

# **FIELD GUIDE**

to the **NATIVE PLANTS** of the

# **COLEAMBALLY IRRIGATION DISTRICT**

Compiled by Mark Robb & David Kleinert



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## ACKNOWLEDGEMENTS

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*Plants of Western New South Wales*. 1992, Cunningham, G.M., Mulham, W.E., Milthorpe, P.L. and Leigh, J.H, Inkata Press, Port Melbourne and *Waterplants of New South Wales*. 1981, Sainty, G.R. and Jacobs, S.W.L, Water Resources Commission, NSW. The text from both books has been used with the permission from the copyright holders.

Photographs of terrestrial plants were obtained by Mark Robb and David Kleinert. The aquatic plant images were derived from *Waterplants of New South Wales*. 1981, Sainty, G.R. and Jacobs, S.W.L, Water Resources Commission, NSW.

This field guide has been compiled by Mark Robb and David Kleinert, Coleambally Irrigation Co-operative Limited, as part of the Land and Water Management Plan Implementation which is partly funded by the National Action Plan through Murrumbidgee Catchment Management Authority.

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## INTRODUCTION

The Coleambally Irrigation District (CID) has seen widespread clearing of original vegetation due to grazing followed by cropping. These activities, along with various others, have created isolated patches of remnant vegetation throughout the CID (Toscan, 1998).

During the period 1960 to 1973 after the Coleambally Irrigation Area (now CID) was gazetted, portions of the existing grazing properties were resumed and divided into large area mixed and horticultural farms. The once dry land area was surveyed and infrastructure established to allow irrigated agriculture to commence. With this development, the vegetation of the CID has in many places been changed irretrievably. Widespread clearing, irrigation practices, heavy grazing and tree dieback has led to almost the complete removal of native plants, especially trees and shrubs and many perennial grasses (Toscan, 1998).

Large remnants remain in the Boona State Forest, much of which is representative of a single plant community, White Cypress Pine woodlands. The remaining area of the CID is a mosaic of native vegetation remnants, mostly less than 10-20 hectares in extent, and intensively managed agricultural land. Much of the remnants in the CID are located on sandhills, depressions, State Forest reserves, travelling stock reserves and road reserves (AMBS, 1998).

Although much of the area has been cleared, Coleambally is fortunate to have a mixture of major plant communities including Black Box woodlands, grasslands, inland River Red Gum swamps, White Cypress Pine woodlands and Boree reserves (Toscan, 1998).

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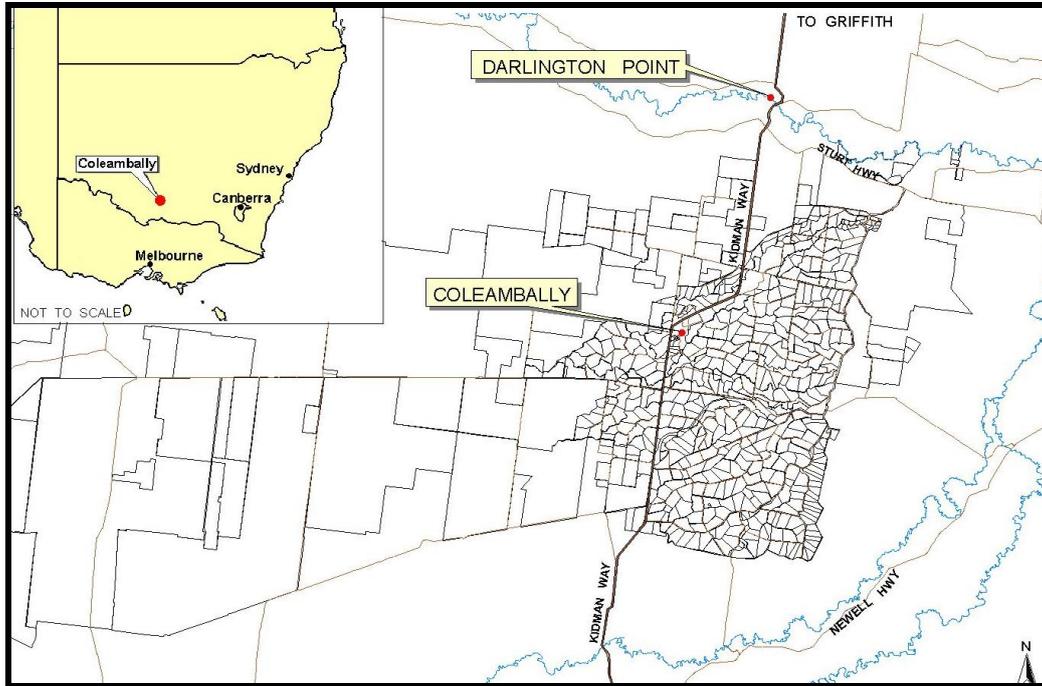
This field guide covers many of the native trees, shrubs, grasses and aquatic plants of the CID. The guide was created with the objective of assisting landholders and other local community members in identifying native plants that occur in the CID. By promoting awareness of these plants, we can help to ensure the protection of remnant vegetation in the district.

This field guide has been compiled as part of the Land and Water Management Plan Implementation, which is partly funded by the National Action Plan through Murrumbidgee Catchment Management Authority. This publication is part of the “Native Vegetation” module of the LWMP Education Program.

## **How to use this Field Guide**

The Field Guide is divided into four sections according to plant type. These include Trees, Shrubs and Forbs, Grasses and Aquatic Plants. For each of the plants within these sections there is a photograph and description. The description of each plant includes information on flowering, habitat and distribution.

# COLEAMBALLY IRRIGATION DISTRICT



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**-TREES-**



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## MIMOSACEAE

### **Yarran - *Acacia homalophylla***

Small tree, 7-10 m high, often growing in thickets. Leaves yellowish-green, 3-9 cm long, 5-8 mm broad, often curved, several-veined, often tipped with a short curved point.

**Flowering:** Flowers golden-yellow, in globular heads 5-6 mm in diameter, the heads borne on stalks 3-6 mm long in pairs, threes or racemes of 10 or more in the leaf axils. Pods 4-8 cm long, 5-6 mm broad, slightly curved. Flowering late winter-spring.

**Habitat:** Found in White Cypress Pine and Box communities, but also in other vegetation types mainly on red earths, rare on grey clay soils.

**Distribution:** Very restricted in the eastern parts of the CID. More common in the Coleambally Outfall District.



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**Miljee - *Acacia oswaldii***

Shrub or small tree, 2-5 m high. Leaves linear or lanceolate, at times slightly curved, usually 30-45 (but to 80) mm long, 2-8 mm broad, with many fine veins, leathery, rigid, pale-green, sometimes with a whitish bloom. Tips pointed or rounded usually with a short sharp point.

**Flowering:** Flowers pale-yellow, in almost stalkless globular heads 4-5 mm in diameter which are borne singly, in pairs or in clusters in the leaf axils. Pods 6-15 cm long, 7-10 mm broad, woody, conspicuously twisted and coiled, resembling a ram's horn. Flowering in spring.

**Habitat:** Occurs on a wide range of soils in many vegetation types.

**Distribution:** Throughout the CID.



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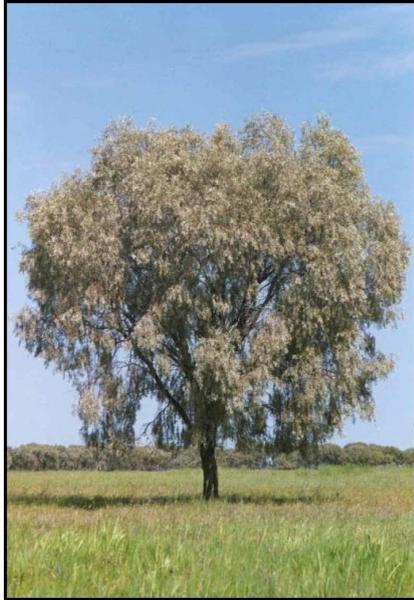
**Boree - *Acacia pendula***

Tree to 10 m high, with conspicuously drooping leaves and branchlets. Leaves linear or broadly knife-shaped, silvery, ashy or yellow-green, 6-9 cm long, 4-10 mm broad, mostly curved, usually with 3 prominent veins.

**Flowering:** Flowers yellow, in sparse globular heads 5-7 mm in diameter, borne in the leaf axils in clusters or short racemes. Pods 3-10 cm long, 10-12 mm broad, flat, often slightly curved. Flowering mainly summer-autumn but irregular.

**Habitat:** Often found in extensive monospecific communities, that formerly dominated the CID. Grows mainly on red-brown clay soils.

**Distribution:** Throughout the CID.



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## **Cooba - *Acacia salicina***

Commonly a small or large tree, to 20 m high, with willow-like drooping branches. Leaves deep green, linear, elliptical, lanceolate or oblanceolate, 4-12 cm long, 4-7 mm broad, thick, fleshy, tapering to both ends and usually fine pointed at the tip.

**Flowering:** Flowers cream or pale-yellow, in globular heads 5-7 mm in diameter, which are borne singly, or in racemes of 2-10 heads in the leaf axils. Pods straight, 3-12 cm long, 6-10 mm broad, woody, compressed with thick edges, usually strongly constricted between the longitudinally arranged seeds. Flowering mostly summer-autumn.

**Habitat:** Commonly found along watercourses and prior streambeds, on soils ranging from sands to clays.

**Distribution:** Throughout the CID.



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## SAPINDACEAE

### Rosewood - *Alectryon oleifolius* (2 subsp.)

Small to medium-sized tree, to 9 m high, with pale-grey or brown deeply fissured bark; sometimes little more than a shrub. Leaves alternate, lanceolate or linear-lanceolate, 3.5-14 cm long, 6-12 mm wide, stiff, greyish-green, with prominent veins, sometimes curved at the end covered with very short hairs.

**Flowering:** Flowers cream, small and inconspicuous, borne in clusters in the leaf axils, without petals. Fruit composed usually of 1-4 globular 1-seeded lobes about 6 mm across; seeds glossy black with a red fleshy appendage. Flowering late spring-summer.

**Habitat:** Most common on sandy soils; found in numerous vegetation communities.

**Distribution:** Throughout the CID.



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## CASUARINACEAE

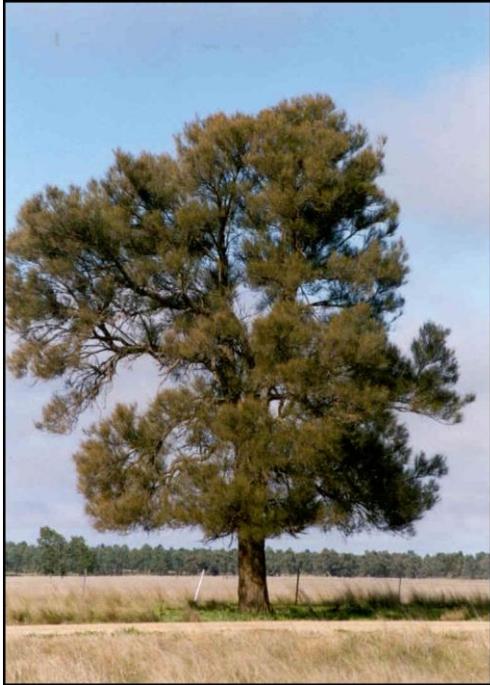
### **Bulloak - *Allocasuarina luehmannii***

Tree to about 15 m high, with rough deeply fissured bark and ascending striate branchlets about 2 mm diameter, the branchlets consisting of jointed sections, each section 8-20 mm long. Leaves reduced to 9-12 short broad scales tightly sheathing the joints of the branchlets.

**Flowering:** Flowers small, the male flowers in spikes about 2.5 cm long borne towards the ends of the branchlets, the females in short compact heads. Fruits forming a flattened cone about 15 mm diameter with 2-3 rows of rounded valves, each pair of valves opening to release a single, winged seed. Flowering mainly summer.

**Habitat:** Found on a wide variety of soils, but more common on the sandier types. Associated species mainly include White Cypress Pine and Yellow Box, but occasionally others.

**Distribution:** Throughout the CID.



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## **Belah - *Casuarina cristata***

Tree to about 15 m high, with many slender branchlets 1-2 mm thick, striated, jointed, with sections about 10 mm long; bark dark-grey, finely fissured in a rather regular pattern of squares. Leaves reduced to 9-12 small pointed scales sheathing the joints between the sections of the branchlets.

**Flowering:** Flowers unisexual, the males very small and in slender terminal spikes, the females clustered in heads. Fruits forming an oblong woody cone about 20 mm long or more, with several rows of prominent protruding valves each pair of which opens to release a solitary, winged nut. Flowering summer-autumn.

**Habitat:** Found on sandy red earths through to clay soils, either as scattered individuals, in dense pure stands or together with numerous other tree and shrub species.

**Distribution:** Throughout the CID.



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## CUPRESSACEAE

### White Cypress Pine - *Callitris glaucophylla*

Medium-large tree with a straight single trunk to about 20 m tall, the bark rough and furrowed. Leaves aromatic, scale-like, extending down the branchlets; the many-forked foliage appears jointed and needle-like.

**Flowering:** Flowers in catkins. Fruit a globular woody cone about 2 cm diameter, with 6 thin hardened segments; a single slender column occurs inside at the base of the cone; seeds hard, compressed, with 2 small wings. Flowering spring-early summer.

**Habitat:** Found on sandy/course-textured red and brown earths, in almost pure stands or in association with numerous other tree and shrub species.

**Distribution:** Throughout the CID.



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## MYOPORACEAE

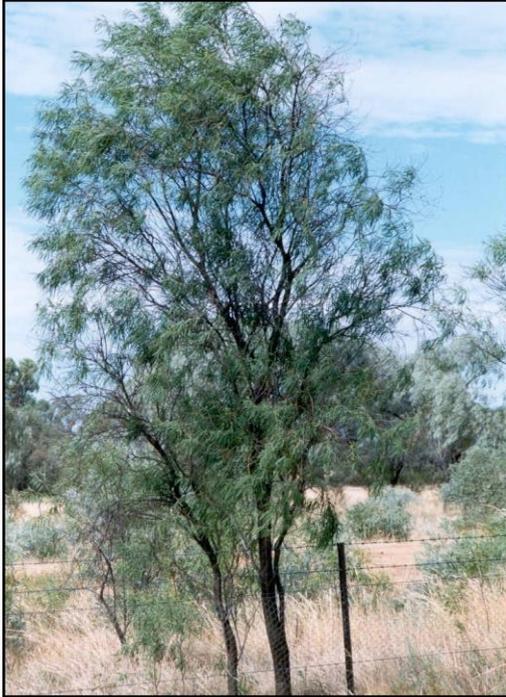
### Emubush - *Eremophila longifolia*

Tree or shrub to 8 m high, with drooping branches and foliage, the mature bark dark-grey, rough and divided into squarish segments. Leaves alternate, dull-green, linear to linear-lanceolate, 3-20 cm long, 4-7 mm wide, narrowed to a short stalk, tipped with a hooked or bent point, downy when young, becoming smooth with age.

**Flowering:** Flowers pinkish to reddish-brown, spotted inside, borne singly or in groups of 2 or 3 on short stalks in the leaf axils, each flower tubular and slightly curved, 25-30 mm long, globular at the base then constricted, finally expanding to 5 blunt lobes. Fruit a blackish-purple drupe, 5-12 mm long. Flowering mainly spring.

**Habitat:** Occurs on most soil types and in most vegetation communities but is most common in Box and Cypress Pine communities, where it occurs on sandy loam or clay loam textured red earths.

**Distribution:** Throughout the CID.



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## MYRTACEAE

### River Red Gum - *Eucalyptus camaldulensis* (2 subsp.)

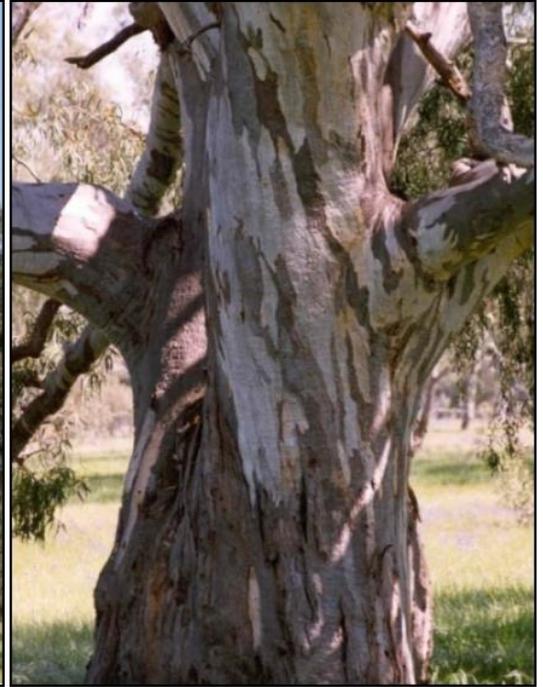
Medium to large tree, 25-40 m high; bark dark, rough and persistent on the lower trunk, elsewhere smooth and deciduous, peeling in sheets, dull-white or ash-coloured. Leaves alternate, lanceolate, with a pointed tip, 12-22 cm long, 8-15 mm wide, thin drooping, green or blue-green, stalked, the new growth often pinkish.

Two subspecies of River Red Gum occur in the region, namely ssp. *Camaldulensis* and ssp. *Obtusa*. These are distinguished by the longer and more sharply beaked cap on the buds of ssp. *Camaldulensis* whereas on ssp. *Obtusa* the bud cap is blunt and rounded.

**Flowering:** Flowers cream, in clusters of 5-10 borne on a common stalk arising in the leaf axils; buds 6-10 mm long, 4-5 mm wide, the cap conical or beaked. Fruit hemispherical to top shaped, 7-8 mm wide, the valves sharply triangular, protruding. Flowering variable.

**Habitat:** Most extensive on grey heavy clay soils along riverbanks and on floodplains subject to frequent or periodic flooding; also lining the channels of sandy watercourses and creeks.

**Distribution:** Throughout the CID.



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## **Black Box - *Eucalyptus largiflorens***

Medium-sized tree, 10 m or sometimes to 20 m high, with a large spreading crown and drooping branches; bark persistent throughout except on the smallest branches, hard, dark, rough and somewhat furrowed. Leaves alternate, lanceolate, 6-12 cm long, 1.5-2.7 cm wide, dull-green or grey, stalked.

**Flowering:** Flowers off-white, borne in clusters of 3-7 and part of a large terminal or axillary panicle; buds 5 mm long, 3-4 mm wide, the cap hemispherical. Fruit hemispherical, about 5 mm diameter, on a short stalk, the valves enclosed. Flowering spring-summer, but may vary.

**Habitat:** Found on heavy clay soils of periodically flooded alluvial plains and along dry-lake margins, also in depressions and drainage lines in practically all communities.

**Distribution:** The most common and widespread eucalypt in the CID.



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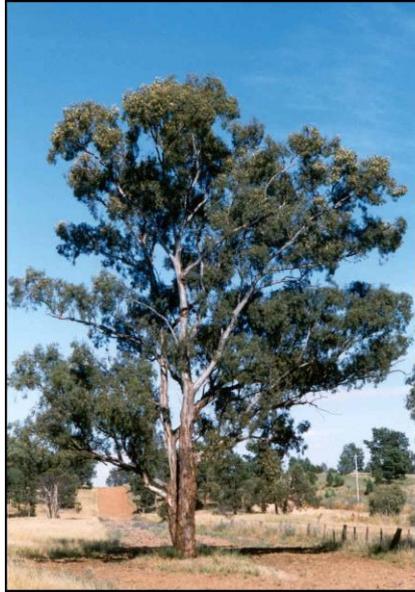
## **Yellow Box - *Eucalyptus melliodora***

Medium-sized to tall tree, to 25 m high; bark brown, somewhat fibrous and persistent on the lower trunk, yellowish or green and smooth above. Leaves alternate, narrow to broad-lanceolate, 7-15 cm long, 7-25 mm wide, bright to dull-green or somewhat bluish, stalked.

**Flowering:** Flowers whitish, borne in clusters of 7 forming part of a larger panicle; buds 7-8 mm long, 5-6 mm wide, the cap conical or hemispherical. Fruit hemispherical, 5-7 mm diameter, shortly stalked, the valves small and enclosed. Flowering spring-summer.

**Habitat:** Found almost exclusively on sandy or loamy alluvial soils, forming an open woodland or it may occur in stands mixed with other trees such as White Cypress Pine, Bulloak, Grey Box or Cooba.

**Distribution:** Throughout the CID.



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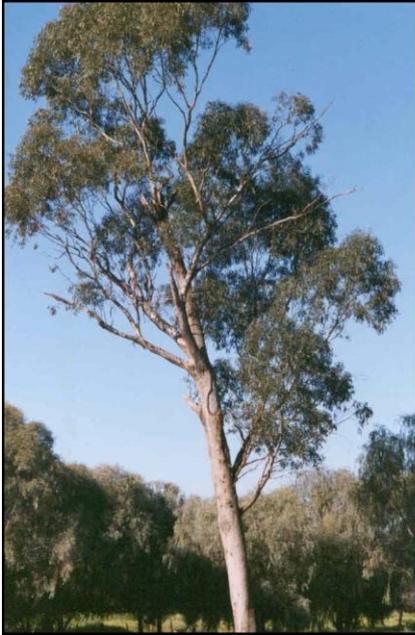
## **Grey Box - *Eucalyptus microcarpa***

Medium-sized tree, to 20 m high; bark somewhat fibrous, greyish-white and persistent on the trunk and main branches, smooth, ribbony and sometimes salmon-coloured on the smaller branches. Leaves alternate, 7-12 cm long, 15-20 mm wide, dull, leathery, stalked.

**Flowering:** Flowers white, borne in clusters of 3-7 forming part of a larger terminal panicle; buds 6-7 mm long, 4 mm wide, the cap conical. Fruit almost globular or cylindrical, flat on top, 5-7 mm long, 4-5 mm diameter, the valves deeply enclosed. Flowering mainly winter.

**Habitat:** Found on flats with red brown earths and heavy clay to loamy alluvial soils, often mixed with other species such as White Cypress Pine, Yellow Box or Black Box.

**Distribution:** Restricted occurrences across the CID.



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## RUTACEAE

### **Wilga - *Geijera parviflora***

Small to medium-sized tree, to 9 m tall, with a large, often rounded, dense canopy, the leaves and branches pendulous and often reaching to ground level. Leaves strongly aromatic when crushed, alternate, hairless, linear-lanceolate, 6-18 cm long, 4-7 mm wide, shortly stalked, shiny and dark-green, with a prominent midrib.

**Flowering:** Flowers white, small, 5-petalled, about 3 mm diameter, in open terminal panicles 4-7 cm long, the stalks immediately below each flower much swollen, the flowers emitting a rather foetid smell. Fruit globular, 4-5 mm diameter, the outer skin thick, drying to expose a single ovoid shiny black seed. Flowering mainly winter-spring.

**Habitat:** Found mainly on areas with red clay loams, also on sandy soils, occurring usually as well-spaced trees in mixed woodland communities.

**Distribution:** Throughout the CID.



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## PROTEACEAE

### **Needlewood - *Hakea leucoptera***

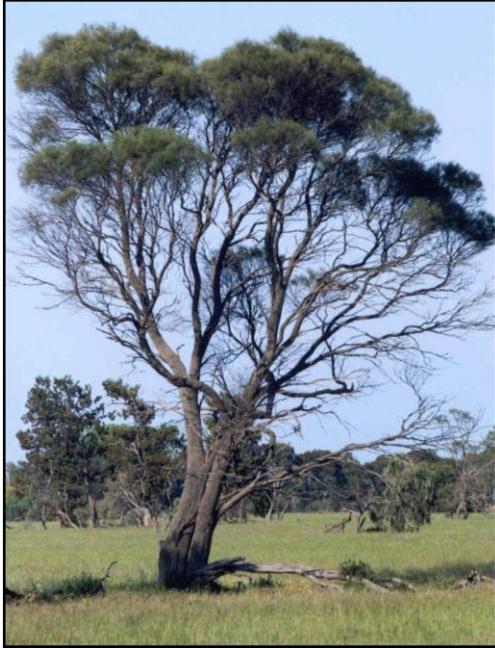
### **Hooked Needlewood – *Hakea tephrosperma***

Both are small trees to 5 m or so, with an open branched crown, or quite often a bushy shrub to about 2 m high. Leaves alternate, rigid, cylindrical, to about 8 cm long and 1.5 mm wide, with a sharp point at the tip (*H. tephrosperma* point curved), hoary when young but becoming smooth with age.

**Flowering:** Flowers white, hairless, tubular at the base on hairless stalks about 4 mm long in short spikes or clusters of 20 or more. Fruit a woody capsule, swollen at the base and tapering to a point at the top, 20-30 mm long, opening in halves longitudinally; seeds 2, winged on one side (*H. tephrosperma* wing dark coloured). Flowering late spring-summer.

**Habitat:** Usually found on soils of course texture, with a wide range of associated species in various woodland communities.

**Distribution:** Throughout the CID.



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## PITTOSPORACEAE

### **Butter Bush or Native Apricot - *Pittosporum phylliraeoides***

Small tree or shrub, to 6 m or occasionally higher, and 4 m wide, hairless except for the young shoots, with gracefully drooping branches and a whitish or mottled trunk. Leaves alternate, narrow, flat, deep-green, shiny, thick, 3-10 cm long, 3-10 mm broad, shortly stalked and terminating in a short stiff hooked point.

**Flowering:** Flowers cream or pale-yellow, fragrant, borne singly or in clusters in the leaf axils. Fruit a bony capsule 10-20 mm long, egg or heart-shaped, bright-orange when ripe, opening in 2 hard sections, each section containing 2-7 orange-red angular seeds immersed in a sticky pulp. Flowering late winter-spring.

**Habitat:** Found in most woodland communities, either as scattered trees or in small thickets of the shrub form, on soils ranging from grey clays to sandy red earths, although more frequent on the latter.

**Distribution:** Throughout the CID.



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# -SHRUBS & FORBS-



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## MIMOSACEAE

### **Grey Wattle - *Acacia brachybotrya***

Shrub to 3 m high. Leaves 1-3 cm long, oblong or obliquely ovate, 1-veined, bluish-green.

**Flowering:** Flowers bright yellow in globular heads. Pods 3–4 cm long, 5–6 mm broad, almost straight. Flowering late winter – spring.

**Habitat:** Found mainly in White Cypress Pine communities or occasionally in open Box communities, on sandy soil through to heavy brown clays.

**Distribution:** Throughout the CID.



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## **Deane's Wattle - *Acacia deanei***

Shrub to 5 m high. Leaves green to yellowish - green, to 7 cm long and 7 cm broad, usually with 4-6 main leaf "branches" each bearing leaflets 1-4.5 mm long and 0.5-0.75 mm broad.

**Flowering:** Flowers pale yellow, in globular heads about 5-6 mm in diameter, arranged in panicles borne at the branch ends or in the leaf axils. Pods 5-11 cm long, 8 mm broad. Flowering most of the year.

**Habitat:** Found in Box and White Cypress Pine communities on sandy red earth.

**Distribution:** Throughout the CID.



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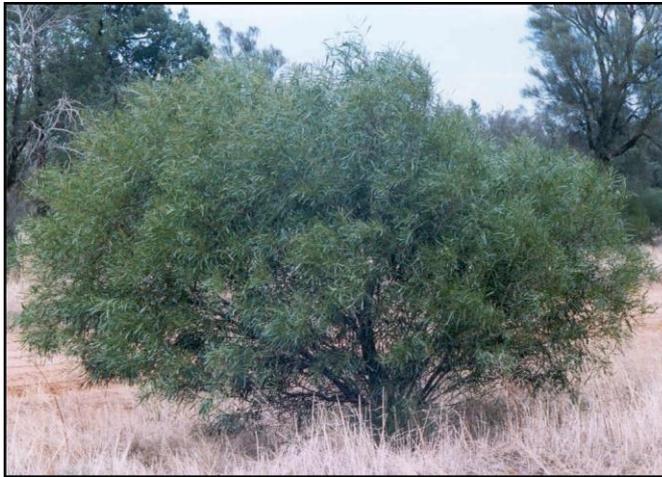
## **Western Black Wattle - *Acacia hakeoides***

Shrub to 3 m high. Leaves dark - green, oblanceolate, 4-12 cm long, 6-12 mm broad, rigid, rounded at the tip, the mid - vein prominent, a gland obvious on the lower part of the upper margin.

**Flowering:** Flowers bright golden - yellow, in globular heads 6-8 mm in diameter arranged in racemes of 6–12 borne in the leaf axils and at the branch ends. Pods 8-12 cm long, 3-6 mm broad, curved, strongly constricted between the seeds. Flowering late winter - summer.

**Habitat:** Found in White Cypress Pine and occasionally Box communities, on sandy to loamy red earths and sometimes on clay soils.

**Distribution:** Throughout the CID.



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## SAPINDACEAE

### **Narrow- Leaf Hopbush - *Dodonea viscosa* (subsp.) *angustissima***

Spreading slightly sticky shrub, usually 1-2 m, but sometimes to 5 m high, many stemmed. Leaves alternate, narrow-lanceolate, 2-8 cm long, 1-4 mm broad, blunt or pointed, sometimes shallowly and irregularly lobed, the upper surface glossy green.

**Flowering:** Flowers inconspicuous, with 4 sepals and no petals, borne in short panicles or racemes, male and female flowers on separate plants. Fruit a reddish or purplish capsule, with 3-4 vertical wings, to 10 mm long and 14 mm wide. Flowering spring-summer.

**Habitat:** Found chiefly on deep sandy soils, particularly in areas which have been disturbed; in a wide variety of vegetation types, particularly White Cypress Pine communities.

**Distribution:** Throughout the CID.



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## FABACEAE subfamily CAESALPINIOIDEAE

### Spring Pod Senna - *Senna artemisioides* (subsp.) *circinnata*

Erect, many-stemmed shrub, 1-3 m high, the stems and leaves downy when young, becoming hairless with age. Leaves usually reduced to almost cylindrical stalk-like structures 15-60 mm long, 1 mm broad, slightly flattened above, slightly curved and at times clustered at the stem nodes, the juvenile leaves with 1-3 pairs of obovate leaflets about 12 mm long and 6 mm broad.

**Flowering:** Flowers bright-yellow, buttercup-like, few in short racemes in the leaf axils. Fruit a coiled pod, stalked, 8-14 mm broad, with 1-2 coils about 30 mm diameter, the seeds dark and shiny. Flowering spring-autumn.

**Habitat:** Frequently found in open plain country with duplex or heavy clay soils in Black Box communities, also occurs on red earth soils. Usually found as single plants or in small groups.

**Distribution:** Throughout the CID.



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**Punty Bush - *Senna artemisioides* (subsp.) *filifolia***

Bushy to erect shrub, 1-3 m high. Leaves very variable, ranging from forms with small leaflets which fall off early and leave the stalk bare, to the most widespread form with 1-3 pairs of cylindrical or flattened leaflets 2-5 cm long and 1-1.5 mm broad which taper to a fine slightly hooked point.

**Flowering:** Flowers yellow, buttercup-like, in short racemes of 3-10 in the leaf axils. Fruit a pod, 2-8 cm long, 7-9 mm broad, with 10-15 seeds, splitting along the margins at maturity, the seeds thick, flattish and dark-brown. Flowering late winter-spring.

**Habitat:** Found mainly on red loam and sandy loam soils, scattered through mixed woodland, frequently in White Cypress Pine communities.

**Distribution:** Throughout the CID.



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## CHENOPODIACEAE

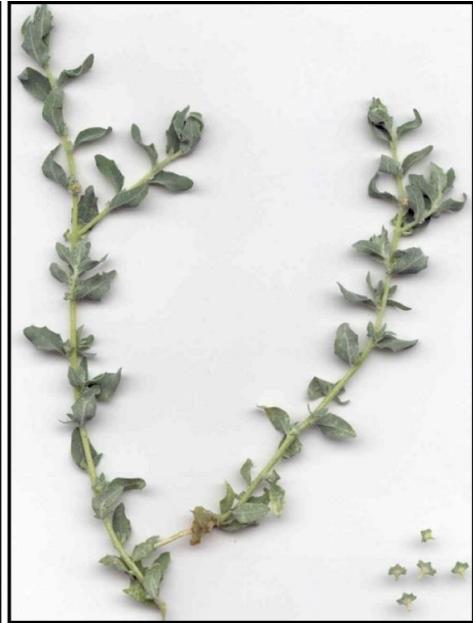
### Small Saltbush - *Atriplex eardleyae*

Small perennial subshrub, with rigid prostrate or ascending stems. Leaves alternate, obovate, mealy-white, 5-20 mm long, the margins smooth or toothed.

**Flowering:** Flowers monoecious, in small clusters in the leaf axils. Fruiting body fan-shaped, 4-5 mm wide in the upper part, with 2 bracteoles of unequal size, 3-5 lobed at the summit, bearing 2 small tooth-like appendages at the base of the smaller bracteole. Flowering most of the year.

**Habitat:** Found in numerous communities, on a wide range of soil types; less frequent on grey clays.

**Distribution:** Throughout the CID.



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## **Slender Fruited Saltbush - *Atriplex leptocarpa***

Procumbent perennial subshrub, with rigid branching stems. Leaves scaly-grey, oblong or linear-lanceolate, 2-3 cm long, the margins smooth or with a few small teeth.

**Flowering:** Flowers monoecious, in clusters in the leaf axils. Fruiting body almost stalkless, 3-6 mm long, the lower three quarters tubular and hardened, the upper portion scarcely wider, somewhat compressed, with 3-minute triangular lobes at the top. Flowering most of the year.

**Habitat:** Found in numerous plant communities and on several soil types; common on duplex soils and scalds.

**Distribution:** Throughout the CID.



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## **Old Man Saltbush – *Atriplex nummularia***

Large grey-scaly shrub, with brittle woody branches, reaching a height of 2 m or more and occasionally 4-5 m across. Leaves stalked, almost circular to broadly ovate, 10-25 mm long, the margins shallowly toothed or almost entire.

**Flowering:** Flowers dioecious, in panicles at the ends of the branches. Fruiting body stalkless, nearly round or somewhat fan-shaped, 5-8 mm long, the upper margin toothed or smooth. Flowering mostly spring-early summer.

**Habitat:** Found on practically all soils, usually in flat or low-lying situations; associated species include Boree with which it previously formed extensive communities, Bladder Saltbush and Black Box; also found in most other communities.

**Distribution:** Very restricted in the eastern section of the CID although common in the western parts along the Coleambally Outfall Drain.



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## **Creeping Saltbush - *Atriplex semibaccata***

Prostrate perennial subshrub, with long slender, rather brittle stems. Leaves greenish above, mealy-white below, 1-2 cm long, oblong or lanceolate, often toothed along the margins.

**Flowering:** Flowers monoecious, in small clusters in the leaf axils. Fruiting body 4-6 mm long, more or less diamond-shaped, red and succulent when fresh, strongly 3-nerved and toothed or entire when dry. Flowering summer.

**Habitat:** Found on numerous soil and vegetation types; more abundant on loams, clay loams and clays but also occurs on sandy loams. Sometimes grows in dense mats some metres across.

**Distribution:** Throughout the CID.



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## Lagoon Saltbush – *Atriplex suberecta*

Low growing forb, with rigid ascending stems to 40 cm high. Leaves oblong or obovate 2-7 cm long, rounded at the apex; the fruiting bodies are numerous, in dense axillary clusters, 2-4 mm long, with a broad triangular lobe at the apex and 2 or more irregular teeth on each side.

**Flowering:** Flowering spring–summer.

**Habitat:** Found in a wide range of situations on most soil types, including saline areas; usually in disturbed areas, along roadsides, channel banks or in weak pastures. Grows in summer and is often the only green plant present in many situations.

**Distribution:** Throughout the CID.



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## **Bladder Saltbush - *Atriplex vesicaria***

Perennial shrub, to 70 cm in height and diameter, with brittle woody stems. Leaves grey-green with a whitish scurfy surface, obovate to oblong, 1-2.5 cm long, occasionally toothed, rather thick, very shortly stalked.

**Flowering:** Flowers usually dioecious, fruiting body more or less circular in outline, membranous, net-veined, entire or toothed, 8-15 mm long and about as broad, usually almost concealed by large spongy appendages which in some forms may be absent. Flowering opportunistic, mainly spring and summer.

**Habitat:** Found on alluvial plains, formerly dominant on some (within the CID), associated with Black Box communities and others.

**Distribution:** Very restricted in the eastern section of the CID although common in the western parts along the Coleambally Outfall Drain.



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## **Nitre Goosefoot - *Chenopodium nitrariaceum***

Greyish shrub to 2.5 m high, with slender, rigid, somewhat spiny branches. Leaves green or hoary, alternate, often clustered, rather thick, oblong, blunt, 5-25 mm long, tapering into a short stalk.

**Flowering:** Flowers small, stalkless, in dense mealy terminal spikes or panicles. Fruiting body mealy, the small rounded black seed enclosed. Flowering most of the year.

**Habitat:** Found on clay and clay-loam soils, rarely on sands; in depressions, river flats, floodplains and other low-lying areas subject to occasional inundation; often in cane-grass, Lignum and Black Box communities.

**Distribution:** Throughout the CID.



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## **Climbing Saltbush - *Einadia nutans* (4 subsp.)**

Herbaceous perennial, with weak trailing or climbing stems. Leaves green, hairless or almost so, on slender stalks, usually opposite, 5-35 mm long, longer than broad, often lobed at the base.

**Flowering:** Flowers mealy, in short terminal spikes or small leafy panicles. Fruit a red or orange berry, globular or egg-shaped, 2-3 mm diameter. Flowering throughout the year, mostly summer-autumn. The four subspecies of this plant are distinguished from each other by leaf shape and some fruiting characteristics.

**Habitat:** Found on a wide range of soil types and in most vegetation communities. Often seen as a green mass on netting fences, entwined on fallen branches or climbing on trees and shrubs.

**Distribution:** Throughout the CID.



---

## **Ruby Saltbush - *Enchylaena tomentosa***

Variable perennial shrub, with rather long stems clothed with woolly hairs. Leaves almost cylindrical, 6-15 mm long, covered with short stiff hairs.

**Flowering:** Flowers small, solitary in the leaf axils. Fruit succulent, 4-6 mm diameter, at first green, later red or yellow, drying black. Flowering most of the year, mainly spring-early summer. A variety of this plant occurs in which the stems and leaves are hairless.

**Habitat:** Found on practically every soil type and in all vegetation communities.

**Distribution:** Throughout the CID.



---

## **Yanga Bush - *Maireana brevifolia***

Shrub to about 1 m high, with slender striate often reddish branches which are sparsely woolly, with tufts of wool in the leaf axils. Leaves alternate, scattered, fleshy, obovoid to almost threadlike, 2-5 mm long, narrowing into a short stalk, mostly hairless.

**Flowering:** Flowers solitary in the leaf axils. Fruiting body hairless; tube shallowly hemispherical, about 2 mm diameter, wings 5, horizontal, often overlapping, 2-3 mm long, with delicate brown veins. Flowering mainly summer-autumn.

**Habitat:** Found on a wide range of soils, in many vegetation communities, often in saline situations.

**Distribution:** Throughout the CID.



---

## **Black Cottonbush – *Maireana decalvans***

Erect or spreading perennial subshrub, 30-50 cm high, with slender striate branches which may be hairless or sparsely woolly, frequently with dense woolly tufts in the leaf axils. Leaves alternate, fleshy, narrow-cylindrical, 5-8 mm long, hairless.

**Flowering:** Flowers solitary in the leaf axils. Fruiting body hairless; tube hemispherical, 1-2 mm long, inconspicuous; wing horizontal, about 8 mm diameter. Flowering mostly summer.

**Habitat:** Found on grey clay, red earth and duplex soils in grassland, saltbush, and open woodland communities.

**Distribution:** Throughout the CID.



---

## POLYGONACEAE

### **Lignum - *Muehlenbeckia florulenta***

Hairless perennial shrub, to 2.5 m high, occasionally higher, with many slender tangled striate branches and branchlets. Leaves alternate, linear or lanceolate, on most plants rarely remaining for long and usually not occurring on the older branches.

**Flowering:** Flowers small, yellowish, solitary or in whorl-like clusters along the branchlets. Fruiting body more or less top-shaped, dry, 5 mm long. Flowering throughout most of the year.

**Habitat:** Found in swamps, gilgais, on river-flats and other intermittently inundated areas, often associated with Black Box and River Red Gum.

**Distribution:** Throughout the CID.



---

## XANTHORRHOACEAE

### Woolly-Head Mat-Rush - *Lomandra leucocephala* (subsp.) *robusta*

Tufted perennial herb, with a rhizomatous base. Leaves green, often drooping, 40-50 cm long, up to 2.5 mm wide, with loose fibres along the margins and in a white mass near the base.

**Flowering:** Flowers whitish, in dense globular or cylindrical woolly heads around the unbranched flower-stems, the heads 5-6 cm long and irregularly spaced along the stems, which are shorter than the leaves. Fruit a capsule about 7 mm long, half hidden in the woolly hairs of the flower head. Flowering mainly spring-early summer, but may occur at any time of the year.

**Habitat:** Found on sandy red soils and red brown earths in White Cypress Pine communities.

**Distribution:** Throughout the CID.



---

## ZYGOPHYLLACEAE

### **Pale Twinleaf - *Zygophyllum glaucum***

Prostrate succulent hairless annual forb or subshrub, with rather stout spreading stems, to 20 cm high, often forming a mat 80 cm to 2 m in diameter. Leaves opposite, Y-shaped, each with 2 fleshy obovate dull-green leaflets 1-3 cm long at the end of a narrow and very short common stalk.

**Flowering:** Flowers bright-yellow, borne singly on short stalks in the leaf axils, the 4 petals 12-15 mm long, obovate, notched at the tip. Fruit a drooping ovoid-oblong 4-angled and 4-celled capsule, 14-20 mm long, each cell containing 3-6 seeds. Flowering mainly winter-spring.

**Habitat:** Found on a variety of soil types in a number of vegetation communities.

**Distribution:** Throughout the CID.



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**-GRASSES-**



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## POACEAE

### **White-Top – *Austrodanthonia caespitosa***

Variable perennial grass, 20-90 cm high, with a dense tussocky base to 12 cm diameter. Stems smooth, slender to rather robust, with 2-4 hairless nodes. Leaves to 30 cm long, 2-4 mm wide, flat or loosely rolled, soft, hairless or hairy, under dry conditions inrolled and threadlike.

**Flowering:** Flowerheads compact, shortly branched, usually with 10-30 spikelets, when mature and dry appearing bleached and fluffy—hence the common name. Flowering spring, infrequently at other times.

**Habitat:** Found mostly on clay soils, less frequently on sandy loam or loamy red earths. Dominates the pasture in open grasslands, Black Box, Grey Box and Boree communities in this area.

**Distribution:** Throughout the CID.



---

## **Plains Grass – *Austrostipa aristiglumis***

Stout or rather slender perennial tussock grass, 50-150 cm or occasionally taller. Stems erect, stiff, with downy nodes. Leaves roughened, sometimes flattened at the base and 3-7 mm broad, narrow and inrolled from the base or only in the upper part.

**Flowering:** Flowerhead a loose, narrow to very broad panicle, 10-40 cm long and 3-10 cm broad, the lower branches 5-18 cm long. Flowering spring-autumn.

**Habitat:** Found mainly on heavy grey clays in open Black Box and Boree communities, sometimes in extensive stands, more usually as dense local colonies on the self-mulching puffs of gilgais.

**Distribution:** Throughout the CID.



---

## **Rough Speargrass – *Austrostipa scabra***

Slender erect tussocky or tufted perennial grass, 30-80 cm high. Stems slender, with 1 or 2 hairless nodes. Leaves rather stiff, inrolled and about 1 mm wide, roughened with short stiff hairs.

**Flowering:** Flowerhead a rather narrow and rat's-tail-like panicle, with the awns of the spikelets furled around the axis. Flowering mainly spring.

**Habitat:** Found mainly on red earths, duplex and solonized brown soils; occasionally on clays.

**Distribution:** Throughout the CID.



---

## **Windmill Grass – *Chloris truncata***

Annual or perennial grass, 16-45 cm high, forming a dense low crown. Stems kneed at the base and ascending, flattened, usually unbranched, smooth, 2-3 noded. Leaves to 14 cm long, 2-5 mm wide, roughened, rarely hairy, narrow, flat or folded, light to bluish-green in colour.

**Flowering:** Flowerhead of about 6-9 spikes radiating horizontally from a common point at the end of the stem, the spikes usually 9-13 cm long, hairy at the base, rigid or somewhat lax, with the spikelets arranged alternately in 2 rows on the underside. The florets black when mature. Flowering mainly summer, less commonly autumn and spring.

**Habitat:** Found mostly on red earths and grey clay soils, but occurs on just about all soil types and in many different vegetation communities.

**Distribution:** Throughout the CID.



---

## **Curly Windmill Grass – *Enteropogon ramosus* (*E. acicularis*)**

Tussocky perennial grass, 45-105 cm high, to 30 cm diameter, erect or sprawling, hairless or hairy; often with a slightly thickened butt. Stems numerous, erect, or kneeed and sometimes rooting at the lower nodes, 3-6 noded, wiry, much branched, with the branches erect, clustered, and more or less parallel with the stem. Leaves often bluish-green, hairy or hairless, erect or drooping, to 20 cm long and 6 mm wide, flat and characteristically curled when dry.

**Flowering:** Flowerhead consisting of 2-14 spikes stiffly spreading from the tip of the stem in several different planes, the spikes to 19 cm long, swollen and hairy at the axils, with two regular rows of spikelets arranged on one side of the axis, the lower part of the axis bare or with few spikelets. Flowering mainly spring-autumn. Ripe seedheads break off at the base and are blown about by the wind.

**Habitat:** Found on all soils from sandy loams to clays, especially in areas which have been lightly grazed. Not restricted to any particular plant community.

**Distribution:** Throughout the CID.



---

## **Rigid Panic – *Homopholis proluta***

Hairless, erect, green or blue-green perennial grass, 20-100 cm high, leafy, tufted, with a well-developed root system. Stems rigid, rather stout to moderately slender, smooth, sometimes branching at the lower nodes, about 5-noded. Leaves 2-15 cm long, 2-7 mm wide, mostly flat, or with the margins loosely inrolled, firm, somewhat rigid, prominently veined, smooth or slightly roughened.

**Flowering:** Flowerhead a much-branched loose open panicle, with roughened branches, at first enclosed by the uppermost, leaf sheath and spreading upwards in a fan-shaped fashion, later widely spreading, to 25 cm long, as wide or wider, with spikelets borne singly on stalks. Flowering mainly spring. Ripe seedheads break off at the base and are blown about by the wind.

**Habitat:** Found usually in low-lying areas in gilgais and on floodplains on heavy clay soils, in Black Box communities, but also recorded in others on clay soils receiving extra moisture.

Distribution: **Throughout the CID.**



---

## **Native Millet – *Panicum decompositum***

Coarse, densely tufted perennial grass, 30–145 cm tall, hairless usually light blue–green, sometimes short-lived, forming large tussocks. Stems usually thick, hollow, soft, erect, unbranched or branched, smooth, with 3–4 prominent hairless or hairy nodes. Leaves flat, erect, gradually tapered to a fine point, to 50 cm long and 12 mm wide with a conspicuous mid-rib.

**Flowering:** Flowerhead a large, open, much-branched panicle, to 40 cm long, almost as wide, comprising almost half the plant. Flowering summer–autumn. Ripe seedheads break off at the base and are blown about by the wind.

**Habitat:** Found mainly on heavy clay soils, in depressions and gilgais on floodplain areas in Mitchell Grass and Black Box communities; also on red earth soils in numerous communities, on clay and duplex soils in Bladder Saltbush communities, and in open grasslands.

**Distribution:** Throughout the CID.



---

## **Hairy Panic – *Panicum effusum***

Dull or greyish–green perennial grass, 20–60 cm high, tufted, with a slightly thickened sparsely hairy butt, the leaves and stems with a characteristic cover of stiff, long, white, spreading hairs arising from hard wart–like protuberances. Stems usually rather slender, erect, or kneed at the lower nodes, unbranched or branched, densely hairy or occasionally almost hairless, the 1 – 3 nodes usually densely covered with long soft hairs. Leaves usually flat, 5–25 cm long, 2–6 mm wide, hairy, gradually tapering to a fine point, the mid–rib prominent below.

**Flowering:** Flowerhead a large open much–branched panicle, 8–50 cm long, often almost as wide, comprising almost half the plant. Flowering most of the year except winter. Ripe seedheads break off at the base and are blown about by the wind.

**Habitat:** Found in a varying range of plant communities, on quartz gravelly soils, to heavy grey clay soils and isolated sandhills on floodplains.

**Distribution:** Throughout the CID.



---

## **Box Grass – *Paspalidium constrictum***

Erect or spreading tussocky perennial grass, 10-60 cm high, dull or greyish-green, with a thickened, knotty, hairy butt. Stems numerous, wiry, much-branched, round or angular, or usually channelled on one side, often kneeed at the lower nodes, densely covered by minute bristly hairs, with 4-5 hairy thick conspicuous nodes. Leaves flat, folded or inrolled, to 15 cm long and 2-3 mm wide, the edges thickened, the midrib prominent, the upper surface roughened.

**Flowering:** Flowerhead a narrow slender panicle, borne a short distance above the leaves, mostly 6-8. 5 (to 15) cm long, about 5 mm wide, consisting of up to 10 erect spikes scattered along one side of the main axis. Flowering throughout the year.

**Habitat:** Found on sandy loam and clay loam red soils in a wide variety of vegetation communities.

**Distribution:** Throughout the CID.



---

## **Warrego Summer–Grass – *Paspalidium jubiflorum***

Leafy tussocky perennial grass, 30–120 cm high, green or blue–green, hairless, arising from short creeping rhizomes, the base of the plant with rigid bracts. Stems unbranched or sometimes much–branched, rather stout to slender, usually cane–like, smooth, round or slightly flattened, about 5–noded. Leaves flat, rather thin and lax, or firm, 2.5–25 cm long, 4–10 mm wide, tapering to a long fine point, with a conspicuous whitish midrib.

**Flowering:** Flowerhead a very narrow panicle, with up to 16 widely spaced “spikes” 1–4 cm long borne erect and pressed toward the flattened 2–3 angled main axis. Flowering summer–autumn.

**Habitat:** Found on heavy clay soils along permanent rivers and creeks, ephemeral creek beds and banks, swamps and swamp margins in Black Box, River Red Gum and Myall communities.

**Distribution:** Throughout the CID.



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## **Fairy Grass – *Sporobolus caroli***

Slender tufted perennial grass, 20-75 cm high, often dense and leafy at the base. Stems erect, slender, unbranched, or branched from the upper nodes, hairless, smooth, at times shiny, round or flattened, 3-5 noded. Leaves blue-green or green, flat, rarely loosely folded, rather narrow but widened at the junction with the sheath, to 20 cm long, hairless or sprinkled with stiff fine hairs arising from hard wart-like protuberances, roughened by minute bristles, tapered to a long firm point, often curly when dry, the edges thickened, sharp and roughened by short bristly hairs.

**Flowering:** Flowerhead a delicate open pyramidal panicle, 7.5-15 cm long, to 13 cm wide at the base, carried well above the leaves, with extremely fine, spreading, twice-divided branches arising in whorls, those above scattered on the axis in small clusters of 2-4, or borne singly. Spikelets numerous, very small, about 1 mm long, purplish or lead-grey. Flowering mostly summer-autumn.

**Habitat:** Found on various soil types ranging from grey clays to red earths and in White Cypress Pine communities; also on sandy alluvial and duplex soils.

**Distribution:** Throughout the CID.



---

# -AQUATIC PLANTS-



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## CABOMBACEAE

### **Watershield – *Brasenia schreberi***

A native stoloniferous or rhizomatous perennial, rooting at the nodes. Leaves floating, oval, peltate, up to about 5 cm long and 8 cm wide. Petiole to about 2 metres in length, dependent on water depth. Leaf undersurface often red. A food source for waterfowl.

**Flowering:** Flowers solitary, axillary, floating. Perianth segments 6–8, dark maroon. The mucilage on the submerged parts is a useful identification characteristic. Flowers during summer and fruit formed in late summer–autumn. Some leaves may overwinter and new leaf growth commences in late spring or early summer.

**Habitat:** Found in still, shallow fresh–water lagoons or backwaters on sandy or muddy bottoms. Prefers acid water conditions.



---

## COMPOSITAE

### **Waterbuttons- *Cotula coronopifolia***

A native decumbent, emergent perennial to 60 cm high, rooting from the lower nodes. Leaves alternate, to 7 cm long and 1–2 cm wide, stem clasping with a sheathing base. Margins entire to deeply lobed.

**Flowering:** Inflorescence a tight head 6–12 mm diameter, solitary, terminal on peduncles to 8 cm long. Flowers throughout the year except in late winter. Fruits from spring to late winter.

**Habitat:** Found in still or slowly moving saline, brackish or fresh water to 50 cm deep. Plant will grow out over deeper water with roots reaching towards the bottom. Plants can grow on wet or drying ground. Infrequently a problem in drainage channels.



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## CRASSULACEAE

### **Crassula – *Crassula helmsii***

A native prostrate or decumbent perennial forming loose or tight mat-like growths. Stems much-branched, intertwined, to 50 cm long but usually only a few cm high unless supported by surrounding vegetation. Leaves opposite, joined at the base by a small sheath about 1 mm long. Leaves succulent, more or less elliptical in section up to 1.5 cm long and less than 2 mm wide.

**Flowering:** Flowers solitary, axillary, pedicellate on pedicels subequal to the leaves, bisexual. Summer flowering and growing.

**Habitat:** Found in or on the margins of stationary or slowly-flowing water usually less than 30 cm deep (rarely in deeper water). Seldom obstructive in channels. Because of its low and dense growth it has potential for planting or encouraging as a competitive species in the beds of intermittently-flowing channels.



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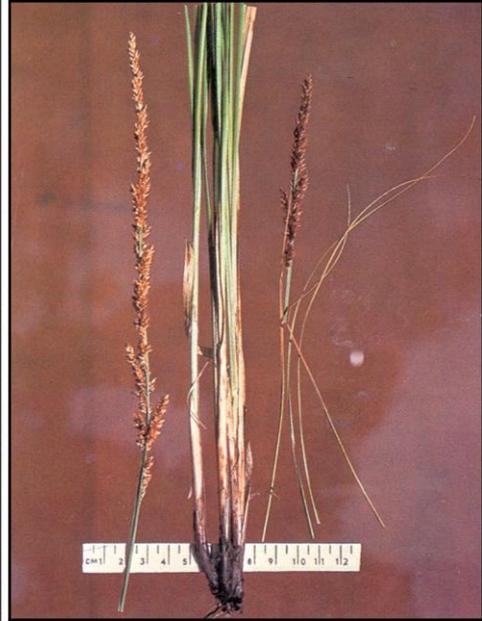
## CYPERACEAE

### Tussock Sedge – *Carex appressa*

A native caespitose perennial to about 2 metres tall, usually less than 1 metre. Leaves about 5 mm wide, to 60 cm long with scabrid margins.

**Flowering:** Inflorescences a contracted spikelike panicle to 25 cm long. Spikelets numerous, male and female intermixed, about 5 mm long.

**Habitat:** Found in damp areas, lake and creek banks, ephemeral swamps; can survive periodic inundation. May cause a problem as a pasture weed in some damp areas. Useful for erosion stabilisation.



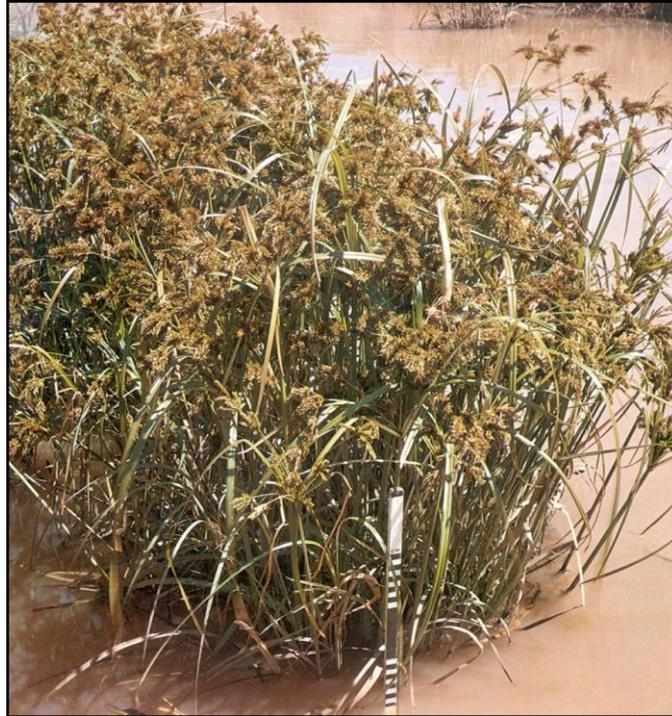
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## Giant Sedge - *Cyperus exaltatus*

Robust caespitose native perennial to 2 metres high, with a short woody rhizome. Culms triquetrous, 2–5 mm wide in upper part. Leaves flat, approximately as long as the culm, 3–10 mm wide, with 2 obvious lateral veins on upper surface, margins scabrous. Sheaths long and wide, purplish brown.

**Flowering:** Inflorescence bracts 3–6, similar to the leaves, the lower ones much exceeding the inflorescence, to 90 cm long and approximately 2 cm wide, scabrous. Inflorescence compound with 5–10 branches to 18 cm long, each branch ending in a cluster of elongated brown spikes 2–9 cm long, 0.3–1.0 cm wide.

**Habitat:** Found on river and creek banks or frequently inundated alluvial floodplains. Infrequently occurs in drainage channels. Generally a valuable plant providing cover for waterfowl and stabilising banks against erosion.



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## **Common Spikerush – *Eleocharis acuta***

A native rhizomatous perennial less than 1 metre tall. Culms erect, 1–3 mm wide, terete or slightly flattened but trigonous below the spikelet, longitudinally striate. Sheaths more or less purplish at the base, almost truncate, prominently mucronate.

**Flowering:** Spikelets cylindrical 1–3 cm long, 3–7 mm wide.

**Habitat:** Found in or alongside perennial wetlands, including channels. Infrequently obstructive in supply and drainage channels. Provides stabilisation for channel banks against erosion.



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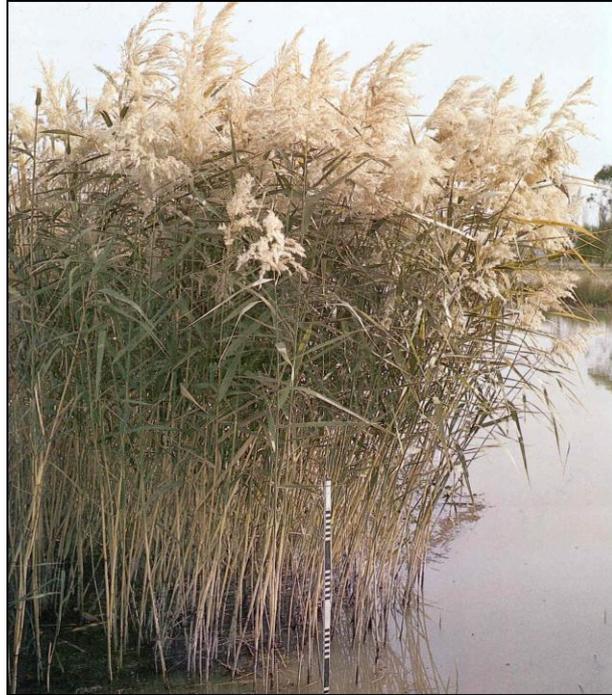
## GRAMINACEAE

### Common Reed – *Phragmites australis*

A native erect robust rhizomatous perennial to 3 metres high. Culms rigid, many noded, to 1 cm diameter, hollow internodes, leaves produced all the way up the stem.

**Flowering:** Panicle to 40 cm long, drooping at the tip, green with a purple tinge at first, turning white on maturity, dense, soft, many-branched.

**Habitat:** Grows in fresh or slightly brackish water up to 2 metres deep, mainly on a mud substrate but occasionally on sand. May also grow in seasonally inundated areas with a high watertable. In irrigation districts and flood mitigation channels it is a major pest, however this plant has the important attributes of giving cover for animals, preventing wave or current erosion to banks and providing useful grazing for stock.



---

## GLOSSARY

**Axillary** - Arising from the leaf axil.

**Annual** – A plant completing its life cycle in one year.

**Bracteole** - A small bract borne on a flower stalk below the flower but not subtending it; usually borne singly in monocots and in pairs in dicots.

**Bract** - A leaf-like structure or scale, which subtends a flower or flowerhead.

**Culm** – An aerial stem of grasses or sedges, terminating in an inflorescence.

**Catkin** - A cylindrical flowerhead consisting of unisexual flowers arranged as a spike.

**Caespitose** – Tufted, with the leaves all basal and  $\pm$  erect.

**Duplex** – A soil which shows a sharp change in soil texture between the A and B horizons (subsoil clayey while topsoil sandy)

**Decumbent** – The lower portions on or  $\pm$  parallel to the ground but the upper portions ascending.

**Diocious** – A species having male and female flowers on different plants.

**Elliptical** – An elongated rounded outline which is broadest across the middle and narrowed to both ends.

**Forb** – A herb other than a grass.

**Floret** – Individual flower in a flowerhead.

**Globular** – Spherical or rounded and solid.

**Gilgai** – A type of minor variation on the soil surface associated with some clayey soils.

**Herbaceous** – Lacking woody tissue.

**Hoary** – Covered with greyish or whitish, often mealy or scurfy hairs or scales.

**Internode** – The space between two nodes on a stem.

**Inflorescence** – A group of flowers borne on a single or branched stem.

**Leaflet** – The leaf-like unit of a compound leaf.

**Lanceolate** – Tapering at each end but broadest in the lower part.

---

**Lax** – Loose.

**Midrib** – The central vein of a leaf.

**Monoecious** – Having separate male and female flowers on the one plant.

**Monospecific** – Pure stands of a single plant species.

**Mucronate** – Having a mucro.

**Mucro** – A short projection (usually terminal or sub-terminal).

**Node** – Joint of a stem from which a leaf (leaves) or bract(s) arises.

**Oblanceolate** – Tapering at both ends but broadest in the upper part.

**Panicle** – A much-branched inflorescence.

**Petiole** – The stalk of a leaf.

**Perianth** – The calyx and corolla of a flower when referred to collectively; or the whorl of sepals or petal-like segments present when the flower has only one whorl of these segments.

**Procumbent** – Trailing or spreading on the ground.

**Perennial** – Plants which complete their life cycle over more than two years.

**Protuberances** – Small projections on a surface.

**Prostrate** – Lying close to or against the ground.

**Raceme** – An unbranched inflorescence bearing stalked flowers and with the youngest flowers at the tip.

**Rhizome** – An underground stem.

**Stoloniferous** – Producing stolons.

**Stolon** – A horizontal aboveground stem or runner, which produces roots at its nodes.

**Subshrub** – A plant with woody tissue in the flower-stem and main root but with upper parts herbaceous; often applied to very small shrubs.

**Striate** – Marked with parallel longitudinal lines, grooves or ridges.

**Terminal** – At the end of an axis (stem, branch or leaf-stalk).

**Spike** – An unbranched inflorescence bearing stalkless flowers along the axis.

**Trigonous** – With three angles.

**Unisexual** – Each flower being either male or female only.

---

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