

Acacia doratoxylon A. Cunn.

Common Names

Brown Lancewood (Standard Trade Name), Lancewood, Currawang, Spearwood, and more (see Cunningham *et al.* 1981).

Habit

Normally shapely tall shrubs or trees 3–12 m high, with a single trunk (bole 1–6 m long and 15–35 cm dbh) or sometimes dividing into a few main branches from near ground level, the bole and main branches straight to sub-straight, its form apparently deteriorates (becomes more twisted) as the species approaches coastal districts (*vide* Maiden and Boorman specimen NSW 378864), branch wood brittle; crowns dense, not overly spreading and occupying about $\frac{1}{4}$ – $\frac{1}{2}$ of the total plant height. Bark dark brown, longitudinally fissured and tightly held.

Botanical descriptions and illustrations/photographs are provided by Maiden (1910), Cunningham *et al.* (1981), Costermans (1981), Simmons (1987), Tame (1992), NSW (2001 & 2001a) and Kodela (2002).

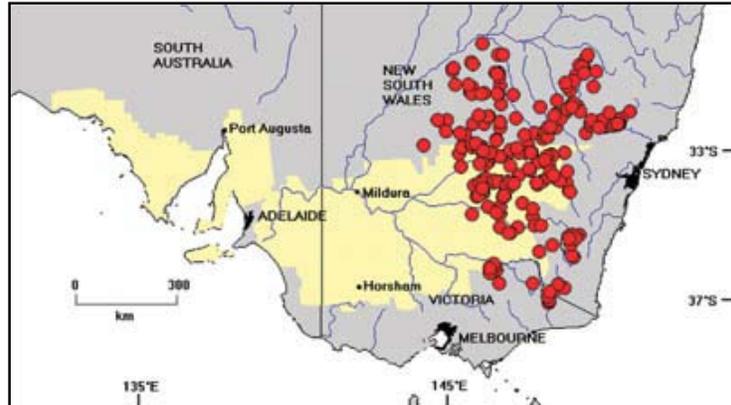
Taxonomy

Acacia doratoxylon is referable to *Acacia* section *Juliflorae* a diverse, and probably artificial, group of about 235 species (Maslin 2001) which are characterized by having plurinerved phyllodes and flowers arranged in cylindrical spikes (see Maslin & Stirton 1998 and Maslin 2001 for discussion). Section *Juliflorae* is widespread in Australia with the main centres of species richness occurring in the north, northwest and southwest of the continent and secondary centres of richness located along the Great Dividing Range in eastern Australia; although plants of this group often form a conspicuous element of the Arid Zone flora, species numbers in these areas are generally not great (Hnatiuk & Maslin 1988, Maslin & Pedley 1988). Only three species of section *Juliflorae* are detailed in this report, namely, *A. acuminata*, *A. doratoxylon* and *A. lasiocalyx*.

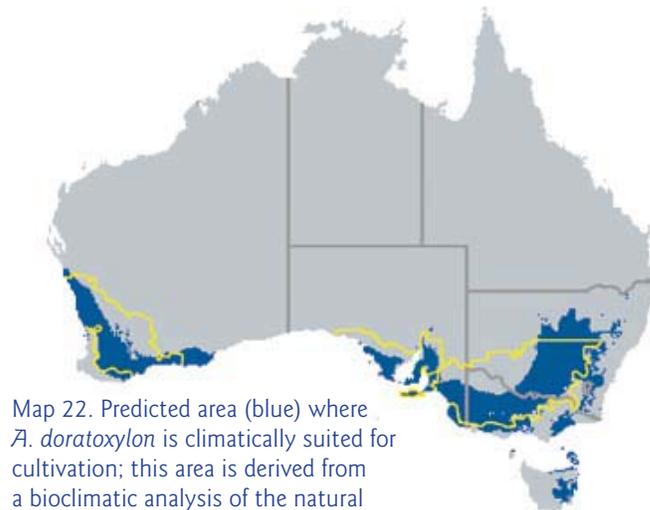
Closely related to *A. caroleae* (not included in this report as it occurs north of the target area and seemingly lacks suitable woody biomass). It also has some affinities with *A. lasiocalyx* from Western Australia (see below).

Distribution and Habitat

Widespread and common on the western slopes and plains of New South Wales south 30°S, extending to the southern tablelands of New South Wales and Australian



Map 21. Distribution of *A. doratoxylon*



Map 22. Predicted area (blue) where *A. doratoxylon* is climatically suited for cultivation; this area is derived from a bioclimatic analysis of the natural distribution (red circles, Map 21), see also Table 5. Target area shown in yellow.

Figure 10. *Acacia doratoxylon*



A (above) – Adult plant near Condobolin; **B** (above right) – Mature stand in sclerophyll forest near Sandy Hollow; **C** (right) – Stem section (of plant shown in A) showing dark heartwood. (Photos: B.R. Maslin)



D (far left) – Single stem at base (normal for the species); **E** (left) – Multistemmed (not common); **F** (above) – Flowering branch showing spikes on short racemes. (Photos: D & E by B.R. Maslin; F by J.M. Baldwin)

Capital Territory and also the Barambogic Range near Beechworth and the Suggan Buggan area in northeastern Victoria (Entwistle 1996, NSW 2001). This species is common in parts of the target area in New South Wales but its distribution extends beyond the boundary of the region. It is often common in the areas where it occurs and often forms relatively dense, almost monospecific communities. It commonly volunteers along roadsides from seed introduced in road gravel (Cunningham *et al.* 1981). *Acacia doratoxylon* occurs mainly on well-drained, skeletal soils (which include coarse and gravelly sands and lithosols) on rocky ridges or hillsides (often granite), and on flat or undulating land on red earths.

Flowering and fruiting

Flowers from late August to late September in the north of its range and mid-September to November in the south.

Biological features

A drought- and frost-tolerant species that requires well-drained soils (Doran and Turnbull 1997). Does not sucker; coppicing/pollarding ability unknown. In dense populations the species undergoes a natural thinning process in the wild, whereby some plants (which are perhaps 20–30 years old) die off. When this happens the dying plants are clearly visible on account of their yellowish foliage. Our anecdotal field observations suggest that this is a rather slow growing species (plants from around Condobolin perhaps attaining 5–6 cm dbh in about 20 years); however, Doran & Turnbull (1997) report a reasonably fast growth rate of 2.6 m/year. This matter requires further investigation. It is long-lived (Stelling 1998).

Toxicity

Phyllodes contain moderate amounts of cyanogenic glycoside (Maslin *et al.* 1987) but do not contain an endogenous enzyme necessary to hydrolyze this into hydrogen cyanide. *Acacia doratoxylon* has not been incriminated in stock losses due to cyanide poisoning.

The splinters of the wood are believed to be quite poisonous (Webb 1948).

Cultivation

Can be grown from both cuttings and seed according to Simmons (1987). Under cultivation it would be expected that, on account of its relatively narrow crowns and by observation of how it behaves in nature, this species could be planted rather close together without deleterious effect to its stem form or biomass production.

Weed potential

No records of weediness for this species despite the fact that its natural distribution is within the cleared, agricultural zone.

Wood

Hard and close-grained, perfumed (when freshly cut), tough, heavy and durable; it is dark brown, with a small amount of yellow sapwood Maiden (1910). The estimated basic density from air-dry (12%) MC is given as 720 kg/m³ by Ilic *et al.* (2000). The wood develops minor end fractures upon drying.

Utilisation

Wood

In the past wood of this species has been used for gates, buggy poles, turnery, furniture, etc. and by the aboriginals for boomerangs, spears and waddies (Maiden 1889). The wood is an excellent fuel, producing a hot fire (Stelling 1998). Stelling reports that the wood resembles that of blackwood (*A. melanoxylon*) but is heavier and less-grained and, although it tends to split, it is still valuable for furniture manufacture.

Land use and environmental

Useful as a low windbreak and produces good growth in rocky erodible soil in recharge areas; it is a good habitat for wildlife (Stelling 1998).

Fodder

Although Cunningham *et al.* (1981) report this species as having been eaten by stock (both cattle and sheep) it is not rated highly in this regard (see Maiden 1910).

Other uses

A shapely small tree suitable for ornamental and amenity planting. A prolific pollen producer (Doran & Turnbull 1997).

Potential for crop development

Acacia doratoxylon is regarded as having only moderate prospects as a crop plant for high volume wood production. It is ranked as a category 3 species and current evidence suggests that it would be best suited to development as a long cycle crop for solid wood products (Table 6). The plants have an excellent growth form (commonly forming clean, straight boles 2m or more in length) and would be amenable to mechanical harvesting. The species develops a good amount of woody biomass, however, the wood is moderately dense which lowers its attraction for use in reconstituted wood products. Growth rates require further investigation but they appear to be only moderately fast and are unlikely to match the more prospective species such as *A. linearifolia*, *A. leuoclada*, etc. which occur in the same geographic area as this species. Growth rate will probably be slowest in the drier, inland parts of its range. *Acacia doratoxylon* could, nevertheless, be a useful inclusion for diversifying planting systems, for long-term prospects for timber production and for growing on recharge sites in light soils. It is one of the very few plurinerved species of section *Juliflorae* that possess characteristics which have enabled its inclusion in this report.

The area predicted to be climatically suitable for the cultivation of *A. doratoxylon*, based on its natural climatic parameters, is shown in Map 22. This analysis indicates that within the eastern target area *A. doratoxylon* has the potential to be cultivated in areas of Victoria and South Australia, well beyond its natural distribution. The analysis also predicts that climatic conditions throughout much of the western target area are also suitable for its growth. Areas for cultivation should include exposed sites in the 300–450 mm rainfall zone. Upland sites that receive some supplementary water from run-on rainfall effects should be targeted. This species could prove particularly useful on steep hilly landforms. *Acacia doratoxylon* is not suited to heavy clay soils. Provenance variation in this species for attributes such as frost tolerance is likely to be substantial.