Map of the Sydney region

For the Ecology of Sydney Plant Species the Sydney region is defined as the Central Coast and Central Tablelands botanical subdivisions.
Ecology of Sydney plant species

Part 10 Monocotyledon families Lemnaceae to Zosteraceae

Doug Benson and Lyn McDougall

Royal Botanic Gardens and Domain Trust, Sydney, AUSTRALIA 2000. Email: doug.benson@rbgsyd.nsw.gov.au

Abstract: Ecological data in tabular form are provided on 668 plant species of the families Lemnaceae to Zosteraceae, 505 native and 163 exotics, 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). Relevant Local Government Areas are Auburn, Ashfield, Bankstown, Bathurst, Baulkham Hills, Blacktown, Blayney, Blue Mountains, Botany, Burwood, Cabonne, Camden, Campbelltown, Canada Bay, Canterbury, Cessnock, Crookwell, Evans, Fairfield, Greater Lithgow, Gosford, Hawkesbury, Holroyd, Hornsby, Hunters Hill, Hurstville, Kiana, Kogarah, Ku-ring-gai, Lake Macquarie, Lane Cove, Leichhardt, Liverpool, Manly, Marrickville, Mosman, Mulwaree, North Sydney, Oberon, Orange, Parramatta, Penrith, Pittwater, Randwick, Rockdale, Ryde, Ryldstone, Shellharbour, Shoalhaven, Singleton, South Sydney, Strathfield, Sutherland, Sydney City, Warringah, Waverley, Willoughby, Wiencearriere, Wollondilly, Wollongong, Woollahra and Wyong. The study area falls within the Sydney Basin IBRA Bioregion.

Families are: Lemnaceae, Liliaceae, Lomandraceae, Luzuriagaceae, Najadaceae, Orchidaceae, Philydraceae, Phormiaceae, Poaceae, Pontederiaceae, Posidoniaceae, Potamogetonaceae, Restionaceae, Ripogonaceae, Smilacaceae, Sparganiaceae, Thismiaceae, Typhaceae, Uvulariaceae, Xanthorrhoeaceae, Xyridaceae, Zingiberaceae, Zosteraceae.

Data are 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 are 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 maturation periods, pollination and seed dispersal data, distribution, habitat and plant community, as well as responses to fire and disturbance where available and is complementary to the descriptive texts in taxonomic handbooks such as the Flora of New South Wales (Harden 1990–93).

Part 10 of the Ecology of Sydney plant species covers the Monocotyledon families alphabetically from Lemnaceae to Zosteraceae and includes Poaceae.

Methods

Part 10 follows the format used in Parts 1–9 (Benson & McDougall 1993, 1994, 1995, 1996, 1997, 1998, 1999, 2000, 2001, 2002). 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) (Fig. 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. Relevant Local Government Areas are Auburn, Ashfield, Bankstown, Bathurst, Baulkham Hills, Blacktown, Blayney, Blue Mountains, Botany, Burwood, Cabonne, Camden, Campbelltown, Canada Bay, Canterbury, Cessnock, Crookwell, Evans, Fairfield, Greater
Lithgow, Gosford, Hawkesbury, Holroyd, Hornsby, Hunters Hill, Hurstville, Kiama, Kogarah, Ku-ring-gai, Lake Macquarie, Lane Cove, Leichhardt, Liverpool, Manly, Marrickville, Mosman, Mulwaree, North Sydney, Oberon, Orange, Parramatta, Penrith, Pittwater, Randwick, Rockdale, Ryde, Ryldstone, Shellharbour, Shoalhaven, Singleton, South Sydney, Strathfield, Sutherland, Sydney City, Warringah, Waverley, Willoughby, Wingecarribee, Wollondilly, Wollongong, Wooloahra and Wyong. The study area falls within the Sydney Basin IBRA bioregion (Interim Biogeographic Regionalisation for Australia).

The Sydney region, as defined here, 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 (Cunninghamia 3(2) 1993)
Part 2: Dicotyledon families Asteraceae to Buddlejaceae (Cunninghamia 3(4) 1994)
Part 3: Cabombaceae to Eupomatiaceae (Cunninghamia 4(2) 1995)
Part 4: Fabaceae (Cunninghamia 4(4) 1996)
Part 5: Flacourtiaceae to Myrsinaceae (Cunninghamia 5(2) 1997)
Part 6: Myrtaceae (Cunninghamia 5(4) 1998)
Part 7a: Nyctaginaceae to Primulaceae (Cunninghamia 6(2) 1999)
Part 7b: Proteaceae to Rubiaceae (Cunninghamia 6(4) 2000)
Part 8: Rutaceae to Zygophyllaceae (Cunninghamia 7(2) 2001)
Part 9: Monocot families Agavaceae to Juncaginaceae (Cunninghamia 7(4) 2002)
Part 10: Monocotyledon families Lemnaceae to Zosteraceae, including Poaceae

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; this information is entered in a database together with data from literature sources both published and unpublished. References have been cited where 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.

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, are generally not included. Likewise information on weed control is not given. Generally, the categories are broadly interpreted and since the project aims to stimulate further investigation, we welcome the addition of extra data on any other aspects of the plant’s ecology.

A ‘comments’ section has been deliberately avoided; for all information retrieval purposes, all ecological material should be attributable to some life history aspect of the plant or its habitat although, even with our broad categories there have been problems with ‘Vegetation’ and ‘Substrate’ sections for specialised lifeforms such as mistletoes. The main purpose of this information is to give a picture of the ecology of particular species as is currently known. It is not primarily for comparative purposes although it can be used in this way. One of our original aims was to demonstrate that closely related species may have different ecologies and that to generalise within genera, for example, rather than look at a particular species, is an over simplification. We have also included reference to individualistic information resulting from specific research that will not necessarily be available for all species.

Similarly where we have observations on the effects of factors such as drought on particular species we have included these, though we have not included a category for ‘drought’ because of difficulties in definition. One of our aims is to be open-ended, to point out that there are many gaps in the ecological knowledge and to indicate areas and species where future work may be particularly useful.

Botanical nomenclature

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

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 ‘Dispersal, 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. There are very few references in the literature to the longevity of species or records of individual plants, particularly of the longer-lived species, yet this is an important factor in assessing importance of recruitment and changes in plant communities.

Most of the estimates given are based on the authors’ judgement, based on the shape, size and growth rates of individuals, and the authors’ experience in the field over 25 years, together with any historical data available. The figures given are conservative and represent minimal average ages. The authors would not be surprised if much greater ages are achieved in many cases.

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 time taken for an individual to recover to produce fruit after major damage e.g. from fire, but applicable only if species regularly resprouts. The time required to accumulate a seedbank sufficient to ensure reasonable recruitment in the event of mass mortality is also an important consideration. Primary and secondary juvenile periods should not be considered as absolute and they may vary spatially as a function of habitat factors (moisture availability, nutrients etc.) and temporally (e.g. climatic variation).

Source: literature, field observations.

Reproduction: for Angiosperms, reproduction is separated into:

Flowers: predominant 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.

Dispersal, 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. Entries such as ‘probably killed’ mean that a species has no obvious morphological characteristics likely to assist in surviving and resprouting following fire. While species that resprout after fire may be readily noted, the death of individuals may not be observed unless the occurrence of the species in the area was well known prior to the fire.

For a given species some populations may be capable of resprouting while other populations may be killed. This may explain cases where contradictory evidence has been given though response to fire in some species may depend on fire intensity.

In view of the limited information available for many species, the categories of Gill and Bradstock (1992) have not been applied at this stage.

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. Naturalised species indicated by an asterisk following the botanical name.

Source: Flora of New South Wales, literature.

Botanical subregions: occurrence of species in botanical subdivisions of NSW, other states and countries.

Source: National Herbarium of New South Wales.

Distribution in Sydney region: 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 refer 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 (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 (high nutrient) (e.g. basalt soils)/ fertile (moderate nutrient)/ infertile (low nutrient)/ very infertile (very low nutrient) (e.g. sands).

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: listing as Endangered or Vulnerable, or as Endangered Population on schedules of the NSW Threatened Species Conservation Act 1995; national significance listing (Briggs & Leigh 1996), Rare or Threatened Australian Plants (ROTAP) database; comments on regional significance and adequacy of conservation within Sydney area are based on authors’ knowledge of the abundance of species and their primary occurrence in major conservation areas. These comments apply to the Sydney region; a species may be common or rare elsewhere. ‘Probably’ is used in many cases as it is the authors’ views that a definite categorisation of ‘adequately conserved’ needs to be based on a better knowledge of the species’ biology and distribution than we have at present for most species. Source: Herbarium records, field observations, literature.

General comments on part 10

Part 10 covers 668 plant species of the monocotyledon families Lemnaceae to Zosteraceae, 309 native and 4 naturalised exotics. Plant families in this part are Lemnaceae, Liliaceae, Lomandraceae, Luzuriagaceae, Najadaceae, Orchidaceae, Philydraceae, Phormiaceae, Poaceae, Pontederiaceae, Posidoniaceae, Potamogetonaceae, Restionaceae, Ripogonaceae, Smilacaceae, Sparganiaceae, Thismiaceae, Typhaceae, Uvulariaceae, Xanthorrhoeaceae, Xyridaceae, Zingiberaceae, Zosteraceae.

The largest families in this part are Poaceae (347 species) and Orchidaceae (220 species). The large grass family Poaceae provides many opportunities for ecological work as, although a few species, mainly exotics are known well, the ecology of most native species is poorly known. Ecological aspects of Orchidaceae biology are discussed in a separate paper (Weston et al. this issue).

Of the other families very little ecological work has been done. Our main knowledge on families such as Lomandraceae, Restionaceae, Xanthorrhoeaceae and Xyridaceae is confined to a general knowledge of their distributions, while for the water plants such as families Najadaceae, Pontederiaceae, Posidoniaceae, Potamogetonaceae and Zosteraceae, our records still give us only a sketchy idea of this. There is more ecological knowledge on groups in the Liliaceae, particularly coming out of work on restoration of grassy woodland and other remnant vegetation types. Such work stimulates studies on pollination, seed dispersal and establishment, and fire and herbivore regimes, as well as the genetic patterns in populations.

Concluding remarks on the Ecology of Sydney Plants project

With the completion of the final part (Part 10), the Ecology of Sydney Plants project as originally envisaged in 1993, comes to a conclusion. How we develop it from here is still to be decided, but it is hoped that it will be made available electronically. In the meantime there are sufficient hardcopy back issues of Cunninghamia for all Parts. These are available through the Gardens Shops at Sydney, Mount Annan and Mount Tomah, or through phone orders to Mount Annan (phone 02 4634 7935). Copies from Part 8 onwards are also available on the Botanic Gardens Trust Website as PDF files, (earlier issues will be added later).

The ten part series (actually 11 parts as Part 7 is divided into Parts 7a and 7b) has provided ecological data in tabular form is on 3550 plant species, 2626 native and 924 exotics (mostly naturalised) occurring in the Sydney region, defined by the Central Coast and Central Tablelands botanical subdivisions of New South Wales. This compares with approximately 3500 species that we anticipated in 1993. In concluding we would like to make some general observations on research needed to fill some of the gaps we have encountered in our work.

Longevity

Despite its prime importance in terms of population and community dynamics we have found longevity to be a very neglected field. While resprouting species may be very long-lived or of indefinite lifespan, many fire-sensitive shrub species and early colonizer species have relatively short life spans, and may need locally altered conditions to provide conditions for new recruitment. Even more so for herbaceous species, yet most lifeform descriptions in handbooks limit descriptions to either annual or perennial (i.e. 1 year or many years). Indeed the rarest lifeform category amongst native
Sydney plants is annual, of which we have very few; most are really short lived perennials. Studies of longevity do take time but we should at least begin marked reference studies that can be continued by other workers.

*Primary juvenile period*

There is still very little information on this aspect, though its importance in fire regimes affecting fire sensitive plants, particularly shrubs, is being broadly recognised. Unfortunately actions are more likely to be based on generalisations. We need more actual observational data.

*Flowers/ Fruits*

Studies on Pollination vectors and plant/ insect and plant/ bird interactions are increasing. Fruit is still probably the most neglected descriptive field. Most handbooks ignore fruiting times, particularly for species which lack traditional coloured fruit, such as rainforest species. Yet timing of fruiting is important for seed collecting. The size of a potential seed crop may also be important for predicting potential species seedbanks. There are very few plants for which there is information in the literature on the number of seed per plant (averages or ranges etc), yet some species have a few seeds while others have thousands.

*Dispersal, establishment and growth*

Dispersal mechanisms have aroused some interest in terms of disperser but we need distance estimates etc. This is particularly important in relation to species in small or isolated sites.

*Fire response*

Fire research is the main area where we have made substantial progress in recent years. There is now an increasing number of observations on fire responses and the direct implications of fire, but there is still little known about subsequent responses such as amount of recruitment, affects of herbivory on seedlings etc.

*Interaction with other organisms*

Still little on aspects other than pollination and seed dispersal. There is a need more observations on seed predation.

*Status/origin*

Many exotic species are represented by only a few specimens in herbaria, and old collections are often not clearly indicated as naturalized or planted. This may lead to an overestimate of the number of truly naturalized species. We need better collections of exotics with comments on their populations local origin, extent etc. We need more research on distribution and genetic makeup of some exotic species. Some previously accepted exotic weed species may indeed be native cosmopolitan, while others may have both native and exotic forms e.g *Cynodon dactylon*.

*Distribution in Sydney area*

We need to develop mapping of individual species distributions. This is likely to lead to the observation of interesting patterns and revealing correlations with environmental features.

*Altitude*

We had previously considered altitude important only in terms of understanding a species’ habitat range. However altitudinal range will be an important component in determining a species’ vulnerability to climate change, particularly through increased temperatures and decreased rainfall. Indeed species limited to high elevations may be some of the most potentially threatened species.

*Annual rainfall*

Like altitude, annual rainfall is another parameter that will have implications in terms of potential climate change. Species with narrow rainfall requirements are likely to be more susceptible to climate change than species with broader requirements.

*Substrate*

Geological and soil information has been generally available from recent specimens though it is generally lacking from old collections. Geological information is more readily available for tree and shrub species than for herbaceous species, with grass specimens in particular having very limited collecting information. In general we need more research on herbaceous and grassy species.

*Conservation*

Since 1996 listing species of conservation significance using ROTAP criteria (Briggs & Leigh 1988), has been replaced in NSW by the Threatened Species Conservation Act which gives legislative protection to species listed under the Schedules of the Act. Under the Threatened Species Conservation Act, taxa may be listed as endangered or vulnerable species or endangered populations. Some publications of new species still only provide ROTAP criteria (Briggs & Leigh 1988), rather than assessing threats in terms of the TSC act. Alternatively, IUCN Criteria should be provided as these can be directly related to the TSC act determinations. More emphasis on regional conservation significance is needed.

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References


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Monocotyledon families Lemnaceae to Zosteraceae

**Lemma disperma** (L. minor)
Duck Weed

**Life history**

**Growth form:** Herb floating on surface of water, with solitary root and solitary thallus, or connected to form small groups.

**Vegetative spread:** New leaf-like thallus emerges from a budding pouch on margin of thallus.

**Longevity:** Indefinite.

**Primary juvenile period:**

**Flowers:** April, May, monocious.

**Fruit/seed:** Reproduction usually vegetative. Abundant fruiting appears to enable the species to survive periodic droughts (Evans 1970).

**Dispersal, establishment & growth:**

**Fire response:**


**Distribution**

**Status/origin:** Native.

**Botanical subregions:** CC NWS CWS SWS NWP SWP; Tas., S.A., W.A., N.Z.

**Distribution Sydney area:** Sporadic.

**Select locations:** CC: Lurnea (1987).

**Habitat**

**Habitat:**

**Altitude:** 0–200 m

**Annual rainfall:** 900 mm

**Typical local abundance:** Frequent.

**Vegetation:**

**Substrate:** Still or flowing fresh water.

**Exposure:**

**Conservation**

Conservation status unknown.

**Spirodela polyrhiza** (Lemma oligorrhiza var. pleiorrhiza)

**Life history**

**Growth form:** Herb floating on surface of water, with 5–18 roots per thallus and thalli solitary or connected to form small groups.

**Vegetative spread:** New leaf-like thallus emerges from a budding pouch on margin of thallus.

**Longevity:** Indefinite.

**Primary juvenile period:**

**Flowers:** Not recorded in Australia.

**Fruit/seed:** Reproduction vegetative only.

**Dispersal, establishment & growth:**

**Fire response:**

**Interaction with other organisms:**

**Distribution**

**Status/origin:** Native.

**Botanical subregions:** NC CC SC CT ST CWS SWS SWP; Qld, Vic., S.A., W.A., India, China, SE Asia, Polynesia, NZ.

**Distribution Sydney area:** Widespread.

**Select locations:** CC: Pitt Town, Penrith, Waterloo (1886), Cabramatta Creek, Liverpool, Kogarah (1888), Cronulla to Kurnell, Windang, Bulli, Upper Nattai River. CT: Bathurst, Coxs River.

**Habitat**

**Habitat:** Creeks, dams, ponds.

**Altitude:** 0–700 m

**Annual rainfall:** 600–1400 mm

**Typical local abundance:** Frequent.

**Vegetation:**

**Substrate:** On the surface of still or slowly moving fresh water. Grows in waters enriched by drainage from sources such as abattoirs (Evans 1970).

**Exposure:**

**Conservation**

Conservation status unknown.

**Wolffia angusta**

**Life history**

**Growth form:** Rootless herb floating on surface of water, with thalli solitary or connected in pairs.

**Vegetative spread:** New leaf-like thallus emerges from a budding pouch on margin of thallus.

**Longevity:** Indefinite.

**Primary juvenile period:**

**Flowers:** February.

**Fruit/seed:** Reproduction usually vegetative.

**Dispersal, establishment & growth:**

**Fire response:**

**Interaction with other organisms:**

**Distribution**

**Status/origin:** Native.

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

**Distribution Sydney area:** Sporadic.

**Select locations:** CC: Gosford, Glenorie, Kellyville, Kogarah, The Oaks.
Habitat
Habitat: Fresh water dams and waterholes.
Altitude: 0–400 m
Annual rainfall: 700–900 mm
Typical local abundance: Frequent.
Vegetation:
Substrate: On the surface of still water.
Exposure:
Conservation
Conservation status unknown.

Wolffia australiana

Life history
Growth form: Rootless herb floating on surface of water, with thalli solitary or connected in pairs.
Vegetative spread: New leaf-like thallus emerges from a budding pouch on margin of thallus.
Longevity: Indefinite.
Primary juvenile period:
Flowers: April.
Fruit/seed: Reproduction usually vegetative.
Dispersal, establishment & growth: Fronds sometimes observed to sink in winter, appearing on the surface again in spring (B. Briggs pers. comm.).
Fire response:
Interaction with other organisms:
Distribution
Status/origin: Native.
Botanical subregions: CC SC CT ST CWS; Vic, S.A., N.Z.
Distribution Sydney area: Sporadic.
Select locations: CC: Casula, Mount Annan. CT: Orange.

Habitat
Habitat: Fresh water dams and waterholes. Appears to flourish best in waters enriched by drainage from the surface of grazing land or from cattle yards (Evans 1970).
Altitude: 0–900 m
Annual rainfall: 700–900 mm
Typical local abundance: For example with Typha, Cotula coronopifolia.
Substrate: Floating on still or running water.
Exposure:
Conservation
Conservation status unknown.

Lilium formosanum *

Formosan Lily

Life history
Growth form: Perennial herb, annual aerial stem; bulbs with numerous thickened, imbricate fleshy scales and fibrous roots.
Vegetative spread: Clump-forming.
Longevity: Indefinite.
Primary juvenile period:
Flowers: Fragrant, white, bell-shaped, January–April, peak March.
Fruit/seed: Cylindrical capsule 5–8 cm long, with numerous winged seeds.
Dispersal, establishment & growth: Prolific seeder and germinator (Anon 1991); seed wind-dispersed along roadsides possibly assisted by turbulence from heavy vehicles (A. Rodd pers. comm. 1994). Bulbs dispersed by gravity and water.
Fire response: Resprouted after fire (1/1994) at Lane Cove, secondary juvenile period about 9 months (P. Kubiak pers. comm.).
Interaction with other organisms: Control by spraying with 1:70–100 glyphosate between flowering and fruiting period or 1:1 using wiper or weed wand (NSW Agriculture Environmental Weed Control Permit: www.northcoastweeds.org.au).

Distribution
Status/origin: Exotic, native to Taiwan.
Botanical subregions: NC CC SC CT; LHI, Vic.
Distribution Sydney area: Widespread Blue Mountains and coast.
Select locations: CC: Kariong, Kurrajong, Springwood, Frenchs Forest, Royal NP, Mt Keira, Glen Davis. CT: Mount Tomah.

Habitat
Habitat: Disturbed sites, roadsides.
Altitude: 0–1000 m
Annual rainfall: 600–1200 mm
Typical local abundance: Occasional–frequent.
Vegetation:
Substrate: Clay to sandy soils on shale, sandstone, low to medium nutrients, well-drained.
Exposure: Light shade to full sun.
Conservation
Listed as an environmental weed in Blue Mountains City Council area. Extent elsewhere unknown.

Lomandra brevis

Life history
Growth form: Rhizomatous, perennial herb to 15 cm high, forming tussocks to 20 cm diam., leaves long, narrow, with inrolled margins.
Vegetative spread: Clump-forming.
Longevity: Indefinite.
Primary juvenile period:
Flowers: Small, inconspicuous, yellow, male and female flowers on separate plants, spring and autumn.
Fruit/seed: Capsule.
Dispersal, establishment & growth: Seed with ant-adapted elaiosome.
Fire response:
Interaction with other organisms:
Distribution
Status/origin: Native.
Botanical subregions: CC, CT.
Distribution Sydney area: Coast and lower Blue Mountains.
Select locations: CC: Cowan, Berowra, Hornsby, Ingleside, Blaxland, Kogarah, Sutherland.

Habitat
Habitat: Disturbed sites, roadsides and watercourses.
Altitude: 0–400 m
Annual rainfall: 1000–1200 mm
Typical local abundance: Occasional–frequent.
Vegetation: Eucalyptus sieberi,Allocasuarina torulosa, Allocasuarina littoralis, Banksia serrata, Leptospermum trinervium, Grevillea baxiophila.
Substrate: Sandy soil from sandstone, low nutrients.
Exposure:
Conservation
Local endemic species, uncommon, coded 2RC- on national rare species list (Briggs & Leigh 1996). Threatened by bushrock removal (NPWS 1999) and clearing for housing development e.g. at Hornsby. Reported in Ku-ring-gai Chase NP, Muogamarra NR, Royal NP.

Lomandra confertifolia subsp. pallida

Life history
Growth form: Perennial herb, with tufted stems, short or elongated, erect or decumbent.
Vegetative spread:
Longevity:
Primary juvenile period:
Flowers: Small, inconspicuous, male and female flowers on separate plants, late winter to spring.
Lomandra confertifolia subsp. rubiginosa

**Life history**
Growth form: Perennial herb, with stems elongated usually somewhat decumbent, stout.
Vegetative spread:
Longevity:
Primary juvenile period:
Flowers: Small, inconspicuous, male and female flowers on separate plants, autumn–spring.
Fruit/seed:
Dispersal, establishment & growth:
Fire response: Probably resprouts.

**Distribution**
Status/origin: Native.
Botanical subregions: NC CC CT ST NWS CWS SWS SWP; Qld.
Distribution Sydney area: Western Blue Mountains.
Select locations: CC: Howes Mountain. CT: Running Stream, Genowen Mountain, Marangaroo Creek, Glen Davis.

**Habitat**
Habitat: Rocky places, hillsides.
Altitude: 300–1000 m
Annual rainfall: 600–1000 mm
Typical local abundance: Frequent–occasional.
Vegetation: Dry eucalypt forest.
Substrate: Sandy soil on sandstone, low nutrients, well-drained.
Exposure:
Conservation
Sydney is southern geographical limit (Harden 1993). Conservation status unknown.

Lomandra filiformis subsp. coriacea

**Life history**
Growth form: Perennial herb forming sparse or short tussocks, occasionally in short, dense mats to 20 cm diam.
Vegetative spread:
Longevity: Indefinite (D. Keith pers. comm.).
Primary juvenile period:
Flowers: Small, yellow, inconspicuous, male and female flowers on separate plants, mainly September–November.
Fruit/seed:
Dispersal, establishment & growth: No particular morphology for dispersal (McIntyre et al. 1995). Recruitment mainly after fire (D. Keith pers. comm.).
Fire response: Regrowth from rhizomes (Fox 1988, D. Keith pers. comm.).

**Distribution**
Status/origin: Native.
Botanical subregions: NC CC CT ST NWS CWS SWS SWP; Qld, Vic.
Distribution Sydney area: Widespread.
Select locations: CC: Lake Macquarie, Palm Beach, Asquith, Hornsby, Rookwood, Glenbrook, Mulgoa, Kentlyn, Darlkes Forest. CT: Rylstone, Lithgow, Wentworth Falls, Hill Top.

**Habitat**
Habitat: Ridges, hillsides.
Altitude: 0–1000 m
Annual rainfall: 800–1200 mm
Typical local abundance: Occasional.
Vegetation: Open-forest e.g. with *Corymbia gummifera, Eucalyptus piperita, Angophora costata*; heath e.g. with *Banksia oblongifolia, Banksia ericifolia, Angophora hispida*.
Substrate: Sandy soil on sandstone, gravelly shale, low nutrients.
Exposure: Full sun to mid-shade.
Conservation
Rylstone is northern geographical limit. Conservation status unknown.

Lomandra cylindrica

**Life history**
Growth form: Sparsely tufted perennial herb.
Vegetative spread:
Longevity: Indefinite (D. Keith pers. comm.).
Primary juvenile period:
Flowers: Small, yellow, inconspicuous, male and female flowers on separate plants, July–December, peak October.
**Lomandra filiformis** subsp. *filiformis*

**Life history**

**Growth form:** Perennial herb forming sparse or short tussocks, occasionally in short, dense mats to 20 cm diam.

**Vegetative spread:**

**Longevity:** Indefinite (D. Keith pers. comm.).

**Primary juvenile period:**

**Flowers:** Small, yellow, inconspicuous, male and female flowers on separate plants, August–October, peak October.

**Fruit/seed:** Capsule, October–November.

**Dispersal, establishment & growth:** Ant-adapted food body for dispersal (Westoby et al. 1990).

**Fire response:** Resprouts from rhizomes, secondary juvenile period 1 year (D. Keith pers. comm., P. Kubiak pers. comm.).

**Interaction with other organisms:** Foodplant of butterfly larvae *Trapezites eliena, T. phigalia phigalia, T. luteus leucus* and *T. phigalioides* (Common & Waterhouse 1981). Eaten by rabbits (P. Kubiak pers. comm.).

**Distribution**

**Status/origin:** Native.

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

**Distribution Sydney area:** Widespread.

**Select locations:** CC: Kulnura, Woy Woy, Wondabyne, Sneyville, Castlereagh, Glenbrook, Berowra Waters, Palm Beach, Beecroft, North Ryde, Malabar, Glenfield, Silverdale, Kiama. CT: Mt Coricudgy, North Tomah, Robertson.

**Habitat**

**Habitat:** Hillsides, slopes, headlands.

**Altitude:** 0–1000 m **Annual rainfall:** 700–1400 mm **Typical local abundance:** Frequent–occasional.

**Vegetation:** Open-forest e.g. with *Eucalyptus pilularis, E. piperita, E. punctata, Angophora costata, Syncarpia glomulifera*; woodland e.g. with *Eucalyptus fibrosa, E. crebra*; scrub e.g. with *Banksia aemula*, seacliff scrub.

**Substrate:** Sandy soils on sandstone, sandy alluvium, low nutrients.

**Exposure:**

**Conservation**

Conservation status unknown.

**LOMANDRACEAE**

**Lomandra filiformis** subsp. *flavor*

**Life history**

**Growth form:** Perennial herb forming sparse or short tussocks, occasionally in short, dense mats to 20 cm diam.

**Vegetative spread:**

**Longevity:**

**Primary juvenile period:**

**Flowers:** Male and female flowers on separate plants, August–November.

**Fruit/seed:** Capsule

**Dispersal, establishment & growth:** No particular morphology for dispersal (Mclmyre et al. 1995).

**Fire response:**

**Interaction with other organisms:** Foodplant of butterflies *Trapezites species* (Common & Waterhouse 1982).

**Distribution**

**Status/origin:** Native.

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

**Distribution Sydney area:** Sporadic.

**Select locations:** CC: Putty, Vineyard. CT: Currant Mountain Gap, Orange, Mt Hay.

**Habitat**

**Habitat:** Hillsides, ridges, rocky outcrops.

**Altitude:** 0–1000 m **Annual rainfall:** 800–1200 mm
Distribution
Status/origin: Native.
Botanical subregions: NC CC SC CT ST CWS; Vic., S.A.
Distribution Sydney area: Widespread.
Select locations: CC: Howes Valley, Boudhi, Maroota, Agnes Banks, Castlereah SF, Bilgola Heights, Pennant Hills, Mosman, Centennial Park, Malabar. CT: Olinda, Clarence, Kanangra, Katoomba, Springwood, Yerranderie.

Habitat
Habitat: Hillsides, rocky ridges.
Altitude: 0–1000 m
Annual rainfall: 700–1400 mm
Typical local abundance: Frequent–occasional.
Vegetation: Heath e.g. with Angophora hispida, Banksia serrata, Banksia aemula; open-forest e.g. with Eucalyptus piperita, Angophora costata, Corymbia gummifera, Eucalyptus haemastoma, E. fibrosa.
Substrate: Sandy soils on dunes, sandstone, low nutrients, well-drained.
Exposure: Conservation
Conservation status unknown. Reported in Ku-ring-gai Chase NP, Royal NP.

Lomandra gracilis
Life history
Growth form: Perennial herb forming sparse tussocks.
Vegetative spread:
Longevity:
Primary juvenile period:
Flowers: Male and female flowers on separate plants, mainly October.
Fruit/seed: Capsule
Fire response: Stems killed, reproxts from base. Resprouts after high intensity fire (1/1994), secondary juvenile period 1 year at Lane Cove (P. Kubiak pers. comm.).
Interaction with other organisms: Possibly eaten by rabbits (P. Kubiak pers. comm.).

Distribution
Status/origin: Native.
Botanical subregions: CC CT; Qld, vic., Tas., S.A.
Distribution Sydney area: Widespread.
Select locations: CC: Mt Yengo, Narrabeen, Gordon, Manly, Bradleys Head, Springwood, Kogarah Bay, Kemps Creek, Menai, Stanwell Park, Thirlmere, Aliso Park. CT: Mt Coricudgy, Wolgan Gap, Clarence, Mt Wilson, Hill Top, Moss Vale.

Habitat
Habitat: Gullies, creeks.
Altitude: 0–1000 m
Annual rainfall: 700–1400 mm
Typical local abundance: Frequent.
Vegetation: Heath and riparian scrub e.g. with Leptospermum periculatum, Banksia; woodland and soil eucalypt forest e.g. with Eucalyptus piperita, Corymbia, E. saligna.
Substrate: Variety of situations on sand, sandstone, shale, basalt and alluvium, low to high nutrients.
Exposure: Full sun–to light shade.

Conservation
Royal NP is southern geographical limit.

Lomandra longifolia
Spiny-headed Mat-rush
Life history
Growth form: Tufted, rhizomatous perennial herb to 1 m tall, dioecious.
Vegetative spread: Very limited spread.
Longevity: Indefinite.
Primary juvenile period: About 2–3 years.
Flowers: Dense clusters of tiny yellow flowers in a panicle, perfumed, male and female flowers similar on separate plants, August–November.

Flowers:
Fruit/seed: October–January.
Fire response: Foliage killed but resprouts from rhizomes (Fox 1988), no seedlings recorded less than 1 year after fire (Purdie 1977), secondary juvenile period 1 year after high intensity fire (1/1994) at Lane Cove (P. Kubiak pers. comm.).
Interaction with other organisms: Larvae of moth Lophocoma neurities feed on night on the leaves and shelter deep in the plant during the day; leaves mined by larvae of moth Apateires miarodes (Common 1990). Foodplant of butterfly larvae Tragopogon eli, T. phigalioides, T. petali and Tragopogon simmonis simmonus, which feed on leaves during winter and pupate in leaves in spring–summer (Common & Waterhouse 1981). Leaves apparently eaten by rabbits (P. Kubiak pers. comm.). Leaves used by Aboriginal people for basket making; early settlers used leaves to tie grape vines (Cribb & Cribb 1982).

Distribution
Status/origin: Native.
Botanical subregions: NC CC SC NT CT ST CWS; Qld, Vic., Tas., S.A.
Distribution Sydney area: Widespread on coast and Blue Mountains.
Select locations: CC: Mt Yengo, Ourimbah, Gordon, Manly, Bradleys Head, Springwood, Kogarah Bay, Kemps Creek, Menai, Stanwell Park, Thirlmere, Aliso Park. CT: Mt Coricudgy, Wolgan Gap, Clarence, Mt Wilson, Hill Top, Moss Vale.

Habitat
Habitat: Rocky situations, ridges, hillside.
Altitude: 0–1000 m
Annual rainfall: 700–1400 mm
Typical local abundance: Frequent–occasional.
Vegetation: Open-forest e.g. with Angophora costata, Corymbia gummifera, Syncarpia glomulifera.
Substrate: Sandy soil on sandstone, low nutrients, well-drained.
Exposure: Conservation
Royal NP is southern geographical limit.

Lomandra micrantha
Small-flowered Mat-rush
Life history
Growth form: Tufted perennial herb.
Vegetative spread:
Longevity:
Primary juvenile period:
Flowers: Greenish yellow to dark red, male and female flowers on separate plants. March–April, August–September.
Fruit/seed: Capsule. Viability of fresh seed 96% (Vigilante et al. 1998).
Dispersal, establishment & growth: Capsules; seed with ant-adapted food body for dispersal (Westoby et al. 1990, Rice & Westoby 1981).
Fire response: Foliage killed but resprouts from rhizomes (Fox 1988), no seedlings recorded less than 1 year after fire (Purdie 1977), secondary juvenile period 1 year after high intensity fire (1/1994) at Lane Cove (P. Kubiak pers. comm.).
Interaction with other organisms: Larvae of moth _Lophocoma neurities_ feed on night on the leaves and shelter deep in the plant during the day; leaves mined by larvae of moth _Apateires miarodes_ (Common 1990). Foodplant of butterfly larvae _Tragopogon elia_, _T. phigalioides_, _T. petali_ and _Tragopogon simmonis simmonus_, which feed on leaves during winter and pupate in leaves in spring–summer (Common & Waterhouse 1981). Leaves apparently eaten by rabbits (P. Kubiak pers. comm.). Leaves used by Aboriginal people for basket making; early settlers used leaves to tie grape vines (Cribb & Cribb 1982).

Distribution
Status/origin: Native.
Botanical subregions: NC CC SC NT CT ST CWS; Qld, Vic., Tas., S.A.
Distribution Sydney area: Widespread on coast and Blue Mountains.
Select locations: CC: Mt Yengo, Ourimbah, Gordon, Manly, Bradleys Head, Springwood, Kogarah Bay, Kemps Creek, Menai, Stanwell Park, Thirlmere, Aliso Park. CT: Mt Coricudgy, Wolgan Gap, Clarence, Mt Wilson, Hill Top, Moss Vale.

Habitat
Habitat: Gullies, creeks.
Altitude: 0–1000 m
Annual rainfall: 700–1400 mm
Typical local abundance: Frequent.
Vegetation: Heath e.g. with _Angophora costata_, _Corymbia gummifera_, _Syncarpia glomulifera_.
Substrate: Sandy soil on sandstone, low nutrients, well-drained.
Exposure: Full sun–to light shade.

Conservation
Royal NP is southern geographical limit.
Habitat

Habitat:

ALTITUDE: 0–1000 m  
ANNUAL RAINFALL: 1000–1400 mm

TYPICAL LOCAL ABUNDANCE: Frequent–occasional.

VEGETATION: Open-forest e.g. with Angophora costata, Eucalyptus piperita, Banksia serrata; moist scrub e.g. with Gleichenia microphylla.

SUBSTRATE: sandy soil on sandstone, low nutrients, moist.

EXPOSURE:

Conservation

Gosford is northern geographical limit (Harden 1993). Conservation status unknown.

LOMANDRACEAE

Lomandra montana

Life history

GROWTH FORM: Tufted perennial herb

VEGETATIVE SPREAD: Plants capable of vegetative spread.

LONGEVITY: Indefinite.

PRIMARY JUVENILE PERIOD:

FLOWERS: Male and female flowers on separate plants, March, August.

FRUIT/SEED: Capsule; seed 3 mm diam.


FIRE RESPONSE: Resprouts from base, secondary juvenile period almost 1 year after high intensity fire (1/1994) at Lane Cove (P. Kubiak pers. comm.).

INTERACTION WITH OTHER ORGANISMS: Sometimes heavily cropped by rabbits (P. Kubiak pers. comm.).

Distribution

STATUS/ORIGIN: Native.

BOTANICAL SUBREGIONS: CC CT CWS.

DISTRIBUTION SYDNEY AREA: Widespread.

SELECT LOCATIONS: CC: Bilpin, Linden, CT: Coorongoo Creek, Mount Tomah, Blackheath, Wentworth Falls.

Habitat

HABITAT: Near creeks, waterfalls, moist cliffs, rock crevices.

ALTITUDE: 0–1000 m  
ANNUAL RAINFALL: 900–1400 mm

TYPICAL LOCAL ABUNDANCE: Frequent–occasional.

VEGETATION: Rainforest e.g. with Doryphora sassafras, Acmena smithii, Ceratopetalum apetalum; moist eucalypt forest e.g. with Eucalyptus deanei.

SUBSTRATE: Sandy soils on sandstone, basalt, low–medium nutrients, moist.

EXPOSURE:

Conservation

Conservation status unknown. Reported in Blue Mountains NP.

LOMANDRACEAE

Lomandra multiflora

Many-flowered Mat-rush

Life history

GROWTH FORM: Tufted perennial herb.

VEGETATIVE SPREAD: No (McIntyre et al. 1995).

LONGEVITY: Indefinite.

PRIMARY JUVENILE PERIOD:

FLOWERS: Male and female flowers on separate plants, September–November. Grasshopper fed on pollen (P. Kubiak pers. comm.).

FRUIT/SEED: Capsule, September–February. Viability of fresh seed 96% (Vigilante et al. 1998).


FIRE RESPONSE: Regrowth from rhizomes, no seedlings recorded within 1 year after fire (Purdie 1977, Vigilante et al. 1998), secondary juvenile period 1 year after high intensity fire (1/1994) at Lane Cove (P. Kubiak pers. comm.).


Distribution

STATUS/ORIGIN: Native.

BOTANICAL SUBREGIONS: NC CC SC CT ST NWS CWS NWP SWP; Qld, Vic., N.T., ?S.A.

DISTRIBUTION SYDNEY AREA: Widespread.

SELECT LOCATIONS: CC: Berowra, Como, Rookwood, Kemps Creek, Liverpool, Glenbrook, Heathcote, Bargo River, Coaldale, Bomaderry. CT: Ryldstone, Mt Coricudgy, Cadia, Lewis Ponds, Bathurst, PanTonyes Crown, Lithgow, Hartley, Katoomba, Yerranderie.

Habitat

HABITAT: Hillsides, crests.

ALTITUDE: 0–1000 m  
ANNUAL RAINFALL: 700–1400 mm

TYPICAL LOCAL ABUNDANCE: Frequent–occasional.

VEGETATION: Woodland e.g. with Eucalyptus fibrosa, E. mannifera, E. rossii, E. bridgesiana, E. albans; open-forest e.g. with Syncarpia glomulifera, Angophora costata, Eucalyptus piperita.

SUBSTRATE: Clay soils on shale, basalt, metamorphics, occasionally on sandstone, low to medium nutrients, well-drained.

EXPOSURE:

Conservation

Conserved in Western Sydney (James et al. 1999). Reported in Brisbane Water NP, Marramarra NP, Muogamarra NR, Ku-ring-gai Chase NP, Garigal NP, Lane Cove NP, Sydney Harbour NP.

LOMANDRACEAE

Lomandra obtusa
Eustrephus latifolius

**Vomant Berry**

**Life history**

**Growth form**: Vine with stems to 6 m long, sometimes much branched, and with tuberous roots, narrow-leaved forms occur occasionally. **Vegetative spread:** **Primary juvenile period:** **Flowers**: Pink to mauve or white, September–November. Probably pollinated by honeybees *Apis mellifera*; small beetles (Coleoptera) seen on flowers (P. Kubiak pers. comm.). **Fruit/seed**: Globular, fleshy, yellow-orange capsule, 10–20 mm diam. Seeds numerous, black, with prominent white aril, January–September. **Dispersal, establishment & growth**: Diaspore: seed/fruit, bird-dispersed e.g. Currawongs (Wallace 1997). **Fire response**: Stems killed, resprouts from base (after high-intensity fire Narrabeen 1/1994), flower buds after 3 months (P. Kubiak pers. comm.). **Interaction with other organisms**: Moth larvae *Cryptopila immersana* feed between joined leaves (Common 1990). White tuberous roots edible raw (Cribb & Cribb 1984).

**Distribution**

**Status/origin**: Native. **Botanical subregions**: NC CC SC NT CT NWS CWS; Qld, Vic., Pac.Is, Malesia. **Distribution Sydney area**: Widespread. **Select locations**: CC: Mooney Mooney, Hornsby, Manly, Cooks River, Auburn, Grose Vale, Razorback, Mt Keira, Bass Point, Minnamurra Falls. CT: Mount Tomah, Jenolan Caves, Robertson. **Habitat**

**Habitat**: Gullies and moist hillsides. **Altitude**: 0–1000 m **Annual rainfall**: 700–1400 mm **Typical local abundance**: Frequent–occasional. **Vegetation**: Moist rainforest e.g. with *Doryphora sassafras*, dry rainforest e.g. with *Aphanopetalum apetalum*; moist eucalypt forest e.g. with *Eucalyptus pilularis*, *E. piperta*, *Syncarpia glomulifera*; coastal sites e.g. with *Casuarina glauca*, *Myoporum*. **Substrate**: Clay loam from shale, basalt, limestone, occasionally on sandstone, medium to high nutrients, well-drained. **Exposure**: Sheltered sites, mid-shade.

**Conservation**

Probably adequately conserved. Reported in Blue Mountains NP, Bouddi NP. Brisbane Water NP, Marramarra NP, Muogamarra NR, Ku-ring-gai Chase NP, Garigal NP, Lane Cove NP, Sydney Harbour NP, Robertson NR.

Najas browniana

**Watemymph**

**Life history**

**Growth form**: Submerged aquatic monoecious annual or short-lived perennial with stems to 1 m long. **Vegetative spread**: **Longevity**: Short-lived. **Primary juvenile period**: **Flowers**: Warmer months. **Fruit/seed**: Capsule, with one seed 1 mm long. **Dispersal, establishment & growth**: **Fire response**: **Interaction with other organisms**

**Distribution**


**Habitat**: Rivers. **Altitude**: 0–2 m **Annual rainfall**: 800 mm **Typical local abundance**: **Vegetation**: **Substrate**: Static to slow moving fresh water less than 3 m deep. **Exposure**:

**Conservation**

Conservation status unknown.
**Acianthus amplexicaulis**  

**Life history**  
Growth form: Seasonally deciduous terrestrial herb, with tubers often on stolons and a single heart-shaped leaf, dark green above and reddish purple below; flowering stem to 8 cm high with up to 20 tiny flowers (Bishop 1996).  
Primary juvenile period:  
Fruit/seed: Capsule with numerous minute winged seeds.  
Dispersal, establishment & growth: Active growing period February–August.  
Fire response:  
Interaction with other organisms:  
Distribution  
Status/origin: Native.  
Botanical subregions: NC CC; Qld.  
Distribution Sydney area: Widespread.  
Select locations: CC: Wisemans Ferry, Patonga Creek, Villawood, Duck Creek, Penrith Weir, Luddenham, Menangle, Cobbitty, The Oaks, Burragorang Valley.  
Habitat  
Habitat: Wetland.  
Altitude: 0–200 m  
Annual rainfall: 700–1400 mm  
Typical local abundance: Frequent.  
Vegetation: Aquatic vegetation e.g. with Potamogeton crispus, Hydrilla verticillata, Limnossela australis.  
Substrate: Fresh water less than 3 m deep.  
Exposure:  
Conservation  
Conservation status unknown.  

**Acianthus caudatus**  

Mayfly Orchid  

**Life history**  
Growth form: Seasonally deciduous terrestrial herb, with paired tubers and daughter tubers on stolons, a single heart-shaped leaf, dark green above and reddish purple below; flowering stem to 25 cm high with up to 9 flowers (Bishop 1996).  
Longevity: Indefinite.  
Primary juvenile period:  
Flowers: Purple with odour of rotting meat (P. Weston, Herb. note), July–September, peak August. Possibly pollinated by tiny flies (Bishop 1996).  
Fruit/seed: Capsule with numerous minute winged seeds.  
Dispersal, establishment & growth: Active growing period February–August. Grows in loose, open colonies (Jones & Jones 2000).  
Fire response: Abundant following fire (P. Weston, Herb. note), presumably resprouting from tubers. Secondary juvenile period 10 months, after high intensity fire (1/1994 at Lane Cove) (P. Kubiak pers. comm.).  
Interaction with other organisms:  
Distribution  
Status/origin: Native.  
Botanical subregions: NC CC SC CT; Qld, Vic., Tas., S.A.  
Distribution Sydney area: Boyd Plateau.  
Select locations: CT: Kanangra–Boyd.  
Habitat  
Habitat: Grassy ridge.  
Altitude: 1000 m  
Annual rainfall: 1100 mm  
Typical local abundance: Frequent.  
Vegetation: Open-forest e.g. with Eucalyptus pauciflora.  
Substrate:  
Exposure: South and east aspects (Steenbeeke 1997).  
Conservation  
Rare, Boyd Plateau is southern geographical limit. Coded 2R on national rare species list (Briggs & Leigh 1996). Reported in Kanangra-Boyd NP.  

**Acianthus apprimus**  

**Life history**  
Growth form: Seasonally deciduous terrestrial herb, with paired tubers and daughter tubers on stolons, a single heart-shaped leaf, dark green above and reddish purple below; flowering stem to 20 cm high with up to 9 flowers (Bishop 1996).  
Longevity: Indefinite.  
Primary juvenile period:  
Flowers: Pinkish and dark purplish, February–April. Possibly pollinated by tiny flies (Bishop 1996).  
Fruit/seed: Capsule with numerous minute winged seeds.  

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**Distribution**  
Status/origin: Native.  
Botanical subregions: NC CC NWS SWS SWP SFWP; Qld, Vic., N.T., S.A., W.A.  
Distribution Sydney area: Widespread.  
Select locations: CC: Wisemans Ferry, Patonga Creek, Villawood, Duck Creek, Penrith Weir, Luddenham, Menangle, Cobbitty, The Oaks, Burragorang Valley.  

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**Habitat**  
Habitat:  
Altitude: 0–200 m  
Annual rainfall: 700–1400 mm  
Typical local abundance: Frequent.  
Vegetation: Aquatic vegetation e.g. with Potamogeton crispus, Hydrilla verticillata, Limnossela australis.  
Substrate: Fresh water less than 3 m deep.  
Exposure:  
Conservation  
Conservation status unknown. Reported in Wyrrabalong NP, Blue Mountains NP, Royal NP.
**Primary Juvenile Period:**

- Botanical Subregions: NC CC SC NT CT ST; Qld, Vic.

**Habitat:**

- Habitat: Various locations in Sydney area.

**Select Locations:**

- Mosquito Orchid (Acianthus exsertus)
  - Habitat: Various habitats in Sydney area.
  - Altitude: 0–1000 m
  - Typical Local Abundance: Frequent
  - Distribution: Widespread

- Gnat Orchid (Acianthus pusillus)
  - Habitat: Various habitats in Sydney area.
  - Altitude: 0–1000 m
  - Typical Local Abundance: Frequent
  - Distribution: Widespread

- Pixie Caps (Acianthus fornicatus)
  - Habitat: Various habitats in Sydney area.
  - Altitude: 0–1000 m
  - Typical Local Abundance: Frequent
  - Distribution: Widespread

**Conservation:**

- Conservation status unknown. Reported in Royal NP. The following species are also mentioned:

- Benson & McDougall 9(1): 2005

**Distribution:**

- Status/Origin: Native.

**Botanical Subregions:**

- NC CC SC NT CT ST; Qld.

**Select Locations:**

- For Mosquito Orchid (Acianthus exsertus):
  - Various locations in Sydney area.

- For Gnat Orchid (Acianthus pusillus):
  - Various locations in Sydney area.

**Vegetation:**

- Various vegetation types are mentioned, e.g., woodland, open forest, and woodland e.g. with Eucalyptus sideroxylon.

**Fire Response:**

- Various fire responses are mentioned, e.g., resprouts at base or below (Fox 1988).
**Elbow Orchid**

**Life history**

**Growth form:** Saprophytic, leafless, seasonal terrestrial herb, with paired tuberoids and slender wiry, reddish flowering stem to 15 cm high with up to 10 flowers.

**Vegetative spread:** No (Pridgeon & Chase 1995).

**Longevity:** Indefinite.

**Primary juvenile period:**

**Conservation**

Helensburgh is southern geographical limit. Conservation status unknown. Reported in Blue Mountains NP.

**Distribution**

Status/origin: Native.

Botanical subregions: NC CC; Qld.

DISTRIBUTION SYDNEY AREA: Sporadic.

SELECT LOCATIONS: CT: Helensburgh. CT: Mt Victoria, Blackheath, Wentworth Falls, Woodford.

**Habitat**

Habitat: Wet rocky crevices of rock faces, leaf litter, rock overhangs, near creeks.

Altitude: 0–1000 m

Annual rainfall: 1200–1400 mm

Typical local abundance: Frequent–occasional.

Vegetation: Grows with Sphagnum moss, Gleichenia, Blechnum, Todea barbara, Bauera rubioides, Callicoma serratifolia.

Substrate: Moist sandstone overhangs, low nutrients, permanent moisture.

Exposure: Shade.

**Conservation**

Conservation status unknown. May be inconspicuous and readily overlooked (Jones & Jones 2000). Conservation status unknown. Reported in Blue Mountains NP.

**Arthrochilus prolixus** (prev. conf. with A. irritabilis)

**Life history**

**Growth form:** Seasonally deciduous, leafless terrestrial herb, with paired tuberoids and daughter tubers; flowering stem to 32 cm with up to 20 flowers (Bishop 1996).

**Vegetative spread:** Stoloniferous (Jones 1991).

**Longevity:** Indefinite.

**Primary juvenile period:**

**Conservation**

Conservation status unknown. May be inconspicuous and readily overlooked (Jones & Jones 2000). Conservation status unknown. Reported in Blue Mountains NP.

**Distribution**

Status/origin: Native.

Botanical subregions: NC CC; Qld.

Distribution Sydney area: Sporadic.

SELECT LOCATIONS: CC: Narrabeen.

**Habitat**

Habitat: Ridges, slopes.

Altitude: 0–100 m

Annual rainfall: 1200 mm

Typical local abundance:

Vegetation: Open-forest.

Substrate: Reported from rotting sawdust heaps.

Exposure: Shade.

**Conservation**

Conservation status unknown.
**Bulbophyllum elisae**

**Pineapple Orchid**

**Life history**

**GROWTH FORM:** Rhizomatous, evergreen epiphytic or epilithic terrestrial herb, forming dense mats.

**VEGETATIVE SPREAD:** Rhizomatous.

**LONGEVITY:** Indefinite.

**PRIMARY JUVENILE PERIOD:**

**FLOWERS:** Green, May–December.

**FRUIT/SEED:** Capsule with numerous minute seeds.

**DISPERAL, ESTABLISHMENT & GROWTH**

**FIRE RESPONSE:**

**INTERACTION WITH OTHER ORGANISMS:**

**Distribution**

**STATUS/ORIGIN:** Native.

**BOTANICAL SUBREGIONS:** NC NT CT CWS; Qld.

**DISTRIBUTION SYDNEY AREA:** Blue Mountains.

**SELECT LOCATIONS:** CT: Corricudgy (1897), Rylstone.

**Habitat**

**HABITAT:**

**ALTITUDE:** 600–1300 m

**ANNUAL RAINFALL:** 700–1000 mm

**TYPICAL LOCAL ABUNDANCE:**

**VEGETATION:** Rainforest.

**SUBSTRATE:** Trees or exposed rocks.

**EXPOSURE:**

**Conservation**

Blue Mountains is southern geographical limit. Conservation status unknown. Reported from Blue Mountains NP (P. Weston pers. comm.).

**Bulbophyllum exiguum**

**Life history**

**GROWTH FORM:** Rhizomatous epiphytic or epilithic evergreen herbs, forming dense mats. Pseudobulbs topped with a single flat, dark green leaf (Jones & Jones 2000).

**VEGETATIVE SPREAD:** Rhizomatous. Forming extensive spreading patches (Jones & Jones 2000).

**LONGEVITY:** Indefinite.

**PRIMARY JUVENILE PERIOD:**

**FLOWERS:** Greenish to cream, with 1–5 flowers, March–May.

**FRUIT/SEED:** Capsule with numerous minute seeds.

**DISPERAL, ESTABLISHMENT & GROWTH**

**FIRE RESPONSE:**

**INTERACTION WITH OTHER ORGANISMS:**

**Distribution**

**STATUS/ORIGIN:** Native.

**BOTANICAL SUBREGIONS:** NC CC SC NT; Qld.

**DISTRIBUTION SYDNEY AREA:** Widespread.

**SELECT LOCATIONS:** CC: Culoul Range, Wyong, Wisemans Ferry, Maroota, Springwood, Wahroonga, Waterfall, Bulli, Bomaderry Creek.

**CT:** Robertson.

**Habitat**

**HABITAT:** Near streams.

**ALTITUDE:** 0–700 m

**ANNUAL RAINFALL:** 800–1400 mm

**TYPICAL LOCAL ABUNDANCE:**

**VEGETATION:** Rainforest e.g. with *Tristaniopsis laurina*, *Ceratopetalum apetalum*, *Callicoma serratifolia*; moist open-forest e.g. with *Syncarpia glomulifera*, *Backhousia myrtifolia*.

**SUBSTRATE:** Sandstone boulders, trees.

**EXPOSURE:** Deep shade.

**Conservation**

Vulnerable in Western Sydney (James et al. 1999). Reported in Blue Mountains NP, Royal NP.

**Bulbophyllum minutissimum**

**Life history**

**GROWTH FORM:** Rhizomatous epiphytic or epilithic evergreen herb, forming dense mats. Leaves minute, scale-like deciduous; the entire photosynthetic portion of the plant consists of hollow pseudobulbs and the minute leaf (Schwartz 1997).

**VEGETATIVE SPREAD:** Rhizomatous.

**LONGEVITY:** Indefinite.

**PRIMARY JUVENILE PERIOD:**

**FLOWERS:** October–November.

**FRUIT/SEED:** Capsule with numerous minute seeds.

**DISPERAL, ESTABLISHMENT & GROWTH**

**FIRE RESPONSE:**

**INTERACTION WITH OTHER ORGANISMS:**

**Distribution**

**STATUS/ORIGIN:** Native.

**BOTANICAL SUBREGIONS:** NC CC SC NT; Qld.

**DISTRIBUTION SYDNEY AREA:** Coastal.

**SELECT LOCATIONS:** CC: Kiama.

**Habitat**

**HABITAT:** Near streams.

**ALTITUDE:** 0–200 m

**ANNUAL RAINFALL:** 1200–1400 mm

**TYPICAL LOCAL ABUNDANCE:** Occasional.

**VEGETATION:** Rainforest; open-forest.

**SUBSTRATE:** Trees and rocks. Commonly found on the undersides of branches of *Ficus macrophylla* or mangroves (Schwartz 1997).

**EXPOSURE:**

**Conservation**

Regionally rare in Illawarra region (Mills 1988).

**Bulbophyllum shepherdii** *(B. crassulifolium)*

**Wheat-leaved Orchid**

**Life history**

**GROWTH FORM:** Rhizomatous epiphytic or epilithic evergreen herb, prostrate, forming dense mats. Pseudobulbs topped with a single flat, dark green leaf (Jones & Jones 2000).

**VEGETATIVE SPREAD:** Rhizomatous.

**LONGEVITY:** Indefinite.

**PRIMARY JUVENILE PERIOD:**

**FLOWERS:** Whitish, September–November.

**FRUIT/SEED:** Capsule with numerous minute seeds.

**DISPERAL, ESTABLISHMENT & GROWTH**

**FIRE RESPONSE:**

**INTERACTION WITH OTHER ORGANISMS:**

**Distribution**

**STATUS/ORIGIN:** Native.

**BOTANICAL SUBREGIONS:** NC CC SC NT; Qld.

**DISTRIBUTION SYDNEY AREA:**

**SELECT LOCATIONS:** CC: Matcham, Waterfall, Springwood.

**Habitat**

**HABITAT:** Near streams.

**ALTITUDE:** 0–600 m

**ANNUAL RAINFALL:** 1000–1400 mm

**TYPICAL LOCAL ABUNDANCE:** Occasional.

**VEGETATION:** Rainforest e.g. with *Backhousia myrtifolia*, *Trochocarpa laurina*.

**SUBSTRATE:** Rocks or trees.

**EXPOSURE:** Deep shade.

**Conservation**

Reported in Blue Mountains NP. Conservation status unknown.
Burnettia cuneata

Lizard Orchid

**Life history**

**Growth form:** Seasonal leafless terrestrial, saprophytic herb to 13 cm when flowering. Tuber present and capable of surviving many seasons underground without producing a leaf or flowers (Bishop 1996).

**Vegetative spread:** No.

**Longevity:** 2–4 years (Pridgeon & Chase 1995).

**Primary juvenile period:**

**Flowers:** White–pinkish, outside with dark striations on veins, September–October. Probably pollinated by native bees (Pridgeon et al. 2001), not self-pollinating (Jones 1988).

**Fruit/seeds:** Capsule with numerous minute winged seeds.

**Fire response:** Flowers exclusively after fire (Bishop 1996), with plants dying after flowering. No replacement tubers (Pridgeon et al. 2001).

**Interaction with other organisms:** Associated with *Melaleuca squarrosa* (Pridgeon et al. 2001).

**Distribution**

**Status/origin:** Native.

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

**Select locations:** CC: Wyong, Calga, Wahroonga, Grose Vale, Avoca Reserve, Grose Wold (R.G Coveny), Marsfield, Kurnell, Loddon River.

**Habitat**

**Habitat:** Swampy thickets.

**Altitude:** 0–400 m

**Typical local abundance:** Occasional.

**Vegetation:** Shrubby swamps dominated by *Melaleuca* and *Leptospermum*, possibly partly parasitic on *Melaleuca squarrosa* (Bishop 1996).

**Substrate:** Wet peaty soil, low nutrients.

**Exposure:**

**Conservation**

Coded 3RC- on national rare species list (Briggs & Leigh 1996). Waterfall is northern geographical limit. Reported in Royal NP, Barren Grounds NR.

Caladenia australis (*C. reticulata,*)

**Life history**

**Growth form:** Seasonally dormant terrestrial herb, with underground paired tubers, narrow leaf to 12 cm long, sparsely hairy.

**Vegetative spread:** No.

**Longevity:** Indefinite.

**Primary juvenile period:**

**Flowers:** Greenish cream with red stripes, flower stalk to 40 cm high, September–October.

**Fruit/seeds:** Capsule with numerous minute winged seeds.

**Fire response:** More easily found after fire (Bishop 1996).

**Interaction with other organisms:**

**Distribution**

**Status/origin:** Native.

**Botanical subregions:** NC CC CT ST CWS SWS; Vic., S.A.

**Distribution Sydney area:**

**Select locations:**

**Habitat**

**Habitat:**

**Altitude:**

**Typical local abundance:**

**Vegetation:** Woodland or low open-forest (Bishop 1996).

**Substrate:**

**Exposure:**

**Conservation**

Conservation status unknown.

Caladenia capitellata (*C. filamentosa var. tentaculata*)

Green Comb, Fringed Spider Orchid

**Life history**

**Growth form:** Terrestrial seasonally deciduous herb, with underground paired tubers, single hairy leaf and flowering stems to 45 cm high.

**Vegetative spread:** No.

**Longevity:** Indefinite.

**Primary juvenile period:**

**Flowers:** Greenish, September–December, peak October.

**Fruit/seeds:** Capsule with numerous, minute winged seeds.

**Fire response:**

**Interaction with other organisms:**

**Distribution**

**Status/origin:** Native.

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

**Distribution Sydney area:** Coast and Bathurst/Orange area.

**Select locations:** CC: Gladesville, Cooks River, Jann ali. CT: Orange, Hill End, Marrangaroo, Wentworth Falls, Hill Top, Abercrombie Caves.

**Habitat**

**Habitat:** Rocky hillsides.

**Altitude:** 0–1000 m

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

**Vegetation:** Woodland e.g. with *Eucalyptus rossii, E. polyanthemos, E. macrorhyncha*.

**Substrate:** Stony soils on shales, slate porphyry, low nutrients.

**Exposure:**

**Conservation**

Rare, last Coastal record is Janali 1933. Conservation status elsewhere unknown.
**Caladenia carnea**

Pink Fairy, Pink Fingers

**Life history**

**Growth form:** Seasonally deciduous terrestrial herb, with underground paired tubers, single leaf.

**Vegetative spread:** No.

**Longevity:** Indefinite.

**Primary juvenile period:**

**Flowers:** Pink, August–October, peak September.

**Fr/Se:** Capsule with numerous minute winged seeds.

**Fire response:** Resprouts at base or below (Fox 1988). Flowering 9 months after high intensity fire (1/1994 at Lane Cove (P. Kubiak pers. comm.).

**Interaction with other organisms:**

**Distribution**

**Status/origin:** Native.

**Botanical subregions:** NC CC SC; Qld, Vic., N.Z.

**Select locations:** CC: Agnes Banks, Villawood, Sutherland, Holsworthy, Loddon River. CT: Coricudgy, Mt Victoria, Katomba Falls, Mt Werong, Mittagong.

**Habitat**

**Habitat:** Often in or recolonising cleared areas.

**Altitude:** 0–1000 m

**Annual rainfall:** 900–1400 mm

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

**Vegetation:** Woodland e.g. with Eucalyptus haemastoma, Corymbia gummifera, Angophora costata, Eucalyptus sclerophylla, E. cunnionii, E. amygdalina, E. obliqua, Banksia serrata, Banksia ericifolia.

**Substrate:** Sandy soil on sandstone, granite, slates, low nutrients.

**Exposure:**

**Conservation**

Conservation status unknown. Reported in Wollombi NP.

**Caladenia catenata** *(C. alba)*

White Caladenia, White Fingers

**Life history**

**Growth form:** Seasonally deciduous terrestrial herb, with underground paired tubers, single leaf.

**Vegetative spread:** No.

**Longevity:** Indefinite.

**Primary juvenile period:**

**Flowers:** White, mainly August–October, peak September.

**Fr/Se:** Capsule with numerous minute winged seeds.

**Dispersal, establishment & growth:** No special morphology for dispersal (Westoby et al. 1990), probably wind-dispersed.

**Fire response:** Probably resprouted after high intensity fire (1/1994 at Lane Cove), green fruit 10 months later (P. Kubiak pers. comm.).

**Interaction with other organisms:**

**Distribution**

**Status/origin:** Native.

**Botanical subregions:** NC CC SC; Qld, Vic., N.Z.

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

**Select locations:** CC: Ourimbah, Terrigal, Mt Irvine, Richmond, Glenbrook, Hornsby, Ryde, Rookwood, St Marys, Bankstown, Tempe, La Perouse, Oatley, Kurnell, Bola Creek, Waterfall, Mt Kembla.

**Habitat**

**Habitat:** Hillsides, slopes.

**Altitude:** 0–500 m

**Annual rainfall:** 800–1400 mm

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

**Vegetation:** Open-forest e.g. with Angophora costata, Eucalyptus sieberi, E. piperita, Cryptocarya glomulifera; woodland with Eucalyptus fibrosa, E. parramattensis, Melaleuca decora.

**Substrate:** Sandy to clay soils on sandstone, Tertiary alluvium, low nutrients.

**Exposure:**

**Conservation**

Conservation status unknown. Reported in Wollemi NP.

**Caladenia congesta**

Black Tongue Caladenia

**Life history**

**Growth form:** Seasonally deciduous terrestrial herb, with underground paired tubers and a single leaf; flowering stem to 60 cm high with 1–4 flowers (Bishop 1996).

**Vegetative spread:** No.

**Longevity:** Indefinite.

**Primary juvenile period:**

**Flowers:** Bright pink, October–December, peak November.

**Fr/Se:** Capsule with numerous minute winged seeds.

**Dispersal, establishment & growth:**

**Fire response:**

**Interaction with other organisms:**

**Distribution**

**Status/origin:** Native.

**Botanical subregions:** CT ST CWS; Vic., Tas., S.A.

**Distribution Sydney area:** Bathurst area.

**Select locations:** CT: Yetholme, Abercrombie Caves, Tarana.

**Habitat**

**Habitat:** Ridges.

**Altitude:** 500–1000 m

**Annual rainfall:** 600–800 mm

**Typical local abundance:** Occasional.

**Vegetation:** Eucalypt open-forest, woodland.

**Substrate:** Skeletal clayey soil, low nutrients.

**Exposure:**

**Conservation**

Conservation status unknown. Reported in Wambool NR.

**Caladenia clavigera**

Clubbed Spider Orchid, Small Spider Orchid

**Life history**

**Growth form:** Seasonally deciduous terrestrial herb, with underground paired tubers, single leaf, flowering stem to 40 cm high.

**Vegetative spread:** No.

**Longevity:** Indefinite.

**Primary juvenile period:**

**Flowers:** Green with maroon stripes, usually only one flower, with metallic odour (Bishop 1996), October–November.

**Fr/Se:** Capsule with numerous minute winged seeds.

**Dispersal, establishment & growth:**

**Fire response:**

**Interaction with other organisms:**

**Distribution**

**Status/origin:** Native.

**Botanical subregions:** CT ST CWS; Vic., Tas., S.A.

**Distribution Sydney area:** Bathurst area.

**Select locations:** CT: Yetholme, Abercrombie Caves, Tarana.

**Habitat**

**Habitat:** Ridges.

**Altitude:** 500–1000 m

**Annual rainfall:** 600–800 mm

**Typical local abundance:** Occasional.

**Vegetation:** Eucalypt open-forest, woodland.

**Substrate:** Skeletal clayey soil, low nutrients.

**Exposure:**

**Conservation**

Conservation status unknown. Reported in Royal NP.

**Caladenia gummifera**

**Exposure:** SW aspect, bright light but protected locations (Steenbeke 1997).

**Conservation**

Conserved in Western Sydney (James et al. 1999). Conservation status elsewhere unknown. Reported in Royal NP.

**Caladenia congesta**

Black Tongue Caladenia

**Life history**

**Growth form:** Seasonally deciduous terrestrial herb, with underground paired tubers and a single leaf; flowering stem to 60 cm high with 1–4 flowers (Bishop 1996).

**Vegetative spread:** No.

**Longevity:** Indefinite.

**Primary juvenile period:**

**Flowers:** Bright pink, October–December, peak November.

**Fr/Se:** Capsule with numerous minute winged seeds.

**Dispersal, establishment & growth:**

**Fire response:**

**Interaction with other organisms:**

**Distribution**

**Status/origin:** Native.

**Botanical subregions:** CT ST CWS; Vic., Tas., S.A.

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

**Select locations:** CT: Yetholme, Mullion Creek, Wildes Meadow.

**Habitat**

**Habitat:** Ridges.

**Altitude:** 700–1000 m

**Annual rainfall:** 900–1400 mm

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

**Vegetation:** Woodland e.g. with Eucalyptus rossii, E. goniocalyx.

**Substrate:** Shallow stony soils on sandstones, shales, low nutrients.

**Exposure:**

**Conservation**

Rare (Bishop 1996), conservation status unknown.
Caladenia cucullata

Hooded Caladenia

**Life history**

**Growth form:** Seasonally deciduous terrestrial herb, with underground paired tubers and a single leaf; flowering stem to 25 cm high with up to 5 flowers.

**Vegetative spread:** Not stoloniferous (Pridgeon & Chase 1995).

**Longevity:** Indefinite.

**Primary juvenile period:**

**Flowers:** Cream inside, outer surfaces greenish-brown or purplish. September–November.

**Fruit/seed:** Capsule with numerous minute winged seeds.

**Dispersal, establishment & growth:** Winter-growing vegetative shoots from tubers.

**Fire response:**

**Interaction with other organisms:** Associated with mycorrhizal fungi (Jones & Elliot 1986).

**Distribution**

**Status/origin:** Native.

**Botanical subregions:** NT CT

**DISTRIBUTION SYDNEY AREA:** Upper Blue Mountains.

**SELECT LOCATIONS:** CT: Yetholme, Newnes, Katoomba, Abercrombie Caves.

**Habitat**

**Habitat:** Ridges, slopes.

**Altitude:** 700–1000 m

**Annual rainfall:** 900–1400 mm

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

**Vegetation:** Woodland e.g. with *Eucalyptus rossii*; margins of shrub swamps e.g. with *Gymnoschoenus sphaerocephalus*.

**Substrate:** Shallow stony soils on sandstone, low nutrients.

**Exposure:**

**Conservation**

Conservation status unknown.

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Caladenia curtisepala (prev. incl. in *C. carnea*)

**Life history**

**Growth form:** Seasonally deciduous terrestrial herb, with underground paired tubers and a single leaf; flowering stem to 20 cm high with 1 flower (Bishop 1996).

**Vegetative spread:** No.

**Longevity:** Indefinite.

**Primary juvenile period:**

**Flowers:** Pale pink or white inside, yellowish green on outside, with musky or spicy scent (Bishop 1996), August–September.

**Fruit/seed:** Capsule with numerous minute winged seeds.

**Dispersal, establishment & growth:**

**Fire response:**

**Interaction with other organisms:**

**Distribution**

**Status/origin:** Native.

**Botanical subregions:** CC

**Distribution Sydney Area:** Mt Ku-ring-gai.

**Select locations:** CC: Mt Ku-ring-gai.

**Habitat**

**Habitat:**

**Altitude:** 0–200 m

**Annual rainfall:** 1100–1200 mm

**Typical local abundance:** Occasional.

**Vegetation:** Woodland e.g. with *Eucalyptus haemastoma, Corymbia gummifera*.

**Substrate:** Sandy soils on Hawkesbury sandstone, low nutrients.

**Exposure:**

**Conservation**

Restricted to dry sclerophyll forest on Hawkesbury Sandstone (Harden 1993). Reported in Ku-ring-gai Chase NP.

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Caladenia dimorpha

**Life history**

**Growth form:** Seasonally deciduous terrestrial herb, with underground paired tubers and a single leaf; flowering stem to 30 cm high with up to 3 flowers (Bishop 1996).

**Vegetative spread:** No.

**Longevity:** Indefinite.

**Primary juvenile period:**

**Flowers:** White inside, outside surfaces greenish to light brown, with scent of cumarin (Bishop 1996), September–October.

**Fruit/seed:** Capsule with numerous minute winged seeds.

**Dispersal, establishment & growth:**

**Fire response:** Some records from areas previously burnt. **Interaction with other organisms:**

**Distribution**

**Status/origin:** Native.

**Botanical subregions:** CT ST CT ST NWS CWS SWS W P; Vic.

**Distribution Sydney Area:** Blue Mountains to Orange.

**Select locations:** CT: Mullions Range, Orange, Capertee, Wallerawang, Bowenfels, Mt Cameron, Clarence, Mt Irvine, Bell, Woodford, Katoomba, Trunkey Creek, Abercrombie Caves, Mittagong, Taralga.

**Habitat**

**Habitat:** Slopes.

**Altitude:** 700–1100 m

**Annual rainfall:** 700–1400 mm

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

**Vegetation:** Open-forest e.g. with *Eucalyptus viminalis, E. radiata*; woodland e.g. with *Eucalyptus manifera*.

**Substrate:** Gravelly soil on metamorphics, basalt, low to medium nutrients, well-drained.

**Exposure:** Mid-shade.

**Conservation**

Uncommon, Blue Mountains is northern geographical limit. Conservation status unknown.

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Caladenia filamentosa

**Daddy Long-legs**

**Life history**

**Growth form:** Seasonally deciduous terrestrial herb, with underground paired tubers and a single leaf; flowering stem to 40 cm high with up to 4 flowers (Bishop 1996).

**Vegetative spread:** No.

**Longevity:** Indefinite.

**Primary juvenile period:**

**Flowers:** Maroon to cream. September–November. Flowers visited by thynnine wasps, *Chilocephalus trochanterinus, Aeolothynnus* sp. (at Mullion Creek, Bower n.d.).

**Fruit/seed:** Capsule with numerous minute winged seeds.

**Dispersal, establishment & growth:**

**Fire response:**

**Interaction with other organisms:**

**Distribution**

**Status/origin:** Native.

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

**Distribution Sydney Area:** Widespread, sporadic.

**Select locations:** CC: Manly, Como, Wedderburn. CT: Abercrombie Caves.

**Habitat**

**Habitat:**

**Altitude:** 0–700 m

**Annual rainfall:** 900–1400 mm

**Typical local abundance:**

**Vegetation:** Eucalypt woodland.

**Substrate:** Sandy soil on sandstone, low nutrients.

**Exposure:**

**Conservation**

Conservation status unknown. Occurrence is very unpredictable (Bishop 1996).
**Caladenia fitzgeraldii**

Spider Orchid

**Life history**

**Growth form:** Seasonally deciduous terrestrial herb, with underground paired tubers and a single narrowish leaf to 14 cm long; flowering stem to 35 cm high with 1 flower (Bishop 1996).

**Vegetative spread:** No.

**Longevity:** Indefinite.

**Primary juvenile period:**

**Flowers:** Yellowish green with red markings, August–November.

**Fruit/seed:** Capsule with numerous minute winged seeds.

**Dispersal, establishment & growth:**

**Fire response:**

**Interaction with other organisms:**

**Distribution**

**Status/origin:** Native.

**Botanical subregions:** CC NT ST NWS SWS NWP SWP; Qld, Vic.

**Distribution Sydney area:** Wellington–Bathurst area (Harden 1993).

**Select locations:** CT, Clarence.

**Habitat**

**Habitat:**

**Altitude:** 600–1000 m

**Annual rainfall:** 900–1000 mm

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

**Vegetation:** Low open-forest e.g. with Eucalyptus sieberi, E. macrorhyncha; woodland e.g. with Eucalyptus mannifera, E. radiata.

**Substrate:** Sandy soil on sandstone, low nutrients.

**Exposure:**

**Conservation**

Conservation status unknown.

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**Caladenia fuscata**

**Life history**

**Growth form:** Seasonally deciduous terrestrial herb, with underground paired tubers, single narrow leaf to 15 cm long, sparsely hairy; flowering stem to 15 cm with 1 flower (Bishop 1996).

**Vegetative spread:** No.

**Longevity:** Indefinite.

**Primary juvenile period:**

**Flowers:** Inner surface white to pink, out surface reddish brown, September–October.

**Fruit/seed:** Capsule with numerous minute winged seeds.

**Dispersal, establishment & growth:**

**Fire response:**

**Interaction with other organisms:**

**Distribution**

**Status/origin:** Native.

**Botanical subregions:** CC NT ST NWS SWS NWP SWP; Qld, Vic.

**Distribution Sydney area:** Widespread.

**Select locations:** CC: Ourimbah, Yarramalong, Terrey Hills, Riverstone, Wedderburn, Burrugarang, CT: Yetholme, Blackheath, Wentworth Falls, Megalong Valley, Bowral, Abercrombie Caves.

**Habitat**

**Habitat:** Hillsides.

**Altitude:** 0–1000 m

**Annual rainfall:** 800–1400 mm

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

**Vegetation:** Woodland e.g. with Eucalyptus mannifera, E. radiata, E. rossii, Melaleuca decora, with grassy or shrubby understorey.

**Substrate:** Gravelly sandy to clay soils on sandstone, Tertiary alluvium, low nutrients.

**Exposure:**

**Conservation**

Conservation status unknown.

**Caladenia gracilis** *Caladenia* sp. B

Musky Caladenia

**Life history**

**Growth form:** Seasonally deciduous terrestrial herb, with underground paired tubers and a single narrow leaf to 30 cm long, sparsely hairy; flowering stem to 40 cm with up to 6 flowers (Bishop 1996).

**Vegetative spread:** Not stoloniferous (Pridgeon & Chase 1995).

**Longevity:** Indefinite.

**Primary juvenile period:**

**Flowers:** White, often pinkish or bronzy markings, with musky to soapy scent, October–November, peak October.

**Fruit/seed:** Capsule with numerous minute winged seeds.

**Dispersal, establishment & growth:**

**Fire response:** Winter-growing, producing vegetative shoots from bulbs, some records after fire.

**Interaction with other organisms:** Associated with mycorrhizal fungi (Jones & Elliot 1986).

**Distribution**

**Status/origin:** Native.

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

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

**Select locations:** CT: Clarence, Hassans Walls, Mt Irvine, Mt Wilson, Katoomba, Bullaburra, Mt Werong, Trunkey Creek, Oberon, Mittagong, Abercrombie Caves.

**Habitat**

**Habitat:** Ridges and slopes.

**Altitude:** 600–1100 m

**Annual rainfall:** 900–1400 mm

**Typical local abundance:** Frequent.

**Vegetation:** Open-forest e.g. with Eucalyptus sieberi, E. macrorhyncha; woodland e.g. with Eucalyptus mannifera, E. radiata.

**Substrate:** Sandy soil on sandstone, low nutrients.

**Exposure:**

**Conservation**

Conservation status unknown.

**Caladenia hillmanii** *Caladenia* sp. B

**Life history**

**Growth form:** Seasonally dormant terrestrial herb, with underground paired tubers, narrow leaf to 6–12 cm long, sparsely hairy. Broadly overlaps geographically with *C.* species *C* but no intergrades recorded (Harden 1993).

**Vegetative spread:** No.

**Longevity:** Indefinite.

**Primary juvenile period:**

**Flowers:** Light pink with red-purple blotches, August–October.

**Fruit/seed:** Capsule with numerous minute winged seeds.

**Dispersal, establishment & growth:**

**Fire response:**

**Interaction with other organisms:**

**Distribution**

**Status/origin:** Native.

**Botanical subregions:** NC CC SC.

**Distribution Sydney area:** Coastal, sporadic (Bishop 1996).

**Select locations:**

**Habitat**

**Habitat:**

**Altitude:**

**Annual rainfall:**

**Typical local abundance:** Frequent.

**Vegetation:** Low open-forest with heathy understorey (Bishop 1996).

**Substrate:** Pale grey sandy soils (Bishop 1996).

**Exposure:**

**Conservation**

Conservation status unknown.
**Caladenia iridescens**

**Bronze Caladenia**

**Life history**

GROWTH FORM: Seasonally deciduous terrestrial herb, with underground paired tubers and a narrow hairy leaf to 10 cm long; flowering stem to 15 cm with 1 flower (Bishop 1996).

VEGETATIVE SPREAD: No.

LONGEVITY: Indefinite.

PRIMARY JUVENILE PERIOD:

FLOWERS: Greenish yellow, unscented, September–November.

FRUIT/SEED: Capsule with numerous minute winged seeds.

DISPERSAL, ESTABLISHMENT & GROWTH:

FIRE RESPONSE: One record from recently burnt area.

INTERACTION WITH OTHER ORGANISMS:

**Distribution**

STATUS/ORIGIN: Native.

BOTANICAL SUBREGIONS: CC CT; Vic., Tas., N.Z.

DISTRIBUTION SYDNEY AREA: Coast and Blue Mountains.

SELECT LOCATIONS: CC: Elanora Heights. CT: Mt Wilson, Blackheath, Wentworth Falls, Lawson, Woodford.

Habitat

HABITAT: Ridgetops, slopes.

ALTITUDE: 0–1000 m

TYPICAL LOCAL ABUNDANCE: Occasional.

VEGETATION: Open-forest e.g. with Eucalyptus piperita, E. sieberi, E. sclerophylla.

SUBSTRATE: Shallow, clay-loam on sandstone, low nutrients.

EXPOSURE:

Conservation

Mainly Blue Mountains, only one record from the Coast (Elanora Heights 1953). Conservation status unknown.

**Caladenia phaeoclavia**

**Life history**

GROWTH FORM: Seasonally deciduous terrestrial herb, with underground paired tubers and a single narrow leaf to 16 cm long; flowering stem 10–25 cm high, usually with 1 flower (Bishop 1996).

VEGETATIVE SPREAD: No.

LONGEVITY: Indefinite.

PRIMARY JUVENILE PERIOD:

FLOWERS: With dark red stripes, October–November.

FRUIT/SEED: Capsule with numerous minute winged seeds.

DISPERSAL, ESTABLISHMENT & GROWTH:

FIRE RESPONSE:

INTERACTION WITH OTHER ORGANISMS:

**Distribution**

STATUS/ORIGIN: Native.

BOTANICAL SUBREGIONS: CC CT; Vic.

DISTRIBUTION SYDNEY AREA: Bathurst area.

SELECT LOCATIONS: CT: Yetholme, O’Connell.

Habitat

HABITAT: Grassy or rocky sites on slopes or ridges.

ALTITUDE: 800–900 m

TYPICAL LOCAL ABUNDANCE: Frequent.

VEGETATION: Open-forest e.g. with Eucalyptus macrorhyncha, E. goniocalyx; woodland e.g. with Eucalyptus melliodora, E. bridgesiana, E. blakelyi.

SUBSTRATE: Loamy soil on alluvium, low nutrients.

EXPOSURE:

Conservation

Bathurst is northern geographical limit. Conservation status unknown. Reported in Wamberal NR.

**Caladenia picta** *(Caladenia alba var. picta)*

**Life history**

GROWTH FORM: Terrestrial seasonally deciduous herb, with underground paired tubers and a single sparsely hairy narrow leaf to 8 cm long; flowering stem 15 cm high, usually with 1 flower (Bishop 1996).

VEGETATIVE SPREAD: No.

LONGEVITY: Indefinite.

PRIMARY JUVENILE PERIOD:

FLOWERS: White and pinkish, mainly May–June.

FRUIT/SEED: Capsule with numerous minute winged seeds.

DISPERSAL, ESTABLISHMENT & GROWTH: Appears to be Autumn-growing.

FIRE RESPONSE:

INTERACTION WITH OTHER ORGANISMS:

**Distribution**

STATUS/ORIGIN: Native.

BOTANICAL SUBREGIONS: NC CC SC; Vic.

DISTRIBUTION SYDNEY AREA: Coast.

SELECT LOCATIONS: CC: Wisemans Ferry, Springwood, Narrabeen, Kurnell, Picnic Point, Lugarno, Burrarorang Valley.

Habitat

HABITAT: Habitat:

ALTITUDE: 0–300 m

TYPICAL LOCAL ABUNDANCE: Frequent.

VEGETATION: Open-forest e.g. with Angophora costata, Eucalyptus sieberi, Syncarpia glomulifera.

SUBSTRATE: Shallow, clay-loam on sandstone, low nutrients.

EXPOSURE:

Conservation

Newcastle is northern geographical limit, conservation status unknown. Reported in Royal NP.

**Caladenia quadrifaria** *(Caladenia sp. C)*

**Life history**

GROWTH FORM: Seasonally deciduous terrestrial herb, with underground paired tubers and a single sparsely hairy narrow leaf to 16 cm long; flowering stem to 20 cm high with 1–2 flowers (Bishop 1996).

VEGETATIVE SPREAD: No.

LONGEVITY: Indefinite.

PRIMARY JUVENILE PERIOD:

FLOWERS: Inner surface bright pink, outer surface greenish pink, September–October.

FRUIT/SEED: Capsule with numerous minute winged seeds.

DISPERSAL, ESTABLISHMENT & GROWTH:

FIRE RESPONSE:

INTERACTION WITH OTHER ORGANISMS:

**Distribution**

STATUS/ORIGIN: Native.

BOTANICAL SUBREGIONS: NC CC NT.

DISTRIBUTION SYDNEY AREA: North from Bateau Bay.

SELECT LOCATIONS: CC: Lake Macquarie, Bateau Bay.

Habitat

HABITAT: Slopes and ridges.

ALTITUDE: 0–100 m

TYPICAL LOCAL ABUNDANCE: Frequent.

VEGETATION: Open-forest under Allocasuarina species

SUBSTRATE: Sandy or shallow clay loams.

EXPOSURE:

Conservation

Bateau Bay is southern geographical limit.
**Caladenia tessellata**

Thick Lip Spider Orchid

**Life history**

**Growth form:** Seasonally deciduous terrestrial herb, with underground paired tubers and a single sparsely hairy narrow leaf to 6 cm long; flowering stem to 30 cm high with 1–2 flowers (Bishop 1996).

**Vegetative spread:** No.

**Longevity:** Indefinite.

**Primary juvenile period:**

**Flowers:** Cream-coloured with reddish stripes, flower stalk to 25 cm high, August–November, peak September.

**Fruit/seed:** Capsule with numerous minute winged seeds.

**Distribution**

**Status/origin:** Native.

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

**Sydney area:** Coast, Swansea to Loftus.

**Select locations:** C: Wyong, Berowra, Castlecrag, Tempe, Como, Sutherland, Loftus.

**Habitat**

**Altitude:** 0–200 m

**Annual rainfall:** 1100–1400 mm

**Typical local abundance:** Rare.

**Vegetation:** Heath. Often in very dense shrubbery (Bishop 1996).

**Substrate:** Clay, loam or sandy soils on sandstone, low nutrients.

**Exposure:**

**Conservation**

Listed as Endangered (Schedule 1) under the NSW Threatened Species Conservation Act 1995, as most of Sydney habitat has been destroyed by urban development. It is now only known from 3 populations in the Wyong area (and one population near Braidwood), with a total population size of less than 50 individuals (Final Determination 2002 NSW Scientific Committee). It is not known to occur in any conservation area. Swansea is the northern geographical limit. Continuing decline of individuals and populations, threatened by habitat degradation and pedestrian activity; not known to occur within any conservation reserve (NPWS website: www.nationalparks.nsw.gov.au).

**Caladenia testacea**

Honey Caladenia

**Life history**

**Growth form:** Seasonally deciduous terrestrial herb, with underground paired tubers and a single sparsely hairy narrow leaf to 5 cm long; flowering stem to 18 cm high with 1–2 flowers, a variable species (Bishop 1996).

**Vegetative spread:** No.

**Longevity:** Indefinite.

**Primary juvenile period:**

**Flowers:** White or pale green to greenish yellow, unscented, September–January.

**Fruit/seed:** Capsule with numerous minute seeds.

**Distribution**

**Status/origin:** Native.

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

**Sydney area:** Widescprehse.

**Select locations:** CC: Bilpin, Glenorie, Lower Portland, Fox Valley, North Rocks. CT: Hill End, Lithgow, Fitzroy Falls, Penrose, Abercrombie Caves.

**Habitat**

**Altitude:** 0–1000 m

**Annual rainfall:** 800–1200 mm

**Typical local abundance:** Rare.

**Vegetation:** Woodland e.g. with Eucalyptus haemastoma, E. piperita, Corymbia gummifera, E. melliodora, E. rossii, E. macrorhyncha; heath e.g. with Eucalyptus stricta, Leptospermum.

**Substrate:** Sandy, stony soils on sandstone, slates, low nutrients.

**Exposure:**

**Conservation**

Christmas Orchid

**Life history**

**Growth form:** Terrestrial evergreen herb, with pseudobulb 3–8 cm long; leaves 25–90 cm long, 6–18 cm wide, inflorescence to 1.5 cm long, with up to 40 flowers.

**Vegetative spread:** Yes, rhizomatous.

**Longevity:**

**Primary juvenile period:**

**Flowers:** White, October–January.

**Fruit/seed:** Capsule with numerous minute seeds.

**Distribution**

**Status/origin:** Native.

**Botanical subregions:** CC, CT; Qld, Asia, Malesia, Melanesia.

**Sydney area:** CC: Cooranbong, Yarramalong, Somersby.

**Habitat**

**Altitude:** 0–200 m

**Annual rainfall:** 1200–1600 mm

**Typical local abundance:** Rare.

**Vegetation:** Rainforest; moist open-forest

**Substrate:**

**Exposure:** Dense shade.

**Conservation**

Illawarra district is southern geographical limit. Conservation status unknown.
**Calochilus campestris** *(Calochilus saprophyticus)*

Copper Beard Orchid

**Life history**

**Growth form:** Seasonally deciduous terrestrial herb, with paired tubers; flowering stem to 60 cm high with up to 15 flowers (Bishop 1996).

**Vegetative spread:** No (P. Hind pers. comm., Jones 1988), not stoloniferous (Pridgeon & Chase 1995).

**Longevity:** Indefinite.

**Primary juvenile period:**

**Flowers:** Pale green, with purple stripes and purplish beard; flower stalk to 60 cm high, September–October, peak October. Self-pollinating, also pollinated by scolis wasps *Camposomeris*, by sexual deception (Pridgeon et al. 2001).

**Fruit/Seed:** Capsule with numerous minute winged seeds, October–December.

**Dispersal, establishment & growth:** No special morphology for dispersal (Westoby et al. 1990).

**Fire response:** Probably resprouted after high intensity fire (1/1994 at Lake Cove and Narrabeen), flowering 10 months later (P. Kubiak pers. comm.).

**Interaction with other organisms:**

**Distribution**

**Status/origin:** Native.

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

**Distribution Sydney area:** Mainly coastal.

**Select locations:** CC: Upper Colo, Lower Portland, Maroota, Gosford, Mulgoa, Castlecrag, Hornsby, Frenchs Forest, Lindfield, Gladstoneville, Maroubra, Cooks River, East Hills. **CT:** Wentworth Falls (1889).

**Habitat**

**Habitat:** Ridges.

**Altitude:** 0–1000 m  **Annual rainfall:** 800–1400 mm

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

**Vegetation:** Forest e.g. with *Angophora costata*, *Corymbia gummi-fera*; woodland e.g. with *Eucalyptus sclerophylla*, *E. parramattensis*, *Angophora bakeri*.

**Substrate:** Sandy to clayey soil on sandstone, Tertiary alluvium, low nutrients.

**Exposure:**

**Conservation**

Conservation status unknown.

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**Calochilus gracillimus**

Slender Beard Orchid, Late Beard Orchid

**Life history**

**Growth form:** Seasonally deciduous terrestrial herb, with narrow leaf and underground paired tubers; flowering stem to 45 cm high with up to 9 flowers (Bishop 1996).

**Vegetative spread:** No (Jones 1988).

**Longevity:** Indefinite.

**Primary juvenile period:**

**Flowers:** Green with purple stripes and purple to bronze beard, flower stalk to 45 cm high, late October–early February. Probably self-pollinating.

**Fruit/Seed:** Capsule with numerous minute winged seeds, January–February.

**Dispersal, establishment & growth:**

**Interaction with other organisms:**

**Distribution**

**Status/origin:** Native.

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

**Distribution Sydney area:**

**Select locations:** CC: Woy Woy, Sackville, Middle Cove. **CT:** Mt Irvine, Wentworth Falls, Woodford.

**Habitat**

**Habitat:** Ridgetops, slopes.

**Altitude:** 0–1000 m  **Annual rainfall:** 800–1400 mm

**Typical local abundance:** Frequent.

**Vegetation:** Open-forest; woodland e.g. with *Casuarina*.

**Substrate:** Sandy soil on sandstone, low nutrients.

**Exposure:**

**Conservation**

Conservation status unknown.

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**Calochilus paludosus**

Red Beard Orchid

**Life history**

**Growth form:** Seasonally deciduous terrestrial herb, with narrow leaf and paired tubers; flowering stem to 35 cm high with up to 9 flowers (Bishop 1996).

**Vegetative spread:** No (P. Hind pers. comm., Jones 1988).

**Longevity:** Indefinite.

**Primary juvenile period:**

**Flowers:** Green, often with reddish veins and red to coppery beard, flower stalk to 35 cm high, September, peak October. Self-pollinating, occasionally insect-pollinated (Van de Cingel 2001).

**Fruit/Seed:** Capsule with numerous minute winged seeds.

**Dispersal, establishment & growth:**

**Fire response:** Probably resprouted after high intensity fire (1/1994 at Lane Cove and Narrabeen), green fruit 41 weeks later (P. Kubiak pers. comm.).

**Interaction with other organisms:**

**Distribution**

**Status/origin:** Native.

**Botanical subregions:** NC CC SC NT CT ST CWS SWS NWP; Qld, Vic., Tas., N.Z.

**Distribution Sydney area:** Mainly coastal.

**Select locations:** CC: Gosford, Pearl Beach, Agnes Banks, Glenbrook, Berowra, Pennant Hills, Mosman, Gladstoneville, Centennial Park, Cambridge Park, Bankstown, Royal NP, Bargo. **CT:** O’Connell, Bell, Victoria Falls, Wentworth Falls (1898), Woodford.
**Calochilus robertsonii** (*C. imberbis*)

**Purplish Beard Orchid**

**Life history**

**Growth form:** Seasonally deciduous terrestrial herb, with narrow leaf and paired tubers; flowering stem to 45 cm high with up to 9 flowers, a variable species (Bishop 1996).


**Longevity:** Indefinite.

**Primary Juvenile Period:**

**Flowers:** Reddish brown with darker stipes and purple-maroon or bronzy beard, flower stalk 46 cm high, September–October. Self-pollinating, occasionally insect-pollinated (Van de Cingel 2001).

**FRUIT/SEED:** Capsule with numerous minute winged seeds.

**Dispersal, Establishment & Growth:**

**Fire response:** Probably resprouted after high intensity fire (1/1994 at Lane Cove), flowering 39–41 weeks later (P. Kubiak pers. comm.).

**Interaction with other organisms:**

**Pollinated by the sexual deception of male thynnine wasps,** Neozeloboria, Eirone, attracted to flowers (Bower n.d.).

**Conservation:** Boyd Plateau is northern geographical limit (Bishop 1996). Conservation status unknown.

**Habitat**

**Habitat:** Moist sheltered slopes.

**Altitude:** 0–1200 m  
**Annual rainfall:** 1000–1400 mm

**Typical Local Abundance:** Frequent.

**Vegetation:** Open-forest e.g. with *Cunninghamia glauca*, *Eucalyptus deanei*, *Syncarpia glomulifera*.

**Substrate:** Loamy soil on shale, medium nutrients.

**Exposure:**

**Conservation**

Conservation status unknown, reported in Royal NP.

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**Chiloglottis chlorantha**

**Ant Orchid**

**Life history**

**Growth form:** Seasonally deciduous terrestrial herb, with 2 basal leaves, tubers and stolons with daughter tubers, flowering stem to 5 cm high with 1 flower (Bishop 1996).

**Vegetative spread:** Stoloniferous, forming clonal colonies.

**Longevity:** Indefinite.

**Primary Juvenile Period:**

**Flowers:** Yellowish green, September–November. Pollinated by the sexual deception of male thynnine wasps, *Neozeleboria* sp.; the flowers mimic both appearance and sex pheromones of wingless females (Mant et al. 2002).

**FRUIT/SEED:** Capsule with numerous minute winged seeds.

**Dispersal, Establishment & Growth:**

**Fire response:**

**Interaction with other organisms:**

**Conservation**

Conservation status unknown, reported in Royal NP.

**Habitat**

**Habitat:** Moist areas in forest.

**Altitude:** 0–600 m  
**Annual rainfall:** 1200–1400 mm

**Typical Local Abundance:** Frequent.

**Vegetation:** Moist open-forest e.g. with *Eucalyptus deanei*, *Syncarpia glomulifera*.

**Substrate:** Loamy soil e.g. with *Eucalyptus deanei*, *Syncarpia glomulifera*.

**Exposure:**

**Conservation**

Conservation status unknown, reported in Royal NP.

**Chiloglottis formicifera**

**Ant Orchid**

**Life history**

**Growth form:** Seasonally deciduous terrestrial herb, with 2 basal leaves, tubers and stolons with daughter tubers; flowering stem to 10 cm high with 1 flower (Bishop 1996).

**Vegetative spread:** Stoloniferous forming clonal colonies.

**Longevity:** Indefinite.
**Chiloglottis palachila**

**Life history**

**Growth form:** Seasonally deciduous terrestrial herb, with 2 basal leaves, tubers and stolons with daughter tubers; flowering stem to 16 cm high with 1 flower (Bishop 1996).

**Vegetative spread:** Stoloniferous (Jones 1991), forming clonal colonies.

**Longevity:** Indefinite.

**Primary juvenile period:**

**Flowers:** Brownish with blackish ant-like callus, November–February. Pollinated by the sexual deception of male thynnine wasps, *Chilothynnus palachilus*, the flowers mimicking both appearance and sex pheromones of wingless females (Mant et al. 2002).

**Fruit/seed:** Capsule with numerous minute winged seeds.

**Dispersal, establishment & growth:**

**Fire response:**

**Interaction with other organisms:**

**Distribution**

**Status/origin:** Native.

**Botanical subregions:** NC SC NT CT ST NWS CWS.

**Distribution Sydney area:**

**Select locations:** CC: Cattai Creek, Burns Bay, Audley, Loftus, Bola Creek, Woronora, Waterfall, Burragorang Valley, Springwood.

**CT:** Mt Irvine, Mt Cameron.

**Habitat**

**Habitat:** Moist areas in forest.

**Altitude:** 0–1000 m **Annual rainfall:** 900–1400 mm

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

**Vegetation:** Moist open-forest e.g. with *Eucalyptus pilularis, E. saligna*, *Syncarpia glomulifera*, *Acacia melanoxylon*, *E. viminalis*, *E. radiata*.

**Substrate:** Loamy soil on shales, basalt, sandstone, low to high nutrients.

**Exposure:**

**Conservation**

Conservation status unknown. Reported in Royal NP.

**Chiloglottis reflexa**

**Life history**

**Growth form:** Seasonally deciduous terrestrial herb, with 2 basal leaves, tubers and stolons with daughter tubers; flowering stem to 18 cm high with flower (Bishop 1996).

**Vegetative spread:** Yes, stoloniferous (P. Hind, P. Weston pers. comm.), forming clonal colonies.

**Longevity:** Indefinite.

**Primary juvenile period:**

**Flowers:** Reddish or greenish, with black insect-like callus, January–May, peak March. Thynnine wasps (*Neozeloboria* sp.) attracted to flowers (at Mt Wilson, Bower n.d.). Pollinated by the sexual deception of male thynnine wasps; the flowers mimic both appearance and sex pheromones of wingless females (Mant et al. 2002).

**Fruit/seed:** Capsule with numerous minute winged seeds.

**Dispersal, establishment & growth:**

**Fire response:**

**Interaction with other organisms:**

**Distribution**

**Status/origin:** Native.

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

**Distribution Sydney area:** Widespread.

**Select locations:** CC: Windsor, Glenhaven, Glenbrook, Springwood, Asquith, Hornsby, Lane Cove, Waterfall, Jambrero Mountain.

**CT:** Running Stream, Belah Swamp, Winburndale, Porters Retreat, Mt Wilson, Wentworth Falls, Woodford, Kanimbla Valley, Mittagong, Penrose.

**Habitat**

**Habitat:** Gullies, hillsides.

**Altitude:** 0–1000 m **Annual rainfall:** 800–1400 mm

**Typical local abundance:** Frequent.

**Vegetation:** Open-forest e.g. with *Angophora costata, Eucalyptus piperrita*, *E. deanei*, *Syncarpia glomulifera*; woodland e.g. with *Eucalyptus pauciflora, Acacia melanoxylon*.

**Substrate:** Sandy soil on sandstone, low nutrients.

**Exposure:**

**Conservation**

Blue Mountains is northern geographical limit. Conservation status unknown.

**Chiloglottis seminuda**

**Life history**

**Growth form:** Seasonally deciduous terrestrial herb, with 2 basal leaves, tubers that may be at the end of stolons, and daughter tubers, flowering stem to 6 cm high with 1 flower (Bishop 1996).

**Vegetative spread:** Stoloniferous (P. Weston pers. comm.), forming clonal colonies.

**Longevity:** Indefinite.

**Primary juvenile period:**

**Flowers:** Green to reddish, with black insect-like callus, January–April. Attempted mating with flowers by thynnine wasps, *Neozeloboria, Aelothynnus westwoodii* (Bower n.d.). Pollinated by the sexual deception of male thynnine wasps, *Neozeloboria* sp.; the flowers mimic both appearance and sex pheromones of wingless females (Mant et al. 2002).

**Fruit/seed:** Capsule with numerous minute winged seeds.

**Dispersal, establishment & growth:**

**Fire response:**

**Interaction with other organisms:**

**Distribution**

**Status/origin:** Native.

**Botanical subregions:** CC CT ST.

**Distribution Sydney area:** Mainly Southern Highlands.
**Chiloglottis sylvestris**

*Life history*

**Growth form:** Seasonally deciduous terrestrial herb, with 2 basal leaves, tubers that may be at the end of stolons, with daughter tubers, flowering stem to 5 cm high with 1 flower (Bishop 1996).

**Vegetative spread:** Stoloniferous (P. Weston pers. comm.), forming clonal colonies.

**Longevity:** Indefinite.

**Primary juvenile period:**

**Flowers:** Greenish pink, with reddish black insect-like callus, December–May. Thynnine wasps (*Neozeloboria proxima*, *Eirona* sp.) attracted to flowers (Bower n.d.). Pollinated by the sexual deception of male thynnine wasps, *Neozeloboria* sp.; the flowers mimic both appearance and sex pheromones of wingless females (Mant et al. 2002).

**Fruit/seed:** Capsule with numerous minute winged seeds.

**Dispersal, establishment & growth:**

**Fire response:**

**Interaction with other organisms:**

**Distribution**

**Status/origin:** Native.

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

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

**Select locations:** CC: Woronora Plateau.

**Habitat**

**Altitude:** 0–700 m

**Typical local abundance:** Occasional, occurring as small discrete patches.

**Vegetation:** Open-forest e.g. with *Eucalyptus saligna*, *Syncarpia glomulifera*, *Allocasuarina torulosa*.

**Substrate:** Loams on shale, sandstone, low nutrients.

**Exposure:**

**Conservation**

Conservation status unknown. Reported in Dharug NP.

**Chiloglottis trapeziformis**

*Life history*

**Growth form:** Seasonally deciduous terrestrial herb, with underground replacement and daughter tubers and a single leaf, the lower surface purplish; short erect flowering stem (Bishop 1996).

**Vegetative spread:**

**Fire response:**

**Interaction with other organisms:**

**Distribution**

**Status/origin:** Native.

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

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

**Select locations:** CC: Mill Creek, Burns Bay (1887).

**CT:** Mt Victoria, Bowral, Penrose.

**Habitat**

**Altitude:** 1000–1200 m

**Typical local abundance:** Frequent.

**Vegetation:** Open-forest e.g. with *Eucalyptus radiata*, *Doryanthes excelsa*, *Imperata pauciflora*.

**Substrate:** Gravelly loam on granite, low nutrients.

**Exposure:**

**Conservation**

Conservation status unknown. Reported in Kanangra-Boyd NP.

**Corybas aconitiflorus**

Spurred Helmet Orchid

*Life history*

**Growth form:** Seasonally deciduous terrestrial herb with underground replacement and daughter tubers and a single leaf, the lower surface purplish; short erect flowering stem (Bishop 1996).
Corybas barbarae

Life history
Growth form: Seasonally deciduous terrestrial herb with replacement and daughter tubers, a single round leaf, the lower surface purplish and a short, erect flowering stem (Bishop 1996).
Vegetative spread: Yes (P. Hind pers. comm.).
Longevity: Indefinite.
Primary juvenile period:
Flowers: Hood-shaped, white to pinkish, May–July. Flowers probably mimic small toadstools and be pollinated by fungus gnats (Bishop 1996).
Fruit/seed: Capsule with numerous minute winged seeds.
Dispersal, establishment & growth: Active growing period March–August.
Fire response: Some reports from recently burnt areas.
Interaction with other organisms:

Distribution
Status/orIGIN: Native.
Botanical subregions: NC CC SC CT; Qld, Vic., Tas.
Distribution Sydney area: Widespread.

Habitat
Habitat: Gullies, rock ledges.
Altitude: 0–600 m
Annual rainfall: 900–1400 mm
Typical local abundance: Frequent.
Vegetation: Open-forest e.g. with Angophora costata, Eucalyptus piperita, E. globulus, Corymbia gummifera; heath e.g. with Corymbia gummifera, Acacia suaveolens, Banksia ericifolia, with leaf mould and thick undergrowth.
Substrate: Sandy soil on sandstone, laterite, low nutrients.
Exposure: Conservation

Conservation status unknown. Reported in Royal NP.

Corybas fimbriatus

Fringed Helmet Orchid

Life history
Growth form: Seasonal terrestrial herb with underground replacement and daughter tubers and a single leaf, the lower surface transparent; flowering stem short, leaning back (Bishop 1996).
Vegetative spread: Yes (P. Hind, P. Weston pers. comm.).
Longevity: Indefinite.
Primary juvenile period:
Flowers: Hood-shaped, reddish purple, April–August, peak June. Flowers probably mimic small toadstools and may be pollinated by fungus gnats (Bishop 1996).
Fruit/seed: Capsule with numerous minute winged seeds.
Dispersal, establishment & growth: Active growing period March–August.
Fire response: Some reports from recently burnt areas.
Interaction with other organisms:

Distribution
Status/orIGIN: Native.
Botanical subregions: NC CC SC NT CT ST; Qld, Vic., Tas.
Distribution Sydney area: Widespread.
Select locations: CC: Mangrove Creek, Hornsby, Bobbin Head, Kurnell, Moorebank, Como, Waterfall, Burrarorang Valley, Woronora River, Kiama. CT: Jenolan Caves, Cullen Bullen.

Habitat
Habitat: Moist forest.
Altitude: 0–1000 m
Annual rainfall: 600–1400 mm
Typical local abundance: Frequent, often in extensive colonies (Bishop 1996).
Vegetation: Moist open-forest, woodland e.g. with Banksia serrata.
Substrate: Sandy soils on dune sand, sandstone, low nutrients.
Exposure: Conservation

Poorly known local forms occur in the Liverpool area and in Corymbia maculata forest at Appin (Bishop 1996). Conservation status unknown.

Corybas fordhamii

Banded Helmet Orchid

Life history
Growth form: Seasonally deciduous terrestrial herb with replacement and daughter tubers and a single leaf, the lower surface transparent; flowering stem fine, to 12 mm high with 1–2 flowers, curving backwards (Bishop 1996).
Vegetative spread:
Longevity: Indefinite.
Primary juvenile period:
Flowers: Hood-shaped, reddish purple and white, July–September. Needs very high humidity for flower development, flowers with a strong scent of mushrooms, probably mimic small toadstools and attracting fungus gnats (Bishop 1996).
Fruit/seed: Capsule with numerous minute winged seeds.
Dispersal, establishment & growth: Active growing period March–August.
Fire response: Often flowers prolifically in season following fire (Bishop 1996).
Interaction with other organisms:

Distribution
Status/orIGIN: Native.
Botanical subregions: NC CC SC; Qld, Vic., S.A.
Distribution Sydney area: Scattered on coast and tablelands (Keith 1994).
**Corybas hispidus**

Bristly Helmet Orchid

**Life history**

**Growth form:** Terrestrially deciduous seasonal herb with underground replacement and daughter tubers and a single round leaf, the lower surface transparent; flowering stem short, leaning back (Bishop 1996).

**Vegetative spread:** Active growing period March–August.

**Fire response:** Probably (P. Hind pers. comm.).

**Interaction with other organisms:**

**Distribution**

**Status/origin:** Native.

**Botanical subregions:** NC CC SC.

**Distribution Sydney area:** Mainly coastal.

**Select locations:** CC: Woodford, Glenbrook, West Head, Hornsby, West Pennant Hills, Ryde, Gladesville, Waverley, Royal NP.

**Habitat**

**Habitat:** Moist sheltered forest.

**Altitude:** 0–400 m  **Annual rainfall:** 900–1400 mm

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

**Vegetation:** Moist open-forest e.g. with Eucalyptus saligna, Syncarpia glomulifera, with moist shrubby or fern understorey; rainforest margins.

**Substrate:** Clay and loam soils on shale, sandstones, low to medium nutrients.

**Exposure:**

**Conservation**

Conservation status unknown. Reported in Blue Mountains NP, Royal NP.

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**Corybas undulatus**

Tailed Helmet Orchid

**Life history**

**Growth form:** Terrestrially deciduous seasonal herb with underground replacement and daughter tubers and a single round leaf, the lower surface reddish; flowering stem short, leaning back (Bishop 1996). Smallest of the helmet orchids.

**Vegetative spread:** Probably (P. Hind pers. comm.).

**Longevity:** Indefinite.

**Primary juvenile period:**

**Flowers:** Hood-shaped, purplish red and white, May–July. Flowers probably mimic small toadstools and may be pollinated by fungus gnats (Bishop 1996).

**Fruit/seed:** Capsule with numerous minute winged seeds.

**Dispersal, establishment & growth:** Active growing period March–August.

**Fire response:**

**Interaction with other organisms:**

**Distribution**

**Status/origin:** Native.

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

**Distribution Sydney area:** Coast, sporadic.

**Select locations:** CC: Terrey Hills (1976), Duffs Forest (1976), Frenchs Forest, Warumbul (RNP).

**Habitat**

**Habitat:** Ridges

**Altitude:** 0–200 m  **Annual rainfall:** 1200–1400 mm

**Typical local abundance:** Scattered.

**Vegetation:** Wet heath e.g. with Banksia ericifolia, Allocasuarina distyla, Angophora hispida, Corymbia gummifera.

**Substrate:** Damp sand or leaf mould on sandstone, low nutrients, periodically moist.

**Exposure:**

**Conservation**

Rarely recorded and easiest to find after bushfires (Bishop 1996), only 8 specimens recorded with most recent collection 1976. Coded 3KC-on national rare species list (Briggs & Leigh 1996).

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**Corybas pruinatus**

Toothed Helmet Orchid

**Life history**

**Growth form:** Seasonally deciduous terrestrial herb with underground replacement and daughter tubers and a single leaf, the lower surface transparent; flowering stem short, leaning back (Bishop 1996).

**Vegetative spread:** Yes (P. Hind pers. comm.).

**Longevity:** Indefinite.

**Primary juvenile period:**

**Flowers:** Hood-shaped, reddish purple and grey green, April–July, peak May–June. Flowers probably mimic small toadstools and may be pollinated by fungus gnats (Bishop 1996).

**Fruit/seed:** Capsule with numerous minute winged seeds.

**Dispersal, establishment & growth:** Active growing period March–August.

**Fire response:** Probably resprouted after high intensity fire (1/1994 at Lane Cove) (P. Kubiak pers. comm.).

**Interaction with other organisms:**

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**Corybas unguiculatus**

Small Helmet Orchid

**Life history**

**Growth form:** Seasonally deciduous terrestrial herb with underground replacement and daughter tubers and a single leaf, the lower surface purplish; flowering stem straight, leaning strongly backwards (Bishop 1996).
**Leafless Tongue Orchid**

**Cryptostylis hunteriana**

**Life history**

Growth form: Terrestrial leafless saprophytic herb, with a tuberous rhizome and fleshy roots; flowering stem pale yellow to 45 cm high with up to 10 flowers (Bishop 1996).

**Vegetative spread:** No.

**Longevity:** Indefinite.

**Primary juvenile period:**

Flowers: Maroon, conspicuously hairy, November–February, sporadic, not repeated over subsequent seasons (Bell 2001). Pollinated by pseudocopulation by ichneumonid wasp Lissopimpla excelsa (Bishop 1996).

**Fruit/seed:** Capsule with numerous minute winged seeds.

**Dispersal, establishment & growth:** Reported from areas burnt 1–3 years previously (Bell 2001).

**Interaction with other organisms:**

**Distribution**

Status/origin: Native.

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

**Distribution Sydney area:** Lake Macquarie to Pittwater.

**Select locations:** CC: Chain Valley Bay, Vales Point, Freemans Waterhole, Wyee, Charmhaven, West Head (Bell 2001).

**Habitat**

Habitat: Coastal plains.

**Altitude:** 0–100 m

**Annual rainfall:** 1100–1200 mm

**Typical local abundance:** Rare.

**Vegetation:** Coastal Plains Scribbly Gum Woodland e.g. with Eucalyptus haemastoma, Corymbia gummifera, Eucalyptus capitellata, Angophora inopina, Angophora costata, with shrubby understorey (Bell 2001).

**Substrate:** Dry sandy loams on Triassic Narrabeen geology, low nutrients.

**Exposure:**

**Conservation**

Listed as Vulnerable (Schedule 2) under the NSW Threatened Species Conservation Act 1995. Inadequately conserved and threatened by habitat loss and fragmentation, frequent fire during the flowering season, weed invasion and modification of habitat by nutrient enrichment (Bell 2001). Reported in Ku-ring-gai Chase NP.

**Small Tongue Orchid**

**Cryptostylis leptochila**

**Life history**

Growth form: Terrestrial evergreen herb, with a tuberous rhizome, fleshy roots and basal leaves, the lower surfaces purple; flowering stem to 40 cm high with up to 15 flowers (Bishop 1996).

**Vegetative spread:** Rhizomatous, growing in small, spreading clumps (Jones 1988).

**Longevity:** Indefinite.

**Primary juvenile period:**

Flowers: Maroon, minutely hairy, November–March, peak January. Pollinated by pseudocopulation by ichneumonid wasp Lissopimpla excelsa attracted initially by scent (Colesman 1930).

**Fruit/seed:** Capsule with numerous minute winged seeds.

**Dispersal, establishment & growth:** Active growing period March–August.

**Fire response:** Reported from sites burnt in previous year.

**Interaction with other organisms:**

**Vegetative spread:**

**Status/origin:** Native.

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

**Distribution Sydney area:** Woy Woy, Terrey Hills, Pennant Hills, Kurnell, Heathcote, Helensburgh, Bulli Pass, Jammeroo Mountain, Seven Mile Beach.

**Habitat**

Habitat:

**Altitude:** 0–400 m

**Annual rainfall:** 1200–1600 mm

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

**Vegetation:** Coastal heath e.g. with Banksia ericifolia, Angophora hispida; open-forest e.g. with Eucalyptus haemastoma, Corymbia gummifera, Syncarpia glomulifera.

**Substrate:** Sandy soils on sandstone, laterite, low nutrients.

**Exposure:**

**Conservation**

Gosford in northern geographical limit. Conservation status unknown. Reported in Royal NP, Seven Mile Beach NP.
Cheltenham, Narrabeen, Centennial Park, Como, Nowra, Hill Top, Botanical Subregions: NC CC SC NT CT

Interaction with other organisms: Leaves eaten by rabbits, pers. comm.)

Form 2 years after high intensity fire (1/1994 at Lane Cove) (P. Kubiak pers. comm.)

SELECT LOCATIONS: CT: Bathurst, Bell, Mt Wilson, Katoomba, Carrington Falls, Kangaroo Valley, Robertson, Mittagong.

Habitat
Habitat: Habitat
Altitude: 300–1100 m
Annual rainfall: 900–1400 mm
Typical local abundance: Occasional.
Vegetation: Open-forest.
Substrate: Sandy soil on sandstone.
Exposure:

Conservation
Conservation status unknown.

Cryptostylis subulata

Large Tongue Orchid

LIFE HISTORY
Growth form: Terrestrial evergreen herb, with a tuberous rhizome, fleshy roots and basal leaves, with both surfaces dark green to yellow green; flowering stem to 80 cm high with up to 14 flowers (Bishop 1996).
Vegetative spread: Rhizomatous, growing in small, spreading clumps (Jones 1988).

Longevity: Indefinite.


Fruit/Seed: Capsule with numerous minute seeds.

Dispersal, establishment & growth: No special morphology for dispersal (Westoby et al. 1990).

Fire response: Resprouts (D. Keith pers. comm.), fruit beginning to form 2 years after high intensity fire (1/1994 at Lane Cove) (P. Kubiak pers. comm.).

Interaction with other organisms: Leaves eaten by rabbits, considerable damage by scratching, possibly seeking roots (P. Kubiak pers. comm.).

Distribution
Status/origin: Native.
Botanical subregions: NC CC SC NT CT ST; Qld, Vic., Tas., S.A., N.Z.
Distribution Sydney area: Coast and Blue Mountains.


Habitat
Habitat: Slopes, rock outcrops.
Altitude: 0–1000 m
Annual rainfall: 600–1200 mm
Typical local abundance: Frequent–occasional.
Vegetation: Woodland e.g. with Eucalyptus rossii; shrubland.
Substrate: Shallow stony soils on sandstone, metamorphics, low nutrients, periodically moist.
Exposure:

Conservation
Vulnerable in Western Sydney (James et al. 1999), conservation elsewhere unknown.

Cryptostylis subulata

Large Tongue Orchid

LIFE HISTORY
Growth form: Terrestrial evergreen herb, with a tuberous rhizome, fleshy roots and basal leaves, with both surfaces dark green to yellow green; flowering stem to 80 cm high with up to 14 flowers (Bishop 1996).
Vegetative spread: Rhizomatous, growing in small, spreading clumps (Jones 1988).

Longevity: Indefinite.


Fruit/Seed: Capsule with numerous minute seeds.

Dispersal, establishment & growth: No special morphology for dispersal (Westoby et al. 1990).

Fire response: Resprouts (D. Keith pers. comm.), fruit beginning to form 2 years after high intensity fire (1/1994 at Lane Cove) (P. Kubiak pers. comm.).

Interaction with other organisms: Leaves eaten by rabbits, considerable damage by scratching, possibly seeking roots (P. Kubiak pers. comm.).

Distribution
Status/origin: Native.
Botanical subregions: NC CC SC NT CT ST; Qld, Vic., Tas., S.A., N.Z.
Distribution Sydney area: Coast and Blue Mountains.


Habitat
Habitat: Slopes, rock outcrops.
Altitude: 0–1000 m
Annual rainfall: 600–1200 mm
Typical local abundance: Frequent–occasional.
Vegetation: Woodland e.g. with Eucalyptus rossii; shrubland.
Substrate: Shallow stony soils on sandstone, metamorphics, low nutrients, periodically moist.
Exposure:

Conservation
Vulnerable in Western Sydney (James et al. 1999), conservation elsewhere unknown.

Cymbidium suave

Snake Orchid

LIFE HISTORY
Growth form: Epiphytic herb, with narrow leathery leaves 10–60 cm long, stems not prominently differentiated to form pseudobulbs.
Vegetative spread: Yes, rhizomatous and stoloniferous (Jones 1988).

Longevity: Primary juvenile period: Flowers: Inflorlescence 10–35 cm long, with 10–50 olive green flowers, October–December, peak November.

Fruit/Seed: Capsule with numerous minute seeds.

Dispersal, establishment & growth: Winter-growing.

Fire response: Probably killed by high intensity fire (1/94 at Lane Cove and Narrabeen), plant burnt by low intensity fire (1/1994) resprouted, and flowered 92 weeks later (P. Kubiak pers. comm.).

Interaction with other organisms:

Distribution
Status/origin: Native.
Botanical subregions: NC CC SC NT CT ST; Qld, Vic., Tas., S.A., W.A.
Distribution Sydney area: Widespread.

SELECT LOCATIONS: CC: Coupe Bay, Forrester's Beach, Glenbrook, Castle Hill, Beecroft, Killara, Lane Cove, Rose Bay, Salt Pan Creek, Oatley, Wedderburn, Woronora River. CT: Capertee Valley, Turondale, Yetholme, Abercrombie Caves.

Habitat
Habitat: Ridges or slopes.
Altitude: 0–1000 m
Annual rainfall: 600–1200 mm
Typical local abundance: Frequent–occasional.
Vegetation: Woodland e.g. with Eucalyptus rossii; shrubland.
Substrate: Shallow stony soils on sandstone, metamorphics, low nutrients, periodically moist.
Exposure:

Conservation

Cryptostylis subulata

Large Tongue Orchid

LIFE HISTORY
Growth form: Terrestrial evergreen herb, with a tuberous rhizome, fleshy roots and basal leaves, with both surfaces dark green to yellow green; flowering stem to 80 cm high with up to 14 flowers (Bishop 1996).
Vegetative spread: Rhizomatous, growing in small, spreading clumps (Jones 1988).

Longevity: Indefinite.


Fruit/Seed: Capsule with numerous minute seeds.

Dispersal, establishment & growth: No special morphology for dispersal (Westoby et al. 1990).

Fire response: Resprouts (D. Keith pers. comm.), fruit beginning to form 2 years after high intensity fire (1/1994 at Lane Cove) (P. Kubiak pers. comm.).

Interaction with other organisms: Leaves eaten by rabbits, considerable damage by scratching, possibly seeking roots (P. Kubiak pers. comm.).

Distribution
Status/origin: Native.
Botanical subregions: NC CC SC NT CT ST; Qld, Vic., Tas., S.A., N.Z.
Distribution Sydney area: Coast and Blue Mountains.


Habitat
Habitat: Slopes, rock outcrops.
Altitude: 0–1000 m
Annual rainfall: 900–1400 mm
Typical local abundance: Occasional.
Vegetation: Woodland e.g. with Corymbia gunnifera, Eucalyptus sieberi, E. piperita.
Substrate: Sandy soil on sandstone, low nutrients.
Exposure:

Conservation
Conservation status unknown.
**Cyrtostylis reniformis** *(Acianthus reniformis)*

**Gnat Orchid**

**Life history**

**Growth form:** Erect seasonally deciduous terrestrial herb 5–27 cm high, with paired tubers and daughter tubers on stolons; a single, basal heart-shaped leaf; flowering stem 8 cm high with up to 4 flowers (Bishop 1996).

**Vegetative spread:** Stoloniferous (P. Hind, P. Weston pers. comm.).

**Longevity:** Indefinite.

**Primary juvenile period:**

**Flowers:** Light reddish brown or darker, or rarely light yellowish green, June–October. Pollinated by minute species of *Diptera*, attracted by abundance of nectar (Van der Cingel 2001).

**FrUIT/SEED:** Capsule with numerous minute winged seeds.

**Dispersal, establishment & growth:** Active growth period March–September (Pridgeon et al. 2001).

**Fire response:**

**Interaction with other organisms:**

**Distribution**

**Status/origin:** Native.

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

**Distribution Sydney area:** Widespread.

**Select locations:** CC: Baulkham Hills, Hornsby, Lane Cove, Como. CT: Jenolan Caves, Abercrombie Caves.

**Habitat**

**Altitude:** 0–800 m

**Annual rainfall:** 800–1400 mm

**Typical local abundance:** Frequent.

**Vegetation:** Open-forest e.g. with *Eucalyptus rossii*, *E. macrocarpha*; heath.

**Substrate:** Sandy soil on sandstone, low nutrients.

**Exposure:**

**Conservation**

Conservation status unknown.

**Dipodium hamiltonianum**

**ORCHIDACEAE**

**Life history**

**Growth form:** Terrestrial, leafless mycoheterotrophic evergreen herb; inflorescence to 90 cm long with up to 35 flowers.

**Vegetative spread:** No (P. Weston pers. comm.).

**Longevity:** Indefinite.

**Primary juvenile period:**

**Flowers:** Flowers generally bright yellow, or sometimes dull yellowish green (Dockrill 1992), September–February.

**FrUIT/SEED:** Capsule with numerous minute seeds.

**Dispersal, establishment & growth:**

**Fire response:**

**Interaction with other organisms:**

**Distribution**

**Status/origin:** Native.

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

**Distribution Sydney area:** Orange area.

**Select locations:** CT: Ophir (1965).

**Habitat**

**Altitude:** 900 m

**Annual rainfall:** 800–900 mm

**Typical local abundance:**

**Vegetation:** Saprophytic species of *Dipodium* appear to have a strong dependence on eucalypts (Bishop 1996).

**Substrate:** Acidic, sandy soils.

**Exposure:**

**Conservation**

Conservation status unknown.

**Dipodium punctatum**

**ORCHIDACEAE**

**Life history**

**Growth form:** Terrestrial, leafless mycoheterotrophic herb, inflorescence to 100 cm long, with up to 60 flowers.

**Vegetative spread:** No (P. Hind, P. Weston pers. comm.).

**Longevity:** Indefinite.

**Primary juvenile period:**

**Flowers:** Pink with purple blotching, December–April. Pollinated by native bee *Chalicodoma derelicta* (Bernhardt & Burns-Balogh 1983).

**FrUIT/SEED:** Capsule with numerous minute seeds.

**Dispersal, establishment & growth:** No special morphology for dispersal (Westoby et al. 1990).

**Fire response:** Resprouts at base or below (Fox 1988), flowering 2 years after high intensity fire (1/1994 at Lane Cove) (P. Kubiak pers. comm.).

**Interaction with other organisms:**

**Distribution**

**Status/origin:** Native.

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

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

**Select locations:** CC: Yarramalong, St Albans, Springwood, Vineyard, Berowra, Longeville, Ryde, North Head, Helensburgh, Kiama, Foxground, CT: Lithgow, Bathurst, Robertson.

**Habitat**

**Altitude:** 0–1000 m

**Annual rainfall:** 800–1400 mm

**Typical local abundance:** Occasional.

**Vegetation:** Moist open-forest e.g. with *Eucalyptus saligna*, *E. amplifolia*; woodland e.g. with *Eucalyptus crebra*. Saprophytic species of *Dipodium* appear to have a strong dependence on eucalypts (Bishop 1996).

**Substrate:** Clay soils on shales.

**Exposure:**

**Conservation**

Conservation status unknown.
**Dipodium roseum**

**Life history**

_Growth form:_ Terrestrial leafless mycoheterotrophic herb; flowering stem to 80 cm high, with up to 40 flowers.

_Vegetative spread:_ No (P. Hind, P. Weston pers. comm.).

_Longevity:_ Indefinite.

_Primary juvenile period:_

_Flowers:_ Pink, flower stalk without spots, inflorescence 30–80 cm long, December–January.

_Fruit/seed:_ Capsule with numerous, minute seeds.

**Dispersal, establishment & growth**

_Fire response:_

**Interaction with other organisms:**

**Distribution**

_Status/origin:_ Native.

_Botanical subregions:_ CC SC NT CT ST SWS; Qld, Vic., Tas., S.A.

_Select locations:_ CC: Howes Mountain, Glenbrook, Bradleys Head. CT: Dunns Swamp, Winburndale NR, Cullen Bullen, Newnes SF, Mt Wilson, Mt Piddington, Wingello, Bundanoon, Wombeyan Caves, Mittagong

**Habitat**

_Habitat:_

**Altitude:** 0–1100 m _Annual rainfall:_ 800–1200 mm

_Typical local abundance:_ Occasional–frequent.

_Vegetation:_ Open-forest e.g. with _Eucalyptus radiata_, _E. dives_, _E. mannifera_, _E. globoidea_, _E. sieberi_, _E. piperita_. Saprophytic species of _Dipodium_ appear to have a strong dependence on eucalypts (Bishop 1996).

_Subsurface:_ Variety of soils, sandy soils from sandstone, conglomerate.

_Exposure:_

**Conservation**

Conservation status unknown. Reported in Wollemi NP.

**Dipodium variegatum**

**Life history**

_Growth form:_ Terrestrial mycoheterotrophic herb, with short rhizome and thick fleshy roots (Dockrell 1992); flowering stem to 80 cm long, with up to 50 flowers.

_Vegetative spread:_ No (P. Hind pers. comm.).

_Longevity:_ Indefinite.

_Primary juvenile period:_

_Flowers:_ Cream to pale pink, usually spotted with maroon blotches, mainly August–January.

_Fruit/seed:_ Capsule with numerous, minute seeds.

**Dispersal, establishment & growth**

_Fire response:_ Resprouts at base or below (Fox 1988), flowering 1 year after high intensity fire (1/1994 at Lane Cove) (P. Kubiak pers. comm.).

**Interaction with other organisms:**

**Distribution**

_Status/origin:_ Native.

_Botanical subregions:_ NC SC NT CT ST NWS CWS; Qld, Vic.

_Distribution Sydney area:_ Mainly ranges and Tablelands.

_Select locations:_ CC: Castlereagh. CT: Boyd River, Yetholme.

**Habitat**

_Habitat:_ Amongst grass

**Altitude:** 0–1000 m _Annual rainfall:_ 800–1100 mm

_Typical local abundance:_ Rare.

_Vegetation:_ Open-forest e.g. with _Eucalyptus dalrympleana_, _E. pauciflora_, _E. fibrosa_, _E. parramattensis_.

_Subsurface:_ Clay loam on granite, Tertiary alluvium, low nutrients.

_Exposure:_

**Conservation**


**Diuris aequalis** (*Diuris maculata var. concolor*)

_Buttercup Doubletail_

**Life history**

_Growth form:_ Seasonally deciduous terrestrial herb, with tubers, 2 narrow leaves 10–20 cm long in a basal tuft, and flowering stem to 45 cm high with up to 5 flowers.

_Vegetative spread:_ No (P. Hind pers. comm.).

_Longevity:_ Indefinite.

_Primary juvenile period:_

_Flowers:_ Golden yellow to orange, October–December. Short flowering season, usually no more than 2 weeks; pollinators attracted by mimicking of small-flowered _Gompholobium_ species; probably pollinated mainly by small bees, and possibly syrphid flies and beetles (Bishop 1996).

_Fruit/seed:_ Capsule with numerous, minute winged seeds.

**Dispersal, establishment & growth**

_Fire response:_

**Interaction with other organisms:**

**Distribution**

_Status/origin:_ Native.

_Botanical subregions:_ CC CT ST.

_Distribution Sydney area:_ Mainly ranges and Tablelands.

_Distribution Sydney area:_ Mainly ranges and Tablelands.

_Selected locations:_ CC: Castlereagh. CT: Boyd River, Yetholme.

**Habitat**

_Habitat:_

**Altitude:** 0–1000 m _Annual rainfall:_ 800–1100 mm

_Typical local abundance:_ Rare.

_Vegetation:_ Open-forest e.g. with _Eucalyptus dalrympleana_, _E. pauciflora_, _E. fibrosa_, _E. parramattensis_.

_Subsurface:_ Clay loam on granite, Tertiary alluvium, low nutrients.

_Exposure:_

**Conservation**


**Diuris alba** (*Diuris punctata var. alba*)

**Life history**

_Growth form:_ Seasonally deciduous terrestrial herb, with tubers, 1–3 narrow leaves in a basal tuft and flowering stems to 40 cm, with up to 7 flowers.

_Vegetative spread:_ No (P. Hind, P. Weston pers. comm.).

_Longevity:_ Indefinite.

_Primary juvenile period:_

_Flowers:_ White with lilac or purple markings, August–October, peak September. Short flowering season, usually no more than 2 weeks; pollinators attracted by mimicking of other nearby plants; probably pollinated mainly by small bees, and possibly syrphid flies and beetles (Bishop 1996). Probably pollinated by halictine bees (Coleman 1930).

_Fruit/seed:_ Capsule with numerous minute winged seeds.

**Dispersal, establishment & growth**

_Fire response:_

**Interaction with other organisms:**

**Distribution**

_Status/origin:_ Native.

_Botanical subregions:_ NC CC NT NWS; Qld.
**Diuris aurea**

**Life history**

**Growth form:** Seasonally deciduous terrestrial herb, with tubers, 1 or 2 narrow leaves 10–20 cm long in a basal tuft, and flowering stems to 60 cm high, with up to 5 flowers.

**Vegetative spread:** Not stoloniferous (Pridgeon & Chase 1995).

**Longevity:** Indefinite.

**Primary juvenile period:**

**Flowers:** Golden yellow to orange with dark markings, September–October. Short flowering season, usually no more than 2 weeks; pollinators attracted by mimickry of other nearby plants; probably pollinated mainly by small bees, and possibly syrphiid flies and beetles (Bishop 1996). Probably pollinated by halictine bees (Coleman 1930).

**Fruit/seed:** Capsule with numerous minute winged seeds.

**Dispersal, establishment & growth:**

**Fire response:** Probably resprouted after high intensity fire (11/1994 at Narrabeen), green fruit 10 months later (P. Kubiak pers. comm.).

**Interaction with other organisms:**

**Distribution**

**Status/origin:** Native.

**Botanical subregions:** CC.

**Distribution Sydney area:** Lower North Shore, Gosford.

**Select locations:** CC: Gladesville (1889), Gosford.

**Habitat**

**Habitat:** Moist grassland.

**Altitude:** 0–1000 m  
**Annual rainfall:** 800–900 mm

**Typical local abundance:** Frequent.

**Vegetation:** Woodland e.g. with Eucalyptus haemastoma, Corymbia gummifera, Angophora costata, with grassy understorey e.g. Themeda australis.

**Substrate:** Sandy soil on conglomerate, claystone, Tertiary alluvium.

**Exposure:**

**Conservation**

Conservation status unknown. Reported in Castlereagh NR, Dharug NP.

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**Diuris chryseopsis**

**Small Snake Orchid**

**Life history**

**Growth form:** Seasonally deciduous terrestrial herb. Grows singly or in tufts of up to 5 plants, with stems to 30 cm high with 1–4 nodding flowers (Jones & Jones 2000).

**Vegetative spread:** No (P. Hind pers. comm.).

**Longevity:** Indefinite.

**Primary juvenile period:**

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**Diuris bracteata**

**Life history**

**Growth form:** Seasonally deciduous terrestrial herb, with 2 narrow leaves in a basal tuft, and tubers.

**Vegetative spread:**

**Longevity:** Indefinite.

**Primary juvenile period:**

**Flowers:** Yellow with blackish markings, September. Short flowering season, usually no more than 2 weeks; pollinators attracted by mimickry of other nearby plants; probably pollinated mainly by small bees, and possibly syrphiid flies and beetles (Bishop 1996).

**Fruit/seed:** Capsule with numerous minute winged seeds.

**Dispersal, establishment & growth:**

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**Diuris brevissima**

**Life history**

**Growth form:** Seasonally deciduous terrestrial herb, with tubers and 2 narrow leaves 30 cm long in a basal tuft.

**Vegetative spread:** No (P. Hind pers. comm.).

**Longevity:** Indefinite.

**Primary juvenile period:**

**Flowers:** Light yellow with red-brown markings, October. Short flowering season, usually no more than 2 weeks; pollinators attracted by mimickry of other nearby plants; probably pollinated mainly by small bees, and possibly syrphiid flies and beetles (Bishop 1996).

**Fruit/seed:** Capsule with numerous minute winged seeds.

**Dispersal, establishment & growth:**

**Fire response:**

**Interaction with other organisms:**

**Distribution**

**Status/origin:** Native.

**Botanical subregions:** CT.

**Distribution Sydney area:** Blue Mountains.

**Select locations:** CT: Wentworth Falls.

**Habitat**

**Habitat:** Moist grassland.

**Altitude:** 1000 m  
**Annual rainfall:** 1400 mm

**Typical local abundance:**

**Vegetation:**

**Substrate:**

**Exposure:**

**Conservation**

Recorded from only one site in the Blue Mountains. Bishop (1996) regards this species merely as a form of D. maculata.
**Diuris dendrobioides** *(Diuris punctata var. minor)*

**Life history**

*Growth form:* Seasonally deciduous terrestrial herb, with tubers, 2 narrow leaves 10–25 cm long in a basal tuft, and flowering stems to 40 cm, with up to 6 flowers.

*Vegetative spread:* No (P. Hind pers. comm.).

*Longevity:* Indefinite.

*Primary juvenile period:* Flowers: Mauve with purple markings, October–January. Short flowering season, usually no more than 2 weeks; pollinators attracted by mimicry of other nearby plants; probably pollinated mainly by small bees, and possibly syrphid flies and beetles (Bishop 1996).

*Fruit/seed:* Capsule with numerous minute winged seeds.

*Fire response:* Interaction with other organisms:

**Distribution**

*Status/origin:* Native.

*Botanical subregions:* NC NT CT ST NWS CWS SWP; Qld, Vic.

*Distribution Sydney area:* Mainly Tablelands.

*Select locations:* CC: Putty. CT: Wattle Flat, Sofala, Jenolan Caves, Mt Werong, Abercrombie Caves, Bowral, Burrawang.

**Habitat**

*Habitat:* Moist grassy areas.

*Altitude:* 300–900 m  
*Annual rainfall:* 700–1000 mm

*Typical local abundance:* Occasional.

*Vegetation:* Grassland; woodland.

*Substrate:* Sandy loam, shallow clay loams (Jones 1998).

*Exposure:* Conservation

Conservation status unknown.

**Diuris maculata**

**Life history**

*Growth form:* Seasonally deciduous terrestrial herb, with tubers, 2–3 narrow leaves in a basal tuft, and flowering stems to 40 cm high, with up to 10 flowers.

*Vegetative spread:* No (P. Hind, P. Weston pers. comm.).

*Longevity:* Indefinite.

*Primary juvenile period:* Flowers: Yellow with brown markings, August–October. Self-compatible and attracts pollinators e.g. native bees *Leioproctus* sp., by floral mimicry of *Daviesia* species and *Pultenaea scabra* — they are remarkably similar in colour and shape to *D. maculata* (Hutchinson et al. 1986).

*Fruit/seed:* Capsule with numerous minute winged seeds.

*Fire response:* Interaction with other organisms:

**Distribution**

*Status/origin:* Native.

*Botanical subregions:* NC CC NT CT ST; ?S.A.

*Distribution Sydney area:* CC: Ingleburn. CT: Sofala, Orange, Mt Victoria, Burrawang, Abercrombie Caves.

**Habitat**

*Habitat:* Moist grassy areas.

*Altitude:* 0–1000 m  
*Annual rainfall:* 700–1600 mm

*Typical local abundance:* Frequent.

*Vegetation:* Eucalypt woodland, cleared areas.

*Substrate:* Clay or peaty soils on shale, alluvium, low nutrients.

*Exposure:* Probably full sun.

**Conservation**

Conservation status unknown.

**Diuris lanceolata**

Snake Orchid, Golden Moths

**Life history**

*Growth form:* Seasonally deciduous terrestrial herb, with 3–9 narrow leaves in a basal tuft, and tubers.

*Vegetative spread:* No (P. Hind pers. comm.), not stoloniferous (Pridgeon & Chase 1995).

**Fire response:* Interaction with other organisms:

**Distribution**

*Status/origin:* Native.

*Botanical subregions:* NC CC NT CT ST; ?Vic.

*Distribution Sydney area:* Mainly Tablelands.

*Select locations:* CC: Putty. CT: Riverstone, North Ryde, Casula, Holsworthy, Bulli–Appin Road.

**Habitat**

*Habitat:* Hilltops, slopes.

*Altitude:* 0–300 m  
*Annual rainfall:* 800–1000 mm

*Typical local abundance:* Frequent.

*Vegetation:* Amongst grass in woodland e.g. with *Eucalyptus fibrosa, Melaleuca decora*.

*Substrate:* Sandy clay on Tertiary alluvium, low nutrients, well-drained.

*Exposure:* Conservation

Vulnerable in Western Sydney (James et al. 1999).
**Diuris pardina** *(Diuris maculosissima)*

**Leopard Orchid**

**Life history**

**GROWTH FORM:** Seasonally deciduous terrestrial herb, with tubers, 2–3 narrow leaves in a basal tuft, and flowering stems to 18 cm high, with up to 10 flowers.

**VEGETATIVE SPREAD:** No (P. Hind, P. Weston pers. comm.).

**LONGEVITY:** Indefinite.

**PRIMARY JUVENILE PERIOD:**

**FLOWERS:** Yellow, heavily marked with red-brown, August–October. Short flowering season, usually no more than 2 weeks; pollinators attracted by mimickry of other nearby plants; probably pollinated mainly by small bees, and possibly syrphid flies and beetles (Bishop 1996).

**FRUIT/SEED:** Capsule with numerous minute winged seeds.

**INTERACTION WITH OTHER ORGANISMS:** Palatable to rabbits (Leigh et al. 1987).

**Distribution**

**STATUS/ORIGIN:** Native.

**BOTANICAL SUBREGIONS:** CC SC CT ST CWS SWS SWP; Tas., S.A.

**DISTRIBUTION SYDNEY AREA:** Widespread.

**HABITAT:** Moist grassy areas.

**ALTITUDE:** SDN.

**ANNUAL RAINFALL:** 1500–2000 mm.

**TYPICAL LOCAL ABUNDANCE:** Frequent.

**VEGETATION:** Amongst grass in open-forest e.g. with *Corymbia gummifera, Eucalyptus punctata, E. pilularis, E. sclerophylla, Angophora costata*.

**SUBSTRATE:** Sandy loam on sandstone, metamorphics, low nutrients, well-drained.

**EXPOSURE:**

**Conservation**

Conservation status unknown.

**Diuris pedunculata**

**Small Snake Orchid**

**Life history**

**GROWTH FORM:** Seasonally deciduous terrestrial herb, with tubers, usually with 2 narrow leaves 35 cm long in a basal tuft, and flowering stems 60 cm high with up to 8 flowers.

**VEGETATIVE SPREAD:** No (P. Hind pers. comm.).

**LONGEVITY:** Indefinite.

**PRIMARY JUVENILE PERIOD:**

**FLOWERS:** Yellow with dark markings, August–October. Short flowering season, usually no more than 2 weeks; pollinators attracted by mimickry of other nearby plants; probably pollinated mainly by small bees, and possibly syrphid flies and beetles (Bishop 1996).

**FRUIT/SEED:** Capsule with numerous minute winged seeds.

**INTERACTION WITH OTHER ORGANISMS:**

**Distribution**

**STATUS/ORIGIN:** Native.

**BOTANICAL SUBREGIONS:** CC: Glenorie, Blaxland, Marsden Park, Rosehill, Kenllyn, Wedderburn, Darkes Forest. CT: Mullion Range, Cullen Bullen, Yetholme, Clarence, Katoomba, Abercrombie Caves, Hill Top, Mittagong.

**HABITAT:** Slopes, ridges.

**ALTITUDE:** 0–1000 m. **ANNUAL RAINFALL:** 800–1000 mm.

**TYPICAL LOCAL ABUNDANCE:** Frequent.

**VEGETATION:** Amongst grass in open-forest e.g. with *Corymbia gummifera, Eucalyptus punctata, E. pilularis, E. sclerophylla, Angophora costata*.

**SUBSTRATE:** Sandy loam on sandstone, metamorphics, low nutrients, well-drained.

**EXPOSURE:**

**Conservation**

Conservation status unknown.

**Diuris platichila**

**Life history**

**GROWTH FORM:** Seasonally deciduous terrestrial herb, with tubers, usually with 2 narrow leaves 4–12 cm long in a basal tuft, and flowering stems to 40 cm high, with up to 10 flowers.

**VEGETATIVE SPREAD:** No (P. Hind, P. Weston pers. comm.).

**LONGEVITY:** Indefinite.

**PRIMARY JUVENILE PERIOD:**

**FLOWERS:** Drooping, bright yellow with dark markings, August–September. Short flowering season, usually no more than 2 weeks; pollinators attracted by mimickry of other nearby plants; probably pollinated mainly by small bees, and possibly syrphid flies and beetles (Bishop 1996).

**FRUIT/SEED:** Capsule with numerous minute winged seeds.

**INTERACTION WITH OTHER ORGANISMS:**

**Distribution**

**STATUS/ORIGIN:** Native.

**BOTANICAL SUBREGIONS:** CT CWS.

**DISTRIBUTION SYDNEY AREA:** Blue Mountains.

**HABITAT:** Hilltops, slopes.

**ALTITUDE:** 500–1000 m. **ANNUAL RAINFALL:** 600–1200 mm.

**TYPICAL LOCAL ABUNDANCE:** Frequent.

**VEGETATION:** Open-forest e.g. with *Eucalyptus rossii, E. sideroxylon*.

**SUBSTRATE:** Sandy clay.

**EXPOSURE:**

**Conservation**

Restricted to the Blue Mountains (Harden 1993), conservation status unknown.

**Diuris praecox**

**Life history**

**GROWTH FORM:** Seasonally deciduous terrestrial herb, with tubers, 2 or 3 narrow leaves in a basal tuft, and flowering stems to 40 cm high with up to 10 flowers (Bishop 1996).

**VEGETATIVE SPREAD:** No (P. Hind, P. Weston pers. comm.).

**LONGEVITY:** Indefinite.

**PRIMARY JUVENILE PERIOD:**

**FLOWERS:** Yellow, nodding, with dark brown markings, August–September. Short flowering season, usually no more than 2 weeks; pollinators attracted by mimickry of other nearby plants; probably pollinated mainly by small bees, and possibly syrphid flies and beetles (Bishop 1996).

**FIRE RESPONSE:**

**Distribution**

**STATUS/ORIGIN:** Native.

**BOTANICAL SUBREGIONS:** NT CT ST CWS SWS SWP; Qld, Vic., Tas., S.A.
**Diuris sulphurea** *(Diuris latifolia)*

**Tiger Orchid, Hornet Orchid**

**Life history**

**Growth form:** Seasonally deciduous terrestrial herb, with tubers, 1–3 linear leaves to 50 cm long in a basal tuft, and flowering stem to 60 cm high with up to 7 flowers.

**Vegetative spread:** No (P. Hind pers. comm.), not stoloniferous (Pridgeon & Chase 1995), this is uncertain, but some clumps are so dense and so localised that vegetative spread seems likely (P. Weston pers. comm.).

**Longevity:** Indefinite.

**Primary juvenile period:**

**Flowers:** Bright yellow, September–December. Short flowering season, usually no more than 2 weeks; pollinators attracted by mimickry of other nearby plants; probably pollinated mainly by small bees, and possibly syrphid flies and beetles (Bishop 1996).

**Fruit/seed:** Capsule with numerous minute winged seeds.

**Dispersal, establishment & growth:**

**Fire response:**

**Interaction with other organisms:**

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**Dockrillia cucumerina** *(Dendrobium cucumerinum)*

**Cucumber Orchid**

**Life history**

**Growth form:** Epiphytic or epilithic evergreen herb with prostrate, wiry, creeping stems rooting freely along most of the length.

**Vegetative spread:** Yes, rhizomatous (P. Weston pers. comm.).

**Longevity:** Indefinite.

**Primary juvenile period:**

**Flowers:** Cream to pale yellow or green and white with reddish purple striations, November–February.

**Fruit/seed:** Capsule with numerous minute seeds.

**Dispersal, establishment & growth:**

**Fire response:**

**Interaction with other organisms:**

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Dockrillia fairfaxii  (Dendrobium fairfaxii)

**Rat’s Tail Orchid**

**Life history**

**Growth form:** Epiphytic or rarely epilithic evergreen herb with pendent to spreading, wiry stems.

**Vegetative spread:** Yes, rhizomatous (P. Weston pers. comm.).

**Longevity:** Indefinite.

**Primary juvenile period:**

**Flowers:** White to cream with red or purple striations, September–November. Probably bee-pollinated (Jones 1983).

**Fruit/Seed:** Capsule with numerous minute seeds.

**Dispersion, establishment & growth:**

**Fire response:**

**Interaction with other organisms:**

**Distribution**

**Status/origin:** Native.

**Botanical subregions:** NC CC SC NT ST NWS CWS; Qld.

**Distribution Sydney area:** Widespread on coast.

**Select locations:** CC: Drews Creek, Mill Creek, Mogo Creek, Mangrove Creek, Springwood, Hornsby, Narrabeen, Manly, Kogarah, Wedderburn, Waterfall, Nowra.

**Habitat**

**Habitat:** On tree trunks and rocks.

**Altitude:** 0–800 m  **Annual rainfall:** 1100–1400 mm

**Typical local abundance:**

**Vegetation:** Open-forest e.g. on *Casuarina cunninghamiana*; rainforest.

**Substrate:** Rocks, tree trunks or soil.

**Exposure:** Exposed on rocks.

**Conservation**

Conservation status unknown. Reported in Yengo NP, Dharug NP.

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Dockrillia pugioniformis  (Dendrobium pugioniforme)

**Dagger Orchid**

**Life history**

**Growth form:** Epiphytic or epilithic evergreen herb with pendent, wiry stems. Sporadically hybridizes with *D. striolatum* (Harden 1993).

**Vegetative spread:** Yes, rhizomatous (P. Weston pers. comm.).

**Longevity:** Indefinite.

**Primary juvenile period:**

**Flowers:** Green to pale brown and white to cream with markings brown and purple, September–November. Probably bee-pollinated (Jones 1983).

**Fruit/Seed:** Capsule with numerous minute seeds.

**Dispersion, establishment & growth:**

**Fire response:**

**Interaction with other organisms:**

**Distribution**

**Status/origin:** Native.

**Botanical subregions:** NC CC SC NT CT ST; Qld.

**Distribution Sydney area:** Widespread.

**Select locations:** CC: Olney SF, Mount Tomah, Mount Riverview, Clifton, Cambewarra. CT: Mt Coricudgy, Mt Wilson, Kanangra, Robertson.

**Habitat**

**Habitat:** On trees and sandstone rocks.

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

**Typical local abundance:**

**Vegetation:** Rainforest e.g. with *Doryphora sassafras*; open-forest e.g. with *Angophora costata*, *Corymbia gummifera*, *Syncarpia glomulifera*.

**Substrate:** Sandy to clay soils on sandstone, shale, basalt, low–high nutrients.

**Exposure:**

**Conservation**

Conservation status unknown. Reported in Robertson NR.
Dockrillia teretifolia (Dendrobium teretifolium)

**Rat’s Tail Orchid**

**Life history**

**Growth form**: Epiphytic and epilithic evergreen herb growing on rocks or trees, with spreading to pendent, wiry stems and narrow, terete, succulent leaves 10–60 cm long.

**Vegetative spread**: Yes, rhizomatous (P. Weston pers. comm.).

**Longevity**: Indefinite.

**Primary Juvenile Period**

**Flowers**: White to pale yellow, July–October. Probably pollinated by Trigonella bees (Jones 1983).

**Fruit/Seed**: Capsule with numerous, minute seeds.

**Dispersal, Establishment & Growth**

**Fire Response**

**Interaction with other organisms**

**Distribution**

**Status/origin**: Native.

**Botanical Subregions**: NC CC SC CT; Qld.

**Distribution Sydney area**: Mainly coast.


**Habitat**

**Habitat**: Growing on rocks and trees.

**Altitude**: 0–200 m  **Annual Rainfall**: 1000–1400 mm

**Typical Local Abundance**: Frequent.

**Vegetation**: Estuarine swamp woodland e.g. with Casuarina glauca, Avicennia marina.

**Substrate**: Rocks and trees, mainly on Casuarina glauca (Harden 1993).

**Exposure**

**Conservation**

Conservation status unknown. Reported in Royal NP.

**ORCHIDACEAE**

**Eriocheilus cucullatus**

**Life history**

**Growth form**: Seasonally deciduous terrestrial herb, with tubers, a basal solitary leaf often not fully developed at flowering; flowering stem to 25 cm high with up to 5 flowers (Bishop 1996).

**Vegetative Spread**: Not stoloniferous (Pridgeon & Chase 1995).

**Longevity**: Indefinite.

**Primary Juvenile Period**

**Flowers**: White to deep pink, December–May.

**Fruit/Seed**: Capsule with numerous minute winged seeds.

**Dispersal, Establishment & Growth**: Active growth period autumn–winter.

**Fire Response**: Probably resprouted after high intensity fire (1/1994 at Lane Cove), flowering 16 months later (P. Kubik pers. comm.).

**Interaction with other organisms**

**Distribution**

**Status/origin**: Native.

**Botanical Subregions**: NC CC SC CT; Qld.

**Distribution Sydney area**: Widespread.

**Select Locations**: CC: Gospers Mountain, Gladesville, Parramatta, Orchard Hills, Liverpool, Menangle, Broughton Pass. CT: Mullions Range, Jenolan Caves, Capertee, Cullen Bullen, Mt Victoria, Blackheath, Wentworth Falls, Leura, Woodford, Penrose, Abercrombie Caves.

**Habitat**

**Habitat**: Moist open habitats.

**Altitude**: 0–1000 m  **Annual Rainfall**: 600–1400 mm

**Typical Local Abundance**: Frequent.

**Vegetation**: Heath e.g. with Angophora hispida, Banksia ericifolia; woodland e.g. with Corymbia astringifera, Eucalyptus haemastoma, E. piperita, E. melliodora, E. blakelyi. On sandstone ledges with moss (Bishop 1996).

**Substrate**: Shallow sandy soils on Hawkesbury Sandstone, low nutrients, moist.

**Exposure**

**Conservation**

Uncommon. Nowra is southern geographical limit.

**ORCHIDACEAE**

**Eriocheilus autumnalis**

**Life history**

**Growth form**: Seasonally deciduous terrestrial herb, with tubers, a single basal leaf sometimes often not fully developed at flowering; flowering stem to 12 cm high with up to 3 flowers (Bishop 1996).

**Vegetative Spread**: Not stoloniferous (Pridgeon & Chase 1995).

**Longevity**: Indefinite.

**Primary Juvenile Period**

**Flowers**: White to pale pink, March–April.

**Fruit/Seed**: Capsule with numerous minute winged seeds.

**Dispersal, Establishment & Growth**: Active growth period autumn–winter.
**Erythrorchis cassythoides** *(Galeola cassythoides)*

**Life history**
- **Growth form:** Leafless climbing mycoheterotrophic herb, with stems 6 m long and roots at nodes, usually attached to tree trunks. Aerial roots act as hooks; stems die back annually (P. Weston Herb. note) ?after flowering and fruiting.
- **Vegetative spread:**
- **Longevity:**
- **Primary juvenile period:**
- **Flowers:** Yellow to greenish, September–December. Pollinated by small bees attracted by the perfume (Jones 1994).
- **Fruit/seed:** Capsule 6–20 cm long, with numerous minute seeds.
- **Dispersal, establishment & growth:**
- **Fire response:**
- **Interaction with other organisms:**

**Distribution**
- **Status/origin:** Native.
- **Botanical subregions:** NC CC CT;
- **Select locations:** CC: Lane Cove, Kentlyn.

**Habitat**
- **Habitat:** Hillsides.
- **Altitude:** 0–50 m
- **Annual rainfall:** 800–1200 mm
- **Typical local abundance:** Rare.

**Vegetation:** Open-forest e.g. with *Angophora costata*, *Eucalyptus piperita*, *E. pilularis*, *Corymbia gunnifera*, *Syncarpia glomulifera*, *Allocasuarina littoralis* and shrubby understorey.

**Substrate:** Sandy soil on sandstone, attached to bark of trees, eucalypts, stumps and longs.

**Exposure:**

**Conservation**

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**Gastrodia procera** *(Gastrodia entomogama)*

**Life history**
- **Growth form:** Robust seasonal terrestrial mycoheterotrophic herb, with shoots from an underground tuberous rhizome, stem 90 cm high with up to 75 flowers.
- **Vegetative spread:** No (P. Weston pers. comm.).
- **Longevity:** Indefinite.
- **Primary juvenile period:**
- **Flowers:** Light to dark brown, October–January.
- **Fruit/seed:** Capsule 25–30 cm long, with numerous minute seeds.
- **Dispersal, establishment & growth:**
- **Fire response:**
- **Interaction with other organisms:**

**Distribution**
- **Status/origin:** Native.
- **Botanical subregions:** CC NT CT ST;
- **Select locations:** CC: Woy Woy, Hornsby, Middle Harbour, Hunters Hill, Oatley, Heathcote, Bulli Pass. CT: Mt Wilson, Mount Tomah, Exeter.

**Habitat**
- **Habitat:** In accumulated litter.
- **Altitude:** 0–1000 m
- **Annual rainfall:** 1200–1600 mm
- **Typical local abundance:** Rare.

**Vegetation:** Moist open-forest

**Substrate:** Loamy soils on basalt, high nutrients.

**Exposure:**

**Conservation**
Conservation status unknown. Reported in Royal NP.

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**Gastrodia sesamoides**

**Cinnamon Bells, Potato Orchid**

**Life history**
- **Growth form:** Slender terrestrial mycoheterotrophic herb 18–75 cm high, with shoots from a tuberous rhizome and scale-like leaves.
- **Vegetative spread:** No (P. Weston pers. comm.).
- **Longevity:**
- **Primary juvenile period:**
- **Flowers:** Brown/white, cinnamon-scented, August–January. Pollinated by *Exoneura* bees that gather pseudopollen from the labellum (Jones 1985).
- **Fruit/seed:** Capsule 10–15 cm long, with numerous minute seeds.
- **Dispersal, establishment & growth:** Diaspore mobile (McIntyre et al. 1995).
- **Fire response:**
- **Interaction with other organisms:** Fleshy tubers roasted and eaten by Aboriginal people (Cribb & Cribb 1984).

**Distribution**
- **Status/origin:** Native.
- **Botanical subregions:** NC CC SC CT ST NWS CWS SWS;
- **Select locations:** CC: Somersby, Lane Cove, Loftus, Mt Kembla. CT: Orange, Mt Cameron, Mt Wilson, Blackheath, Leura, Jenolan Caves, Wombeyan Caves.

**Habitat**
- **Habitat:** In accumulated litter or dead trees.
- **Altitude:** 0–1000 m
- **Annual rainfall:** 1000–1400 mm
- **Typical local abundance:** Frequent–occasional.

**Vegetation:** Open-forest e.g. with *Eucalyptus radiata*, *E. sieberi*, *E. piperita*, *E. viminalis*; gallery rainforest.

**Substrate:** Loamy soils on sandstone, alluvium, basalt, low to high nutrients.

**Exposure:**

**Conservation**
Conservation status unknown. Reported in Royal NP.

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**Genoplesium apostasioides** *(Prasophyllum apostasioides, P. anomalum, P. bowdeniae)*

**Life history**
- **Growth form:** Seasonally deciduous terrestrial herb, with paired tubers, single basal leaf per shoot and flowering stem to 30 cm high with up to 15 flowers.
- **Vegetative spread:** No (P. Hind pers. comm.).
- **Longevity:** Indefinite.
- **Primary juvenile period:**
- **Flowers:** Yellowish green and reddish, December–April, flowers apparently apomictic and seldom opening (Bishop 1996).
- **Fruit/seed:** Capsule with numerous minute winged seeds. Seeds shed 6–12 weeks after pollination (Pridgeon et al. 2001).
- **Dispersal, establishment & growth:**
- **Fire response:**
- **Interaction with other organisms:**

**Distribution**
- **Status/origin:** Native.
- **Botanical subregions:** CC SC.
- **Select locations:** CT: Woodford, Wentworth Falls.

**Habitat**
- **Habitat:** Slopes, moss gardens.
- **Altitude:** 0–1000 m
- **Annual rainfall:** 1200–1400 mm
- **Typical local abundance:**
- **Vegetation:** Open-forest; heath.
**Genoplesium archeri** (Prasophyllum archeri)

**Life history**
Growth form: Seasonally deciduous terrestrial herb, with paired tubers, with single basal leaf per shoot and flowering stem to 25 cm high with up to 20 flowers.

Vegetative spread: No (P. Hind pers. comm.).

Longevity: Indefinite.

Primary juvenile period:

Flowers: Yellowish and purplish to purplish red with darker stripes, November–March. Probably pollinated by small (vinegar) flies (Drosopholids or Chironomids) (Van der Cingel 2001).

Fruit/seed: Capsule with numerous minute winged seeds. Seeds shed 6–12 weeks after pollination (Pridgeon et al. 2001).

Dispersal, establishment & growth:

Fire response:

Interaction with other organisms:

**Distribution**

Status/origin: Native.

Botanical subregions: NC CC NT CT; Vic., Tas.

Distribution Sydney area: Coast and Blue Mountains.

Select locations:

CC: Dural, Oxford Falls, Rookwood. CT: Kanimbla Valley, Mittagong, Woodford, Boyd River, Yetholme.

**Habitat**

Habitat: Mossy sites.

Altitude: 0–1000 m

Annual rainfall: 800–1200 mm

Typical local abundance: Rare.

Vegetation: Open-forest and woodland e.g. with Eucalyptus rossii, E. goniocalyx.

Substrate: Clay soils on shale, low nutrients.

Exposure:

Conservation status unknown.

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**Genoplesium baueri**

**Life history**

Growth form: Leafless, saprophytic terrestrial herb, with paired tubers, flowering stem to 15 cm with 1–3 flowers.

Vegetative spread: No (P. Hind pers. comm.).

Longevity: Indefinite.

Primary juvenile period:

Flowers: Green and red or reddish, December–March. Probably pollinated by small (vinegar) flies (Drosopholids or Chironomids) (Van der Cingel 2001).

Fruit/seed: Capsule with numerous minute winged seeds. Seeds shed 6–12 weeks after pollination (Pridgeon et al. 2001).

Dispersal, establishment & growth:

Noted as generally rare and easiest to find after fire (Bishop 1996). Older Herbarium records indicate local populations persisted for up to 7 years e.g. Gladesville, recorded 1884, 1885, 1887 and Cowan recorded 1948, 1949, 1950, 1955.

Fire response:

Interaction with other organisms:

**Distribution**

Status/origin: Native.

Botanical subregions: NC CT SC.

Distribution Sydney area: Pittwater to Nowra.

Select locations: CC: Cowan, Pittwater, Pennant Hills, Gladesville, Loftus, Waterfall, Yanderra.

**Habitat**

Habitat: Ridges, ‘moss gardens’.

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**Genoplesium citriodorum**

**Life history**

Growth form: Seasonal terrestrial herb, with paired tubers, single basal leaf per shoot and stem to 35 cm with up to 33 crowded flowers.

Vegetative spread: No (P. Hind pers. comm.).

Longevity: Indefinite.

Primary juvenile period:

Flowers: Dark purplish black, lemon-scented, January–February. Probably pollinated by small (vinegar) flies (Drosopholids or Chironomids) (Van der Cingel 2001).

Fruit/seed: Capsule with numerous minute winged seeds. Seeds shed 6–12 weeks after pollination (Pridgeon et al. 2001).

Dispersal, establishment & growth:

Fire response:

Interaction with other organisms:

**Distribution**

Status/origin: Native.

Botanical subregions: CC CT.

Distribution Sydney area: Blue Mountains.

Select locations: CC: Bilpin, Faulconbridge. CT: Woodford.

**Habitat**

Habitat: Near mossy seepage areas.

Altitude: 300–600 m

Annual rainfall: 1000–1200 mm

Typical local abundance: Frequent.

Vegetation: Heath e.g. with Banksia ericifolia, Kunzea ambigua, Hakea teretifolia; woodland e.g. with Corymbia gummifera, Eucalyptus burgessiana.

Substrate: Sandy soil on sandstone, low nutrients.

Exposure:

Conservation status unknown.

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**Genoplesium despectans** (Prasophyllum despectans)

Sharp Midge Orchid

**Life history**

Growth form: Seasonally deciduous terrestrial herb, with paired tubers, single basal leaf per shoot and flowering stem to 25 cm high with up to 45 flowers.

Vegetative spread: No (P. Hind pers. comm.).

Longevity: Indefinite.

Primary juvenile period:

Flowers: Dark purple or green with purple markings, January–April.

In the Illawarra–Jervis Bay region is a form that has tiny, very short-lived and apparently self pollinating flowers with a recurved labellum.
**Genoplesium eriochilum** *(Prasophyllum eriochilum)*

**Life history**
- **Growth form:** Terrestrial herb, with paired tubers, single basal leaf per shoot and flowering stem to 20 cm with up to 20 flowers.
- **Vegetative spread:** No (P. Hind pers. comm.).
- **Longevity:** Indefinite.
- **Primary juvenile period:** Probably pollinated by small (vinegar) flies (Drosopholid or Chironomids) (Van der Cingel 2001).
- **Fruit/seed:** Capsule with numerous minute winged seeds. Seeds shed 6–12 weeks after pollination (Pridgeon et al. 2001).

**Dispersal, establishment & growth:**
- **Fire response:** One record from burnt area, others from undisturbed sites.

**Interaction with other organisms:**
- **Distribution**
  - **Status/origin:** Native.
  - **Botanical subregions:** CC SC; Vic., Tas., S.A.
  - **Distribution Sydney area:** Illawarra area.
  - **Select locations:** CC: Heathcote, Jervis Bay. CT: Carrington Falls.

**Habitat**
- **Habitat:** Often on slopes and ridges.
- **Altitude:** 0–600 m
- **Annual rainfall:** 1200–1400 mm
- **Typical local abundance:** Frequent–occasional.
- **Vegetation:** Open-forest
- **Substrate:** Sandy soils on sandstone, low nutrients.

**Conservation**
- Heathcote is the northern geographical limit. Conservation status unknown.

**Genoplesium fimbriatum**

**Life history**
- **Growth form:** Seasonal terrestrial herb, with paired tubers, single basal leaf per shoot and flowering stem to 30 cm high with up to 30 flowers.
- **Vegetative spread:** No (P. Hind pers. comm.).
- **Longevity:** Indefinite.
- **Primary juvenile period:**
- **Flowers:** Greenish to purple, February–April. Probably pollinated by small (vinegar) flies (Drosopholid or Chironomids) (Van der Cingel 2001). Flowers abundantly only after fire (Keith 1996).
- **Fruit/seed:** Capsule with numerous minute winged seeds. Seeds shed 6–12 weeks after pollination (Pridgeon et al. 2001).

**Dispersal, establishment & growth:**
- **Fire response:** One record for area burnt in previous year.

**Interaction with other organisms:**
- **Distribution**
  - **Status/origin:** Native.
  - **Botanical subregions:** NC CC NT CT; Qld.
  - **Distribution Sydney area:** Coast and hinterland.
  - **Select locations:** CC: Howes Valley, Wisemans Ferry, West Head, Ingleburn, Loftus, Waterfall.

**Habitat**
- **Habitat:** Ridgetops, ‘moss gardens’.
- **Altitude:** 0–300 m
- **Annual rainfall:** 800–1400 mm
- **Typical local abundance:** Occasional.
- **Vegetation:** Open-forest; heath e.g. with *Banksia ericifolia*; woodland e.g. with *Corymbia eximia*.
- **Substrate:** Sandy soil over sandstone, laterite, low nutrients.

**Conservation**
- Conservation status unknown. Reported in Royal NP.

**Genoplesium filiforme**

**Life history**
- **Growth form:** Seasonal terrestrial herb, with paired tubers, single basal leaf per shoot and flowering stem to 30 cm high with up to 30 flowers.
- **Vegetative spread:** No (P. Hind pers. comm.).

**ORCHIDACEAE**

**Cunninghamia** 9(1): 2005  
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Genoplesium insignis

Life history
Growth form: Seasonal terrestrial herb, with paired tubers, single basal leaf per shoot and flowering stem to 18 cm with 5–12 flowers (Jones 2001). Similar to G. archeri (Jones 2001).
Vegetative spread: No (P. Hind pers. comm.).
Longevity: Indefinite.

Primary juvenile period:
Flowers: Dark purple to dark reddish, August–November (Jones 2001). Probably pollinated by small (vinegar) flies (Drosophilids or Chironomids) (van der Cingel 2001).

Fruit/seed: Capsule not seen.

Fire response: Jones (2001) reports ‘flowering of this orchid may be discerned on burnt ground’.

Interaction with other organisms:

Distribution
Status/origin: Native.
Botanical subregions: CC.
Distribution Sydney area: Charmhaven–Wyong.
Select locations: CC: Charmhaven–Wyong.

Habitat
Habitat: Ridgetops.
Altitude: 0–100 m
Annual rainfall: 1200 mm

Typical local abundance:
Vegetation: Heathland e.g. with shrubs and patches of Themeda australis (Jones 2001).
Substrate: Grey to white sand, low nutrients.
Exposure:
Conservation
Known from only 3 populations, totalling less than 20 plants between Charmhaven and Wyong; protected to some extent in the Lake Macquarie SRA (Jones 2001). Listed as Endangered (Schedule 1) NSW Threatened Species Conservation Act 1995.

Genoplesium morinum

Life history
Growth form: Seasonal terrestrial herb, with paired tubers, single basal leaf per shoot and flowering stem to 24 cm with up to 20 flowers. (Prasophyllum nudiscapum)
Vegetative spread: No (P. Hind pers. comm.).
Longevity: Indefinite.

Primary juvenile period:
Flowers: Nodding, dark reddish purple, December–January. Probably pollinated by small (vinegar) flies (Drosophilids or Chironomids) (van der Cingel 2001).

Fruit/seed: Capsule with numerous minute winged seeds. Seeds shed 6–12 weeks after pollination (Pridgeon et al. 2001).

Fire response: No (P. Hind pers. comm.).

Interaction with other organisms:

Distribution
Status/origin: Native.
Botanical subregions: NC CC SC NT CT; Vic., Tas.
Distribution Sydney area: Widespread.
Select locations: CC: Asquith, Yanderra. CT: Mt Victoria, Woodford.

Habitat
Habitat: Ridgetops.
Altitude: 0–1000 m
Annual rainfall: 1000–1400 mm

Typical local abundance: Rare–occasional.
Vegetation: Heath, woodland e.g. with Eucalyptus oreades, E. stricta.
Substrate: Sandy to clay loam over sandstone, low nutrients.
Exposure:

Conservation
Conservation status unknown. Reported in Blue Mountains NP, Royal NP.

Genoplesium nudiscapum

Tiny Midge Orchid

Life history
Growth form: Seasonal terrestrial herb, with paired tubers, single basal leaf per shoot and flowering stem to 30 cm high with up to 40 flowers.
Vegetative spread: No (P. Hind pers. comm.).
Longevity: Indefinite.

Primary juvenile period:
Flowers: Nodding, green and red, or reddish purple, December–March. Self-pollinated (Jones 1972).

Fruit/seed: Capsule with numerous minute winged seeds. Seeds shed 6–12 weeks after pollination (Pridgeon et al. 2001).

Fire response: No (P. Hind pers. comm.).

Interaction with other organisms:

Distribution
Status/origin: Native.
Botanical subregions: NC CC SC NT CT ST; Vic., Tas., N.Z.
Distribution Sydney area: Sporadic.
Select locations: CC: Central Mangrove. CT: Bell, Boyd Crossing.

Habitat
Habitat: Ridges.
Altitude: 0–1000 m
Annual rainfall: 1000–1200 mm

Typical local abundance: Rare.
Vegetation: Open-forest, heath.
**Genoplesium plumosum** *(Prasophyllum plumosum)*

**Tallong Midge Orchid**

**Life history**

**Growth form:** Seasonal terrestrial herb, with paired tubers, single basal leaf per shoot and flowering stem to 15 cm high, with up to 8 crowded flowers (Bishop 1996).

**Vegetative spread:** No (P. Hind pers. comm.).

**Longevity:** Indefinite.

**Primary juvenile period:**

**Flowers:** Green and purplish, March–April. Observed flowering 4–6 weeks after good autumn rains, may not flower if rainfall does not occur prior to flowering period (NPWS 2001). Probably pollinated by small (vinegar) flies (Drosopholids or Chironomids) (Van der Cingel 2001).

**Fruit/seed:** Capsule with numerous minute winged seeds. Seeds shed 6–12 weeks after pollination (Pridgeon et al. 2001).

**Dispersal, establishment & growth:** Dies back after flowering and fruiting, existings a dormant tuber for most of the year (NPWS 2001).

**Fire response:**

**Interaction with other organisms:** Fruiting stems eaten by native herbivores, but also possibly by rabbits (NPWS 2001).

**Distribution**

**Status/origin:** Native.

**Botanical subregions:** CC SC CT.

**Distribution Sydney area:**

**Select locations:** CC: Kurnell (1928,1947), NPWS (2001).

**CT:** Tallong.

**Habitat**

**Habitat:** Forest margins, ridges. Areas with exposed rock and stunted woodland with open-heath understorey, areas with bare ground (NPWS 2001).

**Altitude:** 0–700 m **Annual rainfall:** 900–1400 mm

**Typical local abundance:** Occasional.

**Vegetation:** Low scrub/heath e.g. with Kunzea parvifolia, Calytrix tetragona, Dillwynia sp.

**Substrate:** Very shallow moss-covered soils over sandstone sheets (NPWS 2001).

**Exposure:**

**Conservation**

First discovered on Kurnell Peninsula in January 1928 but now believed to be extinct there (NPWS 2001). Now known in the Tallong area. Listed as Endangered (Schedule 1) under the NSW Threatened Species Conservation Act 1995 . Reported in Morton NP (NPWS 2001).

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**Genoplesium rufum** *(Prasophyllum rufum)*

**Red Midge Orchid**

**Life history**

**Growth form:** Seasonal terrestrial herb, with paired tubers, single basal leaf per shoot and flowering stem to 25 cm with up to 25 flowers.

**Vegetative spread:** No (P. Hind pers. comm.), not stoloniferous (Pridgeon & Chase 1995).

**Longevity:** Indefinite.

**Primary juvenile period:**

**Flowers:** Light red to dark red, January–April. Probably pollinated by small (vinegar) flies (Drosopholids or Chironomids) (Van der Cingel 2001).

**Fruit/seed:** Capsule with numerous minute winged seeds. Seeds shed 6 months after pollination (Pridgeon et al. 2001).

**Dispersal, establishment & growth:**

**Fire response:** Probably resprouted after high intensity fire (1/1994 at Narrabeen), fruit 17 weeks later (P. Kubiak pers. comm.).

**Interaction with other organisms:**

**Distribution**

**Status/origin:** Native.

**Botanical subregions:** NC CC SC CT ST; Qld, Vic., Tas., N.Z.

**Distribution Sydney area:** Mainly coastal.

**Select locations:** CC: West Head, Coal and Candle Creek, Oxford Falls, Collaroy, Castlecrag, Mt Keira. CT: Woodford.

**Habitat**

**Habitat:** Ridgetops.

**Altitude:** 0–600 m **Annual rainfall:** 1000–1400 mm

**Typical local abundance:**

**Vegetation:** Moss gardens in heath e.g. with Banksia ericifolia, Kunzea ambigua.

**Substrate:** Sandy soils on sandstone, low nutrients.

**Exposure:**

**Conservation**

Conservation status unknown. Reported in Blue Mountains NP, Brisbane Water NP, Royal NP.

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**Genoplesium pumilum** *(Prasophyllum pumilum)*

**Green Midge Orchid**

**Life history**

**Growth form:** Seasonal terrestrial herb, with paired tubers, single basal leaf per shoot and flowering stems to 20 cm with up to 20 flowers.

**Vegetative spread:** No (P. Hind pers. comm.).

**Longevity:** Indefinite.

**Primary juvenile period:**

**Flowers:** Green to yellow-green, sometimes with red markings, January–May. Probably pollinated by small (vinegar) flies (Drosopholids or Chironomids) (Van der Cingel 2001).

**Fruit/seed:** Capsule with numerous minute winged seeds. Seeds shed 4 months after pollination (Pridgeon et al. 2001).
Genoplesium ruppii

Life history
Growth form: Deciduous terrestrial herb, 12–23 cm tall.
Vegetative spread: No.
Longevity: Indefinite.
Primary juvenile period:
Flowers: Greenish with a dark purple labellum, in a raceme, pollinator unknown, January–April.
Fruit/seed: Capsule with dust-like seeds.
Dispersal, establishment & growth: Diaspore: seed, wind-dispersed.
Fire response: Possibly resprouts.
Interaction with other organisms:
Distribution
Status/origin: Native.
Botanical subregions:
Distribution Sydney area: North from Hornsby.
Select locations: CC: Wyong.
Habitat
Habitat: Range of habitats, in swamp, grassland, and forest.
Altitude: Annual rainfall: Typical local abundance: Frequent.
Vegetation: Melaleuca-dominated semi-swamp; Themeda australis grassy areas adjacent to low sites dominated by Banksia robur and heathy forest.
Substrate: On clay soils, lateritic and gravelly soils.
Exposure:
Conservation
Suggested 2R (Jones 2001).

Genoplesium sagittiferum (Prasophyllum sagittiferum)

Life history
Growth form: Seasonal terrestrial herb, with paired tubers, single basal leaf per shoot and flowering stem to 20 cm with up to 15 flowers.
Vegetative spread: No (P. Hind pers. comm.).
Longevity: Indefinite.
Primary juvenile period:
Flowers: Green with reddish stripes, December–April. Probably pollinated by small (vinegar) flies (Drosopholids or Chironomids) (Van der Cingel 2001).
Fruit/seed: Capsule with numerous minute winged seeds. Seeds shed 6–12 weeks after pollination (Pridgeon et al. 2001).
Dispersal, establishment & growth:
Fire response:
Interaction with other organisms:
Distribution
Status/origin: Native.
Botanical subregions: CC SC CT. Vic.
Distribution Sydney area: Mainly Tablelands.
Habitat
Habitat: Ridges, swamps.
Altitude: 0–1000 m Annual rainfall: 700–1000 mm
Typical local abundance: Frequent.
Vegetation: Woodland e.g. with Eucalyptus rossii, E. mannifera, E. macrorhyncha; heath e.g. with Hakea teretifolia; sedgeland e.g. with Empodisma minus.
Substrate: Sandy soil over sandstone, low nutrients.
Exposure:
Conservation
Local endemic species, conservation status unknown. Reported in Wollemi NP, Wambool NR.

Genoplesium simulates

(Prasophyllum morrisii var. intermedium)

Life history
Growth form: Seasonally deciduous terrestrial herb 16–46 cm high, with paired tubers and a single basal leaf per shoot.
Vegetative spread: No.
Longevity: Indefinite.
Primary juvenile period:
Flowers: Dark purplish black, January–March. Probably pollinated by small (vinegar) flies (Drosopholids or Chironomids) (Van der Cingel 2001).
Fruit/seed: Capsule with numerous minute winged seeds. Seeds shed 6–12 weeks after pollination (Pridgeon et al. 2001).
Dispersal, establishment & growth:
Fire response:
Interaction with other organisms:
Distribution
Status/origin: Native.
Botanical subregions: CC CT.
Distribution Sydney area: Mainly Blue Mountains.
Select locations: CC: Bell, Bilpin, Bowen Mountain, Cheltenham, Oxford Falls, Douglas Park, Mt Keira. CT: Clarence, Mount Tomah, Mt Wilson, Mt Irvine, Wentworth Falls, Woodford.
Habitat
Habitat: Ridges.
Altitude: 0–1000 m Annual rainfall: 1200–1400 mm
Typical local abundance: Occasional.
Vegetation: Woodland e.g. with Eucalyptus sieberi, E. piperita, Corymbia gumnifera; scrub e.g. with Kunzea ambigua. Favours moss gardens of low heathy vegetation around sandstone outcrops (Bishop 1996).
Substrate: Shallow sandy soil over sandstone rock, low nutrients, periodically wet.
Exposure:
Conservation
Local endemic species, conservation status unknown.

Genoplesium woollsii (Prasophyllum woollsii)

Life history
Growth form: Seasonally deciduous terrestrial herb, with paired tubers, single basal leaf per shoot and flowering stem to 40 cm with up to 35 flowers.
Vegetative spread: No (P. Hind pers. comm.).
Longevity: Indefinite.
Primary juvenile period:
Flowers: Nodding, dark purple with darker stripes, March–April. Probably pollinated by small (vinegar) flies (Drosopholids or Chironomids) (Van der Cingel 2001).
Fruit/seed: Capsule with numerous minute winged seeds. Seeds shed 6–12 weeks after pollination (Pridgeon et al. 2001).
Dispersal, establishment & growth:
Fire response:
Interaction with other organisms:
Distribution
Status/origin: Native.
Botanical subregions: CC SC CT.
Distribution Sydney area: Sporadic.
Select locations: CC: Asquith, Cheltenham, Heathcote. CT: Fitzroy Falls, Carrington Falls.
Habitat
Habitat: Ridgetops, ‘moss gardens’.
Altitude: 0–700 m Annual rainfall: 1000–1400 mm
Typical local abundance:
**ORCHIDACEAE**

**Glossodia major**

**Waxlip Orchid**

**Life history**

**Growth form:** Very slender seasonally deciduous terrestrial herb, with tubers and hairy leaf to 15 cm long; flowering stem to 30 cm with 1–2 flowers.

**Vegetative spread:** No (P. Hind, P. Weston pers. comm.).

**Longevity:** Indefinite.

**Primary juvenile period:**

**Flowers:** Purple, August–October. Pobably pollinated by native bees by food deception (Pridgeon et al. 2001).

**Fruit/seed:** Capsule with numerous minute winged seeds.

**Dispersal, establishment & growth:**

**Fire response:** Fire is not an essential pre-requisite for flowereing, but it enhances flowering (Pridgeon et al. 2001). Apparently resprouted after high intensity fire (1/1994 at Narrabeen), flowering 7 Months later (P. Kubiak pers. comm.).

**Distribution**

**Status/origin:** Native.

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

**Distribution Sydney area:** Widespread.

**Select locations:** CC: Bateau Bay, Colo Heights, Blaxland, Wisemans Ferry, Maroona, Asquith, Frenchs Forest, Kentley, Marsden Park, Kogarah, Willwood, Waterfall, Wedderburn, Wallacia, Burragorang Valley. CT: Yetholme, Hill End, Capertee, Lithgow, Mullion Range, Jenolan Caves, Abercrombie Caves.

**Habitat**

**Habitat:** Ridges, hillsides.

**Altitude:** 0–1000 m **Annual rainfall:** 700–1400 mm

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

**Vegetation:** Open-forest and woodland e.g. with *Eucalyptus punctata*, *E. perperta*, *E. sclerophylla*, *E. rossii*, *E. viminalis*, *E. bridgesiana*, *E. ambigua*, *Corymbia gummifera*, *Eucalyptus haemastoma*.

**Substrate:** Sandy soil on sandstone, low nutrients.

**Exposure:**

**Conservation**

Conservation status unknown. Reported in Royal NP.

**ORCHIDACEAE**

**Glossodia minor**

**Small Waxlip Orchid**

**Life history**

**Growth form:** Seasonal slender terrestrial herb, with tubers, very hairy leaf to 3 cm long and flowering stem 5–16 cm high with a single flower.

**Vegetative spread:** No (P. Hind, P. Weston pers. comm.).

**Longevity:** Indefinite.

**Primary juvenile period:**

**Flowers:** Deep violet blue, August–September. Pobably pollinated by native bees by food deception (Pridgeon et al. 2001).

**Fruit/seed:** Capsule with numerous minute seeds.

**Dispersal, establishment & growth:** No special morphology for dispersal (Westoby et al. 1990). Active growth period autumn–winter.

**Fire response:** Resprouts (D. Keith pers. comm.). Fire is not an essential pre-requisite for flowereing, but it enhances flowering (Pridgeon et al. 2001). Fruit 9 months after high intensity fire (1/1994 at Lane Cove) (P. Kubiak pers. comm.).

**Distribution**

**Status/origin:** Native.

**Botanical subregions:** NC CC SC CWS; Qld, Vic.

**Distribution Sydney area:** Mainly coastal.

**Select locations:** CC: Swansea, Bateau Bay, Glenbrook, Cowan, Bilgola, Fox Valley, Lindfield, Epping, Rose Bay, Kurnell, Jannali, Sutherland, Wedderburn. CT: Mittagong.

**Habitat**

**Habitat:**

**Altitude:** 0–600 m **Annual rainfall:** 900–1400 mm

**Typical local abundance:** Frequent.

**Vegetation:** Heath e.g. with *Banksia ericifolia*, *Banksia serrata*, *Kunzea ambigua*, *Corymbia gummierea*, *Eucalyptus haemastoma*.

**Substrate:** Sandy soil on sandstone, low nutrients.

**Exposure:**

**Conservation**

Conservation status unknown. Reported in Royal NP.

**ORCHIDACEAE**

**Liparis coelogygnoides**

**Life history**

**Growth form:** Evergreen epiphytic or rarely an epilithic herb, with pseudobulbs, clump-forming.

**Vegetative spread:** Rhizomatous (P. Weston pers. comm.).

**Longevity:**

**Primary juvenile period:**

**Flowers:** Pale green, November–March, flower with unpleasant urine-like scent, pollinated by small flies that feed on nectar produced by the labellum (Bishop 1996). Produces flowers only from new growth (Walsh 1996).

**Fruit/seed:** Capsule with numerous minute seeds.

**Dispersal, establishment & growth:**

**Fire response:** Interaction with other organisms: Caterpillars consume new growth, young leaves and juvenile racemes; case-moth larvae eat leaves (Walsh 1996).

**Distribution**

**Status/origin:** Native.

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

**Distribution Sydney area:** Colo area.

**Select locations:** CC: Upper Colo.

**Habitat**

**Habitat:**

**Altitude:** 0–300 m **Annual rainfall:** 900–1000 mm

**Typical local abundance:** Frequent.

**Vegetation:** Rainforest

**Substrate:** On trunks and branches, occasionally on rocks.

**Exposure:** Heavy to light shade (Walsh 1996).

**Conservation**

Upper Colo River is southern geographical limit. Conservation status unknown.

**ORCHIDACEAE**

**Liparis reflexa**

**Life history**

**Growth form:** Evergreen epilithic or rarely a terrestrial herb, with pseudobulbs, clump-forming.

**Vegetative spread:** Rhizomatous (P. Weston pers. comm.).

**Longevity:**

**Primary juvenile period:**

**Flowers:** Greenish, cream or yellow with age, with a strong unpleasant odour, February–June. Pollinated by sarcophagid (Wallace 1974) or mycetophilid (Adams & Lawson 1993) flies (P. Weston pers. comm.).

**Fruit/seed:** Capsule with numerous minute seeds.
**Lyperanthus suaveolens**

**Life history**

**Growth form:** Slender seasonally deciduous terrestrial herb, with tubers and daughter tubers on stolons, a single narrow leaf, and flowering stem to 45 cm high with up to 8 flowers (Bishop 1996).

**Vegetative spread:** Yes, stoloniferous (Pridgeon & Chase 1995, P. Weston pers. comm.).

**Longevity:** Indefinite.

**Primary juvenile period:** 1–2 years (Pridgeon et al. 2001).

**Dispersal, establishment & growth:** Active growth period autumn–winter.

**Fire response:** Resprouts at base or below (Fox 1988), flowering 9 months after high intensity fire (1/1994 at Lane Cove) (P. Kubiak pers. comm.).

**Interaction with other organisms:**

**Conservation**

Conservation status unknown. Reported in Ku-ring-gai Chase NP.

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**Microtis angusii**

**Life history**

**Growth form:** Stout seasonally deciduous herb 25–60 cm high, with paired tubers 8–10 mm diam. and stolons with daughter tubers. Flowering stems with 20–60 flowers (Jones 1996).

**Vegetative spread:**

**Longevity:** Indefinite.

**Primary juvenile period:**

**Flowers:** May–October (Jones 1996).

**Fruit/seed:** Capsule 5–6 mm long, with numerous minute seeds (Jones 1996).

**Dispersal, establishment & growth:**

**Fire response:**

**Interaction with other organisms:**

**Distribution**

**Status/origin:** Native.

**Botanical subregions:** CC.

**Distribution Sydney area:** Ingleside.

**Select locations:** CC: Ingleside.

**Habitat**

**Distribution**

**Status/origin:** Native.

**Botanical subregions:** CC.

**Distribution Sydney area:** Ingleside.

**Select locations:** CC: Ingleside.

**Habitat**

**Conservation**

Listed as Endangered (Schedule 1) NSW Threatened Species Conservation Act 1995. Known from only one locality close to a major road; site has suffered considerable degradation and invasion by Coolatai Grass Hyparrhenia hirta (Jones 1996).

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**Microtis parviflora** (*Microtis bipulvinaris*)

**Slender Onion Orchid**

**Life history**

**Growth form:** Slender to robust seasonally deciduous terrestrial herb 15–50 cm high, with paired tubers and stolons with daughter tubers, a single narrow basal leaf.

**Vegetative spread:**

**Longevity:** Indefinite.

**Primary juvenile period:** 1–2 years (Pridgeon et al. 2001).

**Flowers:** Green, September–December. Pollinated by worker ants, of the genus *Iridomyrmex*, attracted to nectar at the base of the labellum (Peakall & Beattie 1989).

**Fruit/seed:** Capsule with numerous minute winged seeds.

**Dispersal, establishment & growth:** Seeds readily germinate and can quickly colonise new sites, especially areas of disturbance (Pridgeon et al. 2001).

**Fire response:** Resprouts (Fox 1988).

**Interaction with other organisms:** In the field, *Microtis parviflora* has a narrow ecological specificity, with *Epulorhiza repens* and *E. sclerophylla*, the mycorrhizal fungi of *M. parviflora*.

**Distribution**

**Status/origin:** Native.

**Botanical subregions:** NC CC SC NT CT CWS; Qld, Vic., Tas., S.A., NZ, N. Caledonia.

**Distribution Sydney area:** Widespread.

**Select locations:** CC: Howes Swamp, Cattai Ridge, Agnes Banks.

**CT:** Lidsdale, Bathurst, Wentworth Falls, Wincecarribee Swamp, Penrose.

**Habitat**

**Conservation**

Vulnerable in Western Sydney (James et al. 1999). reported in Ku-ring-gai Chase NP, Royal NP.

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**Lyperanthus suaveolens**

**Life history**

**Growth form:** Slender seasonally deciduous terrestrial herb, with tubers and daughter tubers on stolons, a single narrow leaf, and flowering stem to 45 cm high with up to 8 flowers (Bishop 1996).

**Vegetative spread:** Yes, stoloniferous (Pridgeon & Chase 1995, P. Weston pers. comm.).

**Longevity:** Indefinite.

**Primary juvenile period:** 1–2 years (Pridgeon et al. 2001).

**Dispersal, establishment & growth:** Active growth period autumn–winter.

**Fire response:** Resprouts at base or below (Fox 1988), flowering 9 months after high intensity fire (1/1994 at Lane Cove) (P. Kubiak pers. comm.).

**Interaction with other organisms:**

**Conservation**

Conservation status unknown. Reported in Ku-ring-gai Chase NP.

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**Microtis angusii**

**Life history**

**Growth form:** Stout seasonally deciduous herb 25–60 cm high, with paired tubers 8–10 mm diam. and stolons with daughter tubers. Flowering stems with 20–60 flowers (Jones 1996).

**Vegetative spread:**

**Longevity:** Indefinite.

**Primary juvenile period:**

**Flowers:** May–October (Jones 1996).

**Fruit/seed:** Capsule 5–6 mm long, with numerous minute seeds (Jones 1996).

**Dispersal, establishment & growth:**

**Fire response:**

**Interaction with other organisms:**

**Distribution**

**Status/origin:** Native.

**Botanical subregions:** CC.

**Distribution Sydney area:** Ingleside.

**Select locations:** CC: Ingleside.

**Habitat**

**Conservation**

Listed as Endangered (Schedule 1) NSW Threatened Species Conservation Act 1995. Known from only one locality close to a major road; site has suffered considerable degradation and invasion by Coolatai Grass Hyparrhenia hirta (Jones 1996).

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**Microtis parviflora** (*Microtis bipulvinaris*)

**Slender Onion Orchid**

**Life history**

**Growth form:** Slender to robust seasonally deciduous terrestrial herb 15–50 cm high, with paired tubers and stolons with daughter tubers, a single narrow basal leaf.

**Vegetative spread:**

**Longevity:** Indefinite.

**Primary juvenile period:** 1–2 years (Pridgeon et al. 2001).

**Flowers:** Green, September–December. Pollinated by worker ants, of the genus *Iridomyrmex*, attracted to nectar at the base of the labellum (Peakall & Beattie 1989).

**Fruit/seed:** Capsule with numerous minute winged seeds.

**Dispersal, establishment & growth:** Seeds readily germinate and can quickly colonise new sites, especially areas of disturbance (Pridgeon et al. 2001).

**Fire response:** Resprouts (Fox 1988).

**Interaction with other organisms:** In the field, *Microtis parviflora* has a narrow ecological specificity, with *Epulorhiza repens* and *E. sclerophylla*, the mycorrhizal fungi of *M. parviflora*.

**Distribution**

**Status/origin:** Native.

**Botanical subregions:** NC CC SC NT CT CWS; Qld, Vic., Tas., S.A., NZ, N. Caledonia.

**Distribution Sydney area:** Widespread.

**Select locations:** CC: Howes Swamp, Cattai Ridge, Agnes Banks.

**CT:** Lidsdale, Bathurst, Wentworth Falls, Wincecarribee Swamp, Penrose.

**Habitat**

**Conservation**

Vulnerable in Western Sydney (James et al. 1999). reported in Ku-ring-gai Chase NP, Royal NP.
**Microtis rara**

**Scented Onion Orchid**

**Life history**

**Growth form:** Slender, seasonally deciduous terrestrial herb, with paired tubers and stolons with daughter tubers, and a single narrow basal leaf 20–50 cm long.

**Vegetative spread:** No (Pridgeon & Chase 1995).

**Longevity:** Indefinite.

**Primary juvenile period:** 1–2 years (Pridgeon et al. 2001).

**Flowers:** Luminously scented, green or yellow-green, spring–summer.

**Vegetation:** Heath e.g. with *Banksia oblongifolia*; woodland e.g. with *Melaleuca decora*, *Eucalyptus fibrosa*.

**Substrate:** Sandy soil on sandstone, peaty soil on alluvium, low nutrients, moist.

**Exposure:** Full sun to light shade.

**Conservation**

Conservation status unknown.

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**Orthoceras strictum**

**Horned Orchid**

**Life history**

**Growth form:** Rigid erect, seasonally deciduous herb with tubers, 2–5 narrow leaves in a basal tuft, and stem to 60 cm high with up to 9 flowers.

**Vegetation:** May be confused with *Lyperanthus suaveolens* (Bishop 1996).

**Vegetative spread:** No (Pridgeon & Chase 1995).

**Longevity:** Indefinite.

**Primary juvenile period:** 1–2 years (Pridgeon et al. 2001).

**Flowers:** Yellowish green to very dark brown, late spring to summer. Obligately self-pollinating with no opportunity for outcrossing (Pridgeon et al. 2001).

**Fruit/seed:** Capsule with numerous minute seeds.

**Dispersal, establishment & growth:** Active growing period late autumn–winter (Pridgeon et al. 2001).

**Fire response:** Fruit forming 2 years after high intensity fire (1/1994 at Lane Cove) (P. Kubiak pers. comm.).

**Interaction with other organisms:**

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**Microtis unifolia**

**Slender, seasonally deciduous terrestrial herb, with paired tubers and stolons with daughter tubers, and a single narrow basal leaf 8–60 cm long.**

**Vegetative spread:** Capsule with numerous minute seeds.

**Dispersal, establishment & growth:** Seeds readily germinate and can quickly colonise new sites, especially areas of disturbance (Pridgeon et al. 2001).

**Fire response:** Resprouts (Fox 1988). Green fruit 10 months after high intensity fire (1/1994 at Lane Cove), flowering much diminished in subsequent years (P. Kubiak pers. comm.).

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**Conservation**

Conservation status unknown.
**Papillilabium beckleri**

*Life history*

**Growth form:** Epiphytic evergreen herb, with one shoot, often suspended by one of the numerous tangled aerial roots.

**Vegetative spread:** No.

**Longevity:**

**Primary juvenile period:**

**Flowers:** Green and white, sometimes with purple or crimson markings, September–November. Not self-pollinating but pollinators unknown (Van der Cigel 2001).

**Fruit/seed:** Capsule with numerous minute seeds.

**Dispersal, establishment & growth:**

**Fire response:**

**Interaction with other organisms:**

**Distribution**

**Status/origin:** Native.

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

**Distribution Sydney area:** Widespread.

**Select locations:** CC: Calna Creek, Waterfall.

**Habitat**

**Habitat type:** Along creeks.

**Altitude:** 0–200 m  
**Annual rainfall:** 1200–1400 mm

**Typical local abundance:** Frequent.

**Vegetation:** Gallery rainforest e.g. with *Ceratopetalum apetalum, Tristaniopsis laurina*.

**Substrate:** On outer twigs of trees.

**Exposure:**

**Conservation**

A monotypic genus. Royal National Park is the southern geographical limit. Conservation status unknown.

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**Paracaleana minor** *(Caleana minor)*

*Small Duck Orchid*

*Life history*

**Growth form:** Terrestrial seasonally deciduous herb, with underground paired tubers narrow leaf and stolons, with daughter tubers. 

**Vegetative spread:** Stoloniferous (Pridgeon et al. 2001).

**Longevity:** Indefinite.

**Primary juvenile period:**

**Flowers:** Reddish brown to yellowish green, flower stalk to 18 cm high, November–January. Pollination by pseudocopulation by male thynnine wasps *Thynnoturneria armiger*, attracted by pheromones (Pridgeon et al. 2001). Some populations in the Blue Mountains are likely to be opmictic (Jones 1977).

**Fruit/seed:** Capsule with numerous minute winged seeds.

**Dispersal, establishment & growth:**

**Fire response:**

**Interaction with other organisms:**

**Distribution**

**Status/origin:** Native.

**Botanical subregions:** NC CC SC NT; Qld, Vic.

**Distribution Sydney area:** Widespread.

**Select locations:** CC: Kincumber, Mill Creek, Calna Creek, Springwood, Waterfall, Mt Kembla. CT: Mount Tomah.

**Habitat**

**Habitat type:** Along creeks.

**Altitude:** 0–900 m  
**Annual rainfall:** 1000–1400 mm

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

**Vegetation:** Rainforest.

**Substrate:** On outer branches of trees e.g. *Ceratopetalum apetalum, Tristaniopsis laurina, Backhousia myrtifolia*, rarely on rocks. Sandy alluvium from sandstone, low nutrients.

**Exposure:**

**Conservation**

Conservation status unknown. Reported in Wollemi NP, Blue Mountains NP, Dharug NP, Royal NP.

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**Prasophyllum affine**

*Life history*

**Growth form:** Seasonally deciduous terrestrial herb, with paired tubers, a single narrow basal leaf 50 cm long, and stem 40 cm with up to 40 flowers. 

**Vegetative spread:** No (P. Hind pers. comm.).

**Longevity:** Indefinite.

**Primary juvenile period:**

**Flowers:** Tints of green, red, brown, and purple, October–November, strongly perfumed (Harden 1993). Does not flower unless rainfall occurs prior to flowering period; flowers open progressively from lowest to topmost buds; pollinated mainly by Flower Wasps (*Thynninae: Neozeloboria, Lopohocheilus anilitatus*), and ants (NPWS 2003).

**Fruit/seed:** Capsule with numerous minute winged seeds, mature mid–December, wind-dispersed (NPWS 2003).

**Dispersal, establishment & growth:**

**Fire response:** Flowers more freely after fire (Harden 1993).

**Interaction with other organisms:**

**Distribution**

**Status/origin:** Native.

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

**Distribution Sydney area:** South Head to Botany Bay.

**Select locations:** CC: Port Jackson (1803).

**Habitat**

**Habitat type:** Coastal heathland (Bishop 1996).

**Altitude:** 0–100 m  
**Annual rainfall:** 1200–1400 mm

**Typical local abundance:**
**Prasophyllum appendiculatum**

**Life history**
- **Growth form:** Seasonally deciduous terrestrial herb, with paired tubers, single narrow basal leaf 30 cm long and stem to 40 cm high.
- **Vegetative spread:** No (P. Hind pers. comm.).
- **Longevity:** Indefinite.
- **Primary juvenile period:**
  - **Flowers:** Up to 20 flowers, strongly 2-coloured red-brown and pale green, sweetly scented, October–November, with or without fire.
  - **Fruit/seed:** Capsule with numerous minute winged seeds.
- **Dispersal, establishment & growth:**
- **Fire response:**
- **Interaction with other organisms:**

**Distribution**
- **Status/origin:** Native.
- **Botanical subregions:** CC SC CT; Vic.
- **Distribution Sydney area:** Southern Highlands.
- **Select locations:** CC: Budderoo Creek. CT: Carrington Falls.

**Habitat**
- **Habitat:** Damp places.
- **Altitude:** 500–600 m
- **Annual rainfall:** 1200–1400 mm
- **Typical local abundance:** Frequent.
- **Vegetation:** Moist heathland, often fringing swamps.
- **Substrate:** Sandy soil over sandstone, low nutrients, moist.
- **Exposure:**

**Conservation**
- **Conservation status:** Known.

**Prasophyllum australis**

Southern Leek Orchid

**Life history**
- **Growth form:** Seasonally deciduous terrestrial herb, a single narrow basal leaf to 35 cm long, and stem to 40 cm high with up to 50 flowers.
- **Vegetative spread:** No (P. Hind pers. comm.).
- **Longevity:** Indefinite.
- **Primary juvenile period:**
  - **Flowers:** White with reddish brown and green stipes, highly fragrant, September–January. Flowers abundantly only after fire (Keith 1996). Pollinated by Ichneumon and thynnine wasps (Van der Cingel 2001).
  - **Fruit/seed:** Capsule with numerous minute winged seeds.
- **Dispersal, establishment & growth:**
- **Fire response:** Resprouts, secondary juvenile period 1 year (D. Keith pers. comm.).
- **Interaction with other organisms:**

**Distribution**
- **Status/origin:** Native.

**ORCHIDACEAE**

**Prasophyllum brevilabre**

Short-lipped Leek Orchid

**Life history**
- **Growth form:** Seasonally deciduous terrestrial herb, a single narrow basal leaf to 35 cm long, and stem to 48 cm high with up to 30 flowers.
- **Vegetative spread:** No (P. Hind, P. Weston pers. comm.).
- **Longevity:** Indefinite.
- **Primary juvenile period:**
  - **Flowers:** Greenish with red markings or dark purplish green, July–December. Flowers abundantly only after fire (Keith 1996).
  - **Fruit/seed:** Capsule with numerous minute winged seeds.
- **Dispersal, establishment & growth:** Recruitment mainly after fire (D. Keith pers. comm.).
- **Fire response:** Resprouts, secondary juvenile period 1 year (D. Keith pers. comm.). Flowered within 10 months after medium intensity fire (1/1994 at Lane Cove) (P. Kubiak pers. comm.).
- **Interaction with other organisms:**

**Distribution**
- **Status/origin:** Native.
- **Botanical subregions:** NC CC SC NT ST NWS CWS; Qld, Vic., Tas.
- **Distribution Sydney area:** Widespread.
- **Select locations:** CC: Castle Hill, Wahroonga, Castlereagh, Waterfall, O’Hares Creek. CT: Yetholme, Mt Wilson, Blackheath, Kataomba, Oberon, Jenolan Caves, Wbarang, Bowral, Barbers Creek.

**Habitat**
- **Habitat:** Ridges, plateaus.
- **Altitude:** 0–1000 m
- **Annual rainfall:** 800–1400 mm
- **Typical local abundance:** Frequent–occasional.
- **Vegetation:** Moist heath e.g. with Banksia robur, Gleichenia, Gymnoschoenus sphaerocephalus.
- **Substrate:** Sandy, often lateritic soil over sandstone, conglomerase, low nutrients, moist.
- **Exposure:**

**Conservation**
- **Conservation status:** Unknown.

**Prasophyllum elatum**

Tall Leek Orchid, Piano Orchid

**Life history**
- **Growth form:** Seasonally deciduous terrestrial herb, variable, with paired tubers, a single narrow basal leaf to 120 cm long, and stem to 150 cm high with up to 60 flowers.
- **Vegetative spread:** No (P. Hind, P. Weston pers. comm.).
- **Longevity:** Indefinite.
- **Primary juvenile period:**

**ORCHIDACEAE**
Fowers: Pale yellowish green to brownish or purplish black, sweetly scented, August–October. Flowers abundantly only after fire (Keith 1996). Pollinated by thynnine wasps (Van der Cingel 2001).  
**Fr**uit/Seeds: Capsule with numerous minute winged seeds.  
**D**ispersal, **E**stablishment & **G**rowth:  
**F**ire response: Probably resprouted after high intensity fire (1/1994 at Lane Cove), flowering appeared to be stimulated, secondary juvenile period 10 months (P. Kubiak pers. comm.).  
**I**nteraction with **O**ther **O**rganisms: Associated with mycorrhizal fungi (Jones & Elliot 1986).  
**D**istribution  
**S**tatus/origin: Native.  
**B**otanical **S**ubregions: NC CC CT CS CC NT CT SWS; Vic., Tas., S.A., W.A.  
**D**istribution **S**ydney **A**rea: Widespread.  
**S**elect **L**ocations: CC: Donalson, Wyong, Tugerah, Bateau Bay, Somersby, Hazelbrook, Hornsby, Fox Valley, Frenchs Forest, Willoughby, Kentlyn, Kurnell, Sutherland, Appin, Helensburgh, Thirlmere. CT: Blackheath, Barbers Creek, Robertson.  
**H**abitat  
**H**abitat: Slopes.  
**A**litude: 0–1000 m  
**A**nnual rainfall: 900–1400 mm  
**T**ypical local abundance: Frequent–occasional.  
**V**egetation: Heath and scrub e.g. with Banksia ericifolia, Angophora hispida, Allocasuarina littoralis.  
**S**ubstrate: Sandy stony soils on sandstone, low nutrients.  
**E**xposure:  
**C**onservation  
Conservation status unknown.

### Prasophyllum flavum

#### ORCHIDACEAE

**Prasophyllum flavum**

**Life history**

**Growth form:** Seasonal, leafless terrestrial herb with paired tubers, and stem to 90 cm high with up to 50 flowers.  
**Vegetative spread:** No (P. Hind pers. comm.).  
**Longevity:** Indefinite.  
**Primary juvenile period:**  
**Flowers:** Green or yellow and red-brown, November–January.  
**Fruit/Seeds:** Capsule with numerous minute winged seeds.  
**Dispersal, establishment & growth:**  
**Fire response:**  
**Interaction with other organisms:**  
**Distribution**  
**Status/origin:** Native.  
**Botanical subregions:** NC CC SC CT SWS; Qld, Vic., Tas., S.A., W.A.  
**Distribution Sydney area:** Widespread.  
**Select locations:** CC: Bowie Mountain, Glenbrook, Hornsby, Lane Cove, Loftus. CT: Mount Tomah, Mt Wilson, Wentworth Falls, Katoomba, Leura, Hill Top.  
**Habitat**  
**Habitat:** Hillsides.  
**Altitude:** 0–1000 m  
**Annual rainfall:** 1200–1400 mm  
**Typical local abundance:** Rare–occasional.  
**Vegetation:** Moist and drier open-forest  
**Substrate:** Sandy soil on sandstone, low nutrients.  
**Exposure:**  
**Conservation**  
Conservation status unknown.

### Prasophyllum fuscum

**Orchidaceae**

**Fowers:** Slaty Leek Orchid  
**Life history**

**Growth form:** Seasonally deciduous terrestrial herb to 40 cm high with paired tubers, a single narrow basal leaf to 45 cm long, and stem to 40 cm high with up to 30 flowers.

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**Benson & McDougall, Ecology of Sydney Plant Species 10**

**Prasophyllum odoratum**

Rogers Scented Leek Orchid, Sweet Leek Orchid

**Life history**

**Growth form:** Seasonally deciduous terrestrial herb, with paired tubers, a single narrow basal leaf to 70 cm long and stem to 50 cm high.  
**Vegetative spread:** No (P. Hind pers. comm.).  
**Longevity:** Indefinite.  
**Primary juvenile period:**  
**Flowers:** Green and white or with reddish stripes, very fragrant to spicy, September–November. Self-pollinated but primarily pollinated by flies (Syrphidae) and also male native bees Leioproctus sp.; ants and flies remove nectar but do not appear to transport pollen (Bernhardt & Burns-Balogh 1986).  
**Fruit/Seeds:** Capsule with numerous minute winged seeds. Approximately 52% of flowers per stem set seed (Bernhardt & Burns-Balogh 1986).  
**Dispersal, establishment & growth:**  
**Fire response:** Flowers profusely 6–8 months after fire (Bernhardt & Burns-Balogh 1986).  
**Interaction with other organisms:**  
**Distribution**  
**Status/origin:** Native.  
**Botanical subregions:** CC CT.  
**Distribution Sydney area:** Blue Mountains and Hawkesbury.  
**Select locations:** CC: Port Jackson (1802–5). CT: Bell, Mt Victoria, Wentworth Falls, Leura.  
**Habitat**  
**Habitat:** Moist areas, often along seepage lines  
**Altitude:** 0–1000 m  
**Annual rainfall:** 1200–1400 mm  
**Typical local abundance:** Rare.  
**Vegetation:** Moist sedgeland e.g. with Hakea.  
**Substrate:** Sandy soils on Hawkesbury sandstone, low nutrients, moist.  
**Exposure:**  
**Conservation**  
Local endemic species listed as Vulnerable (Schedule 2) under the NSW Threatened Species Conservation Act 1995, now apparently confined to the Upper Blue Mountains.

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**Conservation status unknown.**

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**Prasophyllum odoratum**

Rogers Scented Leek Orchid, Sweet Leek Orchid

**Life history**

**Growth form:** Seasonally deciduous terrestrial herb, with paired tubers, a single narrow basal leaf to 70 cm long and stem to 50 cm high.  
**Vegetative spread:** No (P. Hind pers. comm.).  
**Longevity:** Indefinite.  
**Primary juvenile period:**  
**Flowers:** Green and white or with reddish stripes, very fragrant to spicy, September–November. Self-pollinated but primarily pollinated by flies (Syrphidae) and also male native bees Leioproctus sp.; ants and flies remove nectar but do not appear to transport pollen (Bernhardt & Burns-Balogh 1986).  
**Fruit/Seeds:** Capsule with numerous minute winged seeds. Approximately 52% of flowers per stem set seed (Bernhardt & Burns-Balogh 1986).  
**Dispersal, establishment & growth:**  
**Fire response:** Flowers profusely 6–8 months after fire (Bernhardt & Burns-Balogh 1986).  
**Interaction with other organisms:**  
**Distribution**  
**Status/origin:** Native.  
**Botanical subregions:** CC CT.  
**Distribution Sydney area:** Blue Mountains and Hawkesbury.  
**Select locations:** CC: Port Jackson (1802–5). CT: Bell, Mt Victoria, Wentworth Falls, Leura.  
**Habitat**  
**Habitat:** Moist areas, often along seepage lines  
**Altitude:** 0–1000 m  
**Annual rainfall:** 1200–1400 mm  
**Typical local abundance:** Rare.  
**Vegetation:** Moist sedgeland e.g. with Hakea.  
**Substrate:** Sandy soils on Hawkesbury sandstone, low nutrients, moist.  
**Exposure:**  
**Conservation**  
Local endemic species listed as Vulnerable (Schedule 2) under the NSW Threatened Species Conservation Act 1995, now apparently confined to the Upper Blue Mountains.

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**Conservation status unknown.**

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**Prasophyllum odoratum**

Rogers Scented Leek Orchid, Sweet Leek Orchid

**Life history**

**Growth form:** Seasonally deciduous terrestrial herb, with paired tubers, a single narrow basal leaf to 70 cm long and stem to 50 cm high.  
**Vegetative spread:** No (P. Hind pers. comm.).  
**Longevity:** Indefinite.  
**Primary juvenile period:**  
**Flowers:** Green and white or with reddish stripes, very fragrant to spicy, September–November. Self-pollinated but primarily pollinated by flies (Syrphidae) and also male native bees Leioproctus sp.; ants and flies remove nectar but do not appear to transport pollen (Bernhardt & Burns-Balogh 1986).  
**Fruit/Seeds:** Capsule with numerous minute winged seeds. Approximately 52% of flowers per stem set seed (Bernhardt & Burns-Balogh 1986).  
**Dispersal, establishment & growth:**  
**Fire response:** Flowers profusely 6–8 months after fire (Bernhardt & Burns-Balogh 1986).  
**Interaction with other organisms:**  
**Distribution**  
**Status/origin:** Native.  
**Botanical subregions:** CC CT.  
**Distribution Sydney area:** Blue Mountains and Hawkesbury.  
**Select locations:** CC: Port Jackson (1802–5). CT: Bell, Mt Victoria, Wentworth Falls, Leura.  
**Habitat**  
**Habitat:** Moist areas, often along seepage lines  
**Altitude:** 0–1000 m  
**Annual rainfall:** 1200–1400 mm  
**Typical local abundance:** Rare.  
**Vegetation:** Moist sedgeland e.g. with Hakea.  
**Substrate:** Sandy soils on Hawkesbury sandstone, low nutrients, moist.  
**Exposure:**  
**Conservation**  
Local endemic species listed as Vulnerable (Schedule 2) under the NSW Threatened Species Conservation Act 1995, now apparently confined to the Upper Blue Mountains.
**Prasophyllum pallens**

*Broad-leek Orchid*

**Life history**

- **Growth form**: Deciduous terrestrial herb 20–40 cm tall.
- **Vegetative spread**: No.
- **Longevity**: Indefinite.
- **Primary juvenile period**: No (P. Hind pers. comm.).
- **Flowers**: Tawny green to greenish white in a raceme, with a ‘rather unpleasant musty fragrance, which is very noticeable in warm to hot weather’, November–December.
- **Fruit/seeds**: Capsule with numerous minute winged seeds.
- **Fire response**: Possibly resprouts.

**Distribution**

- **Status/origin**: Native.
- **Botanical subregions**: NC CC SC CT ST NT CT.
- **Distribution Sydney area**: Higher parts of Blue Mountains, particularly Blackheath–Mt Banks.
- **Select locations**: CT: Mt Banks, Blackheath.

**Habitat**

- **Altitude**: 1000–1100 m
- **Annual rainfall**: 1100–1400 mm
- **Typical local abundance**: Occasional.
- **Vegetation**: Hummocky sedgeland e.g. with *Empodisma minus*, *Baloskion australe*, *Xyris*.
- **Substrate**: Loamy peaty soils, low nutrients.
- **Exposure**: Full sun.

**Conservation**

- **Status/origin**: Native.
- **Botanical subregions**: NT CT; Vic.
- **Distribution Sydney area**: Boyd Plateau.
- **Select locations**: CT: Boyd Plateau.

**Additional Notes**

- **Conservation status unknown. Reported in Kanangra Boyd NP.**

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**Prasophyllum patens**

*Streaked Leek Orchid*

**Life history**

- **Growth form**: Seasonally deciduous terrestrial herb, with paired tubers, a single narrow basal leaf to 20 cm long and stem to 30 cm high.
- **Vegetative spread**: No (P. Hind pers. comm.).
- **Longevity**: Indefinite.
- **Primary juvenile period**: No (P. Hind, P. Weston pers. comm.).
- **Flowers**: Green and white, lemon-scented, August–December.
- **Fruit/seeds**: Capsule with numerous minute winged seeds.
- **Fire response**: Usually flowers after fires.

**Distribution**

- **Status/origin**: Native.
- **Botanical subregions**: NC CC SC NT CT ST NWS CWS NWP SWP; Qld, Tas., S.A., N.Z.
- **Distribution Sydney area**: Widespread.
- **Select locations**: CC: Lake Macquarie, Dangar Island, Lindfield, Lane Cove, Jannali. CT: Portland, Wentworth Falls, Jenolan Caves.

**Habitat**

- **Altitude**: 0–1000 m
- **Annual rainfall**: 700–1400 mm
- **Typical local abundance**: Occasional.
- **Vegetation**: Heath e.g. with *Banksia ericifolia*, *Grevillea oleoides*.
- **Substrate**: Sandy soil on sandstone, low nutrients.
- **Exposure**: Full sun.

**Conservation**

- **Conservation status unknown.**

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**Prasophyllum rogersii**

*Marsh Leek Orchid*

**Life history**

- **Growth form**: Seasonally deciduous terrestrial herb, with paired tubers, a single narrow basal leaf to 30 cm long and stem to 30 cm high with up to 15 well-spaced flowers.
- **Vegetative spread**: No (P. Hind, P. Weston pers. comm.).
- **Longevity**: Indefinite.
- **Primary juvenile period**: No.
- **Flowers**: Yellowish green, rarely purple, with pinkish to reddish brown tints, faintly scented, December–February.
- **Fruit/seeds**: Capsule with numerous minute winged seeds.

**Distribution**

- **Status/origin**: Native.
- **Botanical subregions**: NT CT; Vic.
- **Distribution Sydney area**: Boyd Plateau.
- **Select locations**: CT: Boyd Plateau.

**Habitat**

- **Altitude**: 1000–1200 m
- **Annual rainfall**: 1100 mm
- **Typical local abundance**: Occasional.
- **Vegetation**: Hummocky sedgeland e.g. with *Empodisma minus*, *Baloskion australe*, *Xyris*.
- **Substrate**: Loamy peaty soils, low nutrients.
- **Exposure**: Full sun.

**Conservation**

- **Status/origin**: Native.
- **Botanical subregions**: NT CT; Vic.
- **Distribution Sydney area**: Boyd Plateau.
- **Select locations**: CT: Boyd Plateau.

**Additional Notes**

- **Conservation status unknown. Reported in Kanangra Boyd NP.**

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**Prasophyllum striatum**

*Marsh Leek Orchid*

**Life history**

- **Growth form**: Seasonally deciduous terrestrial herb, with paired tubers, a single narrow basal leaf to 20 cm long and stem to 30 cm high.
- **Vegetative spread**: No (P. Hind, P. Weston pers. comm.).
- **Longevity**: Indefinite.
- **Primary juvenile period**: No.
- **Flowers**: Up to 10 flowers with white, green and red-brown stripes, musky odour, March–June.
- **Fruit/seeds**: Capsule with numerous minute winged seeds.

**Distribution**

- **Status/origin**: Native.
- **Botanical subregions**: NC CC SC CT ST.
- **Distribution Sydney area**: Widespread.
- **Select locations**: CC: Woy Woy, West Head, Oxford Falls, Royal NP, Dapto, Cambewarra. CT: Mt Wilson, Katoomba, Blackheath, Woodford, Kanangra.

**Habitat**

- **Altitude**: 0–1000 m
- **Annual rainfall**: 1100–1400 mm
- **Typical local abundance**: Occasional.
- **Vegetation**: Heath e.g. with *Leptospermum trinervium*, *Darwinia fascicularis*, *Allocasuarina nana*.
- **Substrate**: Sandy soil on sandstone, low nutrients.
- **Exposure**: Full sun.

**Conservation**

- **Conservation status unknown.**

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**Conservation status unknown. Reported in Royal NP.**
**Prasophyllum uroglossum**

**Life history**

**Growth form:** Seasonally deciduous terrestrial herb, with paired tubers, a single narrow basal leaf to 20 cm long and stem to 45 cm high.

**Vegetative spread:** No (P. Hind pers. comm.). Some vegetative reproduction (NPWS 1999).

**Longevity:** Indefinite.

**Primary juvenile period:**

**Flowers:** Brown, purple-red and green, with strong sweet scent, October–November. Intense Gardenia-like perfume; probably pollinated by thynnid wasps and possibly hover flies (Syrphidae) (Bishop 1996).

**Frutti/seed:** Capsule with numerous minute winged seeds.

**Dispersal, establishment & growth:** Leaf emerges in April and remains until after seed dispersal, probably late December–January (Bishop 1996). Dormant phase during summer (NPWS 1999).

**Fire response:** Good flowering response after fire 3 months earlier (at Wingecarribee Swamp, P. Kodela pers. comm.).

**Interaction with other organisms:**

**Distribution**

**Status/origin:** Native.

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

**Distribution Sydney area:** Southern Highlands.

**Select locations:** CT: Ocean View, Bundeena, Waterfall, Thirlmere.

**Habitat**

**Habitat:** Bogs, sometimes in running water, wetland margin.

**Altitude:** 680 m

**Annual rainfall:** 1500 mm

**Typical local abundance:** Occasional.

**Vegetation:** Sedgeland e.g. with *Baumea rubiginosa* and scattered *Leptospermum obovatum*. Open heathland; ecotone between grassy woodland–forest and swamp (NPWS 1999).

**Substrate:** Peaty silty loam, medium nutrients. Moist but not wet soils (Bishop 1992).

**Exposure:** Full sun, slight shelter from scattered low shrubs (Bishop 1992).

**Conservation**

Local endemic population, restricted to Burrawang district, very rare, listed as Endangered (Schedule I) NSW Threatened Species Conservation Act 1995. Threatened during growth period from April–January by disturbance and by direct competition from shrubs or weeds; some disturbance such as burning and weed control during short dormant period February–March could be beneficial, however repeated burning may destroy germinating seeds (Bishop 1992). Not known to occur in any conservation reserve (NPWS 1999).

**Pterostylis aciculiformis**

**Life history**

**Growth form:** Seasonally deciduous terrestrial herb, to 25 cm high, with paired tubers and stolons with daughter tubers.

**Vegetative spread:** Yes, stoloniferous.

**Longevity:** Indefinite.

**Primary juvenile period:**

**Flowers:** Hood-shaped, transparent, with green and tan, September–November. Pollination is almost certainly by pseudocopulation; all known *Pterostylis* pollinators have been male insects of the families Mycetophilidae (fungus gnats) and Culicidae (mosquitoes) (Bishop 1996).

**Frutti/seed:** Capsule with numerous minute seeds.

**Dispersal, establishment & growth:** Leaf emerges in April and remains until after seed dispersal, probably late December–January (Bishop 1996). Dormant phase during summer (NPWS 1999).

**Fire response:** Probably resprouted, flowering 18–28 weeks after high intensity fire (1/1994 at Lane Cove) (P. Kubiak pers. comm.).

**Interaction with other organisms:** *Pterostylis* species are generally associated with a soil fungus; seeds require the presence of this fungus to germinate (Cady 1988).

**Distribution**

**Status/origin:** Native.

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

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

**Select locations:** CT: O’Connell, Abercrombie River, Burrawang, Wingecarribee Swamp.

**Habitat**

**Habitat:** Ridges, slopes, swamp margins.

**Altitude:** 600–900 m

**Annual rainfall:** 800–1600 mm

**Typical local abundance:** Occasional.

**Vegetation:** Open-forest e.g. with *Eucalyptus rossii*, *E. polyanthemos*, *E. blakelyi*; sedgeland of *Baumea rubiginosa*.

**Substrate:** Peaty silty loam, low–medium nutrients.

**Exposure:**

**Conservation**

Conservation status unknown.

**Pterostylis acuminata**

**Pointed Greenhood**

**Life history**

**Growth form:** Seasonally deciduous terrestrial herb to 24 cm high, with paired tubers and stolons with daughter tubers.

**Vegetative spread:** No (Jones & Clements 2002).

**Longevity:** Indefinite.

**Primary juvenile period:**

**Flowers:** Hood-shaped, erect, green and white, March–May. Pollination is almost certainly by pseudocopulation; all known *Pterostylis* pollinators have been male insects of the families Mycetophilidae (fungus gnats) and Culicidae (mosquitoes) (Bishop 1996).

**Frutti/seed:** Capsule with numerous minute seeds.

**Dispersal, establishment & growth:**

**Fire response:**

**Interaction with other organisms:** *Pterostylis* species are generally associated with a soil fungus; seeds require the presence of this fungus to germinate (Cady 1988). Host to mycorrhizal fungus *Rhizoctania solani* (Perkins & McGee 1994).

**Distribution**

**Status/origin:** Native.

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

**Distribution Sydney area:**

**Select locations:** CC: Kurrajong Heights, Kenthurst, Asquith, Baulkham Hills, Lindfield, Gladesville, Kurnell, Bundeeena, Waterfall, Thirlmere. CT: Woodford.

**Habitat**

**Habitat:** Hillsides.

**Altitude:** 0–200 m

**Annual rainfall:** 800–1400 mm

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

**Vegetation:** Open-forest e.g. with *Angophora costata*, *Eucalyptus piperita*, *Syncarpia glomulifera*, *Eucalyptus fibrosa*, *E. eugenioides*, *E. maculata*.

**Substrate:** Sandy soil on sandstone, sometimes with shale influence, low to medium nutrients, well-drained.

**Exposure:**

**Conservation**

Conservation status unknown. Reported in Royal NP.

**Pterostylis aestiva**

**Life history**

**Growth form:** Seasonally deciduous terrestrial herb to 35 cm high, with rosette and stem leaves, paired tubers and stolons with daughter tubers.

**Vegetative spread:** Stoloniferous (Jones & Clements 2002).

**Longevity:** Indefinite.
**Pterostylis alata**

**Life history**

*Growth form:* Seasonally deciduous terrestrial herb to 25 cm high, with rosette and stem leaves, and paired tubers and stolons with daughter tubers.

*Vegetative spread:* Stoloniferous (Jones & Clements 2002).

*Longevity:* Indefinite.

**Primary juvenile period:**

*Flowers:* Hood-shaped, erect, bluish green and white, January–April. Pollination is almost certainly by pseudocopulation; all known *Pterostylis* pollinators have been male insects of the families Mycetophilidae (fungus gnats) and Culicidae (mosquitoes) (Bishop 1996).

*Fruit/seed:* Capsule with numerous minute seeds.

*Dispersal, establishment & growth:*

*Fire response:*

*Interaction with other organisms:* *Pterostylis* species are generally associated with a soil fungus; seeds require the presence of this fungus to germinate (Cady 1988).

**Distribution**

*Status/origin:* Native.

*Botanical subregions:* CT; Vic.

*Distribution Sydney area:* Orange area.

*Select locations:* CT; Canobolas.

**Habitat**

*Habitat:* Grassy slopes.

*Altitude:* 800–1000 m  

*Annual rainfall:* 1000 mm

*Typical local abundance:* Montane woodland e.g. with *Poa* sp.

*Substrate:* Dune sand, low nutrients.

*Exposure:* Sheltered slopes.

**Conservation**

Conservation status unknown. Reported in Seven Mile Beach NP.

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**Pterostylis baptistii**

**King Greenhood**

**Life history**

*Growth form:* Seasonally deciduous terrestrial herb to 40 cm high, paired tubers and stolons with daughter tubers.

*Vegetative spread:* Stoloniferous (Jones & Clements 2002).

*Longevity:* Indefinite.

**Primary juvenile period:**

*Flowers:* Hood-shaped, erect, green and white with brown, March–June. Pollination is almost certainly by pseudocopulation; all known *Pterostylis* pollinators have been male insects of the families Mycetophilidae (fungus gnats) and Culicidae (mosquitoes) (Bishop 1996).

*Fruit/seed:* Capsule with numerous minute seeds.

*Dispersal, establishment & growth:*

*Fire response:*

*Interaction with other organisms:* *Pterostylis* species are generally associated with a soil fungus; seeds require the presence of this fungus to germinate (Cady 1988).

**Distribution**

*Status/origin:* Native.

*Botanical subregions:* NC CC SC; Vic.

*Distribution Sydney area:* Coast.

*Select locations:* CC; Colo, Seven Mile Beach.

**Habitat**

*Habitat:* Dune crests and slopes.

*Altitude:* 0–200 m  

*Annual rainfall:* 1200–1400 mm

*Typical local abundance:* Frequent.

*Vegetation:* Scrub e.g. with *Leptospermum laevigatum*.

*Substrate:* Dune sand, low nutrients.

*Exposure:* Sheltered slopes.

**Conservation**

Conservation status unknown. Reported in Seven Mile Beach NP.
Vegetation: Woodland e.g. with Angophora costata, Eucalyptus robusta, E. longifolia; scrub e.g. with Melaleuca nodosa, M. sieberi, M. linearifolia.

Substrate: Sandy to silty loams on alluvium, sandstone, low nutrients, moist to wet soils.

Exposure: Conservation

Conservation status unknown.

**Pterostylis bicolor**

**Life history**

**Growth form:** Seasonally deciduous terrestrial herb to 40 cm high, with paired tubers and flowering stem to 40 cm high with up to 20 flowers (Bishop 1996).

**Vegetative spread:** No (Jones & Clements 2002).

**Longevity:** Indefinite.

**Primary juvenile period:**

**Flowers:** Hood-shaped, green with darker lines, shiny, September–November. Pollination is almost certainly by pseudocopulation; all known *Pterostylis* pollinators have been male insects of the families Mycetophilidae (fungus gnats) and Culicidae (mosquitoes) (Bishop 1996).

**Fruit/Seed:** Capsule with numerous minute seeds.

**Dispersal, establishment & growth:**

**Fire response:**

**Interaction with other organisms:** *Pterostylis* species are generally associated with a soil fungus; seeds require the presence of this fungus to germinate (Cady 1988).

**Distribution**

**Status/origin:** Native.

**Botanical subregions:** CC.

**Distribution Sydney area:** Eastern suburbs, Botany Bay.

**Select locations:** CC: Maroubra (1908), Kurnell.

**Habitat**

**Habitat:** Coast.

**Altitude:** 0–200 m
**Annual rainfall:** 1200–1400 mm

**Typical local abundance:** Rare.

**Vegetation:** Heath e.g. with *Melaleuca nodosa, Baeckea imbricata*.

**Substrate:** Skeletal sandy soils derived from sandstone, low nutrients, moist (Bishop 1996).

**Exposure:** Light shade.

**Conservation**

Rare, listed as Endangered (Schedule 1) NSW Threatened Species Conservation Act 1995; first recorded in Maroubra 1908 although now extinct there. Currently known from only one small population in Botany Bay NP where it is threatened by human activity as it is close to a major fire trail (NPWS 2000).

**Pterostylis coccina**

**Life history**

**Growth form:** Seasonally deciduous terrestrial herb to 20 cm high, with rosette and stem leaves, paired tubers and stolons with daughter tubers.

**Vegetative spread:** Yes, stoloniferous (Jones & Clements 2002).

**Longevity:** Indefinite.

**Primary juvenile period:**

**Flowers:** Hood-shaped, white and bluish green, reddish or reddish brown, February–July. Pollination is almost certainly by pseudocopulation; all known *Pterostylis* pollinators have been male insects of the families Mycetophilidae (fungus gnats) and Culicidae (mosquitoes) (Bishop 1996).

**Fruit/Seed:** Capsule with numerous minute seeds.

**Dispersal, establishment & growth:**

**Fire response:**

**Interaction with other organisms:** *Pterostylis* species are generally associated with a soil fungus; seeds require the presence of this fungus to germinate (Cady 1988).

**Distribution**

**Status/origin:** Native.

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

**Distribution Sydney area:** Widespread.

**Select locations:** CC: Gladesville, Rouse Hill, Bass Hill, La Perouse, Botany, Rookwood, Bundeena, Burragorang Valley, Seven Mile Beach. CT: Yetholme, Boyd Crossing, Mt Gibraltar, Blackheath, Mt Jellore, Oberon.

**Habitat**

**Habitat:** Amongst grass.

**Altitude:** 0–1000 m
**Annual rainfall:** 800–1400 mm

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

**Vegetation:** Open-forest e.g. with *Eucalyptus piperita, E. radiata, E. fastigata, Angophora costata*.

**Substrate:** Clay loam on basalt, sandstone, medium to high nutrients.

**Exposure:**

**Conservation**

Conservation status unknown. Reported in Blue Mountains NP, Royal NP.
**Pterostylis concinna**  

**Trim Greenhood**

**Life history**

**Growth form:** Seasonally deciduous, very slender terrestrial herb, paired tubers and stolons with daughter tubers.

**Vegetative spread:** Yes, stoloniferous, may form large colonies (Jones & Clements 2002).

**Longevity:** Indefinite.

**Primary juvenile period:**

**Flowers:** Hood-shaped, erect, white and dark green, with brown, May–September. Pollination is almost certainly by pseudocopulation; all known *Pterostylis* pollinators have been male insects of the families Mycetophilidae (fungus gnats) and Culicidae (mosquitoes) (Bishop 1996).

**Fruit/seed:** Capsule with numerous minute seeds.

**Dispersal, establishment & growth:**

**Fire response:** Probably resprouted, beginning to fruit 30 weeks after high intensity fire (1/1994 at Lane Cove) (P. Kubiak pers. comm.).

**Interaction with other organisms:** *Pterostylis* species are generally associated with a soil fungus; seeds require the presence of this fungus to germinate (Cady 1988).

**Distribution**

**Status/origin:** Native.

**Botanical subregions:** NC CC SC CWS; Vic., Tas., S.A.

**Distribution Sydney area:** Mainly coast.

**Select locations:** CC: Sackville, Castlereagh (P. H.), Kenthurst, Lindfield, Boronia Park, La Perouse, Bass Hill, Georges River, Holsworthy, Warumbul, Seven Mile Beach.

**Habitat**

**Habitat:** Moist areas.

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

**Vegetation:** Open-forest e.g. with *Angophora costata* and grassy understory; shrubland e.g. with Kunzea ambigua.

**Substrate:** Sandy to loamy soil on sandstone, sand, shale, low–medium nutrients.

**Exposure:**

**Conservation**

Vulnerable in Western Sydney (James et al. 1999). Conservation status elsewhere unknown. Reported in Royal NP, Blue Mountains.

**Pterostylis curta**

**Blunt Greenhood**

**Life history**

**Growth form:** Seasonally deciduous terrestrial herb to 30 cm high, paired tubers and stolon with daughter tubers.

**Vegetative spread:** Yes, stoloniferous (Jones & Clements 2002).

**Longevity:** Indefinite.

**Primary juvenile period:**

**Flowers:** Hood-shaped, erect, white and green, with brown, July–October, peak May. Pollination by pseudocopulation of male fungus gnats (Mycetophilidae) (Bernhardt 1995).

**Fruit/seed:** Capsule with numerous minute seeds.

**Dispersal, establishment & growth:**

**Fire response:**

**Interaction with other organisms:** *Pterostylis* species are generally associated with a soil fungus; seeds require the presence of this fungus to germinate (Cady 1988).

**Distribution**

**Status/origin:** Native.

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

**Distribution Sydney area:** Widespread.

**Pterostylis cycnocephala**

**Swan Greenhood**

**Life history**

**Growth form:** Seasonally deciduous terrestrial herb to 20 cm high, with paired tubers.

**Vegetative spread:** No (Jones & Clements 2002).

**Longevity:** Indefinite.

**Primary juvenile period:**

**Flowers:** Hood-shaped, green with darker lines, shiny, August–January. Pollination is almost certainly by pseudocopulation; all known *Pterostylis* pollinators have been male insects of the families Mycetophilidae (fungus gnats) and Culicidae (mosquitoes) (Bishop 1996).

**Fruit/seed:** Capsule with numerous minute seeds.

**Dispersal, establishment & growth:**

**Fire response:**

**Interaction with other organisms:** *Pterostylis* species are generally associated with a soil fungus; seeds require the presence of this fungus to germinate (Cady 1988).

**Distribution**

**Status/origin:** Native.

**Botanical subregions:** NC CC SC NT CT ST CWS; Vic., Tas., S.A., N.Z.

**Distribution Sydney area:** Sporadic.

**Select locations:** CT: Abercrombie Caves.

**Habitat**

**Habitat:**

**Altitude:** Annual rainfall: 800–1600 mm

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

**Vegetation:** Open-forest; grassland

**Substrate:**

**Exposure:**

**Conservation**

Conservation status unknown.

**Pterostylis daintreana**

**Life history**

**Growth form:** Seasonally deciduous terrestrial herb to 30 cm high, with rosette and stem leaves, and paired tubers.

**Vegetative spread:** No.

**Longevity:** Indefinite.

**Primary juvenile period:**

**Flowers:** Hood-shaped, green and white, shiny, March–July, peak May. Pollination is almost certainly by pseudocopulation; all known *Pterostylis* pollinators have been male insects of the families Mycetophilidae (fungus gnats) and Culicidae (mosquitoes) (Bishop 1996).

**Fruit/seed:** Capsule with numerous minute seeds.

**Dispersal, establishment & growth:** No special morphology for dispersal (Westoby et al. 1990).
**Pterostylis decurva**

*Summer Greenhood*

**Life history**

**Growth form:** Seasonally deciduous terrestrial herb to 30 cm high, with rosette and stem leaves, paired tubers and stolons with daughter tubers.

**Vegetative spread:** Yes, stoloniferous (Jones & Clements 2002).

**Longevity:** Indefinite.

**Primary Juvenile Period:**

**Flowers:** Hood-shaped, pale green to dark green and white, with brown, October–March. Pollination is almost certainly by pseudocopulation; all known *Pterostylis* pollinators have been male insects of the families Mycetophilidae (fungus gnats) and Culicidae (mosquitoes) (Bishop 1996).

**Fruit/seed:** Capsule with numerous minute seeds.

**Dispersal, establishment & growth**

**Fire response:**

**Interaction with other organisms:** *Pterostylis* species are generally associated with a soil fungus; seeds require the presence of this fungus to germinate (Cady 1988).

**Distribution**

**Status/origin:** Native.

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

**Distribution Sydney area:** CC: Calga, Woy Woy, Wondabyne, Cowan, Lindfield, Castle Cove, Manly, Lane Cove, Lugarno, Waterfall, Dapto, Nowra. CT: Woodford.

**Select locations:** Mainly coast.

**Habitat**

**Habitat:** Ridgetops, ‘moss gardens’.

**Altitude:** 0–600 m **Annual rainfall:** 1000–1400 mm

**Typical local abundance:** Frequent.

**Vegetation:** Heath e.g. with Banksia ericifolia, Kunzea ambigua, Leptospermum trinervium, Darwinia fascicularis.

**Substrate:** On sandstone sheets and flat rocks, low nutrients.

**Exposure:**

**Conservation**

Conservation status unknown. Reported in Royal NP, Heathcote NP.

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**Pterostylis fischii**

*ORCHIDACEAE*

**Life history**

**Growth form:** Seasonally deciduous terrestrial herb to 25 cm high, with rosette and stem leaves, paired tubers and stolons with daugther tubers.

**Vegetative spread:** Yes, stoloniferous (Jones & Clements 2002).

**Longevity:** Indefinite.

**Primary Juvenile Period:**

**Flowers:** Hood-shaped, erect, white to greenish brown to dark brown markings, July–September. Pollination is almost certainly by pseudocopulation; all known *Pterostylis* pollinators have been male insects of the families Mycetophilidae (fungus gnats) and Culicidae (mosquitoes) (Bishop 1996).

**Fruit/seed:** Capsule with numerous minute seeds.

**Dispersal, establishment & growth**

**Fire response:**

**Interaction with other organisms:** *Pterostylis* species are generally associated with a soil fungus; seeds require the presence of this fungus to germinate (Cady 1988).

**Distribution**

**Status/origin:** Native.

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

**Distribution Sydney area:** Coast, sporadic.

**Select locations:** CC: Pittwater, Lindfield, Audley, Waterfall.

**Habitat**

**Habitat:** Sheltered sites.

**Altitude:** 0–200 m **Annual rainfall:** 1200–1400 mm

**Typical local abundance:** Occasional.

**Vegetation:** Moist open-forest e.g. with Angophora costata.

**Substrate:** Sandy soils on sandstone, low nutrients.

**Exposure:**

**Conservation**

Conservation status unknown. Reported in Royal NP.

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**Pterostylis erecta**

*ORCHIDACEAE*

**Life history**

**Growth form:** Seasonally deciduous terrestrial herb to 35 cm high, paired tubers and stolons with daugther tubers.

**Vegetative spread:** Stoloniferous (Jones & Clements 2002).

**Longevity:** Indefinite.

**Primary Juvenile Period:**

**Flowers:** Hood-shaped, erect green, white to greenish brown to dark brown, February–March. Pollination is almost certainly by pseudocopulation; all known *Pterostylis* pollinators have been male insects of the families Mycetophilidae (fungus gnats) and Culicidae (mosquitoes) (Bishop 1996).

**Fruit/seed:** Capsule with numerous minute seeds.

**Dispersal, establishment & growth**

**Fire response:**

**Interaction with other organisms:** *Pterostylis* species are generally associated with a soil fungus; seeds require the presence of this fungus to germinate (Cady 1988).

**Distribution**

**Status/origin:** Native.

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

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

**Select locations:** CT: Jenolan Caves, Kanangra, Porters Retreat.

**Habitat**

**Habitat:** Ridges.

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

**Typical local abundance:** Frequent.

**Vegetation:** Woodland e.g. with Eucalyptus pauciflora, E. delegatensis.

**Substrate:** Gravelly loam on granite, low nutrients, moist.

**Exposure:**

**Conservation**

Conservation status unknown. Reported in Kanangra Boyd NP.

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**Pterostylis longifolia**

*ORCHIDACEAE*

**Life history**

**Growth form:** Seasonally deciduous terrestrial herb to 30 cm high, paired tubers and stolons with daugther tubers.

**Vegetative spread:** Stoloniferous (Jones & Clements 2002).

**Longevity:** Indefinite.

**Primary Juvenile Period:**

**Flowers:** Hood-shaped, erect, white to greenish brown to dark brown markings, July–September. Pollination is almost certainly by pseudocopulation; all known *Pterostylis* pollinators have been male insects of the families Mycetophilidae (fungus gnats) and Culicidae (mosquitoes) (Bishop 1996).

**Fruit/seed:** Capsule with numerous minute seeds.

**Dispersal, establishment & growth**

**Fire response:**

**Interaction with other organisms:** *Pterostylis* species are generally associated with a soil fungus; seeds require the presence of this fungus to germinate (Cady 1988).

**Distribution**

**Status/origin:** Native.

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

**Distribution Sydney area:** Coast, sporadic.

**Select locations:** CC: Pittwater, Lindfield, Audley, Waterfall.

**Habitat**

**Habitat:** Sheltered sites.

**Altitude:** 0–200 m **Annual rainfall:** 1200–1400 mm

**Typical local abundance:** Occasional.

**Vegetation:** Moist open-forest e.g. with Angophora costata.

**Substrate:** Sandy soils on sandstone, low nutrients.

**Exposure:**

**Conservation**

Conservation status unknown. Reported in Royal NP.
**Pterostylis furcata**

**Sickle Greenhood**

**Life history**

**Growth form:** Seasonally deciduous terrestrial herb to 30 cm high, with rosette and stem leaves, paired tubers and stolons with daugther tubers.

**Vegetative Spread:** Yes, stoloniferous (Jones & Clements 2002).

**Longevity:** Indefinite.

**Primary juvenile period:**

**Flowers:** Hood-shaped, erect, dark green and white, December–March. Pollination is almost certainly by pseudocopulation; all known *Pterostylis* pollinators have been male insects of the families Mycetophilidae (fungus gnats) and Culicidae (mosquitoes) (Bishop 1996).

**Fruit/Seed:** Capsule with numerous minute seeds.

**Dispersal, establishment & growth:**

**Fire response:**

**Interaction with other organisms:** *Pterostylis* species are generally associated with a soil fungus; seeds require the presence of this fungus to germinate (Cady 1988).

**Distribution**

**Status/origin:** Native.

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

**Distribution Sydney area:** Lake Illawarra area.

**Select locations:** CC: Prospect to South Creek (1803), Yallah, Albion Park, Nowra.

**Habitat**

**Habitat:** Creeks, swamps.

**Altitude:** 600–1000 m

**Annual rainfall:** 900–1600 mm

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

**Vegetation:** Sedgeland e.g. with *Empodisma minus*, *Hydrocotyle*, *Ranunculus*.

**Substrate:** Peaty to sandy soils, sandy alluvium, wet areas, low nutrients.

**Exposure:**

**Conservation**

Conservation status unknown. Reported in Kanangra Boyd NP.

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**Pterostylis gibbosa** (*Pterostylis ceriflora*)

**Illawarra Greenhood**

**Life history**

**Growth form:** Seasonally deciduous terrestrial herb to 45 cm high, with rosette leaves, paired tubers and stolons with daugther tubers. Similar to *Pterostylis saxicola* (Jones & Clements 1997). Occurs in clumps or scattered clusters (NPWS 2002).

**Vegetative Spread:** No (Jones & Clements 2002).

**Longevity:** Indefinite.

**Primary juvenile period:**

**Flowers:** Hood-shaped, bright green with transparent patches, August–November. Usually 9–10 flowers per spike, the lowest opening first; pollination is generally by pseudocopulation, male insects of the families Mycetophilidae (fungus gnats, *Mycoma* sp.) (NPWS 2002), or Culicidae (mosquitoes) (Bishop 1996).

**Fruit/Seed:** Capsules brownish, erect, 7–8 mm long, (Jones & Clements 1997), with numerous minute seeds, wind-dispersed; seed may remain dormant for up to two seasons; seed set in spring does not germinate until autumn and requires specific strain of the mycorrhizal fungus *Ceratobasidium cornigerum* for successful germination (Quality Environmental Management 1994); this widespread fungus is associated with leaf litter (NPWS 2002). High seed viability (76% in one study), seed set 11% (NPWS 2002).

**Dispersal, establishment & growth:**

**Fire response:** Tubers allow fire survival; occasional fire may be necessary for establishment of seeds and seedlings (NPWS 2002).

**Interaction with other organisms:** *Pterostylis* species are generally associated with a soil fungus and require its presence to germinate (Cady 1988). Associated with micorrhizal fungus *Ceratobasidium cornigerum*, its growth stimulated in autumn by cooler temperatures and moist conditions; inflorescence of *P. gibbosa* grazed by rabbits and stock (QEM 1994).

**Distribution**

**Status/origin:** Native.

**Botanical subregions:** NC CC.

**Distribution Sydney area:** Widespread.

**Select locations:** CC: Pearl Beach, Wamberal, Springwood, West Head, Warrigwood, Duffys Forest, Lindfield, Centennial Park, Macquarie Fields, Kogarah, Rookwood, Heathcote, Womorona, Waterfall, Darkes Forest, Mt Kembla. CT: Mount Tomah, Katoomba, Woodford.
Habitat
Habitat: Moist shady slopes.
Altitude: 0–1000 m Annual rainfall: 1000–1400 mm
Typical local abundance: Frequent–occasional.
Vegetation: Open-forest e.g. with Angophora costata, Eucalyptus piperita, Syncarpia glomulifera, E. globoida.
Substrate: Sandy loam over sandstone, sandy alluvium, low nutrients.
Exposure:
Conservation
Conservation status unknown. Reported in Royal NP.

Pterostylis hildae
Rainforest Greenhood

Life history
Growth form: Seasonally deciduous terrestrial herb to 15 cm high, with rosette leaves, paired tubers and stolons with daugher tubers, and flowering stem to 15 cm high (Bishop 1996).
Vegetative spread: Yes, stoloniferous (Jones & Clements 2002).
Longevity: Indefinite.
Primary juvenile period:
Flowers: Hood-shaped, white and green with brown, July–September. Pollination is almost certainly by pseudocopulation; all known Pterostylis pollinators have been male insects of the families Mycetophilidae (fungus gnats) and Culicidae (mosquitoes) (Bishop 1996).
Fruit/seed: Capsule with numerous minute seeds.
Dispersal, establishment & growth: Fire response:
Interaction with other organisms: Pterostylis species are generally associated with a soil fungus; seeds require the presence of this fungus to germinate (Cady 1988).

Distribution
Status/origin: Native.
Botanical subregions: NC CC SC NT CT; Qld.
Distribution Sydney area: Sporadic.
Select locations: CC: Bulli Pass. CT: Mount Tomah, Bundanoon.

Habitat
Habitat: Moist areas, ridgetops.
Altitude: 0–1000 m Annual rainfall: 1400–1600 mm
Typical local abundance:
Vegetation: Eucalypt open-forest
Substrate: Sandy soil over sandstone, low nutrients.
Exposure:
Conservation
Conservation status unknown. Reported in Morton NP.

Pterostylis laxa

Life history
Growth form: Seasonally deciduous terrestrial herb to 40 cm high, with rosette and stem leaves, paired tubers and stolons with daughter tubers.
Vegetative spread: Yes, stoloniferous (Jones & Clements 2002).
Longevity: Indefinite.
Primary juvenile period:
Flowers: Hood-shaped, slightly nodding, green and white with dark green or brown, March–May. Pollination is almost certainly by pseudocopulation; all known Pterostylis pollinators have been male insects of the families Mycetophilidae (fungus gnats) and Culicidae (mosquitoes) (Bishop 1996).
Fruit/seed: Capsule with numerous minute seeds.
Dispersal, establishment & growth: Fire response:
Interaction with other organisms: Pterostylis species are generally associated with a soil fungus; seeds require the presence of this fungus to germinate (Cady 1988).

Distribution
Status/origin: Native.
Botanical subregions: NC CC NT CT ST CWS; Vic.
Distribution Sydney area: Southern Highlands, Blue Mountains.
Select locations: CT: Mt Gibraltar, Grose Valley, Bungonia Gorge.

Habitat
Habitat: Amongst grass on slopes.
Altitude: 500–1000 m Annual rainfall: 900–1200 mm
Typical local abundance: Frequent–occasional.
Vegetation: Open-forest e.g. with Eucalyptus piperita, E. radiata.
Substrate: Stony brown loam from trachyte.
Exposure:
Conservation
Conservation status unknown.

Pterostylis hispidula

Life history
Growth form: Seasonally deciduous terrestrial herb, with rosette leaves, paired tubers and stolons with daughter tubers.
Vegetative spread: Yes, stoloniferous (Jones & Clements 2002).
Longevity: Indefinite.
Primary juvenile period:
Flowers: Hood-shaped, nodding, translucent with green and brown, March–July. Pollination is almost certainly by pseudocopulation; all known Pterostylis pollinators have been male insects of the families Mycetophilidae (fungus gnats) and Culicidae (mosquitoes) (Bishop 1996).
Fruit/seed: Capsule with numerous minute seeds.
Dispersal, establishment & growth: Fire response:
Interaction with other organisms: Pterostylis species are generally associated with a soil fungus; seeds require the presence of this fungus to germinate (Cady 1988).

Distribution
Status/origin: Native.
Botanical subregions: NC CC SC NT CT; Qld.
Distribution Sydney area: Sporadic.
Select locations: CC: Bulli Pass. CT: Mount Tomah, Bundanoon.

Habitat
Habitat: Moist shady slopes.
Altitude: 0–1000 m Annual rainfall: 1000–1400 mm
Typical local abundance: Frequent–occasional.
Vegetation: Open-forest e.g. with Angophora costata, Eucalyptus piperita, Syncarpia glomulifera, E. globoida.
Substrate: Sandy loam over sandstone, sandy alluvium, low nutrients.
Exposure:
Conservation
Conservation status unknown. Reported in Royal NP.

Pterostylis longifolia
Tall Greenhood

Life history
Growth form: Seasonally deciduous terrestrial herb 15–40 cm high, with rosette and stem leaves and paired tubers.
Vegetative spread: No (Jones & Clements 2002).
Longevity: Indefinite.
Primary juvenile period:
Flowers: Hood-shaped, green and white, shiny, April–August. Pollination is almost certainly by pseudocopulation; all known Pterostylis pollinators have been male insects of the families Mycetophilidae (fungus gnats) and Culicidae (mosquitoes) (Bishop 1996).
Fruit/seed: Capsule with numerous minute seeds.
**Pterostylis mutica**

**Life history**

**Growth form:** Seasonally deciduous terrestrial herb to 35 cm high, with rosette and stem leaves and paired tubers.

**Vegetative spread:** No (Jones & Clements 2002).

**Longevity:** Indefinite.

**Primary juvenile period:**

**Flowers:** Hood-shaped, pale green to yellowish green, August-November. Pollination is almost certainly by pseudocopulation by fungus gnats (Mycetophilidae) (Van der Cingel 2001).

**Fruit/seed:** Capsule with numerous minute seeds.

**Dispersal, establishment & growth:** Seed, no special morphology for dispersal (Westoby et al. 1990).

**Fire response:**

**Interaction with other organisms:** *Pterostylis* species are generally associated with a soil fungus; seeds require the presence of this fungus to germinate (Cady 1988).

**Distribution**

**Status/origin:** Native.

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

**Distribution Sydney area:** Widespread.

**Select locations:** CC: Riverstone, Glenbrook, Killara, East Hills, Ingleburn, Kentlyn. CT: Ryllstone, Bathurst, Wentworth Falls, Abercrombie River, Capertee.

**Habitat**

**Habitat:** Ridges, slopes.

**Altitude:** 0–1000 m **Annual rainfall:** 700–1400 mm

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

**Vegetation:** Open-forest; grassland; woodland e.g. with *Eucalyptus rossi, E. polyanthemos, E. viminalis, E. bridgesiana, E. crebra*.

**Substrate:** Clay soil on sandstone, Tertiary alluvium, low nutrients.

**Exposure:**

**Conservation**

Conservation status unknown.

**Pterostylis nutans**

**Nodding Greenhood**

**Life history**

**Growth form:** Seasonally deciduous terrestrial herb to 30 cm high, with rosette leaves, paired tubers and stolons with dauger tubers.

**Vegetative spread:** Yes, stoloniferous (Jones & Clements 2002).

**Longevity:** Indefinite.

**Primary juvenile period:**

**Flowers:** Hood-shaped, nodding, translucent with green and brown, March–October, peak June–September. Pollination is almost certainly by pseudocopulation by fungus gnats (Mycetophilidae) and Culicidae (mosquitoes) (Bishop 1996).

**Fruit/seed:** Capsule with numerous minute seeds.

**Dispersal, establishment & growth:** Seed, no special morphology for dispersal (Westoby et al. 1990).

**Fire response:** Probably resprouted, some plants beginning to fruit 36 weeks after high intensity fire (1/1994 at Lane Cove) (P. Kubiak pers. comm.).

**Interaction with other organisms:** *Pterostylis* species are generally associated with a soil fungus; seeds require the presence of this fungus to germinate (Cady 1988).

**Distribution**

**Status/origin:** Native.

**Botanical subregions:** NC CC SC NT CT ST NWS CWS SWS; Qld, Vic., Tas., S.A., N.Z.
**Distribution Sydney area:** Widespread.
**Select locations:** CC: Terrigal, Wamberal, Kurrajong Heights, Glenbrook, Patonga Creek, Ingleside, Gladesville, Kurnell, Long Bay, Rookwood, Mortlake, Bass Hill, Loftus, Campbelltown, Bulli Pass, Barrenarry, Minnamurra Falls, Bomaderry, Yerranderie. CT: Orange, Jenolan Caves, Mt Wilson, Blackheath, Katoomba, Woodford.

**Habitat**

**Habitat:** Gullies, creekbanks.
**Altitude:** 0–1000 m  
**Annual rainfall:** 700–1600 mm  
**Typical local abundance:** Frequent–occasional.
**Vegetation:** Moist open-forest e.g. with *Angophora costata*, *Syncarpia glomulifera*, *Eucalyptus piperita*, *E. deanei*; coastal scrub e.g. with *Kunzea ambigua*, *Melaleuca nodosa*.
**Substrate:** Sandy soils on sandstone, medium nutrients.
**Exposure:** Mid-shade.

**Conservation**

Vulnerable in Western Sydney (James et al. 1999), conservation status elsewhere unknown. Reported in Royal NP.

### Pterostylis obtusa

**Life history**

**Growth form:** Seasonally deciduous terrestrial herb to 25 cm high, with rosette and stem leaves, paired tubers and stolons with daughter tubers. Hybrids with *P. ophioglossa* (Harden 1993).
**Vegetative spread:** Yes, stoloniferous (Jones & Clements 2002).
**Primary juvenile period:** Indefinite.
**Flowers:** Hood-shaped, dark green and white, shiny, February–June. Pollination is almost certainly by pseudocopulation; all known *Pterostylis* pollinators have been male insects of the families Mycetophilidae (fungus gnats) and Culicidae (mosquitoes) (Bishop 1996).
**Fruit/seed:** Capsule with numerous minute seeds.
**Fire response:** Interactions with other organisms: *Pterostylis* species are generally associated with a soil fungus; seeds require the presence of this fungus to germinate (Cady 1988).

**Distribution**

**Status/origin:** Native.
**Botanical subregions:** NC CC; Qld.
**Select locations:** CC: Wilberforce, Riverstone, Agnes Banks, Mt Druitt (P.H.), Gladesville, Rookwood, Burragorang Valley.

**Habitat**

**Habitat:** Moister slopes and ridges, gullies.
**Altitude:** 0–200 m  
**Annual rainfall:** 800–1100 mm  
**Typical local abundance:** Frequent–occasional.
**Vegetation:** Open-forest; scrub
**Substrate:** Clay soils on shale.
**Exposure:** Sheltered.

**Conservation**

Conservation status unknown.

### Pterostylis ophioglossa

**Snake Tongue Greenhood**

**Life history**

**Growth form:** Seasonally deciduous terrestrial herb to 20 cm high, with rosette leaves, paired tubers and stolons with daughter tubers. Hybridizes with *P. concinna* (Harden 1993).
**Vegetative spread:** Yes, stoloniferous (Jones & Clements 2002).
**Longevity:** Indefinite.
**Primary juvenile period:** Indefinite.
**Flowers:** Hood-shaped, white with tan or reddish stripes, April–June. Pollination is almost certainly by pseudocopulation; all known *Pterostylis* pollinators have been male insects of the families Mycetophilidae (fungus gnats) and Culicidae (mosquitoes) (Bishop 1996).
**Fruit/seed:** Capsule with numerous minute seeds.
**Fire response:** Interactions with other organisms: *Pterostylis* species are generally associated with a soil fungus; seeds require the presence of this fungus to germinate (Cady 1988).

**Distribution**

**Status/origin:** Native.
**Botanical subregions:** NC CC; Qld.
**Select locations:** CC: Wilberforce, Riverstone, Agnes Banks, Mt Druitt (P.H.), Gladesville, Rookwood, Burragorang Valley.

**Habitat**

**Habitat:** Plateaus, slopes.
**Altitude:** 0–1000 m  
**Annual rainfall:** 800–1400 mm  
**Typical local abundance:** Frequent–occasional.
**Vegetation:** Open-forest e.g. with *Angophora costata*, *Corymbia gummifera*, *Syncarpia glomulifera*; woodland e.g. with *Eucalyptus rossii*, *E. macrorhyncha*, *E. mannifera*; heath e.g. with *Kunzea ambigua*, *Baeckea imbricata*, *Darwinia fasscicularis*, *Banksia ericifolia*. **Conservation**

Conservation status unknown. Reported in Yengo NP.
**Pterostylis pedoglossa**

**Prawn Greenhood**

**Life history**

**Growth form:** Seasonally deciduous terrestrial herb 15 cm high, very slender, with rosette leaves, paired tubers and stolons with daughter tubers.

**Vegetative spread:** Yes, stoloniferous (P. Hind pers. comm.). Colony-forming, multiplying slowly (Banks 1996).

**Longevity:** Indefinite.

**Primary juvenile period:**

**Flowers:** Hood-shaped, green and white, March–July. Pollination is almost certainly by pseudocopulation; all known *Pterostylis* pollinators have been male insects of the families Mycetophilidae (fungus gnats) and Culicidae (mosquitoes) (Bishop 1996).

**Fruit/seed:** Capsule with numerous minute seeds.

**Dispersal, establishment & growth:**

**Fire response:**

**Interaction with other organisms:** *Pterostylis* species are generally associated with a soil fungus; seeds require the presence of this fungus to germinate (Cady 1988).

**Distribution**

**Status/origin:** Native.

**Botanical subregions:** CC SC CT; ?Qld, Vic., Tas.

**Distribution Sydney area:** Widespread.

**Select locations:** CC: Mill Creek, Creekville, Longueville, McMahan's Lookout, Macquarie Pass, Bundeena, Mt Kembala, Seven Mile Beach. CT: Mt Canobolas, Mount Tomah, Mt Irvine, Wombeyan Caves, Mt Werong, Kanimbla Valley.

**Habitat**

**Habitat:** Moist sheltered sites, dunes.

**Altitude:** 0–1000 m  **Annual rainfall:** 700–1400 mm

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

**Vegetation:** Open-forest e.g. with Eucalyptus radiata, Syncarpia glomulifera; littoral rainforest e.g. with Cupaniopsis anacardoides, Banksia integrifolia; gallery rainforest e.g. with Backhousia myrtifolia.

**Substrate:** Sandy to loamy soils on sand, sandstone, granite, basalt, medium to high nutrients.

**Exposure:**

**Conservation**

Conservation status unknown. Reported in Blue Mountains NP, Dharug NP, Royal NP.

**Pterostylis plumosa (P. barbata)**

**Bearded Greenhood**

**Life history**

**Growth form:** Seasonally deciduous terrestrial herb 15 cm high, with rosette and stem leaves and paired tubers.

**Vegetative spread:** No (Jones & Clements 2001).

**Longevity:** Indefinite.

**Primary juvenile period:**

**Flowers:** Hood-shaped, erect, translucent with dark green lines, August–October. Pollination is almost certainly by pseudocopulation; all known *Pterostylis* pollinators have been male insects of the families Mycetophilidae (fungus gnats) and Culicidae (mosquitoes) (Bishop 1996).

**Fruit/seed:** Capsule with numerous minute seeds.

**Dispersal, establishment & growth:** Does not reproduce by multiple tubers but spreads only by seed, germinating readily in freshly-turned soil (Hatch 1985).

**Fire response:**

**Interaction with other organisms:** *Pterostylis* species are generally associated with a soil fungus; seeds require the presence of this fungus to germinate (Cady 1988).

**Distribution**

**Status/origin:** Native.

**Botanical subregions:** CC SC CT; Vic., Tas.

**Distribution Sydney area:** Kurnell–Port Jackson, Bathurst–Abercrombie.

**Select locations:** CC: Maroubra Bay, Kurnell. CT: Abercrombie Caves.

**Habitat**

**Habitat:** Sheltered slopes, plateaus.

**Altitude:** 0–700 m  **Annual rainfall:** 700–1400 mm

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

**Vegetation:** Coastal scrubs e.g. with Melaleuca nodosa, Baeckea imbricata; open-forest.

**Substrate:** Sandy soils on sandstone, low nutrients.

**Exposure:**

**Conservation**

Bathurst is northern geographical limit (Harden 1993). Conservation status unknown.
**Pterostylis pulchella**

**Life history**

**Growth form:** Seasonally deciduous terrestrial herb, with paired tubers and stolons with daugther tubers, and stems to 15 cm high with rosette and stem leaves.

**Vegetative spread:** Yes, stoloniferous (Jones & Clements 2001).

**Longevity:** Indefinite.

**Primary juvenile period:**

**Flowers:** Hood-shaped, erect, white with green and red to red-brown, February–May. Pollination is almost certainly by pseudocopulation; all known *Pterostylis* pollinators have been male insects of the families Mycetophilidae (fungus gnats) and Culicidae (mosquitoes) (Bishop 1996).

**Fruit/Seed:** Capsule with numerous minute seeds.

**Fire response:** Yes, stoloniferous (Jones & Clements 2001).

**Interaction with other organisms:** *Pterostylis* species are generally associated with a soil fungus; seeds require the presence of this fungus to germinate (Cady 1988).

**Distribution**

**Status/Origin:** Native.

**Botanical subregions:** CC CT ST.

**Select locations:** Belmore Falls, Minnamurra Falls. CT: Fitzroy Falls.

**Habitat**

**Habitat:** Close to waterfalls, moist sheltered ridges.

**Altitude:** 200–600 m

**Annual rainfall:** 1400–1600 mm

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

**Vegetation:** Rainforest below falls e.g. with *Ceratopetalum apetalum*, *Calllicoma serratifolia*.

**Substrate:** Clay loam on sandstone, low nutrients.

**Exposure:**

**Conservation**

Listed as Vulnerable (Schedule 2) NSW Threatened Species Conservation Act 1995. Reported in Budderoo NP, Morton NP.

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**Pterostylis pusilla**

Ruddyhood

**Life history**

**Growth form:** Seasonally deciduous terrestrial herb to 30 cm high, with rosette leaves, and paired tubers.

**Vegetative spread:** No (Jones & Clements 2001).

**Longevity:** Indefinite.

**Primary juvenile period:**

**Flowers:** Hood-shaped, pointed outwards, transparent with green and red markings, September–November. Pollination is almost certainly by pseudocopulation; all known *Pterostylis* pollinators have been male insects of the families Mycetophilidae (fungus gnats) (Mycetophilidae) (Van der Cingel 2001).

**Fruit/Seed:** Capsule with numerous minute seeds.

**Fire response:** Yes, stoloniferous (Jones & Clements 2001).

**Interaction with other organisms:** *Pterostylis* species are generally associated with a soil fungus; seeds require the presence of this fungus to germinate (Cady 1988).

**Distribution**

**Status/Origin:** Native.

**Botanical subregions:** CC CT WWS; Vic., S.A.

**Select locations:** Bimlow, Mittagong, Tallong.

**Habitat**

**Habitat:** Amongst litter.

**Altitude:** 0–700 m

**Annual rainfall:** 700–1400 mm

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

**Vegetation:** Open-forest, woodland e.g. with *Eucalyptus melliodora*, *E. bridgegysana*, *E. blakelyi*.

**Substrate:** Clay loam on sandstone, low nutrients.

**Exposure:**

**Conservation**

Conservation status unknown. Reported in Ku-ring-gai Chase NP.

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**Pterostylis reflexa**

**Life history**

**Growth form:** Seasonally deciduous terrestrial herb to 20 cm high, with rosette and stem leaves, and paired tubers with stolons and daugther tubers.

**Vegetative spread:** Yes, stoloniferous (Jones & Clements 2001).

**Longevity:** Indefinite.

**Primary juvenile period:**

**Flowers:** Hood-shaped, erect, green and white with red-brown, February–June, peak April. Probably pollinated by fungus gnats (*Mycetophiliidae*) (Van der Cingel 2001).

**Fruit/Seed:** Capsule with numerous minute seeds.

**Fire response:** Yes, stoloniferous (Jones & Clements 2001).

**Interaction with other organisms:** *Pterostylis* species are generally associated with a soil fungus; seeds require the presence of this fungus to germinate (Cady 1988).

**Distribution**

**Status/Origin:** Native.

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

**Select locations:** CC: Culoul Range, Woy Woy, West Head, Avalon, Killara, Gladsville, Bundeena, Wedderburn. CT: Capetee, O’Connell, Binlow, Mittagong, Tallong.

**Habitat**

**Habitat:** Ridges, slopes, gullies.

**Altitude:** 0–700 m

**Annual rainfall:** 700–1400 mm

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

**Vegetation:** Open-forest, woodland e.g. with *Eucalyptus melliodora*.

**Substrate:** Clay loam on sandstone, low nutrients.

**Exposure:**

**Conservation**

Conservation status unknown. Reported in Ku-ring-gai Chase NP.

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**Pterostylis revoluta**

**Life history**

**Growth form:** Seasonally deciduous terrestrial herb to 15 cm high, with rosette and stem leaves, and paired tubers with stolons and daugther tubers.

**Vegetative spread:** Yes, stoloniferous (Jones & Clements 2001).

**Longevity:** Indefinite.

**Primary juvenile period:**

**Flowers:** Hood-shaped, slightly nodding, pale green and white, February–June. Pollination is almost certainly by pseudocopulation; all known *Pterostylis* pollinators have been male insects of the families Mycetophilidae (fungus gnats) and Culicidae (mosquitoes) (Bishop 1996).

**Fruit/Seed:** Capsule with numerous minute seeds.

**Fire response:** Yes, stoloniferous (Jones & Clements 2001).

**Interaction with other organisms:** *Pterostylis* species are generally associated with a soil fungus; seeds require the presence of this fungus to germinate (Cady 1988).
**Distribution**

**Status/origin:** Native.

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

**Distribution Sydney area:** Widespread.

**Select locations:** CC: Woy Woy, Sackville North, Glenbrook, Bass Hill, Kurnell, Cronulla. CT: Winburndale, Yetholme, Capertee, Bowral.

**Habitat**

**Habitat:** Sheltered slopes, ridges, dunes.

**Altitude:** 0–900 m  
**Annual rainfall:** 600–1200 mm

**Typical local abundance:** Occasional.

**Vegetation:** Woodland e.g. with *Banksia serrata, Eucalyptus rossii.*

**Substrate:** Sandy soils on dunes, sandstone, low nutrients.

**Exposure:**

**Conservation**

Conservation status unknown. Reported in Yengo NP.

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**Pterostylis rufa** (*Pterostylis pusilla var. prominens*)

**Rusty Hood**

**Life history**

**Growth form:** Seasonally deciduous terrestrial herb to 30 cm high, with rosette and stem leaves, and paired tubers.

**Vegetative spread:** No (Jones & Clements 2001).

**Longevity:** Indefinite.

**Primary juvenile period:**

**Flowers:** Hood-shaped, dark reddish brown and translucent, September–November. Probably pollinated by fungus gnats (Mycetophilidae) (Van der Cingel 2001).

**Fruit/seed:** Capsule with numerous minute seeds.

**Dispersal, establishment & growth:**

**Fire response:**

**Interaction with other organisms:** Pterostylis species are generally associated with a soil fungus; seeds require the presence of this fungus to germinate (Cady 1988).

**Distribution**

**Status/origin:** Native.

**Botanical subregions:** CC.

**Distribution Sydney area:** Western Sydney.

**Select locations:** CC: South Creek/Toongabbie (1804), Emu Plains (1835), Campbelltown (1889, CANB), Kentlyn (1996, CANB).

**Habitat**

**Habitat:** Forest, woodland, close to streams, among rocks (Jones & Clements 1997).

**Altitude:** 0–200 m  
**Annual rainfall:** 800–1000 mm

**Typical local abundance:** Occasional; scattered individuals or small groups and loose colonies.

**Vegetation:** Woodland e.g. with *Eucalyptus crebra.*

**Substrate:** Shallow sandy clay loams, sandy soil over flat sheets of sandstone and crevies between sandstone boulders (Jones & Clements 1997).

**Exposure:**

**Conservation**

Local endemic species, listed as Endangered (Schedule 1) NSW Threatened Species Conservation Act 1995. Development pressures, increased access and increased use of sites are likely to result in habitat loss and degradation, directly threatening existing populations and reducing the area of available habitat.

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**Pterostylis saxicola** (*Pterostylis sp. E*)

**Sydney Plains Greenhood**

**Life history**

**Growth form:** Seasonally deciduous terrestrial herb, with paired tubers, a rosette and stem leaves. Similar to *Pterostylis gibbosa* (Jones & Clements 1997).

**Vegetative spread:** No (Jones & Clements 2001).

**Longevity:** Indefinite.

**Primary juvenile period:**

**Flowers:** Hood-shaped, transparent and red-brown, with dark red-brown markings, October–December (Jones & Clements 1997). Pollination is almost certainly by pseudocopulation; all known *Pterostylis* pollinators have been male insects of the families Mycetophilidae (fungus gnats) and Culicidae (mosquitoes) (Bishop 1996).

**Fruit/seed:** Capsules brownish, erect, 7–8 mm long, (Jones & Clements 1997), with numerous minute seeds.

**Dispersal, establishment & growth:**

**Fire response:**

**Interaction with other organisms:** Pterostylis species are generally associated with a soil fungus; seeds require the presence of this fungus to germinate (Cady 1988).

**Distribution**

**Status/origin:** Native.

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

**Distribution Sydney area:** Sporadic.

**Select locations:** CC: Colo Heights, Killara. CT: Bowral.

**Habitat**

**Habitat:** Ridges, slopes.

**Altitude:** 0–700 m  
**Annual rainfall:** 900–1400 mm

**Typical local abundance:**

**Vegetation:** Open-forest e.g. with *Leptospermum trinervium, Allocaussuarina.*

**Substrate:** Sandy soil on sandstone, low nutrients.

**Exposure:**

**Conservation**

Conservation status unknown.
**Pterostylis truncata**

Little Dumpies

**Life history**

**Growth form:** Seasonally deciduous terrestrial herb to 15 cm high, with rosette and stem leaves, and paired tubers with stolons and daughter tubers.

**Vegetative spread:** Yes, stoloniferous (Jones & Clements 2001).

**Longevity:** Indefinite.

**Primary juvenile period:**

**Flowers:** Hood-shaped, semi-erect, white with green and brown stripes, February–July, peak April. Pollination is almost certainly by pseudocopulation; all known *Pterostylis* pollinators have been male insects of the families Mycetophilidae (fungus gnats) and Culicidae (mosquitoes) (Bishop 1996).

**Fruit/seed:** Capsule with numerous minute seeds.

**Vegetative spread, establishment & growth:**

**Fire response:**

**Interaction with other organisms:** *Pterostylis* species are generally associated with a soil fungus; seeds require the presence of this fungus to germinate (Cady 1988).

**Conservation**

Conservation status unknown.

**Habitat**

**Altitude:** 0–800 m **Annual rainfall:** 700–1000 mm

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

**Vegetation:** Open-forest e.g. with *Eucalyptus piperita*, *E. radiata*, *Syncarpia glomulifera*, *Eucalyptus ovata*.

**Substrate:** Sandy to gravelly loam on sandstone, trachyte.

**Exposure:** Sheltered.

**Distribution**

**Status/origin:** Native.

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

**Distribution Sydney area:**

**Select locations:** CC: Colo Heights, Thirlmere. CT: Winburndale, Capertee, Cullen Bullen, Grose Valley, Kanimbla Valley, Wombeyan Caves, Yerranderie, Mittagong, Bowral, Mt Gibraltar.

**Habitat**

**Habitat:** Sheltered ridges, slopes.

**Altitude:** 0–800 m **Annual rainfall:** 700–1000 mm

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

**Vegetation:** Open-forest e.g. with *Eucalyptus piperita*, *E. radiata*, *Syncarpia glomulifera*, *Eucalyptus ovata*.

**Substrate:** Sandy to gravelly loam on sandstone, trachyte.

**Exposure:** Sheltered.

**Conservation**

Conservation status unknown.

**Pterostylis tunstallii**

**Life history**

**Growth form:** Seasonally deciduous terrestrial herb to 50 cm high, with rosette and stem leaves, and flowering stem to 50 cm high with up to 10 flowers (Bishop 1996).

**Vegetative spread:** No (Jones & Clements 2001).

**Longevity:** Indefinite.

**Primary juvenile period:**

**Flowers:** Hood-shaped, green and white, shiny, July–August. Pollination is almost certainly by pseudocopulation; all known *Pterostylis* pollinators have been male insects of the families Mycetophilidae (fungus gnats) and Culicidae (mosquitoes) (Bishop 1996).

**Fruit/seed:** Capsule with numerous minute seeds.

**Vegetative spread, establishment & growth:**

**Fire response:**

**Interaction with other organisms:** *Pterostylis* species are generally associated with a soil fungus; seeds require the presence of this fungus to germinate (Cady 1988).

**Conservation**

Conservation status unknown.

**Habitat**

**Altitude:** 0–600 m **Annual rainfall:** 700 mm

**Typical local abundance:** Frequent.

**Vegetation:** Open-forest, amongst grass

**Substrate:** Sandy to gravelly loam on sandstone, trachyte.

**Exposure:**

**Distribution**

**Status/origin:** Native.

**Botanical subregions:** CT NT NWS CWS; Qld, Vic.

**Distribution Sydney area:** Sporadic.

**Select locations:** CT: Abercrombie Caves.

**Habitat**

**Habitat:** Among rocks, on ridges, slopes.

**Altitude:** 0–600 m **Annual rainfall:** 700 mm

**Typical local abundance:** Frequent.

**Vegetation:** Open-forest, amongst grass

**Substrate:** Sandy to gravelly loam on sandstone, trachyte.

**Exposure:**

**Conservation**

Rare, one record for the area is Abercrombie Caves, although there is an old record for Richmond. Coded 3RC- on national rare species list (Briggs & Leigh 1996).

**Pyrochoris nigricans** (*Lyperanthus nigricans*)

**Life history**

**Growth form:** Robust terrestrial herb 10–30 cm high, with tubers and daughter tubers on stolons; whole plant dries to jet black colour.

**Vegetative spread:** Yes, stoloniferous (Jones & Clements 2001).

**Longevity:** Indefinite.

**Primary juvenile period:**

**Flowers:** Red and white, August–November. Bee-pollinated (Jones 1981).

**Fruit/seed:** Capsule with numerous minute winged seeds.

**Vegetative spread, establishment & growth:** Active growing period autumn–winter (Pridgeon et al. 2001).

**Fire response:** Mass flowering events follow hot summer fires, especially where there have been long intervals between burns (Pridgeon et al. 2001).

**Interaction with other organisms:**

**Habitat**

**Habitat:** Moist areas.

**Altitude:** 700–1000 m **Annual rainfall:** 1200–1400 mm

**Typical local abundance:** Frequent.

**Vegetation:** Open-forest e.g. with *Angephora costata*.

**Substrate:** Sandy loam over sandstone, low nutrients.

**Exposure:**

**Conservation**

Robertson is northern geographical limit (Harden 1993). Conservation status unknown.

**Pterostylis woolssii**

Long-tailed Greenhood

**Life history**

**Growth form:** Seasonally deciduous terrestrial herb to 45 cm high, with rosette and stem leaves, and paired tubers.

**Vegetative spread:** No (Jones & Clements 2001).

**Longevity:** Indefinite.

**Primary juvenile period:**

**Flowers:** Hood-shaped, transparent with green reddish tonings, October–December. Pollination is almost certainly by pseudocopulation; all known *Pterostylis* pollinators have been male insects of the families Mycetophilidae (fungus gnats) and Culicidae (mosquitoes) (Bishop 1996).

**Fruit/seed:** Capsule with numerous minute seeds.

**Vegetative spread, establishment & growth:**

**Fire response:**

**Interaction with other organisms:** *Pterostylis* species are generally associated with a soil fungus; seeds require the presence of this fungus to germinate (Cady 1988).

**Conservation**

Conservation status unknown.
**Rimacola elliptica**

Green Beaks, Green Rock Orchid

**Life history**

**Growth form**: Epilithic evergreen herb, with basal leaves, inflorescence to 10 cm long, and fleshy roots but no tubers.

**Vegetative spread**: Yes, rhizomatous, forming localised congested clumps (P. Hind, P. Weston pers. comm.).

**Longevity**: Indefinite.

**Primary juvenile period**:

**Flowers**: White or green with reddish brown markings, November–December. Possibly pollinated by small black wasps (Jones 1988).

**Fruit/seed**: Capsule with numerous minute winged seeds.

**Dispersal, establishment & growth**: Almost entire life cycle spent underground (stephenson 1997). Fleshy fruits may be ingested by small herbivores.

**Fire response**: Resprouts (Bantry Bay 1991). Flowering 9 months after high intensity fire (1/1994 at Narrabeen) (P. Kubiak pers. comm.).

**Interaction with other organisms**: Not associated with any single species of host, found with *Tristaniopsis laurina, Syncarpia glomulifera, Casuarina* species (Bishop 1996).

**Distribution**

**Status/origin**: Native.

**Botanical subregions**: CC CT.

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

**Select locations**: CC: Bilpin, Dural, Pittwater, Narrabeen, Middle Harbour. CT: Blackheath, Wentworth Falls, Katoomba, Woodford.

**Habitat**

**Habitat**: Wet crevices, damp ledges of sandstone cliffs.

**Altitude**: 0–1000 m

**Typical local abundance**: Frequent.

**Vegetation**

Amongst mosses, grasses and ferns e.g. with *Gleichenia rupestris, Dracophyllum secundum, Baeckea linifolia*.

**Substrate**: Peaty soils on sandstone, low nutrients, moist.

**Exposure**

**Conservation**

Conservation status unknown. Reported in Blue Mountains NP, Brisbane Water NP, Royal NP.

**Sarcochilus australis**

Butterfly Orchid

**Life history**

**Growth form**: Semi-pendant evergreen epiphyte, usually with 1 shoot, stems 0.5–7 cm long.

**Vegetative spread**: No.

**Longevity**: Short-lived (Walsh 2001).

**Primary juvenile period**:

**Flowers**: Green to brown or rarely yellow, October–December. Flowers seen on tiny plants 3 cm high (Walsh 2001).

**Fruit/seed**: Capsule with numerous minute seeds.


**Fire response**: Interaction with other organisms: Epiphytic on *Tristaniopsis laurina*.

**Distribution**

**Status/origin**: Native.

**Botanical subregions**: NC CC SC ST; Vic., Tas.

**Distribution Sydney area**: Marramarra Creek, Coal and Candle Creek.

**Habitat**

**Habitat**: Creekbanks. In gullies (Walsh 2001).

**Altitude**: 0–1000 m

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

**Vegetation**: Temperate rainforest e.g. with *Tristaniopsis laurina, Lomandra flaviatilis*.

**Substrate**: On outer branches of trees, *Tristaniopsis laurina*.

**Exposure**

**Conservation**

Hunter River is northern geographical limit. Reported in Marramarra NP.
**Sarcochilus falcatus**

Orange Blossom Orchid

**Life history**

**Growth form:** Semi-pendant evergreen epiphytic, or rarely an epilithic herb, with 1 or rarely 2 or more shoots and stems to 7 cm long.

**Vegetative spread:** Rarely, by branching.

**Longevity:**

**Primary juvenile period:**

**Flowers:** White with purple mid-line, June–October.

**Fruit/seed:** Capsule with numerous minute seeds.

**Dispersal, establishment & growth:**

**Fire response:**

**Interaction with other organisms:**

**Distribution**

**Status/origin:** Native.

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

**Select locations:** CC: Kangaroo Valley, Bulli, Mt Kembla.

**Habitat**

**Altitude:** 0–600 m

**Annual rainfall:** 1000–1600 mm

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

**Vegetation:** Grows on a variety of rainforest tree species, but also on *Doryphora sassafras*, *Pittosporum undulatum* and *Backhousia myrtifolia*.

**Substrate:** On tree trunks, commonly Acacia melanoxylon, rarely on rocks.

**Exposure:**

**Conservation**

**Sarcochilus hillii**

**(Spiranthes australis)**

Ladies’ Tresses

**Life history**

**Growth form:** Semi-pendant evergreen epiphytic, or rarely an epilithic herb with creeping roots, 1 or rarely 2 or more shoots and stems to 7 cm long.

**Vegetative spread:** Rarely, by branching.

**Longevity:**

**Primary juvenile period:**

**Flowers:** Green to yellow, November–December.

**Fruit/seed:** Capsule with numerous minute seeds.

**Dispersal, establishment & growth:**

**Fire response:**

**Interaction with other organisms:**

**Distribution**

**Status/origin:** Native.

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

**Distribution Sydney area:** Mainly coastal.

**Select locations:** CC: Mountain Lagoon, Waterfall, Bulli Pass. CT: Wentworth Falls.

**Habitat**

**Habitat:** Gullies, creekbanks.

**Altitude:** 0–600 m

**Annual rainfall:** 1000–1600 mm

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

**Vegetation:** Rainforest

**Substrate:** On trees e.g. *Trochocarpa laurina*, more rarely on rocks.

**Exposure:**

**Conservation**

**Reported in Royal NP.**

**Spiranthes sinensis**

**(Spiranthes australis)**

Ladies’ Tresses

**Life history**

**Growth form:** Slender deciduous terrestrial herb, with fleshy roots, stem 16–50 cm high, and basal leaves.

**Vegetative spread:** No (McIntyre et al. 1995), not stoloniferous (Pridgeon & Chase 1995).

**Longevity:** Short-lived, 5 years (P. Hind pers. comm.).

**Primary juvenile period:**

**Flowers:** Bright pink in dense spiral, mainly November–March. Pollinated by small native bees but apparently self-pollinating forms are not uncommon around Sydney and probably elsewhere (Bishop 1996).

**Fruit/seed:** Capsule with numerous minute seeds.

**Dispersal, establishment & growth:** Diaspore mobile (McIntyre et al. 1995).

**Fire response:**

**Interaction with other organisms:**

**Distribution**

**Status/origin:** Native.

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

**Distribution Sydney area:** Widespread.

**Select locations:** CC: Bilpin, Waterfall, Mt Keira. CT: Hill Top, Lidsdale, Woodford, Luthers Creek, Wingecarribee Swamp, Penrose, Fitzroy Falls.

**Habitat**

**Habitat:** Boggy places, wetland margins, creeks.

**Altitude:** 0–1200 m

**Annual rainfall:** 1000–1600 mm

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

**Vegetation:** Woodland e.g. with *Eucalyptus radiata*, *E. sclerophylla*; wet heath; montane sedgeland e.g. with *Lythrum salicaria*, *Centella asiatica*, *Phragmites australis*. 
**Tetrabaculum melaleucaphilum**  
(*Dendrobium melaleucaphilum*)

**Spider Orchid**

**Life history**

**Growth form:** Epiphytic or epilithic evergreen herb, with succulent stems.

**Vegetative spread:** Yes, rhizomatous (P. Weston pers. comm.).

**Longevity:** Indefinite.

**Primary juvenile period:**

**Flowers:** Green to deep dull yellow, September–October.

**Fruit/seed:** Capsule with numerous minute seeds.

**Dispersal, establishment & growth:**

**Fire response:**

**Interaction with other organisms:**

**Distribution**

**Status/origin:** Native.

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

**Distribution Sydney area:** Sporadic.

**Select locations:** CC: Somersby, Waterfall, Helensburgh, Otford, Mt Kembla.

**Substrate:** Loamy sand to clay on alluvium, sandstone, low nutrients, moist. Recorded on saline sites in western NSW (Semple 1993).

**Exposure:**

**Conservation**

Conservation status unknown. Reported in Kanangra Boyd NP, Royal NP.

**Habitat**

Habitat: Along streams.

**Altitude:** 0–300 m  
**Annual rainfall:** 1200–1400 mm

**Typical local abundance:**

**Vegetation:** Rainforest

**Substrate:** On rainforest trees.

**Exposure:**

**Conservation**

Regionally rare in Illawarra region (Mills 1988), the southern geographical limit.

**Tetrabaculum tetragonum**  
(*Dendrobium tetragonum*)

**Tree Spider Orchid**

**Life history**

**Growth form:** Epiphytic evergreen herb with succulent stems.

**Vegetative spread:** Yes, rhizomatous (P. Weston pers. comm.).

**Longevity:** Indefinite.

**Primary juvenile period:**

**Flowers:** White to deep dull yellow, September–October. Provides a ‘big bang’ effect or gregarious flowering through visual display of over 1000 flowers per plant and by fragrance (Van de Cingel 2001). Self-infertile, pollinated by *Trigona* bees (Jones 1983).

**Fruit/seed:** Capsule with numerous minute seeds.

**Dispersal, establishment & growth:**

**Fire response:**

**Interaction with other organisms:**

**Distribution**

**Status/origin:** Native.

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

**Distribution Sydney area:** Widespread.

**Substrate:** Frequently on host stems. Eaten by Swamp Wallaby.

**Exposure:**

**Conservation**

Kiama is southern geographical limit, conservation status unknown.

**Thelychiton gracilicaulis**  
(*Dendrobium gracilicaule*)

**Rock Lily**

**Life history**

**Growth form:** Epiphytic or epilithic evergreen herb, with succulent cylindrical stems and creeping roots.

**Vegetative spread:** Yes, rhizomatous (P. Weston pers. comm.).

**Longevity:** Indefinite.

**Primary juvenile period:**

**Flowers:** Dull yellow, September–October. Probably pollinated by *Trigona* bees (Jones 1983).

**Fruit/seed:** Capsule with numerous minute seeds.

**Dispersal, establishment & growth:**

**Fire response:**

**Interaction with other organisms:**

**Distribution**

**Status/origin:** Native.

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

**Distribution Sydney area:** Sporadic.

**Select locations:** CC: Gosford, Wisemans Ferry, Kiama.

**Habitat**

Habitat: On rainforest trees and occasionally on rocks.

**Altitude:** 0–200 m  
**Annual rainfall:** 800–1400 mm

**Typical local abundance:**

**Vegetation:** Rainforest

**Substrate:** On rainforest trees.

**Exposure:**

**Conservation**

Kiama is southern geographical limit, conservation status unknown.

**Thelychiton speciosus**  
(*Dendrobium speciosum*)

**Rock Lily**

**Life history**

**Growth form:** Epiphytic or epilithic robust evergreen herb with erect to spreading succulent stems and creeping or aerial roots; leaves thick and leathery.

**Vegetative spread:** Yes, rhizomatous (P. Weston pers. comm.).

**Longevity:** Indefinite.

**Primary juvenile period:**

**Flowers:** Green, dull yellow and cream with reddish lines, September–October.

**Fruit/seed:** Capsule with numerous minute seeds.

**Dispersal, establishment & growth:** No special morphology for dispersal (Westoby et al. 1990).

**Fire response:**

**Interaction with other organisms:**

**Distribution**

**Status/origin:** Native.

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

**Distribution Sydney area:** Widespread.
**Thelychiton tarberi** *(Dendrobium tarberi)*

Rock Lily

**Life history**

- **Growth form:** Epilithic or epiphytic evergreen herb, with succulent stems 20–100 cm long. Sometimes hybridizes with *D. gracilicaule*.
- **Vegetative spread:** Yes, rhizomatous (P. Weston pers. comm.).
- **Longevity:** Indefinite.
- **Primary juvenile period:**
- **Fruit/seed:** Capsule with numerous, minute seeds.
- **Fire response:**
- **Interaction with other organisms:** Shoots and inflorescences eaten by *Stethopachys formosa* Baly (P. Weston pers. comm.).

**Distribution**

- **Status/origin:** Native.
- **Botanical subregions:** NC CC NT CT; Qld, Vic, Tas., S.A., N.Z.  
- **Distribution sydney area:** Gawnsford area.
- **Select locations:** CC: Peats Ridge.

**Habitat**

- **Habitat:**
- **Altitude:** 0–200 m  
- **Annual rainfall:** 1200 mm
- **Typical local abundance:** Frequent–occasional.
- **Vegetation:** Rainforest; open-forest
- **Substrate:** On trees e.g. *Ficus macrophylla*, and rocks.
- **Exposure:**

**Conservation**

Peats Ridge is southern geographical limit, conservation status unknown.

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**Thelymitra carnea** *(Thelymitra retecta)*

Tiny Sun Orchid, Pink Sun Orchid

**Life history**

- **Growth form:** Seasonally deciduous terrestrial herb, with paired tuberoids, a linear leaf to 15 cm long and stem to 35 cm high, with up to 4 flowers.
- **Vegetative spread:** No.
- **Longevity:** Indefinite.
- **Primary juvenile period:**
- **Flowers:** Pink to reddish or rarely yellow, opening on hot, sunny often humid days (Bishop 1996), September–November.
- **Fruit/seed:** Capsule with numerous minute seeds.
- **Fire response:**
- **Interaction with other organisms:**

**Distribution**

- **Status/origin:** Native.
- **Botanical subregions:** NC CC SC NT CT ST; Vic., Tas., S.A.
- **Distribution sydney area:** Mainly Upper Blue Mountains.
- **Select locations:** CC: O’Hares Creek. CT: Newnes Plateau, Mt Irvine, Mt Victoria, Blackheath.

**Habitat**

- **Habitat:** Ridges, seepage areas. Sedgeland swamp (Calder & Sydes 1993).
- **Altitude:** 400–1000 m  
- **Annual rainfall:** 1000–1200 mm
- **Typical local abundance:** Frequent–occasional.
- **Vegetation:** Open-forest e.g. with *Eucalyptus sieberi*, *E. piperita*, *E. maccarthyana*.
- **Substrate:** Sandy soil on sandstone, laterite, low nutrients, moist.
- **Exposure:**

**Conservation**

Conservation status unknown.

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**Thelymitra cyanea** *(Thelymitra retecta)*

Veined Sun Orchid

**Life history**

- **Growth form:** Seasonally deciduous terrestrial herb, with paired tuberoids, a thick to fleshy linear leaf 25 cm long and stem to 50 cm high.
- **Vegetative spread:** No.
- **Longevity:** Indefinite.
- **Primary juvenile period:**
**Dotted Sun Orchid (Thelymitra ixioides var. ixioides)**

**Life history**

**Growth form:** Seasonally deciduous terrestrial herb, with paired tubers, variable, with narrow leaf to 20 cm long and stem to 60 cm high with up to 9 flowers.

**Vegetative spread:** No.

**Longevity:** Indefinite.

**Primary juvenile period:**

**Distribution**

**Status/origin:** Native.

**Botanical subregions:** CT ST; Vic., Tas., S.A., N.Z.

**DISTRIBUTION SYDNEY AREA:** Southern Highlands, upper Blue Mountains.

**Select locations:** CC: Woronora Plateau. CT: Clarence, Blackheath, Penrose.

**Habitat**

**Habitat:** Bogs, beside streams or in soaks and swamps (J. Jeans pers. comm.).

**Altitude:** 800–1100 m  
**Annual rainfall:** 1000 mm

**Typical local abundance:** Rare.

**Vegetation:** Heathy *Sphagnum* bogs. Moist alpine heathlands e.g. with *Baeckea gunniana* (Bishop 1996).

**Substrate:** Peaty soils on sandstone, low nutrients, moist.

**Exposure:**

**Conservation**

Conservation status unknown. Reported in Blue Mountains NP.

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**Thelymitra pulchella**

**Life history**

**Growth form:** Seasonally deciduous terrestrial herb to 60 cm high, with fleshy dark green leaf to 12 cm long. *Thelymitra pulchella* is now considered as NZ endemic (J. Jeans pers. comm.).

**Vegetative spread:** Frequent.

**Strata:** Sphagnum bogs, open-forest among grasses and sedges.

**Substrate:** Sandy soil on sandstone, low nutrients.

**Exposure:**

**Conservation**

Conservation status unknown. Reported in Botany Bay NP.

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**Thelymitra erosa** (subsp. *alpicola*, J. Jeanes ms)

*(Thelymitra pulchella)*

**Life history**

**Growth form:** Seasonally deciduous terrestrial herb to 60 cm high, with fleshy dark green leaf to 12 cm long. *Thelymitra ixioides* is now regarded as NZ endemic (J. Jeans pers. comm.).

**Vegetative spread:** Frequent.

**Strata:** Sphagnum bogs, open-forest among grasses and sedges.

**Substrate:** Peaty soils on sandstone, low nutrients, moist.

**Exposure:**

**Conservation**

Conservation status unknown. Reported in Blue Mountains NP.

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**Thelymitra nuda**

**Life history**

**Growth form:** Seasonally deciduous terrestrial herb, with paired tubers, a stout fleshy leaf 10–30 cm long and stem 30–65 cm high, with up to 15 flowers.

**Vegetative spread:** No.

**Longevity:** Indefinite.

**Primary juvenile period:**

**Distribution**

**Status/origin:** Native.

**Botanical subregions:** NC CC SC CT ST; Qld, Vic., Tas., S.A., N.Z.

**Distribution Sydney Area:** Coast, Blue Mountains.

**Select locations:** CC: Wyee, Ourimbah, Forrester Beach, Springwood, Cowan, Mt Colah, Pittwater, Frenchs Forest, Lane Cove, Manly, Como (1887), Waterfall. CT: Corryong Range, Wallerawang, Blackheath, Wentworth Falls, Woodford, Mittagong.

**Habitat**

**Habitat:** Often along roadsides.

**Altitude:** 0–1000 m  
**Annual rainfall:** 1000–1400 mm

**Typical local abundance:** Frequent.

**Vegetation:** Heath; open-forest.

**Substrate:** Sandy soil on sandstone, low nutrients.

**Exposure:**

**Conservation**

Conservation status unknown.

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**Thelymitra malvina**

**Life history**

**Growth form:** Seasonally deciduous, slender to robust terrestrial herb, with paired tubers, a stout fleshy leaf 10–30 cm long and stem 30–65 cm high, with up to 15 flowers.

**Vegetative spread:** No.

**Longevity:** Indefinite.

**Primary juvenile period:**

**Distribution**

**Status/origin:** Native.

**Botanical subregions:** CC; Qld, Vic.; ?Tas., N.Z.

**Distribution Sydney Area:** Sporadic.

**Select locations:** CC: Kurnell.

**Habitat**

**Habitat:** Seepage areas.

**Altitude:** 0–100 m  
**Annual rainfall:** 1400 mm

**Typical local abundance:** Frequent.

**Vegetation:** Tall open-forest; seepage areas in heath e.g. with *Melaleuca nodosa*, *Baeckea imbricata*.

**Substrate:** Sandy soil on sandstone, low nutrients.

**Exposure:**

**Conservation**

Conservation status unknown. Reported in Botany Bay NP.
**Thelymitra media** var. *media*

**Tall Sun Orchid**

**Life history**

**Growth form:** Seasonally deciduous terrestrial herb, with paired tubers, a lanceolate leaf to 30 cm long and stems to 90 cm high, with up to 25 flowers.

**Vegetative spread:** No.

**Longevity:** Indefinite.

**Primary juvenile period:**

**Flowers:** Blue with streaks of pink, opening on hot, sunny often humid days (Bishop 1996), October–January, especially after fire.

**Fruit/seed:** Capsule with numerous minute seeds.

**Dispersal, establishment & growth:**

**Fire response:**

**Interaction with other organisms:**

**Distribution**

**Status/origin:** Native.

**Botanical subregions:** CC SC; Vic., S.A.

**Select locations:** CC: Lindfield, Uloola Track. CT: Fitzroy Falls.

**Habitat**

**Altitude:** 0–700 m

**Annual rainfall:** 1200–1400 mm

**Typical local abundance:** Occasional.

**Vegetation:** Swamp margins.

**Substrate:** Sandy soil on sandstone, low nutrients, moist.

**Exposure:**

**Conservation**

Hawkesbury River is northern geographical limilt. Conservation status unknown. Reported in Royal NP.

**Thelymitra merraniae**

**Sun Orchid**

**Life history**

**Growth form:** Seasonally deciduous terrestrial herb to 20 cm high, with linear leaf to 12 cm long. Intergrades with *T. laxoides* and maybe a hybrid (Harden 1993).

**Vegetative spread:**

**Longevity:**

**Primary juvenile period:**

**Flowers:** Pale greenish blue, opening on hot, sunny often humid days (Bishop 1996). October–November.

**Fruit/seed:** Capsule with numerous minute seeds.

**Dispersal, establishment & growth:**

**Fire response:**

**Interaction with other organisms:**

**Distribution**

**Status/origin:** Native.

**Botanical subregions:** CC SC; Vic., S.A.

**Select locations:**

**Habitat**

**Altitude:**

**Annual rainfall:**

**Typical local abundance:**

**Vegetation:** Heath; woodland e.g. with Angophora costata, Allocasuarina torulosa.

**Substrate:** Sandy soil on sandstone, low nutrients, well-drained.

**Exposure:**

**Conservation**

**Thelymitra nuda**

**Plain Sun Orchid**

**Life history**

**Growth form:** Seasonally deciduous terrestrial herb, with paired tuberoids, a narrow leaf 10–30 cm long and stems to 60 cm high, with up to 20 sweetly fragrant flowers, often forming extensive colonies; extremely variable.

**Vegetative spread:** No.

**Longevity:** Indefinite.

**Primary juvenile period:**

**Flowers:** Blue, white to pink, or mauve to deep violet, sweetly fragrant, opening on hot, sunny often humid days (Bishop 1996), August–November. Flowers open when temperature exceeds 20°C, are commonly visited by syrphid flies but pollinated by female bees, Lasiosglossum sp., that apply thoracic vibration; *T. nuda* appears to mimic blue-purple flowered plants that are typically buzz-pollinated e.g. *Thysanotus patersonii*, *Dichopogon fimbriatus* (Bernhardt & Burns-Balogh 1986). Also self-pollinating (Van der Cingel 2001).

**Fruit/seed:** Capsule with numerous minute seeds.

**Dispersal, establishment & growth:**

**Fire response:** Resprouts (Fox 1988).

**Interaction with other organisms:**

**Distribution**

**Status/origin:** Native.

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

**Select locations:** CC: Corrabare SF, Jamberoo Mountain.

**Habitat**

**Conservation**

Conservation status unknown.

**Thelymitra pauciflora** (complex)

**Slender Sun Orchid**

**Life history**

**Growth form:** Seasonally deciduous terrestrial herb, with paired tuberoids, a narrow leaf to 20 cm long and stems to 50 cm high, with up to 25 but usually about 4 flowers.

**Vegetative spread:** Yes, local vegetative spread (P. Hind pers. comm.) in some populations (P. Weston pers. comm.).

**Longevity:** Indefinite.

**Primary juvenile period:**

**Flowers:** Greyish blue to bright blue, white to pink, or purple, August–January. Flowers open on hot, sunny often humid days, a self-pollinating species that has developed many distinctive forms (Bishop 1996, Bates 1999).

**Fruit/seed:** Capsule with numerous minute seeds.

**Dispersal, establishment & growth:** Summer-dormant species producing vegetative shoots from bulbs during winter, no seedlings recorded up to 1 year after fire (Purdie 1977).

**Fire response:** Probably resprouted, green fruit 10 months after high intensity fire (1/1994 at Lane Cove and Narrabeen) (P. Kubiak pers. comm.).

**Interaction with other organisms:** Palatable to rabbits (Leigh et al. 1987). Tubers eaten by Aboriginal people (Herb. note 1981).
Thelymitra venosa

Large Veined Sun Orchid

Life history

GROWTH FORM: Seasonally deciduous terrestrial herb to 70 cm high, with tubers and a thick to fleshy linear leaf to 60 cm long; stem to 70 cm high with up to 6 flowers.

VEGETATIVE SPREAD: Rhizomatous, forming compact clumps (P. Weston pers. comm.).

FIRE RESPONSE:
INTERACTION WITH OTHER ORGANISMS:

Distribution

STATUS/ORIGIN: Native.

BOTANICAL SUBREGIONS: CC CT.

SELECT LOCATIONS: CC: Castlecove (1940), Mt Kembla (1891).

CT: Mt Banks, Blackheath, Katoomba, Wentworth Falls, Lawson.

Habitat

HABITAT: Damp areas, creek edges.

ALTITUDE: 0–1000 m

TYPICAL LOCAL ABUNDANCE: Frequent.

VEGETATION: In damp clumps of cushion mosses or in low vegetation e.g. heath.

SUBSTRATE: Peaty soil over sandstone, low nutrients.

EXPOSURE:

Conservation

Local endemic, conservation status unknown. Reported in Blue Mountains NP.

Tropolis aemula (Dendrobium aemulum)

Ironbark Orchid, White Feather Orchid

Life history

GROWTH FORM: Epiphytic evergreen herb, with radiating cylindrical, succulent stems, leathery leaves and warty roots. Three ‘ecological’ forms recognised in NSW, Ironbark form: usually on Eucalyptus paniculata and close relatives; Brush Box form: almost exclusively on Lophostemon confertus; rainforest form: on a variety of rainforest trees, particularly Backhousia myrtifolia (Harden 1993).

VEGETATIVE SPREAD: Rhizomatous, forming compact clumps (P. Weston pers. comm.).

LONGEVITY: Indefinite.

PRIMARY JUVENILE PERIOD:

FLOWERS: White to pale yellow but often aging to pink, inflorescence 2–10 cm long, July–October.

FRUIT/SEED: Capsule with numerous minute seeds.

DISPERSAL, ESTABLISHMENT & GROWTH:

FIRE RESPONSE:

INTERACTION WITH OTHER ORGANISMS:

Distribution

STATUS/ORIGIN: Native.

BOTANICAL SUBREGIONS: NC CC SC; Qld.

DISTRIBUTION SYDNEY AREA: Mainly coastal.

SELECT LOCATIONS: CC: Upper Colo, Somersby Falls, Mill Creek, Hornsby, Woodford, Glenbrook, Hunters Hill.

Habitat

HABITAT:

ALTITUDE: 0–500 m

TYPICAL LOCAL ABUNDANCE: Frequent.

VEGETATION: Gallery rainforest e.g. with Ceratopetalum apetalum, Tristaniopsis laurina, Backhousia myrtifolia.

SUBSTRATE: Epiphyte on trees e.g. Ceratopetalum apetalum, Backhousia myrtifolia.

EXPOSURE:

Conservation

Conservation status unknown. Reported in Blue Mountains NP.

Philydrum lanuginosum

Frogsmouth

Life history

GROWTH FORM: Erect, rhizomatous, perennial aquatic herb to 2 m high; leaves mostly basal, linear to 60 cm long.

VEGETATIVE SPREAD: No.

LONGEVITY: Probably short-lived

PRIMARY JUVENILE PERIOD:

FLOWERS: Yellow, November–March, peak March.

FRUIT/SEED: Oblong capsule, about 10 mm long, with many tiny seeds, matures Jan–May.

DISPERSAL, ESTABLISHMENT & GROWTH: Diaspore: seed, probably wind-dispersed.

FIRE RESPONSE: Probably resprouted, fruiting 5 months after high intensity fire (1/1994 at Narrabeen (P. Kubiak pers. comm.).

INTERACTION WITH OTHER ORGANISMS:

Distribution

STATUS/ORIGIN: Native.

BOTANICAL SUBREGIONS: NC CC SC NT CT CWS SWP; Qld, Vic., Tas., S.A., W.A., N.Z.

DISTRIBUTION SYDNEY AREA: Widespread.

SELECT LOCATIONS: CC: Morisset, Mellog Swamp, MacDonald River, Wyong, Tuggerah, Annangrove, West Head, Hornsby, Agnes Banks, Shane Park, Glenfield, Glenbrook, Botany, Fairy Meadow, Berry.

CT: upper Cudgegong River, Paddys River, Mittagong.
**Thirlmere Lakes, Mt Cambewarra.**

**F RUIT /SEED :** pollinate (Bernhardt 1995). Of all flowers on an inflorescence set fruit suggesting they do not self-pollinate. Lasioglossum, Nomia Exoneura female bees primarily in the families Anthophoridae (Viminaria juncea, Chorizandra cymbaria, Typha, Persicaria).

**BOTANICAL SUBREGIONS :** NC CC NT CT; Qld.

**F IRE RESPONSE :** Resprouts at base or below (Fox 1988), (Bantry Bay, one month (H. Knowles, Gumnuts 43). Requires no pre-treatment but is sometimes slow to germinate e.g. (P. Kubiak pers. comm.). Food plant of butterfly larvae Todoxia peron (Common & Waterhouse 1981).

**Habitat**

Habitat: Wetlands, margins of ponds.

**ALTITUDE :** 0–800 m  **ANNUAL RAINFALL :** 700–1400 mm  
**TYPICAL LOCAL ABUNDANCE :** Occasional.

**Vegetation :** With other wetland species e.g. Eleocharis spachelata, Viminaria juncea, Chorizandra cymbaria, Typha, Persicaria.

**Substrate :** Sandy alluvium, low to medium nutrients, water table mostly high, moisture supply intermittent, fresh.

**Exposure :** Full sun.

**Conservation**

Conservation status unknown.

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**Dianella caerulea var. assera**

**Life history**

Growth form: Perennial, tufted herb to 1.8 m high, scaly stems with extra shoots from leaf sheaths, strap-like leaves to 75 cm long, and fibrous roots.

Vegetative spread: Primary Juvenile Period:


**Fire response:**

Interaction with other organisms:

Distribution

Status/origin: Native.

Botanical Subregions: NC CC SC NT CT CWS; Qld, Vic., Tas.

Select locations: CC: Morisset, Hornsby, Avalon, Rose Bay, Maroubra, Oatley, Hill Top, Kangaroo Valley. CT: Mount Tomah, Mt Solitary, Fitzroy Falls, Bundanoon.

**Habitat**

Habitat: Hillsides.

**ALTITUDE :** 0–1000 m  **ANNUAL RAINFALL :** 900–1400 mm  
**TYPICAL LOCAL ABUNDANCE :** Frequent.

**Vegetation :** Open-forest e.g. with Eucalyptus saligna, Angophora floribunda; heath.

**Substrate :** Clay soils on shale, volcanics, medium nutrients.

**Exposure :** Full sun.

**Conservation**

Conservation status unknown. Reported in Blue Mountains NP.

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**Dianella caerulea var. cinerascens**

**Life history**

Growth form: Perennial, tufted herb, with stems less than 10 cm long, fibrous roots.

Vegetative spread:

Primary Juvenile Period:

**Dispersal, establishment & growth :** Probably vertebrate-dispersed.

**Fire response:**

Interaction with other organisms:

Distribution

Status/origin: Native.

Botanical Subregions: NC CC CT NWS CWS.

Select locations: CC: Laguna, Putty.

**Habitat**

Habitat: Hillsides, rock outcrops.

**ALTITUDE :** 0–400 m  **ANNUAL RAINFALL :** 700–800 mm  
**TYPICAL LOCAL ABUNDANCE :** Frequent.

**Vegetation :** Eucalypt open-forest and woodland.

**Substrate :** Shallow sandy loam on sandstone, low nutrients.

**Exposure :** Full sun.

**Conservation**

Conservation status unknown.

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**Dianella caerulea var. caerulea**

**Life history**

Growth form: Tufted perennial herb, to 0.5 m high, with fibrous roots.

Vegetative spread:

No.

Primary Juvenile Period:

**Flowers :** Mid to dark blue, September–November.

**Fruit/Seed :** Berry 7–12 mm long, November–December.

**Dispersal, establishment & growth :** Diaspore: fruit, vertebrate-dispersed e.g. Currawongs, seeds attractive to ants, flesh and some seeds consumed in situ (French & Westoby 1996). Germination may be seasonal triggered by temperature/humidity (K. Townsend, Gumnuts 92).

**Fire response:** Resprouts at base or below (Fox 1988), (Bantry Bay, Laguna, Putty). Secondary juvenile period 11–12 months after high intensity fire (1/1994 at Lane Cove) (P. Kubiak pers. comm.).

Interaction with other organisms:

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**Dianella caerulea var. producta**

**Life history**

Growth form: Perennial, tufted herb to 1.3 m high, conspicuously elongated scaly stems with extra shoots from leaf sheaths on old stems, fibrous roots.

Vegetative spread:

Primary Juvenile Period:

**Flowers :** Greenish white to bright blue, October–December. Probably pollinated by native bees gathering pollen (P. Kubiak pers. comm.).

**Fruit/Seed :**

**Dispersal, establishment & growth :** Probably vertebrate-dispersed.

**Fire response:**

Interaction with other organisms:
**Dianella caerulea** var. *protensa*

**Life history**
*Growth form:* Perennial, tufted herb to 0.5 m high, with elongated scaly stems, fibrous roots.

*Vegetative spread:*

*Longevity:*

*Primary juvenile period:*

*Flowers:* Pale blue

*Fruit/seeds:* Berry 7–12 mm long.

*Dispersal, establishment & growth:* Probably vertebrate-dispersed.

*Fire response:*

*Interaction with other organisms:*

**Distribution**

*Status/origin:* Native.

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

*Distribution Sydney area:* Sporadic.

*Select locations:* CC: Hill Top. CT: Mount Tomah.

**Habitat**

*Habitat:* Rocky hillsides, gullies, rock cracks.

*Altitude:* 0–1000 m

*Annual rainfall:* 1000–1400 mm

*Typical local abundance:* Frequent–occasional.

*Vegetation:* Open-forest e.g. with *Angophora costata, Eucalyptus radiata, E. sieberi, E. oreades.*

*Substrate:* Sandy soil on sandstone, low nutrients, well-drained.

*Exposure:*

**Conservation**

Conservation status unknown.

**PHORMIACEAE (LILIACEAE)**

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**Dianella congesta**

**Life history**

*Growth form:* Perennial herb to 1 m high, with fibrous roots.

*Vegetative spread:*

*Longevity:*

*Primary juvenile period:*

*Flowers:* Very pale to mid-blue

*Fruit/seeds:* Berry 6–12 mm long.

*Dispersal, establishment & growth:* Probably vertebrate-dispersed.

*Fire response:*

*Interaction with other organisms:* An effective sand-binder (Harden 1993).

**Distribution**

*Status/origin:* Native.

*Botanical subregions:* NC CC SC; Qld.

*Distribution Sydney area:* Coast.

*Select locations:* CC: Wamberal (1911), Robinsville Beach, Bulli (1891).

**Habitat**

*Habitat:* Coastal sand dunes.

*Altitude:* 0–20 m

*Annual rainfall:* 1200–1400 mm

*Typical local abundance:* Frequent.

*Vegetation:* e.g. with *Lomandra longifolia.*

*Substrate:* Coastal sand dunes, low nutrients.

*Exposure:*

**Conservation**

Rare, last collected in 1911 at Wamberal.

**PHORMIACEAE (LILIACEAE)**

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**Dianella crinoides**

**Life history**

*Growth form:* Perennial, tufted herb to 0.8 m high, roots fleshy-fibrous.

*Vegetative spread:*

*Longevity:*

*Primary juvenile period:*

*Flowers:* Mid- to dark blue, November–December.

*Fruit/seeds:* Berry 6–8 mm long, spring–summer.

*Dispersal, establishment & growth:* Probably vertebrate-dispersed.

*Fire response:*

*Interaction with other organisms:*

**Distribution**

*Status/origin:* Native.

*Botanical subregions:* NC CC SC; Qld.

*Distribution Sydney area:* Coast.

*Select locations:* CC: Barrack Point, Kiama.

**Habitat**

*Habitat:* Coastal headlands.

*Altitude:* 0–100 m

*Annual rainfall:* 1200 mm

*Typical local abundance:* Occasional.

*Vegetation:* Headland grassland.

*Substrate:* Loamy grey soils, rock crevices on basalt, high nutrients.

*Exposure:*

**Conservation**

Conservation status unknown. Reported from Killalea State Park in 1996.

**PHORMIACEAE (LILIACEAE)**

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PHORMIACEAE (LILIACEAE)

Dianella longifolia var. longifolia (Dianella laevis)

Life history
Growth form: Perennial, tufted herb, with fleshy-fibrous or tuberous roots; leaves to 80 cm long.
Vegetative spread: No (McIntyre et al. 1995).
Longevity: Indefinite.
Primary juvenile period:
Flowers: Whitish to dark blue or blue-green, mainly October–December.
Fruit/seed: Berry 3–7 mm long, mature, mainly November–January.
Dispersal, establishment & growth: Diaspore vertebrate-dispersed by ingestion (McIntyre et al. 1995). Germination takes approx. 4 months (with 52 seedlings per gram seed); germinates well with or without fermentation (Greening Australia 1996b).
Fire response: Resprouts.
Interaction with other organisms: Leaves used by Aboriginal people for making baskets (Cribb & Cribb 1982).

Distribution
Status/origin: Native.
Botanical subregions: NC CC SC NT CT ST NWS SWS NWP; all states.
Distribution Sydney area: Widespread.
Select locations: CC: Grose Vale, Barrenjoey, Richmond, Marayong, Kemps Creek, Milperra, Rockdale, Campbelltown, Menangle, Bass Point, Kangaroo Valley. CT: Hampton, Yerranderie, Bowral.

Habitat
Habitat: Creeks, riverbanks, coastal headlands.
Altitude: 0–1100 m
Annual rainfall: 700–1200 mm
Typical local abundance: Frequent–occasional.
Vegetation: woodland e.g. with Eucalyptus moluccana, E. tereticornis, E. dives, E. farinata with grassy understory; coastal headland grassland.
Substrate: Clay soils on shale, alluvium, medium nutrients, well-drained.
Exposure: No (McIntyre et al. 1995).

Conservation
Conservation status unknown.

Dianella longifolia var. stenophylla

Life history
Growth form: Perennial, tufted herb to 0.5 m high, with strap-like leaves to 80 cm long and tuberous roots.
Vegetative spread: Indefinite.
Primary juvenile period:
Flowers: Pale blue to whitish, October–November.
Fruit/seed: November–February.
Dispersal, establishment & growth: Diaspore vertebrate-dispersed by ingestion (McIntyre et al. 1995).
Fire response: Regrowth from rhizomes, no seedlings recorded more than 1 year after fire (Purdie 1977, Vigilante et al. 1998). Flowering 94 weeks after high intensity fire (1/1994 at Lane Cove) (P. Kubiak pers. comm.).

Interaction with other organisms: Local endemic species, conservation status unknown.

Distribution
Status/origin: Native.
Botanical subregions: CC CT.
Distribution Sydney area: Blue Mountains–Wollombi.

Habitat
Habitat: Dry ridges.
Altitude: 0–1000 m
Annual rainfall: 800–1400 mm
Typical local abundance: Occasional.
Vegetation: Woodland e.g. with Angophora costata, Corymbia gummifera, Corymbia eximia, Eucalyptus punctata, E. sapsosifolia.
Substrate: Sandy soils on sandstone, low nutrients, well-drained.
Exposure: No (McIntyre et al. 1995).

PHORMIACEAE (LILIACEAE)

Dianella revoluta var. revoluta

Life history
Growth form: Perennial tufted herb to 1 m high, with fibrous roots and strap-like leaves to 85 cm long, often glaucous, sometimes reddish at base.
Vegetative spread: Clump-forming to 1.5 m diam.
Longevity: Indefinite.
Primary juvenile period:
Flowers: Mid to dark blue or violet, October–November. Probably pollinated by native bees gathering pollen (P. Kubiak pers. comm.).
Fruit/seed: Blue berry 4–10 mm long. Mature December–January (Greening Australia 1996b). Viability of fresh seed 80% (Vigilante et al. 1998).
Dispersal, establishment & growth: Diaspore vertebrate-dispersed by ingestion (McIntyre et al. 1995). Germination takes approx. 2 years (with 66 seedlings per gram seed); seed should be smoked for 1 hour (Greening Australia 1996b,c).
Fire response: Regrowth from rhizomes, no seedlings recorded more than 1 year after fire (Purdie 1977, Vigilante et al. 1998). Flowering 94 weeks after high intensity fire (1/1994 at Lane Cove) (P. Kubiak pers. comm.).

Interaction with other organisms: Local endemic species, conservation status unknown.

Distribution
Status/origin: Native.
Botanical subregions: NC CC SC NT ST NWS SWS NWP SWP; Qld, Vic., Tas., S.A., W.A.
Distribution Sydney area: Widespread.
**Habitat**

**Habitat**: Eucalypt woodland, seacliffs.

**Altitude**: 0–300 m  
**Annual rainfall**: 700–1400 mm  
**Typical local abundance**: Frequent.

**Vegetation**: Open-forest e.g. with *Eucalyptus punctata*, *Syncarpia glomulifera*; woodland e.g. with *Eucalyptus haemastoma*, *Corymbia gummifera*, *E. fibrosa*, *E. sclerocephala*; seacliff scrub e.g. with *Banksia integrifolia*.

**Substrate**: Sandy to clay soil on sandstone, sand, shale, low nutrients, well-drained.

**Exposure**:

**Conservation**

Conservation status unknown. Reported in Sydney Harbour NP.

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**Dianella tasmanica**

**Life history**

**Growth form**: Perennial tufted herb to 0.9 m high, to 0.3 m high, roots fibrous, leaves to 95 cm long.

**Vegetative spread**: 

**Longevity**:

**Primary juvenile period**:

**Flowers**: Lavender to violet, October.  
**Fruit/seed**: Berry 12–25 mm long. Mature January–February (Greening Australia 1996b).

**Fire response**:

**Interaction with other organisms**:

**Distribution**

**Status/origin**: Native.  
**Botanical subregions**: CC SC NT CT ST; Vic., Tas.  
**Distribution Sydney area**: Mainly Southern Highlands and Upper Blue Mountains.

**Select locations**: CC: Yengo. CT: Hassans Walls, Mount Tomah, Blackheath, Boyd Plateau, Nattai Creek, Burrawang, Cambewarra Mountain, Wingello.

**Habitat**

**Habitat**: Creekbanks.

**Altitude**: 100–1200 m  
**Annual rainfall**: 1000–1400 mm  
**Typical local abundance**: Frequent–occasional.

**Vegetation**: Open-forest e.g. with *Eucalyptus agglomerata*, *E. sclerocephala*, *E. pauciflora*, *E. dalrympleana*, *E. radiata*.

**Substrate**: Shallow, often sandy alluvial soils, low nutrients.

**Exposure**:

**Conservation**

Conservation status unknown. Reported in Yengo NP, Wollomi NP.

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**Stypandra glauca**

**Life history**

**Growth form**: Tufted perennial herb, usually 1.5 m high, often flowering when less than 30 cm high, variable according to stage of growth.

**Vegetative spread**: 

**Longevity**:

**Primary juvenile period**:

**Flowers**: Deep blue to white, July–November, peak October.  
**Fruit/seed**: Black capsule 3–12 mm long, with seeds 1.5–3 mm long. Mature November–December. Viability of fresh seed 71% (Vigilante et al. 1998).

**Fire response**:

**Dispersion, establishment & growth**:

**Interaction with other organisms**: May be toxic to livestock if eaten when flowering (Harden 1993).

**Distribution**

**Status/origin**: Native.  
**Botanical subregions**: NC CC SC NT CT ST NWS CWS SWS NWP SWP NFWP; Qld, Vic., S.A., ?N.Cal.  
**Distribution Sydney area**: Widespread.

**Select locations**: CC: Newnes, Sackville, Wheeny Creek, Yarramundi, Grose River, Bankstown, Ingleburn, Cobittty, Menangle, Burragorang. CT: Currant Mountain Gap, Cargo, Capertee, Bathurst, Blackheath, Jenolan Caves, Mt Werong, Hill Top, Bowral.

**Habitat**

**Habitat**: Hillsides, moist gullies, ridges.

**Altitude**: 0–1000 m  
**Annual rainfall**: 700–1400 mm  
**Typical local abundance**: Frequent.

**Vegetation**: Open-forest; woodland e.g. with *Angophora costata*, *Eucalyptus punctata*, *Angophora floribunda*.

**Substrate**: Shallow stony soil or clayey soils on sandstone, quartzite, alluvium, granite, often with clay influence, low to medium nutrients.

**Exposure**:

**Conservation**

Conservation status unknown.

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**PHORMIACEAE (LILIACEAE)**

**Thelionema caespitosum** *(Stypandra caespitosa)*

**Life history**

**Growth form**: Perennial tufted herb 30–90 cm high, to 20 cm diam. at base; forms hybrids with *T. umbellatum*.

**Vegetative spread**: 

**Longevity**:

**Primary juvenile period**:

**Flowers**: Deep blue to white or pale yellow, October–December. Probably pollinated by native bees gathering pollen (P. Kubiak pers. comm.).  
**Fruit/seed**: Dark brown or black capsule 4–10 mm long, with shiny seeds 2–3 mm long. Mature November–February.

**Fire response**:

**Dispersion, establishment & growth**:

**Interaction with other organisms**:  

**Distribution**

**Status/origin**: Native.  
**Botanical subregions**: NC CC SC NT CT ST; Qld, Vic., S.A.  
**Distribution Sydney area**: Widespread.

**Select locations**: CC: Yarramundi, Londonderry, Cheltenham, Manly, Centennial Park, La Perouse, Oatley, Woodford, Loddon Falls, Bomaderry. CT: Currant Mountain Gap, Sunny Corner, Blackheath, Mt Werong, Kanangra Walls, Yerranderie, Barbers Creek.

**Habitat**

**Habitat**: Damp heaths.

**Altitude**: 0–1100 m  
**Annual rainfall**: 800–1400 mm  
**Typical local abundance**: Occasional.

**Vegetation**: Heath e.g. with *Banksia ericifolia*, *Kunzea ambigua*; woodland e.g. with *Angophora bakeri*, *Eucalyptus parramattensis*, *E. sclerocephala*.

**Substrate**: Sandy or peaty soils on sandstone, Tertiary alluvium, low nutrients, moist sites.

**Exposure**:

**Conservation**

Uncommon on Central Coast, and apparently more conspicuous in past (14/18 Herbarium specimens from Central Coast collected prior to 1960, 14/21 Tablelands specimens collected prior to 1960). Conservation status unknown.
PHORMIACEAE (LILIACEAE)

**Thelionema umbellatum** *(Stypandra umbellata)*

**Life history**
Growth form: Perennial tufted herb to 40 cm high, to 20 cm diam. at base; forms hybrids with *T. caespitosum*.
Vegetative spread:
Longevity:
Primary juvenile period:
Fruit/seed: Dark brown or black capsule 5–7 mm long, shiny seeds 2–3 mm long.
Dispersal, Establishment & Growth:
Fire response:
Interaction with other organisms:

**Distribution**
Status/origin: Native.
Botanical subregions: CC SC CT ST; Vic., Tas.
Distribution Sydney area: Coast and Upper Blue Mountains.
Select locations: CC: Swansea, Hornsby, Curl Curl, Watsons Bay, La Perouse, Kurnell, Waterfall, Sublime Point, Carrington Falls.
CT: Narrow Neck, Wentworth Falls.

**Habitat**
Habitat: Rock ledges, ridges.
Altitude: 0–1000 m  Annual rainfall: 1000–1400 mm
Typical local abundance: Occasional.
Vegetation: Coastal heath e.g. with *Melaleuca nodosa*, *Leptospermum laevigatum*, *Banksia ericifolia*; montane heath e.g. with *Allocasuarina nana*, *Leptospermum trinervium*.
Substrate: Shallow sandy or peaty soils on sandstone, low nutrients, moist to poorly-drained.
Exposure:
Conservation:

Swansea is northern geographical limit, conservation status unknown.

**Agrostis bettyae** *(Agrostis species A sensu)*

**Life history**
Growth form: Loosely tufted perennial herb to 90 cm tall, sometimes with short horizontal rhizome (Jacobs 2001).
Vegetative spread:
Longevity:
Primary juvenile period:
Flowers: Spikelets often strongly purplish (Jacobs 2001).
Fruit/seed: Dry, indehiscent, 1-seeded.
Dispersal, Establishment & Growth:
Fire response:
Interaction with other organisms:

**Distribution**
Status/origin: Native.
Botanical subregions: NT CT ST WNS SWS; Qld, Vic.
Distribution Sydney area: Upper Blue Mountains, Boyd Plateau, Wingello.
Select locations: CT: Katoomba, Boyd Plateau, Oberon, Wingello.

**Habitat**
Habitat: Montane sedgeland.
Altitude: 900–1100 m  Annual rainfall: 1000–1200 mm
Typical local abundance:
Vegetation: Sedgeland e.g. with *Carex appressa*; wet heath e.g. with *Leptospermum, Baeckea utilis, Empodisma minus*.
Substrate: Clay to organic sediments on granite, low nutrients.
Exposure:
Conservation:

Conservation status unknown.

**Agrostis capmillaris** *(A. tenuis *)

**Browntop Bent**

**Life history**
Growth form: Tufted or rhizomatous perennial herb to 0.5 m high.
Vegetative spread: Sometimes stoloniferous.
Longevity: Indefinite.
Primary juvenile period:
Flowers: Spring–summer.
Fruit/seed: Dry, indehiscent, 1-seeded.
Dispersal, Establishment & Growth:
Fire response: Some plants flowering in October, 10 months after high intensity fire (1/94 at Lane Cove) (P. Kubiak pers. comm.).
Interaction with other organisms: Palatable to sheep and cattle (Herb. record 1955).

**Distribution**
Status/origin: Exotic, native to Europe, Asia & N Africa. Probably introduced as a turf species.
Botanical subregions: CC SC NT CT ST CT SWS WNS SWS SWS; Vic., Tas., S.A., W.A.
Distribution Sydney area: Widespread but mainly Tablelands.
Select locations: CC: Richmond (1910), Arncliffe (1910), La Perouse, Kentlyn. CT: Orange, Capertee, Yetholme, Blackheath, Hampton, Katoomba, Wentworth Falls, Woodford, Mittagong, Moss Vale, Robertson, Barrenjarry.

**Habitat**
Habitat: Roadsides, creekbanks, wet places.
Altitude: 0–1000 m  Annual rainfall: 700–1600 mm
Typical local abundance: Frequent–occasional.
Vegetation: Montane sedgeland e.g. with *Juncus, Carex, Lycopus australis*; coastal sedgeland e.g. with *Isolepis nodosa*.
Substrate: Clay loam from coal measures, alluvium, basalt, sandy soils on sandstone, sand, granite. Acid soils, low nutrients.
Exposure:
Conservation:

Major turf species. Weed of pastures.

**Agrostis gigantea** *(Redtop Bent)*

**POACEAE**

**Life history**
Growth form: Erect, tufted perennial herb to 1 m high.
Vegetative spread: Rhizomatous.
Longevity: Indefinite.
Primary juvenile period:
Flowers: Spring–summer.
Fruit/seed: Dry, indehiscent, 1-seeded.
Dispersal, Establishment & Growth: Probably mainly dispersed by rhizome fragments in garden waste.
Fire response:
Interaction with other organisms: Grazed by cattle.

**Distribution**
Status/origin: Exotic, Native to Europe & Asia. Probably introduced as turf grass.
Botanical subregions: CC SC NT CT ST LHI, Qld, Vic., Tas., S.A., W.A.
Distribution Sydney area: Widespread.
Select locations: CC: Narrara (1898), Wyong (1905), Richmond (1911), Neutral Bay, Kogarah (1899), Menai, Picton, Berry.
CT: Mt Wilson, Katoomba (1922).

**Habitat**
Habitat: Near water, creeks.
Altitude: 0–1000 m  Annual rainfall: 700–1400 mm
Typical local abundance: Occasional.
Vegetation: Riparian vegetation e.g. with *Paspalum distichum*.
Substrate: Sandy soil on sandstone, low nutrients.
Exposure:
Conservation
**Agrostis stolonifera** *
Creeping Bent

**Life history**
**GROWTH FORM:** Erect or ascending, tufted, stoloniferous perennial herb to 0.4 m high.
**VEGETATIVE SPREAD:** Stoloniferous, forming dense turf.
**LONGEVITY:** Indefinite.
**PRIMARY JUVENILE PERIOD:**
**FLOWERS:** December–March.
**FRUIT/SEED:** Dry, indehiscent, 1-seeded.
**DISPERAL, ESTABLISHMENT & GROWTH:**
**FIRE RESPONSE:** Some plants flowering in October, 10 months after high intensity fire (1/94 at Lane Cove) (P. Kubiak pers. comm.).
**INTERACTION WITH OTHER ORGANISMS:**

**Distribution**
**STATUS/ORIGIN:** Exotic, native to northern N America. Introduced as lawn grass.
**BOTANICAL SUBREGIONS:** CC CT ST; Qld, Vic., Tas., W.A.
**DISTRIBUTION SYDNEY AREA:** Mainly Tablelands.
**SELECT LOCATIONS:** CC: Centennial Park (1934).
**CT:** Oberon, Orange, Blackheath, Katoomba (1898).

**Habitat**
**HABITAT:** Lawns, urban areas.
**ALTITUDE:** 0–1000 m **ANNUAL RAINFALL:** 1200–1400 mm
**TYPICAL LOCAL ABUNDANCE:**
**VEGETATION:** Common in lawns
**SUBSTRATE:** Clay soil on basalt.
**EXPOSURE:**

**Conservation**
Minor weed of pastures, roadsides, waste areas (Harden 1993).

**Agrostis viridis** *(A. semiverticillata)*
Water Bent

**Life history**
**GROWTH FORM:** Erect or ascending, robust, stoloniferous perennial herb to 0.6 m high.
**VEGETATIVE SPREAD:** Stoloniferous.
**LONGEVITY:**
**PRIMARY JUVENILE PERIOD:**
**FLOWERS:** Spring–summer.
**FRUIT/SEED:** Dry, indehiscent, 1-seeded.
**DISPERAL, ESTABLISHMENT & GROWTH:**
**FIRE RESPONSE:**
**INTERACTION WITH OTHER ORGANISMS:**

**Distribution**
**STATUS/ORIGIN:** Exotic, native to Mediterranean.
**BOTANICAL SUBREGIONS:** CC ST SWS SFWP; Vic., S.A.
**DISTRIBUTION SYDNEY AREA:** Suburban areas, sporadic.
**SELECT LOCATIONS:** CC: Dulwich Hill (1934), Riverwood, La Perouse (1948).

**Habitat**
**HABITAT:** Near or in water, wasteland.
**ALTITUDE:** 0–100 m **ANNUAL RAINFALL:** 1000–1400 mm
**TYPICAL LOCAL ABUNDANCE:**
**VEGETATION:**
**SUBSTRATE:**
**EXPOSURE:**

**Conservation**
First recorded in 1934, recent recording from Saltpan Creek (1994), weed potential unknown.

**Aira caryophyllea** *
Silvery Hairgrass

**Life history**
**GROWTH FORM:** Slender, erect annual herb to 0.3 m high.
**VEGETATIVE SPREAD:** No.
**LONGEVITY:** Less than 1 year.
**PRIMARY JUVENILE PERIOD:**
**FLOWERS:** October–November.
**FRUIT/SEED:** Dry, indehiscent, 1-seeded.
**DISPERAL, ESTABLISHMENT & GROWTH:** Diaspore adhesive, animal and wind-dispersed (McIntyre et al. 1995, Carr et al. 1992).
**FIRE RESPONSE:**
**INTERACTION WITH OTHER ORGANISMS:**

**Distribution**
**STATUS/ORIGIN:** Exotic, native to Europe.
**BOTANICAL SUBREGIONS:** CC SC CT ST CWS SWS SWP; Qld, Vic., Tas., N.T., S.A., W.A.
**DISTRIBUTION SYDNEY AREA:** Widespread.
**SELECT LOCATIONS:** CC: Gladesville (1884), Glenfield, Nowra.
**CT:** Fitzroy Falls (1930).

**Habitat**
**HABITAT:** Pastures, disturbed grassland.
**ALTITUDE:** 0–700 m **ANNUAL RAINFALL:** 800–1200 mm
**TYPICAL LOCAL ABUNDANCE:** Frequent.
**VEGETATION:** Pastures, grassland.
**SUBSTRATE:** Clay soils on shale, medium nutrients.
**EXPOSURE:**

**Conservation**
Weed in pastures, roadsides.
**Aira cupaniana** *

Silvery Hairgrass

**Life history**

**Growth form:** Delicate, slender herb to 0.5 m high, stems solitary or tufted.

**Vegetative spread:** No (McIntyre et al. 1995).

**Longevity:** Less than 1 year.

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

**Flowers:** Spring.

**Fruit/seed:** Dry, 1-seeded, indehiscent.

**Dispersal, establishment & growth:** Diaspore adhesive (McIntyre et al. 1995).

**Fire response:**

**Interaction with other organisms:** Little value as stock feed (Harden 1993).

**Distribution**

**Status/origin:** Exotic, native to Mediterranean.

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

**Distribution Sydney area:** Coast.

**Select locations:** CC: Wyong, Wahroonga, Ryde (1884), Cooks River (1909), Kangaroo Valley. CT: Bathurst (1963), Woodford (1947).

**Habitat**

**Habitat:** Pastures, disturbed areas.

**Altitude:** 0–700 m  
**Annual rainfall:** 800–1200 mm

**Typical local abundance:**

**Vegetation:** Grassland, open-woodland.

**Substrate:** Clay soils from shales, medium nutrients.

**Exposure:**

**Conservation**

Relatively uncommon weed of disturbed sites.

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**Aira elegantissima** * *(Aira elegans)*

Delicate Hairgrass

**Life history**

**Growth form:** Delicate, slender, erect annual to 0.5 cm high, stems solitary or tufted.

**Vegetative spread:** No.

**Longevity:** Less than 1 year.

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

**Flowers:** Spring.

**Fruit/seed:** Dry, 1-seeded, indehiscent.

**Dispersal, establishment & growth:**

**Fire response:**

**Interaction with other organisms:**

**Distribution**

**Status/origin:** Exotic, native to Europe.

**Botanical subregions:** CC; Vic., Tas., W.A.

**Distribution Sydney area:** Mainly coast.


**Habitat**

**Habitat:**

**Altitude:** 0–1000 m  
**Annual rainfall:** 1200–1400 mm

**Typical local abundance:**

**Vegetation:** Woodland.

**Substrate:** Sandy soils on sand, sandstone, low nutrients.

**Exposure:**

**Conservation**

Appears to have been widely established in the Eastern Suburbs by 1920 but to have only been reported recently from the Upper Blue Mountains.

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**Aira praecox** *

Early Hairgrass

**Life history**

**Growth form:** Delicate slender herb to 0.2 m high.

**Vegetative spread:** No.

**Longevity:** Less than 1 year.

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

**Flowers:** Spring.

**Fruit/seed:** Dry, 1-seeded, indehiscent.

**Dispersal, establishment & growth:**

**Fire response:**

**Interaction with other organisms:**

**Distribution**

**Status/origin:** Exotic, native to Europe.

**Botanical subregions:** CT.

**Distribution Sydney area:** Blue Mountains.

**Select locations:** CT: Woodford (1948).

**Habitat**

**Habitat:** Parkland, disturbed areas.

**Altitude:** 600 m  
**Annual rainfall:** 1000–1100 mm

**Typical local abundance:**

**Vegetation:** Woodland.

**Substrate:**

**Exposure:**

**Conservation**

Only record is for Woodford in 1948. Current status unknown.
**Alopecurus myosuroides** *(Alopecurus agrestis)*

**Slender Foxtail**

**Life history**

**GROWTH FORM:** Erect, slender tufted herb, to 0.7 m high.

**VEGETATIVE SPREAD:** No.

**LONGEVITY:** Less than 1 year.

**PRIMARY JUVENILE PERIOD:** Less than 1 year.

**FLOWERS:** Spring.

**FRUIT/SEED:** Dry, 1-seeded, indehiscent.

**DISPERSAL, ESTABLISHMENT & GROWTH:**

**FIRE RESPONSE:**

**INTERACTION WITH OTHER ORGANISMS:**

**Distribution**

**STATUS/ORIGIN:** Exotic, native to Europe and Asia.

**BOTANICAL SUBREGIONS:** NC CT CWS; Qld, Vic., S.A., W.A.

**DISTRIBUTION SYDNEY AREA:** Tablelands, sporadic.

**SELECT LOCATIONS:**

- **CT:** Bathurst (1910), Kangaloon (1939).

**Habitat**

**HABITAT:** Cultivated, disturbed ground.

**ALTITUDE:** 600–1000 m **ANNUAL RAINFALL:** 900–1400 mm

**TYPICAL LOCAL ABUNDANCE:**

**VEGETATION:**

**SUBSTRATE:**

**EXPOSURE:**

**Conservation**

**CONSERVATION:** Weed of cultivated ground, rarely recorded.

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**Alopecurus pratensis** *

**Meadow Foxtail**

**Life history**

**GROWTH FORM:** Tufted or decumbent perennial herb to 0.9 m high.

**VEGETATIVE SPREAD:**

**LONGEVITY:**

**PRIMARY JUVENILE PERIOD:**

**FLOWERS:** Spring.

**FRUIT/SEED:** Dry, 1-seeded, indehiscent.

**DISPERSAL, ESTABLISHMENT & GROWTH:**

**FIRE RESPONSE:**

**INTERACTION WITH OTHER ORGANISMS:**

**Distribution**

**STATUS/ORIGIN:** Exotic, native to Europe.

**BOTANICAL SUBREGIONS:** NC CT SWP; Qld, Vic., Tas., S.A., W.A.

**DISTRIBUTION SYDNEY AREA:** Sporadic.

**SELECT LOCATIONS:**

- **CC:** Richmond (1908), Bathurst (1991).

**Habitat**

**HABITAT:** Wet areas of pastures.

**ALTITUDE:** 0–1000 m **ANNUAL RAINFALL:** 800–1400 mm

**TYPICAL LOCAL ABUNDANCE:**

**VEGETATION:**

**SUBSTRATE:**

**EXPOSURE:**

**Conservation**

**REMARKS:**

**REMARKS:**

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**Ammophila arenaria** *

**Marram Grass**

**Life history**

**GROWTH FORM:** Densely tufted rhizomatous perennial herb to 1.2 m high, with rigid stems.

**VEGETATIVE SPREAD:** Rhizomatous.

**LONGEVITY:** Indefinite.

**PRIMARY JUVENILE PERIOD:**

**FLOWERS:** Summer.

**FRUIT/SEED:** Dry, 1-seeded, indehiscent.

**DISPERSAL, ESTABLISHMENT & GROWTH:** Animal, water and wind-dispersed (Carr et al. 1992).

**FIRE RESPONSE:**

**INTERACTION WITH OTHER ORGANISMS:**

**Distribution**

**STATUS/ORIGIN:** Exotic, native to Europe.

**BOTANICAL SUBREGIONS:** NC CC SC; Qld, Vic., Tas., S.A., W.A.

**DISTRIBUTION SYDNEY AREA:** Coast.

**SELECT LOCATIONS:**

- **CC:** Unanderra (1938), Kiama (1946).

**Habitat**

**HABITAT:** Foreshores.

**ALTITUDE:** 0–50 m **ANNUAL RAINFALL:** 1200–1400 mm

**TYPICAL LOCAL ABUNDANCE:** Frequent.

**VEGETATION:** Coastal sand dunes, low nutrients.

**SUBSTRATE:**

**EXPOSURE:**

**Conservation**

**REMARKS:**

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**Amphibromus nervosus** *(Amphibromus neesii)*

**Life history**

**GROWTH FORM:** Tufted perennial herb, occasionally rooting at nodes, 1.3 m high, with erect stems.

**VEGETATIVE SPREAD:**

**LONGEVITY:**

**PRIMARY JUVENILE PERIOD:**

**FLOWERS:** In response to rain or flooding.

**FRUIT/SEED:** Dry, 1-seeded, indehiscent.

**DISPERSAL, ESTABLISHMENT & GROWTH:**

**FIRE RESPONSE:**

**INTERACTION WITH OTHER ORGANISMS:**

**Distribution**

**STATUS/ORIGIN:** Native.

**BOTANICAL SUBREGIONS:** CC NT CT ST NWS CWS SWS NWP SWP SFWP; Vic., S.A., W.A.

**DISTRIBUTION SYDNEY AREA:** Mainly Bathurst–Orange area.

**SELECT LOCATIONS:**

- **CC:** Camden (1934). **CT:** Nashdale (1991), Bathurst (1992).

**Habitat**

**HABITAT:** Floodplains, riverbanks, moist sites.

**ALTITUDE:** 0–800 m **ANNUAL RAINFALL:** 700–800 mm

**TYPICAL LOCAL ABUNDANCE:** Rare.

**VEGETATION:** Riparian woodland e.g. with *Eucalyptus dalrympleana*, *E. stellulata*; woodland e.g. with *Eucalyptus blakelyi*, *E. melliodora*.

**SUBSTRATE:** Clay soils on alluvium, shales, low-medium nutrients. Recorded on saline sites in western NSW (Semple 1993).

**EXPOSURE:**

**Conservation**

**REMARKS:**

**REMARKS:**

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**Planted as a binder on sand dunes, often naturalising and replacing native species (Harden 1993).**
Amphibromus pithoogastrus (Amphibromus sp. A)

Life history
Growth form: Tufted perennial herb to 1 m high, with erect stems and occasionally with corm-like swellings on lower nodes.
Vegetative spread: Rhizomatous.
Longevity: Indefinite.
Primary juvenile period: Summer.
Flowers: In response to rain or flooding.
Fruit/seed: Dry, 1-seeded, indehiscent.
Dispersal, establishment & growth:
Fire response: Resprouts and flowers after fire.
Interaction with other organisms:

Distribution
Status/origin: Native.
Botanical subregions: NT CT ST SWS; Vic.
Distribution Sydney area: Oberon.

Habitat
Habitat: Seasonally swampy areas.
Altitude: 800–1200 m
Typical local abundance: Frequent–occasional.
Vegetation: Swampy areas.
Substrate: Sandy soils on transitional geology between Hawkesbury and Wattagan soil landscapes, low nutrients, well-drained.
Exposure: Full sun.

Conservation
Rare, only two records from Oberon (1953, 1990). Coded 3K on national rare species list (Briggs & Leigh 1996). Current conservation status unknown.

Amphipogon strictus var. strictus

Greybeard Grass

Life history
Growth form: Perennial herb to 0.4 m high, with single stems arising at close intervals from rhizome.
Vegetative spread: Rhizomatous.
Longevity: Indefinite.
Primary juvenile period: Summer.
Flowers: Fruit/seed: Dry, 1-seeded, indehiscent.
Dispersal, establishment & growth:
Fire response: Resprouts and flowers after fire.
Interaction with other organisms:

Distribution
Status/origin: Native.
Botanical subregions: CC SC NT CT ST NWS CWS; Qld.
Distribution Sydney area: Coast and Upper Blue Mountains.
Select locations: CC: Killara, Voyager Point, Bundeena. CT: Lithgow, Clarence, Bell, Mt Victoria, Blackheath, Wentworth Falls, Mittagong, Wingello, Barbers Creek.

Habitat
Habitat: Swamp margins, damp places on rocky hillsides or ridges.
Altitude: 0–1000 m
Typical local abundance: Occasionally.
Vegetation: Woodland e.g. with Eucalyptus longifolia, E. parramattensis, Melaleuca decora; coastal heath e.g. with Angophora hispida, Banksia serrata, Anisopogon avenaceus; montane heath e.g. with Allocasuarina nana, Leptospermum trinervium, Dampiera stricta.
Substrate: Sandy soil on sandstone, Tertiary alluvium, low nutrients.
Exposure: Full sun.

Conservation
Vulnerable in Western Sydney (James et al. 1999), conservation status elsewhere unknown.

Ancistrachne maidenii

Life history
Growth form: Scrambling perennial herb, with rigid decumbent stems and ascending branches.
Vegetative spread: May be some stoloniferous spread.
Longevity: Primary juvenile period:
Flowers: January–June.
Fruit/seed: Dry, 1-seeded, indehiscent.
Dispersal, establishment & growth:
Fire response:
Interaction with other organisms:

Distribution
Status/origin: Native.
Botanical subregions: CC.
Distribution Sydney area: Hawkesbury River area.
Select locations: CC: Wisemans Ferry, Maroota, Brooklyn, Berowra Creek, Cowan Creek, Erskine Creek.

Habitat
Habitat: Slopes, rock outcrops near creeks.
Altitude: 0–200 m
Typical local abundance: Frequent–occasional.
Vegetation: Woodland e.g. with Corymbia eximia, Eucalyptus punctata, Angophora costata, Eucalyptus piperita, Angophora floribunda, and shrubby understory.
Substrate: Sandy soils on transitional geology between Hawkesbury and Wattagan soil landscapes, low nutrients, well-drained.
Exposure: Full sun.

Conservation
Restricted local endemic, listed as Vulnerable (Schedule 2) NSW Threatened Species Conservation Act 1995. Sydney is southern geographical limit. Reported in Ku-ring-gai Chase NP.

Andropogon virginicus *

Whisky Grass, Broomsedge

Life history
Growth form: Tufted, branched, erect perennial herb with solid stems to 1 m high.
Vegetative spread: No.
Longevity: Primary juvenile period:
Flowers: Summer.
Fruit/seed: Dry, 1-seeded, indehiscent.
Dispersal, establishment & growth: Long distance wind-dispersed (Buchanan 1989b). Grows vigorously with dense cover, invades burnt or bare areas (Cronk & Fuller 1995).
Fire response: Resprouted, fruiting in May, 5 months after high intensity fire (1/94 at Narrabeen) (P. Kubiak pers. comm.).
Interaction with other organisms: Allelopathic (Cronk & Fuller 1995).

Distribution
Status/origin: Exotic, native to America.
Botanical subregions: NC CC SC NT CT ST NWS CWS; Qld.
Distribution Sydney area: Mainly coast.

Habitat
Habitat: Roadsides, track edges, vacant fields, rocky hillsides.
Altitude: 0–700 m
Typical local abundance: Frequent–occasional.
Vegetation: Roadsides, not penetrating into dry forests.
Substrate: Mostly soils on sandstone, occasionally on shale, basalt. Tolerates very low levels of nutrients (Cronk & Fuller 1995).
Exposure: Full sun.
Conservation
First reported from horse-riding paddocks in Terrey Hills in 1960 (Herb. record). Encroaches into disturbed and open sites in bushland.

**Anisopogon avenaceus**

Oat Spear Grass

**Life history**

Growth form: Erect, tufted, or shortly rhizomatous, glabrous perennial herb to 1.5 m high.
Vegetative spread: Longevity:
Primary juvenile period:
Flowers: Spring. Flowers visited by Honeybee *Apis mellifera* gathering pollen (P. Kubiak pers. comm.).
Fruit/seed: Dry, 1-seeded, indehiscent, stiffly-pointed, hairy, with slender straight or twisted bristle to 2.5 cm long.
Dispersal, establishment & growth: Adhesive, attaches to clothing (L. McD.)
Fire response: Resprouted, fruiting 1 year after high intensity fire (1/94 at Lane Cove) (P. Kubiak pers. comm.).
Interaction with other organisms: Scattered plants eaten by rabbits (P. Kubiak pers. comm.).

**Distribution**

Status/origin: Native.
Botanical subregions: CC SC CT ST; Qld, Vic.
Select locations:
Diversity:
Habitat
Habitat: Plateaus.
Altitude: 0–1000 m
Typical local abundance: Frequent–occasional.
Vegetation: Open-forest e.g. with *Eucalyptus piperita*, *Angophora costata*; heath e.g. with *Eucalyptus stricta*, *Allocasuarina nana*, *Kunzea capitata*.
Substrate: Sandy to loamy soils on sandstone, low nutrients, dry sites.
Exposure: Conservation
Conserved in Western Sydney (James et al. 1999). Conservation status elsewhere unknown. Reported in Blue Mountains NP, Ku-ring-gai NP, Royal NP, Thirlmere Lakes NP.

**Anthoxanthum odoratum** *

Sweet Vernal Grass

**Life history**

Growth form: Tufted perennial herb to 1 m high, forming tussocks, with scent of coumarin.
Vegetative spread: No (McIntyre et al. 1995).
Longevity:
Primary juvenile period:
Fruit/seed: Dry, 1-seeded, indehiscent.
Dispersal, establishment & growth: Mechanism for dispersal undetermined (McIntyre et al. 1995).
Fire response:
Interaction with other organisms: Possibly unpalatable to stock (Herb. note).

**Distribution**

Status/origin: Exotic, native to Europe and temp. Asia, naturalised in many countries.
Botanical subregions: NC CC SC NT CT ST ?NWS SWS; Qld, Vic., Tas., S.A., W.A.
Distribution Sydney area: Widespread.

**Benson & McDougall, Ecology of Sydney Plant Species 10**

**Aristida behriana**

Bunch Wiregrass

**Life history**

Growth form: Short, tufted, tussocky perennial herb to 0.4 high, with slender wiry stems.
Vegetative spread: Longevity:
Primary juvenile period:
Flowers: Summer or in response to rain.
Fruit/seed: Dry, 1-seeded, indehiscent, with 3-branched awn to 6 cm long, often purple.
Dispersal, establishment & growth: Adhesive diaspore.
Fire response:
Interaction with other organisms: 

**Distribution**

Status/origin: Native.
Botanical subregions: NT CT ST NWS CWS SWS NWP SWP SFWP; Qld, Vic., N.T., S.A.
Distribution Sydney area: Orange area.
Select locations:
Habitat
Habitat: 800 m
Typical local abundance: Rare.
Vegetation: Grassland; open-woodland
Substrate: Loamy soils
Exposure: Conservation
Only Sydney area record is from Orange area in 1991, conservation status unknown.

**Aristida benthamii** var. *spinulifera*

Wire Grass

**Life history**

Growth form: Slender, compactly tufted, perennial herb to 1 m high, with slender wiry stems.
Vegetative spread: No.
Longevity:
Primary juvenile period:
Flowers: Summer.
Fruit/seed: Dry, 1-seeded, indehiscent, with 3-branched awn to 1.5 cm long, January–April.
Dispersal, establishment & growth: Adhesive diaspore.
Fire response: Resprouted, mature fruit August, 8 months after high intensity fire (1/94 at Lane Cove) (P. Kubiak pers. comm.).
Interaction with other organisms:

**Distribution**

Status/origin: Native.
Botanical subregions: CC CWS; Qld.
Distribution Sydney area: Widespread on the coast.
**Aristida calycina** var. *calycina*

**Wire Grass**

**Life history**

**Growth form:** Tufted, erect perennial herb to 2 m high, with strongly branched, wiry stems.

**Vegetative spread:**

**Longevity:**

**Primary juvenile period:**

**Flowers:** Summer.

**Fruit/Seed:** Dry, 1-seeded, indehiscent, with divergent 3-branched awn to 3 cm long, March–June.

**Dispersal, establishment & growth:** Adhesive diasporae.

**Fire response:** Resprouted, fruiting in July, 6 months after high intensity fire (1/94 at Lane Cove) (P. Kubiak pers. comm.).

**Interaction with other organisms:**

**Distribution**

**Status/Origin:** Native.

**Botanical subregions:** NC CC SC NT CT ST NWS SWP NFWP; Qld, Vic., N.T., W.A.

**Distribution Sydney area:** Widespread.

**Select locations:** CC: Lower Portland, East Kurrajong, Richmond, Randwick. CT: Currant Mountain Gap, Capertee Valley, Lithgow, Blackheath, Wentworth Falls, Tuena.

**Habitat**

**Habitat:** Ridges.

**Altitude:** 0–1000 m  **Annual rainfall:** 800–1400 mm

**Typical local abundance:** Frequent.

**Vegetation:** Woodland e.g. with *Eucalyptus rossii*, *Corymbia gummifera*, *Eucalyptus albans*; heath e.g. with *Angophora hispida*, *Banksia ericifolia*.

**Substrate:** Sandy soils on sandstone, low nutrients.

**Exposure:**

**Conservation**

Vulnerable in Western Sydney (James et al. 1999), conservation status elsewhere unknown.

**POACEAE**

**Aristida jerichoensis** var. *subspinulifera*

**Jericho Wiregrass**

**Life history**

**Growth form:** Compactly tufted perennial herb to 0.9 m high, with wiry stems.

**Vegetative spread:** No (McIntyre et al. 1995).

**Longevity:**

**Primary juvenile period:**

**Flowers:** In response to rain.

**Fruit/Seed:** Dry, 1-seeded, indehiscent, with 3-branched awn to ?2.5 cm long.

**Dispersal, establishment & growth:** Diaspore adhesive (McIntyre et al. 1995).

**Fire response:**

**Interaction with other organisms:**

**Distribution**

**Status/origin:** Native, but exotic in CC.

**Botanical subregions:** *CC NT NWS SWP NFWP; Qld, N.T.

**Distribution Sydney area:** Sporadic.

**Select locations:** CC: Flemington Saleyards (1969), Kogarah (1896), Picnic Point (1993).

**Habitat**

**Habitat:** Rocky hillsides.

**Altitude:** 0–200 m  **Annual rainfall:** 900–1000 mm

**Typical local abundance:**

**Vegetation:** Scrub e.g. with *Angophora hispida*, *Banksia oblongifolia*.

**Substrate:** Clay soil on laterite, low nutrients.

**Exposure:**

**Conservation**

Introduced to Central Coast area, probably with stock, though possibly naturally occurring at Picnic Point (Herb. record).

**POACEAE**

**Aristida ramosa** var. *ramosa*

**Wire Grass**

**Life history**

**Growth form:** Tussocky perennial herb to 1.2 m high

**Vegetative spread:** No (McIntyre et al. 1995).

**Longevity:**

**Primary juvenile period:**

**Flowers:** Summer.

**Fruit/Seed:** Dry, 1-seeded, indehiscent fruit, November–June.
**Aristida ramosa** var. *scaberula* (*Aristida echinata*)

**Life history**

**Growth form:** Tussocky perennial herb to 1.2 m high, with stiff wiry stems.

**Vegetative spread:** No (McIntyre et al. 1995).

**Longevity:**

**Primary juvenile period:**

**Flowers:** February–April.

**Fruit/seed:** Dry, 1-seeded, indehiscent, with 3-branched awn to 2 cm long.

**Dispersal, establishment & growth:** Diaspore adhesive (McIntyre et al. 1995).

**Fire response:**

**Interaction with other organisms:**

**Distribution**

**Status/origin:** Native.

**Botanical subregions:** NC CC CT; Qld, Vic., W.A.

**Distribution Sydney area:** Widespread.

**Select locations:** CC: Berowra, Glenbrook, Woodford, Londonderry, Cheltenham, Gladesville, Manly, Centennial Park, Toongabbie, Homebush, Bringelly, Mount Annan, Bargo. CT: Sofala, Blackheath, Kowmung River, Hill Top, Mittagong.

**Habitat**

**Habitat:** Slopes, gullies, gorges.

**Altitude:** 0–1000 m

**Annual rainfall:** 700–1400 mm

**Typical local abundance:** Frequent.

**Vegetation:** Woodland e.g. with *Eucalyptus moluccana*, *E. tereticornis*, *E. crebra*, *Angophora bakeri*, *Eucalyptus sclerophylla*, *E. dives*, *E. mannifera*; scrub e.g. with *Banksia aemula*.

**Substrate:** Clay soil on shale, tertiary alluvium, quartzite, sands, sandy soils on dune sand, low–medium nutrients.

**Exposure:** Full sun to mid shade.

**Conservation**

Conservation status unknown.

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**Aristida vagans**

**Threeawn Speargrass**

**Life history**

**Growth form:** Erect tufted or rhizomatous perennial herb to 80 cm high.

**Vegetative spread:** No (McIntyre et al. 1995).

**Longevity:**

**Primary juvenile period:**

**Flowers:** Summer.

**Fruit/seed:** Dry, 1-seeded, indehiscent, fruit, October–June.

**Dispersal, establishment & growth:** Diaspore adhesive (McIntyre et al. 1995).

**Fire response:**

**Interaction with other organisms:**

**Distribution**

**Status/origin:** Native.

**Botanical subregions:** NC CC SC NT NWS CWS NSW NWP; Qld, S.A.

**Distribution Sydney area:** Western Sydney to Shoalhaven.

**Select locations:** CC: Prospect, Luddenham, Flemington Saleyards, Camden, Menangle Park, Picton, Wilton, Albion Park, Shoalhaven River.

**Habitat**

**Habitat:** Roadsides, cemeteries.

**Altitude:** 0–500 m

**Annual rainfall:** 700–1000 mm

**Typical local abundance:** Occasional.

**Vegetation:** Grassland, heath e.g. with *Leptospermum polygalifolium*, *Leptospermum trinervium*, *Amperea xiphoclada*.

**Substrate:** Clayey to sandy soils on shale, sandstone, low nutrients.

**Exposure:**

**Conservation**

Conservation status unknown.

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**Aristida ramosa** var. *speciosa* (*Aristida personata*)

**Life history**

**Growth form:** Tussocky perennial herb to 1.2 m high, with stiff wiry stems.

**Vegetative spread:** No (McIntyre et al. 1995).

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**Conservation**

Reported in Royal NP. Conservation status unknown.
**Aristida warburgii**

*Life history*

**Growth form:** Compact, tufted perennial herb to 1.2 m high, with wiry stems.

**Vegetative spread:** No.

**Longevity:** Indefinite (D. Keith pers. comm.).

**Primary juvenile period:**

**Flowers:** Summer.

**Fruit/seed:** Dry, 1-seeded, indehiscent, with 3-branched awn to 4.5 cm long.

**Dispersal, establishment & growth:** Recruitment mainly after fire (D. Keith pers. comm.). Fruit 4 months after high intensity fire (1/94 at Lane Cove) (P. Kubiak pers. comm.).

**Interaction with other organisms:**

**Distribution**

**Status/origin:** Native.

**Botanical subregions:** NC CC SC NT CT NWS; Qld.

**Distribution Sydney area:** Widespread.

**Select locations:** CC: Mortisset, Upper Colo, Ebenezer, Richmond, Hunters Hill, Doonside, Duck Creek, Kedumba River, Yennora, Bondi, Liverpool, Milperra, Lugarno, Mt Keira. CT: Megalong Valley.

**Habitat**

**Habitat:** Rocky ridges.

**Altitude:** 0–600 m

**Annual rainfall:** 800–1400 mm

**Typical local abundance:** Frequent.

**Vegetation:** Open-forest e.g. with *Angophora costata*, *Eucalyptus umbra*, *E. tereticornis*, *E. fibrosa*; woodland e.g. with *Eucalyptus sclerophylla*, *Angophora bakeri*, *Melaleuca decora*; heath e.g. with *Banksia oblongifolia*, *Bauera rubioides*.

**Substrate:** Sandy loam on sandstone, metasediments, alluvial sand, gravel, low nutrients. Tertiary alluvium (T. James pers. comm.).

**Exposure:**

**Conservation**

Conserved in Western Sydney (James et al. 1999), conservation status elsewhere unknown.

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**Arrhenatherum elatius var. bulbosum** *

*Bulbos Oatgrass, Onion Twitch*

*Life history*

**Growth form:** Loosely tufted perennial herb to 1.5 m high, with erect or slightly spreading stems and bulbous stem bases. Small form with white-striped leaves is sometimes grown as ornamental (Harden 1993).

**Vegetative spread:** No (McIntyre et al. 1995).

**Longevity:**

**Primary juvenile period:**

**Flowers:**

**Fruit/seed:** Dry, 1-seeded, indehiscent.

**Dispersal, establishment & growth:** Diaspore adhesive (McIntyre et al. 1995).

**Fire response:**

**Interaction with other organisms:**

**Distribution**

**Status/origin:** Exotic, native to Europe and Asia.

**Botanical subregions:** CC SC NT ST CWS; Qld, Vic., Tas., S.A.

**Distribution Sydney area:** Sporadic.

**Select locations:** CC: Rhodes (1934).

**Habitat**

**Habitat:** Roadsides.

**Altitude:** 0–50 m

**Annual rainfall:** 1000 m

**Typical local abundance:**

**Vegetation:** Grassland

**Substrate:** Edge of salt swamp.

**Exposure:**

**Conservation**

Only naturalised record is edge of salt swamp at Rhodes in 1934.

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**Arrundinella nepalensis**

*Reedgrass*

*Life history*

**Growth form:** Tufted perennial herb, with erect cane-like stems to 3 m high.

**Vegetative spread:** Rhizomatous.

**Longevity:** Indefinite.

**Primary juvenile period:**

**Flowers:** Flowers January–March.

**Fruit/seed:** Dry, 1-seeded, indehiscent.

**Dispersal, establishment & growth:** Diaspore adhesive (McIntyre et al. 1995), also dispersed in dumped garden refuse.

**Fire response:**

**Interaction with other organisms:**

**Distribution**

**Status/origin:** Native.

**Botanical subregions:** NC CC NT ST WNS; Qld, N.T., W.A., Asia.

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

**Select locations:** CC: Kurrajong Heights, Richmond, Londonderry, Woodford.

**Habitat**

**Habitat:** Drainage lines.

**Altitude:** 0–500 m

**Annual rainfall:** 700–1000 mm

**Typical local abundance:**

**Vegetation:** Dry woodland, grassland

**Substrate:**

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**Conservation**

**Conservation:** Weed of natural or man-made grasslands (Harden 1993).
**Arundo donax** *

**Giant Reed**

**Life history**

**Growth form:** Tall, perennial reed to 6 m high, with thick, creeping, knotty rhizomes; stems woody to 2 cm diam, in large clumps similar to bamboo.

**Vegetative spread:** Rhizomatous.

**Longevity:** Indefinite.

**Primary juvenile period:**

**Flowers:** Spring–summer.

**Fruit/seed:** Dry, 1-seeded, indehiscent, March–May.

**Dispersal, establishment & growth:** Water and possibly vegetative dispersal in garden refuse.

**Fire response:** Resprouted after high intensity fire (1/94 at Lane Cove) (P. Kubiak pers. comm.).

**Interaction with other organisms:**

**Distribution**

**Status/origin:** Exotic, native to S Europe and Asia. Cultivated as ornamental.

**Botanical subregions:** NC CC NT NWS SFWP; Qld, Vic., S.A., W.A.

**Distribution Sydney area:** Sydney suburban areas

**Select locations:** CC: Gosford, Beacon Hill, Tamarama Beach, Macquarie Fields, Campbelltown.

**Habitat**

**Habitat:** Riverbanks, parks, gardens.

**Altitude:** 0–100 m  
**Annual rainfall:** 700–1200 mm

**Typical local abundance:** Frequent.

**Vegetation:**

**Substrate:** Clay soils on shale, alluvium.

**Exposure:** Full sun to light shade.

**Conservation**

Declared noxious weed category W4a in many Sydney council areas and Blue Mountains, where it may not be sold, propagated, or knowingly distributed and must be prevented from growing within 3 m of the property boundary (NSW Agriculture website: www.agric.nsw.gov.au).

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**Austrodanthonia auriculata** (*Danthonia auriculata*)

**Lobed Wallaby Grass**

**Life history**

**Growth form:** Slender, tufted perennial herb to 0.5 m high.

**Vegetative spread:**

**Longevity:**

**Primary juvenile period:**

**Flowers:** Spring–summer.

**Fruit/seed:** Dry, 1-seeded, indehiscent.

**Dispersal, establishment & growth:**

**Fire response:**

**Interaction with other organisms:**

**Distribution**

**Status/origin:** Native.

**Botanical subregions:** CC ST CWS SWS SWP; Vic., S.A., N.Z.

**Distribution Sydney area:** Colo Vale

**Select locations:** CC: Colo Vale (1911).

**Habitat**

**Habitat:**

**Altitude:** 500 m  
**Annual rainfall:** 900 mm

**Typical local abundance:**

**Vegetation:**

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**Austrodanthonia bipartita** (*Danthonia linkii var. linkii*)

**Wallaby Grass**

**Life history**

**Growth form:** Variable, densely tufted perennial herb to 0.7 m high.

**Vegetative spread:** No (McIntyre et al. 1995).

**Longevity:**

**Primary juvenile period:**

**Flowers:** Spikelets loosely clustered, spring–summer.

**Fruit/seed:** Dry, 1-seeded, indehiscent fruit. Seedheads appear white and fluffy, seed is hairy (Waters et al. 2000), mature December–February (Greening Australia 1996).

**Dispersal, establishment & growth:** Diaspore: seed, adhesive (McIntyre et al. 1995). Optimum germination above 20°C, although rainfall may be more important than temperature, with seed more than 6 months old to overcome dormancy, sown in April–May (Waters et al. 2000).

**Fire response:**

**Interaction with other organisms:** Year-long green plant produces high quality fodder during cooler months, encouraged by moderate grazing (Waters et al. 2000).

**Distribution**

**Status/origin:** Native.

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

**Distribution Sydney area:** Widespread.

**Select locations:** CC: Grose River, Homebush, Wentworthville, Wallacia, Campbelltown, Douglas Park, Bargo. CT: Orange, Lithgow, Katoomba.

**Habitat**

**Habitat:**

**Altitude:** 0–1000 m  
**Annual rainfall:** 700–1400 mm

**Typical local abundance:** Occasional.

**Vegetation:**

**Substrate:** Clay soils on shale, alluvium, occasionally on sandstone, medium nutrients. Recorded on saline sites in western NSW (Semple 1993).

**Exposure:**

**Conservation**

Vulnerable in Western Sydney (James et al. 1999). Conservation status elsewhere unknown.

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**Austrodanthonia caespitosa** (*Danthonia caespitosa*)

**Ringed Wallaby Grass**

**Life history**

**Growth form:** Variable, tufted perennial herb to 1 m high.

**Vegetative spread:** No (McIntyre et al. 1995).

**Longevity:** 5–6 years, favoured by grazing (Waters et al. 2000).

**Primary juvenile period:**

**Flowers:** Early spring, infrequently at other times (Waters et al. 2000).

**Fruit/seed:** Dry, 1-seeded, indehiscent fruit. Seedheads appear white and fluffy (Waters et al. 2000), mature December–January (Greening Australia 1996a).

**Dispersal, establishment & growth:** Prolific seedling recruitment, optimum germination at 15°C for seed more than 6 months old, to overcome dormancy and longevity (Waters et al. 2000). Germination approx. 26 days, typical rate 160 per gram of seed (Greening Australia 1996a).

**Fire response:**
### Austrodanthonia carphoides

*(Danthonia, Rytidosperma carphoides, Notodanthonia)*

**Short Wallaby Grass**

**Life history**

**Growth form:** Small, erect tufted perennial herb to 0.5 m high.

**Vegetative spread:**

**Longevity:**

**Primary juvenile period:**

**Flowers:** November–January.

**Fruit/seed:** Dry, 1-seeded, indehiscent fruit.

**Dispersal, establishment & growth:**

**Fire response:**

**Interaction with other organisms:**

**Distribution**

**Status/origin:** Native.

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

**Distribution Sydney area:** Mainly Tablelands.

**Select locations:** CC: Ingleburn (1943).

**Habitat**

**Habitat:** Grassland, woodland

**Altitude:** 0–700 m  
**Annual rainfall:** 600–800 mm

**Typical local abundance:** Occasional.

**Vegetation:** Grassland.

**Substrate:** Heavy soils on slate, granite.

**Exposure:**

**Conservation**

Conservation status unknown.

### Austrodanthonia eriantha

* (Danthonia eriantha)  

**Wallaby Grass**

**Life history**

**Growth form:** Erect, densely tufted perennial herb to 0.7 m high.

**Vegetative spread:** No (McIntyre et al. 1995).

**Longevity:**

**Primary juvenile period:**

**Flowers:** November–February.

**Fruit/seed:** Dry, 1-seeded, indehiscent fruit. Central awn/bristle twisted and brown at the lower end.

**Dispersal, establishment & growth:** Diaspore adhesive (McIntyre et al. 1995).

**Fire response:**

**Interaction with other organisms:**

**Distribution**

**Status/origin:** Native.

**Botanical subregions:** NC CC NT CT ST NWS CWS SWS NWP SWP.

**Distribution Sydney area:** Bathurst–Oberon, Southern Highlands.

**Select locations:** CC: Colo Vale. CT: Pyramul, Mullions Range, Oberon, Black Springs, Burraga, Mt Werong, Richlands, Moss Vale.

**Habitat**

**Habitat:** Plains.

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

**Typical local abundance:** Frequent.

**Vegetation:** Eucalypt open-woodland, grassland.

**Substrate:** Clay soils on basalt, shale, quartzite, granite, medium nutrients.

**Exposure:**

**Conservation**

Only coastal record is Colo Vale, near Moss Vale in 1911. Conservation status unknown.
Wallaby Grass

**Life history**

**Growth form:** Erect, densely tufted perennial herb to 0.5 m high.

**Vegetative spread:** No (McIntyre et al. 1995).

**Longevity:**

**Primary juvenile period:**

**Flowers:** November–March.

**Fruit/seed:** Dry, 1-seeded, indehiscent fruit, with central awn/bristle twisted at the lower end.

**Dispersal, establishment & growth:** Diaspore adhesive (McIntyre et al. 1995).

**Fire response:**

**Interaction with other organisms:**

**Distribution**

**Status/origin:** Native.

**Botanical subregions:** CC SC NT CT ST NWS CWS SWS SWP; Vic., Tas.

**Distribution Sydney area:** Blue Mountains, Southern Highlands.

**Select locations:** CT: Lidcombe, Lethbridge, Hartley, Blackheath, Lawson, Katoomba, Wentworth Falls, Woodford, Bendoorah, Kanangra Walls, Mount Jellore, Fitzroy Falls, Penrose, Tallong.

**Habitat**

**Habitat:** Exposed rock platforms, ridges.

**Altitude:** 500–1000 m **Annual rainfall:** 700–1400 mm

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

**Vegetation:** Woodland e.g. with *Eucalyptus dives*, *E. mannifera*; low woodland e.g. with *Eucalyptus eximia*, *E. sideroxylon*; heath e.g. with *Hakea teretifolia*, *Allocasuarina nana*, *Kunzea capitata*, *Kunzea ambigua*, *Leptospermum trinervium*.

**Substrate:** Sandy soils on sandstone, metamorphics, low nutrients.

**Exposure:**

**Conservation**

Conservation status unknown. Reported in Morton NP.
**Austrodanthonia racemosa** *(Danthonia racemosa, Rytidosperma racemosum, Notodanthonia racemosa)*

Wallaby Grass

**Life history**

**Growth form:** Perennial herb to 60 cm high.

**Vegetative spread:** No (McIntyre et al. 1995).

**Longevity:**

**Primary juvenile period:**

**Flowers:** Spring–summer.

**Fruit/seed:** Dry, 1-seeded, indehiscent fruit. Mature December–January (Greening Australia 1996a).

**Dispersal, establishment & growth:** Diaspore adhesive (McIntyre et al. 1995). Total germination approx. 37 days (typical rate 557 per gram of seed, Greening Australia 1996a). 'Abundant in the spring and during the moist summer and autumn months .... Grows well in the shade (Blakely, Herb. note 1914).

**Fire response:**

**Interaction with other organisms:**

**Distribution**

**Status/origin:** Native.

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

**Distribution Sydney area:** Mainly Bathurst area.

**Select locations:** CC: Awaba (1914). CT: Bathurst, Mount Tomah (1900).

**Habitat**

**Altitude:** 0–1000 m

**Annual rainfall:** 600–1200 mm

**Typical local abundance:** Frequent.

**Vegetation:**

**Substrate:** Sandy to medium clay soils on granite, sandstone, low nutrients.

**Exposure:**

**Conservation**

Vulnerable in Western Sydney (James et al. 1999), conservation status elsewhere unknown. Reported in Royal NP.

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**Austrodanthonia richardsonii** *(Danthonia richardsonii)*

Wallaby Grass

**Life history**

**Growth form:** Erect, tufted perennial herb to 1 m high, green all year.

**Vegetative spread:** No (McIntyre et al. 1995).

**Longevity:**

**Primary juvenile period:**

**Flowers:** Spring–summer (Waters et al. 2000).

**Fruit/seed:** Primary dormancy period 6 months (Waters et al. 2000).

**Dispersal, establishment & growth:** Diaspore adhesive (McIntyre et al. 1995). Prolific seedling recruitment, with optimum germination above 20°C for seed more than 6 months old, sown close to soil surface in April–May (Waters et al. 2000).

**Fire response:**

**Interaction with other organisms:** Absence of grazing results in decline in plant numbers and longevity (Waters et al. 2000).

**Distribution**

**Status/origin:** Native.

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

**Distribution Sydney area:** Mainly Bathurst area.

**Select locations:** CC: Kurrajong Heights, Richmond, Glenbrook, Woodford, Wairoonga, Epping, Gladesville, Rose Bay, Georges Hall, Peakhurst, Glenfield, Botany Swamp, Cobbity, Camden, Mount Annan, Campbelltown, Douglas Park, Bargo, Dapto, Albion Park, Kangaroo Valley, Berry. CT: Windeyer, Sofala, Portland, Bathurst, Yetholme, O’Connell, Tarana, Blayney, Mandurama, Black Springs, Oberon, Richlands, Hill Top, Wombeyan Caves.

**Habitat**

**Altitude:** 0–1100 m

**Annual rainfall:** 600–1400 mm

**Typical local abundance:** Frequent.

**Vegetation:**

**Substrate:** Clay soils on shale, slate, medium nutrients. Recorded on saline sites in western NSW (Semple 1993).

**Exposure:**

**Conservation**

Vulnerable in Western Sydney (James et al. 1999), conservation status elsewhere unknown.

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**Austrodanthonia tenuior** *(Danthonia tenuior, Rytidosperma tenuis, Notodanthonia tenuior)*

Wallaby Grass

**Life history**

**Growth form:** Erect densely tufted perennial herb to 0.7 m high.

**Vegetative spread:**

**Longevity:**

**Primary juvenile period:**

**Flowers:** In response to rain.

**Fruit/seed:** Mature December–January (Greening Australia 1996a).

**Dispersal, establishment & growth:** Total germination approx. 24 days (typical rate 376 per gram of seed, Greening Australia 1996a).

**Fire response:**

**Interaction with other organisms:**

**Distribution**

**Status/origin:** Native.

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

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

**Select locations:** CC: Homebush, Hunters Hill, Rookwood, Macquarie Fields, Campbelltown. CT: Mandurama.

**Habitat**

**Altitude:** 0–900 m

**Annual rainfall:** 700–1000 mm

**Typical local abundance:** Frequent.

**Vegetation:** Woodland, grassland.

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

**Exposure:**

**Conservation**

Vulnerable in Western Sydney (James et al. 1999), conservation status elsewhere unknown.
**Cunninghamia**

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** PRIMARY JUVENILE PERIOD:**

**FLOWERS:** October–May.

**FRUIT/SEED:** Dry, 1-seeded, indehiscent fruit, October–May.

**DISPERSAL, ESTABLISHMENT & GROWTH:** Diaspore adhesive (McIntyre et al. 1995).

**FIRE RESPONSE:** Resprouted, fruiting April–July, 4–6 months after high intensity fire (1/94 at Lane Cove) (P. Kubiak pers. comm.).

**INTERACTION WITH OTHER ORGANISMS:** Eaten by rabbits (P. Kubiak pers. comm.).

**Distribution**

**STATUS/ORIGIN:** Native.

**BOTANICAL SUBREGIONS:** NC CC SC NT CT ST NWS CWS SWS SFWP; Qld, Vic., S.A., N.Z.

**DISTRIBUTION SYDNEY AREA:** Coast and lower Blue Mountains.

**SELECT LOCATIONS:**

**CC:** Awaba, Bilpin, Richmond, Glenbrook, Hornsby, Wagraong, Willoughby, Manly, Bondi, Vaucluse, Homebush, Hurstville, Roorkwood, La Perouse, Kemps Creek, Liverpool, Ingleburn, Campbeltown, Darkes Forest, Yanderra, Mt Keira, Albion Park.

**CT:** Wentworth Falls, Woodford, Hill Top, Moss Vale.

**Habitat**

**HABITAT:** Ridges.

**ALTITUDE:** 0–1000 m **ANNUAL RAINFALL:** 700–1400 mm

**TYPICAL LOCAL ABUNDANCE:** Frequent–occasional.

**VEGETATION:** Open-forest e.g. with Eucalyptus pilularis, E. saligna, Angophora costata, Eucalyptus piperita; woodland e.g. with Eucalyptus fibrosa, E. sclerophylla, Banksia serrata.

**SUBSTRATE:** Sandy to clay soils on shale, sandstone, dune sand, low–medium nutrients.

**EXPOSURE:**

**Conservation**

Conserved in Western Sydney (James et al. 1999), conservation status elsewhere unknown. Reported in Royal NP, Dalrymple Hay NR.

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**Austrosteca hookeriana** *(Festuca hookeriana)*

Hooker’s Fescue

**Life history**

**GROWTH FORM:** Erect tufted perennial herb to 1.3 m high.

**VEGETATIVE SPREAD:**

**LONGEVITY:**

**PRIMARY JUVENILE PERIOD:**

**FLOWERS:** Spring.

**FRUIT/SEED:** Dry, 1-seeded, indehiscent fruit.

**DISPERSAL, ESTABLISHMENT & GROWTH:**

**FIRE RESPONSE:**

**INTERACTION WITH OTHER ORGANISMS:**

**Distribution**

**STATUS/ORIGIN:** Native.

**BOTANICAL SUBREGIONS:** CT ST; Vic, Tas.

**DISTRIBUTION SYDNEY AREA:** Bundanoon.

**SELECT LOCATIONS:**

**CT:** Bundanoon (1935).

**Habitat**

**HABITAT:** Swamppy places.

**ALTITUDE:** 700 m **ANNUAL RAINFALL:** 1200 mm

**TYPICAL LOCAL ABUNDANCE:**

**VEGETATION:** Open-forest; grassland

**SUBSTRATE:**

**EXPOSURE:**

**Conservation**

Only Sydney area record is Bundanoon in 1935, the northern geographical limit in 1935. Conservation status unknown.

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**Austrosteca littoralis** *(Festuca littoralis)*

Beach Fescue

**Life history**

**GROWTH FORM:** Erect tufted perennial herb to 0.6 m high, with vertical branching rhizome.

**VEGETATIVE SPREAD:**

**LONGEVITY:**

**PRIMARY JUVENILE PERIOD:**

**FLOWERS:** Spring–summer.

**FRUIT/SEED:** Dry, 1-seeded, indehiscent fruit.

**DISPERSAL, ESTABLISHMENT & GROWTH:**

**FIRE RESPONSE:**

**INTERACTION WITH OTHER ORGANISMS:**

**Distribution**

**STATUS/ORIGIN:** Native.

**BOTANICAL SUBREGIONS:** NC CC SC; Vic., Tas., S.A., N.Z.

**DISTRIBUTION SYDNEY AREA:** Coastal beaches.

**SELECT LOCATIONS:** CC: The Entrance, Wamberal (1896), Avoca North, McMasters Beach, Mona Vale, Dee Why, Manly Beach, Bondi Bay (1842), Maroubra Bay (1897), Cronulla, Austinmer, Wollongong, Port Kembla.

**Habitat**

**HABITAT:** Coastal beach dunes

**ALTITUDE:** 0–50 m **ANNUAL RAINFALL:** 1200–1400 mm

**TYPICAL LOCAL ABUNDANCE:**

**VEGETATION:**

**SUBSTRATE:** Sandy soil on beach dunes, low nutrients.

**EXPOSURE:**

**Conservation**

Conservation status unknown.
**POACEAE**

*Austrostipa aristiglumis* (*Stipa aristiglumis*)

*Plains Grass*

**Life history**

**GROWTH FORM:** Tufted perennial herb to 2 m high.

**VEGETATIVE SPREAD:** No.

**LONGEVITY:**

**PRIMARY JUVENILE PERIOD:**

**FLOWERS:** Spring–summer.

**FRUIT/SEED:** Dry, 1-seeded, indehiscent fruit, with awn 2.5–4 cm long.

**DISPERSAL, ESTABLISHMENT & GROWTH:**

**FIRE RESPONSE:**

**INTERACTION WITH OTHER ORGANISMS:**

**Distribution**

**STATUS/ORIGIN:** Native.

**BOTANICAL SUBREGIONS:** NC NC NT CT ST NWS CWS SWS NWP SWP; Qld, Vic.

**DISTRIBUTION SYDNEY AREA:** Sporadic.


**Habitat**

**HABITAT:**

**ALTITUDE:** 0–700 m

**ANNUAL RAINFALL:** 600–700 mm

**TYPICAL LOCAL ABUNDANCE:**

**VEGETATION:** Remnant scrub.

**SUBSTRATE:** Clay soils on shale.

**EXPOSURE:**

**Conservation**

Western species, possibly introduced to coast with stock.

**POACEAE**

*Austrostipa bigeniculata* (*Stipa bigeniculata*)

**Life history**

**GROWTH FORM:** Tufted perennial herb to 1 m high.

**VEGETATIVE SPREAD:**

**LONGEVITY:**

**PRIMARY JUVENILE PERIOD:**

**FLOWERS:** Spring–summer.

**FRUIT/SEED:** Dry, 1-seeded, indehiscent fruit, with awn 3–6 cm long, December–February.

**DISPERSAL, ESTABLISHMENT & GROWTH:**

**FIRE RESPONSE:**

**INTERACTION WITH OTHER ORGANISMS:**

**Distribution**

**STATUS/ORIGIN:** Native.

**BOTANICAL SUBREGIONS:** SC CT ST NWS CWS SWS NWP SWP; Vic., Tas., N.Z.

**DISTRIBUTION SYDNEY AREA:** Bathurst–Orange area.

**SELECT LOCATIONS:** CC: The Oaks (1966). CT: Bathurst (1941).

**Habitat**

**HABITAT:** Wooded areas.

**ALTITUDE:** 700–900 m

**ANNUAL RAINFALL:** 600–1000 mm

**TYPICAL LOCAL ABUNDANCE:** Occasional.

**VEGETATION:** Woodland.

**SUBSTRATE:** Sandy soils on granite, low nutrients

**EXPOSURE:**

**Conservation**

Western species, with one record for Centennial Park in 1909, but probably introduced with stock.

**POACEAE**

*Austrostipa densiflora* (*Stipa densiflora*)

**Life history**

**GROWTH FORM:** Tufted perennial herb to 1.5 m high.

**VEGETATIVE SPREAD:**

**LONGEVITY:**

**PRIMARY JUVENILE PERIOD:**

**FLOWERS:** Spring–summer.

**FRUIT/SEED:** Dry, 1-seeded, indehiscent fruit, with awn 3.5–4.5 cm long.

**DISPERSAL, ESTABLISHMENT & GROWTH:**

**FIRE RESPONSE:**

**INTERACTION WITH OTHER ORGANISMS:**

**Distribution**

**STATUS/ORIGIN:** Native.

**BOTANICAL SUBREGIONS:** CC ST NWS CWS SWS NWP SWP NFWP SFWP; Vic., S.A., W.A.

**DISTRIBUTION SYDNEY AREA:** Sporadic.

**SELECT LOCATIONS:** CC: The Oaks (1966). CT: Bathurst (1941).

**Habitat**

**HABITAT:**

**ALTITUDE:** 0–100 m

**ANNUAL RAINFALL:** 1200–1400 mm

**TYPICAL LOCAL ABUNDANCE:**

**VEGETATION:**

**SUBSTRATE:** Sandy soils on granite, low nutrients

**EXPOSURE:**

**Conservation**

Western species, with one record for Centennial Park in 1909, but probably introduced with stock.

**POACEAE**

*Austrostipa elegantissima* (*Stipa elegantissima*)

*Feather Speargrass*

**Life history**

**GROWTH FORM:** Tufted perennial herb to 1 m high, with short rhizome.

**VEGETATIVE SPREAD:** No.

**LONGEVITY:**

**PRIMARY JUVENILE PERIOD:**

**FLOWERS:** Flowers in response to rain.

**FRUIT/SEED:** Dry, 1-seeded, indehiscent fruit, with awn 2–5 cm long.

**DISPERSAL, ESTABLISHMENT & GROWTH:**

**FIRE RESPONSE:**

**INTERACTION WITH OTHER ORGANISMS:** Palatable to stock.

**Distribution**

**STATUS/ORIGIN:** Native.

**BOTANICAL SUBREGIONS:** CC ST NWS CWS SWS NWP SWP NFWP SFWP; Vic., S.A., W.A.

**DISTRIBUTION SYDNEY AREA:** Centennial Park (1909).

**Habitat**

**HABITAT:**

**ALTITUDE:** 0–100 m

**ANNUAL RAINFALL:** 1200–1400 mm

**TYPICAL LOCAL ABUNDANCE:**

**VEGETATION:**

**SUBSTRATE:** Sandy soils on granite, low nutrients

**EXPOSURE:**

**Conservation**

Conservation status unknown.

**POACEAE**

*Austrostipa mollis* (*Stipa mollis*)

**Life history**

**GROWTH FORM:** Tufted perennial herb to 1 m high.

**VEGETATIVE SPREAD:** No.

**LONGEVITY:**

**PRIMARY JUVENILE PERIOD:**

**FLOWERS:** Spring–summer, or in response to rain.

**FRUIT/SEED:** Dry, 1-seeded, indehiscent fruit, with awn 6–10 cm long, October–December.

**DISPERSAL, ESTABLISHMENT & GROWTH:**

**FIRE RESPONSE:**

**INTERACTION WITH OTHER ORGANISMS:**

**Distribution**

**STATUS/ORIGIN:** Native.

**BOTANICAL SUBREGIONS:** CC ST NWS CWS SWS NWP SWP NFWP SFWP; Vic., S.A., W.A.

**DISTRIBUTION SYDNEY AREA:** Sporadic.

**SELECT LOCATIONS:** CC: Centennial Park (1909).

**Habitat**

**HABITAT:**

**ALTITUDE:** 0–100 m

**ANNUAL RAINFALL:** 600–900 mm

**TYPICAL LOCAL ABUNDANCE:**

**VEGETATION:**

**SUBSTRATE:** Clay soils on shale, low nutrients

**EXPOSURE:**

**Conservation**

Conservation status unknown.
Austrostipa nitida (Stipa nitida)
Life history
Growth form: Tufted perennial herb to 0.8 m high.
Vegetative spread: No.
Longevity: Primary juvenile period:
Flowers: Flowers in response to rain.
Fruit/seed: Dry, 1-seeded, indehiscent fruit, with awn 4.5–7 cm long, August–September.
Dispersal, establishment & growth:
Fire response: Probably resprouts.
Interactions with other organisms:

Distribution
Status/origin: Native.
Botanical subregions: CC NWS CWS NWP SWP NFWP SFWP; Qld, Vic., N.T., S.A., W.A.
Distribution Sydney area: Flemington, Cheltenham, Northbridge, Ryde, Glenbrook, Woodford, Gladstoneville, Kemps Creek, Kogarah, Oakdale, Stanwell Park, Kangaroo Valley.
Conservation
Status/origin: Native.

Austrostipa nodosa (Stipa nodosa)
Life history
Growth form: Tufted perennial herb to c. 1 m high.
Vegetative spread: No.
Longevity: Primary juvenile period:
Flowers:
Fruit/seed: Dry, 1-seeded, indehiscent fruit, with awn 4.5–10 cm long.
Dispersal, establishment & growth:
Fire response: Possibly resprouts.
Interactions with other organisms:

Distribution
Status/origin: Native.
Botanical subregions: CC NT CT ST NWS SWS NWP SWP NFWP SFWP; Qld, S.A.
Austrostipa rudis subsp. nervosa

(Stipa rudis subsp. nervosa)

Life history
Growth form: Tufted perennial herb to 1.2 m high.
Vegetative spread: No (McIntyre et al. 1995).
Longevity: Perennial.
Primary juvenile period:
Flowers: Spring–summer.
Frut/seed: Dry, 1-seeded, indehiscent fruit, with awn 2–9 cm long.
Dispersal, establishment & growth: Morphology for dispersal by adhesion (McIntyre et al. 1995).
Fire response:
Interaction with other organisms:

Distribution
Status/origin: Native.
Botanical subregions: NC CC NT CT ST NWS CWS; Qld, Vic.
Distribution Sydney area: Mainly Hawkesbury–Nepean River system.

Habitat
Habitat: Moist gullies, creekbanks.
Altitude: 0–800 m
Typical local abundance: Frequent–occasional.
Vegetation: Near open-forest or woodland, in river flat forest e.g. with Angophora subvelutina, Eucalyptus elata, Backhousia myrtifolia, Tristanioptis laurina; dry scrub e.g. Elderslie Banksia Scrub with Banksia integrigifolia.
Substrate: Sandy to gravelly clay soil on shale, alluvium, sandstone, medium nutrients. Water table mostly low, moisture supply intermittent, fresh.
Exposure: Light shade.
Conservation
Conservation status unknown.

POACEAE

Austrostipa scabra subsp. falcata (Stipa falcata)

Speargrass

Life history
Growth form: Tufted perennial herb to c. 0.6 m high.
Vegetative spread: No (McIntyre et al. 1995).
Longevity:
Primary juvenile period:
Flowers: Spring–summer.
Frut/seed: Dry, 1-seeded, indehiscent fruit, with awn 3–7 cm long, September–January.
Dispersal, establishment & growth: Morphology for dispersal by adhesion (McIntyre et al. 1995).
Fire response:
Interaction with other organisms:

Distribution
Status/origin: Native.
Botanical subregions: CC CT ST CWS SWS SWP; Qld, Vic., S.A.
Distribution Sydney area: Mainly Bathurst area.
Select locations: CC: Bilpin, Grose River, Springwood, Hornsby, Pymble, Lane Cove, Merrylands, Parramatta, Duck River, Milperra, Liverpool, Oakdale, Picton, Hill Top. CT: Clarence, Mt Victoria, Blackheath, Katoomba, Jenolan River, Robertson, Barbers Creek.

Habitat
Habitat: Ridges.
Altitude: 0–1100 m
Annual rainfall: 1000–1400 mm
Typical local abundance: Frequent–occasional.
Vegetation: Open-forest e.g. with Eucalyptus pilularis, E. saligna; woodland e.g. with Eucalyptus crebra, E. melliodora, E. macrocarpha; heath e.g. with Angophora hispida, Eucalyptus ligustrina, Hakea dactyloides. Also with Eucalyptus moluccana, E. resinifera, E. punctata (T. James pers. comm.).
Substrate: Clay soil on shale, sandy soils on sandstone, low–medium nutrients.
Exposure:
Conservation
Conservation status unknown. Reported in Dalrymple Hay NR, Royal NP.

POACEAE

Austrostipa rudis subsp. rudis (Stipa rudis subsp. rudis)

Life history
Growth form: Tufted perennial herb to 1.2 m high.
Vegetative spread: No (McIntyre et al. 1995).
Longevity: Perennial.
Primary juvenile period:
Flowers: Spring–summer.
Frut/seed: Dry, 1-seeded, indehiscent fruit, with awn 2–9 cm long.
Mature December–February (Greening Australia 1996a).
Dispersal, establishment & growth: Morphology for dispersal by adhesion (McIntyre et al. 1995). Total germination approx. 98 days, (typical rate 12 per gram of awned seed, Greening Australia 1996a). Possibly a coloniser of bare sites.
Fire response:
Interaction with other organisms:

Distribution
Status/origin: Native.
Botanical subregions: CC SC NT CT ST; Qld, Vic.
Distribution Sydney area: Widespread.
Select locations: CC: Annangrove, Hornsby, Homebush, Greenacre, O'Connell, Turondale, Bathurst, Rydal.

Habitat
Habitat: Moist gullies, creek banks.
Altitude: 0–1100 m
Annual rainfall: 700–1400 mm
Typical local abundance: Frequent–occasional.
Vegetation: Moist open-forest e.g. with Eucalyptus saligna, E. pilularis, Melaleuca linariifolia; woodland e.g. with Eucalyptus radiata, E. blakelyi; riparian forest e.g. with Casuarina cunninghamiana.
Substrate: Sandy clay soils on shale, alluvium, sandstone, low–medium nutrients.
Exposure:
Conservation
Conservation status unknown.

POACEAE
**Austrostipa scabra** subsp. *scabra*

**Speargrass**

**Life history**

**Growth form:** Tufted perennial herb to c. 0.6 m high.

**Vegetative spread:** No.

**Longevity:** Perennial.

**Primary juvenile period:**

**Flowers:** In response to rain.

**Fruit/seed:** Dry, 1-seeded, indehiscent fruit, with awn 3–7 cm long, October–April.

**Dispersal, establishment & growth:**

**Fire response:**

**Interaction with other organisms:**

**Distribution**

**Status/origin:** Native.

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

**Distribution Sydney area:** Widespread.

**Select locations:** CC: Castlereagh, Epping, Campbelltown, Menangle Park, Douglas Park, The Oaks. CT: Bathurst, Lucknow, Mittagong.

**Habitat**

**Habitat:** Ridges.

**Altitude:** 0–700 m  
**Annual rainfall:** 600–1000 mm

**Typical local abundance:** Occasional.

**Vegetation:** Grassland e.g. with *Themeda australis*.

**Substrate:** Clay soils on shale, volcanics, medium nutrients, well-drained.

**Exposure:**

**Conservation**

Conservation status unknown.

---

**Austrostipa semibarbata** *(Stipa semibarbata)*

**Corkscrew Grass**

**Life history**

**Growth form:** Tufted perennial herb to c. 0.8 m high.

**Vegetative spread:** No.

**Longevity:**

**Primary juvenile period:**

**Flowers:** Most of the year.

**Fruit/seed:** Dry, 1-seeded, indehiscent fruit, with awn 2.5–4 cm long.

**Dispersal, establishment & growth:**

**Fire response:**

**Interaction with other organisms:**

**Distribution**

**Status/origin:** Native.

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

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

**Select locations:** CC: Glenfield, Liverpool, Cobbitty, Mount Annan, Picton. CT: Jenolan River.

**Habitat**

**Habitat:** Slopes, gully sides.

**Altitude:** 0–350 m  
**Annual rainfall:** 700–1000 mm

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

**Vegetation:** Woodland e.g. with *Eucalyptus moluccana, E. tereticornis, E. melliodora*; grassland.

**Substrate:** Clay soils on shales, metamorphics, low-medium nutrients.

**Exposure:**

**Conservation**

Vulnerable in Western Sydney (James et al. 1999). Conservation status elsewhere unknown.

---

**Austrostipa verticillata** *(Stipa verticillata)*

**Speargrass**

**Life history**

**Growth form:** Tufted perennial herb to 2 m high, with short rhizome.

**Vegetative spread:** Yes.

**Longevity:** Perennial.

**Primary juvenile period:**

**Flowers:** Most of the year.

**Fruit/seed:** Dry, 1-seeded, indehiscent fruit, with awn 3–5 cm long.

**Dispersal, establishment & growth:**

**Fire response:**

**Interaction with other organisms:**

**Distribution**

**Status/origin:** Native.

**Botanical subregions:** NC CC SC NT ST NWS CWS SWS NWP SWP; Qld.

**Distribution Sydney area:** Western Sydney.

**Select locations:** CC: Berowra Creek, Richmond, Penrith, Homebush, Kogarah, Georges River, Glenfield.

**Habitat**

**Habitat:** Levee banks on floodplain and estuary.

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

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

**Vegetation:** Riverflat forest e.g. with *Casuarina cunninghamiana, Stipa ramosissima*; saline flats.

**Substrate:** Sandy alluvial to gravelly clay soils, well-drained, medium nutrients. Sometimes with some saline influence. Recorded on saline sites in western NSW (Semple 1993).

**Exposure:**

**Conservation**

Vulnerable in Western Sydney (James et al. 1999).
**Avena barbata** *  
Bearded Oat  

**Life history**  
**Growth form:** Herb to 1 m high.  
**Vegetative spread:** No.  
**Longevity:** Less than 1 year.  
**Primary juvenile period:** Less than 1 year.  
**Flowers:** Mainly September–December.  
**Fruit/seed:** Dry, 1-seeded, indehiscent fruit, with bristles and awns 3–6 cm long.  
**Dispersal, establishment & growth:** Animal and wind-dispersed (Carr et al. 1992).  
**Fire response:**  
**Interaction with other organisms:** Foodplant of Pacific Black Duck *Anas superciliosa* (Barker & Vestjens 1989, 1990).  

**Distribution**  
**Status/origin:** Exotic, native to Mediterranean.  
**Botanical subregions:** NC CC SC NT CT CWS SWS SWP NFWP; LHI, Vic., S.A., W.A.  
**Distribution Sydney area:** Suburban areas.  
**Select locations:** CC: Cheltenham, Killara, Manly, Homebush, McMahon’s Point (1914), Centennial Park, Campbelltown, Douglas Park.  

**Habitat**  
**Habitat:** Disturbed ground, roadsides, railways.  
**Altitude:** 0–700 m  
**Annual rainfall:** 700–1400 mm  
**Typical local abundance:** Frequent.  

**Vegetation:** Weedy sites.  
**Substrate:** Disturbed sites on sandstone, shale, coastal headlands.  
**Exposure:**  
**Conservation**  
Common weed of disturbed ground.  

**Avena ludoviciana** *  
Ludo Wild Oats  

**Life history**  
**Growth form:** Robust herb to 1.5 m high.  
**Vegetative spread:** No.  
**Longevity:** Less than 1 year.  
**Primary juvenile period:** Less than 1 year.  
**Flowers:** Spring.  
**Fruit/seed:** Dry, 1-seeded, indehiscent fruit, with awns 2–6 cm long, October–December.  
**Dispersal, establishment & growth:**  
**Fire response:**  
**Interaction with other organisms:**  

**Distribution**  
**Status/origin:** Exotic, native to Europe and W Asia.  
**Botanical subregions:** NC CC ST CT ST NWS CWS NWP SWP NFWP SFWP; Qld, Vic., Tas., S.A., W.A.  
**Distribution Sydney area:** Sydney suburbs, Bathurst area.  
**Select locations:** CC: Killara (1952), Flemington, Liverpool. CT: Bathurst.  

**Habitat**  
**Habitat:** Agricultural land, wasteland, railway lines.  
**Altitude:** 0–700 m  
**Annual rainfall:** 600–1200 mm  
**Typical local abundance:** Frequent.  
**Vegetation:** Weedy sites.  
**Substrate:** Disturbed soils.  
**Exposure:**  
**Conservation**  
Weed of crops, not invading bushland. Recorded naturalising relatively recently compared with other *Avena* species.  

**Avena fatua** *  
Wild Oats  

**Life history**  
**Growth form:** Robust herb to 1.6 m high.  
**Vegetative spread:** No (McIntyre et al. 1995).  
**Longevity:** Less than 1 year.  
**Primary juvenile period:** Less than 1 year.  
**Flowers:** Spring.  
**Fruit/seed:** Dry, 1-seeded, indehiscent fruit, with bristles and awns 2–5 cm long.  
**Dispersal, establishment & growth:** Diaspore adhesive (McIntyre et al. 1995).  
**Fire response:**  
**Interaction with other organisms:**  

**Distribution**  
**Status/origin:** Exotic, probably native to Mediterranean.  
**Botanical subregions:** NC CC SC NT CT ST NWS CWS SWS NWP SWP NFWP; Qld, Vic., Tas., N.T., S.A., W.A.  
**Distribution Sydney area:** Widespread.  
**Select locations:** CC: Cheltenham, Killara, Mainly, Homebush, McMahon’s Point (1914), Centennial Park, Campbelltown, Douglas Park.  

**Habitat**  
**Habitat:** Disturbed ground, roadsides, railways.  
**Altitude:** 0–700 m  
**Annual rainfall:** 700–1400 mm  
**Typical local abundance:** Frequent.  

**Vegetation:** Weedy sites.  
**Substrate:** Disturbed sites on sandstone, shale, coastal headlands.  
**Exposure:**  
**Conservation**  
Common weed of disturbed ground.  

**Avena sativa** *  
Oats  

**Life history**  
**Growth form:** Robust herb to 1.5 m high.  
**Vegetative spread:** No (McIntyre et al. 1995).  
**Longevity:** Less than 1 year.  
**Primary juvenile period:** Less than 1 year.  
**Flowers:** Spring.  
**Fruit/seed:** Dry, 1-seeded, indehiscent fruit, with awns 2–5 cm long, November–February.  
**Dispersal, establishment & growth:** Diaspore adhesive (McIntyre et al. 1995).  
**Fire response:** Some plants fruiting 43 weeks after high intensity fire; possibly grew from seed introduced post-fire (1/94 at Lane Cove) (P. Kubiak pers. comm.).  

**Distribution**  
**Status/origin:** Exotic, native to Europe and Central and W Asia. Introduced as cereal.  
**Botanical subregions:** CC SC NT CT CWS SWS SWP NFWP; LHI, Qld, Vic., S.A., W.A.  
**Distribution Sydney area:** Widespread.
**Axonopus fissifolius** *(Axonopus affinis)*

Narrow-leafed Carpet Grass

**Life history**

**Growth form:** Stoloniferous perennial herb to 0.5 m high.

**Vegetative spread:** Stoloniferous.

**Longevity:** Indefinite.

**Primary juvenile period:**

**Flowers:** Warmer months.

**Fruit/seed:** Dry, 1-seeded, indehiscent fruit. Dispersed in mud on cars (Wace 1977).

**Fire response:**

**Interaction with other organisms:** ‘Cattle do not eat it ’ (Herb. note 1936).

**Distribution**

**Status/origin:** Exotic, native to America.

**Botanical subregions:** NC CC SC NT CT ST NWP SWP; Qld.

**Select locations:** CC: Tenderah, Wisemans Ferry (1938), Spencer, Gordon, Homebush (1931), Centennial Park, Penrith, Audley, Berry, Cambewarra (1936). CT: Woodford.
Bothriochloa macra (*B. ambigua*)

Red Grass, Red Leg Grass

**Life history**

**Growth form:** Low-growing tussock grass to 1 m high, with greenish to brownish sparsely hairy leaves (Waters et al. 2000).

**Vegetative spread:** No (McIntyre et al. 1995).

**Longevity:**

**Primary juvenile period**

**Flowers:** Produces reddish-purple flowering stems, summer and early autumn (Waters et al. 2000). Appears to flower most when competition from other vegetation is removed by burning, grazing or mowing (DHB).

**Fruit/seed:** Dry, 1-seeded, indehiscent fruit. Mature December–February (Greening Australia 1996a).

**Dispersal, establishment & growth:** Diaspore adhesive (McIntyre et al. 1995), dispersed in mud on cars (Wace 1977). Dormancy period of a few months can be broken by light, germination rate of wild seed 40–90%; optimal germination at 25–30 °C (Waters et al. 2000). Total germination approx. 36 days, typical rate 309 per gram of seed (Greening Australia 1996a).

**Fire response:** Resprouts; burning promoted synchronous ripening of seed heads (in CT mid September 1991, Waters et al. 2000).

**Interaction with other organisms:** Seeding stems avoided by stock (Waters et al. 2000). Widespread in overgrazed paddocks (Harden 1993).

**Distribution**

**Status/origin:** Native.

**Botanical subregions:** CC SWS; Vic., Tas., S.A., W.A.

**Distribution Sydney area:** Widespread.

**Select locations:** CC: Morisset, Colo, Hornsby, Denistone, Ashfield, Hurstville, Villawood, Doonside, Glenfield, Campbelltown, Razorback, Lake Illawarra, Dapto, Hill Top, Gerringong. CT: Orange, Bathurst, Jenolan Caves, Glen Davis, Lithgow, Moss Vale.

**Habitat**

**Habitat:** Slopes, undulating country.

**Altitude:** 0–1000 m  
**Annual rainfall:** 700–1400 mm

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

**Vegetation:** Woodland e.g. with *Eucalyptus moluccana*, *E. tereticornis*, *E. crebra*, *E. melliodora*, *E. albens*; lightly-grazed grasslands with *Themeda australis* (Waters et al. 2000).

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

**Exposure:** Withstands drought (Waters et al. 2000).

**Conservation**

Vulnerable in Western Sydney (James et al. 1999). Conservation status elsewhere unknown.

Brachyachne convergens

Common Native Couch, Spider Grass

**Life history**

**Growth form:** Ascending or erect annual herb to 0.5 m high.

**Vegetative spread:** No.

**Longevity:** Less than 1 year.

**Primary juvenile period**

**Flowers:** Flowers in response to rain or flooding (Harden 1993).

**Fruit/seed:** Dry, 1-seeded, indehiscent fruit.

**Dispersal, establishment & growth:** Water, animal, and wind-dispersed (Carr et al. 1992).

**Fire response:** Probably killed, fruiting December–January, 12 months after high intensity fire (1/94 at Lane Cove) (P. Kubiak pers. comm.).

**Interaction with other organisms:** Young growth contains HCN (Harden 1993).

Brachypodium distachyon *

False Brome

**Life history**

**Growth form:** Erect, loosely tufted annual herb to 0.5 m high, with inconspicuously hairy nodes and bent stems.

**Vegetative spread:** No.

**Longevity:** Less than 1 year.

**Primary juvenile period**

**Flowers:** Spring.

**Fruit/seed:** Dry, 1-seeded, indehiscent fruit.

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

**Fire response:**

**Interaction with other organisms:** Food plant of butterfly larvae *Geitoneura klugii klugii*, and probably *Heteronympha merope merope* (Common & Waterhouse 1981).

**Distribution**

**Status/origin:** Exotic, native to Mediterranean.

**Botanical subregions:** CC SWS; Vic., Tas., S.A., W.A.

**Distribution Sydney area:** Kangaroo Valley.

**Select locations:** CC: Kangaroo Valley (1958).

**Habitat**

**Habitat:** Disturbed areas.

**Altitude:** 300 m  
**Annual rainfall:** 1300 mm

**Typical local abundance:**

**Vegetation:** Pasture.

**Substrate:**

**Exposure:**

**Conservation**

Introduced as pasture in Kangaroo Valley in 1958.

Briza maxima *

Quaking Grass

**Life history**

**Growth form:** Glabrous herb to 0.6 m high.

**Vegetative spread:** No (McIntyre et al. 1995).

**Longevity:** Less than 1 year.

**Primary juvenile period**

**Flowers:** Spring.

**Fruit/seed:** Dry, 1-seeded, indehiscent fruit.

**Dispersal, establishment & growth:** Water, animal, and wind-dispersed (Carr et al. 1992).

**Fire response:** Probably killed, fruiting December–January, 12 months after high intensity fire (1/94 at Lane Cove) (P. Kubiak pers. comm.).

**Interaction with other organisms:**
**Distribution**

**Status/Origin:** Exotic, native to Mediterranean region.

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

**Distribution Sydney Area:** Widespread.

**Select Locations:** CC: Matcham, Grose Vale, Barrenjoey, Epping, Northbridge, Mosman, Gladesville (1884), Centennial Park, Cooks River, Concord, Taren Point, Rockwood Cemetery, Thirlmere Lakes, Kangaroo Valley. CT: Blackheath, Moss Vale.

**Habitat**

**Habitat:** Disturbed areas, gardens, embankments, paths.

**Altitude:** 0–1000 m  **Annual Rainfall:** 900–1400 mm

**Typical Local Abundance:** Frequent–occasional.

**Vegetation:** Weedy, grassy areas, swamp margins e.g. with *Melaleuca*.

**Substrate:** Clay soils on ironstone, shale, alluvium, also on sandy soils, low–medium nutrients.

**Exposure:**

**Conservation**

Common weed of disturbed sites.

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**Briza minor** *

Shivery Grass

**Life history**

**Growth Form:** Glabrous herb to 0.6 m high.

**Vegetative Spread:** No (McIntyre et al. 1995).

**Longevity:** Less than 1 year.

**Primary Juvenile Period:** Less than 1 year.

**Flowers:** September–November.

**Fruit/Seed:** Dry, 1-seeded, indehiscent fruit, September–November.

**Dispersal, Establishment & Growth:** Dispersed in mud on cars (Wace 1977). Water, animal and wind-dispersed (Carr et al. 1992).

**Fire Response:** Probably killed; fruiting October, 10 months after high intensity fire (1/94 at Lane Cove) (P. Kubiak pers. comm.).

**Interaction with other Organisms:** Seed eaten by Stubble Quail *(Coturnix pectoralis)* (Barker & Vestjens 1989, 1990).

**Distribution**

**Status/Origin:** Exotic, native to Europe.

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

**Distribution Sydney Area:** Widespread.

**Select Locations:** CC: Gosford, Cheltenham, Curl Curl (1889), Sydney (1804), Bulli Pass, Glenfield, Mount Annan, Thirlmere Lakes, Kangaroo Valley. CT: Orange, Burrawang.

**Habitat**

**Habitat:** Disturbed areas, wasteland, gardens.

**Altitude:** 0–1000 m  **Annual Rainfall:** 700–1200 mm

**Typical Local Abundance:** Frequent–occasional.

**Vegetation:** Pastures, weedy sites e.g. with *Briza maxima*, *Verbena bonariensis*, *Holcus lanatus*.

**Substrate:** Clay soils on shale, alluvium, medium nutrients. Recorded on saline sites in western NSW (Semple 1993).

**Exposure:** Full sun.

**Conservation**

Weed of disturbed areas. Reported by Robert Brown to be introduced to Sydney as early as 1804 (Maiden 1909). Not likely to invade bushland.

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**Briza subaristata** *

**Life history**

**Growth Form:** Glabrous perennial herb to 80 cm high.

**Vegetative Spread:**

**Longevity:**

**Primary Juvenile Period:**

**Flowers:** Spring.

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**Bromus alopecuros** *

*(B. alopecuroides)*

**Life history**

**Growth Form:** Slender annual herb to 0.6 m high.

**Vegetative Spread:**

**Longevity:** Less than 1 year.

**Primary Juvenile Period:** Less than 1 year.

**Flowers:** Spring.

**Fruit/Seed:** Dry, 1-seeded, indehiscent fruit.

**Dispersal, Establishment & Growth:**

**Fire Response:**

**Interaction with other Organisms:**

**Distribution**

**Status/Origin:** Exotic, native to S America.

**Botanical Subregions:** NC CC ST.

**Distribution Sydney Area:** Mainly Sydney suburban areas.

**Select Locations:** CC: Castle Hill, St Ives, Pennant Hills, Seaforth, Balls Head (1948), Shane Park, Blacktown, Mt Druitt, Condell Park, Narwee, Wilton.

**Habitat**

**Habitat:** Disturbed sites, lawns, swamp edges, remnant woodland.

**Altitude:** 0–300 m  **Annual Rainfall:** 700–1400 mm

**Typical Local Abundance:** Frequent–occasional.

**Vegetation:** Woodland e.g. with *Eucalyptus moluccana*, *E. tereticornis*.

**Substrate:** Clay soil on shale, low to medium nutrient soils.

**Exposure:**

**Conservation**

Becoming increasingly dominant in disturbed Cumberland Plain Woodland in western Sydney (T. James pers. comm.).
**Distribution**

**STATUS/ORIGIN:** Native.

**BOTANICAL SUBREGIONS:** NC CC ST NWS SWS NSW NWP NFWP SFWP; Qld, Vic., Tas., S.A., W.A.; America, S America, N.Z.

**DISTRIBUTION SYDNEY AREA:** Centennial Park.

**SELECT LOCATIONS:** CC: Centennial Park (1909).

**Habitat**

**HABITAT:**

- **ALTITUDE:** 0–50 m
- **ANNUAL RAINFALL:** 1200 mm
- **TYPICAL LOCAL ABUNDANCE:**
- **VEGETATION:**
- **SUBSTRATE:** Probably sandy soils.
- **EXPOSURE:**

**Conservation**

Grows in drier areas of NSW. Early record from Centennial Park in 1909. May be a deliberate introduction.

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**Bromus brevis** *

**Life history**

**GROWTH FORM:** Annual or biennial herb, sometimes rhizomatous to 0.6 m high, with stout stems.

**VEGETATIVE SPREAD:** No (McIntyre et al. 1995).

**LONGEVITY:** Less than 2 years.

**PRIMARY JUVENILE PERIOD:** Less than 2 years.

**FLOWERS:** Spring.

**FRUIT/SEED:** Dry, 1-seeded, indehiscent fruit.

**DISPERSAL, ESTABLISHMENT & GROWTH:** Mechanism for dispersal undefined (McIntyre et al. 1995).

**FIRE RESPONSE:** Undefined (McIntyre et al. 1995).

**INTERACTION WITH OTHER ORGANISMS:**

**POACEAE**

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**Bromus catharticus** *(B. unioloides)*

**Prairie Grass**

**Life history**

**GROWTH FORM:** Densely tufted, robust annual or perennial herb to 1 m high, with erect or spreading stems.

**VEGETATIVE SPREAD:** No (McIntyre et al. 1995).

**LONGEVITY:**

**PRIMARY JUVENILE PERIOD:**

**FLOWERS:** Spring.

**FRUIT/SEED:** Dry, 1-seeded, indehiscent fruit.

**DISPERSAL, ESTABLISHMENT & GROWTH:** Mechanism for dispersal undefined (McIntyre et al. 1995).

**FIRE RESPONSE:** Some plants flowering October, 39 weeks after high intensity fire (1/94 at Lane Cove) (P. Kubiak pers. comm.).

**INTERACTION WITH OTHER ORGANISMS:** Pollen known to cause allergy in humans, mainly September–December (Bass & Wrigley 1984).

**Distribution**

**STATUS/ORIGIN:** Exotic, native to America, Asia, Africa. Probably introduced as pasture grass.

**BOTANICAL SUBREGIONS:** NC CC SC CT ST NWS SWS NSW NWP NFWP SFWP; LHI, Qld, Vic., Tas., N.T., S.A., W.A.

**DISTRIBUTION SYDNEY AREA:** Widespread.

**SELECT LOCATIONS:** CC: Richmond (1910), Cheltenham, Manly, Lane Cove, Gladville (1884), Homebush, Brighton, Liverpool, Menangle, Albion Park, Kangaroo Valley. **CT:** Blayney, Oberon, Leura, Jenolan Caves, Bowral.

**Habitat**

**HABITAT:** Disturbed areas, roadsides, riverbanks, pastures.

**ALTITUDE:** 0–1000 m

**ANNUAL RAINFALL:** 700–1400 mm

**TYPICAL LOCAL ABUNDANCE:** Frequent.

**VEGETATION:** Woodland remnant e.g. with *Eucalyptus moluccana*, *E. tereticornis*.

**SUBSTRATE:** Sandy to clayey soils on sandstone, shale, alluvium, medium nutrients. Recorded on saline sites in western NSW (Semple 1993).

**EXPOSURE:**

**Conservation**

Widespread weed of disturbed ground, also cultivated as a pasture species.

**POACEAE**

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**Bromus diandrus** *

**Giant Brome**

**Life history**

**GROWTH FORM:** Tufted, often robust annual herb to 1 m high, with stout stems.

**VEGETATIVE SPREAD:** No (McIntyre et al. 1995).

**LONGEVITY:** Less than 1 year.

**PRIMARY JUVENILE PERIOD:** Less than 1 year.

**FLOWERS:** Spring.

**FRUIT/SEED:** Dry, 1-seeded, indehiscent fruit.

**DISPERSAL, ESTABLISHMENT & GROWTH:** Diaspore adhesive (McIntyre et al. 1995).

**FIRE RESPONSE:** Some plants flowering October, 41 weeks after high intensity fire (1/94 at Lane Cove) (P. Kubiak pers. comm.).

**INTERACTION WITH OTHER ORGANISMS:**

**POACEAE**

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**Conservation**

Widespread weed of disturbed sites, not invading bushland.

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**Benson & McDougall, Ecology of Sydney Plant Species 10**
**Bromus hordeaceus** *

Soft Brome  

**Life history**  

**GROWTH FORM:** Erect tufted annual or biennial herb to 1 m high.  
**VEGETATIVE SPREAD:** No (McIntyre et al. 1995).  
**LONGEVITY:** Less than 2 years.  
**PRIMARY JUVENILE PERIOD:** Less than 2 years.  
**FLOWERS:** Spring.  
**FRUIT/SEED:** Dry, 1-seeded, indehiscent fruit.  
**DISPERSAL, ESTABLISHMENT & GROWTH:** Diaspore adhesive (McIntyre et al. 1995), and wind-dispersed (Carr et al. 1992).  

**FIRE RESPONSE:**  
**INTERACTION WITH OTHER ORGANISMS:**

**Distribution**  

**STATUS/ORIGIN:** Exotic, native to Asia, Europe.  
**BOTANICAL SUBREGIONS:** CC SC NT CT ST NWS SWS SWP; Qld, Vic., Tas., S.A., W.A.  
**DISTRIBUTION SYDNEY AREA:** Mainly Tablelands.  
**SELECT LOCATIONS:** CC: Cheltenham, McMahons Point (1914), Flemington. CT: Jenolan Caves (1900), Mittagong, Moss Vale (1895), Bowral.  

**Habitat**  

**HABITAT:** Gardens, disturbed areas.  
**ALTITUDE:** 0–800 m  
**TYPICAL LOCAL ABUNDANCE:** Frequent.  
**VEGETATION:** Pasture.  
**SUBSTRATE:** Clay soils on shale. Recorded on saline sites in western NSW (Semple 1993).  
**EXPOSURE:**  

**Conservation**  

Weed of gardens and disturbed sites.  

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**Bromus molliformis** *

Soft Brome  

**Life history**  

**GROWTH FORM:** Erect, tufted herb to 0.9 m high.  
**VEGETATIVE SPREAD:** No (McIntyre et al. 1995).  
**LONGEVITY:** Less than 1 year.  
**PRIMARY JUVENILE PERIOD:** Less than 1 year.  
**FLOWERS:** Spring.  
**FRUIT/SEED:** Dry, 1-seeded, indehiscent fruit.  
**DISPERSAL, ESTABLISHMENT & GROWTH:** Diaspore adhesive (McIntyre et al. 1995), dispersed in mud on cars (Wace 1977).  

**FIRE RESPONSE:**  
**INTERACTION WITH OTHER ORGANISMS:** ‘Seeds’ may cause a problem to grazing sheep (Harden 1993).  

**Distribution**  

**STATUS/ORIGIN:** Exotic, native to Mediterranean region.  
**BOTANICAL SUBREGIONS:** NC CC SC NT CT ST NWS SWS NWP NFWP; Vic., S.A., W.A.  
**DISTRIBUTION SYDNEY AREA:** Widespread.  
**SELECT LOCATIONS:** CC: Richmond (1912), Terrey Hills, Pennant Hills, Kogarah (1893), Homebush, Parramatta, Casula, Buxton.  

**Habitat**  

**HABITAT:** Grasslands, roadsides.  
**ALTITUDE:** 0–400 m  
**TYPICAL LOCAL ABUNDANCE:** Frequent.  
**VEGETATION:** Grassland e.g. with Austrodanthonia racemosa, Vulpia, Briza.  
**SUBSTRATE:** Clay soils on shale. Recorded on saline sites in western NSW (Semple 1993).  
**EXPOSURE:**  

**Conservation**  

Widespread, not invading bushland.  

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**Bromus madritensis** *

Madrid Brome  

**Life history**  

**GROWTH FORM:** Short-lived tufted annual herb, to 0.6 m high, with slender stems.  
**VEGETATIVE SPREAD:** No.  
**LONGEVITY:** Less than 1 year.  
**PRIMARY JUVENILE PERIOD:** Less than 1 year.  
**FLOWERS:** August–November.  
**FRUIT/SEED:** Dry, 1-seeded, indehiscent fruit, November.  
**DISPERSAL, ESTABLISHMENT & GROWTH:**  

**FIRE RESPONSE:**  
**INTERACTION WITH OTHER ORGANISMS:** ‘Seeds’ may cause a problem to grazing sheep (Harden 1993).  

**Distribution**  

**STATUS/ORIGIN:** Exotic, native to Mediterranean region.  
**BOTANICAL SUBREGIONS:** NC CC SC NT CT ST NWS SWS NWP NFWP; Vic., S.A., W.A.  
**DISTRIBUTION SYDNEY AREA:** Coast and western Sydney, Orange area.  
**SELECT LOCATIONS:** CC: Richmond (1916), Beecroft, Hunters Hill (1912), Ashfield (1921), Liverpool. CT: Junction Reefs (1991).  

**Habitat**  

**HABITAT:** Drier areas, wasteland.  
**ALTITUDE:** 0–200 m  
**TYPICAL LOCAL ABUNDANCE:** Frequent.  
**VEGETATION:** Weedy sites, grassland, remnant woodland e.g. with Eucalyptus melllioidora.  
**SUBSTRATE:** Sandy to clay soils.  
**EXPOSURE:**  

**Conservation**  

Only record for Sydney area is from Richmond in 1912.  

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**Bromus racemosus** *

Smooth Brome  

**Life history**  

**GROWTH FORM:** Erect or ascending annual or biennial herb to 1.1 m high.  
**VEGETATIVE SPREAD:** No (McIntyre et al. 1995).  
**LONGEVITY:** Less than 2 years.  
**PRIMARY JUVENILE PERIOD:** Less than 2 years.  
**FLOWERS:** Spring.  
**FRUIT/SEED:** Dry, 1-seeded, indehiscent fruit.  
**DISPERSAL, ESTABLISHMENT & GROWTH:** Diaspore adhesive (McIntyre et al. 1995).  

**FIRE RESPONSE:**  
**INTERACTION WITH OTHER ORGANISMS:**

**Distribution**  

**STATUS/ORIGIN:** Exotic, native to Europe.  
**BOTANICAL SUBREGIONS:** CC SC NT; Vic.  
**DISTRIBUTION SYDNEY AREA:** Richmond.  
**SELECT LOCATIONS:** CC: Richmond (1912).  

**Habitat**  

**HABITAT:** Disturbed areas, roadsides.  
**ALTITUDE:** 0–50 m  
**TYPICAL LOCAL ABUNDANCE:** Frequent.  
**VEGETATION:**  
**SUBSTRATE:**  
**EXPOSURE:**  

**Conservation**  

Only record for Sydney area is from Richmond in 1912.
**Bromus rubens** *

**Red Brome**

**Life history**

**Growth form:** Tufted erect annual herb to 0.5 m high.

**Vegetative spread:** No.

**Longevity:** Less than 1 year.

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

**Flowers:** Spring or in response to rain.

**Fruit/seed:** Dry, 1-seeded, indehiscent fruit.

**Dispersal, establishment & growth**

**Fire response:**

**Interaction with other organisms:**

**Distribution**

**Status/origin:** Exotic, native to Mediterranean region.

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

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


**Habitat**

**Habitat:** Disturbed sites, embankments.

**Altitude:** 0–600 m

**Annual rainfall:** 700–1000 mm

**Typical local abundance:** Frequent–occasional

**Vegetation:** Remnant woodland e.g. with *Eucalyptus melliodora*.

**Substrate:** Various soils

**Exposure:**

**Conservation**

Mainly in drier areas of NSW.

---

**Bromus secalinus** *

**Rye Brome**

**Life history**

**Growth form:** Erect, tufted annual or biennial herb to c. 1 m high.

**Vegetative spread:** No.

**Longevity:** Less than 2 years.

**Primary juvenile period:** Less than 2 years.

**Flowers:** Spring.

**Fruit/seed:** Dry, 1-seeded, indehiscent fruit.

**Dispersal, establishment & growth**

**Fire response:**

**Interaction with other organisms:**

**Distribution**

**Status/origin:** Exotic, native to Mediterranean region.

**Botanical subregions:** NT CT.

**Distribution Sydney area:** Sporadic.

**Select locations:** CC: Richmond (1908). CT: Bathurst (1899).

**Habitat**

**Habitat:** Disturbed areas.

**Altitude:** 0–700 m

**Annual rainfall:** 600–1200 mm

**Typical local abundance:**

**Vegetation:**

**Substrate:**

**Exposure:**

**Conservation**

**Conservation:** Old records from Port Jackson, Leura and Bathurst (1910–1916) but not recorded since.

---

**Bromus sterilis** *

**Sterile Brome**

**Life history**

**Growth form:** Annual or biennial herb to 0.5 m high.

**Vegetative spread:** No.

**Longevity:** Less than 2 years.

**Primary juvenile period:** Less than 2 years.

**Flowers:** Spring.

**Fruit/seed:** Dry, 1-seeded, indehiscent fruit.

**Dispersal, establishment & growth**

**Fire response:**

**Interaction with other organisms:**

**Distribution**

**Status/origin:** Exotic, native to Asia, Europe.

**Botanical subregions:** CC NT ST SWP; Qld, Tas., W.A.

**Distribution Sydney area:**

**Select locations:** CC: Port Jackson (1912). CT: Bathurst (1916), Leura (1910).

**Habitat**

**Habitat:** Disturbed areas.

**Altitude:** 0–700 m

**Annual rainfall:** 600–1200 mm

**Typical local abundance:**

**Vegetation:**

**Substrate:**

**Exposure:**

**Conservation**

**Conservation:** Old records from Port Jackson, Leura and Bathurst (1910–1916) but not recorded since.

---

**Bromus tectorum** *

**Drooping Brome**

**Life history**

**Growth form:** Erect or spreading annual herb to 0.6 m high, with slender stems.

**Vegetative spread:**

**Longevity:** Less than 1 year.

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

**Flowers:** Spring.

**Fruit/seed:** Dry, 1-seeded, indehiscent fruit.

**Dispersal, establishment & growth**

**Fire response:**

**Interaction with other organisms:**

**Distribution**

**Status/origin:** Exotic, native to Mediterranean region.

**Botanical subregions:** CC NT ST SWP; Vic., S.A., W.A.

**Distribution Sydney area:** Richmond.

**Select locations:** CC: Richmond (1910).

**Habitat**

**Habitat:** Roadsides, waste areas.

**Altitude:** 0–50 m

**Annual rainfall:** 700–800 mm

**Typical local abundance:**

**Vegetation:**

**Substrate:**

**Exposure:**

**Conservation**

**Conservation:** Old collection from Agricultural College Richmond in 1910–1911 ‘spontaneous in grass garden’. No records since.
**Capillipedium parviflorum**

Scented-top Grass

**Life history**

**Growth form:** Tufted perennial herb to 1.5 m high.

**Vegetative spread:**

**Longevity:**

**Primary juvenile period:**

**Flowers:** Summer.

**Fruit/seed:** Dry, 1-seeded, indehiscent fruit, December–January.

**Dispersal, establishment & growth:**

**Fire response:**

**Interaction with other organisms:**

**Distribution**

**Status/origin:** Native.

**Botanical subregions:** NC CC SC NT NWS; Qld, N.T.

**Distribution Sydney area:** Western Sydney.

**Select locations:** CC: Pendle Hill, Doonside, Mulgoa, Campbelltown, Albion Park, Rossmore.

**Habitat**

**Habitat:** Woodland remnants, cemeteries.

**Altitude:** 0–400 m

**Annual rainfall:** 700–1200 mm

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

**Vegetation:** Grassland e.g. with Bothriochloa macra, Microlaena stipoides, Themeda australis.

**Substrate:** Clay soils on shale, medium nutrients.

**Exposure:**

**Conservation**

**Conservation:** Vulnerable in Western Sydney (James et al. 1999). Very rarely recorded by Tozer (2003).

---

**Capillipedium spicigerum**

Scented-top Grass

**Life history**

**Growth form:** Tufted perennial herb to more than 1.5 m high.

**Vegetative spread:**

**Longevity:**

**Primary juvenile period:**

**Flowers:** May–August.

**Fruit/seed:** Dry, 1-seeded, indehiscent fruit.

**Dispersal, establishment & growth:** Possibly more likely in disturbed, open areas than in woodland remnants (Herb. record).

**Fire response:**

**Interaction with other organisms:**

**Distribution**

**Status/origin:** Native.

**Botanical subregions:** NC CC SC NT NWS; Qld, N.T.

**Distribution Sydney area:** Gosford–Wyong, western Sydney.

**Select locations:** CC: Western Sydney.

**Habitat**

**Habitat:** Moist places, creek banks, embankments.

**Altitude:** 0–300 m

**Annual rainfall:** 700–1200 mm

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

**Vegetation:** Woodland e.g. with Eucalyptus moluccana, E. tereticornis; grassland e.g. with Themeda australis, Bothriochloa macra.

**Substrate:** Clay soil on shale, alluvium, low–medium nutrients.

**Exposure:**

**Conservation**

**Conservation:** Vulnerable in Western Sydney (James et al. 1999), very rarely recorded by Tozer (2003). Conservation status elsewhere unknown.

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**Catapodium rigidum** *

Rigid Fescue

**Life history**

**Growth form:** Small annual herb to 0.3 m high, with rigid stems.

**Vegetative spread:**

**Longevity:** Less than 1 year.

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

**Flowers:** Spring.

**Fruit/seed:** Dry, 1-seeded, indehiscent fruit.

**Dispersal, establishment & growth:**

**Fire response:**

**Interaction with other organisms:**

**Distribution**

**Status/origin:** Exotic, native of Europe and Asia.

**Botanical subregions:** NC CC SC NT CT NWS CWS SWS; Qld, N.Z., CT, N.G., Pac.I.

**Distribution Sydney area:** Sporadic along the coast.

**Select locations:** CC: Woolloomooloo Bay (1902), Coalcliff (1934).

**Habitat**

**Habitat:** Disturbed areas.

**Altitude:** 0–200 m

**Annual rainfall:** 1200–1400 mm

**Typical local abundance:**

**Vegetation:**

**Substrate:**

**Exposure:**

**Conservation**

**Conservation:** Not recorded for Sydney area since 1934 but more common on Western Slopes.

---

**Cenchrus caliculatus** *(C. australis)*

Hillside Burgrass

**Life history**

**Growth form:** Robust, scrambling perennial herb to 1.5 m high, forming clumps or straggly over vegetation.

**Vegetative spread:**

**Longevity:**

**Primary juvenile period:**

**Flowers:** December–May.

**Fruit/seed:** Dry, 1-seeded, indehiscent fruit, March–April.

**Dispersal, establishment & growth:**

**Fire response:**

**Interaction with other organisms:**

**Distribution**

**Status/origin:** Native.

**Botanical subregions:** NC CC SC NT CT NWS CWS SWS; Qld, N.Z., N.G., Pac.I.

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

**Select locations:** CC: Howes Valley, Wondabyne, Berowra Creek, Cowan Creek, Clifton Gardens, Grose Vale, Kogarah, Como, Audley, Camden, Mount Annan, Razorback, Nowra. **CT:** Kowmung River, Mt Armour.

**Habitat**

**Habitat:** Wooded hillsides, riverflats, creekbanks.

**Altitude:** 0–600 m

**Annual rainfall:** 700–1400 mm

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

**Vegetation:** Open-forest e.g. with Eucalyptus punctata, Angophora costata, margins of dry rainforest e.g. with Aphanopetalum resinosum.

**Substrate:** Soils on slate, shale, basalt, sandy alluvium, low nutrients.

**Exposure:**

**Conservation**

**Conservation:** Many old collections e.g. Como 1898, Grose Vale 1910, but few recent ones. Not recorded for western Sydney by James et al. (1999), though recorded at Mount Annan and Razorback.
**Cenchrus echinatus** *

Mossman River Grass

**Life history**

**Growth form**: Tufted, clump-forming annual herb to 0.9 m high.

**Vegetative spread**: No.

**Vegetation**: Coastal, estuarine, and river sands.

**Altitude**: 0–100 m

**Annual rainfall**: 900–1200 mm

**Typical local abundance**: Rare.

**Habitat**: Cultivated and disturbed areas.

**Substrate**: Sandy soils.

**Exposure**: Rare.

**Conservation**: Recently recorded from disturbed bank at Casula and garden bed at Lane Cove. Elsewhere in NSW reported from coastal, estuarine and river sands. Major weed if allowed to mature, creates a problem in recreation areas (Weeds Australia www.weeds.org.au). Capacity to spread in Sydney is unknown.

**Distribution**

**Status/origin**: Exotic, native to N & S America.

**Botanical subregions**: NC CC NWP NFWP SFWP; all mainland States except N.T.


**Habitat**

**Habitat**: Coastal, estuarine, and river sands.

**Altitude**: 0–100 m

**Annual rainfall**: 900–1200 mm

**Typical local abundance**: Rare.

**Vegetation**: Rare.

**Substrate**: Sandy soils.

**Exposure**: Rare.

**Conservation**: Noxious weed, prohibited from sale in NSW (NSW Agriculture website: www.agric.nsw.gov.au). Only record for Sydney area is from Glen Davis in 1956, where it was ‘growing in patches up to 7 acres’.

**Distribution**

**Status/origin**: Exotic, native to north and central America.

**Botanical subregions**: NC NT CT ST NWS CWS SWS NWP SWP SFWP; all mainland States except N.T.

**Distribution Sydney area**: Orange.

**Select locations**: CT: Orange (1954), Kelso (1922).

**Habitat**

**Habitat**: Cultivated and disturbed areas.

**Altitude**: 600–1000 m

**Annual rainfall**: 700–900 mm

**Typical local abundance**: Rare.

**Vegetation**: Rare.

**Substrate**: Sandy soils.

**Exposure**: Rare.

**Conservation**: Noxious weed, prohibited from sale in NSW (NSW Agriculture website: www.agric.nsw.gov.au). Mainly a species of western areas. Limited to several old records for Central Tablelands.

**Distribution**

**Status/origin**: Exotic, native to N & S America.

**Botanical subregions**: NC CC SC NT NWS CWS SWS NWP SFWP; all mainland States.

**Distribution Sydney area**: Glen Davis.

**Select locations**: CC: Glen Davis (1956).

**Habitat**

**Habitat**: Disturbed areas.

**Altitude**: 600 m

**Annual rainfall**: 600–700 mm

**Typical local abundance**: Frequent.

**Vegetation**: Rare.

**Substrate**: Sandy soils.

**Exposure**: Frequent.

**Conservation**: Noxious weed, prohibited from sale in NSW (NSW Agriculture website: www.agric.nsw.gov.au). Only record for Sydney area is from Glen Davis in 1956, where it was ‘growing in patches up to 7 acres’.

**Distribution**

**Status/origin**: Exotic, native to N & S America.

**Botanical subregions**: NC CC SC NT CT NWS CWS SWS NWP SFWP SWP; all mainland States.

**Distribution Sydney area**: CC: Hornsby, Rockdale, Minto, O’Hares Creek, Thirlmere, Douglas Park.

**Select locations**: CC: Hornsby, Rockdale, Minto, O’Hares Creek, Thirlmere, Douglas Park.

**CT**: Orange, Lewis Ponds, Hill End, Ilford, Capertee, Clarence, Mt Victoria, Mount Tomah, Blackheath, Katoomba, Wentworth Falls, Mt Jellore, Mittagong, Wingello.

**Chionochloa pallida** *(Danthonia pallida)*

Silvertop Wallaby Grass, Redanther Wallaby Grass

**Life history**

**Growth form**: Robust, densely caespitose perennial herb to 1.2 m high.

**Vegetative spread**: No.

**Longevity**: Indefinite.

**Primary juvenile period**: Less than 2 years.

**Flowers**: Summer.

**Diaspore**: Dry, 1-seeded, indehiscent fruit. Mature January (Greening Australia 1996a).

**Fire response**: Stems killed, resprouts from base. Regrowth only from surviving tussocks, seedlings recorded less than 1 year after fire (Purdie 1977).

**Distribution**

**Status/origin**: Native.

**Botanical subregions**: NC CC SC NT CT ST NWS CWS SWS NWP SWP; all mainland States.

**Distribution Sydney area**: Widespread.

**Select locations**: CC: Howes Valley, Pulbah Island, Berkshire Park, Hornsby, Rockdale, Minto, O’Hares Creek, Thirlmere, Douglas Park.

**CT**: Orange, Lewis Ponds, Hill End, Ilford, Capertee, Clarence, Mt Victoria, Mount Tomah, Blackheath, Katoomba, Wentworth Falls, Mt Jellore, Mittagong, Wingello.
**Habitat**

**Habitat:** Ridges, hillslopes.

**Altitude:** 0–1200 m  
**Annual rainfall:** 600–1400 mm

**Typical local abundance:** Frequent.

**Vegetation:** Open-forest e.g. with *Eucalyptus globoeidea, Corymbia gummi-guinea*; woodland e.g. with *Eucalyptus polyanthemos, E. macrophylla, E. mannifera, E. dives*; heath e.g. with *Allocasuarina nana, Darwinia fascicularis, Eucalyptus stricta*.

**Substrate:** Sandy to clayey soils on sandstone, laterite, metamorphics, metasediments, low nutrient soils.

**Exposure:**

**Conservation**

Vulnerable in Western Sydney (James et al. 1999). Conservation status elsewhere unknown.

**POACEAE**

### Chloris divaricata var. divaricata

**Slender Chloris**

**Life history**

**Growth form:** Erect, slender perennial herb to 0.5 m high, tufted to shortly stoloniferous.

**Vegetative spread:**

**Longevity:**

**Primary juvenile period:**

**Flowers:** In response to rain or flooding usually in warmer months.

**Fruit/seed:** Dry, 1-seeded, indehiscent fruit.

**Dispersal, establishment & growth:**

**Fire response:**

**Interaction with other organisms:**

**Distribution**

**Status/origin:** Native.

**Botanical subregions:** NC CC NWS NWP SWP; Qld, Vic., S.A., W.A., N.T., S Afr., Asia, Amer.

**Distribution Sydney area:** Western Sydney.

**Select locations:** CC: Richmond (1907), Kellyville, Carlingford, Berowra Creek, Warrawee (1914), Ashfield (1919), Bankstown (1930), Penrith, Lapstone Hill, Oakdale (1914), Doonside, Mount Annan, Cambewarra, Albion Park.

**Habitat**

**Habitat:** Cultivated areas, roadsides.

**Altitude:** 0–300 m  
**Annual rainfall:** 700–1200 mm

**Typical local abundance:** Frequent.

**Vegetation:** Woodland e.g. with *Eucalyptus moluccana, E. tereticornis*; grassland with *Bursaria, Themeda*.

**Substrate:** Clay soils on shale, alluvium.

**Exposure:**

**Conservation**

May invade native vegetation at disturbed sites. Cultivated at Agricultural College Richmond (1907–1921) and Sydney Botanic Gardens (1903, 1908). Naturalised at Warrawee (1914), Richmond (1921) and Bankstown (1930). Planted on roadsides as a soil stabiliser from 1960–2000. cultivated as a pasture species and seeded by air throughout Qld after 1975 for pasture improvement (Bass & Wrigley 1984). Very common in disturbed remnant woodland in western Sydney (T. James pers. comm.).

**POACEAE**

### Chloris truncata

**Windmill Grass**

**Life history**

**Growth form:** Erect glabrous, herb to 50 cm high, with ligule of short hairs, sometimes with short, branched stolons; forming tussocks.

**Vegetative spread:** No.

**Longevity:** 2–3 years (Waters et al. 2000).

**Primary juvenile period:**

**Flowers:** Opportunistically, in response to rain. Resilient in mown areas, resprouting and flowering when less than 10 cm high (T. James pers. comm.).

**Fruit/seed:** Dry, 1-seeded, indehiscent fruit 3 mm long with seed 1.5 mm long (Lamp et al. 1990). Spikelets turn black at maturity, December–June; viability decreases after 12–30 months in storage (Waters et al. 2000).

**Dispersal, establishment & growth:** Diaspore: seed; detached seedheads often blow along the ground, scattering seeds (Waters et al. 2000). Morphology for dispersal by adhesion and wind (McIntyre et al. 1995), dispersed in mud on cars (Wace 1977). Total germination approx. 36 days (typical rate 835 per gram of seed, Greening Australia 1996a). Germination rate 30–40 % for seed in wild stands; light appears to assist germination, summer-growing, relying on spring and summer rainfall; coloniser (Waters et al. 2000).

**Fire response:** Resprouts from base.

**Interaction with other organisms:** Seed eaten by Stubble Quail *Coturnix pectoralis* (Barker & Vestjens 1989, 1990).

**Distribution**

**Status/origin:** Exotic, native to Africa. Introduced as a pasture species.

**Botanical subregions:** NC CC SC NT NWS SWS NWP SWP; LHI, Qld, Vic., S.A., W.A., N.T., S Afr., Asia, Amer.

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

**Select locations:** CC: Hornsby, Cheltenham, Epping, Penrith, Doonside, Homebush, Liverpool, Mount Annan, Berry. CT: Turondale, Capertee.

**Habitat**

**Habitat:** Edge of tracks, open areas.

**Altitude:** 0–900 m  
**Annual rainfall:** 700–1400 mm

**Typical local abundance:** Rare–occasional.
**Feathertop Rhodes Grass** *

*Chloris virgata*

**Life history**
- **Growth form**: Annual or short-lived perennial herb to 1.2 m high, tufted or stoloniferous.
- **Vegetative spread**: No.
- **Primary juvenile period**: Less than 1 year.
- **Flowers**: Summer.
- **Fruit/seed**: Dry, 1-seeded, indehiscent fruit.
- **Fire response**: Resprouts.
- **Vegetative spread**: Robust annual or perennial herb to 2 m high, with prop roots at base.
- **Vegetative spread**: No.
- **Primary juvenile period**: Less than 1 year.
- **Flowers**: Summer.
- **Fruit/seed**: Dry, 1-seeded, indehiscent fruit.
- **Fire response**: Interacts with other organisms.

**Distribution**
- **Status/origin**: Exotic, native to America.
- **Botanical subregions**: NC CC NT ST NWS CWS NWP SWP.
- **Distribution Sydney area**: NC CC CT NWS CWS NWP; Qld., N.T., S.A., W.A., trop Amer.
- **Select locations**: CC: Richmond (1912), North Sydney, Flemington, Ingleburn, Minto, Kiama.

**COXIS LACHRYMA-JOBI** *

*Job's Tears*

**Life history**
- **Growth form**: Robust annual or perennial herb to 2 m high, with prop roots at base.
- **Vegetative spread**: No.
- **Primary juvenile period**: 1 year.
- **Flowers**: Summer.
- **Fruit/seed**: Dry, indehiscent, 1-seeded.
- **Fire response**: Resprouts.
- **Vegetative spread**: Robust annual or perennial herb to 2 m high, with prop roots at base.
- **Vegetative spread**: No.
- **Primary juvenile period**: 1 year.
- **Flowers**: Summer.
- **Fruit/seed**: Dry, indehiscent, 1-seeded.
- **Fire response**: Resprouts.
- **Vegetative spread**: Robust annual or perennial herb to 2 m high, with prop roots at base.
- **Vegetative spread**: No.
- **Primary juvenile period**: 1 year.
- **Flowers**: Summer.
- **Fruit/seed**: Dry, indehiscent, 1-seeded.
- **Fire response**: Resprouts.
- **Vegetative spread**: Robust annual or perennial herb to 2 m high, with prop roots at base.
- **Vegetative spread**: No.
- **Primary juvenile period**: 1 year.
- **Flowers**: Summer.
- **Fruit/seed**: Dry, indehiscent, 1-seeded.
- **Fire response**: Resprouts.

**Distribution**
- **Status/origin**: Exotic, native to Europe and Asia, ornamental, grown for the hard grey seeds that are used to make bead necklaces (Klapake 2002).
- **Botanical subregions**: NC CC.
- **Distribution Sydney area**: Sydney suburbs.
- **Select locations**: CC: Glebe, Closelloy (1956), Marayong, Minto (1951).
**Cymbopogon refractus**

**Life history**

**Growth form:** Tufted perennial herb to 1 m high, aromatic when crushed, jagged ligule 2 mm long.

**Vegetative spread:** No.

**Longevity:** Perennial.

**Primary juvenile period:** 2–3 years.

**Flowers:** January–May.

**Fruit/seed:** Dry, 1-seeded, indehiscent fruit.

**Dispersal, establishment & growth:** Diaspore adhesive (McIntyre et al. 1995). Stems droop at maturity and new plants establish within 1 m of parent plant (in garden, L.McD.).

**Fire response:** Resprouted, fruiting May–July, 5–7 months after high intensity fire (1/94 at Lane Cove) (P. Kubiak pers. comm.).

**Interactions with other organisms:**

**Distribution**

**Status/origin:** Native.

**Botanical subregions:** NC CC SC NT CT ST NWS WNP NFWP; Qld, Vic., N.T.

**Distribution Sydney area:** Widespread on Coast.

**Select locations:** CC: Morisset, Wamberal, Lower Portland, Richmond, Cheltenham, Homebush, Kurnell, Como, Lapstone, Wallacia, Mount Annan, Dapto. CT: Hill Top.

**Habitat**

**Habitat:** Hillsides, slopes.

**Altitude:** 0–700 m

**Annual rainfall:** 700–1200 mm

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

**Vegetation:** Open-forest e.g. with Angophora costata, Eucalyptus umbra, E. paniculata; woodland e.g. with Eucalyptus moluccana, E. crebra, E. tereticornis, E. fibrosa, Themeda australis; vine scrub e.g. with Aphanopetalum resinum, Celastrus subspicatus.

**Substrate:** Clay soils on shale, medium nutrients.

**Exposure:** Clay to loamy soils on shale, sandstone, low–medium nutrient soils.

**Conservation**

Vulnerable in Western Sydney (James et al. 1999), conservation status elsewhere unknown. Reported in Ku-ring-gai Chase NP.

**POACEAE**

**Cynodon dactylon**

**Couch, Bermudagrass**

**Life history**

**Growth form:** Rhizomatous and/or stoloniferous mat-forming perennial herb to 0.3 m high, rooting at nodes, with ligule a dense row of short hairs on a membranous rim.

**Vegetative spread:** Spreads by rhizomes and stolons

**Longevity:** Indefinite.

**Primary juvenile period:**

**Flowers:** Mainly December–March (Bass & Wrigley 1984).

**Fruit/seed:** Dry, 1-seeded, indehiscent fruit.

**Dispersal, establishment & growth:** Diaspore adapted for wind-dispersal (McIntyre et al. 1995), dispersed in mud on cars (Wace 1977), animal, water and vegetative dispersal (Carr et al. 1992).

**Fire response:** Resprouts from rhizomes.


**Distribution**

**Status/origin:** Native and exotic forms occur.

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

**Distribution Sydney area:** Native forms restricted to estuarine areas.

**Select locations:** CC: Lake Macquarie, Berlrose, Manly, Centennial Park, Malabar, Penshurst, Campbelltown, Hill Top, Windang Island, Berry. CT: Mittagong.
Habitat
Habitat: Wetland, estuarine areas (native form).
Altitude: 0–1000 m   Annual rainfall: 700–1400 mm
Typical local abundance: Frequent.
Vegetation: Native form in swamp forest e.g. with Casuarina glauca. Introduced forms have naturalised in many types of vegetation including forest, woodland, grassland.
Substrate: Wide range of soil types from sands to clays (Lamp et al. 1990). Recorded on saline sites in western NSW (Semple 1993).

Conservation
Although introduced forms are most common e.g. in lawns, gardens, pastures and are widely naturalised (Robert Brown included it on his list of introduced plants in 1904, Groves 2002), the coarse erect form on saltmarshes seems to be native (SWL Jacobs pers. comm.).

**Cynodon incompletus** *(C. hirsutus)*

Life history
Growth form: Stoloniferous perennial herb to 0.3 m high, without rhizomes.
Vegetative spread: Stoloniferous.
Longevity: Indefinite.
Primary juvenile period:
Flowers: Summer.
Fruit/seed: Dry, 1-seeded, indehiscent.
Dispersal, establishment & growth: Dispersed in mud on cars (Wace 1977).
Fire response:
Interaction with other organisms:

Distribution
Status/origin: Exotic, native to S. Africa.
Botanical subregions: NC CC NT ST SWS; Vic., Tas., W.A.
Distribution Sydney area: Sporadic.
Select locations: CC: Belrose, Glebe Island (1911), Campbelltown.

Habitat
Habitat: Roadside and semi-grazed pastures.
Altitude: 0–200 m   Annual rainfall: 700–1200 mm
Vegetation:
Substrate:
Exposure:

Conservation
Conservation: First noted at Glebe Island in 1911 and then accidentally transferred in manure to the Sydney Botanic Gardens. Occasional roadside weed.

POACEAE

**Cynodon transvaalensis** *

Florida Grass

Life history
Growth form: Rhizomatous and/or stoloniferous mat-forming perennial herb to 0.1 m high.
Vegetative spread: Stoloniferous, forming mats.
Longevity: Indefinite.
Primary juvenile period:
Flowers: Summer if not mown.
Fruit/seed: Dry, 1-seeded, indehiscent.
Fire response:
Interaction with other organisms:

Distribution
Status/origin: Exotic, native to S Africa. Introduced as lawn grass.
Botanical subregions: CC CT; S.A.
Distribution Sydney area: Sporadic.
CT: Orange (1968).

Habitat
Habitat: Creeks.
Altitude: 0–1000 m   Annual rainfall: 800–1000 mm
Typical local abundance:
Vegetation:
Substrate: Alluvial soil, medium nutrients.
Exposure:

Conservation
Rarely grown lawn grass, established in Orange area in 1968.

POACEAE

**Cynosurus cristatus** *

Crested Dog’s Tail

Life history
Growth form: Compact tufted perennial herb to 0.7 m high.
Vegetative spread: No.
Longevity:
Primary juvenile period:
Flowers: Spring.
Fruit/seed: Dry, 1-seeded, indehiscent.
Dispersal, establishment & growth: Dispersed in mud on cars (Wace 1977).
Fire response:
Interaction with other organisms:

Distribution
Status/origin: Exotic, native to Europe and SW Asia.
Botanical subregions: CC SC NT CT ST SWS; Vic., Tas., W.A.
Distribution Sydney area: Sporadic.
Select locations: CT: Orange (1949).

Habitat
Habitat: Waste and cultivated areas.
Altitude: 0–1000 m   Annual rainfall: 1000 mm
Typical local abundance:
Vegetation:
Substrate:
Exposure:

Conservation
Weed of waste areas and gardens in colder areas.

POACEAE

**Cynosurus echinatus** *

Rough Dog’s Tail

Life history
Growth form: Tufted annual herb to 1 m high.
Vegetative spread: No.
Longevity: Less than 1 year.
Primary juvenile period: Less than 1 year.
Flowers: Spring.
Fruit/seed: Dry, 1-seeded, indehiscent.
Fire response:
Interaction with other organisms:

Distribution
Status/origin: Exotic, native to Mediterranean region.
Botanical subregions: CC NT CT ST SWS; Vic., Tas., S.A., W.A.
Distribution Sydney area: Sporadic.
Select locations: CC: Hornsby, Hunters Hill (1913), Oakdale.
CT: Orange, Oberon, Leura (1934).

Habitat
Habitat: Waste and cultivated areas, paddocks.
Altitude: 0–1000 m   Annual rainfall: 800–1000 mm
Typical local abundance: Frequent.
Vegetation:
Dactylis glomerata *

Cocksfoot

Life history
Growth form: Tufted perennial herb to 1.4 m high.
Vegetative spread: No (McIntyre et al. 1995).
Longevity:
Primary juvenile period:
Flowers: Spring.
Fruit/seed: Dry, 1-seeded, indehiscent. Seed weight 0.7 mg (Buckley 1982).
Dispersal, establishment & growth: Mechanism for dispersal undefined (McIntyre et al. 1995), dispersed in mud on cars (Wace 1977).
Fire response:
Interaction with other organisms: Pollen known to cause allergy in humans, mainly September–December (Bass & Wrigley 1984).

Distribution
Status/origin: Exotic, native of Mediterranean region. Introduced as pasture grass.
Botanical subregions: CC SC NT CT ST NWS SWP; Qld, Vic., S.A., W.A.
Distribution Sydney area: Widespread.
Select locations: CC: Springwood, Richmond, Manly, Centennial Park (1909), Kogarah, Cambewarra Range, Berry. CT: Orange, Millthorpe (1913), Mt Wilson (1896), Katoomba, Macquarie Pass, Robertson, Berry.

Habitat
Habitat: Disturbed sites, roadsides.
Altitude: 0–1000 m
Typical local abundance: Frequent.
Vegetation:
Substrate: Moist fertile soils, basalt.
Exposure:
Conservation
Conservation: A pasture grass that has become naturalised in adjacent areas. Widespread.

Dactyloctenium australae *

Durban Grass

Life history
Growth form: Stoloniferous perennial herb to 0.8 m high.
Vegetative spread:
Longevity:
Primary juvenile period:
Flowers: Summer.
Fruit/seed: Dry, 1-seeded, indehiscent.
Dispersal, establishment & growth:
Fire response:
Interaction with other organisms:

Distribution
Status/origin: Exotic, native to S Africa.
Botanical subregions: NC CC; Qld, N.T.
Distribution Sydney area: Widespread.

Habitat
Habitat:
Altitude: 0–100 m
Typical local abundance:
Vegetation:
Substrate:
Exposure:
Conservation
Cultivated as a shade-tolerant lawn species, often naturalised in urban and coastal areas north from Sydney (Harden 1993), however, the only naturalised Sydney record is Botanic Gardens in 1976, although it was also recorded there in 1931–32.)

Dactyloctenium radulans (Eleusine radulans)

Button Grass, Finger Grass

Life history
Growth form: Slender, tufted annual or short lived perennial herb to 0.2 m high.
Vegetative spread: Stoloniferous.
Longevity: Indefinite.
Primary juvenile period:
Flowers: In response to rain.
Fruit/seed: Dry, 1-seeded, indehiscent.
Dispersal, establishment & growth:
Fire response:
Interaction with other organisms:

Distribution
Status/origin: Native.
Botanical subregions: NC CC ?NT NWS CWS NWP SWP; Qld, Vic., N.T., S.A., W.A.
Distribution Sydney area: Widespread.
Select locations: CC: Riverstone, Emerton, Flemington, Campbelltown, Menangle Park

Habitat
Habitat: Disturbed sites.
Altitude: 0–200 m
Annual rainfall: 700–800 mm
Typical local abundance: Rare–occasional.
Vegetation: Remnant woodland e.g. with Eucalyptus fibrosa, E. tereticornis.
Substrate: Clay to sandy soils on shales, medium nutrients.
Exposure:
Conservation
Rare, mainly found in drier areas further west, and possibly introduced to the Sydney area with stock.

Danthonia longifolia (Notodanthonia longifolia)

Long-leaved Wallaby Grass

Life history
Growth form: Erect, densely tufted perennial herb to 0.8 m high.
Vegetative spread: No.
Longevity:
Primary juvenile period:
Flowers: Spring–summer.
Fruit/seed: Dry, 1-seeded, indehiscent.
Dispersal, establishment & growth:
Fire response:
Interaction with other organisms:

Distribution
Status/origin: Native.
Botanical subregions: NC CC SC CT ST NWS CWS NWP SWWP; Qld, Vic, Tas.
Distribution Sydney area: Widespread.
Habitat
Habitat: Rocky hillsides, gullies, clifflines.
Altitude: 0–1000 m  
Annual rainfall: 700–1200 mm
Typical local abundance: Occasional.
Vegetation: Moist forest e.g. with Eucalyptus saligna, E. pilularis; woodland e.g. with Angophora costata, Eucalyptus piperita, Corymbia gummifera, Banksia serrata, Eucalyptus crebra.
Substrate: Rocky or sandy soils on sandstone, quartzite, slates, trachyte.
Exposure:
Conservation  
Vulnerable in Western Sydney (James et al. 1999), conservation status elsewhere unknown.

Danthonia semiannularis
(Notodanthonia semiannularis)
Tasmanian Wallaby Grass

Life history
Growth form: Erect, caespitose perennial herb to 0.9 m high.
Vegetative spread: No.
Longevity:
Primary juvenile period:
Flowers: Spring–summer.
Fruit/seed: Dry, 1-seeded, indehiscent.
Dispersal, establishment & growth:
Fire response:
Interaction with other organisms:

Distribution
Status/origin: Native.
Botanical subregions: NC CC SC CWS SWP; Vic., Tas., S.A., W.A., N.Z.
Distribution Sydney area: Concord to Kogarah.
Select locations: CC: Hornsby, Homebush, Rookwood, Kogarah, Lakemba, Mortdale, Concord West.

Habitat
Habitat: Woodland.
Altitude: 0–200 m  
Annual rainfall: 1000–1200 mm
Typical local abundance: Occasional.
Vegetation: Probably occurred in Turpentine–Ironbark forest in inner western Sydney.
Substrate: Clay soils on shale.
Exposure:
Conservation  
Last recorded in 1939.

Deyeuxia appressa

Life history
Growth form: Erect perennial herb to 0.9 m high.
Vegetative spread:
Longevity:
Primary juvenile period:
Flowers: Spring–summer.
Fruit/seed: Dry, 1-seeded, indehiscent.
Dispersal, establishment & growth:
Fire response:
Interaction with other organisms:

Distribution
Status/origin: Native.
Botanical subregions: CC.
Distribution Sydney area: Hornsby to Riverwood.
Select locations: CC: Killara (1941), Salt Pan Creek (1930).

Habitat
Habitat:  
Altitude: 0–200 m  
Annual rainfall: 1000–1200 mm
Typical local abundance: Occasional.
Vegetation: Moist eucalypt forest.
Substrate: Sandy soils on sandstone, low nutrients.
Exposure:
Conservation  
Mt Wilson is northern geographical limit. Conservation status unknown.

Deyeuxia angustifolia

Life history
Growth form: Densely tufted slender perennial herb to 0.7 m high.
Vegetative spread:
Longevity:
Primary juvenile period:
Flowers: Spring–summer.
Fruit/seed: Dry, 1-seeded, indehiscent.
Dispersal, establishment & growth:
Fire response:
Interaction with other organisms:

Distribution
Status/origin: Native.
Botanical subregions: NT CT ST; Vic., Tas.
Distribution Sydney area: Upper Blue Mountains.
Select locations: CT: Mt Wilson, Blackheath, Katoomba, Whalania Heights.

Habitat
Habitat: Gullies, creeks.
Altitude: 900–1200 m  
Annual rainfall: 1200–1400 mm
Typical local abundance: Frequent.
Vegetation: Shrubswamp e.g. with Empodisma minus, Baeckea utilis, Geranium neglectum, Callistemon pityoides.
Substrate: Sandy soils on sandstone, granite, low nutrients.
Exposure:
Conservation  
Conservation status unknown. Recorded from Kanangra Boyd NP.

Deyeuxia brachyathera

Life history
Growth form: Erect perennial herb to 1.2 m high.
Vegetative spread:
Longevity:
Primary juvenile period:
Flowers: Spring.
Fruit/seed: Dry, 1-seeded, indehiscent.
Dispersal, establishment & growth:
Fire response:
Interaction with other organisms:

Distribution
Status/origin: Native.
Botanical subregions: NT CT ST; Vic., Tas.
Distribution Sydney area: Upper Blue Mountains.
Select locations: CT: Mt Wilson, Blackheath, Katoomba, Whalania Heights.

Habitat
Habitat: Gullies, crevices, moist places.
**Deyeuxia decipiens**

**Life history**
- **Growth form:** Erect perennial herb to 1 m high.
- **Vegetative spread:**
- **Longevity:** Indefinite (D. Keith pers. comm.).
- **Primary juvenile period:**
- **Flowers:** Spring. Flowers abundantly only after fire (Keith 1996).
- **Fruit/seed:** Dry, 1-seeded, indehiscent.
- **Dispersal, establishment & growth:** Recruitment mainly after fire (D. Keith pers. comm.).
- **Fire response:** Resprouts, secondary juvenile period 1 year (D. Keith pers. comm.).

**Interaction with other organisms:**

**Distribution**
- **Status/origin:** Native.
- **Botanical subregions:** NC CC SC CT ST; Vic., Tas.
- **Distribution Sydney area:** Widespread.
- **Select locations:** CC: Hornsby, Northbridge, Castlecrag, Rose Bay, Darkes Forest, Mt Keira, Thirlmere. CT: Lithgow, Mt Banks, Leura, Wentworth Falls, Woodford, Oberon, Hill Top.

**Habitat**
- **Habitat:** Rocky hillsides, swamps.
- **Altitude:** 0–1000 m
- **Annual rainfall:** 800–1400 mm
- **Typical local abundance:** Frequent–occasional.
- **Vegetation:** Scrub e.g. with Banksia robur, Leptospermum juniperinum.
- **Substrate:** Sandy soils on sandstone, poorly drained, low nutrients.
- **Exposure:**

**Conservation**
- Conservation status unknown. Recorded from Blue Mountains NP.

**Deyeuxia gunniana**

**Life history**
- **Growth form:** Slender erect or ascending perennial herb to 0.4 m high.
- **Vegetative spread:**
- **Longevity:**
- **Primary juvenile period:**
- **Flowers:** Spring–summer.
- **Fruit/seed:** Dry, 1-seeded, indehiscent.
- **Dispersal, establishment & growth:**

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

**Distribution**
- **Status/origin:** Native.
- **Botanical subregions:** NC NT CT ST; Qld, Vic., Tas.
- **Distribution Sydney area:** Boyd Plateau.
- **Select locations:** CT: Luthers Creek, Jensen Swamp, Belarah Swamp.

**Habitat**
- **Habitat:** Swamps.
- **Altitude:** 1000–1200 m
- **Annual rainfall:** 1000–1100 mm
- **Typical local abundance:** Frequent–occasional.
- **Vegetation:** Sedgeland e.g. with Carex appressa, Xyris ustulata, Baeckea utilis, Empodisma minus.
- **Substrate:** Organic sediments on granite, low nutrients, permanently moist.
- **Exposure:**

**Conservation**
- Conservation status unknown. Recorded from Blue Mountains NP.

**Deyeuxia imbricata**

**Life history**
- **Growth form:** Erect perennial herb to 1.2 m high.
- **Vegetative spread:**
- **Longevity:**
- **Primary juvenile period:**
- **Flowers:** Spring.
- **Fruit/seed:** Dry, 1-seeded, indehiscent.
- **Dispersal, establishment & growth:**
- **Fire response:**

**Interaction with other organisms:**

**Distribution**
- **Status/origin:** Native.
- **Botanical subregions:** NT CT NWS; Qld.
- **Distribution Sydney area:**
- **Select locations:** CT: Capertee (1959), Jenolan Caves (1900), Woodford (1947).

**Habitat**
- **Habitat:** Swamps.
- **Altitude:** 600–800 m
- **Typical local abundance:** Frequent.
- **Vegetation:**
- **Substrate:** Sandy soils on sandstone, granitic soils, low nutrients.
- **Exposure:**

**Conservation**
- Jenolan Caves is southern geographical limit. Rare, last collected 1959.

**Deyeuxia innominata** *(sp. D aff. parviseta)*

**Life history**
- **Growth form:** Erect, loosely or occasionally densely tufted perennial herb to 0.3 m high.
- **Vegetative spread:**
- **Longevity:**
- **Primary juvenile period:**
- **Flowers:** Spring–summer.
- **Fruit/seed:** Dry, 1-seeded, indehiscent.
- **Dispersal, establishment & growth:**

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

**Distribution**
- **Status/origin:** Native.
- **Botanical subregions:** NT CT ST; Vic., Tas.
- **Distribution Sydney area:** Wentworth Falls.
- **Select locations:** CT: Wentworth Falls (1964).

**Habitat**
- **Habitat:** Seepage sites on hillsides.
- **Altitude:** 1000 m
- **Annual rainfall:** 1200–1400 mm
- **Typical local abundance:**
- **Vegetation:**
- **Substrate:** Sandy soil on sandstone, low nutrients, moist.
- **Exposure:** Shaded.

**Conservation**
- Rare, only Sydney area record is from Wentworth Falls in 1964.

**Deyeuxia mckiei**

**Life history**
- **Growth form:** Erect, loosely tufted perennial herb to 1.2 m high.
- **Vegetative spread:**
- **Longevity:**
- **Primary juvenile period:**
- **Flowers:** Spring–summer.
- **Fruit/seed:** Dry, 1-seeded, indehiscent.
Deyeuxia mesathera

**Life history**

**Growth form:** Tufted perennial herb to 1.2 m high.

**Vegetative spread:**

**LONGEVITY:**

**PRIMARY JUVENILE PERIOD:**

**FLOWERS:** Spring.

**FRUIT/SEED:** Dry, 1-seeded, indehiscent.

**DISPERAL, ESTABLISHMENT & GROWTH:**

**FIRE RESPONSE:**

**INTERACTION WITH OTHER ORGANISMS:**

**Distribution**

**STATUS/ORIGIN:** Native.

**BOTANICAL SUBREGIONS:** CC CT ST; Vic., Tas.

**DISTRIBUTION SYDNEY AREA:** Upper Blue Mountains.


**Habitat**

**HABITAT:** Swamps, riverbanks.

**ALTITUDE:** 0–600 m

**ANNUAL RAINFALL:** 1000–1400 mm

**TYPICAL LOCAL ABUNDANCE:**

**VEGETATION:**

**SUBSTRATE:**

**EXPOSURE:**

**Conservation**

Sydney is the northern geographical limit. Rare, last recorded in 1973.

POACEAE

Deyeuxia microseta

**Life history**

**Growth form:** Erect, slender, loosely tufted perennial herb to 1.2 m high.

**Vegetative spread:**

**LONGEVITY:**

**PRIMARY JUVENILE PERIOD:**

**FLOWERS:** Spring.

**FRUIT/SEED:** Dry, 1-seeded, indehiscent.

**DISPERAL, ESTABLISHMENT & GROWTH:**

**FIRE RESPONSE:**

**INTERACTION WITH OTHER ORGANISMS:**

**Distribution**

**STATUS/ORIGIN:** Native.

**BOTANICAL SUBREGIONS:** CC SC CT ST.

**DISTRIBUTION SYDNEY AREA:** Widespread.

**SELECT LOCATIONS:** CC: Cowan Creek, Glenbrook Gorge, Kentlyn, Wallacia, Avon Dam, Broughtons Pass, Cambewarra Range. CT: Clarence, Fitzroy Falls, Penrose.

**Habitat**

**HABITAT:** Creeks, swamps.

**ALTITUDE:** 0–1100 m

**ANNUAL RAINFALL:** 800–1400 mm

**TYPICAL LOCAL ABUNDANCE:**

**VEGETATION:** Open-forest e.g. with *Corymbia gunnifera*, *Angophora floribunda*, *Syncarpia glomulifera*; moist scrub e.g. with *Backhousia myrtifolia*.

POACEAE

Deyeuxia nudiflora

**Life history**

**Growth form:** Slender perennial herb to 0.7 m high.

**Vegetative spread:**

**LONGEVITY:**

**PRIMARY JUVENILE PERIOD:**

**FLOWERS:** Summer.

**FRUIT/SEED:** Dry, indehiscent, 1-seeded.

**DISPERAL, ESTABLISHMENT & GROWTH:**

**FIRE RESPONSE:**

**INTERACTION WITH OTHER ORGANISMS:**

**Distribution**

**STATUS/ORIGIN:** Native.

**BOTANICAL SUBREGIONS:** CC SC CT ST.

**DISTRIBUTION SYDNEY AREA:** Widespread.

**SELECT LOCATIONS:** CC: Cowan Creek, Glenbrook Gorge, Kentlyn, Wallacia, Avon Dam, Broughtons Pass, Cambewarra Range. CT: Clarence, Fitzroy Falls, Penrose.

**Habitat**

**HABITAT:** Creeks, swamps.

**ALTITUDE:** 0–1100 m

**ANNUAL RAINFALL:** 800–1400 mm

**TYPICAL LOCAL ABUNDANCE:**

**VEGETATION:** Open-forest e.g. with *Corymbia gunnifera*, *Angophora floribunda*, *Syncarpia glomulifera*; moist scrub e.g. with *Backhousia myrtifolia*.

POACEAE
**Deyeuxia parviseta var. boormanii**

**Life history**

**Growth form:** Loosely tufted perennial herb to 1.2 m high.

**Vegetative spread:** No (McIntyre et al. 1995).

**Longevity:** Indefinite (D. Keith p.c.).

**Primary juvenile period:**

**Flowers:** Spring.

**Fruit/seed:** Dry, indehiscent, 1-seeded.

**Dispersal, establishment & growth:** No particular mechanism for dispersal (McIntyre et al. 1995).

**Fire response:** Probably resprouts.

**Interaction with other organisms:**

**Distribution**

**Status/origin:** Native.

**Botanical subregions:** CC SC NT CT ST; Vic.

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

**Select locations:** CC: Maddens Plains, Mt Keira, Macquarie Pass.

**CT:** Clarence, Jenolan Caves, Mount Tomah, Blackheath, Wentworth Falls.

**Habitat**

**Habitat:** Often in steep gorges, damp forest.

**Altitude:** 1000–1100 m annual rainfall: 1200–1400 mm

**Typical local abundance:** Frequent.

**Vegetation:** Moist open-forest or rainforest.

**Substrate:** Sandy soils on sandstone, shaded.

**Exposure:** Shade.

**Conservation**

Conservation status unknown.

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**Deyeuxia parviseta**

**Life history**

**Growth form:** Very variable perennial to 1.2 m high.

**Vegetative spread:**

**Longevity:** Indefinite (D. Keith p.c.).

**Primary juvenile period:**

**Flowers:** Spring–summer.

**Fruit/seed:** Dry, indehiscent, 1-seeded. Mature January–February (Greening Australia 1996a).

**Dispersal, establishment & growth:** Recruitment mainly after fire (D. Keith p.c.). Total germination approx. 36 days (typical rate 1312 per gram of seed, Greening Australia 1996a). Some plants fruiting November, 44 weeks after high intensity fire (1/94 at Lane Cove) (P. Kubiak p.c.).

**Fire response:** Resprouts (D. Keith p.c.).

**Interaction with other organisms:**

**Distribution**

**Status/origin:** Native.

**Botanical subregions:** CC SC NT CT ST SWS SWP; Vic., Tas., S.A., W.A., N.Z.

**Distribution Sydney area:** Widespread.

**Select locations:** CC: Galston, Narrabeen, Dee Why, Bellevue Hill, Centennial Park, Marouba, Cooks River, Darkes Forest, Orangeville, Camden, Thirlmere, Hill Top. CT: Boyd Plateau, Jenolan Caves, Lawson, Mt Jellore, Mittagong, Wingecarribee Swamp.

**Habitat**

**Habitat:** Moist areas, creeks, swamps.

**Altitude:** 0–800 m annual rainfall: 800–1400 mm

**Typical local abundance:** Frequent.

**Vegetation:** Open-forest e.g. with Eucalyptus blaxlandii, E. radiata, E. sieberi, Angophora costata, E. piperita, Corymbia gummifera; scrub e.g. with Melaleuca; headland scrub; swamp e.g. with Viminaria juncea, Phragmites australis.

**Substrate:** Sandy to clay soils on sandstone, shale, low–medium nutrients, moist.

**Exposure:** Shaded.

**Conservation**

Vulnerable in Western Sydney (James et al. 1999). Conservation status elsewhere unknown.

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**Deyeuxia scaberula**

**Life history**

**Growth form:** Erect, slender perennial herb to 0.9 m high.

**Vegetative spread:**

**Longevity:** Indefinite (D. Keith p.c.).

**Primary juvenile period:**

**Flowers:** Spring.

**Fruit/seed:** Dry, indehiscent, 1-seeded.

**Dispersal, establishment & growth:** Mature January–February (Greening Australia 1996a). Recruitment mainly after fire (D. Keith p.c.). Total germination approx. 36 days (typical rate 1312 per gram of seed, Greening Australia 1996a). Some plants fruiting November, 44 weeks after high intensity fire (1/94 at Lane Cove) (P. Kubiak p.c.).

**Fire response:** Resprouts (D. Keith p.c.).

**Interaction with other organisms:**

**Distribution**

**Status/origin:** Native.

**Botanical subregions:** CC SC CT ST SWP; Vic., Tas., S.A., W.A., N.Z.

**Distribution Sydney area:** Sporadic.

**Select locations:** CC: Macquarie Pass (1965). CT: Mt Wilson (1903).

**Habitat**

**Habitat:** Rocky habitats, seepage sites.

**Altitude:** 300–1000 m annual rainfall: 1200–1400 mm

**Typical local abundance:**Rare.

**Vegetation:**

**Substrate:** Sandy soil on sandstone, low nutrients, moist, shaded.

**Exposure:** Shade.

**Conservation**

Rare, Mt Wilson is the northern geographical limit, last recorded there in 1904.

---
**Dichanthisium sericeum** subsp. *sericeum* (*D. affine*)

Queensland Bluegrass

**Life history**

**Growth form:** Erect perennial herb to 30–80 cm high, densely branched at the base, with blue-green leaves.

**Vegetative spread:** No.

**Longevity:** 3–4 years (Waters et al. 2000).

**Primary juvenile period:**

**Flowers:** Mostly summer.

**Fruit/seed:** Mature November–May. Seed ripens intermittently; seed dormancy may be up to 60% (Waters et al. 2000).

**Dispersal, establishment & growth:** One of the easiest native grasses to establish from seed, with rapid recruitment in wet warm conditions; optimum temperature for germination 20–30°C, germination 50–80% for seed 6–12 months old; germination may be substantially reduced after 4–5 years (Waters et al. 2000). Total germination approx. 16 days (typical rate 374 per gram of seed, Greening Australia 1996a).

**Fire response:**

**Interaction with other organisms:** Readily eaten by stock, although some graziers report that sheep rarely graze this species; tolerates moderate grazing (Waters et al. 2000).

**Distribution**

**Status/origin:** Native.

**Botanical subregions:** NC CC NT CT ST NWS NWP SFWP; Qld, Vic., N.T., S.A., W.A.

**Distribution Sydney area:** Western Sydney, Illawarra, Bathurst–Orange.

**Select locations:** CC: Doonside, Homebush, Bringelly, Campbelltown, Razorback, Picton, Austinmer, Dapto. CT: Bathurst, Orange, Abercrombie River.

**Habitat**

**Habitat:** Roadside, railway embankment.

**Altitude:** 0–1000 m

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

**Vegetation:** Grassland e.g. with *Themeda australis*; woodland e.g. with *Eucalyptus albens*, *Bothriochloa*.

**Substrate:** Clay soils on shale, volcanics, medium nutrients.

**Exposure:** Not particularly drought tolerant (Waters et al. 2000).

**Conservation**

Vulnerable in Western Sydney (James et al. 1999), rare in Illawarra, conservation status elsewhere unknown.

**Dichelachne hirtella**

**Life history**

**Growth form:** Densely tufted perennial herb to 1.3 m high.

**Vegetative spread:**

**Longevity:**

**Primary juvenile period:**

**Flowers:** Summer.

**Fruit/seed:** Dry indehiscent, 1-seeded.

**Dispersal, establishment & growth:**

**Fire response:**

**Interaction with other organisms:**

**Distribution**

**Status/origin:** Native.

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

**Distribution Sydney area:** Katoomba–Hartley Vale.

**Select locations:** CT: Hartley Vale (1890), Katoomba (1908).

**Habitat**

**Habitat:**

**Altitude:** 800–1000 m

**Typical local abundance:**

**Vegetation:** Montane woodland.

**Substrate:**

**Exposure:**

**Conservation**

Katoomba–Hartley Vale population is a disjunct occurrence at the northern geographical limit, but has not been recorded since 1908 and may be extinct.

**Dichelachne crinita**

**Life history**

**Growth form:** Tufted perennial herb to 1.5 m high.

**Vegetative spread:** No.

**Longevity:**

**Primary juvenile period:**

**Flowers:** Spring.

**Fruit/seed:** Dry indehiscent, 1-seeded. Mature December–January (Greening Australia 1996a).

**Dispersal, establishment & growth:** Total germination approx. 34 days (typical rate 648 per gram of seed, Greening Australia 1996a).

**Fire response:** Repro勇于ed after high intensity fire (1/94 at Lane Cove), secondary juvenile period 10–11 months (P. Kubiat pers. comm.).

**Interaction with other organisms:**

**Distribution**

**Status/origin:** Native.

**Botanical subregions:** NC CC SC NT CT ST NWS CWS SWL; LHI, Qld, Vic., S.A., W.A., N.Z., Pac.Is.

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

**Select locations:** CC: Morisset, Richmond, Gordon, Manly, Centennial Park, Homebush, Coogee, Cooks River, Liverpool, Elderslie, Menangle Park, Razorback. CT: Carcoar, Mt Victoria, Katoomba, Jenolan Caves, Hill Top, Moss Vale.

**Dichelachne inaequiquilumis**

**Life history**

**Growth form:** Tufted perennial herb to 1 m high.

**Vegetative spread:** No.

**Longevity:**

**Primary juvenile period:**

**Flowers:** Summer.

**Fruit/seed:** Dry indehiscent, 1-seeded.

**Dispersal, establishment & growth:**

**Fire response:**

**Interaction with other organisms:**

**Distribution**

**Status/origin:** Native.

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

**Distribution Sydney area:** Widespread in wetter areas.

**Select locations:** CC: Woodford, Glenbrook, St Ives, Epping, Kogarah, Villawood, Mt Keira, Albion Park. CT: Clarence, Mt Wilson, Blackheath, Jenolan SF, Lawson, Hazelbrook, Kowmung, Hill Top, Moss Vale, Wingecarribee Swamp, Paddys River.
**Habitat**

**Habitat**
- **Vegetation:** Moist eucalypt forest e.g. with *Eucalyptus radiata*, *E. ovata*; open-forest e.g. with *Bankia serrata*; heath e.g. with *Leptospermum trinervium*, *Leptospermum polygalifolium*; montane peatland e.g. with *Thesmara australis*, *Carex* spp.

**Conservation**
- **Soils on sandstone, shale, low nutrients.**

**SUBSTRATE:** Soils on sandstone, shale, low nutrients.

**BOTANICAL SUBREGIONS:** NC CC SC NT CT ST CWS; Vic., Tas.

**POACEAE**

*Dicchelachne micrantha* (*D. sciarea*)

**Short-hair Plume Grass**

**Life history**

**Distribution**

**POACEAE**

*Dicchelachne parva*

**Life history**

**Distribution**

**POACEAE**
**Dichelachne sieberiana**

**Life history**

**Growth form:** Tufted annual or short-lived perennial herb to 1 m high.

**Vegetative spread:** No.

**Longevity:** Less than 5 years.

**Primary juvenile period:** Flowers: Summer.

**Fruit/seed:** Dry, 1-seeded, indehiscent fruit, January–February.

**Dispersal, establishment & growth:**

**Fire response:**

**Interaction with other organisms:**

**Distribution**

**Status/origin:** Native.

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

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

**Select locations:** CC: Hornsby, Pymble, Ryde, Homebush, Centennial Park, Kogarah. CT: Clarence, Mt Wilson, Mount Tomah, Mt Victoria, Katoomba, Wentworth Falls, Woodford, Mt Bindo.

**Habitat**

**Habitat:** Gullies, slopes, ridges.

**Altitude:** 0–1400 m

**Typical local abundance:**

**Vegetation:** Montane woodland e.g. with *Eucalyptus pauciflora, E. dallympleana*; moist open-forest e.g. with *Eucalyptus pilularis, E. saligna*.

**Substrate:** Clay soils on shale, metamorphics, medium nutrients.

**Exposure:**

**Conservation**

Conservation status unknown.

---

**Digitaria aequiglumis** *

**Life history**

**Growth form:** Herb to 0.7 m high.

**Vegetative spread:** Stoloniferous.

**Longevity:**

**Primary juvenile period:** Flowers: January–March.

**Fruit/seed:** Dry, 1-seeded, indehiscent fruit.

**Dispersal, establishment & growth:**

**Fire response:**

**Interaction with other organisms:**

**Distribution**

**Status/origin:** Exotic, native to America.

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

**Distribution Sydney area:** Coast.

**Select locations:** CC: Norahville, Watsons Bay (1912), Paddington (1912), Centennial Park (1905), Kurnell, Casula, Mt Keira.

**Habitat**

**Habitat:** Swampy areas, lake margins, roadsides, disturbed sites.

**Altitude:** 0–200 m

**Typical local abundance:**

**Vegetation:** Edge of *Baumea juncea* swamp.

**Substrate:** Sandy soil on sand, sandstone, low nutrients.

**Exposure:**

**Conservation**

Weed of wet places.

---

**Digitaria breviglumis** *(D. diminuta)*

**Life history**

**Growth form:** Loosely tufted perennial herb to 0.7 m high.

**Vegetative spread:**

**Longevity:**

**Primary juvenile period:** Flowers: Summer.

**Fruit/seed:** Dry, 1-seeded, indehiscent fruit.

**Dispersal, establishment & growth:**

**Fire response:**

**Interaction with other organisms:**

**Distribution**

**Status/origin:** Native.

**Botanical subregions:** NC CC NT NWS NWP; Qld.

**Distribution Sydney area:** Hinterland north from Kangaroo Valley.

**Select locations:** CC: Upper Colo River, Richmond, Glenorie, Castlereagh, Oatley, Kogarah, Penrith, St Marys, Liverpool, Ingleburn, Kentlyn, Mulgoa, Erskine Creek, Menangle Park, Kowmung River, Kangaroo Valley.

**Habitat**

**Habitat:** Gullies, exposed sites.

**Altitude:** 0–500 m

**Typical local abundance:** Frequent.

**Vegetation:** Edge of *Baumea juncea* swamp.

**Substrate:** Gravelly clay or sandy soils on sandstones, shales.

**Exposure:**

**Conservation**

Kangaroo Valley is southern geographical limit. Vulnerable in Western Sydney (James et al. 1999), conservation status elsewhere unknown.

---

**Digitaria brownii**

**Life history**

**Growth form:** Perennial herb to 0.8 m high

**Vegetative spread:** Rhizomatous.

**Longevity:**

**Primary juvenile period:** Flowers: Summer.

**Fruit/seed:** Dry, 1-seeded, indehiscent fruit.

**Dispersal, establishment & growth:** Diaspore adhesive (McIntyre et al. 1995).

**Fire response:**

**Interaction with other organisms:**

**Distribution**

**Status/origin:** Native.

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

**Distribution Sydney area:** Liverpool to Razorback, Bathurst area.

**Select locations:** CC: Liverpool, Campbelltown, Menangle Park, Razorback. CT: Bathurst, Glen Davis.

**Habitat**

**Altitude:** 0–800 m

**Typical local abundance:** Rare.

**Vegetation:** Woodland e.g. with *Eucalyptus albens, E. melliodora*; margins of dry rainforest, grassland.

**Substrate:** Clay soils on shale, alluvium, medium nutrients.

**Exposure:**

**Conservation**

Rare, conservation status unknown.
**Digitaria ciliaris** *(D. adscendens)*

**Life history**

**Growth form:** Variable annual usually less than 1 m high.

**Vegetative spread:** No (McIntyre et al. 1995).

**Longevity:** Less than 1 year.

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

**Flowers:** January–May.

**Fruit/seed:** Dry, 1-seeded, indehiscent fruit. Seed weight 6.5 mg (Buckley 1982).

**Dispersal, establishment & growth:** No particular mechanism for dispersal (McIntyre et al. 1995), dispersed in mud on cars (Wace 1977).

**Fire response:**

**Interaction with other organisms:**

**Distribution**

**Status/origin:** Exotic, native to tropical regions.

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

**Distribution Sydney area:** Coast.

**Select locations:** CC: Beecroft, Hunters Hill (1890), Ryde (1885), Homebush, Parramatta (1886), Doonside, Como (1886), Werong Beach, Douglas Park, Albion Park, Five Islands, Kangaroo Valley, Berry.

**CT:** Jenolan Caves (1900).

**Habitat**

**Habitat:** Disturbed sites, tracks, creekbanks.

**Altitude:** 0–200 m

**Typical local abundance:** Occasional.

**Vegetation:**

**Substrate:**

**Exposure:**

**Conservation**

Widespread weed of cultivation.

**Digitaria divaricatissima**

**Umbrella Grass**

**Life history**

**Growth form:** Erect, tufted perennial herb to 0.8 m high.

**Vegetative spread:**

**Longevity:**

**Primary juvenile period:**

**Flowers:**

**Fruit/seed:** Dry, 1-seeded, indehiscent fruit.

**Dispersal, establishment & growth:**

**Fire response:**

**Interaction with other organisms:**

**Distribution**

**Status/origin:** Native.

**Botanical subregions:** NC CC SC CT NWS CWS SWS NWP SWP; Qld.

**Distribution Sydney area:** Widespread.

**Select locations:** CC: Wyong, Upper Colo, Dural, Hornsby, Gordon, Pennant Hills, Homebush, St Marys, Kentlyn, Picton, Macquarie Pass.

**CT:** Wentworth Falls, Kowmung River, Sutton Forest.

**Habitat**

**Habitat:** Creekflats, grassy slopes.

**Altitude:** 0–1000 m

**Typical local abundance:** Occasional.

**Vegetation:**

**Substrate:** Clay soils on shale, alluvium, occasional on sandstone, low–medium nutrients.

**Exposure:**

**Conservation**

**Conservation:** Vulnerable in Western Sydney (James et al. 1999), conservation status elsewhere unknown.
**Digitaria ischaemum** *

**Life history**

**Growth form:** Spreading herb to 0.4 m high.  
**Vegetative spread:** No.  
**Longevity:** Less than 1 year.  
**Primary juvenile period:** Less than 1 year.  
**Flowers:** Summer.  
**Fruit/seed:** Dry, 1-seeded, indehiscent fruit.  
**Dispersal, establishment & growth:** Dispersed in mud on cars (Wace 1977).  
**Fire response:**  
**Interaction with other organisms:**

**Distribution**

**Status/origin:** Native.  
**Botanical subregions:** NC CC SC NT NWS CWS; Qld.  
**Distribution Sydney area:** Coast. Western Sydney, Blue Mountains (T. James pers. comm.).  
**Select locations:** CC: Glen Davis, Upper Colo, Wamberal, Woy Woy, Cowan, Pitt Town, Hornsby, Cheltenham, Deep Creek, Gladstone, Balmoral, Machins Crater, Lapstone, Homebush, La Perouse, Port Hacking, Mulgoa, Albion Park, Berry.

**Habitat**

**Habitat:** Ridges.  
**Altitude:** 0–300 m  
**Annual rainfall:** 800–1200 mm  
**Typical local abundance:** Frequent.  
**Vegetation:** Moist to dry open-forest e.g. with Eucalyptus piperita, Corymbia gummifera, Eucalyptus botryoides; woodland e.g. with Eucalyptus crebra, E. eugenioides.  
**Substrate:** Sandy to clay soils on sand, sandstone, shale, volcanics, low–medium nutrients, well-drained.  
**Exposure:**

**Conservation**

Conservation status unknown.

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**Digitaria longiflora** *(D. propinqua)*

**Life history**

**Growth form:** Annual or short-lived perennial herb to 0.7 m high.  
**Vegetative spread:**  
**Longevity:**  
**Primary juvenile period:**  
**Flowers:** Summer.  
**Fruit/seed:** Dry, 1-seeded, indehiscent fruit.  
**Dispersal, establishment & growth:**  
**Fire response:**  
**Interaction with other organisms:**

**Distribution**

**Status/origin:** Native.  
**Botanical subregions:** NC CC; Qld, N.T., W.A.  
**Distribution Sydney area:** Coast.  
**Select locations:** CC: Richmond, Gladesville, Rose Bay, Oatley, Penshurst, Liverpool, Glenfield.

**Habitat**

**Habitat:** Riverbanks.  
**Altitude:** 0–200 m  
**Annual rainfall:** 700–1200 mm  
**Typical local abundance:** Occasional.  
**Vegetation:**  
**Substrate:** Sandy soils on dunes, alluvium, sandstone, low nutrients.  
**Exposure:**

**Conservation**

Vulnerable in Western Sydney (James et al. 1999), conservation status elsewhere unknown. Glenfield is the southern geographical limit.

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**Digitaria parviflora**

**Life history**

**Growth form:** Erect tufted perennial herb to 1.5 m high.  
**Vegetative spread:** No (McIntyre et al. 1995).  
**Longevity:**
**Digitaria sanguinalis * **

Summer Grass

**Life history**

**GROWTH FORM:** Variable spreading, tufted herb.

**VEGETATIVE SPREAD:** No (McIntyre et al. 1995).

**LONGEVITY:** Less than 1 year.

**PRIMARY JUVENILE PERIOD:** Less than 1 year.

**FLOWERS:** January–February.

**FRUIT/SEED:** Dry, 1-seeded, indehiscent fruit.

**DISPERSAL, ESTABLISHMENT & GROWTH:** No particular mechanism for dispersal (McIntyre et al. 1995). Seeds dispersed by wind, water, man and animals, tenacious competitor for space — spreading tufts (Ciba-Geigy 1968–), dispersed in mud on cars (Wace 1977).

**FIRE RESPONSE:**

**INTERACTION WITH OTHER ORGANISMS:** Foodplant of Pacific Black Duck *Anas superciliosa* (Barker & Vestjens 1989, 1990).

**Distribution**

**STATUS/ORIGIN:** Exotic, introduced from temperate regions.

**BOTANICAL SUBREGIONS:** NC, CC, SC, CT, ST, NWS, CWS, SWS, SWP; LHI, Qld, Vic., Tas., S.A., W.A.

**DISTRICT SYDNEY AREA:** Widespread.

**SELECT LOCATIONS:** CC: Hornsby, Wahroonga, Woodford, Gladesville (1884), Homebush (1894), Doonside, Camden, Campbelltown, Lake Illawarra. CT: Bathurst, Blackheath.

**Habitat**

**HABITAT:** Gardens, railways, disturbed sites, beaches.

**ALTITUDE:** 0–1000 m **ANNUAL RAINFALL:** 700–1400 mm

**TYPICAL LOCAL ABUNDANCE:** Frequent.

**VEGETATION:**

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

**EXPOSURE:**

**Conservation**

Widespread weed of cultivation.

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**Digitaria violascens * **

**Life history**

**GROWTH FORM:** Low-growing herb to 0.6 m high.

**VEGETATIVE SPREAD:**

**LONGEVITY:** Less than 1 year.

**PRIMARY JUVENILE PERIOD:** Less than 1 year.

**FLOWERS:** Summer.

**FRUIT/SEED:** Dry, 1-seeded, indehiscent fruit.

**DISPERSAL, ESTABLISHMENT & GROWTH:** Dispersed in mud on cars (Wace 1977).

**FIRE RESPONSE:**

**INTERACTION WITH OTHER ORGANISMS:**

**Distribution**

**STATUS/ORIGIN:** Exotic, native to Old World tropical regions.

**BOTANICAL SUBREGIONS:** NC, CC, NT, CT, ST; Qld.

**DISTRICT SYDNEY AREA:** Coast.

**SELECT LOCATIONS:** CC: Cheltenham, Balgowlah, Concord, Botany Swamp (1912), Cooks River (1908), Mt Keira.

**Habitat**

**HABITAT:** Gardens, roadsides.

**ALTITUDE:** 0–300 m **ANNUAL RAINFALL:** 1000–1400 mm

**TYPICAL LOCAL ABUNDANCE:**

**VEGETATION:**

**SUBSTRATE:** Clay to sandy soils.

**EXPOSURE:**

**Conservation**

Minor weed of cultivation.

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**Diplachne uninervia * **

**Life history**

**GROWTH FORM:** Tufted annual or short-lived perennial herb to 0.7 m high.

**VEGETATIVE SPREAD:**

**LONGEVITY:**

**PRIMARY JUVENILE PERIOD:**

**FLOWERS:** Summer.

**FRUIT/SEED:** Dry, 1-seeded, indehiscent fruit.

**DISPERSAL, ESTABLISHMENT & GROWTH:**

**FIRE RESPONSE:**

**INTERACTION WITH OTHER ORGANISMS:**

**Distribution**

**STATUS/ORIGIN:** Exotic, native to America.

**BOTANICAL SUBREGIONS:** CC.

**DISTRICT SYDNEY AREA:** Silverwater.

**SELECT LOCATIONS:** CC: Newington (1992).

**Habitat**

**HABITAT:** Estuarine, ditches, drains.

**ALTITUDE:** 0–20 m **ANNUAL RAINFALL:** 1000 mm

**TYPICAL LOCAL ABUNDANCE:**

**VEGETATION:**

**SUBSTRATE:** Clay soils on alluvium, low nutrients, apparently salt-tolerant.

**EXPOSURE:**

**Conservation**

Exotic species, known only from Naval Arms Depot (now Newington NR) in 1992. Ability to spread unknown.

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**Dryopoa dives**

Giant Mountain Grass

**Life history**

**GROWTH FORM:** Tall, reed-like, erect, coarse perennial herb to 3 m high.

**VEGETATIVE SPREAD:**

**LONGEVITY:**

**PRIMARY JUVENILE PERIOD:**

**FLOWERS:** Spring.

**FRUIT/SEED:** Dry, 1-seeded, indehiscent fruit.

**DISPERSAL, ESTABLISHMENT & GROWTH:**

**FIRE RESPONSE:**

**INTERACTION WITH OTHER ORGANISMS:**

**Distribution**

**STATUS/ORIGIN:** Native.

**BOTANICAL SUBREGIONS:** CC, SC, CT; Vic., Tas.

**DISTRICT SYDNEY AREA:** Macquarie Pass.

**SELECT LOCATIONS:** CC: Macquarie Pass. CT: Macquarie Falls.

**Habitat**

**HABITAT:** Moist gullies.

**ALTITUDE:** 0–500 m **ANNUAL RAINFALL:** 1200–1400 mm

**TYPICAL LOCAL ABUNDANCE:** Occasional.

**VEGETATION:** Moist open-forest e.g. with *Ceratopetalum apetalum, Todea barbara*.

**SUBSTRATE:** Sandy soil on alluvium, medium nutrients, moist.

**EXPOSURE:**

**Conservation**

Uncommon, Macquarie Pass is northern geographical limit, conservation status unknown.
**Echinochloa colona**

**Awnless Barnyard Grass**

**Life history**

**Growth form:** Tufted herb to 0.6 m high.

**Vegetative spread:** No.

**Longevity:** Less than 1 year.

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

**Flowers:** Summer, or in response to rain (Harden 1993).

**Fruit/seed:** Dry, 1-seeded, indehiscent fruit.

**Dispersal, establishment & growth:**

**Fire response:**

**Interaction with other organisms:** Foodplant of Freckled Duck (*Stictonetta nervosa*) (Barker & Vestjens 1989, 1990).

**Distribution**

**Status/origin:** Native.

**Botanical subregions:** NC CC ST NWS CNS SWP NWP SFWP; Qld, Vic., S.A., W.A.

**Distribution Sydney area:** Western Sydney.

**Select locations:** CC: Liverpool, Glenfield, Ingleburn, Camden.

**Habitat**

**Habitat:** Moist sites.

**Altitude:** 0–300 m

**Annual rainfall:** 700–1000 mm

**Typical local abundance:** Occasional.

**Vegetation:**

**Substrate:** Clay soils on shale, alluvium, medium nutrients, subject to periodic flooding.

**Exposure:**

**Conservation**

Species of western NSW possibly introduced to Sydney region with stock.

**Echinochloa crus-galli** *

**Barnyard Grass**

**Life history**

**Growth form:** Variable annual herb to 1 m high. Stout stem with tufts of hair at the nodes (Ciba-Geigy 1968–). No (McIntyre et al. 1995).

**Longevity:** Less than 1 year.

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

**Flowers:** Pyramid-shaped inflorescence, January–March.

**Fruit/seed:** Dry, 1-seeded, indehiscent, January–May, peak March.

**Dispersal, establishment & growth:** No particular mechanism for dispersal (McIntyre et al. 1995), dispersed by wind, water, and animals — over long distances by man; spreads rapidly (Ciba-Geigy 1968–), dispersed in mud on cars (Wace 1977).

**Fire response:** Killed.

**Interaction with other organisms:** Seed eaten by Straw-necked Ibis and Stubble Quail (*Coturnix pectoralis*), foodplant of Freckled Duck (*Stictonetta nervosa*), Grey Teal (*Anas gibberifrons*) and Pacific Black Duck (*Anas superciliosa*) (Barker & Vestjens 1989, 1990).

**Distribution**

**Status/origin:** Exotic, native to Europe. Often grown as a forage plant, with a high sugar content (Ciba-Geigy 1968–).

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

**Distribution Sydney area:** Widespread.

**Select locations:** CC: Wollombi, Wamberal, sackville, Windsor, Richmond, Woodford, Beecroft, cheltenham, Manly, Toongabbie, Lidcombe, Homebush, Kogarah (1886), Centennial park (1899), Moorebank, Cobbtly (1915), Menangle (1898), Wollongong, Five Islands, kangaroo Valley. CT: Orange, Bathurst, Bell, Kowmung River, Moss Vale.

**Habitat**

**Habitat:** Waste areas, riverbanks, creeks, gardens.

**Altitude:** 0–1000 m

**Annual rainfall:** 700–1400 mm

**Typical local abundance:** Occasional.

**Vegetation:**

**Substrate:** Loamy sandy soils on shale, alluvium, medium nutrients.

**Soil nitrogenous, slightly acid, sandy-loamy, indicator of fertility (Ciba-Geigy 1968–).** Salt-tolerant but high salinity may limit its distribution (Rahman & Ungar 1994).

**Exposure:**

**Conservation**

Widespread weed of waste areas and agricultural land. Moderate or vigorous competitor for space and nitrogen (Ciba-Geigy 1968–).

**Echinochloa crus-pavonis** *

**South American Barnyard Grass**

**Life history**

**Growth form:** Erect to decumbent annual herb to 1.3 m high.

**Vegetative spread:**

**Longevity:** Less than 1 year.

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

**Flowers:** Summer.

**Fruit/seed:** Dry, 1-seeded, indehiscent.

**Dispersal, establishment & growth:**

**Fire response:**

**Interaction with other organisms:**

**Distribution**

**Status/origin:** Exotic, native to tropical Africa and America.

**Botanical subregions:** NC CC CT; Qld, Vic., W.A., S Amer., N.Z.

**Distribution Sydney area:** Western Sydney.

**Select locations:** CC: Lane Cove, Homebush (1931), Camden (1966).

**Habitat**

**Habitat:** Wasteland, agricultural areas, gardens.

**Altitude:** 0–300 m

**Annual rainfall:** 700–1000 mm

**Typical local abundance:** Occasional weed of cultivation, particularly in the Camden area.

**Echinochloa escentula** *(E. utilis)*

**Japanese Millet**

**Life history**

**Growth form:** Erect annual herb to 1 m high, with stout stems.

**Vegetative spread:**

**Longevity:** Less than 1 year.

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

**Flowers:** Summer.

**Fruit/seed:** Dry, 1-seeded, indehiscent.

**Dispersal, establishment & growth:**

**Fire response:**

**Interaction with other organisms:**

**Distribution**

**Status/origin:** Exotic, native to eastern Asia. Introduced for fodder and grain.

**Botanical subregions:** NC CC ST NWS CNS SWP CNS SWP SFWP; Qld, Vic., Tas., S.A., W.A.

**Distribution Sydney area:** Widespread.

**Select locations:** CC: Homebush, Manly (1919), Centennial Park, Cambewarra. CT: Orange, Bathurst, Hill Top (1914).
**Echinochloa frumentacea** *

Siberian Millet

**Life history**

**Growth form:** Annual herb to 1 m high, stout towards the base.

**Vegetative spread:** No.

**Longevity:** Less than 1 year.

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

**Flowers:** Summer.

**Fruit/seed:** Dry, 1-seeded, indehiscent.

**Dispersal, establishment & growth:**

**Fire response:**

**Interaction with other organisms:**

**Distribution**

**Status/origin:** Exotic, native to India. Introduced as stockfeed.

**Botanical subregions:** NC CC NT NSW WNP; Qld, Vic., W.A.

**Distribution Sydney area:**

**Select locations:** CC: Jilliby Jilliby (1909), Wyong (1909), Darkes Forest, Jamboro.

**Habitat**

**Habitat:** Pddocks, roadsides.

**Altitude:** 0–400 m  **Annual rainfall:** 1000–1400 mm

**Typical local abundance:**

**Vegetation:**

**Substrate:**

**Exposure:**

**Conservation**

Cultivated as forage and grain, and sometimes as a soil stabiliser. Used as cover crop at Clarence in 1992 (Herb. record). Common in birdseed and often grows from spilt grain. Not truly naturalised.

**POACEAE**

**Echinochloa telmatophila**

Swamp Barnyard Grass

**Life history**

**Growth form:** Erect to spreading annual herb, with stout stems to 2 m high.

**Vegetative spread:** No.

**Longevity:** Less than 1 year.

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

**Flowers:** Summer.

**Fruit/seed:** Dry, 1-seeded, indehiscent.

**Dispersal, establishment & growth:**

**Fire response:**

**Interaction with other organisms:**

**Distribution**

**Status/origin:** Native.

**Botanical subregions:** NC CC CWS; Qld, W.A.

**Distribution Sydney area:** Coast.

**Select locations:** CC: Colo, Wyong, Gosford, Howes Creek, Richmond (1885), Yarramundi, Bondi (1887), Centennial Park, Camden, Menangle.

**Habitat**

**Habitat:** In or near ponds and streams, in shallow water.

**Altitude:** 0–300 m  **Annual rainfall:** 700–1200 mm

**Typical local abundance:**

**Vegetation:**

**Substrate:** Sandy soil on alluvium, often in shallow water, low nutrients.

**Exposure:**

**Conservation**

Vulnerable in Western Sydney (James et al. 1999), conservation status elsewhere unknown.

**POACEAE**

**Echinochogon caespitosus** var. *caespitosus*

Tufted Hedgehog Grass

**Life history**

**Growth form:** Tufted perennial herb to 1.5 m high.

**Vegetative spread:** No (McIntyre et al. 1995).

**Longevity:**

**Primary juvenile period:**

**Flowers:** August–May, peak November–December.

**Fruit/seed:** Dry, 1-seeded, indehiscent. Autumn (L.McD.)

**Dispersal, establishment & growth:** Diaspore adhesive (McIntyre et al. 1995). No special morphology for dispersal (Westoby et al. 1990). Secondary juvenile period 15–23 weeks (P. Kubiak pers. comm.).

**Fire response:** Reported after high intensity fire (1/94 at Lane Cove, P. Kubiak pers. comm.).

**Interaction with other organisms:** Grazed by stock. Food plant of butterfly larvae *Taractrocera papyria papyria* (Common & Waterhouse 1981).

**Distribution**

**Status/origin:** Native.

**Botanical subregions:** NC CC SC NT ST NWS; Qld, N.G.

**Distribution Sydney area:** Widespread.

**Select locations:** CC: Awaba, Matcham, Hornsby, Cheltenham, Roseville, Lane Cove, Hurstville, Castlecrag, Liverpool, Thirlemere, Bulli, Kangaroo Valley, Bomaderry. CT: Hartley Vale, Katoomba, Mittagong.

**Habitat**

**Habitat:** Hillisdes and ridges, levee banks.

**Altitude:** 0–1000 m  **Annual rainfall:** above 700–1400 mm

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

**Vegetation:** Open-forest e.g with *Syncarpia glomulifera*, *Eucalyptus globoidea*, *E. saligna*, *E. pilularis*, *E. viminalis*, *E. radiata*; woodland e.g. with *Eucalyptus dives*, *E. mannifera*. Also with *Eucalyptus moluccana*, *E. crebra*, *E. tereticornis* (T. James pers. comm.).

**Substrate:** Clay soil from Wiamamatta Shale, sandy loam from Permian-Shoalhaven sediments, sandy soil on sandstone, medium–low nutrients.

**Exposure:** Mid–light shade.

**Conservation**

Widespread and relatively frequent, conserved in Western Sydney (James et al. 1999). Reported in Royal NP, Seven Mile Beach NP, Wambina NR.

**POACEAE**

**Echinopogon cheelii**

Long-flowered Hedgehog Grass

**Life history**

**Growth form:** Loosely tufted perennial herb to 1 m high.

**Vegetative spread:** No (McIntyre et al. 1995).

**Longevity:**

**Primary juvenile period:**

**Flowers:** Spring–summer.

**Fruit/seed:** Dry, 1-seeded, indehiscent.

**Dispersal, establishment & growth:** Diaspore adhesive (McIntyre et al. 1995).
**Habitat**

Damp places in forest and grassland.

**Altitude:** 800–1000 m  
**Annual Rainfall:** 800–1000 mm

**Typical Local Abundance:**

**Vegetation:**

**Substrate:**

**Exposure:**

**Conservation**

Known from only one record in the area, at Neville, south of Blayney in 1950.

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### Echinochogon ovatus

**Forest Hedgehog Grass**

**Life History**

- **Growth Form:** Perennial herb to 1.2 m high, with a long, slender rhizome.
- **Vegetative Spread:**
- **Longevity:**
- **Primary Juvenile Period:**
- **Flowers:** Spring.
- **Fruit/Seed:** Dry, 1-seeded, indehiscent fruit.
- **Dispersal, Establishment & Growth:** Diaspore adhesive (McIntyre et al. 1995).
- **Fire Response:**
- **Interaction with other Organisms:** Young plants poisonous to stock (Harden 1993).

### Distribution

**Status/Origin:** Native.

**Botanical Subregions:** NC CC SC NT CT ST NWS SWS SWP; Vic.

**Distribution Sydney Area:** Blayney area.

**Select Locations:** CT: Neville (1950).

**Habitat**

**Habitat:**

**Altitude:** 0–1000 m  
**Annual Rainfall:** 800–1000 mm

**Typical Local Abundance:**

**Vegetation:**

**Substrate:**

**Exposure:**

**Conservation**

- Listed in New South Wales Threatened Species Council (1999).

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### Ehrharta calycina *

**Perennial Veldgrass**

**Life History**

- **Growth Form:** Tufted or rarely stoloniferous perennial to 0.7 m high.
- **Vegetative Spread:**
- **Longevity:**
- **Primary Juvenile Period:**
- **Flowers:** Spring–summer.
- **Fruit/Seed:** Dry, 1-seeded, indehiscent fruit.

---

### Ehrharta erecta *

**Panic Veldgrass**

**Life History**

- **Growth Form:** Tufted perennial to 0.6 m high, with delicate annual-like rootstock.
- **Vegetative Spread:** Stoloniferous habit in moist situations (L.McD. e.g. at Gore Creek Reserve, Greenwich).
- **Longevity:**
- **Primary Juvenile Period:**
- **Flowers:** Spring–summer.
- **Fruit/Seed:** Dry, 1-seeded, indehiscent fruit.
- **Dispersal, Establishment & Growth:** Secondary juvenile period 38 weeks after high intensity fire (1/94 at Lane Cove, P. Kubiak pers. comm.).
- **Fire Response:** Resprouted after high intensity fire (1/94 at Lane Cove, P. Kubiak pers. comm.).
- **Interaction with other Organisms:** Foodplant of moth caterpillar *Antheia ocellata* and butterfly caterpillar *Heteronympha merope* (Coupar & Coupar 1992). Apparently eaten by rabbits *Oryctolagus coniculus* (P. Kubiak pers. comm.). Outcompetes native grasses (L. McD.).

### Distribution

**Status/Origin:** Exotic, native to S Africa. Probably introduced as pasture species.

**Botanical Subregions:** NC CC SC NT CT ST NWS SWS SWP; Vic., Tas., S.A., W.A.

**Distribution Sydney Area:** Coast.

**Select Locations:** CC: Wyong (1974), Mt White, Richmond (1910), Eastlakes, Botany Swamp (1912), Matraville (1982).

**Habitat**

**Habitat:**

**Altitude:** 0–100 m  
**Annual Rainfall:** 700–1200 mm

**Typical Local Abundance:** Frequent.

**Vegetation:**

**Substrate:** Sandy soils on dunes, alluvium, low nutrients

**Exposure:**

**Conservation**

- Weed of moist shady sites, often in gardens and more frequent since 1970s. Probably likely to spread in higher rainfall areas such as the Upper Blue Mountains. Aggressive species that invades natural areas including grassy woodlands, forests, heathlands and riparian areas.
**Ehrharta longiflora** *

*Annual Veldtgrass*

**Life history**

**Growth form:** Tufted annual to 0.9 m high.

**Vegetative spread:**

**Longevity:**

**Primary juvenile period:**

**Flowers:** Spring–summer.

**Fruit/seed:** Dry, 1-seeded, indehiscent fruit.

**Dispersal, establishment & growth:**

**Fire response:**

**Interaction with other organisms:**

**Distribution**

**Status/origin:** Exotic, native to S Africa.

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

**Distribution Sydney area:** Coast.

**Select locations:** CC: Kulnura, Pennant Hills, Beecroft, Lindfield, Lane Cove, Centennial Park, Arncliffe (1913), Kogarah (1945), Oatley, Razorback.

**Habitat**

**Habitat:** Disturbed areas, roadsides.

**Altitude:** 0–300 m **Annual rainfall:** 700–1200 mm

**Typical local abundance:** Frequent.

**Vegetation:**

**Substrate:** Light sandy or loamy soils on sandstone, sand, low nutrients.

**Exposure:** Mid-shade.

**Conservation**

Weed of roadsides, invading bush margins.

---

**Ehrharta villosa** *

*Pypgrass*

**Life history**

**Growth form:** Perennial herb to 0.9 m high, with contracted to long creeping rhizome.

**Vegetative spread:** Rhizomatous.

**Longevity:**

**Primary juvenile period:**

**Flowers:** Spring–summer.

**Fruit/seed:** Dry, 1-seeded, indehiscent fruit.

**Dispersal, establishment & growth:**

**Fire response:**

**Interaction with other organisms:**

**Distribution**

**Status/origin:** Exotic, native to S Africa. Introduced for sand stabilisation.

**Botanical subregions:** CC: Vic., S.A., W.A.

**Distribution Sydney area:** Sporadic.

**Select locations:** CC: Botanic Gardens (1932), Port Kembla (1946).

**Habitat**

**Habitat:** Sand dunes.

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

**Typical local abundance:** Frequent.

**Vegetation:**

**Substrate:** Sand on sand dunes.

**Exposure:**

**Conservation**

Grown on sand dunes as a sand-binder, occasionally becoming naturalised (Harden 1993).

---

**Eleusine indica** *

*Crowsfoot Grass*

**Life history**

**Growth form:** Coarse, tufted annual or perennial herb to 0.8 m high, with ascending or prostrate stems branching at the base.

**Vegetative spread:** No.

**Longevity:**

**Primary juvenile period:**

**Flowers:** Summer.

**Fruit/seed:** Dry, 1-seeded, indehiscent fruit.

**Dispersal, establishment & growth:** Dispersed in mud on cars (Wace 1977).

**Fire response:** Flowering 15–18 weeks after resprouting following high intensity fire (1/94 at Lane Cove, P. Kubiak pers. comm.).

**Interaction with other organisms:** Seed eaten by Plumed Whistling Duck *Dendrocygna eytoni* (Barker & Vestjens 1989,1990). Can be poisonous to stock (Harden 1993).

**Distribution**

**Status/origin:** Exotic, native to Africa and India.

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

**Distribution Sydney area:** Widespread.

**Select locations:** CC: Richmond, Dural, Gordon, Manly, Sydney (1894), Rose Bay, Centennial Park, La Perouse, Flemington, Rockdale, Penrith, Camden, Albion Park, Five Islands.

**Habitat**

**Habitat:** Lawns, crops, disturbed areas, roadsides, coastal headlands.

**Altitude:** 0–300 m **Annual rainfall:** 700–1200 mm

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

**Vegetation:**

**Substrate:** Clay soils on shale, sandy soils on sandstone, low–medium nutrients.

**Exposure:**

**Conservation**

Common weed of lawns, pastures and disturbed areas.

---

**Eleusine tristachya** *

*Goose Grass, Crab Grass*

**Life history**

**Growth form:** Coarse, tufted herb to 0.4 m high.

**Vegetative spread:** No (McIntyre et al. 1995).

**Longevity:**

**Primary juvenile period:**

**Flowers:** Summer.

**Fruit/seed:** Dry, 1-seeded, indehiscent fruit.

**Dispersal, establishment & growth:** No paricular mechanism for dispersal (McIntyre et al. 1995), dispersed in mud on cars (Wace 1977).

**Fire response:**

**Interaction with other organisms:**

**Distribution**

**Status/origin:** Exotic, native to S America.

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

**Distribution Sydney area:** Widespread.

**Select locations:** CC: Hornsby (1914), Sydney Botanic Gardens (1891), Lane Cove, Flemington, Concord, East Lakes, Glenfield, Narellan. CT: Bathurst, Hartley Vale (1947), Moss Vale.

**Habitat**

**Habitat:** Disturbed areas, mown areas, roadsides.

**Altitude:** 0–1000 m **Annual rainfall:** 700–1200 mm

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

**Vegetation:**
**Elymus scaber** var. *scaber* (*Agropyron scabrum*)

**Common Wheatgrass**

**Life history**

**Growth form:** Loosely tufted perennial herb to 1 m high; leaves with some degree of twisting.

**Vegetative spread:** No (McIntyre et al. 1995).

**Longevity:** Short-lived perennial (Waters et al. 2000).

**Primary juvenile period:**

**Flowers:** Spasmodically, summer to autumn, cold temperatures often required to stimulate flowering (Waters et al. 2000).

**Fruit/seed:** Dry, 1-seeded, indehiscent fruit. Mature December–January (Greening Australia 1996a), 100–200 seed per gram, with awn accounting for 7–18% of total weight (Waters et al. 2000).

**Dispersal, establishment & growth:** Diaspore adhesive (McIntyre et al. 1995). Total germination approx. 35 days (typical rate 47 per gram of seed, Greening Australia 1996a). Some seed germinates one month after harvesting, but some ecotypes may have dormancy of several months; 80% germination recorded after 8 years seed storage in the dark at room temperature (Waters et al. 2000).

**Fire response:** Probably resprouts.

**Interaction with other organisms:** Considered valuable for stock, with high protein content 10–36%, but is usually only a minor component of pastures (Waters et al. 2000).

**Distribution**

**Status/origin:** Native.

**Botanical subregions:** NC CC ST CT ST NWS CWS SWS NWP SWP.

**Distribution Sydney area:** Orange area.

**Select locations:** CC: Ryde (1884), Kogarah (1900), Toongabbie (1993), Campbelltown (1962). CT: Canobolas (1936), Moss Vale (1895).

**Habitat**

**Habitat:** Grassy woodland.

**Altitude:** 0–1000 m

**Typical local abundance:** Frequent.

**Vegetation:** Woodland e.g. with *Eucalyptus moluccana, E. tereticornis, E. cterebro.*

**Substrate:** Clay soils on shale, medium nutrients, well-drained. Recorded on saline sites in western NSW (Semple 1993). Tolerates alkaline conditions (Waters et al. 2000).

**Exposure:** Frost-tolerant (Waters et al. 2000).

**Conservation**

Vulnerable in Western Sydney (James et al. 1999), conservation status elsewhere unknown.

**Enneapogon gracilis**

**Slender Nineawn**

**Life history**

**Growth form:** Slender, tufted annual or perennial herb to 0.7 m high, with knotty base.

**Vegetative spread:**

**Longevity:**

**Primary juvenile period:**

**Flowers:** Warmer months.

**Fruit/seed:** Dry, 1-seeded, indehiscent fruit.

**Dispersal, establishment & growth:**

**Fire response:**

**Interaction with other organisms:**

**Distribution**

**Status/origin:** Native.

**Botanical subregions:** NC CC ST NWS CWS SWS NWP SWP.

**Distribution Sydney area:** CC: Barrallier.

**Habitat**

**Habitat:** Rock crevices.

**Altitude:** 0–100 m

**Typical local abundance:**

**Vegetation:**

**Substrate:**

**Exposure:**

**Conservation**

Only Sydney area record is from Barrallier (1914, 1937) in Burragorang Valley, and may have been destroyed by Warragamba Dam.

**Enneapogon nigricans**

**Niggerheads**

**Life history**

**Growth form:** Tufted perennial herb to 0.5 m high.

**Vegetative spread:**

**Longevity:**

**Primary juvenile period:**

**Flowers:** In response to rain.

**Fruit/seed:** Dry, 1-seeded, indehiscent fruit. Mature December–February (Greening Australia 1996a).

**Dispersal, establishment & growth:** Total germination approx. 8 days, typical rate 148 per gram of seed (Greening Australia 1996a).

**Fire response:**

**Interaction with other organisms:**

**Distribution**

**Status/origin:** Native.

**Botanical subregions:** NC SC NT CT ST NWS CWS SWS NWP SWP.

**Newspaper SFPW:** N.T., Tas., W.A.
**Enteropogon acicularis** *(Chloris acicularis)*

**Life history**
- **Growth form:** Tufted perennial herb to c. 0.4 m high.
- **Vegetative spread:**
  - **Primary juvenile period:**
  - **Longevity:** Indefinite.
- **Fruit/seed:** Dry, 1-seeded, indehiscent fruit.
- **Dispersal, establishment & growth:**
  - **Fire response:** Resprouted.
  - **Interaction with other organisms:** Seed eaten by finches (J. Neil, Glanmire 1955).
- **Distribution**
  - **Status/origin:** Native.
  - **Botanical subregions:** NC CC NWS CWS SWP SWP FWNP SFWP; Qld, Vic., S.A., W.A.
  - **Distribution Sydney area:** Western Sydney.
- **Habitat**
  - **Habitat:** Grassland, saleyards.
  - **Altitude:** 0–100 m
  - **Annual rainfall:** 700–1000 mm
  - **Typical local abundance:** Occasional.
  - **Vegetation:** Grassland.
  - **Substrate:** Clay soils on gravelly shale, low nutrients.
  - **Exposure:**
  - **Conservation:**
    - A species of drier inland areas, possibly introduced into western Sydney area with stock.

**Entolasia marginata**

**Bordered Panic**

**Life history**
- **Growth form:** Straggling or shrubby, wiry, rhizomatous, grass usually 0.8 m high, but up to 1.5 m high when straggling through undergrowth.
- **Vegetative spread:**
  - **Primary juvenile period:**
  - **Longevity:** Indefinite.
- **Fruit/seed:** Dry, 1-seeded, indehiscent fruit, November–May.
- **Dispersal, establishment & growth:**
  - **Fire response:** Resprouted, fruit produced 7 months after high intensity fire (1/94 at Lane Cove, P. Kubiak pers. comm.).
  - **Interaction with other organisms:** Seed eaten by finches (J. Neil, Gummuts 46, 2002). Apparently eaten by rabbits *Oryctolagus cuniculus* (P. Kubiak pers. comm.).
- **Distribution**
  - **Status/origin:** Native.
  - **Botanical subregions:** NC CC SC NT CT ST; Qld, Vic.
  - **Distribution Sydney area:** Widespread.

**Entolasia stricta**

**Wiry Panic**

**Life history**
- **Growth form:** Straggling, or shrubby, wiry, rhizomatous, grass usually 0.8 m high, but up to 1.5 m high when straggling through undergrowth.
- **Vegetative spread:**
  - **Primary juvenile period:**
  - **Longevity:** Indefinite.
- **Fruit/seed:** Dry, 1-seeded, indehiscent fruit, November–May.
- **Dispersal, establishment & growth:**
  - **Fire response:** Resprouted, fruit produced 5 months after high intensity fire (1/94 at Narrabeen, P. Kubiak pers. comm.).
  - **Interaction with other organisms:** Often heavily cropped by rabbits (P. Kubiak pers. comm.).
- **Distribution**
  - **Status/origin:** Native.
  - **Botanical subregions:** NC CC SC NT CT ST NWS; Qld.
  - **Distribution Sydney area:** Widespread on sandstone plateaus.
  - **Select locations:** CC: Kulnura, Gosford, Maroo, Richmond, Springwood, Linden, Hornsby, West Head, Cheltenham, Gladesville, Vaucluse, Botany Bay, Kurnell, Homebush, Lidcombe, Blacktown, Mt Druitt, Parramatta, Wilton, Oakdale, Bargo, Mt Keira, Jaspers Brush.
  - **CT:** Mt Wilson, Katoomba, Lawson, Kowmung River, Hill Top, Robertson, Penrose.

**Conservation**
- A common, widespread species, conserved in Western Sydney (James et al. 1999) and adequately conserved elsewhere. Reported in Blue Mountains NP.
Entolasia whiteana

Life history
Growth form: Straggling or shrubby wiry perennial herb to 0.8 m high.
Vegetative spread: No.
Longevity: Probably resprouts.
Primary juvenile period: No (McIntyre et al. 1995).
Flowers: Summer or in response to rain.
Dispersal, establishment & growth: No particular mechanism for dispersal (McIntyre et al. 1995).
Interaction with other organisms: Seed eaten by finches (J. Neil, Gumnuts 46, 2002).

Distribution
Status/origin: Native.
Botanical subregions: NC CC SC NT CT ST NWS CWS SWS NWP SWP NFWP SFWP; Qld, Tas., S.A., W.A.
Distribution Sydney area: Widespread.

Habitat
Habitat: Ridges, stony hillsides, sand deposits, rock pavements.
Altitude: 0–1000 m
Annual rainfall: 900–1400 mm
Typical local abundance: Frequent.
Exposure: Full sun.

Conservation
Conserved in Western Sydney (James et al. 1999), conservation status elsewhere unknown.

Eragrostis benthamii (E. philippica)

Life history
Growth form: Tufted perennial herb to 0.6 m high.
Vegetative spread: No.
Longevity: Less than 1 year.
Primary juvenile period: Less than 1 year.
Flowers: Summer.
Dispersal, establishment & growth: No particular mechanism for dispersal (McIntyre et al. 1995), dispersed in mud on cars (Wace 1977).
Fire response: Probably resprouts.
Interaction with other organisms: Seed eaten by finches (J. Neil, Gumnuts 46, 2002).

Distribution
Status/origin: Native.
Botanical subregions: CC SC NT CT ST NWS CWS SWS NWP SWP NFWP SFWP; Qld, Tas., S.A., W.A.
Distribution Sydney area: Widespread.

Habitat
Habitat: Lower hillsides, flats, moist places.
Altitude: 0–1000 m
Annual rainfall: 1000–1400 mm
Typical local abundance: Frequent.
Exposure: Woodland, open-forest.

Conservation
Vulnerable in Western Sydney (James et al. 1999), conservation status elsewhere unknown. Reported in Brisbane Water NP, Royal NP.
**Habitat**

Habitat: Disturbed sites, cultivated land, creeks.

Altitude: 0–1000 m  
Annual rainfall: 700–1400 mm

Typical local abundance: Occasional.

Vegetation: Open-forest e.g. with Eucalyptus tereticornis, *E. longifolia*, *E. eugenioides*.

Substrate: Clay soil on shale, medium nutrients. Recorded on saline sites in western NSW (Semple 1993).

Exposure:

Conservation

Weed of cultivation and disturbed ground.

---

**Eragrostis curvula***

*Eragrostis curvula*  

African Lovegrass

**Life history**

**Growth form:** Tufted perennial herb to 1 m high, often tussocky.

**Vegetative spread:** No (McIntyre et al. 1995).

**Longevity:**

**Primary juvenile period:**

**Flowers:** Mainly summer–autumn, flowerhead to 30 cm long (Weeds Australia www.weeds.org.au)

**Fruit/seed:** Dry indehiscent, 1-seeded. Seedhead lead-grey or grey-green with leaf tips often curly, open at maturity, seeds cream to brown about 1 mm long (Weeds Australia www.weeds.org.au)

**Dispersal, establishment & growth:** Diaspore: seeds, often spread in mud on vehicles and animals; seedlings grow rapidly after summer rain (Weeds Australia www.weeds.org.au). No particular mechanism for dispersal (McIntyre et al. 1995).

**Fire response:** Resprouts. Spring burning promotes rapid growth to full maturity in early summer (Weeds Australia www.weeds.org.au)

**Interaction with other organisms:**

**Distribution**

Status/origin: Exotic, native to Africa. Introduced for pasture and soil stabilisation (NPWS website).

Botanical subregions: NC CC SC NT NWS CWS NWP SWP NFWP; S.A., W.A.

Distribution Sydney area:

Select locations: CC: Wyong (1903), Emu Plains, Pymble, Mosman (1921), Bellevue Hill (1904), Homebush (1896), Lidcombe, Mt Druitt, Cabramatta, Campbelltown, Ingleburn, Menangle Park, Upper Burragorang.

**Habitat**

Habitat: Sand scrub, riverbanks.

Altitude: 0–200 m  
Annual rainfall: 700–1400 mm

Typical local abundance: Frequent–occasional.

Vegetation: Woodland, coastal scrub.

Substrate: Sandy soils on dune sand, Tertiary alluvium, sandy alluvium, low nutrients. Clay soils on shale (T. James pers. comm.).

Exposure:

Conservation

Vulnerable in Western Sydney (James et al. 1999), with most records pre-1950.

---

**Eragrostis leptostachya**

*Eragrostis leptostachya*  

Paddock Lovegrass

**Life history**

**Growth form:** Loosely tufted perennial herb to 1 m high.

**Vegetative spread:** No.

**Longevity:**

**Primary juvenile period:**

**Flowers:** Summer.

**Fruit/seed:** Dry indehiscent, 1-seeded.

**Dispersal, establishment & growth:**

**Fire response:** Resprouted, flowering 2 months after high intensity fire (1/94 at Lane Cove, P. Kubiak pers. comm.).

**Interaction with other organisms:**

**Distribution**

Status/origin: Native.

Botanical subregions: NC CC SC NT NWS CWS NWP SWP NFWP; Qld, Vic.

Distribution Sydney area:


**Habitat**

Habitat: Paddocks, remnant woodland.

Altitude: 0–800 m  
Annual rainfall: 700–1400 mm

Typical local abundance: Frequent–occasional.

Vegetation: Woodland e.g. with Eucalyptus melliodora, *E. macrorhyncha*; grassland; margins of dry rainforest. Also with Eucalyptus moluccana, *E. crebra*, *E. tereticornis* (T. James pers. comm.).

Substrate: Clay soil on shale, volcanics, sandy alluvium, medium nutrients.

Exposure:

Conservation

Regarded as one of the commonest pasture grasses in coastal areas in early 20th century (Herb. notes 1914, 1941). Conserved in Western Sydney (James et al. 1999), conservation status elsewhere unknown.

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**Eragrostis elongata**

Clustered Lovegrass

**Life history**

**Growth form:** Tufted, annual or perennial herb to 0.8 m high.

**Vegetative spread:** No.

**Longevity:** Less than 1 year.

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

**Flowers:** Summer or in response to rain.

**Fruit/seed:** Dry indehiscent, 1-seeded.

**Dispersal, establishment & growth:**

**Fire response:**

**Interaction with other organisms:**

**Distribution**

Status/origin: Native.

Botanical subregions: NC CC NT NWS CWS NWP SWP NFWP; Qld, Vic., N.T., S.A., W.A.

Distribution Sydney area:


**Habitat**

Habitat: Roadsides, watercourses, pastures.

Altitude: 0–1000 m  
Annual rainfall: 700–1400 mm

Typical local abundance: Frequent–occasional.

Vegetation: Vegetable, old pastures, Eastern Suburbs Banksia Scrub e.g. with Acacia longifolia, *Banksia aemula*.

Substrate: Sandy or gravelly soil on dune sand, Tertiary alluvium, sandy alluvium, shale, low–medium nutrients.

Exposure: Full sun.

Conservation

**Eragrostis mexicana** * (E. neomexicana *)

**Mexican Lovegrass**

**Life history**

**Growth form:** Tufted variable annual herb to 1.2 m high.

**Vegetative spread:** No (McIntyre et al. 1995).

**Longevity:** Less than 1 year.

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

**Flowers:** Summer.

**Fruit/seed:** Dry indehiscent, 1-seeded.

**Dispersal, establishment & growth:** No particular mechanism for dispersal (McIntyre et al. 1995).

**Fire response:**

**Interactions with other organisms:**

**Distribution**

**Status/origin:** Exotic, native to America.

**Botanical subregions:** NC CC SC NT CT ST SWP.

**Select locations:** CC: Bilpin, Richmond (1912), Doonside, Ryde, Marrickville (1908), Casula, Campbelltown. CT: Bathurst, Moss Vale, Robertson.

**Habitat**

**Habitat:** Disturbed areas, railways, saleyards.

**Altitude:** 0–1000 m

**Annual rainfall:** 700–1400 mm

**Typical local abundance:** Frequent.

**Vegetation:**

**Substrate:** Clay soils on shale.

**Exposure:**

**Conservation**

Weed of disturbed areas and gardens.

---

**Eragrostis molybdea**

**Soft Lovegrass**

**Life history**

**Growth form:** Tufted perennial herb to 1 m high.

**Vegetative spread:** No (McIntyre et al. 1995).

**Longevity:**

**Primary juvenile period:**

**Flowers:** Summer.

**Fruit/seed:** Dry, 1-seeded, indehiscent fruit.

**Dispersal, establishment & growth:** No particular mechanism for dispersal (McIntyre et al. 1995), possibly a coloniser of bare sites.

**Fire response:** Resprouts from base.

**Interactions with other organisms:**

**Distribution**

**Status/origin:** Native.

**Botanical subregions:** NC CC NT CT ST NWS SWS NWP;

**Qld, Vic.**

**Distribution Sydney area:** Sporadic.

**Select locations:** CC: Menangle, Mt Keira. CT: Bathurst, Hartley, Hill Top.

**Habitat**

**Habitat:** Roadside.

**Altitude:** 0–700 m

**Annual rainfall:** 700–1200 mm

**Typical local abundance:** Occasional.

**Vegetation:** Grassland, woodland e.g. with *Eucalyptus moluccana, E. tereticornis*.

**Substrate:** Clay to sandy soils on shale, sandstone, low–medium nutrients.

**Exposure:**

**Conservation**

Conservation status unknown.

---

**Eragrostis parviflora**

**Weeping Lovegrass**

**Life history**

**Growth form:** Tufted annual herb to 1.1 m high.

**Vegetative spread:** No (McIntyre et al. 1995).

**Longevity:** Less than 1 year.

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

**Flowers:** In response to rain.

**Fruit/seed:** Dry, 1-seeded, indehiscent fruit.

**Dispersal, establishment & growth:** No particular mechanism for dispersal (McIntyre et al. 1995), dispersed in mud on cars (Wace 1977).

**Fire response:**

**Interactions with other organisms:**

**Distribution**

**Status/origin:** Native.

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

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

**Select locations:** CC: Richmond, Glenbrook, Mt Colah, Cheltenham, Homebush, Kogarah, Marayong, Emu Plains, Penrith, Parramatta, Liverpool, Narellan, Picton. CT: Bathurst.

**Habitat**

**Habitat:** Disturbed sites.

**Altitude:** 0–800 m

**Annual rainfall:** 700–1200 mm

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

**Vegetation:**

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

**Exposure:**

**Conservation**

Conservation: Vulnerable in Western Sydney (James et al. 1999), conservation status elsewhere unknown.

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**Eragrostis pilosa** *

**Weeping Lovegrass**

**Life history**

**Growth form:** Tufted annual herb to 0.6 m high.

**Vegetative spread:** No.

**Longevity:** Less than 1 year.

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

**Flowers:** Spring–summer.

**Fruit/seed:** Dry, 1-seeded, indehiscent fruit, February–March.

**Dispersal, establishment & growth:**

**Fire response:**

**Interactions with other organisms:**

**Distribution**

**Status/origin:** Exotic.

**Botanical subregions:** NC CC NT CT ST SWP; Qld, Vic., N.T.

**Distribution Sydney area:**

**Select locations:** CC: Richmond (1912), Dharruk, Wentworthville, Flemington, Abion Park. CT: Hartley, Bathurst (1912).

**Habitat**

**Habitat:** Roadsides.

**Altitude:** 0–700 m

**Annual rainfall:** 700–1000 mm

**Typical local abundance:** Frequent.

**Vegetation:** Weedy grassland e.g. with *Paspalum dilatatum, Setaria, Plantago lanceolata*.

**Substrate:** Clay soils on shale, low–medium nutrients.

**Exposure:**

**Conservation**

Weed of cultivation and disturbed ground.
**Eragrostis sororia**

**Elastic Grass**

**Life history**

Growth form: Tufted scrambling perennial herb to 0.7 m high, with stems erect or scrambling over vegetation.

Vegetative spread:

Longevity:

Primary juvenile period:

Flowers: Summer.

Frui/seed: Dry, 1-seeded, indehiscent fruit.

Dispersal, establishment & growth:

Fire response:

Interaction with other organisms:

**Distribution**

Status/origin: Native.

Botanical subregions: NC CC NT NWS CWS NWP; Qld, Vic., N.G.

Distribution Sydney area: Sporadic.

Select locations:

Habitat

Habitat:

Altitude: 0–200 m Annual rainfall: 700–1200 mm

Typical local abundance:

Vegetation:

Substrate: Sandy to clayey soils on shale, sandstone, low nutrients.

Exposure:

Conservation

Conservation status unknown.

**Eragrostis tenuifolia** *

**Wanderrie Grass**

**Life history**

Growth form: Tufted perennial herb to 0.7 m high.

Vegetative spread:

Longevity:

Primary juvenile period:

Flowers: Summer.

Frui/seed: Dry, 1-seeded, indehiscent fruit.

Dispersal, establishment & growth:

Fire response:

Interaction with other organisms:

**Distribution**

Status/origin: Exotic, native to India and Africa.

Botanical subregions: NC CC NT CT NWP SFWP; Qld.

Distribution Sydney area:

Select locations:

Habitat

Habitat:

Altitude: 0–300 m Annual rainfall: 700–1200 mm

Typical local abundance:

Vegetation:

Substrate: Sandy soils on sandstone, alluvium.

Exposure:

Conservation

Common in caravan parks, camping and recreation areas; appears to have spread since 1980s.

**Eragrostis trachycarpa**

**Life history**

Growth form: Tufted perennial herb to 80 cm high.

Vegetative spread: No (McIntyre et al. 1995).

**POACEAE**

**Eriachne glabrata**

**Life history**

Growth form: Loose or densely tufted perennial herb to 0.6 m high.

Vegetative spread:

Longevity:

Primary juvenile period:

Flowers: Summer.

Frui/seed: Dry, 1-seeded, indehiscent fruit.

Dispersal, establishment & growth:

Fire response:

Interaction with other organisms:

**Distribution**

Status/origin: Native.

Botanical subregions: NC CC NT CT CT ST; Qld.

Distribution Sydney area: Mainly Upper Blue Mountains, Southern Highlands.

Select locations:

Habitat

Habitat:

Altitude: 0–1100 m Annual rainfall: 1000–1600 mm

Typical local abundance: Occasional.

Vegetation: Woodland; native grassland

Substrate: Sandy soils on sandstone.

Exposure:

Conservation

Conservation status unknown.
**Eriochloa procera**

**Spring Grass**

**Life history**

**GROWTH FORM:** Tufted perennial herb to 0.8 m high.

**VEGETATIVE SPREAD:**

**LONGEVITY:**

**PRIMARY JUVENILE PERIOD:**

**FLOWERS:** Summer.

**FRUIT/SEED:** Dry, 1-seeded, indehiscent fruit.

**DISPERsal, ESTABLISHMENT & GROWTH:**

**Fire response:**

**INTERACTION WITH OTHER ORGANISMS:**

**Distribution**

**STATUS/ORIGIN:** Native.

**BOTANICAL SUBREGIONS:** NCCC, NWS, NWPSW, QLD, VIC, N.T, INDIA, MALESIA.

**Distribution Sydney area:** Coast.

**Select locations:** CC: Terrigal, Avoca, Wondabyne, Flemington Saleyards, Windang Island, Kiama.

**Habitat**

**HABITAT:** Sea cliff ledges, wetter areas, disturbed sites.

**ALTITUDE:** 0–200 m

**ANNUAL RAINFALL:** 900–1200 mm

**TYPICAL LOCAL ABUNDANCE:** Occasional.

**VEGETATION:** Sandy to clay soils on gravel, shale, low-medium nutrients.

**EXPOSURE:**

**Conservation**

Vulnerable in Western Sydney (James et al. 1999), conservation status of coastal sites unknown.

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**Eriochloa pseudoacrotricha**

**Early Spring Grass**

**Life history**

**GROWTH FORM:** Loosely tufted, annual or short-lived perennial herb to 1 m high.

**VEGETATIVE SPREAD:** No.

**LONGEVITY:**

**PRIMARY JUVENILE PERIOD:** Less than 1 year.

**FLOWERS:** Summer.

**FRUIT/SEED:** Dry, 1-seeded, indehiscent fruit.

**DISPERsal, ESTABLISHMENT & GROWTH:** Possibly a coloniser of bare sites.

**Fire response:**

**INTERACTION WITH OTHER ORGANISMS:** Seed eaten by Stubble Quail Coturnix pectoralis (Barker & Vestjens 1989, 1990).

**Distribution**

**STATUS/ORIGIN:** Native.

**BOTANICAL SUBREGIONS:** NC CC NT, NWS, CWS, SWS, NWP, SWP, SFWP, QLD, VIC, N.T., S.A., W.A.

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

**Select locations:** CC: Brush Farm (Eastwood), Parramatta, Prospect, Blacktown, Luddenham, Campbelltown, Bombo.

**Habitat**

**HABITAT:** Roadsides. Remnant woodland on Cumberland Plain (T. James pers. comm.).

**ALTITUDE:** 0–300 m

**ANNUAL RAINFALL:** 700–1000 mm

**TYPICAL LOCAL ABUNDANCE:** Frequent–occasional.

**VEGETATION:** Grassland e.g. with Bothriochloa macra, Chloris truncata; woodland e.g. with Eucalyptus tereticornis, E. fibrosa.

**SUBSTRATE:** Clayey soil on shale, basalt, medium nutrients. Recorded on saline sites in western NSW (Semple 1993).

**EXPOSURE:**

**Conservation**

Vulnerable in Western Sydney (James et al. 1999), conservation status elsewhere unknown.

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**Festuca asperula**

**Graceful Fescue**

**Life history**

**GROWTH FORM:** Rhizomatous tufted perennial herb to 0.9 m high.

**VEGETATIVE SPREAD:** Rhizomatous.

**LONGEVITY:**

**PRIMARY JUVENILE PERIOD:**

**FLOWERS:** Spring–summer.

**FRUIT/SEED:** Dry, 1-seeded, indehiscent fruit.

**DISPERsal, ESTABLISHMENT & GROWTH:**

**Fire response:**

**INTERACTION WITH OTHER ORGANISMS:**

**Distribution**

**STATUS/ORIGIN:** Native.

**BOTANICAL SUBREGIONS:** SC NT CT ST, VIC., TAS.

**Distribution Sydney area:**

**Select locations:** CT: Mittagong (1941).

**Habitat**

**HABITAT:** Montane woodland.

**ALTITUDE:** 600 m

**ANNUAL RAINFALL:** 900 mm

**TYPICAL LOCAL ABUNDANCE:** Frequent–occasional.

**VEGETATION:** Grassland e.g. with Bothriochloa macra, Chloris truncata; woodland e.g. with Eucalyptus tereticornis, E. fibrosa.

**SUBSTRATE:** Sandy alluvial soil, low nutrients.

**EXPOSURE:**

**Conservation**

Rare, only one record for Sydney area at Mittagong in 1941.

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**Festuca elatior** *(F. arundinacea)*

**Tall Fescue**

**Life history**

**GROWTH FORM:** Tufted perennial herb to 1.2 m high, sometimes tussock-forming.

**VEGETATIVE SPREAD:** No (McIntyre et al. 1995).

**LONGEVITY:**

**PRIMARY JUVENILE PERIOD:**

**FLOWERS:** Spring.

**FRUIT/SEED:** Dry, 1-seeded, indehiscent fruit.

**DISPERsal, ESTABLISHMENT & GROWTH:** No particular mechanism for dispersal (McIntyre et al. 1995).

**Fire response:**

**INTERACTION WITH OTHER ORGANISMS:**

**Distribution**

**STATUS/ORIGIN:** Exotic, native to Europe. Introduced as pasture grass.

**BOTANICAL SUBREGIONS:** NC CC SC NT CT ST CWS, SWS, S.A., W.A.

**Distribution Sydney area:** Nepean River.

**Select locations:** CC: Menangle (1964), Maldon. CT: Orange (1950), Wentworth Falls.

**Habitat**

**HABITAT:** Riverbanks, roadsides.

**ALTITUDE:** 0–1000 m

**ANNUAL RAINFALL:** 700–1400 mm

**TYPICAL LOCAL ABUNDANCE:** Frequent–occasional.

**VEGETATION:** Riparian vegetation e.g. with Lomandra longifolia, Tristaniopsis laurina.

**SUBSTRATE:** Sandy alluvial soil, low nutrients.

**EXPOSURE:**

**Conservation**

Planted as a pasture grass, occasionally naturalised.
**Festuca pratensis** * 
Meadow Fescue

**Life history**

**GROWTH FORM:** Short-lived tufted perennial herb to 1.4 m high.
**VEGETATIVE SPREAD:** No (McIntyre et al. 1995).
**LONGEVITY:**
**PRIMARY JUVENILE PERIOD:**
**FLOWERS:** Spring–summer.
**FRUIT/SEED:** Dry, 1-seeded, indehiscent fruit.
**DISPERAL, ESTABLISHMENT & GROWTH:** No particular mechanism for dispersal (McIntyre et al. 1995).
**FIRE RESPONSE:**
**INTERACTION WITH OTHER ORGANISMS:**

**Distribution**

**STATUS/ORIGIN:** Exotic, native to Europe and Asia.
**BOTANICAL SUBREGIONS:** NC CC SC NT CT ST CWS NWP; Tas., S.A., W.A.
**DISTRIBUTION SYDNEY AREA:**

**Habitat**

**HABITAT:** Lawns, roadside.
**ALTITUDE:** 0–1000 m
**ANNUAL RAINFALL:** 800–1200 mm
**TYPICAL LOCAL ABUNDANCE:**
**VEGETATION:**
**SUBSTRATE:**
**EXPOSURE:**

**Conservation**

Planted as pasture grass with occasional recent records of naturalising.

**Gastridium phleoides** *
Nitgrass

**Life history**

**GROWTH FORM:** Tufted annual herb to 0.5 m high.
**VEGETATIVE SPREAD:** No.
**LONGEVITY:** Less than 1 year.
**PRIMARY JUVENILE PERIOD:** Less than 1 year.
**FLOWERS:** Spring.
**FRUIT/SEED:** Dry, 1-seeded, indehiscent fruit.
**DISPERAL, ESTABLISHMENT & GROWTH:** Germination in all seasons in Northern Tablelands (Britton & Brock 1994).
**FIRE RESPONSE:**
**INTERACTION WITH OTHER ORGANISMS:**

**Distribution**

**STATUS/ORIGIN:** Exotic, native to Mediterranean region.
**BOTANICAL SUBREGIONS:** CT; Vic., S.A., W.A.
**DISTRIBUTION SYDNEY AREA:**
**SELECT LOCATIONS:** CT: Tarana (1941).

**Habitat**

**HABITAT:** Swamps, creekbanks.
**ALTITUDE:** 900 m
**ANNUAL RAINFALL:** 800 mm
**TYPICAL LOCAL ABUNDANCE:**
**VEGETATION:**
**SUBSTRATE:**
**EXPOSURE:**

**Conservation**

Rare weed of disturbed areas, only record at Tarana in 1941.

**Glyceria australis**
Australian Sweetgrass

**Life history**

**GROWTH FORM:** Tufted rhizomatous perennial herb to 1.3 m high.
**VEGETATIVE SPREAD:**
**LONGEVITY:**
**PRIMARY JUVENILE PERIOD:**
**FLOWERS:** Spring–summer.
**FRUIT/SEED:** Dry, 1-seeded, indehiscent fruit.
**DISPERAL, ESTABLISHMENT & GROWTH:** Germination in all seasons in Northern Tablelands (Britton & Brock 1994).
**FIRE RESPONSE:**
**INTERACTION WITH OTHER ORGANISMS:**

**Distribution**

**STATUS/ORIGIN:** Native.
**BOTANICAL SUBREGIONS:** CC SC NT CT ST NWS CWS NWP SWP; Vic., Tas., S.A.
**DISTRIBUTION SYDNEY AREA:** Widespread.
**SELECT LOCATIONS:** CC: Agnes Banks, Doonside, Parramatta, Moorebank, Liverpool, Orangeville. CT: Lidsdale, Gingkin, Bowral, Wingecarribee Swamp, Moss Vale.

**Habitat**

**HABITAT:** Swamps, creekbanks.
**ALTITUDE:** 0–1000 m
**ANNUAL RAINFALL:** 700–1600 mm
**TYPICAL LOCAL ABUNDANCE:** Frequent–occasional.
**VEGETATION:** Coastal swamp vegetation e.g. with *Pseudoraphis paradoxa, Philydrum lanuginosum, Carex appressa, Cyperus gunnii*; upland swamps e.g. with *Eleocharis* spp. *Sparganium antiquodum, Leptospermum*.
**SUBSTRATE:** Peaty alluvial soils, sandy clay on Tertiary alluvium, low nutrients, wet sites, sometimes in standing water.
**EXPOSURE:**

**Conservation**

Vulnerable in Western Sydney (James et al. 1999), conservation status elsewhere unknown.
Glyceria declinata *
Sweetgrass

Life history
Growth form: Tufted rhizomatous perennial herb to 0.8 m high.
Vegetative spread: Rhizomes and stolons.

Longevity:
Primary juvenile period:
Flowers: Spring.

Fruit/seed: Dry, 1-seeded, indehiscent fruit.

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

Distribution
Status/origin: Exotic, native to Europe and America.
Botanical subregions: NC CC SC NT CT ST NWS CWS SWS NWP SWP; Qld, Vic., Tas., W.A.

Habitat
Habitat: Damp areas, creeks in water.
Altitude: 600–1000 m
Annual rainfall: 1000–1600 mm

Typical local abundance: Frequent–occasional.
Vegetation: Margins of sedge swamp, montane peatland, riparian forest e.g. with Eucalyptus dalrympleana, E. stellulata.
Substrate: Peaty to clayey soil on sediments, low–medium nutrients, permanent moisture.

Exposure:
Conservation
Weed of upland wetlands.

Glyceria maxima *
Reed Sweetgrass

Life history
Growth form: Stout rhizomatous perennial herb to 2.5 m high, with hollow ribbed stems to 12 mm diam.
Vegetative spread: Forms dense monocultures (V. Klapake, Herb. note).

Longevity: Indefinite.

Primary juvenile period:

Flowers: Spring–summer.

Fruit/seed: Dry, 1-seeded, indehiscent fruit.

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

Distribution
Status/origin: Exotic, native to Europe.

Botanical subregions: NC CC SC NT CT ST CWS SWS NWP SWP; Qld, Vic., Tas.

Habitat
Habitat: Wetlands, swampy pastures.
Altitude: 0–1000 m
Annual rainfall: 900–1200 mm

Typical local abundance: Frequent.
Vegetation: Sedge e.g. with Bolboschoenus, Typha.

Substrate:
Exposure:
Conservation
Conservation: Planted in swampy areas as a fodder crop, now a significant weed of wetlands (Harden 1993).

Hainardia cylindrica *
Common Barbgrass

Life history
Growth form: Tufted, gregarious annual herb to 0.7 m high.
Vegetative spread: Forms extensive clumps (Herb. note).

Longevity: Less than 1 year.

Primary juvenile period: Less than 1 year.

Flowers: Spring–summer.

Fruit/seed: Dry, 1-seeded, indehiscent fruit.

Dispersal, establishment & growth:

Fire response:
Interaction with other organisms:

Distribution
Status/origin: Exotic, native to southern Europe.

Botanical subregions: NC CC SC ST NWS CWS SWS NWP SWP; LHI, Vic., Tas., S.A., W.A.

Habitat
Habitat: Brackish areas, estuaries, lawns.
Altitude: 0–700 m
Annual rainfall: 800–1200 mm

Typical local abundance: Rare.
Vegetation: Estuarine swamp.

Substrate: Brackish to saline alluvial soils. Recorded on saline sites in western NSW (Semple 1993).

Exposure: Usually grows on saline soils or soils high in gypsum (Harden 1993).

Conservation
Weed of lawns and estuaries.

Hemarthria uncinata var. uncinata (H. compressa)
Matgrass

Life history
Growth form: Decumbent or ascending, creeping perennial herb to 1 m high, with many-noded, branched stems, sometimes forming mats.
Vegetative spread: Creeping rhizome. Forms broad spreading stands (Klapake 2002).

Longevity: Indefinite.

Primary juvenile period:

Flowers: December–March.

Fruit/seed: Dry indehiscent, 1-seeded.

Dispersal, establishment & growth: Recruitment mainly after fire (D. Keith pers. comm.).

Fire response: Resprouts, flowering 3–5 months after high intensity fire (1/94 at Lane Cove & Narrabeen, P. Kubiak pers. comm.).

Interaction with other organisms: Rhizomes eaten by Purple Swamphen Porphyrio porphyrio (Lepschi 1993).

Distribution
Status/origin: Native.

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

Habitat
Habitat: Wetlands, swampy pastures.
Altitude: 0–1000 m
Annual rainfall: 900–1200 mm

Typical local abundance: Frequent.
Vegetation: Sedge e.g. with Bolboschoenus, Typha.

Substrate:
Exposure:
Conservation
Conservation: Planted in swampy areas as a fodder crop, now a significant weed of wetlands (Harden 1993).
**Holcus lanatus** *

**Yorkshire Fog**

**Life history**
- **Growth form:** Tufted, velvety perennial herb to 1 m high.
- **Vegetative spread:** No (McIntyre et al. 1995).
- **Longevity:**
- **Primary juvenile period:**
  - **Flowers:** Spring–summer.
- **Fruit/seed:** Dry indehiscent, 1-seeded. Prolific seeder, individual plant can produce up to 240 000 seeds per annum; small seed 1.5 million per kilogram; seed germinates quickly after maturity, but may be delayed by freezing (NSW Agriculture website).
- **Dispersal, establishment & growth:** No particular mechanism for dispersal (McIntyre et al. 1995), dispersed in mud on cars (Wace 1977).
- **Fire response:** Seed eaten by Stubble Quail Coturnix pectoralis (Barker & Vestjens 1989, 1990). In controlled intensity fire (1/94 at Lane Cove, P. Kubiak pers. comm.).
- **Interaction with other organisms:** Seed eaten by Stubble Quail Coturnix pectoralis (Barker & Vestjens 1989, 1990). In controlled intensity fire (1/94 at Lane Cove, P. Kubiak pers. comm.).

**Distribution**
- **Status/origin:** Exotic, native to Europe.
- **Botanical subregions:** CC NWS CWS SWS SWP; Vic., Tas., S.A.
- **Distribution Sydney area:** Widespread.
- **Select locations:** CC: Hornsby, Rydalmer, Centennial Park, Coogee (1889), Picton (1912), Mt Kembla (1891), Berry (1912), Cambewarra.
- **CT:** Sunny Corner, Blackheath, Katoomba, Jenolan Caves (1899), Hill Top (1913), Bowral (1913).

**Habitat**
- **Habitat:** Disturbed sites, drainage lines.
- **Altitude:** 0–1000 m
- **Annual rainfall:** 700–1400 mm
- **Typical local abundance:** Frequent.
- **Vegetation:** Wide range of soils, clay to sandy soils on shale, basalt, sandstone, poorly drained, low to high nutrients. Recorded on saline sites in western NSW (Semple 1993).
- **Exposure:**
- **Conservation**
  - Weed in wet places, particularly on fertile soils.

**Holcus mollis** *

**Creeping Fog**

**Life history**
- **Growth form:** Rhizomatous perennial herb to 1 m high.
- **Vegetative spread:** Deep rhizomes.
- **Longevity:**
- **Primary juvenile period:**
  - **Flowers:** Spring–summer.
- **Fruit/seed:** Dry indehiscent, 1-seeded.
- **Dispersal, establishment & growth:**

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

**Distribution**
- **Status/origin:** Exotic, native to Europe.
- **Botanical subregions:** CT; Vic.
- **Distribution Sydney area:** Coastal.
- **Select locations:** CT: Mt Wilson (1953–58).

**Habitat**
- **Habitat:** Railway trucking yards, roadsides, railway lines.
- **Altitude:** 0–300 m
- **Annual rainfall:** 700–1200 mm
- **Typical local abundance:** Occasional.
- **Vegetation:**
- **Exposure:**
- **Conservation**
  - A cereal crop, evidently establishing temporarily along transport routes from spilt grain.

**Hordeum distichon** *

**Two Row Barley**

**Life history**
- **Growth form:** Erect annual herb to 1 m high.
- **Vegetative spread:** No.
- **Longevity:** Less than 1 year.
- **Primary juvenile period:** Less than 1 year.
- **Flowers:** Spring.
- **Fruit/seed:** Dry indehiscent, 1-seeded.
- **Dispersal, establishment & growth:** Probable killed. Flowers produced 12 weeks after high intensity fire (1/94 at Lane Cove, P. Kubiak pers. comm.).
- **Interaction with other organisms:**

**Distribution**
- **Status/origin:** Exotic, native to Europe.
- **Botanical subregions:** CC NWS CWS SWS SWP; Qld, Vic., Tas., S.A., W.A.
- **Distribution Sydney area:** Coastal.
- **Select locations:** CC: Flemington, Penshurst, Casula, Ingleburn, Narellan, Campbelltown, Unanderra.

**Habitat**
- **Habitat:** Railway trucking yards, roadsides, railway lines.
- **Altitude:** 0–300 m
- **Annual rainfall:** 700–1200 mm
- **Typical local abundance:** Occasional.
- **Vegetation:**
- **Exposure:**
- **Conservation**

**Hordeum glaucum** *

**Northern Barley Grass**

**Life history**
- **Growth form:** Tufted annual herb to 0.4 m high.
- **Vegetative spread:** No.
- **Longevity:** Less than 1 year.
- **Primary juvenile period:** Less than 1 year.
- **Flowers:** Spring.
- **Fruit/seed:** Dry indehiscent, 1-seeded.
- **Dispersal, establishment & growth:**
- **Fire response:**
- **Interaction with other organisms:**

POACEAE
**Hordeum hystrix** *

Mediterranean Barley Grass

**Life history**

**Growth form:** Tufted annual herb to 0.4 m high.

**Vegetative spread:** No.

**Longevity:** Less than 1 year.

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

**Flowers:** Spring.

**Fruit/seed:** Dry indehiscent, 1-seeded.

**Dispersal, establishment & growth:**

**Fire response:**

**Interaction with other organisms:** Foodplant of Pacific Black Duck Anas superciliosa, seed eaten by Black Swan Cygnus atratus (Barker & Vestjens 1989,1990).

**Distribution**

**Status/origin:** Exotic, native to Mediterranean region.

**Botanical subregions:** CC NT ST NWS CWS SWS NWP SWP

**Distribution Sydney area:** Coast.

**Select locations:** CC: Richmond, Epping, Ashton Park (1945), Domain (1902), Homebush (1930), Flemington Saleyards, Strathfield, Mount Annan.

**Habitat**

**Habitat:** Roadsides, wasteland.

**Altitude:** 0–300 m  
**Annual rainfall:** 700–1200 mm

**Typical local abundance:** Frequent.

**Vegetation:** Grassland.

**Substrate:** Sandy to clay soils on sandstones, shale, medium nutrients.

**Exposure:**

**Conservation**

Widespread weed.

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**Hordeum leporinum** *

Barley Grass

**Life history**

**Growth form:** Tufted annual herb to 0.2 m high.

**Vegetative spread:** No.

**Longevity:** Less than 1 year.

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

**Flowers:** Spring.

**Fruit/seed:** Dry indehiscent, 1-seeded. Seed weight 7.8 mg (Buckley 1982).

**Dispersal, establishment & growth:**

**Fire response:**

**Interaction with other organisms:** Foodplant of Pacific Black Duck Anas superciliosa, seed eaten by Black Swan Cygnus atratus (Barker & Vestjens 1989,1990).

**Distribution**

**Status/origin:** Exotic, native to Mediterranean region.

**Botanical subregions:** NC CC SC NT ST NWS CWS SWS NWP SWP

**Distribution Sydney area:** Coast.

**Select locations:** CC: Richmond, Flemington Saleyards, Casula, Glenfield (1964).

**Habitat**

**Habitat:** Saleyards, railways.

**Altitude:** 0–300 m  
**Annual rainfall:** 800–1200 mm

**Typical local abundance:** Frequent.

**Vegetation:** Grassland.

**Substrate:** Sandy loam on clay, gravels.

**Exposure:**

**Conservation**

Infrequent weed of disturbed sites, often associated with livestock.

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**Imperata cylindrica** var. **major**

Blady Grass

**Life history**

**Growth form:** Perennial herb with tufts to 1.2 m high and deeply buried, pungent pointed wiry rhizomes, sometimes with tuber-like swellings on lower roots.

**Vegetative spread:** Rhizomatous.

**Longevity:** Indefinite.

**Primary juvenile period:**

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**Cunninghamia** 9(1): 2005  
Benson & McDougall, Ecology of Sydney Plant Species 10
Ischaemum australe var. australe

Life history

Growth form: Tufted, erect or scrambling, rhizomatous perennial herb with stems to 2 m long.

Vegetative spread: Rhizomatous.

Longevity: Indefinite.

Primary juvenile period:

Flowers: Summer.

Fruit/seed: Dry, indehiscent, 1-seeded.

Dispersal, establishment & growth:

Fire response:

Interaction with other organisms:

Distribution:

Status/orIGIN: Native.

Botanical subregions: NC CC; Qld, N.T., W.A.

Distribution Sydney area: Coast, north of Sydney.

Select locations: CC: Lake Macquarie, Morisset, Wyee Creek, Wyong, Maroubra Beach.

Habitat:

Habitat: Swamps, creeks.

Altitude: 0–100 m

Annual rainfall: 1100–1200 mm

Typical local abundance: Frequent.

Vegetation: Sedge swamp e.g. with Baumea juncea, Sacciolepis indica, Paspalum orbiculare; scrub e.g. with Melaleuca sieberi, Melaleuca nodosa; woodland e.g. with Melaleuca quinquenervia.

Substrate: Sandy soil on alluvium, low nutrients, poorly drained, fresh–brackish.

Exposure:

Conservation:

Maroubra is southern geographical limit. Conservation status unknown.

Lachnagrostis aemula (Agrostis aemula)

Blowgrass

Life history

Growth form: Erect, tufted annual or perennial herb to 0.6 m high.

Vegetative spread:

Longevity:

Primary juvenile period:

Flowers: Spring–summer.

Fruit/seed: Dry, 1-seeded, indehiscent.

Dispersal, establishment & growth:

Fire response:

Interaction with other organisms:

Distribution:

Status/orIGIN: Native.

Botanical subregions: NC CC SC NT CT SWS NWP SWP; LHI, Qld, Vic., Tas., S.A., W.A.

Distribution Sydney area: Coast, north of Sydney.

Select locations: CC: Morisset, Marayong, Roseville, Parramatta, Rookwood, East Hills, Glenfield, Hurstville, Camden, Dapto, Albion Park, CT: Orange, Mullion Creek, Oberon, Jenolan Caves, Hill Top, Mt Gibraltar, Moss Vale.

Ischaemum australe

Life history

Growth form: Aquatic or semi-aquatic perennial herb to c. 0.7 m high.

Vegetative spread: Weeping and rooting stems.

Longevity:

Primary juvenile period:

Flowers: Summer.

Fruit/seed: Dry, indehiscent, 1-seeded.

Dispersal, establishment & growth:

Fire response:

Interaction with other organisms:

Distribution:

Status/orIGIN: Native.


Distribution Sydney area: Widespread.

Select locations: CC: Upper Colo, Cattai Creek, Sackville, Richmond, Narrabeen, Manly Beach, Rockdale, Botany, Eastlakes, Cape Solander, Voyager Point, Casula, Berry. CT: Lidsdale, Blackheath, Kowmung River, Robertson, Belmore Falls, Barbers Creek, Tallong.

Habitat

Habitat: Swamp margins.

Altitude: 0–1000 m

Annual rainfall: 700–1400 mm

Typical local abundance:

Flowers: November–March, stimulated by fire. Flowering prolifically within several weeks of high intensity fire (1/94 at Narrabeen, L.McD.).

Fruit/seed: Dry, indehiscent, 1-seeded, 1–1.3 mm long. June–July. Fruit produced 3–5 months after the fire (1/94 at Lane Cove, P. Kubiak pers. comm.).

Fire response: Resprouts from rhizome (Fox 1988). Generally hourly (Greening Australia 1996c).

Interaction with other organisms:

Food plant of butterfly larvae (J. Powell & H. Fallding pers. comm.). I. australis produced 3–5 months after the fire (1/94 at Lane Cove, P. Kubiak pers. comm.).

Conservation:

Vulnerable in Western Sydney (James et al. 1999), conservation status elsewhere unknown.

Ischaemum australe

Life history

Growth form: Aquatic or semi-aquatic perennial herb to c. 0.7 m high.

Vegetative spread: Weeping and rooting stems.

Longevity:

Primary juvenile period:

Flowers: Summer.

Fruit/seed: Dry, indehiscent, 1-seeded.

Dispersal, establishment & growth:

Fire response:

Interaction with other organisms:

Distribution:

Status/orIGIN: Native.

Botanical subregions: NC CC SC NT CT SWS; Qld, Vic., N.T., S.A., W.A.

Distribution Sydney area: Coast and lower Blue Mountains.


Habitat

Habitat: Ridges, slopes.

Altitude: 0–700 m

Annual rainfall: 900–1400 mm

Typical local abundance: Frequent–occasional.

Vegetation: Moist open-forest e.g. with Eucalyptus saligna, Angophora floribunda, to drier forest e.g. Eucalyptus piperita, Angophora costata. Margin of upland mire (Kodela 1992).

Substrate: Usually on deep soils, sandy loam–sandy clays from shale, volcanic neck, low–medium nutrients.

Exposure: Full sun–light shade.

Conservation:

Probably adequately conserved. Reported in Blue Mountains NP.

Lachnagrostis aemula

Blowgrass

Life history

Growth form: Erect, tufted annual or perennial herb to 0.6 m high.

Vegetative spread:

Longevity:

Primary juvenile period:

Flowers: Spring–summer.

Fruit/seed: Dry, 1-seeded, indehiscent.

Dispersal, establishment & growth:

Fire response:

Interaction with other organisms:

Distribution:

Status/orIGIN: Native.

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

Distribution Sydney area: Coast, north of Sydney.

Select locations: CC: Lake Macquarie, Morisset, Wyee Creek, Wyong, Maroubra Beach.

Habitat

Habitat: Swamps, creeks.

Altitude: 0–100 m

Annual rainfall: 1100–1200 mm

Typical local abundance: Frequent.

Vegetation: Sedge swamp e.g. with Baumea juncea, Sacciolepis indica, Paspalum orbiculare; scrub e.g. with Melaleuca sieberi, Melaleuca nodosa; woodland e.g. with Melaleuca quinquenervia.

Substrate: Sandy soil on alluvium, low nutrients, poorly drained, fresh–brackish.

Exposure:
**Lachnagrostis billardierei** subsp. billardierei

*(Agrostis billardieri)*

Coast Blowngrass

**Life history**

**Growth form:** Erect, tufted annual or perennial herb to 0.5 m high

**Vegetative spread:**

**Longevity:**

**Primary juvenile period:**

**Flowers:** Spring.

**Fruit/seed:** Dry, indehiscent, 1-seeded.

**Dispersal, establishment & growth:**

**Fire response:**

**Interaction with other organisms:**

**Distribution**

**Status/origin:** Native.

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

**Distribution Sydney area:** Widespread.

**Select locations:** CC: Morisset, Annangrove, Hornsby, Homebush, Botany Bay, Kemps Creek, Casula, Audley, Albion Park, Menangle, Otford, Bulli Pass, Bargo, Wollongong, Kangaroo Valley. CT: Oberon, Mt Wilson, Lawson, Mittagong, Hill Top, Capertee.

**Habitat**

**Habitat:** Coastal headlands, hillsides.

**Altitude:** 0–100 m

**Annual rainfall:** 1200–1400 mm

**Typical local abundance:** Frequent.

**Vegetation:**

**Substrate:** Sandy to clay soils on shales, laterite, sandstone, low nutrients; tolerates salt spray.

**Exposure:**

**Conservation**

Conservation status unknown.
**Leersia hexandra**

Swamp Ricegrass

**Life history**

**GROWTH FORM:** Aquatic or semi-aquatic perennial herb to 1.5 m high, with long branching rhizomes.

**VEGETATIVE SPREAD:** Rhizomatous.

**LONGEVITY:**

**PRIMARY JUVENILE PERIOD:**

**FLOWERS:** Summer.

**FRUIT/SEED:** Dry, 1-seeded, indehiscent fruit.

**DISPERSAL, ESTABLISHMENT & GROWTH:**

**FIRE RESPONSE:**

**INTERACTION WITH OTHER ORGANISMS:**

**Distribution**

**STATUS/ORIGIN:** Native.

**BOTANICAL SUBREGIONS:** NC CC NT NWS CWS NWP: Qld.

**DISTRIBUTION SYDNEY AREA:** Camden area.

**SELECT LOCATIONS:** CC: Hawkesbury Agricultural College Richmond (1910).

**Habitat**

**HABITAT:** Swamps, creeks.

**ALTITUDE:** 0–600 m **ANNUAL RAINFALL:** 600–800 mm

**TYPICAL LOCAL ABUNDANCE:**

**VEGETATION:**

**SUBSTRATE:**

**EXPOSURE:**

**Conservation**

This is a species of drier areas. It is not clear whether this species occurred naturally in the Sydney area as all specimens from the area are from experimental stations, and could have been grown from seed from further afield.

**POACEAE**

**Lolium loliaceum** *

Stiff Ryegrass

**Life history**

**GROWTH FORM:** Tufted annual herb to 0.3 m high.

**VEGETATIVE SPREAD:**

**LONGEVITY:** Less than 1 year.

**PRIMARY JUVENILE PERIOD:** Less than 1 year.

**FLOWERS:** Spring.

**FRUIT/SEED:** Dry, 1-seeded, indehiscent fruit.

**DISPERSAL, ESTABLISHMENT & GROWTH:**

**FIRE RESPONSE:**

**INTERACTION WITH OTHER ORGANISMS:**

**Distribution**

**STATUS/ORIGIN:** Exotic, native to Mediterranean region.

**BOTANICAL SUBREGIONS:** NC CC CWS SWS SWP: Vic., Tas., S.A., W.A.

**DISTRIBUTION SYDNEY AREA:** Mainly coastal.
**Lolium multilorum** *

**Italian Ryegrass**

**Life history**

**Growth form:** Tufted annual or short-lived perennial herb to 1 m high. Hybridizes with *Lolium perenne*, *L. rigidum* and other *Lolium* species.

**Vegetative spread:** No (McIntyre et al. 1995).

**Primary juvenile period:**

**Flowers:** Spring.

**FRUIT/SEED:** Dry, 1-seeded, indehiscent fruit.

**Dispersal, establishment & growth:** Diaspore dispersed by adhesion (McIntyre et al. 1995), dispersed in mud on cars (Wace 1977).

**Fire response:** Flowering 38–43 weeks after high intensity fire (1/94 at Lane Cove, P. Kubiak pers. comm.).

**Interaction with other organisms:**

**Distribution**

**STATUS/ORIGIN:** Exotic, native to Mediterranean region. Introduced for pastures.

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

**Distribution Sydney area:** Widespread.

**Select locations:** CC: Epping, Northbridge, Circular Quay (1903), Glenfield, Camden, Campbelltown, Wollongong, Albion Park. CT: Hill Top (1912), Robertson.

**Habitat**

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

**Altitude:** 0–1000 m  
**Annual rainfall:** 700–1400 mm

**Typical local abundance:** Frequent.

**Vegetation:** Grassland, woodland e.g. with *Eucalyptus moluccana*, *E. tereticornis*.

**Substrate:** Clay soils.

**Exposure:**

**Conservation**

Grown as pasture species, reported by Robert Brown as established in Sydney by 1804 (Maiden 1909). Planted in recreation areas (Harden 1993).

---

**Lolium perenne** *

**Perennial Ryegrass**

**Life history**

**Growth form:** Loose to densely tufted annual or short-lived perennial herb to 80 cm high.

**Vegetative spread:** No (McIntyre et al. 1995).

**Primary juvenile period:**

**Flowers:** October–December.

**FRUIT/SEED:** Dry, 1-seeded, indehiscent fruit. Seed weight 1.9 mg (Buckley 1982).

**Dispersal, establishment & growth:** No particular morphology for dispersal (McIntyre et al. 1995), dispersed in mud on cars (Wace 1977).

**Fire response:** Flowering 44 weeks after high intensity fire (1/94 at Lane Cove, P. Kubiak pers. comm.).

**Interaction with other organisms:**

**Distribution**

**STATUS/ORIGIN:** Exotic, native to Mediterranean region. Introduced for pastures.

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

**Distribution Sydney area:** Widespread.

**Select locations:** CC: Glenerie, Wahroonga (1910), Balmoreal, Hunters Hill (1912), Homebush (1930), Centennial Park (1899), Glenfield, Camden (1913), Wollongong. CT: Orange, Bathurst.

**Habitat**

**Habitat:** Pastures, grassland.

**Altitude:** 0–1000 m  
**Annual rainfall:** 700–1200 mm

**Typical local abundance:** Frequent.

**Vegetation:**

**Substrate:** Clay to sandy soils, low–medium nutrients. Recorded on saline sites in western NSW (Semple 1993).

**Exposure:**

**Conservation**

Grown as pasture species, widespread weed of crops (Harden 1993).
**Lolium temulentum** *

Darnel

**Life history**

**Growth form:** Tufted annual herb to 0.9 m high.

**Vegetative spread:** No.

**Longevity:** Less than 1 year.

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

**Flowers:** Spring.

**Fruit/seed:** Dry, 1-seeded, indehiscent fruit.

**Fire response:**

**Interaction with other organisms:** Seed eaten by Stubble Quail Coturnix pectoralis (Barker & Vestjens 1989, 1990).

**Distribution**

**Status/origin:** Exotic, native to Mediterranean region. Reported by Robert Brown to be introduced to Sydney by 1804 (Maiden 1909).

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

**Distribuation Sydney area:** Sporadic.

**Select locations:** CC: Manly (1885), Homebush (1895), Centennial Park (1899), Kogarah (1894), Coalcliff, Wollongong. CT: Hill Top (1913), Mittagong (1918).

**Habitat**

**Habit:** Roadside, wetland margins.

**Altitude:** 0–1000 m **Annual rainfall:** 700–1200 mm

**Typical local abundance:** Frequent.

**Vegetation:** Substrate: Sandy soils on sandstone, low nutrients.

**Exposure:**

**Conservation**

Previously a serious weed of winter cereal crops, but now uncommon (Harden 1993).

---

**Melinis minutiflora** *

Molasses Grass

**Life history**

**Growth form:** Stoloniferous, aromatic perennial herb to 1.2 m high.

**Vegetative spread:**

**Longevity:**

**Primary juvenile period:**

**Flowers:** Covered with pink, red or shining white hairs, summer.

**Fruit/seed:** Dry, 1-seeded, indehiscent fruit.

**Dispersal, establishment & growth:** No special morphology for dispersal (Westoby et al. 1990).

**Fire response:** Probably resprouted, fruit produced 19–26 weeks after high intensity fire (1/94 at Lane Cove, P. Kubiak pers. comm.).

**Interaction with other organisms:** Pollen known to cause allergy in humans (Bass & Wrigley 1984).

**Distribution**

**Status/origin:** Exotic, native to Africa.

**Botanical subregions:** NC CC SC NWS CWS NWP; Qld, Vic., N.T., W.A., N.G.

**Distribution Sydney area:**

**Select locations:** CC: Morisset, Cheltenham, Centennial Park (1912), Rookwood, Emu Plains, Glenbrook.

**Habitat**

**Habit:** Roadside, wasteland, disturbed areas.

**Altitude:** 0–300 m **Annual rainfall:** 800–1200 mm

**Typical local abundance:** Frequent.

**Vegetation:** Substrate: Sandy soils on sandstone, low nutrients.

**Exposure:**

**Conservation**

Localised populations in Sydney area; Carrington Falls is southern geographical limit. Conservation status unknown.
**Microlaena stipoides** var. *stipoides*

Meadow Rice Grass, Weeping Grass

**Life history**

**Growth form:** Slender, tufted herb to 70 cm high, with contracted rhizome.

**Vegetative spread:** No.

**Longevity:** Indefinite.

**Primary juvenile period**: Flowers: At any time of the year, spikelets green. Remains green during winter and has an indeterminate growth pattern with rapid growth and flowering whenever soil water is available from spring through autumn.

**Fruit/seed**

No seedlings recorded less than 1 year after fire (Purdie 1977).

**Interaction with other organisms**

One of the few Australian native roots, no seedlings recorded less than 1 year after fire (Purdie 1977).

**Vegetative spread**

**Distribution**

**Status/origin:** Native.

**Botanical subregions:** NC CC; Qld, SE Asia, Philippines.

**Distribution Sydney area:** Hornsby.

**Select locations:** CC: Hornsby (1915).

**Habitat**

**Habitat:** Stream banks.

**Altitude:** 0–100 m

**Annual rainfall:** 1200 mm

**Typical local abundance:**

**Vegetation:**

**Substrate:** Sandy soil on sandstone, low nutrients.

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

**Conservation**

Conserved in Western Sydney (James et al. 1999). Conservation elsewhere unknown.

**POACEAE**

**Miscanthus sinensis** *

Eulalia

**Life history**

**Growth form:** Erect, tufted perennial herb 2–3 m high, leaves mostly basal, leaves green throughout. Two varieties have been recognised.

**Vegetative spread:**

**Longevity:**

**Primary juvenile period**:

**Flowers:** Summer

**Fruit/seed:** Dry, indehiscent, 1-seeded.

**Dispersal, establishment & growth:**

**Fire response:**

**Interaction with other organisms:**

**Distribution**

**Status/origin:** Exotic, commonly cultivated, now escaped and naturalised.

**Botanical subregions:** CC CT.

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

**Select locations:** CT: Woodford, Hazelbrook, Wahooonga (1952).

**Habitat**

**Habitat:** Roadsides, railway.

**Altitude:** 0–500 m

**Annual rainfall:** 1000–1200 mm

**Typical local abundance:** Frequent.

**Vegetation:**

**Substrate:** Sandy soil on sandstone, low nutrients.

**Exposure:**

**Conservation**

Locally naturalised along railway embankment Woodford to Hazelbrook (1945–1988).

**POACEAE**

**Nassella neesiana** *(Stipa neesiana)*

Chilean Needle Grass

**Life history**

**Growth form:** Densely tufted perennial herb to 0.8 m high; flat leaves to 5 mm wide, with rough margins and ribbed upper surface.

**Vegetative spread:** No.

**Longevity:** More than 20 years (Agric. & Res. Management Council 2000).

**Primary juvenile period**: Flowers: Spring.

**Fruit/seed:** Dry, 1-seeded, indehiscent fruit. Produces two types of seeds: those borne on flowerheads (22 000 per plant per year), and stem seeds (cleistogenes) formed at nodes and sheath base of flowering stems that allow reproduction in absence of flowering (Agric. & Res. Management Council 2000).
**Notochloa microdon**

**Life history**

**Growth form:** Tufted rhizomatous perennial herb to 0.7 m high, only conspicuous when flowering.

**Vegetative spread:**

**Longevity:**

**Primary juvenile period:**

**Flowers:** Spring.

**Fruit/seed:** Dry, 1-seeded, indehiscent fruit, peak summer.

**Dispersal, establishment & growth:**

**Fire response:**

**Interaction with other organisms:**

**Distribution**

**Status/origin:** Native.

**Botanical subregions:** CT.

**DISTRIBUTION SYDNEY AREA:** Upper Blue Mountains.

**Select locations:** CT: Lithgow, Newnes, Blackheath, Wentworth Falls, Lawson, Hazelbrook.

**Habitat**

**Habitat:** Edges of swampy creeks

**Altitude:** 700–1200 m

**Annual rainfall:** above 1200 mm

**Typical local abundance:** Occasional.

**Vegetation:** Wet heath, hanging swamps e.g. with *Gleichenia dicarpa*, *Bauekea linifolia*.

**Substrate:** Sandy loam from sandstone, low nutrients. Water table permanently high, moisture supply continuous.

**Exposure:** Sheltered, full sun.

**Conservation**

Rare local endemic species, coded 2RC- on national rare species list (Briggs & Leigh 1996). Reported in Blue Mountains NP.

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**Oplismenus aemulus**

**Life history**

**Growth form:** Weak, creeping, trailing perennial herb to 0.3 m high, leaves 4–18 mm wide.

**Vegetative spread:** Stoloniferous.

**Longevity:** Indefinite.

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

**Flowers:** December–May.

**Fruit/seed:** Dry, 1-seeded, indehiscent fruit.

**Dispersal, establishment & growth:** No special dispersal morphology (Westoby et al. 1990). Coloniser of bare shady sites.

**Fire response:** Possibly killed, flowering 5 months after high intensity fire (1/94 at Lane Cove, P. Kubiak pers. comm.).

**Interaction with other organisms:** Apparently eaten by rabbits *Oryctolagus cuniculus* (P. Kubiak pers. comm.).

**Distribution**

**Status/origin:** Native.

**Botanical subregions:** NC CC SC CT NWS SWS; Qld, Vic., N.G.

**Distribution SYDNEY AREA:** Widespread.

**Select locations:** CC: Colo River, Richmond, Glenbrook, Baulkham Hills, Doonside, Parsley Bay, Botany Bay, Gladesville, Waterfall, Bundeena, Hacking River, Cedar Creek, Burragorang Valley, Kowmung River, Cribb, Shellharbour, Minnamurra Falls, Kangaroo Valley, Berry. CT: Kanangra, Macquarie Pass.
**Opismenus imbecillis**

**Life history**

**Growth form:** Weak, creeping, trailing perennial herb to 30 cm high, leaves less than 7 mm wide.

**Vegetative spread:** Spreading.

**Longevity:** Indefinite.

**Primary juvenile period:**

**Flowers:** At any time of year.

**Fruit/seed:** Dry, 1-seeded, indehiscent fruit.

**Dispersal, establishment & growth:** Diaspore: seed. Bird-dispersed (Floyd 1966). Summer growing, colonising bare sites.

**Fire response:**

**Interaction with other organisms:**

**Distribution**

**Status/origin:** Native.

**Botanical subregions:** NC CC SC NT NWS; Qld, Vic., N.T., N.G.

**Distribution Sydney area:** Widespread on coast.

**Select locations:** CC: Dural, Hornsby, Wahroonga, Balmoral, Bellevue Hill, Homebush, Oatley, Waterfall, Razorback, Kowmung River, Lake Illawarra, Cambewarra, Kiama.

**Habitat**

**Habitat:** Shady forest, sheltered gullies.

**Altitude:** 0–700 m  **Annual rainfall:** 700–1400 mm

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

**Vegetation:** Rainforest, moist eucalypt forest e.g. with Eucalyptus saligna, Angophora costata, Eucalyptus piperita, E. globoidea; light gaps in rainforest.

**Substrate:** Sandy to clay soils on sandstone, shale, basalt, water table mostly low, moisture supply intermittent, low to high nutrients.

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

**Conservation**

Conservation status unknown.

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**Ottochloa gracillima**

**Life history**

**Growth form:** Slender perennial herb to 0.3 m high, with scrambling or decumbent stems. Roots at lower nodes, often forming green mats (Wheeler et al. 1990).

**Vegetative spread:** Mat-forming.

**Longevity:** Indefinite.

**Primary juvenile period:**

**Flowers:** Summer.

**Fruit/seed:** Dry, indehiscent, 1-seeded.

**Dispersal, establishment & growth:**

**Fire response:**

**Interaction with other organisms:**

**Distribution**

**Status/origin:** Native.

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

**Distribution Sydney area:** Gosford–Wyong.

**Select locations:** CC: Erina–Wyong (1925), Wyong (1993).

**Habitat**

**Habitat:** Shady areas often near water.

**Altitude:** 0–200 m  **Annual rainfall:** 1100–1200 mm

**Typical local abundance:** Frequent.

**Vegetation:**

**Substrate:**

**Exposure:** Shade.

**Conservation**

Gosford is southern geographical limit. Conservation status unknown.

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**Panicum antidotale** *

**Giant Panic Grass, Blue Panic**

**Life history**

**Growth form:** Robust, tufted, shortly rhizomatous perennial herb to 1.5 m high.

**Vegetative spread:**

**Longevity:**

**Primary juvenile period:**

**Flowers:** Summer.

**Fruit/seed:** Dry, indehiscent, 1-seeded.

**Dispersal, establishment & growth:**

**Fire response:**

**Interaction with other organisms:**

**Distribution**

**Status/origin:** Exotic, native to India and Asia. Introduced as fodder species.

**Botanical subregions:** NC CC NT NWS CWS NWP; Qld, N.T., W.A.

**Distribution Sydney area:**

**Select locations:** CC: Clyde (1969).

**Habitat**

**Habitat:** Wasteland.

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

**Typical local abundance:**

**Vegetation:**

**Substrate:**

**Exposure:**

**Conservation**

Cultivated as fodder species, occasionally escaping, reported from railway yards at Clyde in 1969.

---

**Panicum bisulcatum**

**Black-seeded Panic**

**Life history**

**Growth form:** Semi-aquatic decumbent annual or short-lived perennial herb to 0.8 m high.

**Vegetative spread:** Roots at nodes.

**Longevity:**

**Primary juvenile period:**

**Flowers:** Summer.

**Fruit/seed:** Dry, indehiscent, 1-seeded, purplish black.

**Dispersal, establishment & growth:**

**Fire response:**

**Interaction with other organisms:**

**Distribution**

**Status/origin:** Native.

**Botanical subregions:** NC CC NWS; Qld, Vic., Asia.

**Distribution Sydney area:** Mainly Gosford–St Albans area.

**Select locations:** CC: Webbs Creek, Wrights Creek, Ourimbah, Narara, Cattai Creek, Ryde.
**Habitat**

**Habitat:** Near streams, marshes.

**Altitude:** 0–100 m  
**Annual rainfall:** 800–1200 mm

**Typical local abundance:**

**Vegetation:**

**Substrate:** In alluvium, mud, medium nutrients.

**Exposure:**

**Conservation**

Conservation status unknown. Mainly associated with the Hawkesbury floodplain but was reported at Ryde in 1999. It may be dispersed in topsoil.

**Panicum capillare var. capillare** *

Witchgrass

**Life history**

**Growth form:** Hairy, tufted annual herb to 0.8 m high.

**Vegetative spread:**

**Longevity:** Less than 1 year.

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

**Flowers:** Summer.

**Fruit/seed:** Dry indehiscent, 1-seeded.

**Dispersal, establishment & growth:** Dispersed in mud on cars (Wace 1977).

**Fire response:**

**Interaction with other organisms:** Seed eaten by Stubble Quail Coturnix pectoralis (Barker & Vestjens 1989, 1990).

**Distribution**

**Status/origin:** Exotic, native to N America.

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

**DISTRIBUTION SYDNEY AREA:** Mainly Orange area.

**Select locations:** CC: Paddington (1912). CT: Orange (1936, 1948, 1978).

**Habitat**

**Habitat:** Disturbed ground.

**Altitude:** 0–1000 m  
**Annual rainfall:** 900–1200 mm

**Typical local abundance:**

**Vegetation:**

**Substrate:**

**Exposure:**

**Conservation**

Mainly reported from Orange as weed of urban areas.

**Panicum decompositum**

Native Millet

**Life history**

**Growth form:** Densely tufted perennial herb to 1 m high.

**Vegetative spread:**

**Longevity:**

**Primary juvenile period:**

**Flowers:** Summer.

**Fruit/seed:** Dry indehiscent, 1-seeded.

**Dispersal, establishment & growth:**

**Fire response:**

**Interaction with other organisms:**

**Distribution**

**Status/origin:** Native.

**Botanical subregions:** NC CC CT NWS CWS SWS NWP SWP SFWP; Qld, Vic., N.T., S.A., W.A., Pac.Is.

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

**Select locations:** CC: Richmond, Cheltenham, Doonside, Bringelly, Casula, Narellan, Mount Annan, Picton. CT: Bathurst (1903), Wombeyan Caves (1992).

**Habitat**

**Habitat:** Ridges, cemeteries.

**Altitude:** 0–800 m  
**Annual rainfall:** 700–1200 mm

**Typical local abundance:** Occasional.

**Vegetation:** Woodland e.g. with Eucalyptus moluccana, E. tereticornis; grassland.

**Substrate:** Clay soils on shale, medium nutrients.

**Exposure:**

**Conservation**

Rare, vulnerable in Western Sydney (James et al. 1999). Last reported from Bathurst in 1903.

**Panicum effusum**

**Life history**

**Growth form:** Tufted, hairy perennial herb to 70 cm high

**Vegetative spread:** No (McIntyre et al. 1995).

**Longevity:**

**Primary juvenile period:**

**Flowers:** Summer.

**Fruit/seed:** Dry, 1-seeded, indehiscent fruit.

**Dispersal, establishment & growth:** Diaspore with morphology adapted for wind dispersal (McIntyre et al. 1995), dispersed in mud on cars (Wace 1977). Possibly coloniser of disturbed sites.

**Fire response:**

**Interaction with other organisms:** Seed eaten by Stubble Quail Coturnix pectoralis (Barker & Vestjens 1989, 1990).

**Distribution**

**Status/origin:** Native.

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

**Distribution Sydney area:** Widespread.

**Select locations:** CC: Awaba, Upper Colo, Pitt Town, Grose Vale, Vineyard, Hornsby, Penrith, Mulgoa, Liverpool, Cobbitty, Como, Mount Annan, Menangle, Picton, Cedar Creek, Kowmung River, Yanderra, Kangaroo Valley. CT: Capertee Valley, Meadow Flat, Bathurst, Yetholme, Blayney, Blackheat, Woodford, Wollondilly River, Moss Vale.

**Habitat**

**Habitat:** Gullies, slopes, roadsides.

**Altitude:** 0–1000 m  
**Annual rainfall:** 600–1200 mm

**Typical local abundance:**

**Vegetation:** Woodland e.g. with Eucalyptus moluccana, E. tereticornis, E. crebra, Melaleuca decora, Angophora floribunda, Eucalyptus albens, E. melliodora.

**Substrate:** Clay soil on shale, metasediments, conglomerate, alluvium, medium to low nutrients. Recorded on saline sites in western NSW (Semple 1993).

**Exposure:** Full sun.

**Conservation**

Conservation status unknown.

**Panicum gilvum** *

(P. laevifolium var. contractum)

**Life history**

**Growth form:** Decumbent to erect annual herb, with stems to 0.7 m long.

**Vegetative spread:** No (McIntyre et al. 1995).

**Longevity:**

**Primary juvenile period:**

**Flowers:** Summer.

**Fruit/seed:** Dry, 1-seeded, indehiscent fruit.

**Dispersal, establishment & growth:** Diaspore with morphology adapted for wind dispersal (McIntyre et al. 1995). Germination in all seasons in Northern Tablelands (Britton & Brock 1994).
Fire response:
Interaction with other organisms: Suspected of causing photosensitization in sheep (Harden 1993).

Distribution
Status/origin: Exotic, native to Africa.
Botanical subregions: NC CC NT CT ST NWS SWS SWP SWF; Vic.
Distribution Sydney area: Tablelands.

Habitat
Habitat: Waste places, grassland.
Altitude: 600–1000 m
Annual rainfall: 1000–1600 mm
Typical local abundance: Frequent.
Vegetation:
Substrate: Sandy soils on sandstone, granite, low nutrients.

Conservation
Weed of cultivation in Tablelands, first recorded at Robertson in 1949.

**Panicum maximum** var. *maximum* *

Guinea Grass

Life history
Growth form: Densely tufted perennial herb to 3 m high.
Vegetative spread:

Longevity:
Primary juvenile period:

Flowers: Summer.

Fruit/seed: Dry, 1-seeded, indehiscent fruit.

Dispersal, establishment & growth:

Fire response:

Interaction with other organisms: Pollen known to cause allergy in humans (Bass & Wrigley 1984).

Distribution
Status/origin: Exotic, native to Africa.
Botanical subregions: NC CC NT NT NWS CWS; Qld, N.T., W.A.
Distribution Sydney area:

Habitat
Habitat: Roadsides, disturbed sites.
Altitude: 0–100 m
Annual rainfall: 800–1200 mm
Typical local abundance:

Vegetation:

Substrate:

Exposure:

Conservation
Commonly cultivated and used for caged bird seed. Grows from dumped or waste seed, but not truly naturalised.

**Panicum miliaceum** *

Millet Panic, French Millet

Life history
Growth form: Tufted annual herb to 1.2 m high.
Vegetative spread:

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

Flowers: Summer.

Fruit/seed: Dry, 1-seeded, indehiscent fruit.

Dispersal, establishment & growth:

Fire response:

Interaction with other organisms:

Distribution
Status/origin: Exotic, native to Asia, India and Mediterranean region.
Botanical subregions: NC CC SC CT ST NWS CWS SWP NFWP; Qld, Vic., S.A., W.A.
Distribution Sydney area: Sporadic.
Select locations: CC: Hunters Hill (1933), North Sydney (1914), Narellan, Campbelltown. CT: Medlow (1914), Mittagong (1918).

Habitat
Habitat: Wasteland, gardens.
Altitude: 0–1000 m
Annual rainfall: 800–1200 mm
Typical local abundance: Rare.

Vegetation:

Substrate:

Exposure:

Conservation
Planted as pasture species, occasionally naturalised.

**Panicum obseptum**

White Water Panic

Life history
Growth form: Semi-aquatic decumbent perennial herb to 0.5 m high.
Vegetative spread:

Longevity: Indefinite.
Primary juvenile period:

Flowers: November–April.

Fruit/seed: Dry, 1-seeded, indehiscent fruit.

Dispersal, establishment & growth: Germinates in winter in Northern Tablelands (Britton & Brock 1994).

Fire response:

Interaction with other organisms:

Distribution
Status/origin: Native.
Botanical subregions: NC CC SC NT CT ST: Qld, Vic.
Distribution Sydney area: Coastal floodplains.
**Panicum pygmaeum**

Pygmy Panic, Dwarf Panic

**Life history**

**Growth form:** Decumbent perennial herb to 0.3 m high.

**Vegetative spread:**

**Longevity:**

**Primary juvenile period:**

**Flowers:** Warmer months.

**Fruit/seed:** Dry, 1-seeded, indehiscent fruit.

**Dispersal, establishment & growth:**

**Fire response:**

**Interaction with other organisms:**

**Distribution**

**Status/origin:** Native.

**Botanical subregions:** NC CC SC NT: Qld.

**Distribution Sydney area:** Coastal.

**Select locations:** CC: Ourimbah, Grose Vale (1910), Governor Game Lookout, Macquarie Pass.

**Habitat**

**Habitat:** Rainforest margins.

**Altitude:** 0–400 m **Annual rainfall:** 1000–1400 mm

**Typical local abundance:** Frequent.

**Vegetation:** Floor and margins of rainforest e.g. with Eupomatia laurina, Cryptocarya glaucescens, Oplismenus imbecillus.

**Substrate:** Clay soil on shale, high nutrients.

**Exposure:**

**Conservation**

**Conservation status:** Unknown. Reported in Royal NP.

**POACEAE**

**Panicum schinzii** *(P. laevifolium var. laevifolium)*

**Life history**

**Growth form:** Tufted annual herb to 0.8 m high

**Vegetative spread:** No.

**Longevity:** Less than 1 year.

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

**Flowers:** Summer.

**Fruit/seed:** Dry, 1-seeded, indehiscent fruit.

**Dispersal, establishment & growth:** Dispersed in mud on cars (Wace 1977). Germination in glasshouse in spring (Britton & Brock 1994).

**Fire response:**

**Interaction with other organisms:**

**Distribution**

**Status/origin:** Exotic, native to Africa.

**Botanical subregions:** NC CC NT CT ST NWS SWP; S.A., W.A.

**Distribution Sydney area:** Sporadic.


**POACEAE**

**Parapholis incarnata** *

Coast Barb Grass

**Life history**

**Growth form:** Tufted annual herb to 0.1 m high

**Vegetative spread:** No.

**Longevity:** Less than 1 year.

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

**Flowers:** Spring.

**Fruit/seed:** Dry, 1-seeded, indehiscent.

**Dispersal, establishment & growth:**

**Fire response:**

**Interaction with other organisms:**

**Distribution**

**Status/origin:** Exotic, native to Mediterranean region and northern Europe.
**Paspalidium albovillosum**

**Life history**

**Growth form:** Tufted perennial herb to 0.6 m high.

**Vegetative spread:**

**Longevity:** Indefinite.

**Primary juvenile period:**

**Flowers:** Summer.

**Fruit/seed:** Dry, 1-seeded, indehiscent.

**Dispersal, establishment & growth:**

**Fire response:**

**Interaction with other organisms:**

**Distribution**

**Status/origin:** Native.

**Botanical subregions:** NC CC NWS CWS NWP; Qld.

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

**Select locations:** CC: Currajong, Kurmond, Windsor, Winston Hills.

**Habitat**

**Habitat:** Woodland remnants.

**Altitude:** 0–300 m

**Annual rainfall:** 800–1200 mm

**Typical local abundance:** Frequent.

**Vegetation:** Woodland e.g. with Eucalyptus eugenioides; riparian vegetation e.g. with Backhousia myrtifolia.

**Substrate:** Clay soils on shale, alluvium, medium nutrients. Recorded on saline sites in western NSW (Semple 1993).

**Exposure:** Full sun to light shade.

**Conservation**

Vulnerable in Western Sydney (James et al. 1999). only record for Tablelands is from Bathurst in 1903.

**Paspalidium criniforme**

**Life history**

**Growth form:** Tufted perennial herb to 0.6 m high.

**Vegetative spread:**

**Longevity:**

**Primary juvenile period:**

**Flowers:** Summer.

**Fruit/seed:** Dry, 1-seeded, indehiscent.

**Dispersal, establishment & growth:**

**Fire response:**

**Interaction with other organisms:**

**Distribution**

**Status/origin:** Native.

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

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

**Select locations:** CC: Bulga, Concord, Bass Hill, Hurstville, Mulgoa, Bents Basin, Razorback, Menangle, Maldon, Stanwell Park, Gosford, Island.

**Habitat**

**Habitat:** Creeks, gorges.

**Altitude:** 0–300 m

**Annual rainfall:** 700–1400 mm

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

**Vegetation:** Woodland e.g. with Eucalyptus eugenioides; riparian vegetation e.g. with Backhousia myrtifolia.

**Substrate:** Clay soils on shale, alluvium, medium nutrients.

**Exposure:**

**Conservation**

Vulnerable in Western Sydney (James et al. 1999), conservation status elsewhere unknown.

**Paspalidium distans** (*P. radiatum*)

**Life history**

**Growth form:** Tufted perennial herb to 70 cm high.

**Vegetative spread:**

**Longevity:**

**Primary juvenile period:**

**Flowers:** October–April.

**Fruit/seed:** Dry, 1-seeded, indehiscent fruit.

**Dispersal, establishment & growth:** Appears to be coloniser of disturbed sites. A resilient species that persists despite mowing etc. (T. James pers. comm.).

**Fire response:**

**Interaction with other organisms:**

**Distribution**

**Status/origin:** Native.

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

**Distribution Sydney area:** Coast. 

**Select locations:** CC: Penrith, Rooty Hill, Gordon, Manly, Narellan, Menangle, Shoalhaven. CT: Bathurst (1903).
**Pasalidium gracile**

**Slender Panic**

**Life history**

**Growth form:** Wiry tufted perennial herb to 0.8 m high.

**Vegetative spread:** No.

**Longevity:** Indefinite.

**Primary juvenile period:**

**Flowers:** Summer.

**Fruit/seed:** Dry, 1-seeded, indehiscent fruit.

**Dispersion, establishment & growth:** Seed germination variable after one month 0–80%, increases up to 18 months then declines rapidly (Waters et al. 2000).

**Fire response:**


**Distribution**

**Status/origin:** Native.

**Botanical subregions:** CC CT NWS CWS NWP FWF SWP NFWP

**Habitat**

**Habitat:** 0–800 m **Annual rainfall:** 700–1200 mm

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

**Vegetation:** Open-forest e.g. with *Casuarina glauca*; woodland e.g. with *Corymbia eximia*, *Corymbia gymnifera*, *Angophora costata*, *Eucalyptus moluccana*, *E. tereticornis*; scrub e.g. with *Monotoca elliptica*; grassland e.g. with *Themeda australis*.

**Substrate:** Clay soils on shales, volcanics, sandy soils on dune sand, medium to low nutrients.

**Exposure:**

**Conservation**

Conserved in western Sydney where it is very common, found at Prospect, Blacktown, Mt Druitt (T. James pers. comm.). Reported in Royal NP.

**POACEAE**

**Pasalidium jubiflorum**

**Waitrego Grass**

**Life history**

**Growth form:** Tufted perennial herb to 1.3 m high, with a contracted rootstock.

**Vegetative spread:** No.

**Longevity:** Indefinite.

**Primary juvenile period:**

**Flowers:**

**Fruit/seed:** Dry, 1-seeded, indehiscent fruit.

**Dispersion, establishment & growth:** Seed germination variable after one month 0–80%, increases up to 18 months then declines rapidly (Waters et al. 2000).

**Fire response:**


**Distribution**

**Status/origin:** Exotic, native to S America. Introduced as fodder.

**Botanical subregions:** CC CT NWS CWS NWP FWF SWP NFWP

**Habitat**

**Habitat:** 0–700 m **Annual rainfall:** 700–1200 mm

**Typical local abundance:** Frequent.

**Vegetation:** Woodland e.g. with *Eucalyptus crebra*, *Bursaria spinosa*, *Angophora floribunda*, *E. eugenioides*, *Casuarina glauca*.

**Substrate:** Clay soils on shale, Devonian sediments, low–medium nutrients. Recorded on saline sites in western NSW (Semple 1993).

**Exposure:**

**Conservation**

Vulnerable in western Sydney (T. James pers. comm.), conservation status elsewhere unknown.

**POACEAE**

**Pasalidium dilatatum** *

**Paspalum**

**Life history**

**Growth form:** Tufted perennial herb with stems to 2 m high.

**Vegetative spread:** No (McIntyre et al. 1995).

**Longevity:** Indefinite.

**Primary juvenile period:**

**Flowers:** Summer–autumn. Pollen known to cause allergy in humans, mainly November–March (Bass & Wrigley 1984).

**Fruit/seed:** Dry, 1-seeded, indehiscent fruit.

**Dispersion, establishment & growth:** Diaspore adhesive for dispersal (McIntyre et al. 1995), dispersed in mud on cars (Wace 1977).

**Fire response:** Resprouted, fruit produced 4 months after high intensity fire (1/94 at Lane Cove, P. Kubiak pers. comm.).


**Distribution**

**Status/origin:** Exotic, native to S America. Introduced as fodder.

**Botanical subregions:** NC CC SC NT CT ST NWS CWS NWP

**Habitat**

**Habitat:** Pastures, roadside edges, wet, low wet areas.

**Altitude:** 0–700 m **Annual rainfall:** 700–1200 mm

**Typical local abundance:** Frequent.

**Vegetation:** Woodland, grassland, swamp e.g. with *Carex appressa*.

**Substrate:** Clay soils on shale, volcanics, alluvium, high–medium nutrients. Recorded on saline sites in western NSW (Semple 1993).

**Exposure:**

**Conservation**

Widespread pasture species and weed of lawns and disturbed land. It appears to be gradually (over several decades) out-competed by native grasses such as *Microlaena* and *Themeda* where these are allowed to recolonise former pastures.
**Paspalum distichum** *(P. paspalodes)*

**Water Couch**

**Life history**

**Growth form:** Stoloniferous and rhizomatous perennial herb to 0.5 m high, with stolons to 5 m long, forming mats on edge and floating across water.

**Vegetative spread:** Yes.

**Longevity:** Indefinite.

**Primary juvenile period:**

**Flowers:** Summer, November–April, peak April.

**Fruit/seed:** Dry, 1-seeded, indehiscent fruit. Fertile florets 2.5–3 mm long.

**Dispersal, establishment & growth:** Diaspore: seed. Coloniser of bare, wet areas.

**Fire response:**

**Interaction with other organisms:** Foodplant of Pacific Black Duck *Anas superciliosa* (Barker & Vestjens 1989, 1990).

**Distribution**

**Status/origin:** Native.

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

**Distribution Sydney area:** Widespread.

**Select locations:** CC: Pitt Town, Shane Park, Yarramundi, Wahroonga, Centennial Park, Maroubra, Concord, Kogarah, Oatley, Cobitty, Campbelltown, Stanwell Park, Berry. CT: Bathurst, Robertson.

**Habitat**

**Habitat:** Wetlands, ponds, creeks.

**Altitude:** 0–1000 m

**Annual rainfall:** 700–1400 mm

**Typical local abundance:** Frequent.

**Vegetation:** Fresh swamp e.g. with *Eleocharis sphacelata*, *Ludwigia peploides*, *Myriophyllum*, *Persicaria*; less common in riparian woodland e.g. with *Casuarina glauca*.

**Substrate:** Sandy clay on alluvium, shale, medium nutrients, moist sites in and near fresh water. Occasionally in brackish water near the sea.

**Exposure:** Full sun.

**Conservation**

Conserved in Western Sydney (James et al. 1999). Only record for Bathurst is 1910.

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**Paspalum notatum** *

**Bahia Grass**

**Life history**

**Growth form:** Perennial herb to 1 m high, with stout rhizomes.

**Vegetative spread:** Stoloniferous, rooting at nodes.

**Longevity:**

**Primary juvenile period:**

**Flowers:** Summer.

**Fruit/seed:** Dry, 1-seeded, indehiscent fruit.

**Dispersal, establishment & growth:**

**Fire response:**

**Interaction with other organisms:**

**Distribution**

**Status/origin:** Exotic, native to S America.

**Botanical subregions:** NC CC SWS; Qld, N.T., S.A., W.A.

**Distribution Sydney area:** Sporadic.

**Select locations:** CC: Blacktown (1962), Chipping Norton (1989, 1993).

**Habitat**

**Habitat:** Roadsides, lawns.

**Altitude:** 0–100 m

**Annual rainfall:** 900–1200 mm

**Typical local abundance:**

**Vegetation:**

**Substrate:**

**Exposure:**

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**Paspalum orbiculare**

**Ditch Millet**

**Life history**

**Growth form:** Tufted perennial herb with stems to 1 m high from knotted rootstock.

**Vegetative spread:**

**Longevity:**

**Primary juvenile period:**

**Flowers:** Summer–autumn.

**Fruit/seed:** Dry, 1-seeded, indehiscent fruit.

**Dispersal, establishment & growth:**

**Fire response:**

**Interaction with other organisms:** Seed eaten by Plumed Whistling Duck *Dendrocygna eytoni* (Barker & Vestjens 1989, 1990).

**Distribution**

**Status/origin:** Native.

**Botanical subregions:** NC CC SC; Qld, N.T., W.A., N.G.

**Distribution Sydney area:** Coastal.

**Select locations:** CC: Morisset, Gosford, Richmond, Manly, Gladstone, Homebush, Kogarah, Como, Centennial Park, Malabar, Macquarie Fields, Auburn.

**Habitat**

**Habitat:** Swamps.

**Altitude:** 0–100 m

**Annual rainfall:** 700–1400 mm

**Typical local abundance:** Frequent.

**Vegetation:** Hind dune swamp.

**Substrate:** Sandy soil on dunes, alluvium, low nutrients, moist, sometimes brackish.

**Exposure:**

**Conservation**

Vulnerable in Western Sydney (James et al. 1999). Not known from any conservation reserves elsewhere (P. Adam pers. comm.).

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**Paspalum quadrifarium** *

**Tussock Paspalum**

**Life history**

**Growth form:** Coarse tufted, often glaucous, perennial herb to 2 m high.

**Vegetative spread:**

**Longevity:**

**Primary juvenile period:**

**Flowers:** Mostly spring–autumn.

**Fruit/seed:** Dry, 1-seeded, indehiscent fruit.

**Dispersal, establishment & growth:**

**Fire response:** Resprouted, fruit produced 7–10 months after high intensity fire (1/94 at Lane Cove, P. Kubiak pers. comm.).

**Interaction with other organisms:**

**Distribution**

**Status/origin:** Exotic, native to S America.

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

**Distribution Sydney area:** Gosford, Lane Cove area.


**Habitat**

**Habitat:** Riverbanks, creeks, roadsides.

**Altitude:** 0–1000 m

**Annual rainfall:** 1000–1200 mm

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

**Vasey Grass**

**Life history**

**Growth form:** Erect tufted perennial herb to 2.5 m high.

**Vegetative spread:** No.

**Longevity:**

**Primary juvenile period:**

**Flowers:** Summer.

**Fruit/seed:** Dry, 1-seeded, indehiscent fruit.

**Dispersal, establishment & growth:** Diaspore: seed, dispersed in horse dung (Deep Creek).

**Fire response:** Resprouted, fruit produced 9 weeks after high intensity fire (1994 at Lane Cove, P. Kubiak pers. comm.). Growing vigorously along tracks, and seeding, 14 months after fire, probably after resprouting (at Banytry Bay 1992).

**Interaction with other organisms:** Food plant of butterfly larvae *Telicota ancilla ancilla* (Common & Waterhouse 1981).

**Distribution**

**Status/origin:** Exotic, native to S America.

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

**Distribution Sydney area:** Widespread on Coast.

**Primary locations:** CC: Gosford (1946), Glenorie (1947), Yarramundi, Narrabeen, Carlingford, Mosman (1948), Centennial Park, Malabar, Macquarie Fields, Mt Keira.

**Habitat**

**Habitat:** Creeks, tracks, wet places.

**Altitude:** 0–300 m

**Annual rainfall:** 800–1400 mm

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

**Vegetation:** Weedy sites e.g. with *Salix*, *Cyperus eragrostis*.

**Substrate:** Sandy to clay soils on alluvium, shale, low nutrients.

**Exposure:**

**Conservation**

Vulnerable in Western Sydney (James et al. 1999), conservation status elsewhere unknown.

**Paspebaris vaginatum** (*P. distichum*)

**Salt-water Couch**

**Life history**

**Growth form:** Rhizomatous and stoloniferous perennial herb to 50 cm high, with stolons to 5 m long.

**Vegetative spread:** Spread by rhizome.

**Longevity:** Indefinite.

**Primary juvenile period:**

**Flowers:** Summer.

**Fruit/seed:** Dry, 1-seeded, indehiscent fruit, late summer; produces numerous seeds.

**Dispersal, establishment & growth:** Dispersed in mud on cars (Wace 1977). Water-dispersed as floating pieces of rhizome.

**Fire response:**

**Interaction with other organisms:** Seed eaten by Black Swan *Cygnus atratus* and foodplant of Freckled Duck *Stictonetta nervosa*, Grey Teal *Anas gibberifrons* (Barker & Vestjens 1989,1990).

**Distribution**

**Status/origin:** Native.

**Botanical subregions:** NC CC SC CWS; Qld, N.T., S.A., W.A.

**Pennisetum alopecuroides**

**Kikuyu Grass**

**Life history**

**Growth form:** Tufted perennial herb to 1 m high.

**Vegetative spread:** No (McIntyre et al. 1995).

**Longevity:**

**Primary juvenile period:**

**Flowers:** January–March.

**Fruit/seed:** Dry, 1-seeded, indehiscent fruit, January–April.

**Dispersal, establishment & growth:** Diaspore morphology adapted for wind dispersal and adhesion (McIntyre et al. 1995).

**Fire response:**

**Interaction with other organisms:**

**Distribution**

**Status/origin:** Native.

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

**Distribution Sydney area:** Sporadic.

**Primary locations:** CC: Homebush (1894), Burning Palms RNP (1978), Stanwell Park (1891), Berry to Gerringong (1933), Bulli (1918).

**CT:** Winburndale (1910), Abercrombie.

**Habitat**

**Habitat:** Headlands, creekbanks.

**Altitude:** 0–1000 m

**Annual rainfall:** 700–1600 mm

**Typical local abundance:** Frequent.

**Vegetation:** Grassy headlands.

**Substrate:** Clay soils, probably on shale or alluvium, poorly-drained sites. Recorded on saline sites in western NSW (Semple 1993).

**Exposure:**

**Conservation**

Relatively restricted in Sydney area, probably originally occurring mainly along the Illawarra coast. Very similar looking introduced species *P. setaceum* may be planted in mistake for *P. alopecuroides*.

**Pennisetum clandestinum** *

**POACEAE**

**Kikuyu Grass**

**Life history**

**Growth form:** Perennial herb to 0.9 m high, with long stout rhizomes and stolons.

**Vegetative spread:** Rhizomatous.

**Longevity:** Indefinite.

**Primary juvenile period:**

**Flowers:** Summer.

**Fruit/seed:** Dry, 1-seeded, indehiscent fruit.

**Dispersal, establishment & growth:** Rhizomes spread in dumped garden refuse.

**Fire response:** Resprouted after high intensity fire (1994 at Lane Cove, P. Kubiak pers. comm.).
**African Feather Grass**

**Life history**

**Growth form:** Densely tufted rhizomatous perennial herb to 1.5 m high.

**Vegetative spread:** Rhizomes.

**Primary juvenile period:** Spring–autumn.

**Flowers:** Dry, 1-seeded, indehiscent fruit.

**Dispersal, establishment & growth:** Diaspore: mainly rhizomes or pieces of rhizomes transported after excavation; spikelets also spread by water and wind, bristles aid attachment to clothes and wool (Weeds Australia www.weeds.org.au).

**Fire response:** Not favoured by stock (Weeds Australia www.weeds.org.au).

**Interaction with other organisms:** Not eaten by stock (Herb. note).

**Distribution**

**Status/origin:** Exotic, native to S Africa. Introduced as ornamental.

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

**Distribution Sydney area:** Coast.


**Habitat**

**Altitude:** 0–100 m  
**Annual rainfall:** 1200–1400 mm

**Typical local abundance:** Frequent.

**Vegetation:** Sandstone scrub.

**Substrate:** Sandy soils on dunes, alluvium.

**Exposure:** Drought resistant.

**Conservation**

Introduced as ornamental in early 20th century, escaped and spreading in coastal areas (Harden 1993).

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**POACEAE**

**Fountain Grass**

**Life history**

**Growth form:** Densely tufted perennial herb to 0.9 m high.

**Vegetative spread:**

**Primary juvenile period:**

**Flowers:** Summer.

**Dispersal, establishment & growth:**

**Fire response:**

**Interaction with other organisms:**

**Distribution**

**Status/origin:** Exotic, native to Africa.

**Botanical subregions:** CC CT SWS SFWP; Qld, S.A., W.A.

**Distribution Sydney area:** Sporadic.

**Select locations:** CC: Clyde (1969), Woolloomooloo (1963), Homebush (1931). CT: Wombeyan Caves.

**Habitat**

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

**Typical local abundance:** Occasional.

**Vegetation:**

**Substrate:** Sandy soil on sandstone, alluvium, granite, low nutrients, periodically moist.

**Exposure:**

**Conservation**

Cultivated as ornamental, occasionally naturalised in disturbed sites in urban areas.

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**POACEAE**

**White Foxtail**

**Feathertop, White Foxtail**

**Life history**

**Growth form:** Densely tufted rhizomatous perennial herb to 0.9 m high.

**Vegetative spread:**

**Primary juvenile period:**

**Flowers:** Summer.

**Dispersal, establishment & growth:**

**Fire response:**

**Interaction with other organisms:** Not eaten by stock (Herb. note).

**Distribution**

**Status/origin:** Exotic, native to N Africa, Arabia. Introduced as ornamental.

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

**Distribution Sydney area:** Sporadic.

**Select locations:** CC: Parramatta (1931), Auburn, Ashfield (1919), Homebush (1894), Oatley (1915), Campbelltown (1949), Brownsville (1912), Lake Illawarra (1912), Minnamurra Point, Kiama (1907, 1939), W Cambewarra (1924). CT: Bathurst (1982), Katoomba (1999).

**Habitat**

**Altitude:** 0–100 m  
**Annual rainfall:** 700–1400 mm

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

**Vegetation:**

**Substrate:** Sandy to clay soils.

**Exposure:**

**Conservation**

Introduced and frequently cultivated as ornamental, but now naturalised as a weed of footpaths and vacant land. Reported since 1890s in Sydney, along roadsides by 1919, spreading in Kiama in 1930s, naturalised in Tablelands since 1970s.
**Pentaschistis airoides** *

False Hairgrass

**Life history**

**GROWTH FORM:** Slender tufted annual herb to 0.3 m high.

**VEGETATIVE SPREAD:** No.

**LONGEVITY:** Less than 1 year.

**PRIMARY JUVENILE PERIOD:** Less than 1 year.

**FLOWERS:** Spring.

**FRUIT/SEED:** Dry, 1-seeded, indehiscent fruit. Seed weight 1.5 mg (Buckley 1982).

**DISPERSAL, ESTABLISHMENT & GROWTH:** No particular morphology for dispersal (McIntyre et al. 1995), dispersed in mud on cars (Wace 1977).

**FIRE RESPONSE:**

**INTERACTION WITH OTHER ORGANISMS:** Pollen known to cause allergy in humans (Bass & Wrigley 1984). Causes ‘staggers’ in sheep and cattle (Culvenor 1985).

**Distribution**

**STATUS/ORIGIN:** Exotic, native to Mediterranean region. Introduced as pasture species.

**BOTANICAL SUBREGIONS:** NC CC SC NT ST NWS CWS SWS NWP SWP; LHI, Qld, Vic., S.A., W.A.

**DISTRICT SYDNEY AREA:** Widespread.

**SELECT LOCATIONS:** CC: Dural (1987), Campbeltown (1969).

**CT:** Orange (1955), Robertson.

**Habitat**

**HABITAT:** Pasture, roadsides.

**ALTITUDE:** 0–1000 m

**ANNUAL RAINFALL:** 800–1600 mm

**TYPICAL LOCAL ABUNDANCE:** Frequent.

**VEGETATION:** Pastures.

**SUBSTRATE:** Clay soils on shale, basalt, medium to high nutrients. Recorded on saline sites in western NSW (Semple 1993).

**EXPOSURE:**

**Conservation**

Extensively cultivated on Tablelands as perennial pasture. Occasionally established on roadsides.

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**Phalaris angusta** *

**Life history**

**GROWTH FORM:** Tufted annual herb to 1.5 m high.

**VEGETATIVE SPREAD:** No.

**LONGEVITY:** Less than 1 year.

**PRIMARY JUVENILE PERIOD:** Less than 1 year.

**FLOWERS:** Spring.

**FRUIT/SEED:** Dry, 1-seeded, indehiscent fruit.

**DISPERSAL, ESTABLISHMENT & GROWTH:** No particular morphology for dispersal (McIntyre et al. 1995), dispersed in mud on cars (Wace 1977).

**FIRE RESPONSE:**

**INTERACTION WITH OTHER ORGANISMS:** Pollen known to cause allergy in humans (Bass & Wrigley 1984). Causes ‘staggers’ in sheep and cattle (Culvenor 1985).

**Distribution**

**STATUS/ORIGIN:** Exotic, native to America.

**BOTANICAL SUBREGIONS:** NC CC ST; Qld, WA.

**DISTRICT SYDNEY AREA:** Sporadic.

**SELECT LOCATIONS:** CC: Ebenezer, Windsor (1949), Jameroo, Kiama.

**Habitat**

**HABITAT:** Areas susceptible to flooding.

**ALTITUDE:** 0–200 m

**ANNUAL RAINFALL:** 800–1400 mm

**TYPICAL LOCAL ABUNDANCE:** Frequent.

**VEGETATION:** Pastures.

**SUBSTRATE:** Clay loam on shale, alluvium.

**EXPOSURE:**

**Conservation**

Conservation: Extensively cultivated on Tablelands as perennial pasture. Occasionally established on roadsides.

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**Phalaris aquatica** *

**Life history**

**GROWTH FORM:** Erect tufted perennial herb to 1.5 m high, with hard crown of usually contracted rhizomes.

**VEGETATIVE SPREAD:** Yes (McIntyre et al. 1995).
**Phalaris arundinacea** var. *picta*

**Ribon Grass**

**Life history**

**Growth form:** Robust, tufted and rhizomatous perennial to 2 m high.

**Vegetative spread:**

**Longevity:**

**Primary juvenile period:**

**Flowers:** Spring.

**Fruit/seed:** Dry, 1-seeded, indehiscent fruit.

**Dispersal, establishment & growth:**

**Fire response:**

**Interaction with other organisms:** Pollen known to cause allergy in humans (Bass & Wrigley 1984).

**Distribution**

**Status/origin:** Exotic, native to Europe.

**Botanical subregions:** CC SC NT CT NWS; Tas.

**Distribution Sydney area:** Sporadic.

**Select locations:** CC: Cattai Creek (1996), Cheltenham (1951), Cooks River (1909). CT: Katoomba (1934).

**Habitat**

**Habitat:** Creeks.

**Altitude:** 0–1000 m

**Annual rainfall:** 1000–1200 mm

**Typical local abundance:** Occasional.

**Vegetation:**

**Substrate:**

**Exposure:**

**Conservation**

Grown as an ornamental, occasionally escaped or persistent in abandoned gardens (Harden 1993).

**Phalaris canariensis** *

**Canary Grass**

**Life history**

**Growth form:** Tufted annual or short-lived perennial herb to 1.2 m high.

**Vegetative spread:** No.

**Longevity:**

**Primary juvenile period:**

**Flowers:** Spring.

**Fruit/seed:** Dry, 1-seeded, indehiscent fruit.

**Dispersal, establishment & growth:**

**Fire response:**

**Interaction with other organisms:** Pollen known to cause allergy in humans, mainly September–December (Bass & Wrigley 1984).

**Distribution**

**Status/origin:** Exotic, native to Mediterranean region.

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

**Distribution Sydney area:** Sporadic.

**Select locations:** CC: Richmond (1903), Beecroft, Gladesville (1884), Centennial Park (1899), Penshurst (1911), Dapto (1912), Kiama. CT: Jenolan Caves (1899), Bowral (1948).

**Habitat**

**Habitat:** Pastures, gardens.

**Altitude:** 0–700 m

**Annual rainfall:** 700–1200 mm

**Typical local abundance:**

**Vegetation:**

**Substrate:**

**Exposure:**

**Conservation**

Pasture species and minor weed of cultivation (Harden 1993).

**Phalaris minor** *

**Lesser Canary Grass**

**Life history**

**Growth form:** Tufted annual herb to 1.8 m high.

**Vegetative spread:** No.

**Longevity:** Less than 1 year.

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

**Flowers:** Spring.

**Fruit/seed:** Dry, 1-seeded, indehiscent fruit.

**Dispersal, establishment & growth:**

**Fire response:**


**Distribution**

**Status/origin:** Exotic, native to Mediterranean region. Introduced as pasture species.

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

**Distribution Sydney area:** Widespread.

**Select locations:** CC: Richmond (1903), Beecroft, Gladstone (1884), Centennial Park (1899), Penshurst (1911), Dapto (1912), Kiama. CT: Jenolan Caves (1899), Bowral (1948).

**Habitat**

**Habitat:** Pastures, gardens.

**Altitude:** 0–700 m

**Annual rainfall:** 700–1200 mm

**Typical local abundance:**

**Vegetation:**

**Substrate:**

**Exposure:**

**Conservation**

**Phalaris paradoxa** *

**Paradoxa Grass**

**Life history**

**Growth form:** Tufted annual to 1 m high.

**Vegetative spread:** No.

**Longevity:** Less than 1 year.

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

**Flowers:** Spring.

**Fruit/seed:** Dry, 1-seeded, indehiscent fruit.

**Dispersal, establishment & growth:**

**Fire response:**


**Distribution**

**Status/origin:** Exotic, native to Mediterranean region.

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

**Distribution Sydney area:** Sporadic.

**Select locations:** CC: Flemington Saleyards (1968), Wollongong (1936).

**Habitat**

**Habitat:**

**Altitude:** 0–200 m

**Annual rainfall:** 1000–1400 mm

**Typical local abundance:**

**Vegetation:**

**Substrate:**

**Exposure:**

**Conservation**

Occasional roadside weed. Reported by Robert Brown to be introduced to Sydney by 1804 (Maiden 1909). Cultivated to provide grain to caged birds (Harden 1993).
**Conservation**

Conservation: Common weed of crops, occasionally reported in urban areas or associated with stock.

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**Phleum pratense** *

Timothy

**Life history**

*Growth form:* Tufted perennial herb to 1.5 m high, with stout stems, forming large clumps; often with swollen or bulbous base.

*Vegetative spread:* No (McIntyre et al. 1995).

**Longevity:**

*Primary juvenile period:*

*Flowers:* Spring.

*Fruit/seed:* Dry, 1-seeded, indehiscent fruit.

**Dispersal, establishment & growth:** No particular morphology for dispersal (McIntyre et al. 1995).

**Fire response:**

*Interaction with other organisms:* 

**Distribution**

*Status/origin:* Exotic, native to Mediterranean region.

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

*Distribution Sydney area:* Tablelands.

*Select locations:* CC: Botanic Garden (1904). CT: Tarana, Jenolan Caves (1900), Bowral (1948).

**Habitat**

*Habitat:* Moist areas.

**Altitude:** 0–1000 m  
**Annual rainfall:** 900–1200 mm

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

**Vegetation:**

*Substrate:* Soils on shale, granite, low nutrients.

**Exposure:**

**Conservation**

Pasture and hay plant, with a few roadside occurrences at higher elevations.

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**Phragmites australis** (*P. communis*)

Common Reed

**Life history**

*Growth form:* Erect robust rhizomatous perennial, emergent aquatic reed to 6 m high.

*Vegetative spread:* Spreads extensively by horizontal rhizomes.

**Longevity:** Indefinite.

*Primary juvenile period:*

*Flowers:* August–October, March–June, peak March.

*Fruit/seed:* March. In Europe, seed production is virtually unknown, despite prolific flowering, and propagation is apparently exclusively vegetative (Chapman & Peat 1992). Germination in NSW is low but consistent (P. Adam pers. comm.).

**Dispersal, establishment & growth:** Diaspore: seed, rhizome fragments. May grow all year but dies back after frosts. Fertile seed may be followed by seedlings in the same or following year; germination occurs in only a narrow range of habitats (Sainty & Jacobs 1981). Vertical rhizomes bear the aerial shoots and horizontal rhizomes are the regenerating agent and main food store (Sainty & Jacobs 1981).

**Fire response:** Resprouts from rhizomes after high-intensity fire (1/94 at Narrabeen, Lane Cove) secondary juvenile period almost 18 months (P. Kubiak pers. comm.).

**Interaction with other organisms:**

**Distribution**

*Status/origin:* Native.

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

*Distribution Sydney area:* Widespread.

**Phyllostachys aurea** *

Fishpole Bamboo

**Life history**

*Growth form:* Tall perennial herb, with woody stems 2–5 m high, 2–3 cm diam.

*Vegetative spread:* Rhizomatous.

**Longevity:** Indefinite.

*Primary juvenile period:*

*Flowers:* 

*Fruit/seed:* Dry, 1-seeded, indehiscent fruit.

**Dispersal, establishment & growth:** Rhizomes spread in dumped garden refuse.

**Fire response:** Resprouted after high intensity fire (1/94 at Lane Cove, P. Kubiak pers. comm.).

**Interaction with other organisms:** Culms used as walking sticks, umbrella shafts, fan handles, pipe stems and fishing rods, for furniture and handicrafts; the young shoots are edible (Harden 1993).

**Distribution**

*Status/origin:* Exotic, native to China. Introduced as ornamental.

*Botanical subregions:* NC CC.

*Distribution Sydney area:* Sporadic.

*Select locations:* CC: Cattai Creek (1971), Windsor, Narrabeen.

**Habitat**

*Habitat:* Creekbanks.

**Altitude:** 0–200 m  
**Annual rainfall:** 800–1200 mm

**Typical local abundance:** Frequent.

**Vegetation:**

*Substrate:* Sandy soil on alluvium, low nutrients.

**Exposure:**

**Conservation**

Cultivated and persistent in abandoned gardens, spread vegetatively from dumped garden refuse. Declared noxious weed, prohibited from sale in many local government areas (NSW Agriculture website: www.agric.nsw.gov.au).
**Phyllostachys nigra** *(Bambusoideae)*  
Black Bamboo

**Life history**

- **Growth form:** Tall perennial herb, with woody purplish black stems 3–6 m high, 1–3 cm diam.
- **Vegetative spread:** Rhizomatous.
- **Longevity:** Indefinite.
- **Primary juvenile period:**
- **Flowers:**
- **Fruit/seed:** Dry, 1-seeded, indehiscent fruit.
- **Dispersal, establishment & growth:** Rhizomes spread in dumped garden refuse.
- **Fire response:**
- **Interaction with other organisms:** Stems used for construction of musical instruments, furniture and for handicrafts (Harden 1993).

**Distribution**

- **Status/origin:** Exotic, native to China. Introduced as ornamental.
- **Botanical subregions:** CC SC CT ST; Vic.
- **Distribution Sydney area:** Sporadic.
- **Select locations:** CC: Kurrangal (1981), Hornsby (1968).

**Habitat**

- **Habitat:** Roadside.
- **Altitude:** 0–400 m  
  **Annual rainfall:** 1000–1200 mm
- **Typical local abundance:** Frequent.
- **Vegetation:**
- **Substrate:** Clay soils on shale.
- **Exposure:**

**Conservation**

Persistent in abandoned gardens, rarely naturalised. Declared noxious weed, rhizomatous bamboo is prohibited from sale in many local government areas (NSW Agriculture website: www.agric.nsw.gov.au).

**Plinthanthesis paradoxa** *(Danthonia paradoxa)*  
Wallaby Grass

**Life history**

- **Growth form:** Tufted perennial herb to 0.7 m high.
- **Vegetative spread:**
- **Longevity:** Indefinite (D. Keith pers. comm.).
- **Primary juvenile period:**
- **Flowers:** November–January.
- **Fruit/seed:** Dry, 1-seeded, indehiscent fruit.
- **Dispersal, establishment & growth:** Recruitment mainly after fire (D. Keith pers. comm.).
- **Fire response:** Resprouts, secondary juvenile period 1 year (D. Keith pers. comm.).
- **Interaction with other organisms:**

**Distribution**

- **Status/origin:** Native.
- **Botanical subregions:** CC SC CT CWS; Vic.
- **Distribution Sydney area:** Mainly coastal.
- **Select locations:** CC: Wondabyne, Berowra, Hornsby, Frenchs Forest, Dee Why, Kogarah, La Perouse, Sutherland, Loftus, Burning Palms, Maddens Plains, Mt Keira. CT: Kanangra Walls.

**Habitat**

- **Habitat:** Swamps, creeks, wet rocks.
- **Altitude:** 0–1000 m  
  **Annual rainfall:** 1000–1400 mm
- **Typical local abundance:** Frequent.
- **Vegetation:** Sedgeland e.g. with *Empodisma minus*, *Lepyrodia scariosa*, *Banksia oblongifolia*; montane heath.
- **Substrate:** Sandy soils on sandstone, poorly drained, moist, low nutrients.
- **Exposure:** Full sun, exposed sites.

**Conservation**

Wondabyne is northern geographical limit, conservation status unknown. Reported in Ku-ring-gai Chase NP, Royal NP.

**Poa affinis** *(P. caespitosa var. affinis)*  
Wallaby Grass

**Life history**

- **Growth form:** Tufted perennial herb to 1.2 m high, rarely rhizomatous.
- **Vegetative spread:** No.
- **Longevity:**
- **Primary juvenile period:**
- **Flowers:** Spring–summer.
- **Fruit/seed:** Dry, 1-seeded, indehiscent fruit.
- **Dispersal, establishment & growth:**
- **Fire response:**
- **Interaction with other organisms:**

**Distribution**

- **Status/origin:** Native.
- **Botanical subregions:** CC SC CT CWS; Vic.
- **Distribution Sydney area:** Mainly coastal.

**Habitat**

- **Habitat:** Creekbanks.
- **Altitude:** 0–600 m  
  **Annual rainfall:** 900–1400 mm
- **Typical local abundance:** Frequent.
- **Vegetation:** Open-forest e.g. with *Eucalyptus piperita*, *E. saligna*, *E. pilularis*; woodland e.g. with *Angophora costata*, *Corymbia gymnophylla*, *Syncarpia glomulifera*.
- **Substrate:** Soils on shale, sandstone, volcanics, low to medium nutrients.
- **Exposure:** Mid-shade, sheltered sites.

**Conservation**

Vulnerable in Western Sydney (James et al. 1999). Reported in Blue Mountains NP, Wollemi NP, Ku-ring-gai Chase NP, Dalrymple Hay NR, Heathcote NP.
**Poa annua** *

Winter Grass, Annual Poa

**Life history**

**Growth form:** Tufted annual herb to 0.3 m high.

**Vegetative spread:** No (McIntyre et al. 1995).

**Longevity:** Less than 1 year.

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

**Flowers:** Mainly winter-spring. Pollen known to cause allergy in humans, mostly August–November (Bass & Wrigley 1984).

**Fruit/seed:** Dry, 1-seeded, indehiscent fruit.

**Dispersal, establishment & growth:** No particular morphology for dispersal (McIntyre et al. 1995), dispersed in mud on cars (Wace 1977).

**Fire response:** Probably killed. Flowered 7 months after high intensity fire (1/94 at Lane Cove) probably from seed (P. Kubiak pers. comm.).

**Interaction with other organisms:** Seed eaten by Crimson Rosella Platycercus elegans (Lepschi 1993). Seed eaten by Stubble Quail Coturnix pectoralis (Barker & Vestjens 1989, 1990).

**Distribution**

**Status/origin:** Exotic, native to Europe.

**Botanical subregions:** NC SC CT ST NWS SWS SWP.

**Sydney area distribution:** Widespread.

**Select locations:** CC: Richmond (1903), Palm Beach, Cheltenham, Centennial Park, Cooks River, Bexley, Kangaroo Valley.

**CT:** Jenolan Caves (1900), Wentworth Falls, Berrima, Robertson.

**Habitat**

**Habitat:** Cultivated and disturbed areas, roadsides, gardens.

**Altitude:** 0–1000 m  **Annual rainfall:** 1000–1600 mm

**Typical local abundance:** Occasional.

**Vegetation:** Lawns.

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

**Exposure:**

**Conservation**

Weed of cultivated land and other disturbed sites. Reported by Robert Brown to be introduced to Sydney by 1804 (Maiden 1909).

**Poa bulbosa** *

Bulbous Poa

**Life history**

**Growth form:** Tufted, bulbous-based perennial herb to 0.5 m high.

**Vegetative spread:**

**Longevity:**

**Primary juvenile period:**

**Flowers:** Spring.

**Fruit/seed:** Dry, 1-seeded, indehiscent fruit.

**Dispersal, establishment & growth:** Miniature vegetative shoot sometimes replacing the spikelet, under favourable conditions, may fall, take root and serve as a vegetative propagule (Harden 1993).

**Fire response:**

**Interaction with other organisms:**

**Distribution**

**Status/origin:** Exotic, native to Mediterranean region.

**Botanical subregions:** NT CT ST CWS SWS SWP.

**Sydney area distribution:** Tablelands.

**Select locations:** CT: Blayney (1991), Orange (1914), Tarana (1940).

**Habitat**

**Habitat:** Grassland, disturbed sites.

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

**Typical local abundance:**

**Vegetation:**

**Substrate:**

**Exposure:**

**Conservation**

Occasional weed.

**Poa cheelii**

Life history

**Growth form:** Perennial herb to 1 m high, with shoots arising from rhizomes.

**Vegetative spread:**

**Longevity:** Indefinite.

**Primary juvenile period:**

**Flowers:** Spring–summer.

**Fruit/seed:** Dry, 1-seeded, indehiscent fruit.

**Dispersal, establishment & growth:**

**Fire response:**

**Interaction with other organisms:**

**Distribution**

**Status/origin:** Native.

**Botanical subregions:** CC SC CT; Qld.

**Sydney area distribution:** Blue Mountains, Southern Highlands.

**Select locations:** CC: Springwood, Glenbrook, Oakdale, Appin, Jameroo Pass, Kangaroo Valley, CT: Newnes Plateau, Bell, Katoomba, Wentworth Falls, Hill Top, Fitzroy Falls, Penrose.

**Habitat**

**Habitat:** Steep slopes, rocky ground.

**Altitude:** 0–1200 m  **Annual rainfall:** 800–1400 mm

**Typical local abundance:** Occasional.

**Vegetation:** Open-forest e.g. with Eucalyptus agglomerata, E. globoidea.

**Substrate:** Stony soil on sandstone, low nutrients.

**Exposure:**

**Conservation**

Conservation status unknown.

**Poa compressa** *

Canada Bluegrass

**Life history**

**Growth form:** Stiff perennial herb to 0.6 m high, with wiry rhizomes.

**Vegetative spread:** Rhizomatous.

**Longevity:**

**Primary juvenile period:**

**Flowers:** Summer.

**Fruit/seed:** Dry, 1-seeded, indehiscent fruit.

**Dispersal, establishment & growth:** No special morphology for dispersal (Westoby et al. 1990).

**Fire response:**

**Interaction with other organisms:**

**Distribution**

**Status/origin:** Exotic, native to Europe, and SW Asia.

**Botanical subregions:** CC NT CT ST NWS CWS; Qld, Vic., Tas.

**Sydney area distribution:** Tablelands.

**Select locations:** CT: Blackheath (1907).

**Habitat**

**Habitat:**

**Altitude:** 1000 m  **Annual rainfall:** 1200–1400 mm

**Typical local abundance:**

**Vegetation:**

**Substrate:**

**Exposure:**

**Conservation**

Conservation: Uncommon weed of pastures, reported from Blackheath in 1907.
**Poa induta**

**Life history**

Growth form: Coarse, densely tufted perennial herb to 1.2 m high.

Vegetative spread: No (McIntyre et al. 1995).

Longevity: Indefinite.

Primary juvenile period: At any time of the year.


Dispersal, establishment & growth: No particular morphology for dispersal (McIntyre et al. 1995). Total germination approx. 39 days (typical rate 787 per gram of seed, Greening Australia 1996a).

Fire response: Resprouted after high intensity fire (1/94 at Lane Cove) flowering within 10 months (P. Kubiak pers. comm.).

Interaction with other organisms:

**Distribution**

Status/origin: Native.

Botanical subregions: CT ST; Vic.

Distribution Sydney area: Bathurst–Orange, Southern Highlands.

Select locations: CT: Bathurst, Mt Jellore.

Habitat

Habitat: Eucalypt woodland.

Altitude: 600–1000 m

Annual rainfall: 800–1000 mm

Typical local abundance: Frequent–occasional.

Vegetation: Montane woodland e.g. with Eucalyptus dalrympleana.

**Conservation**

Rare, last recorded in Southern Highlands at Mt Jellore in 1935, and from Winburndale NR in 1974. Orange is northern geographical limit.

**Poa meionectes**

**Life history**

Growth form: Tufted perennial herb to 0.7 m high.

Vegetative spread:

Longevity: Indefinite.

Primary juvenile period: At any time, in response to seasonal conditions.

Flowers: Dry, 1-seeded, indehiscent fruit.

Dispersal, establishment & growth: No particular morphology for dispersal (McIntyre et al. 1995). Total germination approx. 39 days (typical rate 787 per gram of seed, Greening Australia 1996a).

Fire response: Resprouted after high intensity fire (1/94 at Lane Cove) flowering within 10 months (P. Kubiak pers. comm.).

Interaction with other organisms:

**Distribution**

Status/origin: Native.

Botanical subregions: SC CT ST; Vic.

Distribution Sydney area: Bathurst–Orange, Southern Highlands.

Select locations: CT: Bathurst, Mt Jellore.

Habitat

Habitat: Eucalypt woodland.

Altitude: 600–1000 m

Annual rainfall: 800–1000 mm

Typical local abundance: Frequent–occasional.

Vegetation: Montane woodland e.g. with Eucalyptus dalrympleana.

**Conservation**

Rare, last recorded in Southern Highlands at Mt Jellore in 1935, and from Winburndale NR in 1974. Orange is northern geographical limit.

**Poa labillardierei**

Tussock

**Life history**

Growth form: Coarse, densely caespitose perennial to 1.2 m high.

Vegetative spread: No (McIntyre et al. 1995).

Longevity: Indefinite.

Primary juvenile period: At any time of the year.


Dispersal, establishment & growth: No particular morphology for dispersal (McIntyre et al. 1995). Total germination approx. 39 days (typical rate 787 per gram of seed, Greening Australia 1996a).

Fire response: Resprouted after high intensity fire (1/94 at Lane Cove) flowering within 10 months (P. Kubiak pers. comm.).

Interaction with other organisms:

**Distribution**

Status/origin: Native.

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

Distribution Sydney area: Widespread.

Select locations: CC: Prospect, Homebush, Rookwood, Centennial Park, Cooks River, Casula, Mt Anman, Audley, Picton, Albion Park, Kangaroo River, Macquarie Pass, Cambewarra. CT: Mt Canobolas, Blayney, Carcoar, Bathurst, Meadow Flat, Hampton, Oberon, Wentworth Falls, Hill Top, Mt Jellore, Robertson, Bowral.

Habitat

Habitat: Riverflats, creeks, gullies.

Altitude: 0–1000 m

Annual rainfall: 700–1600 mm

Typical local abundance: Frequent–occasional.

Vegetation: Open-forest e.g. with Angophora costata, Eucalyptus globoida, E. viminalis, E. fastigata; woodland e.g. with E. macrorrhyncha, E. melliodora, E. mollacana, E. tereticornis; grassland e.g. with Themeda australis; clearings in rainforest.

Substrate: Clay soils on shale, metasediments, alluvium, basalt, medium to high nutrients.

Exposure:

**Conservation**

Conservation status unknown. Reported from Royal NP.
**Poa pratensis * **

Kentucky Bluegrass

**Life history**

- **Growth form:** Variable perennial herb to 0.9 m high, with slender creeping rhizomes, forming tufts or turf.
- **Vegetative spread:** Rhizomatous.
- **Longevity:** Indefinite.
- **Primary juvenile period:**
  - **Flowers:** Spring.
  - **Fruit/seed:** Dry, 1-seeded, indehiscent fruit.
- **Dispersal, establishment & growth:** No particular morphology for dispersal (McIntyre et al. 1995), dispersed in mud on cars (Wace 1977).
- **Fire response:**
- **Interaction with other organisms:** Pollen known to cause allergy in humans, mostly August–November (Bass & Wrigley 1984).

**Distribution**

- **Status/origin:** Exotic, native to Europe and Asia. Introduced as lawn grass.
- **Botanical subregions:** NC CC SC NT CT ST NWS CWS SWS SWP; Qld, Vic., Tas., S.A., W.A.
- **Distribution Sydney area:** Widespread.
- **Select locations:** CC: Richmond (1912), Homebush Bay, Centennial Park, Leumeah, Unanderra, Albion Park, Shellharbour, Kangaroo Valley, Berry. CT: Blayney, Sunny Corner, Bathurst (1910), Lyndhurst.
- **Habitat:** Lawns, cemeteries, roadsides, pastures.
- **Altitude:** 0–1000 m
- **Annual rainfall:** 800–1200 mm
- **Typical local abundance:** Occasional.
- **Vegetation:** Grassland.
- **Substrate:** Loamy soils on shale, medium nutrients.
- **Exposure:**
- **Conservation:**

**Poa queenslandica**

**Life history**

- **Growth form:** Tall, loosely tufted perennial to 1.8 m high.
- **Vegetative spread:** No.
- **Longevity:** Indefinite.
- **Primary juvenile period:**
  - **Flowers:** At any time, in response to seasonal conditions.
  - **Fruit/seed:** Dry, 1-seeded, indehiscent fruit.
- **Dispersal, establishment & growth:**
- **Fire response:**
- **Interaction with other organisms:**

**Distribution**

- **Status/origin:** Native.
- **Botanical subregions:** NC CC SC NT CT ST CWS SWS; Qld, Vic., Tas.
- **Distribution Sydney area:** Illawarra.
- **Select locations:** CC: Bulli, Minnnamurra Falls, Kangaroo Valley, Cambewarra Range.
- **Habitat:** Margins of rainforest.
- **Altitude:** 0–400 m
- **Annual rainfall:** 1200–1600 mm
- **Typical local abundance:** Frequent–occasional.
- **Vegetation:** Rainforest.
- **Substrate:** Clay soils, high nutrients.
- **Exposure:**
- **Conservation:** Conservation status unknown.

**Poa sieberiana var. cyanophylla**

**Life history**

- **Growth form:** Densely tufted, usually greyish green perennial herb to 1 m high.
- **Vegetative spread:** No.
- **Longevity:**
- **Primary juvenile period:**
- **Flowers:** At any time, in response to seasonal conditions.
- **Fruit/seed:** Dry, 1-seeded, indehiscent fruit.
- **Dispersal, establishment & growth:** No particular morphology for dispersal (McIntyre et al. 1995). Typical germination rate approx. 570 per gram of seed (Greening Australia 1996a).
- **Fire response:** Resprouts from base.
- **Interaction with other organisms:**

**Distribution**

- **Status/origin:** Native.
- **Botanical subregions:** CT ST SWS.
- **Distribution Sydney area:** Tablelands, Southern Highlands.
- **Select locations:** CT: Orange, Werong Range, Wingecarribee Swamp, Bundanoon, Wingello.
- **Habitat:**
- **Altitude:** 700–1000 m
- **Annual rainfall:** 700–1000 mm
- **Typical local abundance:** Frequent.
- **Vegetation:** Open-forest e.g. with *Eucalyptus dives*, *E. mannifera*, *E. dalrympleana*.
- **Substrate:** Loamy soils on shale, low to medium nutrients.
- **Exposure:**
- **Conservation:** Conservation status unknown.

**Poa sieberiana var. sieberiana**

**Snowgrass**

**Life history**

- **Growth form:** Densely tufted, usually greyish green perennial to 1 m high.
- **Vegetative spread:** No (McIntyre et al. 1995).
- **Longevity:** Indefinite.
- **Primary juvenile period:**
- **Flowers:** At any time, in response to seasonal conditions.
- **Fruit/seed:** Dry, 1-seeded, indehiscent fruit. Mature December–January (Greening Australia 1996a).
- **Dispersal, establishment & growth:** No particular morphology for dispersal (McIntyre et al. 1995). Typical germination rate approx. 570 per gram of seed (Greening Australia 1996a).
- **Fire response:** Resprouts from base.
- **Interaction with other organisms:**

**Distribution**

- **Status/origin:** Native.
- **Botanical subregions:** NC CC SC NT CT ST CWS SWS; Qld, Vic., Tas.
- **Distribution Sydney area:** Widespread.
- **Select locations:** CC: Cheltenham, Gladesville, Rookwood, Hurstville, Glenfield, Campbelltown. CT: Hartley, Abercrombie Caves, Mt Jellore.
- **Habitat:**
- **Altitude:** 0–900 m
- **Annual rainfall:** 700–1200 mm
- **Typical local abundance:** Frequent–occasional.
- **Vegetation:** Eucalypt forest, woodland e.g. with *Eucalyptus moluccana*, *E. tereticornis*.
- **Substrate:** Clay soils on shale, medium nutrients.
- **Exposure:**
- **Conservation:** Vulnerable in Western Sydney (James et al. 1999), conservation status elsewhere unknown.
**Poa tenea**

**Life history**

Growth form: Flaccid, trailing or tufted perennial herb, with stolons to 2 m long.
Vegetative spread: Stoloniferous.
**LONGEVITY:**
Primary juvenile period:
Flowers: Spring–summer.
Fruit/seed: Dry, 1-seeded, indehiscent fruit.
**INTERACTION WITH OTHER ORGANISMS:**

**Distribution**

Status/origin: Native.
Botanical subregions: CC CT ST CWS ?SWS; Vic., Tas., S.A.
Distribution Sydney area: Tablelands.

**Habitat**

Habitat: Rock crevices, steep banks, shady moist areas.
Altitude: 700–1100 m
Annual rainfall: 900–1400 mm
Typical local abundance: Frequent.
Vegetation: Open-forest e.g. with "Eucalyptus dalrympleana," "E. pauciflora," "E. viminalis;" woodland e.g. with "Eucalyptus macrocarpha," "E. rossii."
Substrate: Loamy soils on basalt, granite, medium nutrients, moist sites, well-drained.
Exposure:

**Conservation**

Conservation: Currant Mountain Gap is northern geographical limit.
Conservation status unknown.

**Poa trivialis** *

**Rough Meadowgrass**

**Life history**

Growth form: Loosely tufted perennial herb to 1 m high.
Vegetative spread:
Primary juvenile period:
Flowers: Spring–summer.
Fruit/seed: Dry, 1-seeded, indehiscent fruit.
**INTERACTION WITH OTHER ORGANISMS:**
**Distribution**

Botanical subregions: CC SWS.
Distribution Sydney area: Sporadic.

**Habitat**

Habitat: Lawns, pastures.
Altitude: 200 m
Annual rainfall: 1000 mm
Typical local abundance:
Vegetation:
Substrate:
Exposure:

**Conservation**

**Pseudoraphis paradoxa**

**Life history**
- **Growth form:** Stoloniferous perennial herb to 0.7 m high, with stolons to 5 m long.
- **Vegetative spread:** Yes, stoloniferous.
- **Longevity:** Indefinite.
- **Primary juvenile period:**
- **Flowers:** January–April.
- **Fruit/seed:** Dry, 1-seeded, indehiscent fruit, January–April.
- **Dispersal, establishment & growth:**
- **Fire response:**
- **Interaction with other organisms:**

**Distribution**
- **Status/origin:** Native.
- **Botanical subregions:** NC CC SC; Qld, Vic.
- **Distribution Sydney area:** Coastal rivers and swamps.
- **Select locations:** CC: Colo River, Narrabeen, Maroubra, Kogarah, Kurnell, Bundeena, Menangle, Thirlmere Lakes, Wollondilly River.

**Habitat**
- **Habitat:** Riverbanks, lake margins, swamps.
- **Altitude:** 0–100 m
- **Annual rainfall:** 700–1400 mm
- **Typical local abundance:** Frequent.
- **Vegetation:** Sedgeland e.g. with Eleocharis sphacelata, Lepidosperma longitudinale; herbland e.g. with Ranunculus inundatus, Myriophyllum.
- **Substrate:** Sandy soils on alluvium, low nutrients, moist, poorly-drained.
- **Exposure:** Full sun.

**Conservation**
- Vulnerable in Western Sydney (James et al. 1999), conservation status elsewhere unknown.

**Pseudoraphis spinescens**

**Life history**
- **Growth form:** Stoloniferous herb to c. 1 m high, with stolons to 10 m long.
- **Vegetative spread:** Yes, stoloniferous.
- **Longevity:** Indefinite.
- **Primary juvenile period:**
- **Flowers:** Summer.
- **Fruit/seed:** Dry, 1-seeded, indehiscent fruit.
- **Dispersal, establishment & growth:**
- **Fire response:**
- **Interaction with other organisms:** Seed eaten by Plumed Whistling Duck *Dendrocygna eytoni* (Barker & Vestjens 1989, 1990).

**Distribution**
- **Status/origin:** Native.
- **Botanical subregions:** NC CC NWS CWS NWP SWP; Qld, Vic., N.T., S.A., W.A.; Asia, Malesia.
- **Distribution Sydney area:** Mainly western Sydney.
- **Select locations:** CC: Windsor, Agnes Banks, Doonside, Taren Point.

**Habitat**
- **Habitat:** Wetland.
- **Altitude:** 0–100 m
- **Annual rainfall:** 700–1200 mm
- **Typical local abundance:** Frequent.
- **Vegetation:** Sedgeland e.g. with Persicaria hydropiper, Eleocharis pellens.
- **Substrate:** Clay soils on shale, alluvium, medium to low nutrients, subject to periodic waterlogging.
- **Exposure:**

**Conservation**
- Vulnerable in Western Sydney (James et al. 1999), conservation status elsewhere unknown.

**Psilurus incurvus** *

**Life history**
- **Growth form:** Small delicate annual herb to 0.4 m high.
- **Vegetative spread:** No.
- **Longevity:** Less than 1 year.
- **Primary juvenile period:** Less than 1 year.
- **Flowers:** Spring.
- **Fruit/seed:** Dry, 1-seeded, indehiscent fruit.
- **Dispersal, establishment & growth:**
- **Fire response:**
- **Interaction with other organisms:**

**Distribution**
- **Status/origin:** Exotic, native to Mediterranean region.
- **Botanical subregions:** CT ST SWS; Vic., S.A.
- **Distribution Sydney area:** Bathurst area.
- **Select locations:** CT: Turondale (1987).

**Habitat**
- **Habitat:** Hillsides.
- **Altitude:** 700 m
- **Annual rainfall:** 600–700 mm
- **Typical local abundance:** Frequent.
- **Vegetation:** Native pasture.
- **Substrate:** Sandy and stony soils on sediments, low nutrients.
- **Exposure:**

**Conservation**
- Only record for Sydney area is from Turondale in 1987.

**Rostraria cristata** *

**Life history**
- **Growth form:** Tufted annual herb to 0.4 m high.
- **Vegetative spread:** No.
- **Longevity:** Less than 1 year.
- **Primary juvenile period:** Less than 1 year.
- **Flowers:** Spring–summer.
- **Fruit/seed:** Dry, 1-seeded, indehiscent fruit.
- **Dispersal, establishment & growth:**
- **Fire response:**
- **Interaction with other organisms:**

**Distribution**
- **Status/origin:** Exotic, native to Mediterranean region.
- **Botanical subregions:** NC CC NT CT ST NWS CWS SWS NWP SWP NFWP SFWP; Qld, Vic., Tas., S.A., W.A.
- **Distribution Sydney area:** Mainly coastal.
- **Select locations:** CC: Woy Woy, Richmond (1906, 1913), Narrabeen Lagoon (1946), Cheltenham (1986), Homebush (1930), Centennial Park (1909), Casula, Kogarah (1899), Menangle (1894). CT: Hill Top (1912).

**Habitat**
- **Habitat:** Disturbed areas, roadsides.
- **Altitude:** 0–700 m
- **Annual rainfall:** 700–1200 mm
- **Typical local abundance:** Frequent.
- **Vegetation:** Grassland.
- **Substrate:** Loamy soils on shale, alluvium, sand.
- **Exposure:**

**Conservation**
- Widespread in disturbed habitats.
**Rottboellia cochinchinensis** *(R. exaltata)*

**Life history**
- **Growth form**: Robust annual herb to 3 m high, with prop roots.
- **Vegetative spread**: No.
- **Longevity**: Less than 1 year.
- **Primary juvenile period**: Less than 1 year.
- **Flowers**: Summer.
- **Fruit/seed**: Dry indehiscent, 1-seeded.
- **Dispersal, establishment & growth**: Fire response:
- **Interaction with other organisms**: 

**Distribution**
- **Status/origin**: Exotic in CC, native to tropical Australia.
- **Botanical subregions**: CC; LHI, Qld, N.T., trop. regions.
- **Distribution Sydney area**: Gosford area.
- **Select locations**: CC: Mangrove Mountain (1968).

**Habitat**
- **Habitat**: Tropical coastlines.
- **Altitude**: 0–200 m
- **Annual rainfall**: 1000 mm
- **Typical local abundance**: Rare.
- **Vegetation**: Open-forest e.g. with *Syncarpia glomulifera*, *Callicoma serratifolia*; woodland e.g. with *Eucalyptus sclerophylla*, *Angophora bakeri*; sedgeland e.g. with *Baumea acuta*, *Eleocharis*, *Leptocarpus tenux*, *Xyris*.
- **Substrate**: Sandy soils on sand, sandstone, permanently moist, low nutrients.
- **Exposure**: 

**Conservation**
- **Conservation status**: Unknown.

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**Secale cereale** *

**Cereal Rye, Ryecorn**

**Life history**
- **Growth form**: Erect annual herb to 1.2 m high.
- **Vegetative spread**: No.
- **Longevity**: Less than 1 year.
- **Primary juvenile period**: Less than 1 year.
- **Flowers**: Spring.
- **Fruit/seed**: Dry indehiscent, 1-seeded.
- **Dispersal, establishment & growth**: Fire response:
- **Interaction with other organisms**: 

**Distribution**
- **Status/origin**: Exotic, native to Mediterranean region. Introduced as a crop plant.
- **Botanical subregions**: NC CC NT ST NWS CWS SWS NWP; Vic., S.A., W.A.
- **Distribution Sydney area**: Sporadic.
- **Select locations**: CC: Flemington (1968), Razorback (1968).

**Habitat**
- **Habitat**: 0–300 m
- **Annual rainfall**: 700–900 mm
- **Typical local abundance**: Rare.
- **Vegetation**: Clay soil on shale, medium nutrients.
- **Substrate**: 

**Conservation**
- **Cultivated for bread-making and stock feed, and as a short term cover crop; sometimes used in reclamation after mining. Occasionally recorded from roadsides and areas associated with stock, probably established from spilt seed and not truly naturalised.**

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**Sacciolepis indica** *(Panicum indicum)*

**Indian Cupscale Grass**

**Life history**
- **Growth form**: Tufted annual herb to 0.6 m high.
- **Vegetative spread**: 
- **Longevity**: Less than 1 year.
- **Primary juvenile period**: Less than 1 year.
- **Flowers**: January–March.
- **Fruit/seed**: Dry indehiscent, 1-seeded. February–May, peak March.
- **Dispersal, establishment & growth**: Fire response:
- **Interaction with other organisms**: 

**Distribution**
- **Status/origin**: Native.
- **Botanical subregions**: NC CC SC NT; Qld, NT, India, Asia, Polynesia.
- **Distribution Sydney area**: Coast
- **Select locations**: CC: Putty, Morisset, Maroota, Richmond, Centennial Park, Kogarah, Kurnell, Camden, Bundeena, Berry, Coomonderry Swamp.

**Habitat**
- **Habitat**: Wet places, creek and swamp edges, wet meadow.
- **Altitude**: 0–100 m
- **Annual rainfall**: 700–1400 mm
- **Typical local abundance**: Frequent–occasional.
- **Vegetation**: Open-forest e.g. with *Syncarpia glomulifera*, *Callicoma serratifolia*; woodland e.g. with *Eucalyptus sclerophylla*, *Angophora bakeri*; sedgeland e.g. with *Baumea acuta*, *Eleocharis*, *Leptocarpus tenux*, *Xyris*.
- **Substrate**: Sandy soils on sand, sandstone, permanently moist, low nutrients.
- **Exposure**: 

**Conservation**
- **Conservation status**: Unknown.

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**Setaria italica** *

**Foxtail Millet**

**Life history**
- **Growth form**: Tufted annual herb to 1.5 m high.
- **Vegetative spread**: No.
- **Longevity**: Less than 1 year.
- **Primary juvenile period**: Less than 1 year.
- **Flowers**: Summer.
- **Fruit/seed**: Dry, 1-seeded, indehiscent fruit.
- **Dispersal, establishment & growth**: Fire response:
- **Interaction with other organisms**: 

**Distribution**
- **Status/origin**: Exotic, native to temperate regions. Introduced as a crop plant.
- **Botanical subregions**: CC NT CT ST NWS SWS NWP NFWP; Qld, Vic., S.A., W.A., India, Burma
- **Distribution Sydney area**: Sporadic.
- **Select locations**: CC: Gosford (1884), Cowan (1921), Hornsby (1922), Cooks River (1929), Shellharbour (1966), CT: Orange (1950), Hill Top (1914).

**Habitat**
- **Habitat**: Railway lines, rubbish dumps.
- **Altitude**: 0–200 m
- **Annual rainfall**: 700–1000 mm
- **Typical local abundance**: Frequent–occasional.
- **Vegetation**: 
- **Substrate**: Clay soils on shale.
- **Exposure**: 

**Conservation**
- **Cultivated for birdseed, with occasional wild records in Sydney area, probably from spilt grain. Probably not truly naturalised.**
**Setaria palmifolia** *

Palm Grass

**Life history**

**Growth form:** Robust, tufted perennial herb to 1.5 m high; leaves palm-like, ligule with a very dense row of hairs.

**Vegetative spread:**

**Longevity:**

**Primary juvenile period:**

**Flowers:** Summer, panicle to 80 cm long.

**Fruit/seed:** Dry, 1-seeded, indehiscent fruit.

**Dispersal, establishment & growth:** Bird-dispersed?

**Fire response:** Resprouted after high intensity fire (1/94 at Lane Cove, Narrabeen), secondary juvenile period about 7 months (P. Kubiak pers. comm.).

**Interaction with other organisms:**

**Distribution**

**Status/origin:** Exotic, native to tropical areas of Old World. Introduced as garden ornamental.

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

**Distribution Sydney area:** Sydney suburbs.

**Select locations:** CC: Beecroft (1979), Northbridge (1958), Lane Cove.

**Habitat**

**Habitat:** Shady areas, gullies, creeks.

**Altitude:** 0–200 m  
**Annual rainfall:** 1000–1200 mm

**Typical local abundance:** Frequent.

**Vegetation:** Riparian vegetation.

**Substrate:** Sandy alluvial soil, medium nutrients, moist.

**Exposure:**

**Conservation**

Occasional garden escape into bushland along creeks.

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**Setaria parviflora** *

*(S. geniculata var. pauciseta, S. gracilis)*

Slender Pigeon Grass

**Life history**

**Growth form:** Tufted perennial herb 1.2 m high.

**Vegetative spread:** No (McIntyre et al. 1995).

**Longevity:**

**Primary juvenile period:** 2 months (Holm et al. 1997).

**Flowers:** Summer.

**Fruit/seed:** Dry, 1-seeded, indehiscent fruit.

**Dispersal, establishment & growth:** Diaspore: seed. No particular morphology for dispersal (McIntyre et al. 1995), dispersed in mud on cars (Wace 1977). Freshly harvested seed dormant but germinates readily in spring; grows best when surrounded by dominant plants; metabolic pathway C4 (Holm et al. 1997).

**Fire response:** Resprouted after high intensity fire (1/94 at Lane Cove), secondary juvenile period about 10 weeks (P. Kubiak pers. comm.).

**Interaction with other organisms:** Young plants palatable to livestock, but bristles on the inflorescence of mature plants injure mouths of cattle (Holm et al. 1997).

**Distribution**

**Status/origin:** Exotic, native to America.

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

**Distribution Sydney area:** Widespread.

**Select locations:** CC: Richmond (1905), Berowra Creek, Penrith, Cheltenham, Doonside, Homebush, Neutral Bay, Centennial Park (1899), Kowmung River, Mount Annan (1987), Bargo, Wollongong, Kiama.

**CT:** Bathurst, Lawson (1940), Linden.

**Habitat**

**Habitat:** Roadside, creeks, floodplains, disturbed areas, moist places.

**Altitude:** 0–1000 m  
**Annual rainfall:** 700–1200 mm

**Typical local abundance:** Frequent.

**Vegetation:** Grassland e.g. with *Bursaria spinosa*; open-forest e.g. with *Eucalyptus longifolia, E. crebra*.

**Substrate:** Clay soils on shale, medium nutrients.

**Exposure:**

**Conservation**

Weed of disturbed sites, widespread, common along the Kowmung River flats by 1951.

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**Setaria pumila** *(S. glauca)*

Slender Pigeon Grass, Pale Pigeon Grass

**Life history**

**Growth form:** Loosely tufted, glabrous, annual herb with erect or ascending stems 50–100 cm high (Holm et al. 1997).

**Vegetative spread:** No (McIntyre et al. 1995).

**Longevity:** Less than 1 year.

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

**Flowers:** January–March.

**Fruit/seed:** Dry, 1-seeded, indehiscent fruit, February–March.

**Dispersal, establishment & growth:** No particular morphology for dispersal (McIntyre et al. 1995).

**Fire response:**

**Interaction with other organisms:** Good herbage for stock (Herb. note 1914).

**Distribution**

**Status/origin:** Exotic, native to warm-temperate northern hemisphere.

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

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

**Select locations:** CC: Cowan, Yarramundi, Wyong (1891), Matcham, Bilpin, Hornsby (1915), Cheltenham, Doonside, Gladesville (1887), Ryde (1912), Homebush, Centennial Park (1899), Hurstville (1896), Camden, Wollongong, Five Islands, Barrenbarr, CT: Hill Top (1917), Moss Vale, Bundanoon.

**Habitat**

**Habitat:** Disturbed areas, roadsides.

**Altitude:** 0–700 m  
**Annual rainfall:** 700–1600 mm

**Typical local abundance:** Frequent.

**Vegetation:** Pastures.

**Substrate:** Clay soils on shale, moist sites. Wide range of soil textures, pH 6–8 (Holm et al. 1997).

**Exposure:**

**Conservation**

Widespread weed of cultivated and disturbed ground.

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**Setaria sphacelata** *

South African Pigeon Grass, Setaria

**Life history**

**Growth form:** Densely to compactly tufted perennial herb to 2 m high.

**Vegetative spread:**

**Longevity:**

**Primary juvenile period:**

**Flowers:** Summer.

**Fruit/seed:** Dry, 1-seeded, indehiscent fruit.

**Dispersal, establishment & growth:** Diaspore: seed. No particular morphology for dispersal (McIntyre et al. 1995), dispersed in mud on cars (Wace 1977). Freshly harvested seed dormant but germinates readily in spring; grows best when surrounded by dominant plants; metabolic pathway C4 (Holm et al. 1997).

**Fire response:** Resprouted after high intensity fire (1/94 at Narrabeen), secondary juvenile period about 9 months (P. Kubiak pers. comm.).

**Interaction with other organisms:**

**Distribution**

**Status/origin:** Exotic, native to trop. and S Africa. Introduced as pasture grass.

**Botanical subregions:** NC CC SWP; Qld, Afr.

**Distribution Sydney area:** Sporadic.
**Setaria verticillata** *

Whorled Pigeon Grass

**Life history**

**GROWTH FORM:** Loosely tufted annual herb to 1 m high.

**VEGETATIVE SPREAD:** No.

**LONGEVITY:** Less than 1 year.

**PRIMARY JUVENILE PERIOD:** Less than 1 year.

**FLOWERS:** Summer.

**FRUIT/SEED:** Dry, 1-seeded, indehiscent fruit.

**DISPERAL, ESTABLISHMENT & GROWTH:**

**FIRE RESPONSE:**

**INTERACTION WITH OTHER ORGANISMS:**

**Distribution**

**STATUS/ORIGIN:** Exotic, native to tropics and temperate regions of Old World.

**BOTANICAL SUBREGIONS:** CT ST CWS SWS NWP SWP; Qld, Vic., S.A., W.A.

**DISTRIBUTION SYDNEY AREA:** Sporadic.

**SELECT LOCATIONS:** CT: Sunny Corner (1952), Hazelbrook (1998).

**Habitat**

**HABITAT:** Cultivated or disturbed land.

**ALTITUDE:** 800–1000 m

**ANNUAL RAINFALL:** 900–1100 mm

**TYPICAL LOCAL ABUNDANCE:**

**VEGETATION:**

**SUBSTRATE:**

**EXPOSURE:**

**Conservation**

Occasionally recorded in Tablelands.

**Setaria viridis** *

Green Pigeon Grass

**Life history**

**GROWTH FORM:** Loosely tufted annual herb 5–50 (~80) cm high.

**VEGETATIVE SPREAD:**

**LONGEVITY:** Less than 1 year.

**PRIMARY JUVENILE PERIOD:** Less than 1 year.

**FLOWERS:** Summer.

**FRUIT/SEED:** Dry, 1-seeded, indehiscent fruit.

**DISPERAL, ESTABLISHMENT & GROWTH:**

**FIRE RESPONSE:**

**INTERACTION WITH OTHER ORGANISMS:**

**Distribution**

**STATUS/ORIGIN:** Exotic, native to temperate regions.

**BOTANICAL SUBREGIONS:** NC NT CT ST CWS SWS NWP SWP; Qld, Vic., S.A., W.A.

**DISTRIBUTION SYDNEY AREA:** Sporadic.

**SELECT LOCATIONS:** CT: Bathurst area (1978), Carcoar (1962), Orange (1948).

**Habitat**

**HABITAT:** Disturbed sites, tips, saleyards.

**ALTITUDE:** 0–300 m

**ANNUAL RAINFALL:** 700–900 mm

**TYPICAL LOCAL ABUNDANCE:**

**VEGETATION:**

**SUBSTRATE:**

**EXPOSURE:**

**Conservation**

Cultivated in almost all parts of NSW, sporadically recorded from disturbed sites, probably resulting from spilt grain, and not truly naturalised.

**Sorghum bicolor** *subsp. drummondii* *(S. sudanense)*

Cultivated Sorghum

**Life history**

**GROWTH FORM:** Tufted annual or weak perennial herb to 2.5 m high.

**VEGETATIVE SPREAD:**

**LONGEVITY:**

**PRIMARY JUVENILE PERIOD:**

**FLOWERS:** Summer.

**FRUIT/SEED:** Dry, 1-seeded, indehiscent fruit, grain not exposed at maturity.

**DISPERAL, ESTABLISHMENT & GROWTH:**

**FIRE RESPONSE:**

**INTERACTION WITH OTHER ORGANISMS:**

**Distribution**

**STATUS/ORIGIN:** Exotic, probably native to Africa. Introduced as a crop plant.

**BOTANICAL SUBREGIONS:** NC CC SC NT NWS CWS SWS NWP SWP; Qld, Afri.

**DISTRIBUTION SYDNEY AREA:** Sporadic.

**SELECT LOCATIONS:** CC: Flemington (1969), Narellan (1968).

**Habitat**

**HABITAT:** Cultivated areas.

**ALTITUDE:** 800–1000 m

**ANNUAL RAINFALL:** 800–1000 mm

**TYPICAL LOCAL ABUNDANCE:**

**VEGETATION:**

**SUBSTRATE:**

**EXPOSURE:**

**Conservation**

Occasional weed of cultivation in Tablelands (Harden 1993).

**Sorghum halepense** *

Johnson Grass

**Life history**

**GROWTH FORM:** Rhizomatous perennial herb to 2 m high.

**VEGETATIVE SPREAD:**

**LONGEVITY:**

**PRIMARY JUVENILE PERIOD:**

**FLOWERS:** January–April.

**FRUIT/SEED:** Dry, 1-seeded, indehiscent fruit, March–April.

**DISPERAL, ESTABLISHMENT & GROWTH:**

**FIRE RESPONSE:**


**Distribution**

**STATUS/ORIGIN:** Exotic, native to Mediterranean region.

**BOTANICAL SUBREGIONS:** NC CC SC NT CT ST NWS CWS SWS NWP SWP SFWP; Qld, Vic., S.A., W.A.
**Sporobolus africanus** *(S. indicus var. capensis)*

Parramatta Grass

**Life history**

*Growth form:* Tufted perennial herb to 0.9 m high, with strong root system.

*Vegetative spread:* No.

*Longevity:* Indefinite.

*Primary juvenile period:* Flowers: Summer, inflorescence 10–18 cm long.

*Fruit/seed:* Dry, 1-seeded, indehiscent fruit.

*Dispersal, establishment & growth:* Morphology for dispersal by adhesion (McIntyre et al. 1995).

*Fire response:* Resprouts.

*Interaction with other organisms:* Flowers dyed various colours and used extensively in Millinery (Herb. note 1912).

**Distribution**

*Status/origin:* Exotic, native to Africa.

*Botanical subregions:* NC CC SC; LHI, Qld, Vic., Tas., N.Z., Pac.Is.

*Distribution Sydney area:* Coastal dunes and beaches.

*Select locations:* CC: Terrigal Beach, Avalon, Narrabeen, Manly Beach, Bondi, Maroubra Beach, Brighton, Lady Robinsons Beach, Cronulla Beach, Bonny Vale, Wollongong.

**Habitat**

*Habitat:* Shoreline, foredunes.

*Altitude:* 0–50 m

*Annual rainfall:* 1200–1400 mm

*Typical local abundance:* Frequent.

*Vegetation:* Forms dense mats on foredunes.

*Substrate:* Sand dunes, low nutrients.

*Exposure:*

**Conservation**

Sand-binding and colonising grass on coastal dunes. Conservation status unknown.

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**Spinifex sericeus** *(S. hirsutus)*

Hairy Spinifex

**Life history**

*Growth form:* Stout, dioecious perennial herb with branched stolons and rhizomes to several metres long.

*Vegetative spread:* Stoloniferous, rhizomatous, rooting at nodes.

*Longevity:* Indefinite.

*Primary juvenile period:* Flowers: Separate male and female or bisexual inflorescences, October–November.

*Fruit/seed:* Dry, 1-seeded, indehiscent fruit.

*Dispersal, establishment & growth:* Germination inhibited by white light, only occurring when seeds are deeply buried in moist soil (Langkamp 1987).

**POACEAE**

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**Sorobolus africanus** *(S. indicus var. capensis)*

Parramatta Grass

**Life history**

*Growth form:* Tufted perennial herb to 0.9 m high, with strong root system.

*Vegetative spread:* No.

*Longevity:* Indefinite.

*Primary juvenile period:* Flowers: Summer, inflorescence 10–18 cm long.

*Fruit/seed:* Dry, 1-seeded, indehiscent fruit.

*Dispersal, establishment & growth:* Morphology for dispersal by adhesion (McIntyre et al. 1995).

*Fire response:* Resprouts.

*Interaction with other organisms:* Flowers dyed various colours and used extensively in Millinery (Herb. note 1912).

**Distribution**

*Status/origin:* Native.

*Botanical subregions:* NC CC SC; LHI, Qld, Vic., Tas., N.Z., Pac.Is.

*Distribution Sydney area:* Coastal dunes and beaches.

*Select locations:* CC: Terrigal Beach, Avalon, Narrabeen, Manly Beach, Bondi, Maroubra Beach, Brighton, Lady Robinsons Beach, Cronulla Beach, Bonny Vale, Wollongong.

**Habitat**

*Habitat:* Disturbed areas, shoreline, foredunes.

*Altitude:* 0–50 m

*Annual rainfall:* 1200–1400 mm

*Typical local abundance:* Frequent.

*Vegetation:* Forms dense mats on foredunes.

*Substrate:* Sand dunes, low nutrients.

*Exposure:*

**Conservation**

Sand-binding and colonising grass on coastal dunes. Conservation status unknown.

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**Spinifex sericeus** *(S. hirsutus)*

Hairy Spinifex

**Life history**

*Growth form:* Stout, dioecious perennial herb with branched stolons and rhizomes to several metres long.

*Vegetative spread:* Stoloniferous, rhizomatous, rooting at nodes.

*Longevity:* Indefinite.

*Primary juvenile period:* Flowers: Separate male and female or bisexual inflorescences, October–November.

*Fruit/seed:* Dry, 1-seeded, indehiscent fruit.

*Dispersal, establishment & growth:* Germination inhibited by white light, only occurring when seeds are deeply buried in moist soil (Langkamp 1987).

**POACEAE**

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**Sorobolus africanus** *(S. indicus var. capensis)*

Parramatta Grass

**Life history**

*Growth form:* Tufted perennial herb to 0.9 m high, with strong root system.

*Vegetative spread:* No.

*Longevity:* Indefinite.

*Primary juvenile period:* Flowers: Summer, inflorescence 10–18 cm long.

*Fruit/seed:* Dry, 1-seeded, indehiscent fruit.

*Dispersal, establishment & growth:* Morphology for dispersal by adhesion (McIntyre et al. 1995).

*Fire response:* Resprouts.

*Interaction with other organisms:* Flowers dyed various colours and used extensively in Millinery (Herb. note 1912).

**Distribution**

*Status/origin:* Native.

*Botanical subregions:* NC CC SC; LHI, Qld, Vic., Tas., N.Z., Pac.Is.

*Distribution Sydney area:* Coastal dunes and beaches.

*Select locations:* CC: Terrigal Beach, Avalon, Narrabeen, Manly Beach, Bondi, Maroubra Beach, Brighton, Lady Robinsons Beach, Cronulla Beach, Bonny Vale, Wollongong.

**Habitat**

*Habitat:* Disturbed areas, shoreline, foredunes.

*Altitude:* 0–50 m

*Annual rainfall:* 1200–1400 mm

*Typical local abundance:* Frequent.

*Vegetation:* Forms dense mats on foredunes.

*Substrate:* Sand dunes, low nutrients.

*Exposure:*

**Conservation**

Sand-binding and colonising grass on coastal dunes. Conservation status unknown.
**Sporobolus caroli**

Fairy Grass, Yakka Grass

**Life history**

**Growth form:** Tufted annual or perennial herb to 0.6 m high.

**Vegetative spread:**

**Longevity:**

**Primary juvenile period:**

**Flowers:** In response to rain.

**Fruit/seed:** Dry, 1-seeded, indehiscent fruit.

**Dispersal, establishment & growth:**

**Fire response:** Resprouts from base. Flowering within 4 months after dispersal (McIntyre et al. 1995).

**Distribution**

**Status/origin:** Native.

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

**Distribution Sydney area:** Sporadic.

**Habitat**

**Altitude:** 0–1000 m

**Annual rainfall:** 700–1200 mm

**Typical local abundance:** Frequent.

**Vegetation:** Woodland e.g. with *Eucalyptus moluccana*, *E. tereticornis*, *E. crebra*, *Angophora floribunda*, *E. eugenioides*; scrub e.g. with *Allocasuarina distyla*, *Angophora hispida*.

**Substrate:** Clay soils on shale, metasediments, laterite, medium–low nutrients. Recorded on saline sites in western NSW (Semple 1993).

**Exposure:**

**Conservation**

Native to drier inland areas, recorded only at Flemington saleyards in 1969, probably introduced to Sydney area with livestock. Probably extinct in the Sydney area now.

**Sporobolus elongatus**

**Life history**

**Growth form:** Tufted perennial herb to 1 m high.

**Vegetative spread:**

**Longevity:**

**Primary juvenile period:**

**Flowers:** Summer.

**Fruit/seed:** Dry, 1-seeded, indehiscent fruit.

**Dispersal, establishment & growth:** No particular morphology for dispersal (McIntyre et al. 1995).

**Fire response:** Probably resprouts.

**Distribution**

**Status/origin:** Native.

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

**Distribution Sydney area:**

**Select locations:** CC: Lower Portland, Bayview, Pymble, Cheltenham, Homebush, Cooks River, Oatley, Bass Hill, Liverpool, Mount Annan, Razorback, Berry. CT: Woodford, Kowmung River, Hill Top.

**Habitat**

**Altitude:** 0–700 m

**Annual rainfall:** 700–1200 mm

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

**Vegetation:** Woodland e.g. with *Eucalyptus moluccana*, *E. tereticornis*.

**Substrate:** Clay soil on shale, volcanics.

**Exposure:**

**Conservation**

Vulnerable in Western Sydney (James et al. 1999), conservation status elsewhere unknown.

**Sporobolus fertilis** * (Sporobolus indicus var. major *)

Parramatta Grass

**Life history**

**Growth form:** Tufted perennial herb to 1.6 m high.

**Vegetative spread:**

**Longevity:**

**Primary juvenile period:**

**Flowers:** Spring–autumn, inflorescence 25–50 cm long.

**Fruit/seed:** Dry, 1-seeded, indehiscent fruit.

**Dispersal, establishment & growth:** Diaspore: seeds, spread by water, wind and machinery; seeds become sticky at maturity and may attach to hair or fur; summer-growing (Weeds Australia www.weeds.org.au).

**Fire response:** Recovers rapidly from fire (Weeds Australia www.weeds.org.au).

**Distribution**

**Status/origin:** Exotic, native to Asia.

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

**Distribution Sydney area:** Sporadic.

**Select locations:** CC: North Parramatta (1954), Camden (1982), Berry (1993).

**Habitat**

**Altitude:** 0–300 m

**Annual rainfall:** 700–1400 mm

**Typical local abundance:** Frequent.

**Vegetation:**

**Substrate:** Clay soils on shale, medium–low nutrients.

**Exposure:**

**Conservation**

**Sporobolus virginicus var. minor**

Marine Couch

**Life history**

**Growth form:** Creeping rhizomatous or stoloniferous perennial herb to 0.5 m high, with leaves less than 1 mm wide.

**Vegetative spread:** Rhizomes and stolons.

**Longevity:** Indefinite.

**Primary juvenile period:**

**Flowers:** Summer–autumn.

**Fruit/seed:** Dry, 1-seeded, indehiscent fruit.

**Dispersal, establishment & growth:**

**Fire response:**

**Interaction with other organisms:** Foodplant of Australian Shelduck Tadorna tadornoides (Barker & Vestjens 1989, 1990).

**Distribution**

**Status/origin:** Native.

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

**Select locations:** CC: Lane Cove River, Gladesville, Homebush Bay, Cabarita, Meadowbank, Salt Pan Creek, Weeney Bay, Kurnell, Georges River.

**Habitat**

**Habitat:** Saltmarsh.

**Altitude:** 0–50 m

**Annual rainfall:** 1000–1200 mm

**Typical local abundance:** Frequent.

**Vegetation:** Saltmarsh e.g. with Sarcocornia quinqueflora, often between Sarcocornia and Juncus zones.

**Substrate:** Muddy sediments, periodically tidally inundated.

**Exposure:**

**Conservation**

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**Sporobolus virginicus var. virginicus**

Sand Couch

**Life history**

**Growth form:** Creeping rhizomatous or stoloniferous perennial herb to 0.5 m high, with leaves greater than 1 mm wide.

**Vegetative spread:** Rhizomes and stolons.

**Longevity:** Indefinite.

**Primary juvenile period:**

**Flowers:** Summer.

**Fruit/seed:** Dry, 1-seeded, indehiscent fruit.

**Dispersal, establishment & growth:** Diaspore seed, difficult to germinate (Clarke & Hannon 1970). Adults indifferent to waterlogging. No salt requirement; intolerant of undiluted seawater (Clarke & Hannon 1970).

**Fire response:**

**Interaction with other organisms:** Foodplant of Australian Shelduck Tadorna tadornoides (Barker & Vestjens 1989, 1990).

**Distribution**

**Status/origin:** Native.

**Botanical subregions:** NC CC SC; LHI, Qld, Vic., N.T., S.A., W.A.

**Select locations:** CC: Cronulla.

**Habitat**

**Habitat:** Saltmarsh, more abundant in less saline river marshes than in bays (Clarke & Hannon 1970)

**Altitude:** 0–50 m

**Annual rainfall:** 1000–1200 mm

**Typical local abundance:**

**Vegetation:** Saltmarsh, occurring on higher and less saline parts of Sarcocornia zone and also in Juncus kraussi i zone, areas flooded infrequently and never diurnally (Clarke & Hannon 1970)

**Substrate:**

**Exposure:**

**Conservation**

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**Stenotaphrum secundatum**

Buffalo Grass

**Life history**

**Growth form:** Stoloniferous perennial herb to 0.3 m high.

**Vegetative spread:** Spreads to form spongy turf.

**Longevity:** Indefinite.

**Primary juvenile period:**

**Flowers:** December–February.

**Fruit/seed:** Dry, 1-seeded, indehiscent fruit.

**Dispersal, establishment & growth:**

**Fire response:**

**Interaction with other organisms:** A food plant of butterfly Melanitis leda bankia (Common & Waterhouse 1981).

**Distribution**

**Status/origin:** Exotic, native to America, Africa. Introduced as lawn grass.

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

**Select locations:** CC: Barrenjoey, Bayview, Narrabeen Lakes, Homebush Bay, Rhodes (1885), Towra Point, Bundeena, Five Islands (1928), Cambewarra.

**Habitat**

**Habitat:** Near saltwater.

**Altitude:** 0–200 m

**Annual rainfall:** 1000–1200 mm

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

**Vegetation:** Saltmarsh; woodland e.g. with Casuarina glauca.

**Substrate:** Sandy soil on sand, sandstone, low–medium nutrients, salt-tolerant.

**Exposure:** Full sun to light shade.

**Conservation**

Cultivated as a lawn grass elsewhere and naturalised chiefly in coastal and estuarine sites.

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**Tetragrhamma juncea**

Wiry Ricegrass

**Life history**

**Growth form:** Tufted perennial herb, with much-branched wiry stems often scrambling to 4 m long.

**Vegetative spread:**

**Longevity:**

**Primary juvenile period:**

**Flowers:** Most of the year.

**Fruit/seed:** Dry, 1-seeded, indehiscent fruit, September–January.

**Dispersal, establishment & growth:**

**Fire response:**

**Interaction with other organisms:** Foodplant of butterfly larvae Pasma tasmanica (Common & Waterhouse 1981).

**Distribution**

**Status/origin:** Native.

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

**Select locations:** CC: Kurrajong Heights, Terrey Hills, Pennant Hills, Northbridge, Mosman, Oatley, Audley. CT: Bell, Mt Wilson, Katoomba, Lawson, Belmore Falls.

**Habitat**

**Habitat:** Hillside, gullies, near creeks.

**Altitude:** 0–1000 m

**Annual rainfall:** 1000–1200 mm

**Typical local abundance:** Occasional.

**Vegetation:** Open-forest e.g. with Eucalyptus sieberi, E. punctata, Angophora costata, Eucalyptus piperita, Corymbia gummifera, Syncarpia glomulifera; scrub e.g. with Kunzea capitata, Banksia ericifolia.

**Substrate:** Sandy to loamy soil on sandstone, low nutrients.

**Exposure:**

**Conservation**

Conservation status unknown.
**Tetrarrhena turfosa**

**Life history**
- **Growth form:** Rhizomatous perennial herb forming compact tufts to 1.3 m high.
- **Vegetative spread:**
- **Longevity:**
- **Primary juvenile period:**
- **Flowers:** Spring–summer.
- **Fruit/Seed:** Dry, 1-seeded, indehiscent fruit.
- **Dispersal, establishment & growth:**
- **Fire response:**
- **Interaction with other organisms:**

**Distribution**
- **Status/origin:** Native.
- **Botanical subregions:** NC CC SC NT CT ST NWS CWS SWP NWP SWP NFWP SFWP; Qld, Vic., N.T., S.A., W.A., NG.
- **Distribution Sydney area:** Widespread.
- **Select locations:** CC: Faulconbridge, Springwood, Pitt Town, Woy Woy, Milson Island, Barrenjoey, Hornsby, Cheltenham, Northbridge, Gladesville, Bradleys Head, Vaucluse, Centennial Park, Cooks River, Penshurst, St Marys, Mount Annan, Cobbitty, Bass Point, Bomaderry. CT: Capertee Valley, Ophir, Bathurst, Blayney, Carcoar, Junction Reefs, Jenolan Caves, Jellore Creek, Mittagong, Tallong, Barbers Creek.

**Habitat**
- **Habitat:** Grassy woodlands, coastal headlands, grassland.
- **Altitude:** 0–1000 m
- **Annual rainfall:** 600–1200 mm
- **Typical local abundance:** Frequent–occasional.

**Vegetation:** Grassland and grassy woodland e.g. with Eucalyptus moluccana, E. tereticornis, E. crebra, E. melliodora; shrubby woodland e.g. with Angophora costata, Melaleuca nodosa, Eucalyptus albens, E. Macrorhyncha; headland grassy heath.

**Substrate:** Sandy soils to heavy clays on shale, basalt, volcanics, sandstone, low–high nutrients.

**Exposure:** Full sun to light shade.

**Conservation**
- Probably a dominant native species prior to settlement, but rapidly depleted by cultivation and grazing. Reported in Blue Mountains NP, Sydney Harbour NP.

**Tragus australianus**

**Small Burgrass**

**Life history**
- **Growth form:** Tufted annual herb, with erect or ascending stems to 0.4 m high.
- **Vegetative spread:** No.
- **Longevity:** Less than 1 year.
- **Primary juvenile period:** Less than 1 year.
- **Flowers:** In response to rain.
- **Fruit/Seed:** Dry, 1-seeded, indehiscent burr.
- **Dispersal, establishment & growth:** Burr dispersed by adhesion.
- **Fire response:**
- **Interaction with other organisms:**

**Distribution**
- **Status/origin:** Native.
- **Botanical subregions:** NC CC SC NT CT ST NWS CWS SWP NWP SWP NFWP SFWP; Qld, Vic., N.T., S.A., W.A.
- **Distribution Sydney area:** Western Sydney.
- **Select locations:** CC: Glenlee (1969), Richmond (1912), Homebush (1894), Flemington (1968), Mount Annan (2001).

**Habitat**
- **Habitat:** Saleyards, paddocks.
- **Altitude:** 0–300 m
- **Typical local abundance:** Frequent.

**Vegetation:** Grassland.

**Substrate:** Clay soils on shale, medium nutrients.

**Exposure:**

**Conservation**
- Occasionally recorded in western Sydney since 1894, but essentially a species of drier areas and probably introduced to Sydney area with live-stock e.g. at saleyards.
**Triodia scariosa** subsp. *scariosa*

**Life history**
- **Growth form:** Tussock and hummock-forming perennial herb to 1 m high.
- **Vegetative spread:**
- **Longevity:**
- **Primary juvenile period:**
- **Flowers:** In response to rain.
- **Fruit/seed:** Dry, 1-seeded, indehiscent fruit.
- **Dispersal, establishment & growth:**
- **Fire response:**
- **Interaction with other organisms:**

**Distribution**
- **Status/origin:** Native.
- **Botanical subregions:** NC CC SC NT ST NWS CWS SWS NWP SWP; Qld, Vic., S.A., W.A.
- **Select locations:** CC: Capertee Valley.

**Habitat**
- **Habitat:** Rocky ridges
- **Altitude:** 600 m
- **Annual rainfall:** 600–700 mm
- **Typical local abundance:**

**Vegetation:** Woodland e.g. with *Eucalyptus albens*.
- **Substrate:** Low-nutrient soils.
- **Exposure:**

**Conservation**
- Population in Capertee Valley is at the eastern limit of distribution. Conservation status unknown.

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**Triraphis mollis**

**Life history**
- **Growth form:** Tufted annual or perennial herb to 0.8 m high.
- **Vegetative spread:** No.
- **Longevity:**
- **Primary juvenile period:**
- **Flowers:** In response to rain.
- **Fruit/seed:** Dry, 1-seeded, indehiscent fruit.
- **Dispersal, establishment & growth:**
- **Fire response:**
- **Interaction with other organisms:**

**Distribution**
- **Status/origin:** Native.
- **Botanical subregions:** NC CC SC NT ST NWS CWS SWS NWP SWP; Qld, Vic., N.T., S.A., W.A.
- **Select locations:** CC: Richmond (1912), Flemington (1969).

**Habitat**
- **Habitat:** Saleyards.
- **Altitude:** 0–100 m
- **Annual rainfall:** 700–900 mm
- **Typical local abundance:** Rare.
- **Vegetation:**
- **Substrate:**
- **Exposure:**

**Conservation**
- Occasionally recorded in western Sydney since 1912 but essentially a species of drier areas and probably introduced to Sydney area with livestock e.g. at saleyards.

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**Triticum aestivum** *

**Life history**
- **Growth form:** Robust annual herb to 1 m high.
- **Vegetative spread:** No.
- **Longevity:** Less than 1 year.
- **Primary juvenile period:** Less than 1 year.
- **Flowers:** Spring.
- **Fruit/seed:** Dry, 1-seeded, indehiscent fruit.
- **Dispersal, establishment & growth:**
- **Fire response:**

**Distribution**
- **Status/origin:** Exotic, native to Mediterranean region, introduced as cereal crop.
- **Botanical subregions:** NC CC SC NT ST NWS CWS SWS NWP SWP NFWP SFWP; Qld, Vic., S.A., W.A.
- **Distribution Sydney area:** Sporadic.
- **Select locations:** CC: Cheltenham, North Strathfield, Casula, Campbeltown, Douglas Park. CT: Medlow Bath.

**Habitat**
- **Habitat:** Roadsides, railways, trucking yards.
- **Altitude:** 0–1000 m
- **Annual rainfall:** 700–1200 mm
- **Typical local abundance:** Occasional.
- **Vegetation:**
- **Substrate:**
- **Exposure:**

**Conservation**
- Cultivated as cereal crop, occurs sporadically along roadsides and railways from spilt grain. Does not spread and is not truly naturalised.

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**Urochloa panicoides** *

**Urochloa Grass, Liverseed Grass**

**Life history**
- **Growth form:** Stoloniferous annual herb to 0.7 m high.
- **Vegetative spread:**
- **Longevity:** Less than 1 year.
- **Primary juvenile period:** Less than 1 year.
- **Flowers:** Summer.
- **Fruit/seed:** Dry, 1-seeded, indehiscent fruit.
- **Dispersal, establishment & growth:**
- **Fire response:**
- **Interaction with other organisms:** Pasture grass.

**Distribution**
- **Status/origin:** Exotic, native to Africa. Probably introduced as pasture grass.
- **Botanical subregions:** NC CC SC NT ST NWS CWS SWS NWP SWP NFWP SFWP; Qld.
- **Distribution Sydney area:** Sporadic.

**Habitat**
- **Habitat:** Disturbed sites, lawns.
- **Altitude:** 0–200 m
- **Annual rainfall:** 700–1200 mm
- **Typical local abundance:** Frequent.
- **Vegetation:** Remnant woodland e.g. with *Eucalyptus fibrosa*, *E. tereticornis*.
- **Substrate:** Clay soil on shale.
- **Exposure:**

**Conservation**
- Pasture grass, occasionally naturalised.
**Urochloa piligera** *(Brachiaria piligera)*

*Hairy Armgrass*  
**Life history**  
**Growth form:** Ascending annual herb to 1 m high.  
**Vegetative spread:** No.  
**Longevity:** Less than 1 year.  
**Primary juvenile period:** Less than 1 year.  
**Flowers:** Summer.  
**Fruit/seed:** Dry, 1-seeded, indehiscent fruit.  
**Dispersal, establishment & growth:**  
**Fire response:**  
**Interaction with other organisms:**  
**Distribution**  
**Status/origin:** Native.  
**Botanical subregions:** NC CC NWS CWS NWP; Qld, N.T., W.A.  
**Distribution Sydney area:** Sporadic.  
**Select locations:** CC: Flemington (1969), Campbelltown (1981).  
**Habitat**  
**Habitat:** Saleyards, disturbed sites.  
**Altitude:** 0–200 m  
**Typical local abundance:** Occasional.  
**Vegetation:**  
**Substrate:** Clay soil on shale, medium nutrients.  
**Exposure:**  
**Conservation**  
Occasionally recorded in western Sydney since 1969, but essentially a species of drier areas and probably introduced to Sydney area with livestock e.g. at saleyards.  

**Vulpia bromoides** *(Festuca bromoides)*  

*Rat’s Tail Fescue*  
**Life history**  
**Growth form:** Tufted annual herb to 0.5 m high.  
**Vegetative spread:** No (McIntyre et al. 1995).  
**Longevity:** Less than 1 year.  
**Primary juvenile period:** Less than 1 year.  
**Flowers:** Spring.  
**Fruit/seed:** Dry, 1-seeded, indehiscent fruit.  
**Dispersal, establishment & growth:** Diaspore adhesive for dispersal (McIntyre et al. 1995).  
**Fire response:**  
**Interaction with other organisms:**  
**Distribution**  
**Status/origin:** Exotic, native to Europe and Mediterranean region.  
**Botanical subregions:** CC CT ST NWS CWS NWP SWP SFWP; Qld, Vic., W.A.  
**Distribution Sydney area:** Sporadic.  
**Habitat**  
**Habitat:** Disturbed areas.  
**Altitude:** 0–1000 m  
**Typical local abundance:** Frequent.  
**Vegetation:**  
**Substrate:** Clay soil on shale, medium nutrients.  
**Exposure:**  
**Conservation**  
Occasional weed of disturbed sites.  

**Vulpia muralis** *(Festuca myuros)*  

*Vulpia muralis* *(F. megalura, Festuca myuros)*  

*Rat’s Tail Fescue*  
**Life history**  
**Growth form:** Densely tufted annual herb to 0.6 m high.  
**Vegetative spread:** No (McIntyre et al. 1995).  
**Longevity:** Less than 1 year.  
**Primary juvenile period:** Less than 1 year.  
**Flowers:** Spring.  
**Fruit/seed:** Dry, 1-seeded, indehiscent fruit.  
**Dispersal, establishment & growth:** Diaspore adhesive for dispersal (McIntyre et al. 1995), dispersed in mud on cars (Wace 1977).  
**Fire response:**  
**Interaction with other organisms:**  
**Distribution**  
**Status/origin:** Exotic, native to Mediterranean region.  
**Botanical subregions:** NC CC SC NT CT ST NWS CWS SWS NFWP; LHI, Qld, Vic., Tas., S.A., W.A.  
**Distribution Sydney area:** Widespread.  
**Select locations:** CC: Richmond (1906), Cheltenham, Manly (1884), Gladewski, Homebush, Centennial Park, Ashfield (1914), Cooks River (1914), Flemington (1969), Bargo (1923), Thirlmere (1904), Kangaroo Valley (1929). CT: Katoomba (1934).  
**Habitat**  
**Habitat:** Disturbed areas.  
**Altitude:** 0–1000 m  
**Typical local abundance:** Frequent.  
**Vegetation:** Grassland e.g. with *Themeda australis*; woodland.  
**Substrate:** Clay soils on shale, basalt, sandstone, medium nutrients.  
**Exposure:**  
**Conservation**  
Widespread weed of disturbed sites.
**Zoysia macrantha**

Prickly Couch

**Life history**

**GROWTH FORM:** Strongly rhizomatous and stoloniferous perennial herb to 0.3 m high.

**VEGETATIVE SPREAD:** By rhizomes and stolons.

**LONGEVITY:** Indefinite.

**PRIMARY JUVENILE PERIOD:**

**FLOWERS:** October–January.

**FRUIT/SEED:** Dry, 1-seeded, indehiscent fruit.

**DISPERSAL, ESTABLISHMENT & GROWTH:**

**FIRE RESPONSE:**

**INTERACTION WITH OTHER ORGANISMS:**

**Distribution**

**STATUS/ORIGIN:** Native.

**BOTANICAL SUBREGIONS:** NC CC SC; Qld, Vic., Tas., Malesia.

**DISTRIBUTION SYDNEY AREA:** Coastal estuaries.

**SELECT LOCATIONS:** CC: Palm Beach, Cronulla, Port Hacking.

**Habitat**

**HABITAT:** Dunes, margins of salt swamps, creekbanks, seaciffs.

**ALTITUDE:** 0–100 m  
**ANNUAL RAINFALL:** 1000–1200 mm

**TYPICAL LOCAL ABUNDANCE:** Frequent–occasional.

**VEGETATION:** Lake foreshores e.g. with *Isoplia nodosus*, *Phragmites australis*; coastal foreshores e.g. with *Carex*, *Sporobolus virginicus*.

**SUBSTRATE:** Sandy soils on dunes, alluvium, sandstone, low nutrients.

**EXPOSURE:**

**Conservation**

Conservation status unknown.

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**Eichhornia crassipes** *

Water Hyacinth

**Life history**

**GROWTH FORM:** Aquatic floating herb with short leafy stem, sometimes rooting in mud to 65 cm high, with stolons 5–12 cm long (Michaels 1997). Leaves of two types: long, narrow, erect to 60 cm long, others roundish to 30 cm diameter; roots fibrous, feather-like, dark-coloured emerging from a rhizome or crown (Parsons & Cuthbertson 2001).

**VEGETATIVE SPREAD:** Stoloniferous (Parsons & Cuthbertson 2001).

**LONGEVITY:** Indefinite.

**PRIMARY JUVENILE PERIOD:**

**FLOWERS:** Bluish purple, on a long stalk. Self-compatible (Cronk & Fuller 1995).

**FRUIT/SEED:** 3-celled capsule, with many tiny, ribbed seeds (Michael 1997) 1 mm long.

**DISPERSAL, ESTABLISHMENT & GROWTH:** Diaspore: seeds, dispersed by birds and water; dormancy of about 12 weeks, drop to the bottom mud and germinate (when there is sufficient light) in spring, seedlings float to surface but most germination occurs on moist soil at water’s edge; seed may lie dormant in dry mud for more than 15 years; major vegetative dispersal is from plantlets forming on stolons, with plant numbers doubling in 5 days and new plants flowering in 3–4 weeks (Parsons & Cuthbertson 2001).

**FIRE RESPONSE:**

**INTERACTION WITH OTHER ORGANISMS:** Provides important habitat for fish (Middleton et al. 1984).

**Distribution**

**STATUS/ORIGIN:** Native.

**BOTANICAL SUBREGIONS:** NC CC SC; Vic., Tas., S.A., W.A.

**DISTRIBUTION SYDNEY AREA:** Coastal estuaries.

**SELECT LOCATIONS:** CC: Lake Macquarie, Woy Woy, Pittwater, Cowan Creek, Middle Harbour, Mosman, Botany Bay, Quibray Bay, Cronulla, Port Hacking.

**Habitat**

**HABITAT:** Coastal bays and inlets.

**ALTITUDE:** Below tide level.  
**ANNUAL RAINFALL:** not applicable

**VEGETATION:**

**SUBSTRATE:** Clear saline water 1–10 m deep, on sand or mud in estuarine or oceanic habitats (Harden 1993).

**EXPOSURE:**

**Conservation**

Conservation status unknown.
POTAMOGETONACEAE

**Potamogeton crispus**
Curly Pondweed

**Life history**

**Growth form:** Submerged, rhizomatous aquatic herb, with stems to 3 m long. Leaves elongated, deep green with strongly undulating edges (Romanowski 1998).

**Vegetative spread:**

**Longevity:** Perennial.

**Primary juvenile period:**

**Flowers:** Up to 10 flowers on an emergent spike 1–2 cm long, October–January.

**Fruit/seed:** Nutlet 5–7 mm long.

**Dispersal, establishment & growth:**

**Fire response:**

**Interaction with other organisms:** Foodplant of Black Swan Cygnus atratus (Barker & Vestjens 1989,1990).

**Distribution**

**Status/origin:** Native.

**Botanical subregions:** NC CC CT ST NSW CWS NWP; Qld, Vic., N.T., S.A., W.A., Eur, Asia, Afr.

**Distribution Sydney area:** Sporadic.

**Select locations:** CC: Mosquito Creek, Centennial Park, Botany, Penrith River. CT: Borenore, Kowmung River.

**Habitat**

**Habitat:** Creeks, rivers.

**Altitude:** 0–800 m  **Annual rainfall:** 700–1200 mm

**Typical local abundance:** Occasional.

**Vegetation:** With other water plants.

**Substrate:** Shallow, slowly-flowing fresh water. Recorded on saline sites in western NSW (Semple 1993).

**Exposure:**

**Conservation**

Conservation status unknown.

POTAMOGETONACEAE

**Potamogeton javanicus**

**Life history**

**Growth form:** Rhizomatous, almost turf-forming aquatic perennial.

**Vegetative spread:** Rhizomatous.

**Longevity:** Perennial.

**Primary juvenile period:**

**Flowers:** Many flowers on an emergent spike to 3 cm long, October–December.

**Fruit/seed:** Nutlet 3–4 mm long, November–December.

**Dispersal, establishment & growth:** Germinates in winter in Northern Tablelands (Britton & Brock 1994).

**Fire response:**

**Interaction with other organisms:** Foodplant of Black Swan Cygnus atratus (Barker & Vestjens 1989,1990).

**Distribution**

**Status/origin:** Native.

**Botanical subregions:** NC CC SC NT CT ST NWS CWS SWP; Qld, Vic., Tas., S.A., W.A., N.Z. & Asia.

**Distribution Sydney area:** Widespread.

**Select locations:** CC: Wyong Creek, Centennial Park, Hacking River, Nepean River, Mulgoa, Warragamba River, Thirlmere Lakes, Cordeaux Dam, Macquarie Rivulet, Kangaroo River. CT: Bathurst, Orange, Oberon, Kanimbla Valley, Kowmung.

**Habitat**

**Habitat:** Rivers, channels, lakes.

**Altitude:** 0–1000 m  **Annual rainfall:** 600–1400 mm

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

**Vegetation:** With other waterplants e.g. Vallisneria, Myriophyllum, Eleocharis sphacelata.

**Substrate:** Still to strongly flowing fresh water from a few cm to 5 m deep, usually on deep silt and gravel, low nutrients.

**Exposure:**

**Conservation**

Vulnerable in Western Sydney (James et al. 1999). Conservation status elsewhere unknown.

POTAMOGETONACEAE

**Potamogeton pectinatus**

**Life history**

**Growth form:** Submerged aquatic herb, with stems to 3 m long and a vigorous rhizome system that penetrates mud to 1 m and produces numerous fleshy root tubers.

**Vegetative spread:** Rhizomatous.

**Longevity:** Perennial.

**Primary juvenile period:**

**Flowers:** In small groups on spike to 5 cm long, November–January.

**Fruit/seed:** Nutlets 2–4 mm across.

**Dispersal, establishment & growth:**

**Fire response:**

**Interaction with other organisms:** Foodplant of Plumed Whistling Duck Dendrocygna eytoni, Pacific Black Duck Anas superciliosas (Barker & Vestjens 1989,1990).

**Distribution**

**Status/origin:** Native.

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

**Distribution Sydney area:** Sporadic.


**Habitat**

**Habitat:** Wetlands, ponds.

**Altitude:** 0–100 m  **Annual rainfall:** 800–1200 mm

**Typical local abundance:** Frequent.

**Vegetation:**
SUBSTRATE: Saline to slightly saline stationary water to 4 m deep.

Conservation
Conservation status unknown.

**POTAMOGETONACEAE**

**Potamogeton perfoliatus**
Clasped Pondweed

**Life history**
GROWTH FORM: Submerged clusped aquatic perennial herb, with trailing stems and producing turions.

VEGETATIVE SPREAD: Clusped.

LONGEVITY: More than 6 months (Van Viersen et al. 1982).

PRIMARY JUVENILE PERIOD: Flowers: In a dense, emergent spike to 5 cm long, September–April.

FRUIT/SEED: Nutlets 2–4 mm long.

DISPERSAL, ESTABLISHMENT & GROWTH: Germination in autumn–winter in Northern Tablelands (Britton & Brock 1994).

FIRE RESPONSE: Interaction with other organisms:

**Distribution**
STATUS/ORIGIN: Native.

BOTANICAL SUBREGIONS: NC CC SC NT CT ST SW NWS CWS SWP; Qld, Vic., N.T., S.A., W.A., cosmop.

DISTRIBUTION SYDNEY AREA: Widespread.

SELECT LOCATIONS: CC: Colo Gorge, Wisemans Ferry, Yarramundi Lagoon, Nepean River, Wollondilly River. CT: Sofala, Coxs River.

**Habitat**
HABITAT: Streams and rivers.

ALTITUDE: 0–600 m

ANNUAL RAINFALL: 700–800 mm

TYPICAL LOCAL ABUNDANCE: Frequent.

Conservation
Conservation status unknown.

**POTAMOGETONACEAE**

**Potamogeton tricarinatus**
Floating Pondweed

**Life history**
GROWTH FORM: Rhizomatous aquatic herb, with stems to 4 m long.

VEGETATIVE SPREAD: Rhizomatous.

LONGEVITY: Indefinite.

PRIMARY JUVENILE PERIOD: Flowers: In a dense, emergent spike to 5 cm long, September–April.

FRUIT/SEED: Nutlets 2–4 mm long.

DISPERSAL, ESTABLISHMENT & GROWTH: Germination in autumn–winter in Northern Tablelands (Britton & Brock 1994).

FIRE RESPONSE: Interaction with other organisms:

**Distribution**
STATUS/ORIGIN: Native.

BOTANICAL SUBREGIONS: NC CC SC NT CT ST SW NWS CWS SWP NFWP; Qld, Vic., N.T., S.A., W.A.

DISTRIBUTION SYDNEY AREA: Widespread.


**Habitat**
HABITAT: Rivers, creeks, wetland, dams.

ALTITUDE: 0–700 m

ANNUAL RAINFALL: 700–1200 mm

TYPICAL LOCAL ABUNDANCE: Frequent.

Conservation
Conservation status unknown.

**POTAMOGETONACEAE**

**Ruppia maritima**

**Life history**
GROWTH FORM: Submerged perennial herb, with rhizomes and stems to 8 cm long.

VEGETATIVE SPREAD: Rhizomatous.

LONGEVITY: More than 6 months (Van Viersen et al. 1982).

PRIMARY JUVENILE PERIOD: Flowers: Inflorescence on a stem to about 1 m long, warmer months. Pollen dispersed in floating clumps at water surface (Van Viersen et al. 1982).

FRUIT/SEED: Brown to black drupelet, 3–4 mm long. Fruits develop underwater (Van Viersen et al. 1982).

DISPERSAL, ESTABLISHMENT & GROWTH: Plants develop very slowly (Van Viersen et al. 1982).

FIRE RESPONSE: Interaction with other organisms:

**Distribution**
STATUS/ORIGIN: Native.


DISTRIBUTION SYDNEY AREA: Parramatta River.

SELECT LOCATIONS: CC: Homebush Bay, Parramatta.

**Habitat**
HABITAT: Estuarine flats.

ALTITUDE: Below sea level.

ANNUAL RAINFALL: n.a.

TYPICAL LOCAL ABUNDANCE: Frequent.

Conservation
Only recorded for the Sydney area in the Parramatta River (1881, 1995).

Conservation status unknown.

**POTAMOGETONACEAE**

**Ruppia megacarpa**

**Life history**
GROWTH FORM: Surface flowering submerged aquatic perennial with slender rhizomes and stems to 2 m long.

VEGETATIVE SPREAD: Rhizomatous.

LONGEVITY: More than 6 months (Van Viersen et al. 1982).

PRIMARY JUVENILE PERIOD: Flowers: Inflorescence on a stem to about 1 m long, warmer months. Pollen dispersed in floating clumps at water surface (Van Viersen et al. 1982).

FRUIT/SEED: Brown to black drupelet, 3–4 mm long. Fruits develop underwater (Van Viersen et al. 1982).

DISPERSAL, ESTABLISHMENT & GROWTH: Plants develop very slowly (Van Viersen et al. 1982).

FIRE RESPONSE: Interaction with other organisms:

**Distribution**
STATUS/ORIGIN: Native.

BOTANICAL SUBREGIONS: NC CC SC ST SWP; Vic., S.A., W.A., N.Z.

DISTRIBUTION SYDNEY AREA: Coastal, estuarine.

SELECT LOCATIONS: CC: Munmorah, Budgewoi Lake, Avoca Beach, Port Hacking, Lake Illawarra.
**Ruppia polycarpa** *(Ruppia spiralis)*

**Habitat**
- Coastal lagoons, estuaries, inland lakes.

**Altitude**
- Below sea level

**Typical Local Abundance**
- Frequent

**Vegetation**
- Rhizomatous

**Primary Juvenile Period**
- Flowers: 4–16, spring–autumn.

**Fire Response**
- Resprouts

**Interaction with Other Organisms**

**Distribution**
- Status/origin: Native.
- Distribution Sydney Area: Coastal lagoons.

**Habitat**
- Coastal lagoons, estuaries, inland lakes.

**Altitude**
- Below sea level

**Typical Local Abundance**
- Frequent

**Vegetation**
- Rhizomatus

**Primary Juvenile Period**
- Flowers: Separate male and female flowers on different plants.

**Fire Response**
- Resprouts

**Interaction with Other Organisms**
- Reported in Wollemi NP, Kanangra Boyd NP.

**Baloskion australis** *(Restio australis)*

**Habitat**
- Swamps.

**Altitude**
- 600–1200 m

**Typical Local Abundance**
- Frequent

**Vegetation**
- Shrub swamp e.g. with Leptospermum spp., Xyris gracilis, Baumea spp., Gahnia spp.

**Substrate**
- Wet peaty, sandy or gravelly soil on sandstone, granite, low nutrient, permanently moist.

**Exposure**
- Unlikely

**Conservation**
- Status/origin: Native.
- Distribution Sydney Area: Coastal lagoons.
- Select Locations: CC: Avoca Lagoon, Narrabeen Lake, Dee Why Lagoon, Corrimal.

**Habitat**
- Coastal lagoons, estuaries, inland lakes.

**Altitude**
- Below sea level

**Typical Local Abundance**
- Frequent

**Vegetation**
- Rhizomatous

**Primary Juvenile Period**
- Flowers: 6–8 months (Meney & Pate 1999).

**Fire Response**
- Resprouts

**Interaction with Other Organisms**
- Reported in Wollemi NP, Kanangra Boyd NP.

**Baloskion gracile** *(Restio gracilis)*

**Habitat**
- Swamps.

**Altitude**
- 600–1200 m

**Typical Local Abundance**
- Frequent

**Vegetation**
- Shrub swamp e.g. with Lepidosperma limicola, Gleichenia dicarpa, Gymnoschoenus sphaerocephalus; shrub swamp e.g. with Banksia spinulosa, Leptospermum continentale, Epodisma minus, Epacris microphylla, Gleichenia.

**Substrate**
- Deep sandy soils, on sandstone, low nutrients, wet, poorly-drained.

**Exposure**
- Unlikely

**Conservation**
- Status/origin: Native.
- Botanical Subregions: CT: Running Stream, Mt Cameron, Farmers Creek, Newnes SF, Clarence, Mt Wilson, Blackheath, Katoomba, Narrow Neck, Kanangra, Boyd River, Mt Werong, Wingecarribee Swamp.
Baloskion longipes  
(Restio longipes)

Life history
Growth form: Perennial herb, tufted or with shortly creeping rhizome; flowering stems 90–150 cm high.
Vegetative spread: Rhizomatous.
Longevity: Indefinite.
Primary juvenile period:
Flowers: Narrow inflorescence up to 25 cm long, February–April.
Fruit/seed: Capsule.
Dispersal, establishment & growth: Fruit probably wind-dispersed (B. Briggs pers. comm.).
Fire response: Resprouts (Meney & Pate 1999).
Interaction with other organisms:

Distribution
Status/origin: Native.
Botanical subregions: CT ST.
Distribution Sydney area: Boyd Plateau, Southern Highlands.
Select locations: CT: Boyd Plateau, Mt Werong, Penrose.

Habitat
Habitat: Swamps, depressions.
Altitude: 700–1200 m  Annual rainfall: 1000–1200 mm
Typical local abundance: Rare.
Vegetation: Hummocky sedgeland e.g. with Restio spp., Empodisma minus, Xyris ustulata; sedge swamp e.g. with Leptospermum juniperinum, Leptospermum lanigerum.
Substrate: Sandy to clayey alluvium on sandstone, low nutrients, permanently moist.
Exposure:

Conservation
Boyd Plateau is northern geographical limit. Conservation status unknown. Reported in Ku-ring-gai Chase NP, Royal NP.

RESTIONACEAE

Baloskion pallens  
(Restio pallens)

Life history
Growth form: Perennial herb, with short creeping rhizome; flowering stems 50–100 cm high.
Vegetative spread: Rhizomatous.
Longevity: Indefinite.
Primary juvenile period:
Flowers:
Fruit/seed: Capsule.

Distribution
Status/origin: Native.
Botanical subregions: CC SC CT.
Distribution Sydney area: Coast, Southern Highlands.
CT: Hill Top, Carrington Falls, Penrose.

Habitat
Habitat: Swamps, depressions.
Altitude: 0–600 m  Annual rainfall: 900–1600 mm
Typical local abundance: Frequent–occasional.
Vegetation: Sedgeland e.g. with Juncus spp., Xyris spp., Banksia oblongifolia, Banksia robur.
Substrate: Deep sandy or peaty soils, on sandstone, low nutrients, poorly-drained, permanently moist.
Exposure:

Conservation
Woy Woy is northern geographical limit. Conservation status unknown. Reported in Ku-ring-gai Chase NP, Royal NP.
**Chordifex fastigiatus**

(Garioptis fastigiata, Restio fastigiatus)

**Life history**

Growth form: Perennial herb with much creeping rhizome; flowering stems 30–100 cm high.

Vegetative spread: Rhizomatous.

Longevity: Indefinite.

Primary juvenile period:

Flowers: Separate male and female flowers on different plants, August–October.

Fruit/Seed: Capsule.

Dispersal, establishment & growth: Diaspore: seed, adapted for ant-dispersal (Westoby et al. 1990).

Fire response: Resprouts (D. Keith pers. comm.), killed after high intensity fire (1/1994 at Narrabeen, P. Kubiak pers. comm.).

Interaction with other organisms:

**Distribution**

Status/origin: Native.

Botanical subregions: CC SC CT ST; Qld.

Distribution Sydney area: Coast and Upper Blue Mountains.

**Habitat**

Habitat: Seasonally moist sandy soils.

Altitude: 0–1000 m  
Annual rainfall: 900–1600 mm  
Typical local abundance: Frequent.

Vegetation: Wet heath e.g. with Hakea teretifolia, Epacris microphylla, Drosera, Banksia oblongifolia, Leproplia scariosa.

Substrate: Shallow sandy soil over sandstone, low nutrients, often poorly drained, moist.

Exposure:

**Conservation**

Conservation status unknown. Reported in Royal NP.

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**Empodium minus**

(RESTIONACEAE)

**Life history**

Growth form: Perennial, tufted herb, with ascending rhizome; flowering stems 15–200 cm long, green or bluish green.

Vegetative spread:

Longevity: Indefinite (D. Keith pers. comm.).

Primary juvenile period:

Flowers: Male and female flowers on separate plants.

Fruit/Seed: Smooth nut 2 mm long.

Dispersal, establishment & growth: No special morphology for dispersal (Westoby et al. 1990). Recruitment mainly after fire (D. Keith pers. comm.).

Fire response: Resprouts, secondary juvenile period 1 year (D. Keith pers. comm.).

Interaction with other organisms:

**Distribution**

Status/origin: Native.

Botanical subregions: NC SC NT C TST; Qld, Vic., Tas., S.A., N.Z.

Distribution Sydney area: Widespread.

Select locations: CC: Berowra, Hornsby, Manly Dam, Drummooye, La Perouse, Jibbon Lagoon, Waterfall, Bulli Pass, Mt Keira, Bomaderry.

CT: Running Stream, Mt Coricudgy, Newnes SF, Blackheath, Narrow Neck, Wentworth Falls, Fitzroy Falls, Carrington Falls, Barrenerry Mountain.

**Habitat**

Habitat: Swampy places, creekbanks, wet cliffs.

Altitude: 0–1000 m  
Annual rainfall: 900–1600 mm  
Typical local abundance: Frequent.

Vegetation: Swamps e.g. with Leproplia scariosa, Gymnoschoenus sphaeroacarpa, Leptospermum lanigerum, Lepidosperma limicola, Baeckeea linifolia, Grevillea acanthifolia.

Substrate: Sandy peaty soil on sandstone, low nutrients, permanently moist.

Exposure:

**Conservation**

Conservation status unknown. Reported in Blue Mountains NP, Royal NP.

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**Eurychorda complanata** (Restio complanatus)

(RESTIONACEAE)

**Life history**

Growth form: Rhizomatous perennial herb with broad flattened glaucous stems 20–120 cm high.

Vegetative spread: Rhizomatous.

Longevity: Indefinite.

Primary juvenile period:

Flowers: Male and female flowers on separate plants.

Fruit/Seed: Capsule.

Dispersal, establishment & growth: Recruitment mainly after fire (D. Keith pers. comm.), vigorous coloniser after disturbance (Meney & Pate 1999).
Hypolaena fastigiata

**Life history**

**Growth form**: Perennial herb, with creeping or ascending rhizome; flowering stems 20–65 cm high.

**Vegetative spread**: Widely spreading rhizomes (B. Briggs pers. comm.).

**Longevity**: Indefinite (D. Keith pers. comm.).

**Primary juvenile period**: Florals August–September.

**Fruit/seed**: Nut 4 mm long.

**Dispersal, establishment & growth**: Diaspore: fruit (B. Briggs pers. comm.). Recruitment mainly after fire (D. Keith pers. comm.).

**Fire response**: Resprouts (Benson 1981, Meney & Pate 1999).

**Interaction with other organisms**: 

**Distribution**

**Status/origin**: Native.

**Botanical subregions**: NC CC SC CT; Qld, Vic., S.A., W.A.

**Distribution Sydney area**: Mainly Coast, Hawkesbury River to Bulli.

**Select locations**: CC: Judge Dowling Range, Agnes Banks, Cowan, Curl Curl, Manly, North Head, Centennial Park, La Perouse, Kogarah, Audley, Marley.

**Habitat**

**Habitat**: Ridges.

**Altitude**: 0–300 m

**Annual rainfall**: 700–1400 mm

**Typical local abundance**: Occasional.

**Vegetation**: Heath e.g. with *Melaleuca nodosa*, *Melaleuca armillaris*, *Allocasuarina distyla*, *Angophora hispida*; woodland e.g. with *Eucalyptus sclerophylla*, *Angophora bakeri*, *Eucalyptus haemastoma*, *Corymbia gummi-gutta*.

**Substrate**: Sandy soil, sometimes with lateritic gravel on sandstone on dune sand, low nutrients, intermittently damp or fairly dry.

**Exposure**: 

**Conservation**

Vulnerable in Western Sydney (James et al. 1999). Conservation status elsewhere unknown. Reported in Royal NP.

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Leptocarpus tenax

**Life history**

**Growth form**: Perennial herb, with shortly creeping rhizome; flowering stems 50–130 cm high, greyish green.

**Vegetative spread**: Creeping, branching rhizome.

**Longevity**: Indefinite (D. Keith pers. comm.).

**Primary juvenile period**: Flowers: Male and female flowers on separate plants, September–November.

**Fruit/seed**: Nut 1–3 mm long, November–March.

**Dispersal, establishment & growth**: No special morphology (Westoby et al. 1990). Recruitment mainly after fire (D. Keith pers. comm.).

**Fire response**: Resprouts, secondary juvenile period 1 year (D. Keith pers. comm.).

**Interaction with other organisms**: 

**Distribution**

**Status/origin**: Native.

**Botanical subregions**: NC CC SC NT CT; Qld, Vic., S.A., W.A.

**Distribution Sydney area**: Mainly coastal.

**Select locations**: CC: Mellong Range, Agnes Banks, Hornsby, Cheltenham, Curl Curl, Centennial Park, Malabar, La Perouse, Cronulla, Bundeena, Bundeeroo Creek, Bulli Lookout. CT: Wentworth Falls, Mt Murray.

**Habitat**

**Habitat**: Swampy areas.

**Altitude**: 0–1000 m

**Annual rainfall**: 800–1400 mm

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

**Vegetation**: Wet heath e.g. with *Banksia robur*, *Banksia oblongiolia*, *Baeckea imbricata*, *Xanthorrhoea*; sedgeland e.g. with *Empodisma minus*, *Chorizandra species*, *Schoenus species*; low woodland e.g. with *Eucalyptus parramattensis*.

**Substrate**: Sandy soils on sandstone, sand, low nutrients, permanently moist.

**Exposure**: 

**Conservation**

Vulnerable in Western Sydney (James et al. 1999), conservation status elsewhere unknown. Reported in Botany Bay NP, Royal NP.

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Lepyrodia anarthria

**Life history**

**Growth form**: Perennial herb, densely tufted or with shortly creeping rhizome; flowering stems 30–80 cm high.

**Vegetative spread**: Occasional.

**Longevity**: Indefinite (D. Keith pers. comm.).

**Primary juvenile period**: Flowers: Male and females on separate stems, August–May, peak March.

**Fruit/seed**: Capsule 1–2 mm long, September–November.

**Dispersal, establishment & growth**: No special morphology (Westoby et al. 1990). Recruitment mainly after fire (D. Keith pers. comm.).

**Fire response**: Resprouts, secondary juvenile period 1 year (D. Keith pers. comm.). Rhizomes contain large reserves of starch (Pate et al. 1995).

**Interaction with other organisms**: 

**Distribution**

**Status/origin**: Native.

**Botanical subregions**: CC SC NT CT ST; Qld, Vic., N.T.

**Distribution Sydney area**: Mainly Upper Blue Mountains, Southern Highlands.

**Select locations**: CC: Centennial Park, Malabar. CT: Clarence, Blackheath, Mt Werong, Hill Top, Joadja Creek, Wingecarribee Swamp, Wingello.
**Eucalyptus parramattensis**

**Habitat**
- In or near swamps.

**Altitude:** 0–1200 m  
**Annual rainfall:** 900–1600 mm  

**Typical local abundance:** Frequent.

**Vegetation:** Wet heath e.g. with *Eucalyptus stricta*, *Banksia robur*, *Sprengelia incarnata*, *Restio australis*, *Lepidosperma limicola*; swamp e.g. with *Melaleuca quinquenervia*, *Leptospermum juniperinum*; montane peatland.

**Substrate:** Wet or damp peaty soils on sandstone, quartzite, dune sand, low nutrients, permanently moist.

**Exposure:**

**Conservation**
- Conservation status unknown. Rare on the coast.

### Lepyrodiad muelleri

**Life history**

**Growth form:** Perennial herb, tufted or with shortly creeping rhizome and flowering stems 40–75 cm high.

**Vegetative spread:** Creeping rhizome.

**Longevity:** Indefinite.

**Primary juvenile period:**

**Flowers:** Separate male and female flowers on same plants.

**Fruit/seed:** Capsule 2 mm long.

**Distribution**

**Status/origin:** Native.

**Botanical subregions:** NC CC SC; Vic., Tas., S.A.

**Distribution Sydney area:** Coast.

**Select locations:** CC: Mellong Range, Londonderry, Mulgoa, East Hills, Centennial Park, La Perouse, Jibbon Lagoon, Marley, Thirlmere, Bargo, Hill Top.

**Habitat**

**Habitat:** Wet situations, swamp margins.

**Altitude:** 0–500 m  
**Annual rainfall:** 800–1400 mm  

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

**Vegetation:** Woodland e.g. with *Eucalyptus fibrosa*, *Angophora bakeri*, *Eucalyptus parramattensis*; sedgeland e.g. with *Baumea juncea*, *Baumea articulata*, *Empodisma minus*, *Lepyrodiad scariosa*.

**Habitat**

**Habitat:** Wet situations, swamp margins.

**Altitude:** 0–500 m  
**Annual rainfall:** 800–1400 mm  

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

**Vegetation:** Woodland e.g. with *Eucalyptus fibrosa*, *Angophora bakeri*, *Eucalyptus parramattensis*; sedgeland e.g. with *Baumea juncea*, *Baumea articulata*, *Empodisma minus*, *Lepyrodiad scariosa*.

**Substrate:** Sandy or peaty soil on Tertiary alluvium, sandstone, low nutrients, permanently moist.

**Exposure:**

**Conservation**
- Conservation status unknown. Reported in Brisbane Water NP, Marramarra NP, Royal NP, Heathcote NP, Barren Grounds NR.

### Lepyrodiad scariosa (group)

**Life history**

**Growth form:** Perennial herb, usually tufted or with rhizome shortly creeping and flowering stems 35–90 cm high, with loose, open sheaths.

**Vegetative spread:** Rhizomatic.

**Longevity:** Indefinite (D. Keith pers. comm.).

**Primary juvenile period:**

**Flowers:** Separate male and female flowers on different plants, August–January. Honeybees *Apis mellifera* gather pollen (P. Kubiak pers. comm.).

**Fruit/seed:** Capsule 2–3 mm long.

**Dispersal, establishment & growth:** No special morphology for dispersal (Westoby et al. 1990). Recruitment mainly after fire (D. Keith pers. comm.).

**Fire response:** Resprouts, flowering more abundant after fire, secondary juvenile period 1 year (D. Keith pers. comm.). Rhizomes contain large reserves of starch (Pate et al. 1995).

**Interaction with other organisms:** Sometimes heavily cropped by rabbits (P. Kubiak pers. comm.).

### Distribution

**Status/origin:** Native.

**Botanical subregions:** NC CC SC NT CT ST; Qld.

**Distribution Sydney area:** Mainly coastal.

**Select locations:** CC: Mellong Range, Warah Trig, Springwood, Agnes Banks, Berowra, Hornsby, Mona Vale, North Head, Gladesville, Rose Bay, Centennial Park, Oakley, La Perouse, Towra Point, Warumbul, Bundena, Loftus, Kentlyn, Cambewarra Range. CT: Barren Grounds.

**Habitat**

**Habitat:** Plateaus, creeks, seepage areas.

**Altitude:** 0–700 m  
**Annual rainfall:** 800–1400 mm  

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

**Vegetation:** Heath e.g. with *Hakea gibsosa*, *Banksia ericifolia*, *Leptospermum trinervium*; woodland e.g. with *Corymbia gymnophylla*, *Eucalyptus punctata*, *Angophora costata*; sedgeland with *Leptocarpus tenax*, *Hypocala fastigata*, *Restio dimorphus*.

**Substrate:** Sandy or peaty soil over sandstone, sand, low nutrients, permanently damp.

**Exposure:**

**Conservation**
- Conservation status unknown. Reported in Brisbane Water NP, Marramarra NP, Royal NP, Heathcote NP, Barren Grounds NR.

### Sporadanthus gracilis (Lepyrodiad gracilis)

**Life history**

**Growth form:** Perennial herb with flowering stems 30–150 cm high and shortly creeping rhizome.

**Vegetative spread:**

**Longevity:** Indefinite (D. Keith pers. comm.).

**Primary juvenile period:**

**Flowers:** Male and female flowers on separate plants, March–September.

**Fruit/seed:** Capsule 2–3 mm long.

**Dispersal, establishment & growth:**

**Fire response:** Resprouts (D. Keith pers. comm.). Rhizomes contain large reserves of starch (Pate et al. 1995).

**Interaction with other organisms:**

**Distribution**

**Status/origin:** Native.

**Botanical subregions:** CC CT ST.

**Distribution Sydney area:** Coast, Upper Blue Mountains.

**Select locations:** CC: Bellevue Hill, Centennial Park, Malabar, La Perouse, Heathcote, Helensburgh, Appin. CT: Blackheath, Wentworth Falls, Bowral.

**Habitat**

**Habitat:** Swamp margins, creekbanks, cliff faces.

**Altitude:** 0–1000 m  
**Annual rainfall:** 900–1600 mm  

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

**Vegetation:** Sedgeland e.g. with *Lepyrodiad scariosa*, *Empodisma minus*, *Banksia robur*, *Gymnoschoenus sphaerocephalus*.

**Substrate:** Sandy soil on sandstone, sand, low nutrients, permanently moist.

**Exposure:**

**Conservation**
- Sydney is northern geographical limit. Conservation status unknown.

### Ripogonum album

**White Supplejack**

**Life history**

**Growth form:** Stout climber with stems to 15 m long, prickly, sometimes shrub-like when young; leaves thick, stiff, opposite.

**Vegetative spread:**

**Longevity:** Indefinite.
**Cunninghamia**

**Life history**

Growth form: Climber with stems to 5 m long; leaves 3-veined, lower surface glaucous, tendrils to 8 cm long.

**Vegetative spread:**

Primary juvenile period:

Flowers: September–October.

Fruit/seed: Black berry 6–15 mm diam., with 1 to a few seeds.

Dispersal, establishment & growth:

Fire response:

Interaction with other organisms:

**Distribution**

Status/origin: Native.

Botanical subregions: NC CC SC NT CT ST CWS; LHI, Qld, Vic., N.T.

Distribution Sydney area: Widespread.

Select locations: CC: North Entrance, Ourimbah, Mooney Mooney, Kurrajong Heights, Narrabeen, Eastwood, Rookwood, Otford, Shellharbour, Cambewarra, CT: Coricudgy, Wentworth Falls, Robertson.

Habitat

Habitat: Creek banks, open-forest.

Altitude: 0–1200 m

Annual rainfall: 1000–1600 mm

Typical local abundance: Frequent–occasional.

Vegetation: Rainforest e.g. with Doryphora sassafras, Ceratopetalum apetalum.

Substrate: Clay soil on shales, sandy loam on sandstone, medium nutrients.

Exposure:

Conservation

Conservation status unknown. Reported in Wollemi NP, Blue Mountains NP, Boudni NP, Brisbane Water NP, Marramarra NP, Muogamarra NR, Ku-ring-gai Chase NP, Garigal NP, Lane Cove NP, Robertson NR.

**Smilax australis**

Sarsaparilla

**Life history**

Growth form: Climber with stems to 8 m long, usually prickly, often forming dense thickets; leaves 5-veined, leathery, upper and lower surface similar colour, tendrils to 20 cm long.

Vegetative spread: No.

**Smilax glyciphylla**

Sweet Sarsaparilla

**Life history**

Growth form: Climber with stems to 5 m long; leaves 3-veined, lower surface glaucous, tendrils to 8 cm long.

Vegetative spread:

Longevity:

Primary juvenile period:

Flowers: All year but mainly spring–summer, separate male and female flowers on different plants.

Fruit/seed: Shiny, black berry 5–8 mm diam., with 1–2 seeds, mature summer, probably bird-dispersed.

Dispersal, establishment & growth:

Both vertebrate and ant-adapted for dispersal (Westoby et al. 1990, Rice & Westoby 1981).

Fire response:

Stem killed, resprouts at base or below (Fox 1988), vigorous regrowth after high-intensity fire (1/1994 at Narrabeen 1994), flowering within 9 months (P. Kubiak pers. comm.).

Interaction with other organisms:

Sweet black fruit eaten when ripe by Aboriginal people, woody stems used as fire sticks to ignite fire when rubbed together, extract from leaves and bark used medicinally (Wightman & Andrews 1991).

**Distribution**

Status/origin: Native.

Botanical subregions: NC CC SC NT CT ST CWS; LHI, Qld, Vic., N.T.

Distribution Sydney area: Coast.

Select locations: CC: Ourimbah, Springwood, Parramatta, Waterfall, Bola Creek, Mt Keira, Albion Park, Minnamurra Falls.

Habitat

Habitat: Rainforest.

Altitude: 0–200 m

Annual rainfall: 1200–1400 mm

Typical local abundance: Frequent–occasional.

Vegetation: Rainforest e.g. with Sloanea woollsii, Archontophoenix cunninghamiana, Doryphora sassafras, Ceratopetalum apetalum.

Substrate: Clay soil on shales, volcanic necks, medium nutrients.

Exposure:

Conservation

Conservation status unknown. Reported in Bouddi NP.

**Ripogonum fawcettianum**

Small Supplejack

**Life history**

Growth form: Small climber with stems to 4 m long, sometimes shrub-like, sparsely prickly.

Vegetative spread:

Longevity:

Primary juvenile period:

Flowers: November–February.

Fruit/seed: Black berry 8–12 mm diam., with 1 to a few seeds.

Dispersal, establishment & growth:

Fire response:

Interaction with other organisms:

**Distribution**

Status/origin: Native.

Botanical subregions: NC CC; Qld.

Distribution Sydney area: Coast.

Select locations: CC: Ourimbah, Springwood, Parramatta, Waterfall, Bola Creek, Mt Keira, Albion Park, Minnamurra Falls.

Habitat

Habitat: Rainforest.

Altitude: 0–200 m

Annual rainfall: 1200–1600 mm

Typical local abundance: Occasional.

Vegetation: Rainforest e.g. with Sloanea woollsii, Archontophoenix cunninghamiana, Doryphora sassafras, Ceratopetalum apetalum.

Substrate: Clay soil on shales, volcanic necks, medium nutrients.

Exposure:

Conservation

Conservation status unknown.

**RIPOGONACEAE**

**Smilax australis**

Sarsaparilla

**Life history**

Growth form: Climber with stems to 8 m long, usually prickly, often forming dense thickets; leaves 5-veined, leathery, upper and lower surface similar colour, tendrils to 20 cm long.

Vegetative spread: No.
**Distribution**

**Status/origin:** Native.

**Botanical Subregions:** NC CC SC NT; Qld.

**Distribution Sydney area:** Widespread on coast.

**Select Locations:** CC: Upper Colo, Kariong, Bowen Mountain, Springwood, Berowra, Barrenjoey, Manly, Mosman, La Perouse, Oatley, Kurnell, Waterfall, Macquarie Pass.

**Habitat**

**Habitat:** Valleys, creeks.

**Altitude:** 0–600 m  **Annual rainfall:** 900–1400 mm

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

**Vegetation:** Rainforest e.g. with Ceratopetalum apetalum, Acmena smithii; open-forest e.g. with Angophora costata, Eucalyptus pipirita, Syncarpia glomulifera.

**Substrate:** Sandy soil on sandstone, alluvium, low nutrients, well-drained.

**EXPOSURE:**

**Conservation**

Conservation status unknown. Reported in Blue Mountains NP.

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**SPARGANIACEAE**

**Sparganium subglobosum** *(Sparganium antipodum)*

**Life history**

**Growth form:** Aquatic herb, erect rhizomatous emergent perennial herb to 1 m high.

**Vegetative spread:** Rhizomatous spread.

**Longevity:** Perennial

**Primary juvenile period:**

**Flowers:** Separate male and female flowers on the same plant, November–April, peak January.

**Fruit/seed:** Indehiscent fruit 4–7 mm long, crowded, with a drupaceous pericarp, January–April, peak January. Seed 4 mm diam.

**Dispersal, establishment & growth:**

**Fire response:** Not likely to be burnt, probably resprouts.

**Interaction with other organisms:** Significant food source for birds (Sainty & Jacobs 1981).

**Distribution**

**Status/origin:** Native.

**Botanical subregions:** NC CC SC NT CT SWS; Qld, Vic., N.Z.

**Distribution Sydney area:** Widespread on Coast.

**Select Locations:** CC: Watagan Creek, Roberts Creek (Colo area), Little Cattai Creek, Longneck Lagoon, Eastlakes, Casula, Elderslie, Shoalhaven Head. CT: Wingecarribee Swamp, Tallong.

**Habitat**

**Habitat:** Still or slow flowing water less than 1 m deep and on the margins of creeks, rivers, freshwater lagoons or swamps.

**Altitude:** 0–700 m  **Annual rainfall:** 800–1600 mm

**Typical local abundance:** Frequent.

**Vegetation:** Sedgeland with Eleocharis sphacelata, Marsilea mutica, Myriophyllum.

**Substrate:** Sandy to peaty sediments on alluvium, basalt/shale medium nutrients, permanently impeded drainage. Apparently can grow equally well on sand or mud. Water table permanently high, moisture supply continuous, fresh.

**EXPOSURE:** Full sun.

**Conservation**

Localised occurrences, not conserved. Vulnerable in Western Sydney (James et al. 1999).

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**THISMIACEAE (BURMANNIACEAE)**

**Thismia clavarioides** *sp. nov.*

**Fairy Lantern**

**Life history**

**Growth form:** Saprophytic herb without chlorophyll and leaves reduced to scales; rhizomes fleshy, thin, 2 mm diam.

**Vegetative spread:** Creeping rhizome.

**Longevity:**

**Primary juvenile period:**

**Flowers:** Solitary in spring, often half-buried in leaf litter, possibly pollenated by flies (Thiele & Jordan 2002).

**Fruit/seed:** Fleshy, whitish cup-shaped capsule 6 mm diam., with golden brown seeds 0.3 × 0.25 mm (Thiele & Jordan 2002).

**Dispersal, establishment & growth:**

**Fire response:**

**Interaction with other organisms:**

**Distribution**

**Status/origin:** Native.

**Botanical subregions:** CT.

**Distribution Sydney area:** Bundanoon.

**Select Locations:** CT: Bundanoon.

**Habitat**

**Habitat:** Leaf litter, rocks in rainforest.

**Altitude:** 500 m  **Annual rainfall:** 1100 mm

**Typical local abundance:** Rare.

**Vegetation:** Rainforest e.g. with Ceratopetalum apetalum, Acmena smithii, Backhousia myrtifolia, Eucryphia moorei, Tristaniopsis laurina and various ferns (Thiele & Jordan 2002).

**Substrate:** Humus-rich colluvial soil and leaf litter over Hawkesbury Sandstone (Thiele & Jordan 2002), medium nutrients.

**EXPOSURE:** Sheltered, full shade.

**Conservation**

Localised rare endemic species, known from only two very small patches, possibly a single clone, in a small area in Morton NP near Bundanoon (recommended ROTAP coding 2 Kcit (Thiele & Jordan 2002)).

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**TYPHACEAE**

**Typha domingensis**

**Narrow-leaved Cumbungi**

**Life history**

**Growth form:** Robust, emergent monoecious aquatic herb to 4 m high, with creeping rhizome. Stems and leaves die down in autumn and plant resprouts annually from rhizomes (B. Briggs pers. comm.).

**Vegetative spread:** Rhizomatous.

**Longevity:** Indefinite.

**Primary juvenile period:**

**Flowers:** Separate male and female flowers on the same plant.

**Fruit/seed:** 1-seeded fruit.

**Dispersal, establishment & growth:**

**Fire response:**

**Interaction with other organisms:** Leaves and stems eaten by Black Swan *Cynus atratus* and foodplant of Freckled Duck *Stictonetta nova* (Barker & Vestjens 1989,1990 ). Aboriginal people extracted starch from stems for food; they used the fibres for twine (Cribb & Cribb 1982).

**Distribution**

**Status/origin:** Native.

**Botanical subregions:** NC CC ST NWS CWS SWS NWP SWP SFWP; Qld, Vic., Tas., N.T., S.A., W.A., warm-temp. & trop. regions.

**Distribution Sydney area:**

**Select locations:** CC: Ku-ring-gai Chase, Windsor, Oakdale, Doonside, Shellharbour, Mt Coolangatta.

**Habitat**

**Habitat:** Swamps, margins of lakes and streams.

**Altitude:** 0–200 m  **Annual rainfall:** 700–1200 mm

**Typical local abundance:**

**Vegetation:** Sedgeland e.g. with *Juncus*.

**Substrate:** Clay soils e.g. with *Juncus*.

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

**EXPOSURE:**

**Conservation**

Vulnerable in Western Sydney (James et al. 1999).
**Typha latifolia** * 

**Life history**

**Growth form:** Robust, emergent monoeocious aquatic perennial to 3 m high; rhizomes 20 mm diam.

**Vegetative spread:** Rhizomatous.

**Longevity:** Indefinite.

**Primary juvenile period:**

**Flowers:** Separate male and female flowers on the same plant.

**Fruit/seed:** 1-seeded fruit.

**Dispersal, establishment & growth:** May spread rapidly under appropriate conditions.

**Fire response:**

**Interaction with other organisms:** The floss was used overseas for stuffing ship mattresses, as a binding material in mortar and emergency absorption material in surgery (Cribb & Cribb 1982).

**Distribution**

**Status/origin:** Exotic, native to temperate areas of N Hemisphere.

**Botanical subregions:** CC: Vic., Tas.

**Distribution Sydney area:** Faulconbridge.

**Select locations:** CC: Faulconbridge (1977).

**Habitat**

**Habitat:** Swamps, margins of lakes.

**Altitude:** 500 m

**Annual rainfall:** 1000 mm

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

**Vegetation:** Emergent sedgeland e.g. with Phragmites australis, Carex, Cyperus, Ludwigia peploides.

**Substrate:** Alluvial silt and clay soils from Wianamatta Shale, also Carex, Cyperus, Ludwigia peploides.

**Conservation**

Conserved in Western Sydney (James et al. 1999), conservation status elsewhere unknown. Typha spp. may be useful to extract pollutants from waste or drainage water (Sainty & Jacobs 1981).

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**Schelhammera undulata**

**Life history**

**Growth form:** Prostrate or erect herb to 20 cm high.

**Vegetative spread:**

**Longevity:**

**Primary juvenile period:**

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

**Fruit/seed:** Wrinkled, ovoid capsule 5–8 mm diam., with a few yellow or brown seeds.

**Dispersal, establishment & growth:** Ant-adapted food body for dispersal (Westoby et al. 1990, Rice & Westoby 1981).

**Fire response:** Resprouted from root base, flowering May, 4 months after high-intensity fire (1/1994 at Narrabeen).

Secondary juvenile period about 11 months (at Lane Cove, Narrabeen, P. Kubiak pers. comm.).

**Interaction with other organisms:**

**Distribution**

**Status/origin:** Native.

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

**Distribution Sydney area:** Widespread.

**Select locations:** CC: Woy Woy, Richmond, Avalon, La Perouse, Cooks River, Faulconbridge, Casula, Menangle, Austinmer, Nowra. CT: Capertee, Bathurst, Orange, Wingecarribee Swamp.

**Habitat**

**Habitat:** Stationary or slow-flowing water to 2 m deep, ditches, ponds, creeks.

**Altitude:** 0–900 m

**Annual rainfall:** 700–1600 mm

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

**Vegetation:** Open-forest e.g. with Angophora costata, Eucalyptus piperita, Syncarpia glomulifera, Eucalyptus deanei, E. punctata; rainforest e.g. with Ceratopetalum apetalum, Acmena smithii, Backhousia myrtifolia.

**Substrate:** Sandy clay soils on shale, sandstone, volcanics, basalt, medium nutrients.

**Exposure:** Full sun.

**Conservation**

Conservation status unknown. Reported in Garigal NP, Royal NP.
**Xanthorrhoeaceae**

**Xanthorrhoea arborea**

**Grass Tree**

**Life history**

**Growth form:** Perennial plant, with woody trunk usually 1–2 m high, with 1 to many crowns.

**Vegetative spread:** No.

**Longevity:**

**Primary juvenile period:**

**Flowers:** Inflorescence cylindrical 1–1.5 m long, on a woody stem 1.5–2 m long. Clustered bisexual flowers with copious nectar, surrounded by dark brown packing bracts, January–April. Fire not required to stimulate flowering (July 1997, Pittwater, without fire). Synchronous flowering (D.H.B.). Rainbow Lorikeets feed on nectar, native bees gather pollen, Honeybees gather pollen and feed on nectar, flies feed on pollen and nectar (P. Kubiak pers. comm.). Aboriginal people collected nectar for food; dry flower stalks used in fishing spears and for fire-making; trunk a source of resin for Europeans and Aboriginal people (Cribb & Cribb 1982).

**Distribution**

**Status/origin:** Native.

**Botanical subregions:** CC CT.

**Vegetative spread:** with 1 to many crowns, each a stiff erect tuft. Hybridizes with *X. glauca* (Harden 1993).

**Fire response:** Resprouted from apex of caudex, no flowering induced by high-intensity fire (1/1994 at Narrabeen).

**Secondary juvenile period about 2 years (P. Kubiak pers. comm.).**

**Interaction with other organisms:** Blossoms of *Xanthorrhoea* species eaten by Grey-headed Flying Fox *Pteropus poliocephalus* (Eby 1995). Leaf tips of mature plants apparently eaten by rabbits *Oryctolagus cuniculus* (P. Kubiak pers. comm.). Aboriginal people collected nectar for food; dry flower stalks used in fishing spears and for fire-making; trunk a source of resin for Europeans and Aboriginal people (Cribb & Cribb 1982).

**Habitat**

**Habitat:** Hillsides.

**Altitude:** 0–1100 m  
**Annual rainfall:** 800–1400 mm

**Typical local abundance:** Frequent.

**Vegetation:** Open-forest e.g. with *Eucalyptus smithii, E. sieberi, Syncarpia glomulifera*; woodland e.g. with *E. punctata, E. agglomerata*.

**Substrate:** Gravelly clay soils on sandstone, often in seasonally water-logged sites, low nutrients.

**Exposure:** Full sun to light shade.

**Conservation**

Local endemic species with geographical range from Rylstone district in the north to just south of Sydney (Harden 1993). Conservation status unknown.

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**Xanthorrhoea concava**

**Life history**

**Growth form:** Perennial plant, trunk absent, stem branched below ground; crowns 1 to many, each a loosely erect tuft.

**Vegetative spread:** No.

**Longevity:**

**Primary juvenile period:**

**Flowers:** Inflorescence cylindrical 0.5–0.9 m long, on a woody stem 0.5–2.5 m long. Clustered bisexual flowers, with copious nectar, surrounded by packing bracts, October–December, peak December.

**Fruct/seed:** Capsule with 1–2 seeds, January.

**Dispersal, establishment & growth:**

**Fire response:**

**Interaction with other organisms:** Blossoms of *Xanthorrhoea* species eaten by Grey-headed Flying Fox *Pteropus poliocephalus* (Eby 1995). Aboriginal people collected nectar for food; dry flower stalks used in fishing spears and for fire-making; trunk a source of resin for Europeans and Aboriginal people (Cribb & Cribb 1982).

**Distribution**

**Status/origin:** Native.

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

**Vegetative spread:** No.

**Longevity:**

**Primary juvenile period:**

**Flowers:** Inflorescence cylindrical 0.1–0.6m long, on a woody stem 0.2–1.6 m long. Clustered bisexual flowers, with copious nectar, surrounded by packing bracts, August–October.

**Fruct/seed:** Capsule with 1–2 seeds.

**Dispersal, establishment & growth:**

**Fire response:**

**Interaction with other organisms:** Blossoms of *Xanthorrhoea* species eaten by Grey-headed Flying Fox *Pteropus poliocephalus* (Eby 1995). Aboriginal people collected nectar for food; dry flower stalks used in fishing spears and for fire-making; trunk a source of resin for Europeans and Aboriginal people (Cribb & Cribb 1982).

**Habitat**

**Habitat:** Hillsides.

**Altitude:** 0–600 m  
**Annual rainfall:** 1200–1600 mm

**Typical local abundance:** Rare.

**Vegetation:**

**Substrate:** Sandy–peaty soils, periodically water-logged, low nutrients.

**Exposure:**

**Conservation**

Wyong is main southern geographical limit with outlying population including Barren Grounds. Uncommon in Sydney area, conservation status unknown.
**Xanthorrhoeaceae**

**Xanthorrhoea glauca subsp. angustifolia**

**Life history**
- **Growth form:** Trunk 1–5 m high, branched or single, with 1 to many crowns.
- **Vegetative spread:** No.
- **Longevity:**
- **Primary juvenile period:**
  - **Flowers:** Inflorescence cylindrical 1–1.6 m long, on a woody stem 0.5–1 m long. Clustered bisexual flowers, with copious nectar, surrounded by packing bracts, September–December.
  - **Fruit/seed:** Capsule with 1–2 seeds, January.
- **Dispersal, establishment & growth:**
  - **Fire response:**
  - **Interaction with other organisms:** Blossoms of Xanthorrhoea species eaten by Grey-headed Flying Fox *Pteropus poliocephalus* (Eby 1995).
  - **Aboriginal people collected nectar for food; dry flower stalks used in fishing spears and for fire-making; trunk a source of resin for Europeans and Aboriginal people (Cribb & Cribb 1982).**
- **Distribution**
  - **Status/origin:** Native.
  - **Botanical subregions:** NC CC; Qld.
  - **Select locations:** CC: Howes Valley, Wyoming.
  - **Habitat:** Steep slopes and ridges.
  - **Altitude:** 0–300 m **Annual rainfall:** 800–1200 mm
  - **Typical local abundance:** Frequent.
  - **Vegetation:** Open-forest; heath.

**Xanthorrhoea latifolia subsp. latifolia**

**Life history**
- **Growth form:** Trunk absent or up to 32 m high, branched or single, with 1–4 crowns.
- **Vegetative spread:** No.
- **Longevity:**
- **Primary juvenile period:**
  - **Flowers:** Inflorescence cylindrical 0.5–1.2 m long, on a woody stem to 1–2.1 m long. Clustered bisexual flowers, with copious nectar, surrounded by packing bracts, July–November.
  - **Fruit/seed:** Capsule with 1–2 seeds, September–November.
- **Dispersal, establishment & growth:**
  - **Fire response:**
  - **Interaction with other organisms:** Blossoms of Xanthorrhoea species eaten by Grey-headed Flying Fox *Pteropus poliocephalus* (Eby 1995).
  - **Aboriginal people collected nectar for food; dry flower stalks used in fishing spears and for fire-making; trunk a source of resin for Europeans and Aboriginal people (Cribb & Cribb 1982).**
- **Distribution**
  - **Status/origin:** Native.
  - **Botanical subregions:** NC CC; Qld.
  - **Select locations:** CC: Doyalson, Swansea, Kanwal, Wyong.
  - **Habitat:** Ridges, slopes.
  - **Altitude:** 0–400 m **Annual rainfall:** 1100–1200 mm
  - **Typical local abundance:** Frequent.
  - **Vegetation:** Open-forest e.g. with *Eucalyptus haemastoma*.
  - **Substrate:** Sandy or gravelly clay soil on sandstone, sand hills, low nutrient, well-drained.
  - **Exposure:**
  - **Conservation**
    - Wyong is the southern geographical limit, conservation status unknown.

**Xanthorrhoea johnsonii**

**Life history**
- **Growth form:** Perennial plant, trunk absent; stem sometimes branched below ground, with 1 to many crowns.
- **Vegetative spread:** No.
- **Longevity:**
- **Primary juvenile period:**
  - **Flowers:** Inflorescence cylindrical 0.2–1.2 m long, on a woody stem to 1.9 m long. Clustered bisexual flowers, with copious nectar, surrounded by packing bracts, April–December.
  - **Fruit/seed:** Capsule with 1–2 seeds.
- **Dispersal, establishment & growth:**
  - **Fire response:**
  - **Interaction with other organisms:** Blossoms of Xanthorrhoea species eaten by Grey-headed Flying Fox *Pteropus poliocephalus* (Eby 1995).
  - **Aboriginal people collected nectar for food; dry flower stalks used in fishing spears and for fire-making; trunk a source of resin for Europeans and Aboriginal people (Cribb & Cribb 1982).**
- **Distribution**
  - **Status/origin:** Native.
  - **Botanical subregions:** NC CC; Qld.
  - **Select locations:** CC: Howes Valley, Wyoming.
  - **Habitat:** Ridgetops.
  - **Altitude:** 200–900 m **Annual rainfall:** 600–900 mm
  - **Typical local abundance:** Occasional.
  - **Vegetation:** Woodland e.g. with *Acacia clunies-rossii*.
  - **Substrate:** Gravelly clay soils on rocky limestone, trachyte and gravelly slopes (Harden 1993).
  - **Exposure:**
  - **Conservation**
    - Conservation status unknown.

**Xanthorrhoea macronema**

**Life history**
- **Growth form:** Perennial plant, trunk absent; stem sometimes branched below ground, with 1 to many crowns.
- **Vegetative spread:** No.
- **Longevity:**
- **Primary juvenile period:**
  - **Flowers:** Inflorescence cylindrical 0.05–0.13 m long, on a woody stem to 1–1.6 m long. Clustered bisexual flowers, with copious nectar, surrounded by packing bracts, July–January, peak December.
  - **Fruit/seed:** Capsule with 1–2 seeds.
- **Dispersal, establishment & growth:** No special morphology for dispersal (Westoby et al. 1990).
- **Fire response:**
  - **Interaction with other organisms:** Blossoms of Xanthorrhoea species eaten by Grey-headed Flying Fox *Pteropus poliocephalus* (Eby 1995).
  - **Aboriginal people collected nectar for food; dry flower stalks used in fishing spears and for fire-making; trunk a source of resin for Europeans and Aboriginal people (Cribb & Cribb 1982).**
- **Distribution**
  - **Status/origin:** Native.
  - **Botanical subregions:** NC CC; Qld.
  - **Select locations:** CC: Botanic Gardens, Manly, Munmorah, Woy Woy.
  - **Habitat:** Coastal, Munmorah to Helensburgh.
  - **Altitude:** 0–300 m **Annual rainfall:** 800–1200 mm
  - **Typical local abundance:** Frequent.
  - **Vegetation:** Open-forest e.g. with *Eucalyptus haemastoma*.
  - **Substrate:** Sandy soils, well-drained, low nutrients.
  - **Exposure:**
  - **Conservation**
    - Howes Valley is southern geographical limit, with outlying record for Wyoming.
**Xanthorrhoea malacophylla**

**Life history**

Growth form: Tall trunk usually 2–6 m high, stem branched or sometimes single, with 1–10 crowns; leaves more or less bright green, unusually spongy and soft.

Vegetative spread: No.

Primary juvenile period:

Flowers: Inflorescence cylindrical 0.6–1.6 m long, on a woody stem to 1.3–1.8 m long. Clustered bisexual flowers, with copious nectar, surrounded by dark brown packing bracts, October–November.

Fruit/seed: Capsule with 1–2 seeds.

Dispersal, establishment & growth:

Fire response:

Interaction with other organisms: Blossoms of Xanthorrhoea species eaten by Grey-headed Flying Fox Pteropus poliocephalus (Eby 1995). Aboriginal people collected nectar for food; dry flower stalks used in fishing spears and for fire-making; trunk a source of resin for Europeans and Aboriginal people (Cribb & Cribb 1982).

**Distribution**

Status/origin: Native.

Botanical subregions: CC CT.

Distribution Sydney area: Coastal ranges, Wyong.

Select locations: CC: Brunkerville, Yarramalong.

**Habitat**

Habitat: Steep rocky hillsides.

Altitude: 0–200 m  
Annual rainfall: 1200–1400 mm

Typical local abundance: Frequent.

Vegetation: Eucalypt open-forest.

Substrate: Clay to gravelly loam on sandstone, low nutrients.

Exposure: Full sun to light shade.

**Conservation**

Yarramalong is southern geographical limit, conservation status unknown.

XANTHORRHOEACEAE

**Xanthorrhoea minor** subsp. minor

**Life history**

Growth form: Trunk absent, stem branched below ground, with many crowns; variable species. Sometimes confused with depauperate plants of X. media, X. fulva (Harden 1993).

Vegetative spread:

Longevity:

Primary juvenile period:

Flowers: Inflorescence cylindrical 0.05–0.12 m long, on a woody stem to 0.3–0.6 m long. Clustered bisexual flowers, with copious nectar, surrounded by packing bracts, October–November.

Fruit/seed: Capsule with 1–2 seeds, often distinctively curved, January.

Dispersal, establishment & growth:

Fire response: Resprouts from apex of caudex.

Interaction with other organisms: Blossoms of Xanthorrhoea species eaten by Grey-headed Flying Fox Pteropus poliocephalus (Eby 1995). Aboriginal people collected nectar for food; dry flower stalks used in fishing spears and for fire-making; trunk a source of resin for Europeans and Aboriginal people (Cribb & Cribb 1982).

**Distribution**

Status/origin: Native.

Botanical subregions: CC CT.

Distribution Sydney area: Mainly western Sydney.

Select locations: CC: Castlereagh, Agnes Banks, Berkshire Park, Glenbrook, Mulgoa, Parramatta, Gladesville, Liverpool, East Hills, Panania, Macquarie Fields.

**Habitat**

Habitat: Heath, swamps.

Altitude: 0–200 m  
Annual rainfall: 800–1100 mm

Typical local abundance: Frequent.

Vegetation: Woodland e.g. with Angophora bakeri, Eucalyptus parramattensis.

Substrate: Clay soils on Tertiary alluvium, sandstone, low nutrients, poorly-drained, periodically water-logged.

Exposure:

**Conservation**

Local endemic species confined mainly to western Sydney. Reported in Castlereagh NR.
XANTHORRHOEACEAE

Xanthorrhoea resinifera (Xanthorrhoea resinosa)

Life history
GROWTH FORM: Trunk absent or to 0.6 m high, stem usually simple, leaves glaucous.
VEGETATIVE SPREAD: No.
LONGEVITY: More than 60 years (D. Keith pers. comm.).
PRIMARY JUVENILE PERIOD: More than 21 years (Keith 1996).
FLOWERS: Inflorescence cylindrical, dark brown, velvety 0.6–1.2 m long, on a woody stem to 0.7–1.5 m long. Clustered bisexual flowers, with copious nectar, surrounded by dark brown packing bracts. May–December, peak September. Flowers abundantly only after fire (Keith 1996).
FRUIT/SEED: Capsule with 1–2 seeds, often distinctly curved, September–May.
INTERACTION WITH OTHER ORGANISMS: Blossoms of Xanthorrhoea species eaten by Grey-headed Flying Fox (Eby 1995). Aboriginal people collected nectar for food; dry flower stalks used in fishing spears and for fire-making; yellow resin from trunk used on furniture, as incense in churches, for soap-making, and a source of picric acid (Cribb & Cribb 1982).

Distribution
STATUS/ORIGIN: Native.
BOTANICAL SUBREGIONS: CC SC CT ST.
DISTRIBUTION SYDNEY AREA: Blue Mountains and coast.
SELECT LOCATIONS: CC: Catherine Hill Bay, Karijini, Agnes Banks, Terrey Hills, Frenchs Forest, Centennial Park, Pagewood, Padstow, La Perouse, Audley, Heathcote, Coalcliff. CT: Mt Irvine, Clarence, Blackheath, Katomba, Megalong Valley, Carrington Falls.
Habitat
HABITAT: Ridges, plateaus.
ALTITUDE: 0–1200 m
ANNUAL RAINFALL: 800–1400 mm
TYPICAL LOCAL ABUNDANCE: Frequent.
VEGETATION: Heath e.g. with Monotoca elliptica, Hypoelaena fastigiata; low eucalypt woodland e.g. with Eucalyptus stricta, E. sclerophylla, E. sieberi.
SUBSTRATE: Sandy soils on sandstone, sand, seasonally wet sites, low nutrients.
EXPOSURE:

Conservation
Catherine Hill Bay is northern geographical limit. Conservation status elsewhere unknown. Reported in Ku-ring-gai Chase NP, Garigal NP, Royal NP.

XYRIDACEAE

Xyris complanata

Life history
GROWTH FORM: Robust perennial herb, with many stems; leaves and stems blue-green. Distinguished by flat strap-shaped leaves, with thickened differentiated margins (Conn & Doust 1994).
VEGETATIVE SPREAD:
LONGEVITY:
PRIMARY JUVENILE PERIOD:
FLOWERS: Yellow, December–February, peak January; flowers usually remain open from 10 am to 4 pm; old flowers may remain for a second day (Doust & Conn 1994).
FRUIT/SEED: Capsule 2–4 mm long, with reddish-brown, egg-shaped small seeds less than 0.5 mm long.
DISPERSAL, ESTABLISHMENT & GROWTH:
FIRE RESPONSE:
INTERACTION WITH OTHER ORGANISMS:

Distribution
STATUS/ORIGIN: Native.
BOTANICAL SUBREGIONS: CC SC CT ST.
DISTRIBUTION SYDNEY AREA: CC: Somersby, Kariong, Cowan, West Head, Castlecove, Kogarah, Oatley, Marley Beach, Flat Rock Creek (RNP), Sublime Point, Darkes Forest. CT: Barren Grounds.
SELECT LOCATIONS: Mainly coastal.
Habitat
HABITAT: Drainage channels, swampy depressions, near creeks.
ALTITUDE: 0–600 m
ANNUAL RAINFALL: 1200–600 mm
TYPICAL LOCAL ABUNDANCE: Frequent.
VEGETATION: Dry or wet heath e.g. with Banksia serrata, Lambertia formosa; open-woodland with heath understorey e.g. with Corymbia gumifera, Banksia oblongifolia, Gymnoschoenus sphaerocephalus, Banksia robusta.
SUBSTRATE: Sandy soils, occasionally with gravel or silt over sandstone (Conn & Doust 1997), low nutrients, continually moist.
EXPOSURE:

Conservation
Usually locally frequent and so is not regarded as endangered or vulnerable (Conn & Doust 1997). Reported in Ku-ring-gai Chase NP, Royal NP, Barren Grounds NR.

XYRIDACEAE

Xyris bracteata (Xyris gracillis subsp. laxa)

Life history
GROWTH FORM: Tufted, erect, robust perennial herb.
VEGETATIVE SPREAD:
LONGEVITY:
PRIMARY JUVENILE PERIOD:
FLOWERS: Yellow, ephemeral, lasting only a few hours before shrivelling up (Conn & Doust 1997), December.
FRUIT/SEED: Capsule 3–4 mm long, with brown seeds 1 mm long.
DISPERSAL, ESTABLISHMENT & GROWTH:
FIRE RESPONSE:
INTERACTION WITH OTHER ORGANISMS:

Conservation
Not regarded as threatened or endangered (Conn & Doust 1994). Bundeena is southern geographical limit.
**XYRIDACEAE**

*Xyris gracilis* *(Xyris gracilis subsp. gracilis)*

Slender Yellow-eye

**Life history**

- **Growth form:** Slender to robust erect tufted herb to 60 cm
- **Vegetative spread:**
- **Longevity:** Indefinite (D. Keith pers. comm.).
- **Primary juvenile period:**
- **Flowers:** Yellow, November–March, flowering throughout the day (Conn & Doust 1997).
- **Fruit/seed:** Capsule 3–4 mm long, with seeds 1 mm long.
- **Dispersal, establishment & growth:** Recruitment mainly after fire (D. Keith pers. comm.).
- **Fire response:** Resprouts from base, secondary juvenile period 1 year (D. Keith pers. comm.).
- **Interaction with other organisms:**

**Distribution**

- **Status/origin:** Native.
- **Botanical subregions:** NC CC SC NT CT; Qld, Vic.
- **Distribution Sydney area:** Widespread.
- **Select locations:** CC: Kariong, Bilpin, Cowan, West Head, Londonderry, Long Bay, Flat Rock Creek, Waterfall, Darke's Forest.

**Habitat**

Habitat: Margins of swamps.

**Altitude:** 0–1100 m  **Annual rainfall:** 800–1600 mm

**Typical local abundance:** Frequent.

**Vegetation:** Open heath; wetter sites in dry sclerophyll forest with heath vegetation e.g. with *Banksia ericifolia*, *Goodenia*, *Thysanotus*, *Mitrurasceae*, sedges, *Drosera* and *Bauera* (Conn & Doust 1997).

**Substrate:** Silty or peaty soils on sandstone, low nutrients, moist (Conn & Doust 1997).

**Exposure:**

**Conservation**

Usually locally frequent, although sometimes occasional, not regarded as endangered or vulnerable (Conn & Doust 1997). Conserved in Western Sydney (James et al. 1999). Reported in Barren Grounds NR, Ku-ring-gai Chase NF, Royal NP.

---

**XYRIDACEAE**

*Xyris operculata*

**Life history**

- **Growth form:** Slender to robust erect, tufted herb
- **Vegetative spread:**
- **Longevity:** Indefinite (D. Keith pers. comm.).
- **Primary juvenile period:**
- **Flowers:** Yellow, September–January, peak December, throughout the day, with flowers lasting more than one day (Conn & Doust 1997).
- **Fruit/seed:** Capsule 4 mm long, with seeds 1 mm long.
- **Dispersal, establishment & growth:** Recruitment mainly after fire (D. Keith pers. comm.).
- **Fire response:** Resprouts, secondary juvenile period 1 year (D. Keith pers. comm.).
- **Interaction with other organisms:**

**Distribution**

- **Status/origin:** Native.
- **Botanical subregions:** NC CC SC NT CT ST; Qld, Vic., Tas., S.A.
- **Distribution Sydney area:** Coast and Southern Highlands.
- **Select locations:** CC: Bateau Bay, Somersby, Karijini, Deep, Why Lagoon, Manly, Centennial Park, La Perouse, Cape Solander, Flat Rock Creek, Waterfall, Darke's Forest, Maddens Plains, Mt Kembria, Budgeroo Creek, Barren Garry Mountain. CT: Wingecarribee Swamp, Barren Grounds.

**Habitat**

Habitat: Swamps, creekbanks, rock shelves.

**Altitude:** 0–700 m  **Annual rainfall:** 1200–1700 mm

**Typical local abundance:** Frequent.

**Vegetation:** Sedgeland e.g. with *Gymnoschoenus sphaerocephalus*, *Xyris ustulata*, *Banksia robur*; wet heath e.g. with *Banksia oblongifolia*, *Hakea teretifolia*.

**Substrate:** Peaty or silty sandy soils over sandstone or quartzite-rich substrates, low nutrients, permanently moist, damp to waterlogged.

**Exposure:**

**Conservation**

Widespread, usually locally common, not regarded as endangered or vulnerable (Conn & Doust 1997), though vulnerable to drainage changes and disturbance. Reported in Royal NP, Barren Grounds NR.

---

*Xyris juncea*

**Life history**

- **Growth form:** Slender perennial herb with few stems; leaves and stems green or reddish-green
- **Vegetative spread:**
- **Longevity:** Indefinite (D. Keith pers. comm.).
- **Primary juvenile period:**
- **Flowers:** Yellow, usually December–April, flowering apparently stimulated by fire, flowering rare in absence of fire; individual flowers open for a few hours on one day only, 11 am to 2 or 3 pm (Doust & Conn 1994).
- **Fruit/seed:** Capsule 2–4 mm long, with golden-brown seeds to 0.5 mm long.
- **Dispersal, establishment & growth:** Recruitment mainly after fire (D. Keith pers. comm.).
- **Fire response:** Resprouts, secondary juvenile period 1 year (D. Keith pers. comm.). Fire appears to stimulate flowering (Doust & Conn 1994). Flowered within 2 months of January fire (West Head, KCNP). Secondary juvenile period about 8 months after high intensity fire (1/1994 at Narrabeen, P. Kubiak pers. comm.).
- **Interaction with other organisms:**

**Distribution**

- **Status/origin:** Native.
- **Botanical subregions:** NC CC SC CT; Qld, Vic.
- **Distribution Sydney area:** Mainly Coast.

**Habitat**

Habitat: Moist depressions, drainage lines, near streams.

**Altitude:** 0–1100 m  **Annual rainfall:** 1000–1600 mm

**Typical local abundance:** Frequent.

**Vegetation:** Sedgeland e.g. with *Gymnoschoenus sphaerocephalus*, *Chorizandra sphaerocephala*; heath e.g. with *Banksia oblongifolia*, *Angophora hispida*.

**Substrate:** Sandy grey to black soil, often humus-rich, damp to wet, usually over sandstone (Doust & Conn 1994), low nutrients, usually permanently moist.

**Exposure:**

**Conservation**

Although uncommon, it occasionally occurs in large localised patches and has a wide distribution; it is not considered to be threatened or endangered (Conn & Doust 1994), though its swampy habitats are vulnerable to drainage changes and disturbance. Reported in Royal NP.

---

*Xyris ustulata*

**Life history**

- **Growth form:** Robust, erect tufted herb
- **Vegetative spread:**
- **Longevity:** Indefinite (D. Keith pers. comm.).
- **Primary juvenile period:**
Habitat: Peaty swamps and permanent seepages, hillsides.

**Fossils:** Yellow, September–February, peak November–December, flowering throughout the day, with flowers lasting more than 1 day (Conn & Doust 1997).

**Fruit/seed:** Capsule 3–4 mm long, with seeds 1 mm long.

**Dispersal, establishment & growth:** Recruitment mainly after fire (D. Keith pers. comm.).

**Fire response:** Resprouts, secondary juvenile period 1 year (D. Keith pers. comm.).

**Interaction with other organisms:**

**Distribution**

**Status/origin:** Native.

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

**Distribution Sydney area:** Blue Mountains and Woronora Plateau.

**Select locations:** CC: Linden, Darkest Forest, Bulli Pass, Budderoo Creek. CT: Mt Coricudgy, Running Stream, Mt Cameron, Mount Tomah, Blackheath, Katoomba, Wentworth Falls, Boyd Plateau, Hill Top, Fitzroy Falls.

**Habitat**

**Habitat:** Peaty swamps and permanent seepages, hillsides.

**Altitude:** 0–1000 m

**Annual rainfall:** 1000–1600 mm

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

**Vegetation:** Sedgeland e.g. with Lepidosperma, Baeclea linifolia, Xyris operculata, Leptospermum; wet heath e.g. with Banksia robus.

**Substrate:** Peat or peaty soils on sandstone, low nutrients, permanently wet.

**Exposure:**

**Conservation**

Local endemic species, not regarded as endangered or vulnerable (Conn & Doust 1997), though vulnerable to drainage changes and disturbance. Reported in Blue Mountains NP, Kanangra Boyd NP, Barren Grounds NR.

**Status/origin:** Native.

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

**Distribution Sydney area:** Gosford–Wyong area.

**Select locations:** CC: Martinsville, Yarramalong, Matcham.

**Habitat**

**Habitat:** Damp areas, especially along creeks but can grow in drier sites (M. Clarke pers. comm.).

**Altitude:** 0–200 m

**Annual rainfall:** 1200 mm

**Typical local abundance:** Occasional.

**Vegetation:** Gully rainforest e.g. with Ceratopetalum apetalum, Glochidion ferdinandi, Archontophoenix cunninghamiana.

**Substrate:** Clay soils on shales, alluvium, medium to high nutrients.

**Exposure:**

**Conservation**

Conservation status unknown.

**Status/origin:** Exotic, native to India, introduced as ornamental by 1900.

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

**Distribution Sydney area:** Sydney suburbs and Illawarra.

**Select locations:** CC: Hornsby (1967), Warragamba (1973), Beechworth (1975), Naremburn (1965), Bradleys Head (1966), Glenfield (1973), Mt Keira.

**Habitat**

**Habitat:** Damper areas, especially along creeks but can grow in drier sites (M. Clarke pers. comm.).

**Altitude:** 0–400 m

**Annual rainfall:** 750–1400 mm

**Typical local abundance:** Frequent.

**Vegetation:** Moist open-forest e.g. with Eucalyptus pilularis, Syncarpia glomulifera, Angophora costata.

**Substrate:** Rich, well-drained, moist, composted soils (M. Clarke pers. comm.).

**Exposure:** Sheltered, shady areas.

**Conservation**

Introduced as garden plant by 1900 and reported naturalised and spreading into urban bushland, in 1960s. Established in moist places, spreading locally by rhizomes and seed. Control by digging out rhizomes.

**Family:** ZINGIBERACEAE

**Common name:** Ginger Lily

**Life history**

**Growth form:** Perennial herb to 2.5 m high, with stout fleshy stem and thick fleshy rhizome to 1 m long or more, close to soil surface.

**Vegetative spread:** Extensive rhizome system.

**Longevity:** Indefinite.

**Primary juvenile period:** Less than 5 years.

**Flowers:** Yellow–orange in a large spike, January–May, peak March.

**Fruit/seed:** Capsule, seeds with a red, fleshy appendage.

**Dispersal, establishment & growth:** Diaspore: seed, bird-dispersed.

**Fruit reported from pellets of Currawongs (Buchanan 1989a) and Bulbuls (Herb. note). Vegetative dispersal by pieces of rhizome e.g. in garden refuse.**

**Fire response:** Resprouted after high intensity fire (1/1994 at Lane Cove), secondary juvenile period about 22 months (P. Kubiak pers. comm.).

**Interaction with other organisms:**

**Distribution**

**Status/origin:** Exotic, native to India, introduced as ornamental by 1900.

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

**Distribution Sydney area:** Sydney suburbs and Illawarra.

**Select locations:** CC: Hornsby (1967), Warragamba (1973), Beechworth (1975), Naremburn (1965), Bradleys Head (1966), Glenfield (1973), Mt Keira.

**Habitat**

**Habitat:** Damper areas, especially along creeks but can grow in drier sites (M. Clarke pers. comm.).

**Altitude:** 0–400 m

**Annual rainfall:** 750–1400 mm

**Typical local abundance:** Frequent.

**Vegetation:** Moist open-forest e.g. with Eucalyptus pilularis, Syncarpia glomulifera, Angophora costata.

**Substrate:** Rich, well-drained, moist, composted soils (M. Clarke pers. comm.).

**Exposure:** Sheltered, shady areas.

**Conservation**

Introduced as garden plant by 1900 and reported naturalised and spreading into urban bushland, in 1960s. Established in moist places, spreading locally by rhizomes and seed. Control by digging out rhizomes.

**Family:** ZINGIBERACEAE

**Common name:** Ginger Lily

**Life history**

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

**Vegetative spread:**

**Longevity:**

**Primary juvenile period:**

**Flowers:** Rose-red, November–January.

**Fruit/seed:** Dark blue-black capsule 10 mm diam.

**Dispersal, establishment & growth:**

**Fire response:**

**Interaction with other organisms:**

**Distribution**

**Status/origin:** Native.

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

**Distribution Sydney area:** Gosford area.

**Select locations:** CC: Woy Woy (1905).

**Habitat**

**Habitat:**

**Altitude:** 0–100 m

**Annual rainfall:** 1200 mm

**Typical local abundance:**

**Vegetation:** Coastal rainforest

**Substrate:**

**Exposure:**

**Conservation**

Rare, only record for Sydney area is from Woy Woy (its southern geographical limit) in 1905. Conservation status unknown.

**Family:** ZINGIBERACEAE

**Common name:** Ginger Lily

**Life history**

**Growth form:** Perennial herb to 2.5 m high, with stout fleshy stem and thick fleshy rhizome to 1 m long or more, close to soil surface.

**Vegetative spread:** Extensive rhizome system.

**Longevity:** Indefinite.

**Primary juvenile period:** Less than 5 years.

**Flowers:** Yellow–orange in a large spike, January–May, peak March.

**Fruit/seed:** Capsule, seeds with a red, fleshy appendage.

**Dispersal, establishment & growth:** Diaspore: seed, bird-dispersed.

**Fruit reported from pellets of Currawongs (Buchanan 1989a) and Bulbuls (Herb. note). Vegetative dispersal by pieces of rhizome e.g. in garden refuse.**

**Fire response:** Resprouted after high intensity fire (1/1994 at Lane Cove), secondary juvenile period about 22 months (P. Kubiak pers. comm.).

**Interaction with other organisms:**

**Distribution**

**Status/origin:** Exotic, native to India, introduced as ornamental by 1900.

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

**Distribution Sydney area:** Sydney suburbs and Illawarra.

**Select locations:** CC: Hornsby (1967), Warragamba (1973), Beechworth (1975), Naremburn (1965), Bradleys Head (1966), Glenfield (1973), Mt Keira.

**Habitat**

**Habitat:** Damper areas, especially along creeks but can grow in drier sites (M. Clarke pers. comm.).

**Altitude:** 0–400 m

**Annual rainfall:** 750–1400 mm

**Typical local abundance:** Frequent.

**Vegetation:** Moist open-forest e.g. with Eucalyptus pilularis, Syncarpia glomulifera, Angophora costata.

**Substrate:** Rich, well-drained, moist, composted soils (M. Clarke pers. comm.).

**Exposure:** Sheltered, shady areas.

**Conservation**

Introduced as garden plant by 1900 and reported naturalised and spreading into urban bushland, in 1960s. Established in moist places, spreading locally by rhizomes and seed. Control by digging out rhizomes.
**Heterozostera tasmanica**

**Eel Grass**

**Life history**

**GROWTH FORM:** Submerged, rhizomatous, perennial seagrass with erect stems to 30 cm high.

**VEGETATIVE SPREAD:** Rhizomatous spread.

**LONGEVITY:**

**PRIMARY JUVENILE PERIOD:**

**FLOWERS:** Separate male and female flowers on same plant, warmer months.

**FRUIT/SEED:** Seeds 4 mm long, egg-shaped

**DISPERsal, ESTABLISHMENT & GROWTH:** Diospore: seed, dispersed by dropping from floating inflorescences at maturity. Stems and inflorescences growing in spring and summer, deciduous in winter (Harden 1993).

**FIRE RESPONSE:**

**INTERACTION WITH OTHER ORGANISMS:**

**Distribution**

**STATUS/ORIGIN:** Native.

**BOTANICAL SUBREGIONS:** NC CC SC; Vic., Tas., S.A., Chile.

**DISTRIBUTION SYDNEY AREA:** Coastal estuaries.

**SELECT LOCATIONS:** CC: Pittwater, Narrabeen Lagoon, Manly.

**Habitat**

**HABITAT:** Marine or estuarine, rarely exposed at low tide.

**ALTITUDE:** Below low tide level. **ANNUAL RAINFALL:** not applicable

**VEGETATION:**

**SUBSTRATE:** Submerged marine or estuarine habitats, rarely exposed at low tide (Harden 1993).

**EXPOSURE:**

**Conservation**

South from Port Stephens, uncommon, conservation status unknown.

---

**Zostera capricorni**

**Eel Grass**

**Life history**

**GROWTH FORM:** Monoecious, submerged, rhizomatous, perennial seagrass with flowering stems to 50 cm long.

**VEGETATIVE SPREAD:** Rhizomatous.

**LONGEVITY:**

**PRIMARY JUVENILE PERIOD:**

**FLOWERS:** Separate male and female flowers on same plant, in warmer months, pollen dispersed passively through water movement.

**FRUIT/SEED:** Seeds elliptic, 2 mm long.

**DISPERsal, ESTABLISHMENT & GROWTH:** Diaspore: seeds shed from floating inflorescence. Early seed set in *Zostera marina* in Europe was 22% lower in isolated vegetation patches compared to continuous eelgrass meadow (>50 m2) (Reusch 2003).

**FIRE RESPONSE:** Not burnt.

**INTERACTION WITH OTHER ORGANISMS:** Eaten by larvae of moth *Nymphula nitens* (Common 1990). Provides important habitat for fish (Middleton et al. 1984).

**Distribution**

**STATUS/ORIGIN:** Native.

**BOTANICAL SUBREGIONS:** NC CC SC; LHI, Qld, Vic., N.Z.

**DISTRIBUTION SYDNEY AREA:** Coastal estuaries.

**SELECT LOCATIONS:** CC: Terrigal Lake, Tuggerah Lakes, Pittwater, Long Reef, Sailors Bay/Northbridge, Manly, Balmoral, La Perouse, Quibray Bay, Kogarah Bay, Sans Souci, Port Hacking, Woronora River, Lake Illawarra, Shoalhaven River.

**Habitat**

**HABITAT:** Marine or estuarine, often exposed at low tide.

**ALTITUDE:** Below tide level. **ANNUAL RAINFALL:** n.a.

**VEGETATION:**

**SUBSTRATE:** Submerged marine or estuarine habitats, often exposed at low tide.

**EXPOSURE:**

**Conservation**
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