910), Grose Vale (1910), Kiama (1850).  

**Habitat**

**Habitat:** Disturbed sites.  
**Altitude:** 0–400 m  
**Annual rainfall:** above 900 mm  
**Typical local abundance:**

**Vegetation:**

**Substrate:** Fertile soils, basalt intrusions (Wollemi).  
**Exposure:**

**Conservation**

**Conservation:** Apparently rare, conservation status unknown.
<table>
<thead>
<tr>
<th><strong>Xanthium cavanillesii</strong> *</th>
<th>ASTERACEAE</th>
<th><strong>Life history</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>South American Burr</td>
<td></td>
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<tr>
<td><strong>Growth form:</strong> Monoeious herb to 1 m high with scabrous stems.</td>
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<tr>
<td><strong>Vegetative spread:</strong> No.</td>
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<tr>
<td><strong>Longevity:</strong> 1 year.</td>
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<tr>
<td><strong>Primary juvenile period:</strong> Less than 1 year.</td>
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<tr>
<td><strong>Flowers:</strong> Summer–autumn.</td>
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<tr>
<td><strong>Fruit/seed:</strong> Burr 15–30 mm long with spines, achenes retained inside, mature December–May.</td>
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</tr>
<tr>
<td><strong>Dispersal, establishment &amp; growth:</strong> Diaspore: burr, animal-dispersed, also spread in floodwaters and along watercourses.</td>
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</tr>
<tr>
<td><strong>Fire response:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Interaction with other organisms:</strong> Hybridises with <em>Xanthium occidentale</em>.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Status/origin:</strong> Naturalised exotic, native of America.</td>
<td></td>
<td><strong>Distribution</strong></td>
</tr>
<tr>
<td><strong>Botanical subregions:</strong> CC CWS;</td>
<td></td>
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<tr>
<td><strong>Distribution Sydney area:</strong> Banks of Hawkesbury River.</td>
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<tr>
<td><strong>Select locations:</strong> Wisemans Ferry, Ebenezer, Windsor (1915), Richmond, Castlereagh.</td>
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<tr>
<td><strong>Habitat:</strong> Riverbanks.</td>
<td></td>
<td><strong>Habitat</strong></td>
</tr>
<tr>
<td><strong>Altitude:</strong> 0–100 m</td>
<td><strong>Annual rainfall:</strong> 800–900 mm</td>
<td></td>
</tr>
<tr>
<td><strong>Typical local abundance:</strong></td>
<td></td>
<td><strong>Conservation</strong></td>
</tr>
<tr>
<td><strong>Vegetation:</strong></td>
<td></td>
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<tr>
<td><strong>Substrate:</strong> Sandy loam.</td>
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<tr>
<td><strong>Exposure:</strong></td>
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<tr>
<td><strong>Conservation:</strong> Naturalised along Hawkesbury-Nepean but has not shown the same ability to spread as other <em>Xanthium</em> species (Milvain 1983).</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>Xanthium occidentale</strong> * (Xanthium chinese, <em>X.</em> pungens)</th>
<th>ASTERACEAE</th>
<th><strong>Life history</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Noogoora Burr, Cockle Burr</td>
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<tr>
<td><strong>Growth form:</strong> Herb to 2 m high with stout taproot, stems hairy and purplish.</td>
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<tr>
<td><strong>Vegetative spread:</strong> No.</td>
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<tr>
<td><strong>Longevity:</strong> 6–9 months.</td>
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<tr>
<td><strong>Primary juvenile period:</strong> Less than 1 year.</td>
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<tr>
<td><strong>Flowers:</strong> Inconspicuous, flowering determined by day length, late February–April (Milvain 1983).</td>
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</tr>
<tr>
<td><strong>Fruit/seed:</strong> Hard, woody burr 16–18 mm long, with hooked spines. Each burr with 2 different sized seeds, upper and lower, retained inside. No pappus on achenes. Mature April–June.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Dispersal, establishment &amp; growth:</strong> Diaspore: burr; animal-dispersed, also water-dispersed, float and spread in floodwater and along watercourses. Non-dormant seed will germinate in 2 days, dormant seed may germinate after 3 weeks (Langkamp 1987). Upper seed exhibits innate dormancy, overcome by high temperature and exposure to light; induced dormancy in the lower seed following soil-storage during summer, overcome by storage in soil over winter or by high temperature and exposure to light. Seeds germinate in late spring following favourable weather or along waterways following a rise and fall of water levels when temperatures are high (Milvain 1993). Summer-growing. Plants die off in autumn but burrs remain on the dead plant until next season.</td>
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<tr>
<td><strong>Fire response:</strong> Killed by high-intensity fire (1/1994) at Lane Cove (P. Kubiak pers. comm.).</td>
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</tr>
<tr>
<td><strong>Interaction with other organisms:</strong> Toxic to stock if eaten. 3 insects and a fungus have been released since 1932 for control but have been unsuccessful (Milvain 1983). Attacked by gall-forming moth <em>Epiblema strenuana</em> recently introduced from Mexico (Common 1990).</td>
<td></td>
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</tr>
</tbody>
</table>
Xanthium spinosum *

Bathurst Burr

**Growth form:** Monoeccious herb to 1 m high with taproot, stems pubescent, armed with 3-pronged spines at base of leaves.

**Vegetative spread:** No.

**Longevity:** 1–6 months.

**Primary juvenile period:** 1–4 months.

**Flowers:** January–March.

**Fruit/seed:** Burr 10–12 mm long with hooked spines, each with 2 brown seeds, a smaller soft seed that germinates in the first season and a larger, harder seed that does not germinate until the 2nd or 3rd year or later (Milvain 1991). Burr contains an upper and a lower seed (Langkamp 1987). Adheres to hair of stock or wool of sheep causing considerable annoyance (Herbarium note).

**Dispersal, establishment & growth:** Diaspore: burr, dispersed by animals, humans and water (Ciba-Geigy 1968–). Non-dormant seed will germinate in 2 days, dormant seed may germinate after 3 weeks; this species exhibits enforced dormancy; the burr may restrict gas exchange (Langkamp 1987). Germinates in spring–summer following rain, flowers January–March. Later-establishing plants flower and seed within a few weeks.

**Fire response:** Interaction with other organisms: Attacked by gall-forming moth Epiblema strenuana recently introduced from Mexico (Common 1990). Plant believed to be toxic at early stages until development of roots (Milvain 1991). A mycoherbicide Colletotrichum orbiculare is being developed for biological control (Tanner 1993).
sites in western NSW (Semple 1993).

**Exposure:**

**Conservation:** Widespread and seasonally abundant weed often forming prolific stands after summer rain or flooding. Declared noxious in all Australian states.

**Avicennia marina** subsp. australasica

**AVICENNIAEAE**

**Grey Mangrove**

**Growth form:** Small tree or shrub to 12 m high with aerating roots or pneumatophores, projecting above the surrounding mud. Secretes salt through glands on leaves (West 1985). Multistemmed forms sometimes found (P. Clarke pers. comm.).

**Vegetative spread:** Occasionally low-lying branches take root and become independent from the adult plant (P. Clarke pers. comm.).

**Longevity:** Up to 100 years (Clarke 1992).

**Primary juvenile period:** 5 years (Clarke 1992).

**Flowers:** February–March, peak March. Flowering of individual trees varies greatly between years and many trees fail to reproduce each year although the populations remain fecund from year to year. Pollen vector most commonly bees, also ants, wasps, bugs (Lygaeidae, Miridae), flies (Cecidomyiidae), bee flies, Cantherid beetles, moths (Pyralidae) (Clarke & Myerscough 1991).

**Fruit/seed:** Compressed capsule about 3 cm diameter with one seed. ‘Seed’ mass 5–20 g (P. Clarke pers. comm.), mature October–November, peak November. Seed with two large cotyledons folded longitudinally, germinating before fruit falls. Seed supply not stored on plant.

**Dispersal, establishment & growth:** Diaspore: germinating seed dropped in December (Hamilton 1919). Dispersed by tidal water, floating in saltwater, sinking in fresh (P. Clarke pers. comm.). Seedlings establish in mud and grow vigorously to about 30 cm high; newly salted areas readily colonised. Optimum growth and establishment occurs just above mid-tide level; seedlings in mature forests grow to about 0.6 m and remain at this height for up to 3 years and die through lack of light and space (State Pollution Control Commission n.d.). Pneumatophore damage may result in plant death (West 1985). Plants may be killed by oil spills (Allaway 1982, Grant et al. 1993).

**Fire response:** Variable response to high-intensity fire (1/1994) at Lane Cove, some killed others resprouted (P. Kubiak pers. comm.). Canopy killed, resprouts from base (at Breakfast Creek 1994). Can resprout from basal stems, but is also killed if small; killed at Jervis Bay (1989); fires possibly keep it out of the upper saltmarsh (P. Clarke pers. comm.).

**Interaction with other organisms:** One km² of Avicennia forest contributes 600 tonnes of leaf litter each year to the detrital food chain (West 1985). Crabs aid the decomposition of leaf litter, 50% eaten (Van der Valk & Attiwill 1984). Flower bud predation by moth larvae (subtribe Phycitina) may be high but had little effect on ovule survival (Clarke 1992).

**Status/origin:** Native.

**Botanical subregions:** NC CC SC; LHI, all mainland States, NG, Pac Is, SE Asia.

**Distribution Sydney area:** Saltwater swamps and estuaries.

**Select locations:** Gosford, Broken Bay, Bantry Bay (L.McD.), Middle Harbour Creek (L.McD.), Parramatta River, Cooks River, Botany Bay, Georges River, Lake Illawarra, Minnamurra River.

**Habitat:** Mudflats with tidal inundation; occasionally on rock platforms in sheltered bays (P. Clarke pers. comm.).

**Altitude:** Sea level only. **Annual rainfall:** Above 1200 mm.

**Typical local abundance:** Dominant and often monospecific (P. Clarke pers. comm.).

**Vegetation:** Closed-forest/closed-scrub as sole dominant, occasionally with zones of Aegiceras corniculata.

**Substrate:** In mud, fertile silt and sand deposits below upper tidal limit. Watertable high fluctuating in response to tide, saline.
Exposure: Indifferent to exposure, light. Seedling growth greater in canopy gaps, recruitment to sapling size restricted by light and sediment resources (Clarke & Allaway 1992).

Conservation: Extensive reclamation of mangrove areas has destroyed much mangrove habitat, but there has also been some recent expansion of some mangrove areas in response to increased silation from disturbed catchments. Species adequately conserved, though protection of mangrove forest is important for maintenance of estuarine habitat. Survey estimated 107 km² of mangroves in NSW ‘a resource needing careful management in the future’ (West 1985).

**Impatiens walleriana** *

**BALSAMINACEAE**

Balsam, Busy Lizzie

**Life history**

**Growth form:** Glabrous herb to 1 m high with more or less succulent stems.

**Vegetative spread:** Can regrow from stem fragments.

**Longevity:** Short-lived, less than 5 years.

**Primary juvenile period:** Less than 1 year.

**Flowers:** Pink–red or white, November–May.

**Fruit/seed:** Capsule 15 mm long, explosively dehiscent.

**Dispersal, establishment & growth:** Diaspore seed, explosively dehisced, dispersed by gravity or water (Anon 1991). Can regrow from dumped stems.

**Fire response:** Probably killed, flowered within 18 weeks of high-intensity fire (1/1994) at Lake Cove (P. Kubiak pers. comm.).

**Interaction with other organisms:**

**Status/origin:** Exotic, native to southern Africa, cultivated as ornamental, occasionally naturalised.

**Botanical subregions:** CC.

**Distribution Sydney area:** Sydney suburban bushland.

**Select locations:** Wahroonga (M. Clarke pers. comm.), Beecroft, Lane Cove, Clifton Gardens, Minto (1969).

**Habitat:** Gardens, bushland, rubbish dumps. Especially along stormwater drains and creeks (R. Buchanan per. comm.).

**Altitude:** 0–200 m **Annual rainfall:** above 900 mm

**Typical local abundance:** Frequent–occasional.

**Vegetation:** Moist forest, e.g. with *Eucalyptus pilularis, E. piperita,* or with *Syndnocarpia glomulifera* (M. Clarke pers. comm.).

**Substrate:** Enriched sandstone soils, alluvial soils, fertile. Watertable mostly high, intermittent, fresh.

**Exposure:** Sheltered sites; deep shade–mid shade.

**Conservation:** Occasionally found in sheltered bushland, probably mainly spread in garden refuse. Spread by water in creeks and stormwater drains (R. Buchanan & M. Clarke pers. comm.).

**Anredera cordifolia** *

**BASELLACEAE**

Madeira Vine, Lamb's Tail, Jalap

**Life history**

**Growth form:** Climber with stems to 30 m long producing tubers on roots and at nodes on aerial stems.

**Vegetative spread:** Aerial and underground tubers (R. Buchanan pers. comm.).

**Longevity:**

**Primary juvenile period:**

**Flowers:** White, fragrant, March.

**Fruit/seed:** Fruit not set in Australia.
Dispersal, establishment & growth: Diaspore: large underground tubers or clusters of aerial tubers (up to 10 cm diam.) in Sydney area, larger on North Coast (M. Clarke pers. comm.); these may remain viable in the soil for many years before sprouting (McLoughlin & Rawling 1990). Dispersal: gravity or water; tubers washed into creeks in stormwater, rubbish dumping.
Fire response: Rarely burnt (R. Buchanan pers. comm.). Resprouted after high-intensity fire (1/1994) at Narrabeen, one seedling observed (P. Kubiak pers. comm.).

Interaction with other organisms:

Status/origin: Naturalised exotic, native to S America.
Botanical subregions: NC CC SC NWS CWS NWP.
Distribution Sydney area: Coast.
Select locations: Cheltenham, Eastwood, Balmoral Beach, Glebe Point (1894), Flemington, Royal National Park, Kurrajong, Kangaroo Valley.

Habitat: Roadsides, creekbanks, wasteland — sheltered gullies on margins of rainforests and near old settlements.
Altitude: 0–400 m    Annual rainfall: above 800 mm
Typical local abundance: Frequent.
Vegetation: Margins of rainforest and moist forests. Canopy stratum.
Substrate: Clay soils from Wianamatta Shale, Alluvium. Enriched sandstone, e.g. at Balmoral Beach (M. Clarke pers. comm.). Soil fertile. Watertable mostly low, moisture supply intermittent, fresh.
Exposure: Dense shade–full sun, stem only elongates rapidly in light shade–full sun (R. Buchanan pers. comm.).

Conservation: An invasive weed of bushland margins.

Bauera capitata

BAUERACEAE

Growth form: Small diffuse shrub to 30 cm with woody rootstock.
Vegetative spread: Probably not.

Life history

Longevity:

Primary juvenile period:

Flowers: Pink, September–October.
Fruit/seed: Capsule, mature October.

Dispersal, establishment & growth: Diaspore: seed.
Fire response: Probably resprouts at ground level or below.

Interaction with other organisms:

Status/origin: Native.
Botanical subregions: NC CC; Qld.
Distribution Sydney area: Coast south to La Perouse.
Select locations: Tuggerah (1900), La Perouse (1893–1913).

Habitat: Wet heath.
Altitude: 0–30 m    Annual rainfall: above 1200 mm
Typical local abundance: Now extremely rare or possibly extinct in Sydney region.
Vegetation: Wet heath. Ground stratum.
Substrate: Deep sand, possibly sometimes associated with weathered volcanic dykes?
Exposure:

Conservation: Only old records. Probably extinct in the Sydney area, La Perouse is southern limit for the species.
Bauera microphylla

**BAUERACEAE**

**Growth form:** Small trailing shrub to 30 cm high.

**Vegetative spread:** May form adventitious roots but not clear whether capable of spread.

**Longevity:** 7–25–60 years (D. Keith).

**Primary juvenile period:** 3–4 years (D. Keith).

**Flowers:** White–pink, August–January, April–May. Flowers visited by birds and insects, but mostly by small beetles, all of which get wellusted by pollen (Sulman 1914).

**Fruit/seed:** Capsule which splits lengthwise to release numerous seeds, mature September–November.

**Dispersal, establishment & growth:** Diaspore: seed, with ant-adapted food body (Westoby et al. 1990), ant-dispersed.

**Fire response:** Resprouts, seedling recruitment mainly after fire (D. Keith).

**Interaction with other organisms:**

**Status/origin:** Native.

**Botanical subregions:** NC CC.

**Distribution Sydney area:** Coast and Blue Mountains (rare), Woronora Plateau.

**Select locations:** Mangrove Mountain, Gosford, Wahroonga, Centennial Park, Botany, Audley, Heathcote, Appin, Mt Ousley, Lawson (1899), Butlers Swamp.

**Habitat:** Open sandy heath, swamps.

**Altitude:** 0–900 m **Annual rainfall:** above 1200 mm

**Typical local abundance:** Frequent–occasional.

**Vegetation:** Wet heath, e.g. with Leptospermum polygalifolium, Banksia ericifolia. Sedgeland/wet heath, also ecotone area between sedgeland/wet heath and grassland/sclerophyll forest (P. Kodela pers. comm.). Ground stratum.

**Substrate:** Deep sandy soils on sandstone or dune sand. Peaty soil on wetland, sandy organic soils (P. Kodela pers. comm.). Soil very infertile. Waterable mostly high, moisture supply continuous, fresh.

**Exposure:** Light shade–full sun.

**Conservation:** Conservation status unknown.

Bauera rubioides

**BAUERACEAE**

**Growth form:** Scrambling shrub to 2 m high.

**Vegetative spread:** No.

**Longevity:**

**Primary juvenile period:** 4 years.

**Flowers:** Pink or white, April–November, peak September.

**Fruit/seed:** Capsule which splits lengthwise to release numerous seeds. Mature December.

**Dispersal, establishment & growth:** Diaspore: seed. Dispersal: ant-adapted food body (Westoby et al. 1990).

**Fire response:** Resprouts at ground level or below. Seedlings can flower within 4 years (after fire, Brisbane Water NP). Killed after high-intensity fire (1/1994) at Lane Cove and Narrabeen, soil-stored seed probably destroyed by high-intensity fire, seedlings in ditches and clifflines where fire intensity lower (P. Kubaiak pers. comm.).

**Interaction with other organisms:** Flowers visited by birds and insects, but mostly by small beetles, all of which get wellusted by pollen (Sulman 1914).

**Status/origin:** Native.

**Botanical subregions:** CC CT ST; Qld, Vic., Tas., S.A.

**Distribution Sydney area:** Coast and upper Blue Mountains.

**Select locations:** West Head Rd, Asquith, Lindfield, Asquith, Marsfield, Oatley, Kentllyn, Appin, Bargo, Mt Wilson, Mt Victoria, Orange.
**Habitat**: Wet and often shaded situations.

Altitude: 0–1000 m  
**Annual rainfall**: above 1000 mm

**Typical local abundance**: Frequent.

Vegetation: Creekside scrub in moist eucalypt open-forest, e.g. with *Eucalyptus piperita*, *Angophora costata*. Ground–mid-stratum.

Substrate: Damp sandy soil from sandstone. Soil infertile. Watertable mostly high, moisture supply continuous, fresh.

**Exposure**: Sheltered, mid–light shade.

**Conservation**: Probably adequately conserved. Conserved in Western Sydney (Benson & McDougall 1991).

**Berberis aristata** *  
**BERBERIDACEAE**

**Life history**

**Growth form**: Evergreen shrub to 3 m high.

Vegetative spread:

Longevity:

**Primary juvenile period**:

**Flowers**: Yellow, 10 mm diam.

**Fruit/seed**: Berry 9–11 mm long, bright red to pruinose blue, mature January–March.

**Dispersal, establishment & growth**: Diaspore: berry, possibly bird-dispersed.

**Fire response**:

**Interaction with other organisms**:

**Distribution**

**Status/origin**: Naturalised exotic, native to Asia. Cultivated as an ornamental, sometimes naturalised.

**Botanical subregions**: CC CT NT.

**Distribution Sydney area**: Southern Highlands and Illawarra.

**Select locations**: Yerranderie (1953), Macquarie Pass, Bowral (1992), Exeter (1937).

**Habitat**: Rural areas.

Altitude: 0–800 m  
**Annual rainfall**: above 900 mm

**Typical local abundance**: Frequent.

**Vegetation**: Disturbed eucalypt woodland, e.g. with *Acacia melanoxylon*.

**Substrate**: Probably clay soils, fertile, old silver mine area.

**Exposure**:

**Conservation**: Probably minor weed.

**Berberis darwinii** *  
**BERBERIDACEAE**

**Life history**

**Growth form**: Evergreen shrub to 3 m high.

Vegetative spread:

Longevity:

**Primary juvenile period**:

**Flowers**: Yellowish–red, May.

**Fruit/seed**: Blue berry 6–7 mm long, mature May.

**Dispersal, establishment & growth**: Bird-dispersed (Carr et al. 1992).

**Fire response**:

**Interaction with other organisms**:

**Distribution**

**Status/origin**: Exotic, native to S America. Cultivated in cooler districts, rarely naturalised.

**Botanical subregions**: CT.
**Distribution Sydney area:** Blue Mountains.
**Select locations:** Mt Wilson (1949).

<table>
<thead>
<tr>
<th>Habitat</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Altitude:</strong> 900–1000 m</td>
</tr>
</tbody>
</table>

**Conservation:** Rarely naturalised.

---

**Mahonia leschenaultii** *

**BERBERIDACEAE**

**Life history**

<table>
<thead>
<tr>
<th>Growth form:</th>
<th>Evergreen shrub.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vegetative spread:</td>
<td></td>
</tr>
<tr>
<td>Longevity:</td>
<td></td>
</tr>
<tr>
<td><strong>Primary juvenile period:</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Flowers:</strong></td>
<td>Bright yellow, October (Yass, only record).</td>
</tr>
<tr>
<td><strong>Fruit/seed:</strong></td>
<td>Blue berry 7–8 mm long.</td>
</tr>
<tr>
<td><strong>Dispersal, establishment &amp; growth:</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Fire response:</strong></td>
<td></td>
</tr>
<tr>
<td>Interaction with other organisms:</td>
<td></td>
</tr>
</tbody>
</table>

**Status/origin:** Exotic, native to India, E Asia. Often cultivated as an ornamental occasionally naturalised in gullies in Blue Mountains, or Robertson Plateau (P. Kodela pers. comm.).

**Botanical subregions:** CT ST.

**Distribution Sydney area:** Blue Mountains, Southern Highlands.

**Select locations:** Mt Wilson (1948), Robertson–Wildes Meadow (P. Kodela pers. comm.).

<table>
<thead>
<tr>
<th>Habitat</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Altitude:</strong> 750–1000 m</td>
</tr>
</tbody>
</table>

**Conservation:** Occasionally naturalised.

---

**Macfadyena unguis-cati** *

**BIGNONIACEAE**

**Life history**

<table>
<thead>
<tr>
<th>Growth form:</th>
<th>Woody climber to 30 m, with recurved tendrils; 2 leaflets and terminal leaflet modified into a 3-branched tendril.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vegetative spread:</td>
<td>Underground tuber (R. Buchanan pers. comm.).</td>
</tr>
<tr>
<td>Longevity:</td>
<td></td>
</tr>
<tr>
<td><strong>Primary juvenile period:</strong></td>
<td></td>
</tr>
<tr>
<td><strong>Flowers:</strong></td>
<td>Yellow, spring, November.</td>
</tr>
<tr>
<td><strong>Fruit/seed:</strong></td>
<td>Capsule 14–45 cm long, with winged seeds, 20–40 mm long.</td>
</tr>
<tr>
<td><strong>Dispersal, establishment &amp; growth:</strong></td>
<td>Diaspore: winged seeds, wind-dispersed (Anon 1991).</td>
</tr>
<tr>
<td><strong>Fire response:</strong></td>
<td>Resprouts from tubers (R. Buchanan pers. comm.).</td>
</tr>
<tr>
<td>Interaction with other organisms:</td>
<td></td>
</tr>
</tbody>
</table>
**Distribution**

**Status/origin:** Naturalised exotic, native to Brazil and Argentina; cultivated as an ornamental.

**Botanical subregions:** NC CC NT; Qld.

**Distribution Sydney area:** Ourimbah.

**Select locations:** Ourimbah (1959); Berowra Waters, Epping (R. Buchanan & M. Clarke pers. comm.), North Richmond, Camden.

**Habitat:** Roadside, water’s edge.

**Altitude:** 0–100 m  
**Annual rainfall:** above 1200 mm

**Typical local abundance:**

**Vegetation:** Disturbed rainforest, tall open-forest (M. Clarke pers. comm.).

**Substrate:** Alluvial and clay soils, well-drained, very fertile.

**Exposure:** Deep shade–full sun, stems only elongated rapidly in light shade–full sun (R. Buchanan pers. comm.).

**Conservation:** An aggressive weed in disturbed rainforest and moist eucalypt forest remnants north of Sydney. Localised problem in parts of Sydney, e.g. Berowra Waters (R. Buchanan pers. comm.). Camden Park (M. Clarke pers. comm.).

---

**Pandorea pandorana**

**Life history**

**Wonga Wonga Vine**

**Growth form:** Woody, often tall, glabrous climber, with twining branches.

**Vegetative spread:** No.

**Longevity:** Medium-long (? 50–100 years).

**Primary juvenile period:**

**Flowers:** Cream with mauve-purple markings, June–November, peak August–September. Bird-pollinated.

**Fruit/seed:** Capsule 4.6 cm long splitting to release numerous, beautifully-packed winged seeds, 10–15 mm diam. (Sulman 1914). Mature November–January.

**Dispersal, establishment & growth:** Diaspore: winged seed, wind-dispersed (Westoby et al. 1990). Soil-stored seedbank (Fox 1988).

**Fire response:** Killed by fire (Fox 1988). Reapprouted after high-intensity fire (1/9/194) at Lane Cove, a few plants flowering within 26–29 weeks (P. Kubiak pers. comm.).

**Interaction with other organisms:**

---

**Distribution**

**Status/origin:** Native.

**Botanical subregions:** NC CC SC NT CT ST NWS SWS NSW SWP SFWP; LHI, Qld, Vic., N.T., S.A., W.A., NG, Malesia.

**Distribution Sydney area:** Widespread

**Select locations:** Wyong, Avoca Beach, Cheltenham, Oatley, Grose Vale, Genbrook, Kentlyn, Razorback, Macquarie Pass, Barren Grounds, Robertson.

**Habitat:** Moist gullies, rocky sites.

**Altitude:** 0–800 m  
**Annual rainfall:** above 1000 mm

**Typical local abundance:** Frequent.

**Vegetation:** Coastal rainforest, e.g. with *Ceratopetalum apetalum*, *Doryphora sassafras*, *Cupaniopsis anacardoides*, *Acmena smithii*. Tableland rainforest, e.g. mixed cool temperate/warm rainforest with *Ceratopetalum*, *Doryphora sassafras*, *Acmena smithii*, *Acacia melanoxylon* (P. Kodela pers. comm.). Also a component of dry rainforest vine scrub. Sclerophyll forest and woodland, e.g. with *Syncarpia glomulifera*; often persisting in cleared areas.

**Substrate:** Medium–high nutrient soils, clay influence, watertable permanently low, moisture supply intermittent.

**Exposure:** Sheltered sites.

**Conservation:** Vulnerable in Western Sydney (Benson & McDougall 1991). Conservation elsewhere probably adequate.
**Pyrostegia venusta** *

*Flame Vine*

**BIGNONIACEAE**

**Life history**

**Growth form:** Woody climber.

**Vegetative spread:**

**Longevity:**

**Primary juvenile period:**

**Flowers:** Reddish orange, spring-summer.

**Fruit/seed:** Capsule 20–30 cm long, but apparently does not set seed in Australia (Harden 1992).

**Dispersal, establishment & growth:** Diaspore: probably vegetative.

**Fire response:**

**Interaction with other organisms:**

**Distribution**

**Status/origin:** Exotic, native to Brazil and Paraguay. Cultivated, occasionally naturalised in coastal districts.

**Botanical subregions:** NC CC.

**Distribution Sydney area:** Lane Cove.

**Select locations:** Lane Cove (1991) only Sydney record.

**Habitat:** Creekbank.

**Altitude:** 0–100 m

**Annual rainfall:** 1200 mm

**Typical local abundance:**

**Vegetation:**

**Substrate:**

**Exposure:**

**Conservation:** Occasionally naturalised in coastal districts.

---

**Tecoma capensis** *

*Cape Honeysuckle*

**BIGNONIACEAE**

**Life history**

**Growth form:** Rambling shrub to 3 m high.

**Vegetative spread:** Spreads by stoloniferous branches (layering) along ground surface.

**Longevity:**

**Primary juvenile period:**

**Flowers:** Orange to scarlet with much nectar, spring-summer.

**Fruit/seed:** Capsule 3 cm long, with winged seed 15 mm long.

**Dispersal, establishment & growth:** Diaspore: seed not set here (L. Johnson pers. comm.).

**Fire response:**

**Interaction with other organisms:**

**Distribution**

**Status/origin:** Exotic, native to S Africa. Cultivated as an ornamental, sometimes as a hedge plant.

**Botanical subregions:** NC CC.

**Distribution Sydney area:** Coast.

**Select locations:** Muogamarra NR, Eastwood (1978), Harbord (1981).

**Habitat:** Disturbed sites.

**Altitude:** 0–200 m

**Annual rainfall:** above 1200 mm

**Typical local abundance:** Occasional.

**Vegetation:** Moist eucalypt forest.

**Substrate:** Clay soils, fertile.

**Exposure:**

**Conservation:** Probably just persistent remnant of old gardens or dispersed in garden refuse; fruit not set here (L. Johnson pers. comm.).
**Tecoma stans** *BIGNONIACEAE*

Growth form: Shrub to 4 m high.
Vegetative spread: 
Longevity: 
Primary juvenile period: 
Flowers: Yellow with reddish lines, spring–summer.
Fruit/seed: Capsule 10–22 mm long, with winged seeds 20 mm long.
Dispersal, establishment & growth: Diaspore: winged seeds.
Fire response: 
Interaction with other organisms: 

**Distribution**

**Status/origin:** Naturalised exotic, native to Mexico, Peru & Ecuador. Commonly cultivated as ornamental but rarely naturalised (Harden 1992).
**Botanical subregions:** NC CC ?SC, Qld.
**Distribution Sydney area:** North Avoca.
**Select locations:** Bulbararing Lagoon North Avoca (1990), Lapstone station (1993, P. Kodela pers. comm.).

**Habitat**

**Altitude:** 0–50 m  
**Annual rainfall:** above 1200 mm

**Typical local abundance:**
**Vegetation:** Disturbed lagoon that previously had *Melaleuca quinquenervia-Casuarina glauca* swamp forest with *Baumea juncea* understorey.
**Substrate:** Sandy, infertile soil on edge of lagoon. Watertable permanently high, moisture supply continuous, brackish–fresh.

**Conservation:** Reported to be beginning to invade other parts of the Central Coast on a range of soil types (R. Payne pers. comm.).

**Amsinckia calycina** *(Amsinkia hispida)*

**Life history**

Growth form: Herb 15–50 cm high.
Vegetative spread: No.
Longevity: 6–8 months.
Primary juvenile period: 4–6 months.
Flowers: August–January.
Fruit/seed: Fruit of 4 mericarps, 2–2.5 mm long, November–January. Up to 1600 seeds/plant (Dellow 1989). Seeds remain viable for at least 2 years.
Dispersal, establishment & growth: Diaspore: mericarp, dispersed by livestock and clothing. Low temperatures favour germination. Seeds germinate after autumn rains and there may be up to 4 germinations in a season. Plants grow in winter and die off in late spring–early summer (Dellow 1989).
Fire response: Plants or seeds can poison stock if they have access for long periods (Dellow 1989).

**Distribution**

**Status/origin:** Naturalised exotic, native to S America.
**Botanical subregions:** CC CT ST NWS CWS SWS NWP SWP; Qld, Vic, Tas., N.T., S.A., W.A.
**Distribution Sydney area:** Western Sydney, but mainly Bathurst–Orange area.
**Select locations:** Flemington, Campbelltown, Bathurst (1925), Mandurama, Freemantle, Orange, Canobolas.

**Habitat**

**Altitude:** 0–1400 m  
**Annual rainfall:** 600–1200 mm
Typical local abundance: Occasional.
Substrate: Basalt soil, fertile.
Exposure:


**Amsinckia intermedia** *
Common Fiddleneck

Growth form: Herb 30–100 cm high, with rosette leaves.
Vegetative spread: No.
Longevity: 6–8 months (Dellow 1989).
Primary juvenile period: 4–6 months.
Flowers: Orange-yellow, September–December.
Fruit/seed: Fruit of 4 mericarps, each 3 mm long. Up to 1600 seeds/plant; seeds remain viable for at least 2 years (Dellow 1989).
Dispersal, establishment & growth: Diaspore: mericarp, animal-dispersed on fur and clothing, farm machinery and contaminated grain; probably also bird-dispersed. Farming activities spread the weed over large areas (Parsons 1973). Seeds germinate after autumn rains and there may be up to 4 germinations in a season; low temperatures favour germination but this is not uniform, winter provides ideal conditions; plants grow in winter and die off in late spring–early summer (Dellow 1989).
Fire response:
Interaction with other organisms: Plants or seeds can poison stock if they have access for long periods; seeds can taint and discolour flour made from contaminated seed (Dellow 1989).

**Distribution**
Botanical subregions: NC CC CT ST NWS CWS SWS SWP; Qld, Vic.
Distribution Sydney area:
Select locations: Concord (1966), Blayney (1903 first record for State), Trunkey, Bathurst, Orange.

**Habitat**
Habitat: Weed of cultivated land, rubbish tip (Concord).
Altitude: 0–1200 m  Annual rainfall: 600–1200 mm
Typical local abundance: Frequent.
Substrate: Agricultural soils, not confined to any particular soil type (Parsons 1973).
Exposure:
Conservation: Weed of winter cereal crops (Dellow 1989).

**Anchusa arvensis** * (lycopsis arvensis)
Wild Bugloss

**Life history**
Growth form: Erect herb to 60 cm high.
Vegetative spread: No.
Longevity:
Primary juvenile period:
Flowers: Blue or rarely whitish, October–December.
Fruit/seed: Mericarp 2 mm long, mature January–May.
Dispersal, establishment & growth: Diaspore: fruit. Seedling recruitment possibly related to disturbance.
Fire response:
Interaction with other organisms:
**Austrocynoglossum latifolium** (Cynoglossum latifolium) **BORAGINACEAE**

**Growth form:** Decumbent herb with trailing stems to 1 m long. Stems cling to neighbouring vegetation by means of prickle-like setules (Mill 1989).

**Vegetative spread:**

**Longevity:**

**Primary juvenile period:**

**Flowers:** White, November–May.

**Fruit/seed:** Fruit of 4 spiny mericarps, 3.5 mm long, densely prickly, November–June.

**Dispersal, establishment & growth:** Diaspore: mericarp.

**Fire response:**

**Interaction with other organisms:**

**Status/origin:** Native.

**Botanical subregions:** NC CC SC NT CT ST; Qld, Vic.

**Distribution Sydney area:** Illawarra and Western Blue Mountains.

**Select locations:** Bulli Pass, Macquarie Rivulet, Cambewarra, Robertson, Bilpin, Mt Wilson, Kanangra Deep, Jenolan Caves.

**Habitat:** Typically in rainforest, on damp soil of creek banks, near waterfalls; frequently near or in caves (Mill 1989).

**Altitude:** 0–1000 m **Annual rainfall:** above 900 mm

**Typical local abundance:** Frequent–occasional.

**Vegetation:** Moist eucalypt forest and margins of rainforest. Also within rainforest (P. Kodela pers. comm.).

**Substrate:** Basalt and shale soil, very fertile–fertile. Watertable mostly high, moisture supply intermittent, fresh. Seems to prefer well-drained limestone or basaltic soils (Mill 1989).

**Exposure:** Sheltered; deep shade.

**Conservation:** Rare close to Sydney area, but more common elsewhere, e.g. in Kowmung area (L. Johnson pers. comm.).
**Borago officinalis** *  
**BORAGINACEAE**  
Borage  

**Life history**  
**Growth form:** Herb 30–80 cm high.  
**Vegetative spread:** No.  
**Longevity:** Annual.  
**Primary juvenile period:** Less than 1 year.  
**Flowers:** White, spring.  
**Fruit/seed:** Mericarp, 6 mm long.  
**Dispersal, establishment & growth:**  
**Fire response:**  
**Interaction with other organisms:**  

**Distribution**  
**Status/origin:** Exotic, native to S Europe. Cultivated, rarely naturalised. Re-establishes from seed in gardens, not seen doing so elsewhere (L. Johnson pers. comm.).  
**Botanical subregions:** CC ST; Vic., S.A., W.A.  
**Distribution Sydney area:** Beecroft, North Sydney (1915), Campbelltown.  

**Habitat**  
**Habitat:** Old gardens, pasture.  
**Altitude:** 0–1000 m  
**Annual rainfall:** above 700 mm  
**Typical local abundance:** Rare.  
**Vegetation:** Old gardens, ground stratum.  
**Substrate:** Probably clay soils, fertile. Watertable permanently low, moisture supply intermittent, fresh.  
**Exposure:**  

**Conservation**  
**Conservation:** Rarely naturalised.

---

**Buglossoides arvensis** * (Lithospermum arvense)  
**BORAGINACEAE**  
Sheepweed  

**Life history**  
**Growth form:** Erect herb to 45 cm high.  
**Vegetative spread:** No.  
**Longevity:** 1 year.  
**Primary juvenile period:** Less than 1 year.  
**Flowers:** White–cream, August–October.  
**Fruit/seed:** Fruit of 2 mericarps, 4 mm long.  
**Dispersal, establishment & growth:** Diaspore: mericarp.  
**Fire response:**  
**Interaction with other organisms:**  

**Distribution**  
**Status/origin:** Naturalised exotic, native to Europe.  
**Botanical subregions:** CC NT CT ST NWS CWS SWS SWP NWP NFWP; Qld, Vic., Tas., N.T., S.A., W.A.  
**Distribution Sydney area:** Sydney, Orange.  
**Select locations:** Royal Botanic Gardens (1902), Centennial Park, Richmond, Flemington, Casula, Orange (1911), Rylstone.  

**Habitat**  
**Habitat:** Weed of disturbed places, e.g. railway lines.  
**Altitude:** 0–1000 m  
**Annual rainfall:** above 600 mm  
**Typical local abundance:** Rare.  
**Vegetation:** Ground stratum.  
**Substrate:**  
**Exposure:**  

**Conservation**  
**Conservation:** Weed of disturbed places.
**Cynoglossum australis**

**BORAGINACEAE**

**Growth form:** Erect herb 30–75 cm high.

**Vegetative spread:**

**Longevity:**

**Primary juvenile period:**

**Flowers:** Blue–whitish, September–March.

**Fruit/seed:** Fruit of 4 spiny mericarps, densely prickly, mature November–July, peak November.

**Dispersal, establishment & growth:** Diaspore: mericarp. Seedling recruitment possibly related to soil disturbance.

**Fire response:**

**Interaction with other organisms:**

**Status/origin:** Native.

**Botanical subregions:** NC CC SC NT CT ST NWS CWS SWP NWP NSW SF WP; Qld, Vic., Tas., S.A., W.A.

**Distribution Sydney area:** Coast and Blue Mountains.

**Select locations:** Howes Valley, Mt Tomah, Sans Souci, Razorback, Douglas Park, Mt Towinbring, Glenmire, Orange, Abercrombie Caves, Bullio.

**Habitat:** Sites with disturbed soil, e.g. roadside.

**Altitude:** 0–1000 m  **Annual rainfall:** above 600 mm

**Typical local abundance:** Occasional.

**Vegetation:** Margins of rainforest, wet eucalypt forest in grassy sites, e.g. with Eucalyptus deanei. Ground stratum.

**Substrate:** Mainly on basalt soil but also on sandy soil and skeletal slate soils, fertile–infertile. Watertable mostly low, moisture supply intermittent, fresh.

**Exposure:**

**Conservation:** Vulnerable in Western Sydney (Benson & McDougall 1991). Conservation status elsewhere unknown.

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**Cynoglossum suaveolens**

**BORAGINACEAE**

**Growth form:** Erect herb to 50 cm high.

**Vegetative spread:**

**Longevity:**

**Primary juvenile period:**

**Flowers:** White or sometimes blue, October–May.

**Fruit/seed:** Fruit of 4 spiny mericarps, densely prickly, mature November–December.

**Dispersal, establishment & growth:** Diaspore: mericarp.

**Fire response:**

**Interaction with other organisms:**

**Status/origin:** Native.

**Botanical subregions:** NC CC SC NT CT ST NWS CWS SWP NWP SWP; Qld, Vic., Tas., S.A.

**Distribution Sydney area:** Coast and western Blue Mountains.

**Select locations:** Colo, Middle Harbour, Georges River, Menangle Park, Mt Victoria, Jenolan Caves, Cullen Bullen, Orange, Bowral.

**Habitat:** Damp places.

**Altitude:** 0–1000 m  **Annual rainfall:** above 800 mm

**Typical local abundance:** Occasional.

**Vegetation:** Eucalypt open-forest and grassland; ground stratum.
Substrate: Shaley sandstone or clay soils, infertile, damp.
Exposure: 

Conservation: Not common, probably not well conserved, mostly old records. Vulnerable in Western Sydney (Benson & McDougall 1991).

Echiunm plantagineum * (Echiunm lycopsis)
Patterson’s Curse, Salvation Jane

Growth form: Herb to 150 cm high, usually multi-stemmed, with short, stout taproot and numerous laterals, overwinters as rosettes (Parsons & Cuthbertson 1992).
Vegetative spread: No.
Longevity: 1–2 years.
Primary juvenile period: Usually less than 1 year (Parson 1973).
Flowers: Purple, pinkish or white, September–April, peak November.
Fruit/seed: Fruit of 4 mericarps, mature December–January, April. Plants produce large amount of seed, most of which falls to ground within a few feet of plant (Parsons 1973). Can produce more than 30,000 seeds per m² (Parsons & Cuthbertson 1992).
Dispersal, establishment & growth: Diaspore: mericarp. Dispersed by animals, water, and as a contaminant of grain (Parsons & Cuthbertson 1992). Seed coat is roughened and seeds can adhere to wool and fur; seeds retain viability after passing through the alimentary tract of animals; seed viability for at least 5 years; cultivation stimulates germination of dormant seed (Parsons 1973). Seed shows considerable innate and temperature enforced dormancy that appears to permit sporadic germination over several seasons (Piggin 1976). Recruitment probably related to moisture availability and temperature. Can germinate at any time, especially autumn; can be found at any time of year in all stages of growth (Parsons 1973). Favoured by Mediterranean-type climate especially in years with early seasonal breaks (Piggin 1976).
Fire response:

Botanical subregions: NC CC SC NT CT ST NWS CWS SWS NWP SWP SFWP; Qld, Vic, Tas, N.T., S.A., W.A.
Distribution Sydney area: Widespread.
Select locations: Terrigal, Pennant Hills, Richmond, Doonside, Glenfield, Mt Annan, Bomaderry, Carcoar (1915), Rockley, Orange, Robertson (P. Kodela pers. comm.).

Habitat: Roadsides and pastoral land.
Altitude: 0–1000 m
Annual rainfall: above 600 mm
Typical local abundance: Frequent.
Vegetation: Woodland, grassland.
Substrate: Shale, basalt — fertile soil. Recorded on saline sites in western NSW (Semple 1993).
Exposure: Full sun.

Conservation: Regarded as a weed in cultivated and pastoral land.
**Echium vulgare**

Viper’s Bugloss

**BORAGINACEAE**

**Life history**

**Growth form:** Herb, to 90 cm high.

**Vegetative spread:** No.

**Longevity:** 2 years, but sometimes perennial (Parsons 1873).

**Primary juvenile period:**

**Flowers:** Blue, November–April.

**Fruit/seed:** Fruit of 4 mericarps, mature April.

**Dispersal, establishment & growth:** Diaspore: mericarp. Large amounts of seed produced, most falls to ground within a few feet of plant. Seeds spread by movement of stock and fodder, can pass through alimentary tract of animals and remain viable, can adhere to wool and fur. 80% germination for 1–2 years but can lie dormant for at least 5 years. Seedling recruitment from soil-stored seed possibly related to disturbance (Parsons 1973).

**Fire response:**

**Interaction with other organisms:** Causes liver damage in stock. Important throughout history in herbal medicine, used as a diuretic and treatment for fevers, headaches etc. (Parsons & Cuthbertson 1992).

**Status/origin:** Naturalised exotic, native to Europe. Introduced to Australia in 1820 (Parsons & Cuthbertson 1992).

**Botanical subregions:** NC NT CT ST NWS SWS NWP; Vic., Tas., S.A.

**Distribution Sydney area:** Bathurst–Lithgow area, Southern Highlands.

**Select locations:** Glen Alice, Portland, Lithgow, Cox River (1909), Raglan, Tarana, Oberon, Rockley, Robertson (P. Kedela pers. comm.).

**Habitat:** Disturbed sites, roadsides, pastoral land, wasteland.

**Altitude:** above 800 m

**Annual rainfall:** 800–1200 mm

**Typical local abundance:** Frequent.

**Vegetation:** Eucalypt woodland, e.g., *Eucalyptus bridgesiana*, *E. polyanthemos*, *E. albens*, *E. melliodora* with ruderal weeds, e.g., *Echium plantagineum*, *Cirsium vulgare*. Ground stratum.

**Substrate:** Loamy soils from granite. Wide variety of soils (Parsons & Cuthbertson 1992).

**Exposure:**

**Conservation:** Weed of pastoral land.

---

**Ehretia acuminata** var. **acuminata**

Koda

**BORAGINACEAE**

**Life history**

**Growth form:** Tree to 30 m high with creamy-brown bark, often more or less deciduous, with new growth in spring.

**Vegetative spread:** No.

**Longevity:**

**Primary juvenile period:**

**Flowers:** White, strongly scented, October–January, peak December.

**Fruit/seed:** Orange-yellow drupe 5–7 mm diam., breaking into pyrenes at maturity, February–March.

**Dispersal, establishment & growth:** Diaspore: fruit, probably bird-dispersed. Germination of sown fresh seed very rapid, 28% germination after 20 days (Floyd 1989).

**Fire response:**

**Interaction with other organisms:** Fruit eaten by Brown Cuckoo-Dove, Figbird, Green Catbird, Lewin’s Honeyeater, Rose-crowned Fruit-dove, Wompoo Fruit-dove (Floyd 1989). Timber used for furniture, resembles English Elm (Floyd 1983).

**Status/origin:** Native.

**Botanical subregions:** NC CC SC NT CT CWS; Qld.

**Distribution Sydney area:** Coast and coastal ranges.
**Halgania brachyrhyncha**   

**BORAGINACEAE**

**Life history**

**Growth form:** Spreading-semi-prostrate subshrub 0.3-0.6 m high.

**Vegetative spread:**

**Longevity:**

**Primary juvenile period:**

**Flowers:** Deep blue, September-February.

**Fruit/seed:** Leathery drupe 4-5 mm long, with 1-2 seeds.

**Dispersal, establishment & growth:** Diaspore: drupe.

**Fire response:**

**Interaction with other organisms:**

**Distribution**

**Status/origin:** Native.

**Botanical subregions:** CC SC CWS; Qld.

**Distribution Sydney area:** Burraborang Valley.

**Select locations:** Burraborang Valley (The Sheepwalk 1967) only record for area.

**Habitat**

**Habitat:** Rocky sites particularly ridges or hillsides.

**Altitude:** 200 m

**Typical local abundance:**

**Vegetation:** Tall shrubland to woodland and open-forest. Ground stratum.

**Substrate:** Sandstone or conglomerate. Infertile soil.

**Exposure:**

**Conservation:** Rare, only known from a few localities (Wilson 1990), conservation status unknown.

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**Heliotropium amplexicaule** *

**BORAGINACEAE**

**Life history**

**Growth form:** Perennial herb to 15 cm high with deep taproot.

**Vegetative spread:** No.

**Longevity:**

**Primary juvenile period:**

**Flowers:** Purple or lilac, November-March.

**Fruit/seed:** Fruit of 2 mericarps, succulent at first, becoming wrinkled and falling at maturity, November-March.

**Dispersal, establishment & growth:** Diaspore: mericarp, shed at maturity. A summer-growing perennial that dies back in winter and regrows from the taproot in spring.

**Fire response:**
**Interaction with other organisms:** Contains toxic alkaloids, suspected of causing jaundice in sheep (Mitchell 1988).

**Status/origin:** Naturalised exotic, native to S America. Probably introduced as a garden plant.

**Botanical subregions:** NC CC SC NT CT NWS CWS NWP NFWP; Qld, Vic., S.A.

**Distribution Sydney area:** Widespread.

**Select locations:** Barrenjoey, Eringtonton, Summer Hill (1913), Agnes Banks, Penrith, Ingleburn, Mt Annan, Bathurst.

**Habitat:** Roadside, creekbanks, degraded and overstocked pastures.

**Altitude:** 0–1000 m

**Annual rainfall:** above 600 mm

**Typical local abundance:** Occasional.

**Vegetation:** Ephemeral weeds or woodland, e.g. with *Eucalyptus tereticornis*.

**Substrate:** Generally restricted to well drained alluviums and medium to sandy soils (Mitchell 1988), fertile–infertile.

**Exposure:**

**Conservation:** Major agricultural weed in upper reaches of Macquarie River, but not an invader of bushland. Declared noxious weed in some shires of NSW.

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**Heliotropium europaeum**

**BORAGINACEAE**

**Common Heliotrope, Potato Weed**

**Growth form:** Herb, erect, to 30 cm high.

**Vegetative spread:** No.

**Longevity:** 1 year.

**Primary juvenile period:** Less than 1 year.

**Flowers:** White, February–March.

**Fruit/seed:** Fruit of mericarps 4, shed at maturity, March–April.

**Dispersal, establishment & growth:** Diaspore: mericarp. Spring and summer-growing annual.

**Fire response:**

**Interaction with other organisms:** May cause jaundice in sheep, cumulative effects resulting in death (Mitchell 1988). Foodplant of tiger moth caterpillar *Letheisa pulchelloides* (Coupar & Coupar 1992). Rust Fungus *Uromyces heliotropii* has been released for biological control (Keene & Tanner 1993).

**Distribution**

**Status/origin:** Cosmopolitan. Has been regarded as introduced and naturalised in Australia, but is now considered to be cosmopolitan (Harden 1992).

**Botanical subregions:** NC CC CT ST NWS CWS SWS NWP SWP NFWP SFWP; Vic., S.A., W.A., SW Asia & Europe.

**Distribution Sydney area:**


**Habitat:** Earthworks and garden beds.

**Altitude:** 0–200 m

**Annual rainfall:** above 700 mm

**Typical local abundance:** Rare.

**Vegetation:** Disturbed sites.

**Substrate:** Clay soil. Recorded on saline sites in western NSW (Semple 1993).

**Exposure:**

**Conservation:** Rare, conservation status unknown.
**Myosotis australis**

BORAGINACEAE

Australian Forget-me-not

**Growth form:** Herb 20-40 cm high.

**Vegetative spread:**

**Longevity:** Annual or perennial.

**Primary juvenile period:**

**Flowers:** White or yellowish or rarely bluish, November-December.

**Fruit/seed:** Fruit of 4 mericarps.

**Dispersal, establishment & growth:**

**Fire response:**

**Interaction with other organisms:**

**Status/origin:** Native.

**Botanical subregions:** NC SC NT CT ST NWS CWS SWS; Vic., Tas., S.A., W.A.

**Distribution Sydney area:** Blue Mountains and westward. Southern Highlands (P. Kodela pers. comm.).

**Select locations:** Mt Tomah, Jenolan Caves, Mt Shivering. Mt Canobolas, Robertson (P. Kodela pers. comm.).

**Habitat:** Rocky hillsides.

**Altitude:** 800-1400 m  
**Annual rainfall:** above 800 mm

**Typical local abundance:** Occasional.

**Vegetation:** Open-forest, e.g. *Eucalyptus fastigata*, *E. viminalis*, *Pellaea falcata*. Ground stratum.

**Substrate:** Basalt soil, fertile. Watertable mostly low, non-saline.

**Exposure:**

**Conservation:** Rare, conservation status unknown.

**Myosotis caespitosa** *

BORAGINACEAE

**Growth form:** Herb 10-35 cm high.

**Vegetative spread:**

**Longevity:** Annual.

**Primary juvenile period:** 1 year.

**Flowers:** Pale blue changing to pink, spring-summer.

**Fruit/seed:** Fruit of 4 mericarps.

**Dispersal, establishment & growth:** Diaspore: mericarp.

**Fire response:**

**Interaction with other organisms:**

**Status/origin:** Naturalised exotic (P. Kodela pers. comm.), native to Europe.

**Botanical subregions:** NC NT CT ST CWS.

**Distribution Sydney area:** Southern Highlands.

**Select locations:** Burrawang-Robertson (1992).

**Habitat:** Disturbed roadside.

**Altitude:** 700 m  
**Annual rainfall:** 1600 mm

**Typical local abundance:** Occasional.

**Vegetation:** With grasses and other herbs, near pastures.

**Substrate:**

**Exposure:**

**Conservation:** Localised minor weed of roadsides.
**Myosotis discolor** *

**Myosotis** **BORAGINACEAE**

**Forget-me-not**

**Life history**

**Growth form:** Herb 10–20 cm high.
**Vegetative spread:** No.
**Longevity:** 1–2 years.
**Primary juvenile period:**
**Flowers:** Yellowish–blue, October–November.
**Fruit/seed:** Fruit of 4 mericarps.
**Dispersal, establishment & growth:**
**Fire response:**
**Interaction with other organisms:**

**Distribution**

**Status/origin:** Naturalised exotic, native to Europe. *Myosotis caespitosa* and *M. sylvatica* also naturalised in Sydney area at Robertson (P. Kodela pers. comm.).
**Botanical subregions:** CT ST NWS SWS; Vic., Tas.
**Distribution Sydney area:**
**Select locations:** Jenolan Caves, Abercrombie Caves, Mt Jellore, Canobolas SF.

**Habitat**

**Habitat:** Rocky crevices.
**Altitude:** 700–1000 m
**Annual rainfall:** 800–1000 mm
**Typical local abundance:** Frequent.
**Vegetation:** Open-woodland, e.g. with *Eucalyptus dives* and *Cassinia* understorey. Ground stratum.
**Substrate:** Rocky crevices on limestone, occasionally volcanic rocks. Soil fertile.
**Exposure:** Sheltered.

**Conservation:**

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**Myosotis exarrhena** (*Myosotis suaveolens*)

**BORAGINACEAE**

**Life history**

**Growth form:** Herb 30–50 cm high.
**Vegetative spread:**
**Longevity:** Perennial.
**Primary juvenile period:**
**Flowers:** Pale blue or white, October.
**Fruit/seed:** Fruit of 4 mericarps.
**Dispersal, establishment & growth:** Diaspore: mericarp.
**Fire response:**
**Interaction with other organisms:**

**Distribution**

**Status/origin:** Native.
**Botanical subregions:** NT CT ST; Vic., Tas.
**Distribution Sydney area:** Jenolan Caves.
**Select locations:** Jenolan Caves (1899) only Sydney record.

**Habitat**

**Habitat:**
**Altitude:** 800 m
**Annual rainfall:** 900 mm
**Typical local abundance:**
**Vegetation:** Ground stratum.
**Substrate:** Probably on limestone soil.
**Exposure:**

**Conservation:** Rare, conservation status unknown.
**Myosotis sylvatica** *  
**BORAGINACEAE**

**Wood Forget-me-not**

**Growth form:** Herb to 40 cm high, with hairs on stems and leaves.
**Vegetative spread:**
**Longevity:** 2 years, biennial or perennial.
**Primary juvenile period:**
**Flowers:** Bright blue with yellow throat, spring-summer.
**Fruit/seed:** Fruit of 4 mericarps.
**Dispersal, establishment & growth:** Diaspore: mericarp.
**Fire response:**
**Interaction with other organisms:**

**Status/origin:** Exotic, native to Europe, introduced as garden plant, sometimes naturalised.
**Botanical subregions:** CT ST; Vic., Tas., S.A.
**Distribution Sydney area:** Southern Highlands.
**Select locations:** Kangaloon (1993).

**Habitat:** Roadside.
**Altitude:** 800 m  
**Annual rainfall:** 1600 mm
**Typical local abundance:** Frequent.
**Vegetation:** With roadside weeds, e.g. *Holcus lanatus, Dactylis glomerata, Bromus catharticus* etc.
**Substrate:**
**Exposure:** Mid shade.

**Conservation:** Rare in Sydney area, probably only localised garden escape (P. Kodela pers. comm.).

**Barbarea verna** *  
**BRASSICACEAE**

**Wintercress**

**Growth form:** Erect herb to 75 cm high.
**Vegetative spread:**
**Longevity:** 2 years.
**Primary juvenile period:**
**Flowers:** Yellow.
**Fruit/seed:** Capsule (silica) 3–7 cm long, with row of seeds, mature February.
**Dispersal, establishment & growth:**
**Fire response:**
**Interaction with other organisms:**

**Status/origin:** Exotic, native to Europe. Garden escape, rarely naturalised.
**Botanical subregions:** CC; Vic., Tas., S.A.
**Distribution Sydney area:**
**Select locations:** Wahroonga (1917). (Only one specimen available.)

**Habitat:**
**Altitude:** 200 m  
**Annual rainfall:** 1300 mm
**Typical local abundance:**
**Vegetation:**
**Substrate:**
**Exposure:**

**Conservation:** Garden escape, rarely naturalised. Not recorded in the last 75 years.
**Brassica fruticulosa** *

Twiggy Turnip

**Growth form:** Herb, erect, to 50 cm high.

**Vegetative spread:** No.

**Longevity:** Less than 5 years.

**Primary juvenile period:**

**Flowers:** Pale yellow–white, April–November.

**Fruit/seed:** Capsule (silica) 2–4 cm long, with small seeds, mature April–November.

**Dispersal, establishment & growth:** Diaspore: seed.

**Fire response:** Probably killed, flowering within 12 weeks, seeds released within 28 weeks of high-intensity fire (1/1994) at Lane Cove (P. Kubiak pers. comm.).

**Interaction with other organisms:**

**Status/origin:** Naturalised exotic. Native to S Europe and N Africa. Supposedly originally introduced from Italy as a vegetable (note with Herbarium specimen).

**Botanical subregions:** NC CC CT; Vic.

**Distribution Sydney area:** Sydney suburbs, Katoomba.

**Select locations:** Beecroft, West Ryde (1949), Northbridge, Dobroyd Point, La Perouse, Mortdale, Liverpool, Echo Point (1966).

**Habitat:** Disturbed sites, roadsides, creek banks, embankments, railway edges.

**Altitude:** 0–1000 m **Annual rainfall:** above 800 mm

**Typical local abundance:** Frequent.

**Vegetation:** Herbaceous weeds. Ground stratum.

**Substrate:** Various — sandy soil, reclaimed sites; also on highly disturbed Wianamatta Shale around Marsfield (L. Johnson pers. comm.).

**Exposure:**

**Conservation:** Appears mainly confined to suburban areas, often in soil-fill.

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**Brassica juncea** *

Indian Mustard

**Growth form:** Herb to 1 m high, with slender taproot (Häfliger 1988).

**Vegetative spread:** No.

**Longevity:** 1 year.

**Primary juvenile period:** Less than 1 year.

**Flowers:** Pale yellow, spring.

**Fruit/seed:** Capsule (silica), 2–6 cm long, 2–4 mm wide, with 16–24 seeds, 1.3–1.6 mm long, dark reddish brown to yellowish (Häfliger 1988), mature October.

**Dispersal, establishment & growth:** Diaspore: seed. Winter-growing annual.

**Fire response:**

**Interaction with other organisms:**

**Status/origin:** Naturalised exotic, native to Europe and Asia.

**Botanical subregions:** CC NT ST CWS SWP; Qld, S.A., W.A.

**Distribution Sydney area:** Hornsby.

**Select locations:** Hornsby (1924), Casula (1967), Belrose (P. Kodela pers. comm.).

**Habitat:** Agricultural lands, railway line, roadsides.

**Altitude:** 0–100 m **Annual rainfall:** 1200 mm

**Typical local abundance:**

**Vegetation:**

**Substrate:**

**Exposure:**

**Conservation:** Weed of agricultural lands and roadsides.
**Brassica rapa** subsp. *silvestris* *

Turnip

**BRASSICACEAE**

**Growth form:** Herb to 1 m high; tap root sleek, often tuberous (Lamp & Collet 1989).

**Vegetative spread:** No.

**Longevity:** 1–2 years.

**Primary juvenile period:**

**Flowers:** Bright yellow, April–November.

**Fruit/seed:** Capsule 4–7 cm long, with small seeds, mature April–November.

**Dispersal, establishment & growth:** Diaspore: probably seed.

**Fire response:**

**Interaction with other organisms:**

**Status/origin:** Naturalised exotic, native to Europe. Introduced as food plant.

**Botanical subregions:** NC CC NT CT ST CWS SWS SWP NFWP; Qld, Vic., Tas., N.T., S.A., W.A.

**Distribution Sydney area:** Coastal.

**Select locations:** Wondabyne, Glenorie, Hornsby (1909), Mosman, La Perouse, Glenfield, Albion Park, Meadow Flat Creek.

**Habitat:** Disturbed sites and roadsides.

**Altitude:** 0–1000 m **Annual rainfall:** above 800 mm

**Typical local abundance:** Occasional.

**Vegetation:** Roadside weed species. Ground stratum.

**Substrate:** Alluvial and clay soils, fertile.

**Exposure:**

**Conservation:** Widely cultivated and established as minor weed of disturbed sites.

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**Brassica tournefortii** *

Mediterranean Turnip

**BRASSICACEAE**

**Growth form:** Herb with mostly basal leaves, to 60 cm high; long taproot (Häfliger 1988).

**Vegetative spread:** No.

**Longevity:** 1 year.

**Primary juvenile period:** Less than 1 year.

**Flowers:** Pale yellow–white, August–October.

**Fruit/seed:** Capsule (siliqua), 3–7 cm long, 3 mm wide, splitting at maturity, August–October. Seeds reddish-brown, 2 mm diam, about 16 per capsule.


**Fire response:**

**Interaction with other organisms:** Rarely grazed by stock (Cunningham et al. 1981).

**Status/origin:** Naturalised exotic, native to Mediterranean.

**Botanical subregions:** NC CC ST SWS NW SP SWP NFWP; all mainland States.

**Distribution Sydney area:** Coast.

**Select locations:** Tuggerah Beach, Richmond, Woolooware Bay, Wollongong (1948).

**Habitat:** Coastal dunes.

**Altitude:** 0–100 m **Annual rainfall:** above 800 mm

**Typical local abundance:** Frequent.

**Vegetation:** Scrub with *Leptospermum laevigatum*, *Acacia longifolia* var. *sophorae*.

**Substrate:** Sandy coastal dune soils — unstable. Soil infertile. Watertable permanently low, moisture supply intermittent.

**Exposure:**

**Conservation:** Widespread aggressive weed. Also occurs on sand in inland regions, e.g. Western Plains (L. Johnson pers. comm.).
Cakile edentula *
American Sea Rocket

Growth form: Herb to 80 cm high.
Vegetative spread: No.
Longevity: 1 year.
Primary juvenile period: Less than 1 year.
Flowers: White, pink or lavender, all year.
Fruit/seed: Capsule (silicula) 12–24 mm long, corky, breaking into two segments (usually 1 seed in each) and capable of floating in seawater for 10 weeks with encased seeds remaining viable (Rodman 1986). Mature March–June.
Fire response:
Interaction with other organisms:
Status/origin: Naturalised exotic, native to N America. Probably introduced to Australia in ship ballast.
Botanical subregions: NC CC SC; LHI, Qld, Vic., Tas., W.A.
Distribution Sydney area: Coastline.
Select locations: Wyong, Palm Beach, Manly (1870), Bondi (1884), La Perouse, Lady Robinson Beach, Kurnell, Wollongong, Austinmer, Seven Mile Beach.
Habitat: Beach dunes and lake foreshores.
Altitude: 0–50 m Annual rainfall: above 1200 mm
Typical local abundance: Occasional.
Vegetation: Strand zones.
Substrate: Sand dunes, infertile soil.
Exposure:
Conservation: First recording for NSW at Manly Beach in 1870 after being introduced in Victoria (Rodman 1986).

Cakile maritima *
Sea Rocket

Growth form: Herb with ascending or decumbent branches to 80 cm long.
Vegetative spread: No.
Longevity: Annual.
Primary juvenile period:
Flowers: White–purple, August–September.
Fruit/seed: Capsule (silicula) 12–27 mm long, corky. Upper fruit segment capable of floating in seawater for 2 weeks and encased seeds remain viable even after 10 weeks’ exposure to seawater (Rodman 1986).
Dispersal, establishment & growth: Diaspore: silicula segments, local and widespread dispersed by water; local wind dispersal of plant as tumbleweed. Germination 95%, 1 week from sowing after scarification (Rodman 1986).
Fire response:
Interaction with other organisms:
Status/origin: Naturalised exotic, native to Europe and Africa. Probably introduced to Australia in ships’ ballast (Rodman 1986).
Botanical subregions: CC SC NFWP; Vic., Bass Strait Is, S.A., W.A.
Distribution Sydney area: Coastline: Broken Bay–Botany Bay.
Habitat: Beaches and foreshores. Rarely away from coast, e.g. Belrose (P. Kodela pers. comm.).
Altitude: 0–2 m  
Annual rainfall: above 1200 mm
Typical local abundance: Rare.
Vegetation: Strand zone. Ground stratum.
Substrate: Beach sand, infertile. Rarely sandy soil on sandstone (P. Kodela pers. comm.).
Exposure: Exposed situations.
Conservation: Ettalong Beach is current northern limit and first record for NSW. It was first collected near Perth at the turn of the century, giving an estimated migration rate of 95 km per year (Rodman 1986).

**Camelina alyssum** *

Stinking Flaxweed

Growth form: Slender herb with flowers in racemes.
Vegetative spread: No.
Longevity: 1 year.
Primary juvenile period: Less than 1 year.
Flowers: Pale yellow.
Fruit/seed: Capsule (silicula) 6–12 mm long, with small seeds, mucilaginous when wet.
Dispersal, establishment & growth: Diaspore: seed.
Fire response: 
Interaction with other organisms:

**BRASSICACEAE**

**Life history**

**Distribution**

Status/origin: Naturalised exotic, native to Europe.
Botanical subregions: NC CC, Tas., S.A.
Distribution Sydney area: Parramatta.
Select locations: Parramatta (von Mueller, 19th century), no recent records.

**Habitat**

Habitat: Pasture weed.
Altitude: 0–50 m  
Annual rainfall: 1000 mm
Typical local abundance:
Vegetation: Pasture. Ground stratum.
Substrate:
Exposure:

Conservation: Pasture weed, rare.

**Capsella bursa-pastoris** *

Shepherd’s Purse

Growth form: Erect herb 8–40 cm high, basal leaves in a rosette; taproot, becoming woody (Häfliger 1988).
Vegetative spread: No.
Longevity: 1 year.
Primary juvenile period: Less than 1 year.
Flowers: White, May–December, peak September.
Fruit/seed: Capsule (silicula) 6–9 mm long, with small seeds, mature July–November.
Fire response: Probably killed, seedlings seen, 1 plant flowering and fruiting within 20 weeks of high-intensity fire 1/1994 at Narrabeen (P. Kubiaik pers. comm.).
Interaction with other organisms: Seed eaten by Galah *Cacatua roseicapilla* (Lepski 1993).
**Cardamine flexuosa**

_Growth form:_ Herb to 50 cm high.

_Vegetative spread:_ No.

_Longevity:_ 1 year (rarely perennial in Australia).

_Primary juvenile period:_ Less than 1 year.

_Flowers:_ White, sepals green–violet, March–September.

_Fruit/seed:_ Capsule (siliqua) 10–25 mm long, with small seeds ejected suddenly at maturity, March–September.

_Dispersal, establishment & growth:_ Diaspore: seed, ejected mechanically.

_Fire response:_ Probably killed, fruiting within 15 weeks of high-intensity fire 1/1994 at Lane Cove, seedlings observed (P. Kubiak pers. comm.).

_Interaction with other organisms:_

**Cardamine gunnii**

_Growth form:_ Robust herb, variable leaves entire–pinnatisect.

_Vegetative spread:_

_Longevity:_ Perennial.

_Primary juvenile period:_

**BRASSICACEAE**

**Life history**
**Cardamine hirsuta**

Common Bittercress, Hairy Woodcress

**BRASSICACEAE**

**Life history**

**Growth form:** Slender herb to 30 cm high; taproot slender, much branched, yellowish (Häßlger 1988).

**Vegetative spread:** No (M. Clarke pers. comm.).

**Longevity:** 1 year.

**Primary juvenile period:** 6 months (P. Kubiak pers. comm.).

**Flowers:** White, sepals green to violet, August–November.

**Fruit/seed:** Capsule (silica) 15–20 mm long, with small seeds ejected suddenly at maturity, August–November.

**Dispersal, establishment & growth:** Diaspore: seed, ejected mechanically, animal and possibly wind-dispersed (Carr et al. 1992). Water-dispersed (M. Clarke pers. comm.).

**Fire response:** Probably killed, flowering and fruiting within 24 weeks of high-intensity fire 1/1994 at Lane Cove (P. Kubiak pers. comm.).

**Interaction with other organisms:**

**Distribution**

**Status/origin:** Naturalised exotic, native to Europe.

**Botanical subregions:** NC CC ST NWS SWS; Qld, Vic., Tas., S.A., W.A.

**Distribution Sydney area:** Suburban areas.

**Select locations:** Cheltenham, Willoughby, Cremorne, Woolwich (1984), Centennial Park, Croydon Park.

**Habitat:** Lawns and gardens, or disturbed sites, nurseries.

**Altitude:** 0–100 m **Annual rainfall:** above 1000 mm

**Typical local abundance:** Frequent.

**Vegetation:** Lawns and gardens. Ground stratum.

**Substrate:** Garden soils, sandy, clay/shales, fertile–infertile, damp, non-saline.

**Exposure:** Dense-light shade (M. Clarke pers. comm.).

**Conservation:** Confined to gardens and lawns. Watercourses, and stormwater outlets, invades bushland creeks.
Cardamine lilacina

**BRASSICACEAE**

**Life history**

**Growth form:** Herb to 50 cm high.

**Vegetative spread:** No.

**Longevity:** 1–5 years.

**Primary juvenile period:**

**Flowers:** Pink–purple, sepal purple with white margins, October–November.

**Fruit/seed:** Capsule (silica) 10–40 mm long, with small seeds ejected suddenly at maturity.

**Dispersal, establishment & growth:** Diaspore: seed, ejected mechanically.

**Fire response:**

**Interaction with other organisms:**

**Status/origin:** Native.

**Botanical subregions:** NT CT ST; Vic., Tas.

**Distribution Sydney area:** Western Blue Mountains, Southern Highlands.

**Select locations:** Mt Coricudgy, Coxs River (1904), Oberon, Wombeyan, Wingecarribee Swamp (1966).

**Habitat:** Swamp, grassland, forest understorey.

**Altitude:** 650–800 m **Annual rainfall:** above 800 mm

**Typical local abundance:**

**Vegetation:** *Epacris paludosa–Sphagnum* bog and adjacent grassland, and forest, e.g. with *Eucalyptus dalrympleana* in herbaceous understorey. Ground stratum.

**Substrate:** Granite, basalt, clay-loam, fertile–infertile soil. Watertable mostly high, moisture supply intermittent, fresh.

**Exposure:** Light shade–full sun.

**Conservation:** Probably rare and poorly conserved.

Cardamine paucijuga

**BRASSICACEAE**

**Life history**

**Growth form:** Weak herb to 40 cm high.

**Vegetative spread:** No.

**Longevity:** 1 year.

**Primary juvenile period:** Less than 1 year.

**Flowers:** White or rarely pink, August–December.

**Fruit/seed:** Capsule (silica) 10–30 mm long, with small seeds ejected suddenly at maturity, October.

**Dispersal, establishment & growth:**

**Fire response:**

**Interaction with other organisms:**

**Status/origin:** Native.

**Botanical subregions:** NC CC SC NT CT ST NWS SWS; Qld, Vic., Tas., S.A., W.A.

**Distribution Sydney area:** Western Blue Mountains, Southern Highlands.

**Select locations:** Cheltenham, Maldon, Yerranderie, Mt Cameron, Little Hartley, Hill Top, Robertson (P. Kodela pers. comm.), Marulan.

**Habitat:** Moist areas near creek banks.

**Altitude:** 0–1000 m **Annual rainfall:** above 800 mm

**Typical local abundance:** Frequent–occasional.

**Vegetation:** Moist eucalypt forest, e.g. *Eucalyptus viminalis*, or with *Persicaria* spp. Ground stratum.

**Substrate:** River gravels, river flat alluvium, granite and basalt. Soil very fertile–fertile.
**Cardamine** species Y  

**BRASSICACEAE**  

**Life history**

**Growth form:** Herb to 40 cm high.  
**Vegetative spread:**  
**Longevity:** Perennial.  
**Primary juvenile period:**  
**Flowers:** White or pink, September–November.  
**Fruit/seed:** Capsule (siliqua) 15–30 mm long, with small seeds ejected suddenly at maturity.  
**Dispersal, establishment & growth:** Diaspore: seed, ejected mechanically.  
**Fire response:** Interaction with other organisms:  

**Distribution**

**Status/origin:** Native.  
**Botanical subregions:** NT CT ST; Vic., Tas., S.A.  
**Distribution Sydney area:**  
**Select locations:** Ryolstone, Coxs River, Orange, Oberon, Wombeyan.  

**Habitat**

**Habitat:** Wet places, creeks.  
**Altitude:** 800–1000 m  
**Annual rainfall:** above 800 mm  
**Typical local abundance:** Frequent.  
**Vegetation:** Undisturbed swamp vegetation and grassland. Ground stratum.  
**Substrate:** Basalt, granite soils, fertile-infertile. Watertable mostly high, moisture supply intermittent, fresh.  
**Exposure:**  

**Conservation**

**Conservation:** Probably now rare, conservation status unknown.  

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**Cardaria draba** * (Lepidium draba)  

**BRASSICACEAE**  

**Life history**

**Growth form:** Herb 15–cm high with extensive and deep root system; taproot and horizontal creeping roots with adventitious buds (Häftiger 1988). Erect, branching near the top, covered with fine downy hairs; main root 2 m deep (Parsons & Cuthbertson 1992).  
**Vegetative spread:** Capable of vegetative spread; severed portions of the root system readily bud to form new plants Scurfield 1962). Horizontal roots produce aerial shoots (Parsons & Cuthbertson 1992).  
**Longevity:** Perennial.  
**Primary juvenile period:** 2 years.  
**Flowers:** Not usually produced until 2nd year, white, October–November.  
**Fruit/seed:** Capsule (siliqua) 3–4 mm long separating into 1 or 2-seeded units (nutlets), red-brown, 2.2 mm long. Single plant can produce 1000–5000 seeds (Parsons & Cuthbertson 1992).  
**Dispersal, establishment & growth:** Diaspore: 1 or 2-seeded nutlets. High seed production and germination percentages. Non-dormant fraction 93% with germination decreasing with age, and zero after 3 years (Scurfield 1962 in Cunningham et al. 1981). Germinates in autumn to form rosettes in winter and spring. Flowering does not usually occur in the first year but older plants flower in spring after which the above-ground parts die off (Cunningham et al. 1981).
Fire response:
Interaction with other organisms:
Distribution

**Status/origin:** Naturalised exotic. Native to S Europe.

**Botanical subregions:** CC NT CT ST NWS CWS SW SWP; Qld, Vic., Tas., S.A., W.A.

**Distribution Sydney area:** Campbelltown, Bathurst–Orange area.

**Select locations:** Campbelltown, Bathurst (1901), Orange.

**Habitat:** Roadsides, gardens and waste land.

**Altitude:** 0–1000 m  **Annual rainfall:** above 400 mm (Parsons & Cuthbertson 1992)

**Typical local abundance:**

**Vegetation:** Ground stratum.

**Substrate:** Dry, uncultivated, heavy, fertile soils (Parsons & Cuthbertson 1992).

**Exposure:** Would appear to be able to withstand prolonged cold (Scurfield 1962).

**Conservation:** Widespread agricultural weed — not common.

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**Conringia orientalis** *
Hare's Ear, Treacle Mustard

**Life history**

**BRASSICACEAE**

**Growth form:** Erect herb 10–50 cm high, glabrous and glaucous; short whitish taproot (Häfliger 1988).

**Vegetative spread:** No.

**Longevity:** 1 year.

**Primary juvenile period:** Less than 1 year.

**Flowers:** Yellow or greenish white, October.

**Fruit/seed:** Capsule (siliqua) 4–14 mm long, with small seeds, mature November.

**Dispersal, establishment & growth:** Diaspore: seed. Seedling: cotyledons petiolate, elliptical to ovate (Häfliger 1988).

**Fire response:**

**Interaction with other organisms:**

Distribution

**Status/origin:** Exotic, native to Europe.

**Botanical subregions:** CC NWS CWS; Qld, Vic., S.A.

**Distribution Sydney area:**

**Select locations:** Royal Botanic Gardens (1896) only record.

**Habitat:** Weed of agricultural land.

**Altitude:** 0–50 m  **Annual rainfall:** 1200 mm

**Typical local abundance:**

**Vegetation:**

**Substrate:**

**Exposure:**

**Conservation:** No records since 1896, not naturalised in the Sydney area.

---

**Coronopus didymus** *
Lesser Swinecress

**BRASSICACEAE**

**Life history**

**Growth form:** Herb to 30 cm high; with taproot (Häfliger 1988).

**Vegetative spread:** No.

**Longevity:** 1–2 years.

**Primary juvenile period:**

**Flowers:** White, less than 2 mm long, September.
**Fruit/seed:** Capsule (silicula) 1.5 mm long, separating at maturity into 2 1-seeded nutlets 1–2 mm diam., mature any time of year.


**Fire response:** Probably killed, fruiting within 15 weeks of high-intensity fire 1/1994 at Lane Cove, seedlings observed (P. Kubiak pers. comm.).

**Interaction with other organisms:**

**Status/origin:** Naturalised exotic. Native to America and Europe.

**Botanical subregions:** NC CC SC ST NWS SWS NWP SWP; Qld, Vic., Tas., S.A., W.A.

**Distribution Sydney area:** Sydney suburbs and Western Sydney.

**Select locations:** Woy Woy, Cheltenham, Homebush (1893), Neutral Bay, Royal Botanic Gardens, Shane Park, Richmond, Leuhmeah, Wollongong, Albion Park.

**Habitat:** Lawns, gardens, roadsides, wasteland.

**Altitude:** 0–100 m  
**Annual rainfall:** above 700 mm

**Typical local abundance:** Frequent–occasional.

**Vegetation:** With other weeds of wasteland. Ground stratum.

**Substrate:** Mainly fertile clay soils from Wianamatta Shale but also sandy soils.

**Exposure:**

**Conservation:** Weed of disturbed sites, unlikely to invade bushland.

---

**Diplotaxis muralis** *

**BRASSICACEAE**

**Life history**

**Wall Rocket**

**Growth form:** Herb to 60 cm high, with taproot.

**Vegetative spread:** No.

**Longevity:** 1–2 years.

**Primary juvenile period:**

**Flowers:** Lemon-yellow sometimes becoming violet after flowering, September.

**Fruit/seed:** Cylindrical capsule (silicula) 3–4 cm long, opening when ripe, September. Numerous seeds, yellow brown 1.2 mm long.


**Fire response:**

**Interaction with other organisms:**

**Status/origin:** Naturalised exotic. Native to Europe.

**Botanical subregions:** CC CWS NF WP SF WP; Vic., Tas., S.A., W.A.

**Distribution Sydney area:** Campbelltown.

**Select locations:** Campbelltown (1954) only record.

**Habitat:** Roadside gravel dump.

**Altitude:** 0–50 m  
**Annual rainfall:** 750 mm

**Typical local abundance:**

**Vegetation:** Ground stratum.

**Substrate:** Roadside gravel dump.

**Exposure:**

**Conservation:** Widespread weed, only Sydney record Campbelltown (1954).
**Drabastrum alpestre**

**Life history**

**Growth form:** Herb or subshrub 10–30 cm high, woody base and rhizome.
**Vegetative spread:** Perennial.
**Primary juvenile period:** September.
**Flowers:** White or lavender.
**Fruit/seed:** Capsule (siliqua) 4–10 mm long, with small seeds.
**Dispersal, establishment & growth:** Diaspore: seed, mucilaginous when wet.
**Fire response:**

**Interaction with other organisms:**

**Distribution**

**Status/origin:** Native.
**Botanical subregions:** CT ST; Vic.
**Distribution Sydney area:** Bathurst (Harden 1990).
**Select locations:** No specimens in NSW Herbarium.

**Habitat**

**Altitude:** Probably above 1000 m
**Annual rainfall:** 600–1000 mm

**Conservation**

**Erophila verna** subsp. praecox *

**Life history**

**Growth form:** Herb 3–20 cm high; taproot slender, much branched, yellowish (Häfliger 1988).
**Vegetative spread:** No.
**Longevity:** Annual.
**Primary juvenile period:** September.
**Flowers:** White or pink, September.
**Fruit/seed:** Capsule (siliqua) 3–6 mm long, with numerous minute seeds, mature September.
**Dispersal, establishment & growth:** Diaspore: seed. Seedling: cotyledons petiolate, elliptical to roundish, c. 1 mm long (Häfliger 1988).
**Fire response:**

**Interaction with other organisms:**

**Distribution**

**Status/origin:** Naturalised exotic, native to S Europe.
**Botanical subregions:** CT ST CWS SWS; Vic., Tas., S.A.
**Distribution Sydney area:** Bathurst–Orange.
**Select locations:** Mt Tayar (1964), Kandos, Bathurst, Lucknow.

**Habitat**

**Altitude:** 700–100 m
**Annual rainfall:** above 600 mm

**Conservation**
**Erophila verna** subsp. **verna** *

**Whitlow Grass**

**BRASSICACEAE**

**Life history**

**Growth form:** Annual herb 3–20 cm high.

**Vegetative spread:** No.

**Longevity:** Annual.

**Primary juvenile period:**

**Flowers:** White or pink, August–October.

**Fruit/seed:** Capsule (silicula) 6–10 mm long, with numerous minute seeds, mature October.

**Dispersal, establishment & growth:** Diaspore: seed.

**Fire response:**

**Interaction with other organisms:**

**Status/origin:** Naturalised exotic, native to S Europe.

**Botanical subregions:** CC SC NT CT ST CWS SWS; Vic., Tas., S.A.

**Distribution Sydney area:** Bathurst–Oberon.

**Select locations:** Wolgan Valley (1953), Bathurst, Hampton.

Habitat:

**Habitat**

**Habitat:** Seepage areas.

**Altitude:** 600–1000 m

**Annual rainfall:** above 600 mm

**Typical local abundance:** Occasional.

**Vegetation:** Open-grassland. Ground stratum.

**Substrate:** Grey clay, fertile. Water table mostly high, moisture supply continuous, fresh.

**Exposure:**

**Conservation:**

**Hirschfeldia incana** *

**Hairy Brassica, Buchan Weed**

**BRASSICACEAE**

**Life history**

**Growth form:** Herb to 1 m high.

**Vegetative spread:** No.

**Longevity:** Less than 5 years.

**Primary juvenile period:**

**Flowers:** Yellow, often purple-veined, all year.

**Fruit/seed:** Capsule 8–15 mm long, opening when ripe, February–May, 3–9 cells per cell. Seed reddish brown 1 mm diam.

**Dispersal, establishment & growth:** Diaspore: seed, winter-spring growing.

**Fire response:**

**Interaction with other organisms:** Seed eaten by Crimson Rosella *Platycercus elegans* (Lepschi 1993).

**Distribution**

**Status/origin:** Naturalised exotic, native to Mediterraneaun.

**Botanical subregions:** CC SC NT CT ST NWS CWS SWS NWP SWP; S.A., Qld, Vic., Tas.

**Distribution Sydney area:** Western Sydney, Bathurst area.

**Select locations:** Mascot, Liverpool, Bents Basin, Camden, Campbelltown, Douglas Park, Picton, Bathurst (1903), Marrangaroo, Moss Vale.

**Habitat:**

**Habitat:** Disturbed sites, embankments, along roads, railways and riverbanks.

**Altitude:** 0–1000 m

**Annual rainfall:** 700–1200 mm

**Typical local abundance:** Occasional–rare.

**Vegetation:** Roadside herbaceous weeds, e.g. *Cirsium vulgare*, *Rumex*, *Senecio madagascariensis* also grassland.

**Substrate:** Sandy and stony soil, disturbed, infertile. Water table permanently low, intermittent, fresh.

**Exposure:**

**Conservation:** Weed of disturbed sites, not invasive of bushland.
**Irenepharsus trypherus**

**BRASSICACEAE**

**Life history**

**Growth form:** Herb to 1 m high, spreading to erect.

**Vegetative spread:** No.

**Longevity:** 1 year.

**Primary juvenile period:** Less than 1 year.

**Flowers:** White, February–April.

**Fruit/seed:** Capsule (silica) 5–20 mm long, mature February. Seeds sticky when wet.

**Dispersal, establishment & growth:** Diaspore: seed.

**Fire response:**

**Interaction with other organisms:**

**Status/origin:** Native.

**Botanical subregions:** CC SC.

**Distribution Sydney area:** Between Minnamurra Falls and Nowra area.

**Select locations:** Minnamurra Falls, Upper Kangaroo Valley, Barrengarry Creek.

**Habitat**

**Habitat:** Moist sheltered gullies. Moist rock walls of the gorge and gullies (Mills 1988).

**Altitude:** 0–600 m  
**Annual rainfall:** above 1200 mm

**Typical local abundance:** Rare to occasional.

**Vegetation:** Rainforest. Ground stratum.

**Substrate:** Rocky cliff face.

**Exposure:**

**Conservation**

**Conservation:** Endemic to Illawarra region, rare. Minnamurra Falls is northern limit, last collected 1959 (Mills 1988). Coded 2RC by Briggs & Leigh (1988).

---

**Lepidium africanum** *

**BRASSICACEAE**

**Life history**

**Growth form:** Herb to 70 cm high.

**Vegetative spread:** No.

**Longevity:** Annual or perennial.

**Primary juvenile period:**

**Flowers:** Petals less than 0.8 mm long.

**Fruit/seed:** Dehiscent (silica) 2–3 mm long, with small seeds, mature April–December.

**Dispersal, establishment & growth:** Diaspore: seed.

**Fire response:**

**Interaction with other organisms:**

**Status/origin:** Naturalised exotic, native to Africa.

**Botanical subregions:** NC CC SC NT CT ST NWS CWS SWS NSW SWP; Qld, Vic., Tas., N.T., S.A., W.A.

**Distribution Sydney area:** Widespread.

**Select locations:** Putty Road, Mt Colah, Cheltenham, Rockdale (1903), Mt Annan, Picton, Dupto, Albion Park, Orange, Hilltop.

**Habitat**

**Habitat:** Roadside, wasteland, regrowth woodland.

**Altitude:** 0–300 m  
**Annual rainfall:** above 800 mm

**Typical local abundance:** Frequent.

**Vegetation:** Roadside weeds, grassland, shrubland — *Olea europaea* subsp. *africana*. Ground stratum.

**Substrate:** Clay soils from Wianamatta Shale, also disturbed sandstone sites. Soil fertile-inferior. Recorded on saline sites in western NSW (Semple 1993).

**Exposure:**

**Conservation**

**Conservation:** Common weed, not invasive of bushland.
**Lepidium bonariense**

**BRASSICACEAE**

**Life history**

*Growth form:* Herb to 50 cm high.  
*Vegetative spread:* No.  
*Longevity:* 1–2 years.  
*Primary juvenile period:*  
*Flowers:* White, March–December.  
*Fruit/seed:* Capsule (silicula) 2–4 mm long, opening when ripe, at any time of year. Seeds 1.5 mm long.  
*Dispersal, establishment & growth:* Diaspore: seed.  
*Fire response:*  
*Interaction with other organisms:*  

**Distribution**

*Status/origin:* Naturalised exotic, native to S America.  
*Botanical subregions:* NC CC NT NWS CWS SWS NWP SWP NFWP; Qld, Vic., S.A., W.A.  
*Distribution Sydney area:* Widespread on coast and western Sydney.  
*Select locations:* Swansea (1938), Cowan, Belrose (P. Kodela pers. comm.), Roseville, Centennial Park, Bankstown, Richmond, Austral, Campbelltown, Wollongong, Albion Park.  

**Habitat**

*Habitat:* Roadside, wet places near creeks and salt water.  
*Altitude:* 0–100 m  
*Annual rainfall:* above 700 mm  
*Typical local abundance:* Frequent–occasional.  
*Vegetation:* With grass, roadside weeds, fresh wetland and estuarine, e.g. *Casuarina glauca.*  
*Ground stratum:*  
*Exposure:* Mid shade.  

**Conservation**

*Conservation:* A common weed, probably not invasive of bushland.

---

**Lepidium campestre**

**Field Cress**

**BRASSICACEAE**

**Life history**

*Growth form:* Herb to 60 cm high.  
*Vegetative spread:* No.  
*Longevity:* 1–2 years.  
*Primary juvenile period:*  
*Flowers:* White.  
*Fruit/seed:* Capsule (silicula) 5–6 mm long.  
*Dispersal, establishment & growth:* Diaspore: seed.  
*Fire response:*  
*Interaction with other organisms:*  

**Distribution**

*Status/origin:* Naturalised exotic, native to Europe.  
*Botanical subregions:* CC SC NT CT ST NWS, Vic., Tas.  
*Distribution Sydney area:*  
*Select locations:* Campbelltown (1903), Taralga (1914).  

**Habitat**

*Habitat:*  
*Altitude:* 0–900 m  
*Annual rainfall:* 700–800 mm  
*Typical local abundance:*  
*Vegetation:*  
*Substrate:*  
*Exposure:*  

**Conservation**

*Conservation:* Rare weed.
**Lepidium fasciculatum**

**Growth form:** Herb to 60 cm high.
**Vegetative spread:** No.
**Longevity:** 1 year.
**Primary juvenile period:**
**Flowers:** Petals very small or absent, August–December.
**Fruit/seed:** Capsule (silicula) 3–4 mm long, opening when ripe, August–December. Seed 1.25 mm long.
**Dispersal, establishment & growth:** Diaspore: seed. A cool season annual, abundant only in occasional years (Cunningham et al. 1981).
**Fire response:**
**Interaction with other organisms:**

**Status/origin:** Native.
**Botanical subregions:** CC NT WNS SWS SWS SWP NFWP SFWP; Qld, Vic., Tas., S.A., W.A.
**Distribution Sydney area:** Coast, scattered, probably introduced by stock.
**Select locations:** Wondabyne (1922), Flemington Saleyards.

**Habitat:** Saleyards?
**Altitude:** 0–100 m
**Annual rainfall:** above 800 mm
**Typical local abundance:** Rare.
**Vegetation:**
**Substrate:**
**Exposure:**

**Conservation:** An inland species; occurrences near Sydney would certainly be casual introductions along rail or road (L. Johnson pers. comm.).

**Lepidium hyssopifolium**

Pepper-cress

**Growth form:** Herb to 50 cm high.
**Vegetative spread:**
**Longevity:** Perennial.
**Primary juvenile period:**
**Flowers:** Petals very small or absent, February.
**Fruit/seed:** Capsule (silicula) 3–5 mm long, opening when ripe, February. Seed 1.5 mm long.
**Dispersal, establishment & growth:** Diaspore: seed.
**Fire response:**
**Interaction with other organisms:** Food plant of Black Swan Cygnus atratus (Barker & Vestjens 1989, 1990).

**Status/origin:** Native.
**Botanical subregions:** NT CT ?ST; Qld, Vic., Tas., S.A., N.Z.
**Distribution Sydney area:** Bathurst–Carcoar.
**Select locations:** Bathurst, Peelwood.

**Habitat:**
**Altitude:** 700 m
**Annual rainfall:** 600–700 mm
**Typical local abundance:**
**Vegetation:** Ground stratum.
**Substrate:**
**Exposure:**

**Conservation:** Rare, coded 3ECa+ by Briggs & Leigh (1988), but not conserved in Sydney area.
**Lepidium peregrinum**  
**BRASSICACEAE**

<table>
<thead>
<tr>
<th>Life history</th>
<th>Growth form: Herb to 40 cm high.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vegetative spread:</td>
<td>No.</td>
</tr>
<tr>
<td>Longevity:</td>
<td>1 year.</td>
</tr>
<tr>
<td>Primary juvenile period:</td>
<td>Less than 5 years.</td>
</tr>
<tr>
<td>Flowers:</td>
<td>Yellow.</td>
</tr>
<tr>
<td>Fruit/seed:</td>
<td>Capsule (silicula) 2.7 mm long.</td>
</tr>
<tr>
<td>Dispersal, establishment &amp; growth:</td>
<td>Diaspore: seed.</td>
</tr>
<tr>
<td>Fire response:</td>
<td></td>
</tr>
<tr>
<td>Interaction with other organisms:</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Distribution</th>
<th>Status/origin: Native.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Botanical subregions:</td>
<td>NT CT.</td>
</tr>
<tr>
<td>Distribution Sydney area:</td>
<td>Blue Mountains.</td>
</tr>
<tr>
<td>Select locations:</td>
<td>No locations known.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Habitat</th>
<th>Altitude: 0-100 m</th>
</tr>
</thead>
<tbody>
<tr>
<td>Annual rainfall:</td>
<td>750 mm</td>
</tr>
<tr>
<td>Typical local abundance:</td>
<td></td>
</tr>
<tr>
<td>Vegetation:</td>
<td></td>
</tr>
<tr>
<td>Substrate:</td>
<td></td>
</tr>
<tr>
<td>Exposure:</td>
<td></td>
</tr>
</tbody>
</table>

| Conservation | Conservation: Regarded as extinct, probably due to heavy grazing, and coded 3X by Briggs & Leigh (1988). |

**Lepidium perfoliatum**  
**BRASSICACEAE**

<table>
<thead>
<tr>
<th>Life history</th>
<th>Growth form: Herb 20–40 cm high.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vegetative spread:</td>
<td>No.</td>
</tr>
<tr>
<td>Longevity:</td>
<td>Less than 5 years.</td>
</tr>
<tr>
<td>Primary juvenile period:</td>
<td></td>
</tr>
<tr>
<td>Flowers:</td>
<td></td>
</tr>
<tr>
<td>Fruit/seed:</td>
<td>Capsule (silicula) 3–4 mm long.</td>
</tr>
<tr>
<td>Dispersal, establishment &amp; growth:</td>
<td></td>
</tr>
<tr>
<td>Fire response:</td>
<td></td>
</tr>
<tr>
<td>Interaction with other organisms:</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Distribution</th>
<th>Status/origin: Exotic, native to Europe.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Botanical subregions:</td>
<td>CT ST; Qld, S.A.</td>
</tr>
<tr>
<td>Distribution Sydney area:</td>
<td>Campbelltown.</td>
</tr>
<tr>
<td>Select locations:</td>
<td>Campbelltown district (1903) only record for Sydney area.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Habitat</th>
<th>Altitude:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Annual rainfall:</td>
<td>750 mm</td>
</tr>
<tr>
<td>Typical local abundance:</td>
<td></td>
</tr>
<tr>
<td>Vegetation:</td>
<td></td>
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<tr>
<td>Substrate:</td>
<td></td>
</tr>
<tr>
<td>Exposure:</td>
<td></td>
</tr>
</tbody>
</table>

| Conservation | Conservation: Not naturalised in the Sydney area. |
**Lepidium pseudohyssopifolium**

**Peppergrass**

**BRASSICACEAE**

**Life history**

**Growth form:** Herb to 60 cm high.
**Vegetative spread:**
**Longevity:** Annual or perennial.
**Primary juvenile period:**
**Flowers:** Petals very small or absent.
**Fruit/seed:** Capsule (silicula) 3 mm long, mature, February and July.
**Dispersal, establishment & growth:** Diaspore: seed.
**Fire response:**
**Interaction with other organisms:**

**Distribution**

**Status/origin:** Native.
**Botanical subregions:** NC CC SC ST CWS SWS NWP SWP NFWP SWFWP; Qld, Vic., Tas., S.A., W.A., N.Z.
**Distribution Sydney area:** Illawarra coast.
**Select locations:** Five Islands, Shellharbour, Kiama.

**Habitat**

**Habitat:**
**Altitude:** 0–100 m
**Annual rainfall:** above 1200 mm
**Typical local abundance:** Frequent.
**Vegetation:** Ground stratum.
**Substrate:**
**Exposure:**

**Conservation**

**Conservation:** Rare, last specimen collected Shellharbour (1949), conservation status not known.

---

**Lepidium pseudotasmanicum**

**BRASSICACEAE**

**Life history**

**Growth form:** Herb 20–40 cm high.
**Vegetative spread:** No.
**Longevity:** 1–2 years.
**Primary juvenile period:**
**Flowers:**
**Fruit/seed:** Dehiscent (silicula) 3 mm long, mature, January.
**Dispersal, establishment & growth:** Diaspore: seed.
**Fire response:**
**Interaction with other organisms:**

**Distribution**

**Status/origin:** Native.
**Botanical subregions:** CC SC; Qld, Vic., Tas., W.A., N.Z.
**Distribution Sydney area:** Coast.
**Select locations:** Como, Emu Plains, Otford.

**Habitat**

**Habitat:**
**Altitude:** 0–100 m
**Annual rainfall:** above 700 mm
**Typical local abundance:**
**Vegetation:**
**Substrate:**
**Exposure:**

**Conservation**

**Conservation:** Rare, last recorded Emu Plains (1915), conservation status not known.
**Lobularia maritima** *BRASSICACEAE*

Sweet Alyssum

**Life history**

**Growth form:** Herb 5–40 cm high.

**Vegetative spread:**

**Longevity:** Perennial.

**Primary juvenile period:**

**Flowers:** White, pink or purple, at any time of year.

**Fruit/seed:** Capsule (silicula) 2–3 mm wide, 1-seeded, mature March–June.

**Dispersal, establishment & growth:**

**Fire response:** Probably killed, flowering within 23 weeks of high-intensity fire 1/1994 at Lane Cove (P. Kubiak pers. comm.).

**Interaction with other organisms:**

**Distribution**

**Status/origin:** Naturalised exotic, native to Mediterranean. Introduced as garden plant.

**Botanical subregions:** CC SC CT; Qld, Vic., S.A., W.A.

**Distribution Sydney area:** Mainly coastal.

**Select locations:** Paddington, Tamarama, Ashfield (1887), Little Bay, Wollongong, Albion Park, Kiama, Minnamurra River, Leura.

**Habitat**

**Habitat:** Grassy area generally near sea. Found on old homestead site at Leura after fire.

**Altitude:** 0–1000 m

**Annual rainfall:** above 1000 mm

**Typical local abundance:** Frequent.

**Vegetation:** Grassy areas. Ground stratum.

**Substrate:** Beach, roadsides, remnant gardens, sandy soils.

**Exposure:**

**Conservation:** Garden escape, not invasive of bushland.

---

**Lunaria annua** *BRASSICACEAE*

Honesty

**Life history**

**Growth form:** Herb 50–100 cm high.

**Vegetative spread:** No.

**Longevity:** 2 years.

**Primary juvenile period:**

**Flowers:** Bluish purple, September.

**Fruit/seed:** Capsule (silicula) circular, 30–40 mm long, with seeds 7 mm diam.

**Dispersal, establishment & growth:** Diaspore: seed.

**Fire response:**

**Interaction with other organisms:**

**Distribution**

**Status/origin:** Exotic, native to Europe. Introduced as ornamental, rarely naturalised.

**Botanical subregions:** NT CT ST SWS; Vic.

**Distribution Sydney area:** Oberon.

**Select locations:** Oberon (1936).

**Habitat**

**Habitat:**

**Altitude:** 1100 m

**Annual rainfall:** 850 mm

**Typical local abundance:**

**Vegetation:** Ground stratum.

**Substrate:**

**Exposure:**

**Conservation:** Widely cultivated as an ornamental, especially for dried arrangements of the silvery septa of the fruit, very rarely naturalised.
**Raphanus raphanistrum** *

Wild Radish, Jointed Charlock

**BRASSICACEAE**

**Growth form:** Slender herb 15–50 cm high, much branched, with long rosette leaves, taproot wiry to stout but not fleshy.

**Vegetative spread:** No.

**Longevity:** Generally 1 year.

**Primary juvenile period:** 3–6 months.

**Flowers:** White or yellow, at any time. Insect-pollinated, syrphids and white butterflies showed strong preference for yellow flowers (Armstrong et al. 1982).

**Fruit/seed:** Indehiscent pod (silicia) 1–5 cm long, breaking into one-seeded capsules during harvest, mature October–November. Seeds ovoid 1.5–4 mm long. Can produce up to 17 000 seeds per square metre (Dellow 1987).

**Dispersal, establishment & growth:** Diaspore: 1-seeded capsule. Dispersed by wind, water, animals and humans in mud, but principally through agriculture (Parsons & Cuthbertson 1992), mixed with cereal grain (Dellow 1987). Germination of above 1000 seeds per square metre recorded, throughout year, over a wide range of temperatures but germinates best with widely fluctuating temperatures (Dellow 1987). Emergence is greatly increased by cultivation, the buried seed stimulated by darkness and higher moisture. Soil-stored seedbank, 20–40% of seeds produced in any one year remain viable in the soil after 12 months (Dellow 1987), buried seed remains viable longer, some remain viable for up to 20 years (Parsons & Cuthbertson 1992). Generally a winter and spring-growing annual but with suitable conditions can grow and mature throughout the year (Dellow 1987).

**Fire response:**

**Interaction with other organisms:** Host to thrips, flea beetles, and other plant pests and diseases; can cause death of cattle and lambs (Parsons & Cuthbertson 1992).

**Distribution**

**Status/origin:** Naturalised exotic, native to Europe. Reported naturalised in Sydney by 1867 (Parsons & Cuthbertson 1992).

**Botanical subregions:** NC CC NT CT ST NWS CWS SWS NWP SWP NFWP SFWP; Qld, Vic., Tas., N.T., S.A., W.A.

**Distribution Sydney area:** Widespread.

**Select locations:** Wondabyne, Terrey Hills, Royal Botanic Gardens (1902), Glenfield, Elderslie, Campbelltown, Shellharbour, Robertson (P. Kodela pers. comm.).

**Habitat**

**Habitat:** Margins of cultivated areas, roadsides, winter cereal crops; pastures (P. Kodela pers. comm.).

**Altitude:** 0–800 m  **Annual rainfall:** above 700 mm

**Typical local abundance:** Frequent.

**Vegetation:** Weeds of waste areas. Ground stratum.

**Substrate:** Sandy–clay soils, basalt (P. Kodela pers. comm.). Principally on highly fertile, acid, nitrogenous soils (Parsons & Cuthbertson 1992).

**Exposure:** Full sun.

**Conservation:** Major weed of winter cereal crops reducing crop yields, probably not invasive of bushland.

---

**Raphanus sativus** *

Radish

**BRASSICACEAE**

**Life history**

**Growth form:** Herb 20–100 cm high, with fleshy edible taproot.

**Vegetative spread:** No.

**Longevity:** 1–2 years.

**Primary juvenile period:** Less than 1 year.

**Flowers:** White–purple, October–November.

**Fruit/seed:** Capsule (silicia) 2–6 cm long, not breaking into 1-seeded units at maturity like *R. raphanistrum*, mature October–November.
Dispersal, establishment & growth: Diaspore: seed, dispersed by humans; germinates readily in cultivation, within 7 days.
Fire response:
Interaction with other organisms:  

**Distribution**

Status/origin: Exotic, native to Europe. Introduced as crop plant and cultivated for its edible taproot, doubtfully naturalised.
Botanical subregions: CC CWS; Qld, Vic., Tas., S.A.
Distribution Sydney area: Select locations: Cheltenham, Dundas, North Sydney (1916), Richmond (1916).

**Habitat**

Habitat: Self-sown in garden.
Altitude: 0–100 m  
Annual rainfall: above 700 mm
Typical local abundance: Rare.
Vegetation: Ground stratum.
Substrate: Garden soil.
Exposure:  
Conservation: Self-sown in gardens and wasteland, unlikely to persist.

**Rapistrum rugosum** *  
Turnip Weed, Giant Mustard

BRASSICACEAE

Life history

Growth form: Herb 15–60 cm high.
Vegetative spread: No.
Longevity: 1–2 years.
Primary juvenile period:  
Flowers: Yellow, dark-veined, April–November.
Fruit/seed: Capsule (silicula) 5–10 mm long, breaking into upper segment 3–6 mm long with 1 large seed, and lower segment 3 mm long with 0–2 small seeds, mature November.
Dispersal, establishment & growth: Diaspore: seed.
Fire response:
Interaction with other organisms:  

**Distribution**

Status/origin: Naturalised exotic, native to Europe.
Botanical subregions: NC CC NT CT NWS CWS SWS NWP SWP NFWP SFWP; Qld, Vic., Tas.
Distribution Sydney area: Western Sydney.
Select locations: Liverpool (1964), Glenfield, Menangle, Razorback, Meadow Flat Creek.

**Habitat**

Habitat: Roadside and earthworks.
Altitude: 0–800 m  
Annual rainfall: 600–900 mm
Typical local abundance: Frequent.
Vegetation: With other wasteland weeds. Ground stratum.
Substrate: Clay soils from Wianamatta Shale, fertile. Watertable permanently low, moisture supply intermittent, fresh.
Exposure:  
Conservation:  

**Rorippa dictyosperma**

BRASSICACEAE

Life history

Growth form: Herb 30–90 cm high.
Vegetative spread: Probably not.
Longevity: Perennial.
Primary juvenile period:
Flowers: White.
Fruit/seed: Capsule (siliqua) 25–60 mm long, mature January–February. Seeds not mucilaginous when wet.
Dispersal, establishment & growth:
Fire response:
Interaction with other organisms:

Distribution

Status/origin: Native.
Botanical subregions: NC CT ST; Qld, Vic., Tas., W.A.
Distribution Sydney area: Upper Blue Mountains.
Select locations: Mt Wilson, Jenolan Caves (1900), Barbers Creek.

Habitat

Habitat: Edge of track.
Altitude: 800–1000 m
Annual rainfall: above 1000 mm
Typical local abundance: Rare.
Vegetation: Rainforest. Ground stratum.
Substrate: Probably basalt soil, fertile. Fertile soil, but not always basalt (L. Johnson pers. comm.). Watertable mostly high, moisture supply intermittent, fresh.
Exposure:

Conservation: Conservation status unknown.

Rorippa gigantea

BRASSICACEAE

Life history

Growth form: Decumbent to erect herb to 120 cm high with sessile leaves.
Vegetative spread: No.
Longevity: 1 year.
Primary juvenile period: Less than 1 year.
Flowers: White, September-January.
Fruit/seed: Capsule (siliqua) 15–40 mm long, mature December–February. Seeds sticky.
Dispersal, establishment & growth: Diaspore seed, probably animal/bird-dispersed. Seedling recruitment after disturbance, possibly fire related.
Fire response: Probably killed.
Interaction with other organisms:

Distribution

Status/origin: Native.
Botanical subregions: NC CC SC NT CT ST; Qld, Vic., Tas., N.Z.
Distribution Sydney area: Widespread but localised.
Select locations: Culoul Range, Blacksmiths Creek, Mt Warrawulong, Patonga, Waterfall, Cataract Creek, Cambewarra, Blackheath, Bundanoon.

Habitat

Habitat: Edge of creeks, tracks, hillsides, disturbed sites.
Altitude: 0–700 m
Annual rainfall: above 1000 mm
Typical local abundance: Frequent.
Vegetation: Edge of rainforest, e.g. found with Solanum spp. Ground stratum.
Substrate: Moist sandy alluvial soils, possibly with clay influence, fertile. Not on the usual highly infertile sandstone soils (L. Johnson pers. comm.).
Exposure: Sheltered situations, light shade–full sun.

Conservation: Conservation status unknown.
**Rorippa laciniata**

**BRASSICACEAE**

**Life history**

**Growth form:** Herb to 40 cm high.
**Vegetative spread:** Probably not.
**Longevity:** Perennial.
**Primary juvenile period:**
**Flowers:** White, August–March.
**Fruit/seed:** Capsule (siliqua) 15–40 mm long, opening when ripe, October–April. Seeds brown.
**Dispersal, establishment & growth:** Diaspore: seed.
**Fire response:**
**Interaction with other organisms:**

**Distribution**

**Status/origin:** Native.
**Botanical subregions:** NC CC SC NT ST NWS CWS SWP; Qld, Vic., S.A.
**Distribution Sydney area:** Sydney and South Coast.
**Select locations:** Cowan, Cheltenham, Cooks River, Austral, Mt Kembla, Whispering Gallery (Albion Park), Minnamurra Falls, Cambewarra.

**Habitat**

**Habitat:** Rocky creeks.
**Altitude:** 0–500 m  **Annual rainfall:** above 800 mm
**Typical local abundance:** Rare.
**Vegetation:** Light break in rainforest, open-forest. Ground stratum.
**Substrate:** Sandstone, shale derived soil, fertile–infertile. Watertable mostly high, moisture supply intermittent, fresh.
**Exposure:** Sheltered situations; light shade.

**Conservation:** Rare, probably not well conserved. Vulnerable in Western Sydney (Benson & McDougall 1991).

**Rorippa microphylla** *

**BRASSICACEAE**

**Life history**

**Growth form:** Decumbent aquatic or semi-aquatic, stems to 40 cm long.
**Vegetative spread:** Stoloniferous.
**Longevity:** Perennial.
**Primary juvenile period:**
**Flowers:** White, November–January.
**Fruit/seed:** Capsule (siliqua) 15–30 mm long.
**Dispersal, establishment & growth:**
**Fire response:**
**Interaction with other organisms:**

**Distribution**

**Status/origin:** Naturalised exotic, native to Europe, W Asia.
**Botanical subregions:** CC NT CT ST; Vic., Tas., S.A.
**Distribution Sydney area:** Sporadic.
**Select locations:** Kiama (1955), Oberon (1955), Taraigta, Berrima.

**Habitat**

**Habitat:** Creekbed.
**Altitude:** 500–1000 m **Annual rainfall:** above 800 mm
**Typical local abundance:** Occasional–rare.
**Vegetation:**
**Substrate:** Mud or shallow water. Watertable permanently high, moisture supply continuous, fresh.
**Exposure:**

**Conservation:**
**Rorippa nasturtium-aquaticum** *

**Watercress**

**BRASSICACEAE**

**Life history**

**Growth form:** Decumbent aquatic or semi-aquatic herb, stems hollow, to 60 cm long.

**Vegetative spread:** Stoloniferous, stems root at nodes and spread.

**Longevity:** Perennial.

**Primary juvenile period:**

**Flowers:** White, November.

**Fruit/seed:** Capsule (siliqua) 10–18 mm long, mature November–February.

**Dispersal, establishment & growth:**

**Fire response:**

**Interaction with other organisms:** Eaten by humans but may contain toxins if growing on edges of polluted waterways (e.g. pesticides and fertilisers) (P. Kodela pers. comm.).

**Distribution**

**Status/origin:** Naturalised exotic, native to W Asia, Europe, N Africa. Cultivated for edible leaves.

**Botanical subregions:** NC CC NT CT ST NWS CWS; Qld, Vic., Tas., N.T., S.A., W.A.

**Distribution Sydney area:** Sydney suburban areas and Western Blue Mountains. Southern Highlands (P. Kodela pers. comm.).

**Select locations:** Cheltenham, Bondi, Kogarah, Menangle Park, Glenquarry, Wombeyan Caves, Abercrombie Caves, Tuena Creek (1918).

**Habitat**

**Habitat:** Creek banks and in slow-moving water.

**Altitude:** 0–800 m  
**Annual rainfall:** above 700 mm

**Typical local abundance:** Frequent–occasional.

**Vegetation:** Wetland vegetation.

**Substrate:** Sandy alluvium, infertile. Watertable permanently high, moisture supply continuous, fresh. Margins of Wingecarribee swamp in fertile conditions (P. Kodela pers. comm.). Recorded on saline sites in western NSW (Semple 1993).

**Exposure:** Sheltered situations.

**Conservation:** Weed in some urban bushland creeks.

---

**Rorippa palustris** *

**Yellow Cress, Marsh Watercress**

**BRASSICACEAE**

**Life history**

**Growth form:** Herb 20–100 cm high.

**Vegetative spread:** Sometimes stoloniferous.

**Longevity:** 1–2 years.

**Primary juvenile period:**

**Flowers:** Yellow, December–January.

**Fruit/seed:** Capsule (siliqua) 5–9 mm long, mature December–March, peak December.

**Dispersal, establishment & growth:**

**Fire response:**

**Interaction with other organisms:**

**Distribution**

**Status/origin:** Naturalised exotic, native to Europe.

**Botanical subregions:** NC CC SC CT ST NWS SWS NWP SWP NFWP SFWP; Qld, Vic., Tas., N.T., S.A., W.A.

**Distribution Sydney area:** Widespread.

**Select locations:** Broadwater Swamp, Windsor, Shane Park, Nepean River (Menangle), Jenolan Caves (1899), Kowmung River, Macquarie River, Fitzroy Falls Reservoir (P. Kodela pers. comm.).

**Habitat**

**Habitat:** River banks and in water.

**Altitude:** 0–1000 m  
**Annual rainfall:** above 600 mm

**Typical local abundance:** Frequent–occasional.

**Vegetation:** Wetland and creekbank vegetation, e.g. with Persicaria, Ranunculus, Juncus, Lythrum.
**Substrate:** Water or wet sand, fertile-inertile. Water table permanently high, moisture supply continuous, fresh.

**Exposure:** Sheltered situations.

---

**Conservation:**

---

**Sinapis alba**

**BRASSICACEAE**

**White Mustard**

**Life history**

**Growth form:** Herb, stems 30–80 cm high.

**Vegetative spread:** No.

**Longevity:** 1 year.

**Primary juvenile period:** Less than 1 year.

**Flowers:** Yellow, February.

**Fruit/seed:** Capsule (silique) 20–40 mm long, mature February. Seeds spherical, 1.7–2.3 mm diam., 1–4 per cell, pungent-tasting.

**Dispersal, establishment & growth:**

**Fire response:** Interaction with other organisms:

**Status/origin:** Naturalised exotic, native to Mediterranean and W Asia. Introduced to Australia as a cultivated crop for its pungent-tasting seeds.

**Botanical subregions:** CC ST CWS SWP; Qld, Tas.

**Distribution Sydney area:** Razorback.

**Select locations:** Razorback (1968).

**Habitat:** Roadmaking earthworks.

**Altitude:** 300 m

**Annual rainfall:** 700 mm

**Typical local abundance:** Rare.

**Vegetation:**

**Substrate:** Roadmaking earthworks, clay soil, fertile.

**Exposure:**

**Conservation:** Rare weed of cultivation.

---

**Sinapis arvensis**

**BRASSICACEAE**

**Charlock**

**Life history**

**Growth form:** Herb 30–80 cm high, stems often purplish.

**Vegetative spread:** No.

**Longevity:** Annual.

**Primary juvenile period:**

**Flowers:** Yellow, September.

**Fruit/seed:** Capsule (silique) 20–60 mm long, opening when ripe. Seeds globular, 1–2 mm diam., 6–12 per cell.

**Dispersal, establishment & growth:** Diaspore: seed.

**Fire response:** Interaction with other organisms:

**Status/origin:** Naturalised exotic, native to Europe, Asia and N Africa.

**Botanical subregions:** NC CC NWS CWS SWS NWP SWP SFWP; Qld, Vic., Tas., S.A., W.A.

**Distribution Sydney area:** Glenfield.

**Select locations:** Glenfield (1954) only record.

**Habitat:** Isolated patch in oat crop.

**Altitude:** 30 m

**Annual rainfall:** 800 mm
Typical local abundance: Rare.
Vegetation: Patch in oat crop.
Substrate: Probably clay soils, fertile.
Exposure: No shade.

Conservation: Occurs in more inland regions, accidental introductions near Sydney.

Sisymbrium irio
London Rocket

Growth form: Herb 25–60 cm high.
Vegetative spread: No.
Longevity: 1–2 years.
Primary juvenile period:
Flowers: Yellow–pale yellow, August–September.
Fruit/seed: Capsule (siliqua) 2.5–6.5 cm long, opening when ripe. Seeds ovoid, 1 mm diam., about 40 per cell.
Dispersal, establishment & growth: Diaspore: seed, winter–spring-growing.
Fire response:
Interaction with other organisms:

Status/origin: Native NSW species, possibly introduced from western NSW by stock, first recorded 1963.
Botanical subregions: NC CC NWS CWS SWS NWP SWP NFWP SFWP; all mainland States, Europe.
Distribution Sydney area: Flemington Saleyards, sporadic.
Select locations: Narara Creek, Glenfield (1963), Narellan.

Habitat: Rubbish tip, saleyards, very disturbed sites.
Altitude: 0–200 m
Annual rainfall: above 700 mm

Conservation: Occasionally apparently naturalised in very disturbed places.

Sisymbrium officinale *
Hedge Mustard

Growth form: Herb to 90 cm high.
Vegetative spread: No.
Longevity: Less than 5 years.
Primary juvenile period:
Flowers: Yellow–pale yellow, October–November.
Fruit/seed: Capsule (siliqua) 1–2 cm long, opening when ripe, mature December. Seeds ellipsoid–ovoid, 1.5 mm long.
Dispersal, establishment & growth: Diaspore: seed, autumn–winter-growing weed.
Fire response:
Interaction with other organisms:

Status/origin: Naturalised exotic, native to Europe.
Botanical subregions: NC CC SC NT CT ST NWS CWS NWP SWP; Qld, Vic.,
Tas., S.A., W.A.
Distribution Sydney area:
Select locations: Epping, Flemington, Campbelltown, Picton, Jenolan Caves (1899), Mt Cameron, Orange, East Kangaloon (P. Kedela pers. comm.).

**Habitat**
Various — disturbed sites, rubbish tips, pastures, moist forest.

Altitude: 0–1000 m  
Annual rainfall: above 700 mm

Typical local abundance: Frequent.

Vegetation: Moist eucalypt forest, e.g. Eucalyptus miniata—E. radiata. Ground stratum.

Substrate: Basalt, shale soils, fertile.

Exposure:

**Conservation**
Widespread occasional weed; not in bushland except where severely disturbed (L. Johnson pers. comm.).

*Sisymbrium orientale* *

Indian Hedge Mustard

**BRASSICACEAE**

**Life history**

Growth form: Herb 25–90 cm high.

Vegetative spread: No.

Longevity: 1–2 years.

Primary juvenile period:

Flowers: Yellow—pale yellow at any time, peak October.

Fruit/seed: Capsule (silique) 4–10 cm long, opening when ripe, mature January. Seed ovoid, 1 mm long, about 60 per cell.

Dispersal, establishment & growth: Diaspore: seed; an autumn—spring weed, prevalent in years of high winter—spring rainfall (Cunningham et al. 1981).

Fire response:

Interaction with other organisms:

Status/origin: Naturalised exotic, native to W Asia, Mediterranean.

Botanical subregions: NC CC SC CT ST NWS CWS SWS NWP SWP NF WP SF WP; Qld, Vic., Tas., N.T., S.A., W.A.

Distribution Sydney area: Western Sydney, Bathurst. Southern Highlands (P. Kedela pers. comm.).

Select locations: Wondabyne, Royal Botanic Gardens (1902), Flemington Saleyards, Glenfield, Camden, Picton, Shellharbour, Bathurst, Meadow Flat, Moss Vale.

**Habitat**
Stock pens, roadside, rubbish tip.

Altitude: 0–800 m  
Annual rainfall: above 600 mm

Typical local abundance: Occasional.

Vegetation: Ground stratum, e.g. with pasture grasses and other herbs.

Substrate: Disturbed sites. Fertile soil.

Exposure:

**Conservation**
Weed of disturbed soil, not invasive of bushland.

*Turritis glabra* *

Tower Mustard

**BRASSICACEAE**

**Life history**

Growth form: Biennial herb 60–120 cm high.

Vegetative spread:

Longevity: 2 years.

Primary juvenile period:

Flowers: Pale yellow, October.

Fruit/seed: Capsule (silique) 3–7 cm long.

Dispersal, establishment & growth: Diaspore: seeds.
Fire response:
Interaction with other organisms:

**Distribution**

**Status/origin:** Naturalised exotic, native to Europe.
**Botanical subregions:** NT CT ST; Vic.
**Distribution Sydney area:** Jenolan Caves.
**Select locations:** Jenolan Caves (1899), only record for Sydney area.

**Habitat**

**Habitat:**
**Altitude:** 1000 m
**Annual rainfall:** 900 mm
**Typical local abundance:**
**Vegetation:** Ground stratum.
**Substrate:**
**Exposure:**

**Conservation:** Rarely naturalised.

---

**Buddleja davidii** *

**BUDDLEJACEAE**

Butterfly Bush

**Life history**

**Growth form:** Shrub 1.5–3 m high.
**Vegetative spread:** No.
**Longevity:** 10–20 years.
**Primary juvenile period:** 2 years.
**Flowers:** White to lilac-purple, May–October, probably butterfly-pollinated.
**Fruit/seed:** Brownish capsule 5–10 mm long, 2-valved with many seeds.
**Dispersal, establishment & growth:** Diaspore: seed, wind-dispersed locally, establishes in moist rocky crevices. Possibly also water-dispersed (Carr et al. 1992).
**Fire response:** Possibly killed after high-intensity fire (P. Kubiak pers. comm.).

**Interaction with other organisms:**

**Distribution**

**Status/origin:** Exotic, native to China and Japan, introduced as ornamental. Widely cultivated, persists in old gardens, naturalised in Blue Mountains.
**Botanical subregions:** NT CT ST.
**Distribution Sydney area:** Upper Blue Mountains.
**Select locations:** Lithgow (1979), also Katoomba, Leura (1993).

**Habitat**

**Habitat:** Naturalised on cliffs, railway cuttings, disturbed sites.
**Altitude:** 0–1000 m
**Annual rainfall:** above 1200 mm
**Typical local abundance:** Frequent.
**Vegetation:** Eucalypt open-forest, e.g. *Eucalyptus radiata*, *E. cypellocarpa*.
**Substrate:** Cliffs and cuttings, sandstone, infertile soil. Watertable mostly high, moisture supply intermittent, fresh.
**Exposure:** Full sun–mid shade.

**Conservation:** Naturalised in upper Blue Mountains, possibly increasing in abundance; potential problem in urban bushland and bushland margins.

---

**Buddleja madagascariensis** *(Nicodemus madagascariensis)*

**BUDDLEJACEAE**

Butterfly Bush

**Life history**

**Growth form:** Straggly shrub 1.5–4 m high.
**Vegetative spread:** Vegetative (anon 1991).
**Longevity:**
**Primary juvenile period:**
**Flowers:** Orange, May–October.
**Fruit/seed**: Globose berry, 5 mm long, blue-violet, with many seeds.

**Dispersal, establishment & growth**: Diaspore: berry, dispersal of fruit not known. Vegetative fragments dispersed in garden refuse or dispersed by gravity or water (Anon 1991).

**Fire response**: Resprouted from base after high-intensity fire 1/1994 at Narrabeen (P. Kubiak pers. comm.).

**Interaction with other organisms**:

<table>
<thead>
<tr>
<th>Distribution</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Status/origin</strong>: Naturalised exotic, native to Madagascar. Introduced as an ornamental, widely cultivated, persisting in old gardens, more or less naturalised in a few disturbed areas.</td>
</tr>
<tr>
<td><strong>Botanical subregions</strong>: NC CC SC.</td>
</tr>
<tr>
<td><strong>Distribution Sydney area</strong>: Sydney suburbs.</td>
</tr>
<tr>
<td><strong>Select locations</strong>: Wisemans Ferry, Cheltenham, Narrabeen, Ermington, Nowra (1920).</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Habitat</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Habitat</strong>: Disturbed sites in moist forest, urban bush.</td>
</tr>
<tr>
<td><strong>Altitude</strong>: 0–200 m</td>
</tr>
<tr>
<td><strong>Annual rainfall</strong>: above 750 mm</td>
</tr>
<tr>
<td><strong>Typical local abundance</strong>: Occasional.</td>
</tr>
</tbody>
</table>

**Vegetation**: Moist eucalypt forest, e.g. with Syncarpia glomulifera, Angophora costata, Eucalyptus pilularis.

**Substrate**: Shale, laterite soils, fertile, watertable mostly high.

**Exposure**: Full sun.

<table>
<thead>
<tr>
<th>Conservation</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Conservation</strong>: Minor weed.</td>
</tr>
</tbody>
</table>
Index to Ecology of Sydney plant species 2

Scientific names are in bold type, synonyms or misapplied names are in italics and family names are in upper case. Common names are in roman type.

**A**
- *Acanthospermum australe* *800*
- *Achillea distans*
  - subsp. tanacetifolia *800*
  - millefolium *801*
- *Actinotus megalocarpa* *801*
- *Adenostemma lavenia var. lavenia* *802*
- *Ageratina adenophora* *802*
- *Ageratum riparia* *803*
- *Ageratum houstonianum* *804*
- *Ambrosia artemisiifolia* *804*
  - confertifolia *806*
  - psilostachya *805*
  - tenuifolia *806*
- *Ammobium alatum* *806*
- *Amsinckia calycina* *956*
  - hispida *956*
  - intermedia *957*
- *Anchusa arvensis* *957*
- *Anacolopora cordifolia* *949*
- *Anthemis arvensis* *807*
  - cotula *807*
- *Arctium lappa* *806*
  - minus* *808*
- *Arctotheca calendula* *809*
  - nivosa *809*
  - populifolia *809*
- *Arctotis australiensis* *860*
  - stoechadifolia* *810*
  - White *810*
- *Arrhenatherum mixtum* *811*
- *Artemisia verlotiorum* *811*
  - Artichoke
    - Globe *861*
    - Jerusalem *876*
  - *Aster novi-belgii* *812*
  - subulatus* *812*
  - *Asteraceae* 800–947
  - *Austrocynoglossum latifolium* *958*
  - *Avicennia marina subsp. australasica* *948*
  - *Avicenniaceae* *948*
- **B**
  - *Baccharis halimifolia* *813*
  - *Balsam* *949*
  - *Balsaminaceae* *949*
  - *Barbarea verna* *967*
  - *Basellaceae* *949*
  - *Bauera capitata* *950*
    - microphylla *951*
  - *Rubioides* *951*
  - *Baueraeaceae* 950–951
  - *Boars-eat* *860*
  - *Baccharis* *846*
  - *Beauty-heads* *827*
  - *Berberidaceae* 952–953
  - *Berberis aristata* *952*
  - *darwinii* *952*
  - *Bidens pilosa* *813*
  - subalternans* *814*
  - tripartita* *814*
  - *Bignoniaceae* 953–956
  - *Bindyi* *931*
  - *Bitou Bush* *846*
  - *Bittercress* *Common* *973*
    - *Wood* *972*
  - *Bogan Flea* *829*
  - *Borong* *959*
  - *Boraginae* 956–967
  - *Borago officinalis* *959*
Bottle-daisy
   Blue 885

Brachycome
   aculeata 815
   angustifolia
      var. angustifolia 816
      var. heterophylla 816
   decipiens 817
   diversifolia
      var. dissecta 817
      var. diversifolia 818
   formosa 818
   graminea 819
   heterodonta var. heterodonta 819
   microcarpa 820
   multifida
      var. dilatata 820
      var. multifida 821
   procumbens 821
   pycnocytopha 822
   rigidula 822
   scabiosaformis 823
   scapigeria 823
   spathulata 823
   stuartii 824

Bracteantha
   bracteata 824
   viscosa 825

Brassica
   furticulosa * 968
   juncea * 968
   rapa subsp. silvestris * 969
   turnefortii * 969

BRASSICACEAE 968-994

Buchan Weed 979

Buddleja
   davidii * 994
   madagascariensis * 994

BUDDLEJACEAE 994-995

Bugloss
   Viper’s 962
   Wild 957

Buglossoides
   arvensis * 959

Burdock
   Common 808
   Greater 808

Burr
   Bathurst 947
   Cockle 946
   Noogoora 946
   South American 946
   White Daisy 828

Burrdaisy
   Purple 828
   Rough 831
   Tufted 831
   Yellow 830

Burweed
   Lawn 931
   Bushy Starwort 812
   Busy Lizzie 949
   Butterfly Bush 994
   Button Weed 930
   Buttons
      Scaly 888
      Water 856
      Yellow 848

C

Cakile
   edentula * 970
   maritima * 970

Calendula
   arvensis* 825
   officinalis * 826
   palaeastina * 826

Calochelum
   citreus 827

Calomeria
   amaranthoides 827

Calotis
   cuneifolia 828
   dentex 828
   glandulosa 829
   hispidula 829
   lappulacea 830
   scabiosifolia var. integrifolia 831
   scapigeria 831

Camelina
   alyssum * 971

Cape Weed 809

Capsella
   bursa-pastoris * 971

Cardamine
   flexuosa * 972
   gunnii 972
   hirsuta * 973
   lilacina 974
   paucijuga 974
   species Y 975

Cardaria
   draba * 975

Carduus
   nutans subsp. nutans * 832
   pycnocephalus * 832
   pycnocephalus 833
tenuiflorus * 833
Carrot Weed 835

Carrhamus
   Iannus * 833
tinctorius * 834
Cassinia
  aculeata 835
  arcuata 835
  aureonitens 836
  compacta 837
  cunninghamii 837
  denticulata 838
  laevis 838
  leptocephala subsp. leptocephala 839
  longifolia 839
  quinquefaria 840
  species D 840
  Sticky 841
  trinerva 841
  uncat a 841
Cat’s Claw Creeper 953
Catsear 882
  Smooth 881
Celmisia
  longifolia species complex 842
Centaurea
  australis 933
  calcitrapa * 842
  melitensis * 843
  solstitialis * 843
Centipeda
  cunninghamii 844
  minima var. minima 845
Chamomile
  Corn 807
Chamomilla
  suaveolens 891
Charlock 991
  Jointed 986
Chicory 849
Chinese Shrub 835
Chondrilla
  juncea * 845
Chrysanthemoides
  monilifera
    subsp. rotundata * 846
  monilifera *
    subsp. monilifera 847
Chrysocephalum
  apiculatum 848
  semipapposum 848
Cichorium
  intybus * 849
Cirsium
  vulgare * 850
  Cobbler’s Pegs 813
  Cobbler’s Tack 869
Conringia
  orientalis * 976
Conyza
  albida * 851
  bilbaoana * 851
  bonariensis * 852
  canadensis var. canadensis * 853
  parva * 853
Coreopsis
  lanceolata * 854
Coronopus
  didymus * 976
Cosmos 854
  bipinnatus * 854
Cotula
  alpina 855
  Alpine 855
  australis 855
  Common 855
  coronopifolia * 856
  longipes 886
Cough Bush 838
Craspedia
  canens 857
  variabilis 837
Crassocephalum
  crepidioides * 858
Crepis
  capillaris * 858
  foetida subsp. vulgare * 859
  sesosa * 859
Cress
  Field 981
  Fleary 975
  Mountain 978
  Yellow 990
Cretan Weed 875
Crofton Weed 802
Crownbeard 939
Cryptostemma
  calyculata 809
Cudweed
  Creeping 866
  Jersey 910
  Purplish 871
  Spoon 933
  Star 867
  White 938
Cymbonotus
  lawsonianus 860
  lawsonianus 860
  preissianus 860
Cynara
  scolymus * 861
Cynoglossum
  australe 960
  latifolium 958
  suaveolens 960
D
Daisy
  Beach 809
  Cut-leaved 820, 821
Field 817
Hill 815
Large Copper-wire 909
Large-headed 817, 818
Michaelmas 812
Oxeye 888
Showy Copper-wire 910
Snow 842
Sticky 802
Western New Holland 945
White Paper 878
Daisy Bush
Blush 898
Rough 893
Silky 896
Sticky 895
Dandelion 935
Cape 809
Delairea
odorata * 861
Dimorphotheca
pluvialis * 862
Diplotaxis
muralis * 977
Ditrichia
graveolens * 862
Dogwood
White 906
Dolly Bush 835
Drabastrum
alpestre 978

E

Echinops
sphaerocephalus * 863
Echium
lycoposis 961
plantagineum * 961
vulgar * 962
Eclipta
platyglossa 863
Ehretia
acuminata var. acuminata 962
Enydra
fluctuans 864
Epilates
australis 864
Erechtites
valerianifolia * 865
Erigeron
karvinskianus * 866
Erophila
verna
subsp. praecox * 978
subsp. verna * 979
Euchiton
gymnocephalus 866

involutcratus 867

Euryops
chrysanthemoides * 867

Everlasting
Button 879
Clustered 848
Common 848
Golden 824
Pale 879
Satin 878
Sticky 825
Tree 907

F

Facelis
retusa * 868
Feverfew 934
Fiddleneck
Common 957
Fireweed 921
Brazilian 865
Cotton 923
Hill 917
Purple 811
Flame Vine 955
Flatweed 882
White 881
Flaxweed
Stinking 972
Fleabane
Bony-tip 866
Canadian 851, 853
Flaxleaf 852
Tall 851
Forget-me-not 966
Australian 965
Wood 967
Fuzzweed 941

G

Galinsoga
parviflora * 868

Gamolepis
chrysanthemoide 867

Gazania
rigens * 869

Glossogyne
tannensis 869
tenuifolia 869

Gnaphalium
americanum * 870
calviceps * 871
candidissimum 938
caractatum 871
gymnocephalam 866
involutcratum 867
luteo-album 910
albicans var. graminifolium 890
albicans 889
anthemoideas 911
australe 938
pygmaeum 911
Helminthotheca
echioides * 880
Hemizonia
pungens * 880
Hirschfeldia
incana * 979
Honesty 985
Honeysuckle
Cape 955
Humera
elegans 827
Hypochaeris
glabra * 881
microcephala var. albiflora * 881
radicata * 882

I
Impatiens
walleriana * 949
Incense Plant 827
Indian Weed 927
Irenephurus
trypherus 980
Isoetopsis
graminifolia 883
Ivy
Cape 861

J
Jalap 949
Jo-jo 931
Dwarf 930

K
Koda 963

L
Lactuca
saligna * 883
serriola * 884
Lagenifera
belloides 928
gracilis 884
sp. A var. B 929
sp. B 928
stipitata 885
Lagenophora
Common 885
Slender 884
Lamb’s Tail 949
Leonotodon
taraxacoides subsp. taraxacoides * 886
Lepidium
  africanum * 980
  bonariense * 981
  campestrre * 981
  draba 975
  fasciculatum 982
  hyssopifolium 982
  peregrinum 983
  perfoliatum * 983
  pseudohyssopifolium 984
  pseudotsamanicum 984

Leptinella
  longipes 886

Leptothychnos
  elongatus 887
  nitidulus 887
  squamatus subsp. A 888

Lettuce
  Prickly 884
  Willow-leaved 883

Leucanthemum
  vulgare subsp. maximum * 888

Leucocorys
  albicans
    subsp. albicans var. albicans 889
    subsp. albicans var. tricolor 889
  graminifolium 890

Leueza
  australis 933

Lithospermum
  arvense 959

Lobularia
  maritima * 985

Lunaria
  annua * 985

Lycopsis
  arvensis 957

M

Macfadyena
  unguis-cati * 953

Madeira Vine 949

Madia
sativa * 890

Mahonia
  leschenaultii * 953
  Maltese Cockspar 843

Mangrove
  Grey 948

Marigold
  Burr 814
  Cape 862
  Dwarf 912
  Field 825
  Palestine 826

Matricaria
  matricarioïdes * 891
  perforata 937

Mayweed
  Scentless 937
  Stinking 807

Melanthera
  biflora 891

Microseris
  lanceolata 892
  Mist Flower 803
  Mugwort 811
  Musk
    Native 893
    Mustard
      Giant 987
      Hedge 992
      Indian 968
      Indian Hedge 993
      Tower 993
      Treacle 976
      White 991

Myosotis
  australis 965
  caespitosa * 965
  discolor * 966
  exarhena 966
  stellulata 966
  sylvatica * 967

N

Nicotiana
  madagascariensis 994

Niger Seed 874

Nut-heads
  Spreading 864

O

Olearia
  argophylla 893
  asterotricha 893
  burgessii 894
  chrysophylla 894
  cordata 895
  elliptica 895
  erubescens 896
  glandulosa 896
  lirata 902
  megalophylla 897
  microphylla 897
  myrsinoïdes 898
  nemstii 898
  oliganthema 899
  phlogopappa 899
  quercifolia 900
  ramosissima 900
  ramulosa 901
  rosaminifolia 901
  stellulata 902
  suffruticosa 902
tenuifolia 903
tomentosa 903
viscidula 904
Onopordum
   acanthium subsp. acanthium * 904
Osteospermum
   ecklonis * 905
Ox-tongue 880
Ozothamnus
   adnatus 905
   argophyllus 906
   diosmifolius 906
   ferrugineus 907
   rosmarinifolius 908

P
Pandorea
   pandorana 954
Peppergrass 982, 984
Picris
   echinoidea 880
   hieracioides * 908
Pigmy Sunray 911
Pilliga Posy 818
Pineapple Weed 891
Pitch-forks 813
Pitchwood 890
Podolepis
   canescens 909
   hieracioides 909
   jaceoides 910
Potato Weed 868, 964
Pseudognaphalium
   luteoalbum 910
Pyrostegia
   venusta * 955

R
Radish 987
   Wild 986
Ragweed
   Annual 804
   Lacy 806
   Perennial 805
Ragwort 918
Rantil 874
Raphanus
   raphanistrum * 986
   sativus * 986
Rapistrum
   rugosum * 987
Rhodanthe
   anthemoides 911
   pygmaea 911
Rocket
   London 992
   Sea 970
   Wall 977
Roldana
   petasitis * 912
Rorippa
   dictyosperma 987
   gigantea 988
   laciniata 989
   microphylla * 989
   nasturtium-aquaticum * 990
   palustris * 990

S
Safflower 834
Salsify 937
Schkuhria
   pinnata var. abrotanoides * 912
Sea Rocket 970
   American 970
Senecio
   amygdalifolius 913
   anacampserotis 913
   bipinnatiscus 914
   biserratus 914
   crassiflorus * 915
   diaschides 915
   glomeratus 916
   hispidulus
   var. dissectus 916
   var. hispidulus 917
   jacobea * 918
   latus
   subsp. dissectifolius 918
   subsp. lanceolatus 919
   subsp. maritimus 919
   linearifolius 920
   macranthus 920
   madagascariensis * 921
   mikanoides 861
   minimus 922
   petasitis 912
   pterophorus * 922
   quadriteratatus 923
   species E 923
   taminoides * 924
   tenuiflorus 924
   vagus
   subsp. eglandulosus 925
   velleoides 926
   vulgaris * 926
Sheepweed 960
Shepherd’s Purse 971
Sifton Bush 835
Sigesbeckia
   orientalis subsp. orientalis 927
Silver Shrub 893
Silybum
   marianum * 927
Sinapis
   alba * 991
   arvensis * 992
Sisymbrium
   irio 992
   officinale * 992
   orientale * 993
Skeleton Weed 845
Sneeze Weed
   Common 844
   Spreading 845
Snow Bush 897
Solenogyne
   belliioides 928
   dominil 928
   gunnii 929
Solidago
   canadensis var. scabra * 929
Soliva
   anthemifolia * 930
   pterosperma 931
   sessils * 931
Sonchus
   asper
      subsp. glaucescens * 931
   hydrophilus 932
   megalcarpus 801
   oleraceus * 932
Sowthistle
   Common 932
   Native 932
   Prickly 931
Sphaeromorpha
   australis 864
Spikeweed 880
Stenmacantha
   australis 933
Stinking Roger 934
Stinkwort 862
Stuartina
   muelleri 933
Sunflower
   Common 875
   Sweet Alyssum 985
Swinecress
   Lesser 976

T
Tagetes
   minuta * 934
Tanacetum
   parthenium * 934
   vulgare * 935
Tansy 935
Tansyleaf Milfoil 800
Taraxacum
   officinale * 935

Tarweed 890
Tea
   Senegal 874
Tecoma 956
   capensis * 953
   sianes * 956
Temple Plant 874
Thickhead 858
Thistle
   Cockspur 843
   Dune 801
   Globe 863
   Nodding 832
   Saffron 833
   Scotch 904
   Slender 832
   Spear 850
   St Barnaby’s 843
   Star 842
   Variegated 927
   Winged Slender 833
Tolpis
   umbellata * 936
Tragopogon
   portulifolius * 937
Tripleurospermum
   inodorum * 937
Triptilodiscus
   pygmaeus 938
Turnip 969
   Mediterranean 970
   Twiggly 968
Turnip Weed 987
Turritis
   glabra * 993
   Twin-heads 863

V
Vellereophyton
   dealbatum * 938
Verbena
   encelioides subsp. encelioides * 939
Vernonia
   cinerea
      var. cinerea 939
Vittadinia
   cervicularis
      var. cervicularis 940
      var. subcervicularis 940
   cuneata
      var. cuneata forma cuneata 941
      var. cuneata forma minor 941
dissecta var. dissecta 942
form a 941
form b 941
gracilis 942
hispidula
  var. hispidula 943
  var. setosa 943

hispidula 943
muelleri 944
pustulata 944
sp. E 942
sp. F 945
sp. G 944
sp. H 944
sulcata 945
tenuissima 945

W
Wallaby Weed 904
Watercress 990
  Marsh 990
  One-rowed 989
Wedelia
  biflora 891
White Weed 975
Whitlow Grass 978
Wild Aster 812
Wintercress 967, 968
Wonga Wonga Vine 954
Woodcress
  Hairy 973
Wormwood
  Chinese 811

X

Xanthium
  cavanillesii * 946
  chinese 946
  occidentale * 946
  pungens 946
  spinosum * 947

Y

Yarrow 801