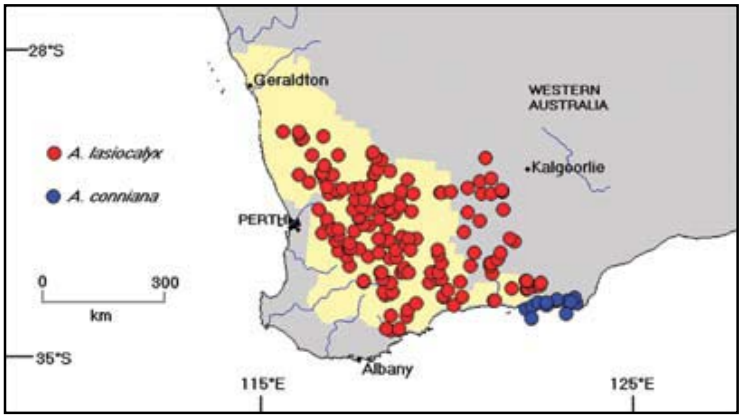
# *Acacia lasiocalyx* C.R.P. Andrews

## Common Name

None known.

## Habit




Map 31. Distribution of *A. lasiocalyx*.

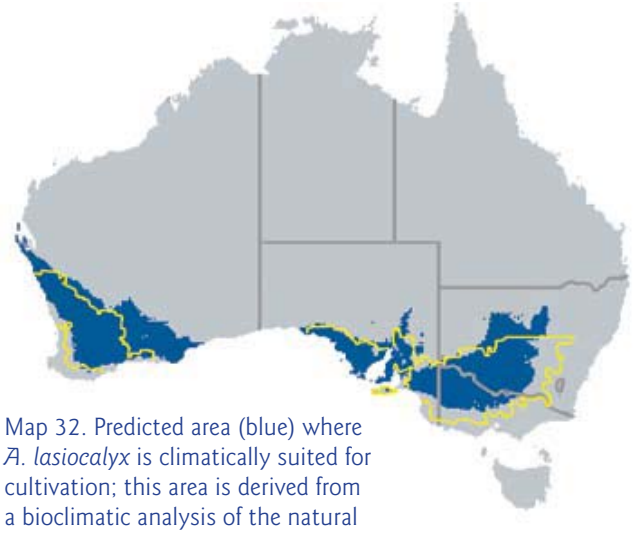
Spreading tall shrubs or trees commonly 2–5 m high with dbh 13–15 cm, however, around the base of granite rocks it normally grows as erect trees to 10–15 m. These granite rock plants are single-stemmed or have few main stems from the base, the boles are straight to sub-straight with a maximum dbh of 30–50 cm. Bark longitudinally fissured and often peeling on main stems, smooth on upper branches, white to pruinose on young plants.

Botanical descriptions and illustrations/photographs are provided by Simmons (1988) and NSW (2001 & 2001a).

## Taxonomy

*Acacia lasiocalyx* 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*.

When plants grow close together (as they often do around the base of granite rocks) they tend to have an erect habit with relatively straight stems, but in open sites way from the larger outcrops plants are often smaller, possess a more spreading habit and their trunks are often less straight. The largest plants are found in the northern and central parts of the species range; growth form appears to deteriorate in more southerly areas (e.g. Mt Ridley) where the plants become quite small and spindly.



Map 32. Predicted area (blue) where *A. lasiocalyx* is climatically suited for cultivation; this area is derived from a bioclimatic analysis of the natural distribution (red circles, Map 31), see also Table 5. Target area shown in yellow.

Most closely related to *A. conniana* which has a generally smaller, more spreading growth form and is distinguished from *A. lasiocalyx* by its non-pruinose branchlets, larger seed areoles and shorter, broader phyllodes. *Acacia conniana* occurs on the south coast of

Figure 15. *Acacia lasiocalyx*

**A** – Stand of mature plants at base of Muntadgin Rock, W.A. (Photo: B.R. Maslin)

**B** – Adolescent plant. (Photo: B.R. Maslin)

**C** – Branchlet showing spicate inflorescences & long, strap-like phyllodes. (Photo: B.R. Maslin)

**D** – Dense seedling regrowth stand of young plants. (Photo: B.R. Maslin)

**E** – Section of stem showing pale-coloured wood. (Photo: B.R. Maslin)

Western Australia east of Esperance, at the southern end of the distribution of *A. lasiocalyx* (see Map 29). *Acacia lasiocalyx* is also related to *A. longiphyllodinea* and *A. yorkrakinensis* subsp. *acrita*. Field observations suggest that near Bendering and Hyden *A. lasiocalyx* may hybridize with *A. inophloia* but this needs confirmation. None of the above relatives are detailed in the report, however, most are discussed in Maslin (2001b). *Acacia lasiocalyx* also has some affinities with *A. doratoxylon* from eastern Australia (see above).

## Distribution and habitat

*Acacia lasiocalyx* endemic in Western Australia where it is widely distributed from near Eneabba east to near Kalgoorlie and south to near Bremer Bay and Mt Heywood (northeast of Esperance). The distribution of *A. lasiocalyx* is largely confined to the target area. Grows in sand, gravelly sand, loamy sand, clayey sand and loam, normally associated with granite hills or outcrops (it commonly forms dense populations around the base of granite rocks in the wheatbelt).

## Flowering and fruiting

Flowers mostly in July to October. Mature pods occur from November to January.

## Biological features

There is little definitive information available for this species. However, it appears to be moderately fast growing and has a life-span of perhaps 20–40 years. It is unlikely to sucker; it's coppicing/pollarding ability is unknown but is probably unlikely. Quite large numbers of pods are produced on the plants and these are easily collected by hand (threshing/shaking) although the height of the plants often makes them difficult to reach. The phyllodes of *A. lasiocalyx* contain relatively high concentrations of cyanogenic glucoside; however, they do not appear to possess an endogenous enzyme that is needed to hydrolyse this into hydrogen cyanide (Maslin *et al.* 1987); there are no reported cases of stock losses involving this species. In species trials in Western Australia *A. lasiocalyx* has been shown to be susceptible to locust attack (J. Carslake, pers. comm.).

## Cultivation

*Acacia lasiocalyx* is unknown in cultivation, however, it was recently included in wheatbelt trials in Western Australia.

**Trials**

Assessment trials of this species were recently established in plots on farmland at various locations in south-western Australia by the "Search" project (see Acknowledgements). At age 10 months plants of the best performing provenance of *A. lasiocalyx* showed an average survival of 73% and an average height of 100 cm. The 'best' plot was located on a downslope site with heavy soil in the Esperance Plains IBRA region, with plants averaging 173 cm high.

## Weed potential

No records of weediness for this species. Although this species is known to set large quantities of seed there are no records of it having become invasive despite the fact that its natural distribution is within the cleared, agricultural zone.

## Wood

Field observations of a few plants show the wood to be moderately dense with heartwood yellowish (young branches) or pale brown. *Acacia lasiocalyx* and *A. conniana* are the only section *Juliflorae* species encountered in this survey that had pale-coloured heartwood (*Juliflorae* species such as *A. acuminata* and *A. doratoxylon* possess dark coloured heartwood). The basic density values range from 593 kg/m$^3$ to 912 kg/m$^3$ (mean 732 kg/m$^3$) based on analyses of 27 wood samples by CALM's NHT-supported

'Search' project (unpublished data). Note: This study preferentially sampled young and adolescent plants. Ilic *et al.* (2000) gives the air-dry density before reconditioning as 795 kg/m$^3$ (note: this value was erroneously listed in the basic density column in this work).

## Utilisation

### Wood

Plants with straight, undivided trunks may be worth examining as a potential source of small poles and other timber products.

### Land use and environmental

Its growth form is suited to amenity planting and for providing windbreaks and visual screens, as well as shade and shelter for both stock and wildlife.

## Potential for crop development

*Acacia lasiocalyx* is regarded as having reasonably good prospects for development as a crop plant for high volume wood production. It is ranked as a category 2 species and current evidence suggests that it would be suited to development as a phase crop and possibly also as a long cycle crop for solid wood products (Table 6). *Acacia lasiocalyx* is perhaps the largest Western Australian species included in the report. It produces a large amount of pale-coloured woody biomass. Although its density varies some plants have values close to the range of acceptability for use in reconstituted wood products. Plants of *A. lasiocalyx* commonly have a good growth form (i.e. clean, +/- straight boles 2 m or more in length) that would be amenable to mechanical harvesting. However, under natural conditions form does vary depending upon site, it is therefore recommended that seed for trial purposes be collected from plants growing around the base of large granite rocks where the best forms occur. Under cultivation plants of *A. lasiocalyx* could be spaced rather closely to promote good form, but if too close then the crowding effect may well lead to a reduction in stem biomass production. *Acacia lasiocalyx* appears to have a reasonably fast growth rate, however, its long-term performance under cultivation is yet to be determined. Its natural site of occurrence indicates that it prefers access to a good supply of soil moisture and it remains to be seen how well they will grow as water becomes limiting in cultivation. This species sets quite large quantities of seed. By harvesting plants prior to them reaching biological maturity it will avert creating a soil seed bank that may lead to weed problems in adjacent or subsequent annual crops (on the other hand seedling regeneration may possibly be treated as a form of green manure). It is not know at what age the plants first set seed.

The area predicted to be climatically suitable for the cultivation of *A. lasiocalyx*, based on its natural climatic parameters, is sown in Map 32. This analysis indicates that *A. lasiocalyx* is well-suited to the climatic conditions throughout the majority of the western and eastern target areas. Providing it is cultivated on appropriate soil types (sands, loamy sand, clayey sand and loam) that have adequate ground water, the climate match indicates that this species is a good prospect for widespread cultivation for this project

*Acacia conniana* is likely to have similar silvicultural requirements to *A. lasiocalyx* and may be better suited for growing in south coastal regions.