

Acacia bartleana Maslin (MS name)

Common Name

Bartle's wattle.

Habit

Shapely trees 4–8 m tall but reaching 10–12 m on good sites, single-stemmed (boles straight and 2–3 m or more long) or with 2 stems from ground level, dividing at 0.5–2 m above the ground into 2–5, spreading-erect, stout, straight main branches (to 30–40 cm dbh), sometimes slight to moderate root suckering; crowns dense and spreading. Bark thin, hard, longitudinally fissured, grey.

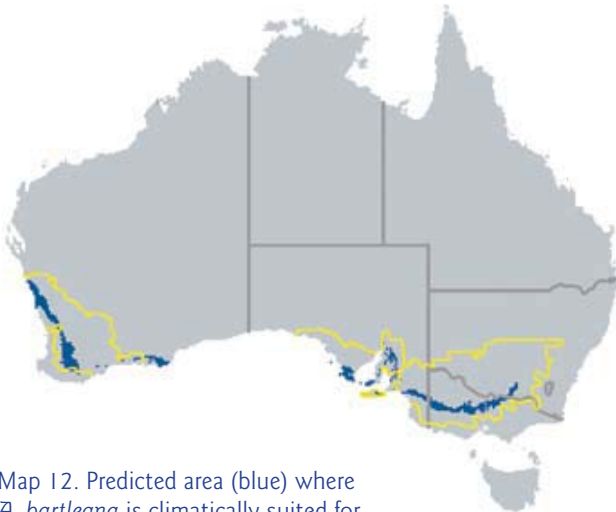


Map 11. Distribution of *A. bartleana*.

Taxonomy

Acacia bartleana 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). More specifically this species is a Western Australian member of the Australia-wide '*Acacia microbotrya* group' (Maslin 1995). A number of other species from this group are detailed in this report, namely, *A. euthycarpa*, *A. microbotrya*, *A. retinodes*, *A. rivalis* and *A. watsiana*.

Until now this species had been considered conspecific with *A. microbotrya* (Maslin 2001 & 2001a). However a review of this species (Maslin, unpublished) has shown that arborescent plants from west of Moora warrant recognition as a distinct species and these will soon be formally described as *A. bartleana*.



Map 12. Predicted area (blue) where *A. bartleana* is climatically suited for cultivation; this area is derived from a bioclimatic analysis of the natural distribution (red circles, Map 11), see also Table 5. Target area shown in yellow.

Distribution and habitat

Current knowledge suggests that *A. bartleana* has a restricted distribution west of Moora, Western Australia (entirely within the target area), where it is known from a number of roadside populations. Grows in low hilly country on brown sandy loam (perhaps with clay at depth but this needs confirmation). It occurs both in the lower parts of the landscape near watercourses with *Eucalyptus camaldulensis* and also on hills with *E. tottiana*. One population occurs in a tall dense shrubland dominated by *Banksia* and *E. tottiana* but most other populations occur along highly degraded roadverges.

Figure 5. *Acacia bartleana*



A – Mature trees with large quantity of wood biomass. (Photo: B.R. Maslin)



B – Adolescent tree. (Photo: B.R. Maslin)



C – Section of stem showing moderately dense wood. (Photo: W. O'Sullivan)



D – Flowering branch, heads golden & phyllodes green. (Photo: B.R. Maslin)



E – 14 month old plant in trial at Esperance, W.A. (Photo: J. Carslake)



F – Fruiting branch, pods prolific & narrow. (Photo: B.R. Maslin)

Flowering and fruiting

Flowers in May and June (possibly extending to July but needs confirmation); mature seeds are present in late November and December. Prolific quantities of seed are produced by this species.

Biological features

Very little is known about this species but field observations of natural stands suggest that it probably has quite a fast growth rate and a low to moderate suckering propensity (seems to be less vigorous than *A. microbotrya* but this needs confirming). It is likely to coppice (but with what vigor and frequency is unknown) and probably lives for about 20–30 years (but this requires confirmation). Reasonable quantities of gum are exuded from fissures in the bark of some plants.

Cultivation

Pests and diseases

Wheatbelt trials in Western Australia show *A. bartleana* to be one of the few acacias that is apparently resistant to locust attack (J. Carslake, pers. comm.).

Weed potential

This species does not display weed tendencies in its natural habitat despite producing prolific quantities of seed and having some degree of suckering ability.

Wood

The basic density values range from 718 kg/m³ to 959 kg/m³ (mean 815 kg/m³) based on analyses of 10 wood samples by CALM's NHT-supported 'Search' project (unpublished data). Note: This study preferentially sampled young and adolescent plants.

Utilisation

Nothing is recorded for utilisation of this species but it would be expected to have a similar potential to that of *A. microbotrya*. *Acacia bartleana* is currently being assessed for its suitability as a host for growing Sandalwood (*Santalum spicatum*).

Potential for crop development

Acacia bartleana is a poorly known species but has a number of desirable features that render it prospective for development as a crop plant for high volume wood production. It is ranked as a category 2–3 species and seems best suited as a phase crop, although it may also have some prospects as a long cycle crop for solid wood products (Table 6). Although this species is likely to coppice details of its coppicing ability are unknown therefore its potential as a coppice crop cannot be assessed at present. Although *A. bartleana* displays root suckering in nature (but seems less vigorous than *A. microbotrya*) it is not known if this will present difficulties for management in cultivation. Because the species produces large quantities of seed it would be appropriate to harvest plants before they reach reproductive maturity to avoid creating a soil seed bank that may lead to weed problems in adjacent or subsequent annual crops. For this technique to be viable the plants will need to have produced acceptable quantities of wood prior to the first pod crops being set. An alternative might be to regard the seedling recruitment as a form of green manure. *Acacia bartleana* is similar to the 'typical' variant of *A. retinodes* from South Australia in displaying a very good growth form and producing excellent quantities of woody biomass. The wood, however, is moderately dense which lowers its attraction for use in reconstituted wood products.

The area predicted to be climatically suitable for the cultivation of *A. bartleana*, based on its natural climatic parameters, is shown in Map 12. Although *A. bartleana* has a very restricted natural distribution the analysis indicates that it might be expected to grow quite well under cultivation in areas outside its natural range. Judging from its natural habitat *A. bartleana* might be expected to grow on a fairly wide range of soil types and may tolerate moderately saline soils. If the species proves successful as a Sandalwood host then this would be an excellent accompaniment to it being used as a wood crop plant. Uncertainty about successful growth in rainfall zones that receive less than 450 mm appears to be a main limiting factor predicted by the bioclimatic analysis in both the eastern and western target areas. However, the ecological plasticity of *A. bartleana* is presently poorly known. Therefore trials to assess its performance in areas beyond the region predicted in the bioclimatic map may warrant consideration.