

Botanical name

Acacia coolgardiensis subsp. *coolgardiensis* Maiden, J. & Proc. Roy. Soc. New South Wales 53: 211, pl. 15, figs 1--7 (1920)

The botanical name commemorates the Western Australian goldfields township of Coolgardie from where the type specimen was collected by Leonard Clarke Webster in 1900. While this species is common around Coolgardie it is widespread in inland areas of south-west Western Australia.

Common names

Sugar Brother (preferred Common Name); Spinifex Wattle.

Characteristic features

Trunks often shallowly longitudinally fluted. *Phyllodes* terete, slender, erect, neither rigid nor pungent, dull green to light greyish green, with many, fine, closely-spaced longitudinal nerve. *Heads* prolific, globular to widely ellipsoid or obloid, normally sessile, in pairs within axil of phyllodes. *Pods* terete, narrow, light reddish brown.

Description

Habit. Multi-stemmed, obconic *shrubs* or *small trees* commonly 2-4 m tall, sometimes reaching 7 m, trunks normally 5-8 cm diameter at their base (1-4 cm in diameter at breast height), crowns dense, +/- rounded and occupying about 50% of the total plant height, in the Kalannie region individual plants attain their best development (i.e. to 4 m tall, stems robust, crowns spreading to 3-4 m across) in open exposed sites such as roadverges or fallow land around margins of wheat fields, however, in dense shrubland it can grow as a spindly, narrowly obconic shrub about 2 m tall, over its entire geographic range this subspecies is recorded as being (1.5-)2-4(-6) m across; one early collection (1905) records the height as 10 m, however, this would seem excessive.

Trunks. Normally shallowly longitudinally fluted.

Bark. Light grey to mid-grey, thin, smooth except very finely longitudinally fissured at base of main trunks on oldest plants.

Branchlets. Minutely appressed-hairy between the fine resin-ribs at extremities (the hairs often very difficult to see without magnification).

Phyllodes. Terete, rarely sub-terete or compressed, slender, 5-11(-15) cm long, 0.7-1 mm in diameter, slender, soft and flexible, erect, sub-straight to shallowly incurved, dull, green to light greyish green, with minute, appressed silvery hairs between the nerves (but the hairs are normally difficult to see except at high magnification); *longitudinal nerves* numerous, very fine and close together; *apices* acute, not pungent; *pulvinus* light yellow tinged orange.

Heads. Paired within axil of phyllodes, usually sessile, globular to widely ellipsoid or obloid, 6-7 mm long and 7 mm wide when fresh (can be longer outside the Kalannie region), golden.

Flowers. 5-merous; *sepals* commonly free, occasionally to 1/2 united.

Pods. Terete, (2-)4-8(-10) cm long, 1-2 mm wide, +/- pendulous, thinly coriaceous-crustaceous, straight to shallowly curved, glabrous or with minute, silvery appressed hairs between the often obscure longitudinal nerves, resinous (but not viscid), light reddish brown.

Seeds. Longitudinal in the pods, 2.2-4 mm long, about 1 mm wide, shiny, dark olive green to brown; *aril* creamy white.

Taxonomy

Subspecies. *Acacia coolgardiensis* is a wide-ranging species comprising three subspecies, two of which occur in the Kalannie region, namely, subsp. *coolgardiensis* and subsp. *effusa*. *Acacia coolgardiensis* subsp. *effusa* is uncommon in the Kalannie region and is most reliably distinguished from subsp. *coolgardiensis* by its flat, albeit narrow, phyllodes.

Related species. *Acacia coolgardiensis* is probably most nearly related to species of the the *A. aneura* complex, *A. ramulosa* in particular. *Acacia ramulosa* is uncommon in the Kalannie region and plants from this area are readily distinguished from those of *A. coolgardiensis* by their pedunculate spikes and much larger pods and seeds. Subspecies *coolgardiensis* is further distinguished from *A. ramulosa* by its terete phyllodes.

Superficially similar species. Within the Kalannie region *A. coolgardiensis* subsp. *coolgardiensis* can easily be confused with *A. cylindrica* and *A. resinosa*, especially in places where these species grow together (see *A. cylindrica* and *A. resinosa* for discussion).

Variants. A few collections from the north of the range of this subspecies have short peduncles (to 2 mm long), however, elsewhere (including Kalannie region plants) peduncles are absent. Other minor variants are discussed by Cowan and Maslin (1995).

Distribution

Widely distributed in south west Western Australia where it extends from Nerren Nerren Station (about 80 km northeast of Kalbarri) and Northampton, southeast to near Holt Rock and Menangina Station (about 80 km east of Menzies).

Acacia coolgardiensis subsp. *coolgardiensis* is common in the Kalannie region where it frequently forms dense populations in the places where it occurs (especially along roadverges).

Habitat

Over its geographic range subsp. *coolgardiensis* grows on a wide variety of soils including granitic or lateritic gravel, sand, deep, red sandy loam or loam; it often occurs on sandplains but also grows on low hills and granite outcrops in shrubland and spinifex.

In the Kalannie region it occurs on a range of sandy or gravelly, coarse-textured, free-draining soils on upper slopes in the catchment.

Recorded from the following Kalannie region Land Management Units. Sand over Gravel; Shallow Soil over Granite; Pediment; Deep Yellow Sand; Shallow Soil over Laterite; Sandy Loam over Clay; Spillway Sand.

Conservation status

Not considered rare or endangered.

Flowering

Over its geographic range subsp. *coolgardiensis* flowers from July to October.

In the Kalannie region in 1997 this subspecies was at peak flowering from August to early September.

Fruiting

Over the geographic range of this subspecies pods with mature seeds have been collected from October to January.

Although subsp. *coolgardiensis* commonly sets quite large pod crops most plants in the Kalannie region were sterile in early December 1996 (reduced seed set also occurred in many other acacias in the region that year). It is probable that local conditions (especially the timing and/or intensity of rainfall events) influence fruit-set.

The pods are easily harvested by hand or by simple threshing techniques.

Biological features

Longevity. Probably long-lived (25+ years).

Growth characteristics. *Acacia coolgardiensis* tolerates medium frosts and extended dry periods (Elliot and Jones 1982); its coppicing ability is unknown; it is unlikely to root sucker.

Diseases. Some plants in the Kalannie region show moderate Gall Rust infection, however, most plants were not infected.

Weed potential. Although this subspecies regenerates well (from seed) in disturbed sites such as roadverges it is unlikely to become weedy.

Propagation

Propagate from seed.

Informal germination tests, using various hot water treatments, were conducted by Angela Waters (Kalannie Tree Supplies). Good germination response was achieved by either soaking the seed overnight in just-boiled water prior to sowing, or by boiling the seed for 1 minute prior to soaking. Untreated seed did not germinate.

Revegetation

In the Kalannie region subsp. *coolgardiensis* has high potential for use in revegetation on a range of sandy or gravelly soils on upper slopes in the catchment. It is common in the area and show good natural regeneration in many places (especially areas where stock has been excluded). Its growth form and wide edaphic tolerances makes it particularly suited for use as a windbreak and for providing shelter for both stock and wildlife.

Wilcox *et al.* (1996) recommend *A. coolgardiensis* for revegetation in the Midlands and northern wheatbelt regions of Western Australia for the following soil types: sand over gravel and sand over red clay.

Utilisation

Windbreak. High potential as a low windbreak on account of its dense, porous, spreading crown.

Shade and shelter. Very suitable for providing shade and shelter for stock and wildlife. Plants develop their best form for this purpose when widely spaced, thus enabling the crowns to spread to their maximum extent.

Visual screen. The growth form of this subspecies offers some potential for use as a visual screen.

Fodder. Has no known forage value according to Mitchell and Wilcox (1994).

Amenity planting. Because this is a long-lived species with attractive foliage and flowers prolifically it has potential for amenity planting in arid and semi-arid areas.

References

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- Mitchell, A.A. and Wilcox, D.G. (1994). *Arid shrubland plants of Western Australia*. ed. 2 (University of Western Australia Press in association with the Department of Agriculture, Western Australia: Perth.)
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