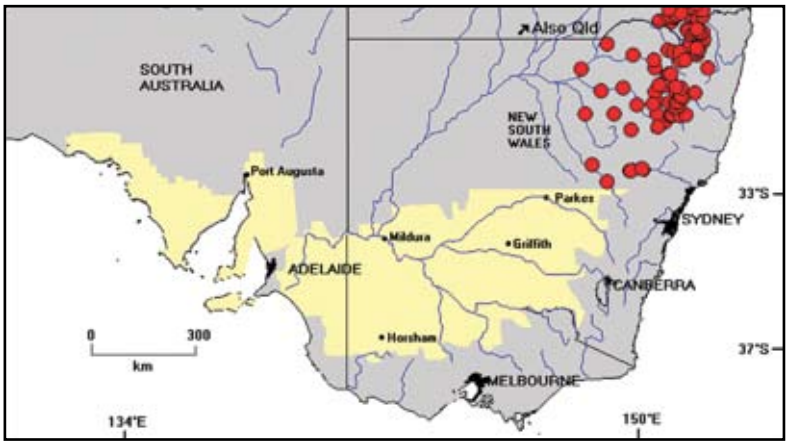
Acacia neriifolia A. Cunn. ex Benth.

Common Names

Oleander Wattle, Bastard Yarran, Silver Wattle, White Wattle, Black Wattle.



Map 45. Distribution of *A. neriifolia*.

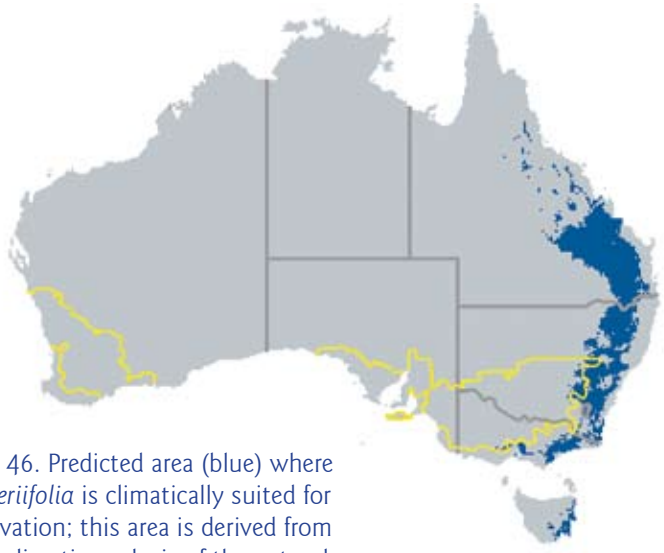
Habit

Erect or spreading, often shapely shrubs (2–5 m tall) or trees (to 6–8 m tall or occasionally 10–15 m), normally single-stemmed and sparingly branched for 2–4 m (tallest plants may be unbranched for 6–8 m), occasionally with up to 3 main stems from near the base, often freely-branched in open sites but with erect, sparingly branched habit in denser stands, main stems and branches straight to sub-straight or somewhat crooked, boles to about 15–25 cm dbh, strong, shallow lateral roots develop on at least some plants (in stony sites), crowns bushy and often terminal, sometimes retaining juvenile bipinnate foliage for a long time. Bark thin and tightly held, longitudinally fissured on main trunks, smooth on upper branches, pale- or dark-grey.

Botanical descriptions and illustrations/photographs are provided by Maiden (1920), Lebler (1981), Turnbull (1986), Simmons (1987), Tame (1992), Doran & Turnbull (1997), Maslin (2001 & 2001a) and Kodela (2002); it is also described in Cunningham *et al.* (1981) and Pedley (1980).

Taxonomy

Acacia neriifolia is referable to *Acacia* section *Phyllodineae,* a diverse, and probably artificial, group of about 408 species (Maslin 2001) which are characterized by having '1-nerved' phyllodes and flowers arranged in globular heads (see Maslin & Stirton 1998 and Maslin 2001 for discussion). Species of section *Phyllodineae* are widespread in Australia with the main centres of richness located in temperate and adjacent semiarid areas of eastern, southeastern and southwestern Australia; species number greatly decline in the arid zone and in northern tropical/subtropical areas (Hnatiuk & Maslin 1988 and Maslin & Pedley 1988).



Map 46. Predicted area (blue) where *A. neriifolia* is climatically suited for cultivation; this area is derived from a bioclimatic analysis of the natural distribution (red circles, Map 45), see also Table 5. Target area shown in yellow.

As discussed by Maslin (2001) *A. neriifolia* is a variable species in need of critical revision. Typical representatives of the species are normally recognised by their thinly coriaceous, commonly shallowly recurved phyllodes 4–9 mm wide, to c. 12 cm long and with a dense indumentum of short, straight, silvery white hairs covering the entire lamina or occurring in patches, they also have a rather prominent gland situated 0–8 mm above the pulvinus. Most of the variation occurs in Queensland populations (see Pedley 1980 for discussion). Plants from the

Figure 22. *Acacia neriifolia*

A – Mature plant in open site (note straight, stout stems/branches). (Photo: B.R. Maslin)

B – Stem base variation, branching above ground (left) & 3 stems from ground level (right). (Photos: B.R. Maslin)

C – Single stem (left) & stem showing weak epicormic growth (right). (Photos: B.R. Maslin)

D – Plants in same population showing erect growth habit (left), spreading branches (center) & closely-spaced regeneration (from seed) (right). (Photos: B.R. Maslin)

E – Branch showing heads in racemes. (Photo: L. Jessup)

F – Stem core. (Photo: P. Macdonell)

Granite Belt (around Stanthorpe) and Inglewood are rather large trees with coriaceous phyllodes to 21 cm long; this variant grades into 'typical' *A. neriifolia*. Specimens from the Toowoomba–Crows Nest area often have phyllodes to 12 mm wide with the gland to 2 cm above the pulvinus; the name *A. penninervis* var. *angustata* is likely to be referable to this entity (L.Pedley, pers. comm.). Like some other specimens from elsewhere in Queensland the indumentum on these plants may be sparse (sometimes completely absent from branchlets, phyllodes, raceme axes or peduncles, but not all organs simultaneously). A specimen from near Kingaroy shares characters of both the Toowoomba–Crows Nest variant and *A. pustula*. A few New South Wales specimens of 'typical' *A. neriifolia* have shorter than normal phyllodes (i.e. 4–6 cm long).

Acacia neriifolia is very closely related to *A. ingramii* (endemic in the Armidale district of northern New South Wales). Pedley (1980) treated *A. pustula* as a subspecies of *A. neriifolia*; although these species are closely related *A. pustula* is probably closer to *A. linearifolia* (see species profile above).

Species detailed in this report which are not far removed taxonomically from *A. neriifolia* include *A. hakeoides*, *A. linearifolia* and *A. pycnantha*; members of the '*Acacia microbotrya* group' are related to these taxa.

Distribution and habitat

Occurs mainly on the western slopes and tablelands of the Great Divide in Queensland (south of Emerald) and New South Wales (north of Dubbo). Although the natural distribution of *A. neriifolia* is outside the target area it occurs on the drier western plains of New South Wales very close to the north border in New South Wales. As detailed by Turnbull (1986) this species grows on gently undulating hills or in mountainous country, often on sandstone or granite but also andesite, basalt conglomerates and shale. The soils vary from infertile shallow rocky lithosols and podzolics of the mountain sides to deep, strongly structured red-brown, fertile volcanic krasnozems. The soils are acidic and well drained. Some of the tallest specimens have been found on the deep red-brown basaltic clays, but *A. neriifolia* can reach 8 m on shallow sandy soils. See Turnbull (1986) and Doran & Turnbull (1997) for additional habitat information.

Flowering and fruiting

Flowers from June to October with the main flush in July and August in the north and west of its range and about a month later in the south and east (Turnbull 1986). Mature pods have been collected in November and December. A light seed crop was observed on planted specimens in Queensland as early as 16 months (Ryan & Bell 1989).

Biological features

As summarised by Turnbull (1986) *A. neriifolia* is a fast-growing species that will withstand snow and heavy frosts. It is moderately drought tolerant (Simmons 1987). It grows best on relatively light, often stony, well drained sites. Under trial conditions it coppiced poorly when cut below 1 m and its coppicing performance was rated as only fair at 1 m (Ryan & Bell 1989). We observed epicormic growth on a few plants in the wild but we assessed this species to have generally a low coppicing ability. *Acacia neriifolia* is unlikely to sucker (but needs confirmation). Estimates based on our field observations are that this is generally a relatively short-lived species (perhaps 10–15 years, although some plants are likely to live longer).

Cultivation

Little known in cultivation but according to Tame (1992) is suitable for growing on a variety of soils and according to Turnbull (1986) does best on relatively light, often stony, well-drained sites.

We observed *A. neriifolia* under cultivation at the Burrendong Arboretum where it survived and performed well in the absence of supplementary watering. Burrendong Arboretum is located about 20

km due southeast of Wellington, just outside the target area near its north eastern corner (Wellington has a mean annual rainfall of 620 mm).

The following silvicultural information is provided by Turnbull (1986).

Establishment

Establish from seed. Seed immersed in boiling water for 1 minute has been shown to break seedcoat dormancy. Treated seed gives a germination rate of 70% and there are about 30 000–35 000 seeds/kg.

Yield

In field trials in southeast Queensland, one provenance (Toowoomba) grew very rapidly, averaging nearly 14 m tall and 19 cm in basal diameter in 4. 5 years (Ryan & Bell 1991). The other provenance tested (Blackdown Tableland) grew at only half this rate and was of poorer form, indicating the need to trial a range of seed sources when assessing the potential of this species.

Weed potential

There are no records of weediness involving this species.

Wood

Attractively marked, close-grained and tough (Maiden 1889); the sapwood is pale yellow and the heartwood mid-brown.

Utilisation

Wood

Regarded by Turnbull (1986) as a probable good source of fuel wood and has potential for post and pole production.

Fodder

It has some value as forage for animals during times of drought, with sheep said to find it more palatable than do cattle (Anderson 1968). Vercoe (1989) estimated the crude protein levels of phyllodes to be in the range 14–16% (dry matter) with a predicted in vivo dry matter digestibility of 33–35%. As the species came close to the minimum requirement for certain nutrients, it was recommended for further study of its fodder potential.

Tannin

The bark has a tannin content of 11–14% (Swain 1928) and was formerly used locally for tanning in southern Queensland (Maiden 1920).

Land use and environmental

It is some-times grown for windbreaks in Australia (Simmons 1987).

Other uses

An attractive species that could be used as a garden plant (Forestry Commission of New South Wales 1980, Cunningham *et al.* 1981) and in amenity plantings (Turnbull 1986).

Potential for crop development

This is a relatively poorly known species for which there is little data available, however, it would appear to have reasonably good prospects as a crop plant for high volume wood production. It is ranked as a category 2–3 species and would be best suited to development as a phase crop (Table 6).

Acacia neriifolia is reported as having a relatively fast growth rate. However, according to Turnbull (1986) vigorous growth can be expected only on well drained sites where there is a short dry season; it does tolerate heavy frosts. The species is therefore most likely best suited for growing in the wetter peripheral regions of the target area. *Acacia neriifolia* is capable of producing a good growth form and good quantities of wood biomass. However, it is somewhat variable with respect to habit (it is most variable in southeast Queensland) and the selection of appropriate provenances for trial purposes will be important in its development. Furthermore, anecdotal field observations suggest that silviculture practice will influence plant form and biomass production. Closely spaced plants may be expected to develop straighter, less branched stems, but if grown too close the stems are likely not to develop significant amounts of wood. We would estimate that under appropriate growing conditions plants of this species might be expected to produce stems to about 15 cm dbh in 5–10 years. The wood is pale-coloured and although its density is unknown it will possibly be similar to that of *A. microbotrya* (which averages about 830 kg/m^3) and, if so, it lowers its attraction for use in reconstituted wood products. A potential constraint with respect to the development of this species as a phase crop is that it seems capable of producing seed at an early age. Such phenological precocity may result in the creation of a soil seed bank that may lead to weed problems in adjacent or subsequent annual crops. Alternatively, the seedlings regeneration may possibly be treated as a form of green manure. The probable absence of root suckering is an attractive feature in the management of this species as a phase crop plant.

The area predicted to be climatically suitable for the cultivation of *A. neriifolia*, based on its natural climatic parameters, is shown in Map 46. This analysis indicates *A. neriifolia* has the potential to be cultivated well south of its natural distribution, extending into the north eastern part of the eastern target area. The prediction suggests favourable growth mainly in 500–650 mm summer and uniform rainfall zones. It is suggested that sites receiving some supplementary water from run-on rainfall should be targeted. *Acacia neriifolia* grows naturally on the drier western plains of New South Wales to the immediate north of the target area where, according to Maiden (1920), it attains arborescent stature. This species is not suited for cultivation on heavy clay soils or in waterlogged conditions. Climatic conditions in Western Australia are predicted to be unsuited for the cultivation of *A. neriifolia* as none of its natural populations occur in the winter rainfall zone.