



A taxonomic revision of *Acacia verniciflua* and *A. leprosa* (Leguminosae: Mimosoideae) in Australia

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Introduction

Acacia verniciflua (Varnish Wattle) and *A. leprosa* (Cinnamon Wattle) occur in temperate areas of eastern and southern Australia and as hitherto defined were regarded as highly polymorphic species in need of critical revision (Maslin 2001). The conventional separation between the species was the number of longitudinal nerves on their phyllodes, one in *A. leprosa* and two in *A. verniciflua*, but as correctly noted by Court (1972, p. 219), the importance of this character has been over-emphasised. During the nineteenth century a number of taxa were described that were referable to the *A. verniciflua* – *A. leprosa* group, however, none of these names was ever taken up, presumably because of difficulties in defining the taxa and uncertainties concerning the application of the names (some of which were based on plants cultivated in Europe for horticultural purposes). Court (1972, pp. 218–219, 234) was the first contemporary author to (briefly) discuss the complex variation within the two species. In that work he recognised the “highly polymorphic” nature of the variation within *A. verniciflua* while under *A. leprosa* he recognised an informal variant from the Dandenong Range (which we describe below as *A. stictophylla* Court ex Maslin & D.J.Murphy). An interesting specimen sheet of historical interest at the National Herbarium of Victoria (MEL 1528789) shows that as early as 1959 Court had recognised a number of the other taxa that we now accept for this group (Fig. 1).

A comprehensive taxonomic reassessment of *A. verniciflua* and *A. leprosa* was undertaken by the first author in connection with preparing the *Flora of Australia* treatment of *Acacia*. The results of that study were first published in the *Flora of Victoria* (Entwisle *et al.* 1996) and subsequently in the *Flora of Australia* (Maslin 2001). In these works, four informal variants were recognised within both *A. verniciflua* and *A. leprosa*, some corresponding to previously described taxa; it is that classification which forms the basic framework for the present paper.

Abstract

A revision of a taxonomically complex group of species allied to, and including, *Acacia leprosa* Sieber ex DC. and *A. verniciflua* A.Cunn. is presented. These species predominate in temperate regions of eastern Australia. Two new species are described, *A. rostriformis* Maslin & D.J.Murphy and *A. stictophylla* Court ex Maslin & D.J.Murphy and one, *A. exudans* Lindl., is resurrected. *Acacia leprosa* is treated as a highly polymorphic species comprising five varieties, four of which are described as new, namely, *A. leprosa* var. *uninervia* Maslin & D.J.Murphy, *A. leprosa* var. *graveolens* Maslin & D.J.Murphy, *A. leprosa* var. *magna* Maslin & D.J.Murphy and *A. leprosa* var. *crassipoda* Maslin & D.J.Murphy. *Acacia verniciflua* is similarly variable but no formal infraspecific taxa are recognised within it. Details of phyllode anatomy and resin glands are characterised by light and electron microscopy.

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These informal variants are given in Table 1, which also shows their corresponding currently accepted name. The five species (one containing five varieties) that are now recognised (column 1 in Table 1) comprise what is

referred to here as the *A. verniciflua* – *A. leprosa* group.

In the absence of a meaningful phylogenetically based classification of the Australian acacias it is not possible to adequately contextualise species of the

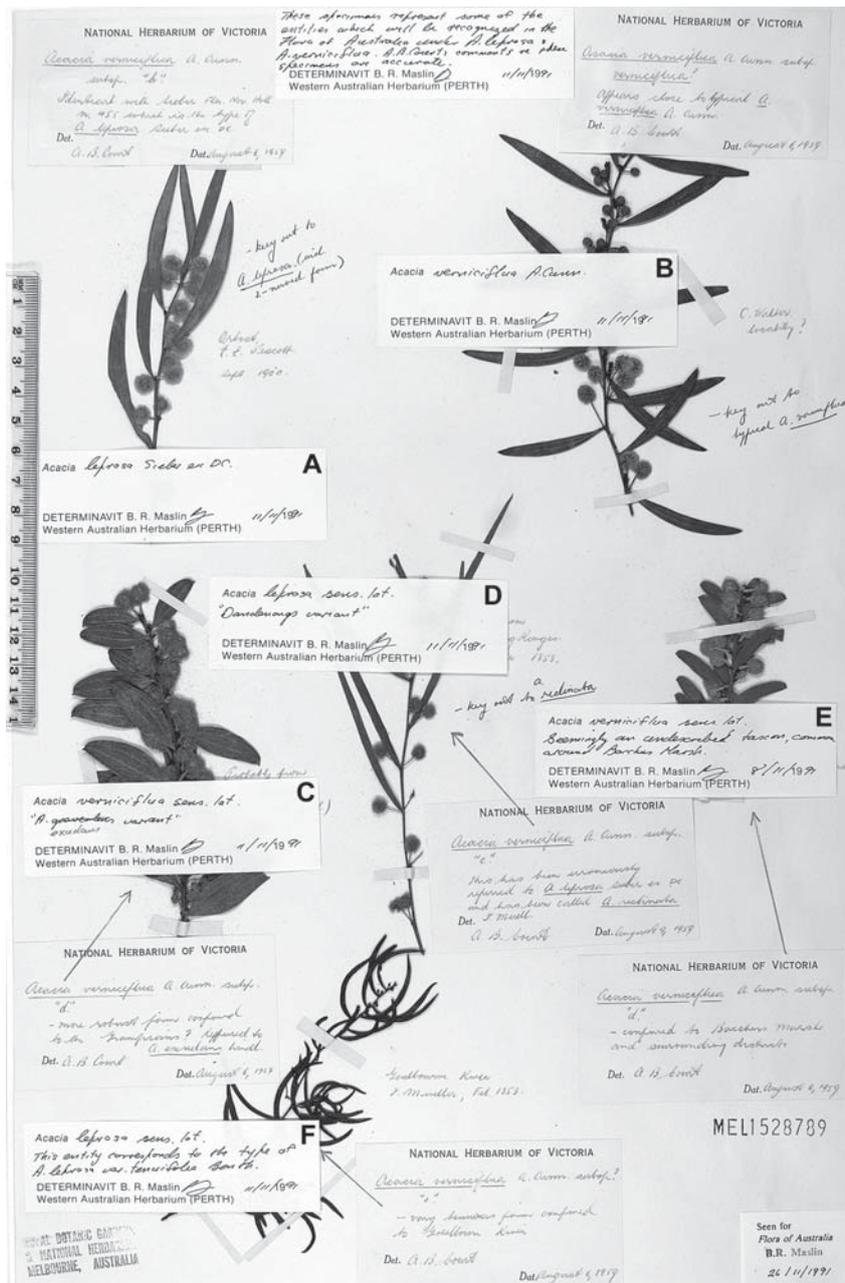


Figure 1. A historically interesting sheet prepared in 1959 by A.B. Court (MEL 1528789), showing taxa within the *A. verniciflua* – *A. leprosa* group that were recognised at that time. A – *A. leprosa* var. *uninervia* (Narrow phyllode variant); B – *A. verniciflua*; C – *A. exudans*; D – *A. stictophylla*; E – *A. rostriformis*; F – *A. verniciflua* (1-nerved variant).



A. verniciflua – *A. leprosa* group, however, these species belong to an assemblage of taxa that includes *A. ausfeldii* Regel (New South Wales and Victoria), *A. cognata* Domin (New South Wales and Victoria), *A. howittii* F.Muell. (Victoria) and *A. subporosa* F.Muell. (New South Wales and Victoria) as close relatives. These species are all characterised by their phyllodes being punctulate (see below); additionally, these species are resinous and they have simple or reduced-racemose inflorescences with the peduncles subtended by a single, often rather prominent (sometimes caducous), navicular, cucullate and often rostriform basal bract. The South Australian species *A. dodonaefolia* (Pers.) Balb. and *A. rheticarpha* J.M.Black probably also belong to this group but their phyllode punctae are very obscure. In south-eastern Australia *A. montana* Benth. (Queensland, New South Wales, Victoria and South Australia), *A. paradoxa* DC. (Queensland, New South Wales, Australian Capital Territory, Victoria, Tasmania and South Australia) and *A. stricta* (Andrews) Willd. (Queensland, New South Wales, Victoria, Tasmania and South Australia) are taxonomically not far removed from the above group, but their phyllodes are not punctulate.

Species of the *A. verniciflua* – *A. leprosa* group occur

in eastern and southern Australia where they show a discontinuous distribution, often on landforms associated with the Great Dividing Range. They extend from southern Queensland through New South Wales to the Grampian Range in western Victoria; there are also disjunct occurrences in South Australia (in the southern Lofty Range) and in Tasmania. The group has proliferated in Victoria with all taxa, except *A. leprosa* var. *leprosa*, recorded for that State (Table 1).

Methods

Morphology. This taxonomic treatment was based on a morphological examination of field-collected populations (principally from Victoria) and herbarium specimens obtained from all Australian herbaria having significant collections of material belonging to the *Acacia verniciflua* – *A. leprosa* group (including types). This included specimens from the following herbaria: MEL, PERTH, AD, CANB, NSW and HO. Additionally, relevant types from foreign herbaria were examined by BRM. These data were used to assess the status of taxa within the *A. verniciflua* – *A. leprosa* group and to prepare the descriptions that are presented below.

All specimens held by Australian herbaria that

Table 1. Taxa comprising the *A. verniciflua* – *A. leprosa* group preceded by the number under which each is treated in the text below and (in brackets) the number of longitudinal nerves on their phyllodes [column 1], the informal names that had previously been applied to them by Entwisle *et al.* (1996) and Maslin (2001) [columns 2 & 3], their Australian State of occurrence [column 4] and the number of head cells in the phyllode resin-glands (see text below for explanation) [column 5]. The taxa are arranged in this table based on similarity and their presumed taxonomic relationships. ^a Murphy (1996); ^b Gardner *et al.* (2005); ^c Collins (1920). *Abbreviations for Australian States:* Australian Capital Territory (ACT), New South Wales (NSW), Queensland (Qld), South Australia (SA), Tasmania (Tas.) and Victoria (Vic.).

Name used in present work [no. longitudinal phyllode nerves]	Name used in Entwisle <i>et al.</i> (1996)	Name used in Maslin (2001)	Distribution	Resin-gland head cell no.
4. <i>A. stictophylla</i> [1]	<i>A. leprosa</i> (Dandenong Range variant)	<i>A. leprosa</i> (second variant)	Vic.	8 ^a
2a. <i>A. leprosa</i> var. <i>leprosa</i> [1]	<i>A. leprosa</i> (type variant), <i>pro parte</i>	<i>A. leprosa</i> (first variant)	Qld, NSW	?
2b. <i>A. leprosa</i> var. <i>uninervia</i> [1]	<i>A. leprosa</i> (large phyllode variant)	<i>A. leprosa</i> (fourth variant)	NSW, Vic.	4 ^a , 4–8 ^b
2c. <i>A. leprosa</i> var. <i>graveolens</i> [2]	<i>A. verniciflua</i> (southern variant)	<i>A. verniciflua</i> (second variant)	Qld, NSW, Vic., Tas.	5–8 ^b
2d. <i>A. leprosa</i> var. <i>magna</i> [2]	Not recognised	Not recognised	Vic.	?
2e. <i>A. leprosa</i> var. <i>crassipoda</i> [2]	Not recognised	Not recognised	Vic.	4 ^a , 4–5 ^b
3. <i>A. rostriformis</i> [2]	<i>A. verniciflua</i> (Bacchus Marsh variant)	<i>A. verniciflua</i> (fourth variant)	Vic.	8 ^a
5. <i>A. verniciflua</i> [(1) 2]	<i>A. verniciflua</i> (common variant) <i>A. leprosa</i> (Seymour variant)	<i>A. verniciflua</i> (first variant) <i>A. leprosa</i> (third variant)	S.A., Qld, NSW, ACT, Vic.	7–18 ^{a,b,c} , 12 ^a
1. <i>A. exudans</i> [2]	<i>A. verniciflua</i> (Casterton variant)	<i>A. verniciflua</i> (third variant)	Vic.	20–32 ^a



were examined for this study have been determined and annotated, and the distribution maps that are presented below are based on these specimens.

Notable morphological features that occur in species of the *A. verniciflua* – *A. leprosa* group warrant some explanation.

Branchlet ribs. The type of branchlet ribbing that occurs in *A. verniciflua* and *A. exudans* is very unusual and is rare in *Acacia*. In these two species the branchlet ribs are over-topped by a broad, flat, glabrous, yellow or green band of tissue; sometimes the impression of the underlying rib is seen along the centre-line of the bands (Fig. 2A & B). These bands are best observed on the penultimate branchlets; they dissipate with age to reveal the fine, narrow branchlet ribs. The narrow space between the bands is commonly filled with a thick layer of resin that sometimes protrudes above the band, especially in *A. exudans*. These bands are also present in *A. rostriformis* but in this species the branchlet rib (which is appressed-hairy) clearly protrudes above the band so that the yellow tissue is seen as flanking these raised ribs. With regard to its type of branchlet rib morphology *A. rostriformis* is intermediate between *A. exudans* and *A. verniciflua*, and those species which lack branchlet bands, namely, *A. leprosa* and *A. stictophylla*. In these latter two species the branchlets are simply marked with conventional ribs which are normally appressed-hairy (Fig. 2C & D). The ribs may be fine (*A. stictophylla*) or clearly raised as often occurs in *A. leprosa*. In *A. leprosa* the branchlets are often angled due to the prominence of the raised ribs.

Phyllode nerves. As already noted, the number of longitudinal nerves on the phyllodes has conventionally been used to distinguish *A. leprosa* (1-nerved) and *A. verniciflua* (2-nerved). While this is certainly a useful character for identifying taxa it must be used with some caution because it can occasionally vary within a taxon and because it is sometimes difficult to accurately determine the number of longitudinal nerves that are present on the phyllodes. As can be seen from Table 1, and photographed in Figure 3, one species is consistently one-nerved (*A. stictophylla*), two species are consistently 2-nerved (*A. exudans*, *A. rostriformis*) while the two highly polymorphic species, *A. leprosa* and *A. verniciflua*, contain both 1- and 2-nerved entities. In *A. leprosa* the phyllode nerve number is used to help

define the five varieties that are recognised within that species; two of them (var. *leprosa* and var. *uninervia*) are 1-nerved while the remaining three (var. *crassipoda*, var. *magna* and var. *graveolens*) are 2-nerved. As discussed below under *A. leprosa* this infra-specific classification which places emphasis on phyllode nerve number is to some extent an artificial (although convenient) scheme. Within *A. verniciflua* we have been unable to resolve the complex patterns of variation, and the rare morphotype with 1-nerved phyllodes that occurs near Seymour in Victoria is not afforded formal rank. The remaining plants of this species have 2-nerved phyllodes, although sometimes the second nerve is poorly developed.

Often it is easy to determine the number of longitudinal nerves on the phyllodes by inspecting either herbarium or fresh material. In 2-nerved phyllodes, however, the adaxial nerve is sometimes less pronounced than the abaxial one and care must be taken not to misinterpret such phyllodes as being 1-nerved. This applies particularly to narrow phyllodes, especially in some plants of *A. verniciflua* from New South Wales. Occasionally the adaxial nerve is so reduced that it is scarcely visible, even under magnification, e.g. in a few New South Wales specimens of *A. leprosa* var. *leprosa*; these phyllodes are regarded as 1-nerved for the purpose of the key to taxa. Fine lateral nerves usually branch-off the main longitudinal nerve(s). These lateral nerves vary from few to numerous; *A. verniciflua* normally has fewer and/or more obscure of these lateral nerves than occur in most other taxa (compare Fig. 3A-B and 3C-D). The lateral nerves frequently anastomose and at their distal end they often coalesce to form a continuous, fine intra-marginal nerve on one or both sides of the phyllode; as can be seen in Figure 3B these intra-marginal nerves are crooked, not straight like the main longitudinal nerves. In most 2-nerved taxa some phyllodes can be found where the main longitudinal nerves are confluent or contiguous for a short distance above the pulvinus; we attach no taxonomic significance to this phenomenon. The nervation patterns discussed above can be seen on herbarium material but the best way (although not necessarily the most practical) of viewing them is to inspect fresh phyllodes with a $\times 10$ magnification lens. With sunlight transmitted through the lamina the veins





can be readily seen, even the small lateral veins which may prove difficult to see from herbarium material or by using incident light in the field (Fig. 3).

In *Acacia* the number of longitudinal nerves that occur on the phyllodes is generally a conservative and stable character. However, as with all other characters in this complex genus, there are exceptions. For example, in the *A. bivenosa* DC. group (Chapman & Maslin 1992), an assemblage of largely Western Australian and arid zone taxa, we see the same range of variation for phyllode nerve number that occurs in the un-related *A. verniciflua* – *A. leprosa* group. In the *A. bivenosa* group there are species with consistently 1-nerved phyllodes (e.g. *A. amplexiceps* Maslin), consistently 2-nerved phyllodes (e.g. *A. didyma* A.R.Chapm. & Maslin); while *A. bivenosa* itself contains both 1- and 2-nerved morphotypes. Additionally, *A. rostelifera* Benth. normally has 1-nerved phyllodes but sometimes develops an incipient second longitudinal nerve similar to that which occasionally occurs in *A. leprosa* var. *leprosa*.

Scanning electron microscopy analysis of phyllodes and resin-glands. Phyllode specimens from freshly collected plant material were preserved in 70% alcohol. This material showed little evidence of the resinous coating found on dried material and agitation in 100% ethanol proved to be effective at removing most of any remaining resin. Samples were critical point dried in a Tousimis Samdri pvt.3 critical point drier, mounted on

stubs using Leit adhesive carbon tabs, and coated with gold for 3 minutes using an Edwards S150B sputter coater. Specimens were viewed using a JOEL JSM-840 Scanning Electron Microscope (SEM) with a probe current of 6×10^{-10} A and an accelerating voltage of 10 kV. The surfaces of a representative sample of phyllodes from 10 populations, comprising six of the nine taxa recognised in this study were examined using SEM.

The phyllodes of all members of the *A. verniciflua* – *A. leprosa* group are characterised by punctulate phyllodes; the punctae may be few to numerous and comprise shallow, circular depressions that exude resin from microscopic *resin-glands* that are observable only at high microscopic magnification (greater than $\times 50$). When the resin-glands exude resin this can fill the depressions on the phyllode surface in which they are located. Resin-glands may also be found on branchlets, pods and peduncles, where they are often less obvious because they do not occur in depressions. Resin-glands found on branchlets occur mostly in the interstices between ribs or bands. In fresh and dried specimens resin generally coats phyllodes (especially filling the punctae) and branchlets, but it may also cover other organs such as pods and peduncles. The resin is translucent but may darken upon drying (in herbarium specimens). Each resin-gland consists of a uniseriate stalk topped by a number of *head cells* (Collins 1920). To quantify head cell number requires scanning electron microscopy or compound light microscopy



Figure 2. Branchlet rib characters. A & B: *Acacia verniciflua*. Branchlets showing broad, glabrous, pale-coloured, low-profile bands (that obscure the underlying fine ribs) with the inter-rib space often filled with thick resin on penultimate branchlets (A) but no resin on mature branchlets (B). (Voucher specimen *B.R. Maslin* 5860). Scale bar = 1 mm.
C & D: *Acacia leprosa*. Penultimate branchlets showing appressed-hairy, raised ribs (with a thin veneer of resin between the ribs). C – var. *leprosa* (*A.S. Mitchell s.n.* NSW 167415); D – var. *uninervia* (*W.S. Wilson et al.* 90). Scale bar = 1 mm.





using cleared phyllodes. The number and arrangement of head cells has taxonomic value in the *A. verniciflua* – *A. leprosa* group and was photographed and recorded in this study (Fig. 4, Table 1). It was observed that *A. exudans* and *A. verniciflua* usually had the largest resin-glands (c. 100 µm diameter (diam.)) with the highest number of cap cells (20–32 and 7–18 respectively). Some individuals of *A. leprosa* var. *uninervia* and *A. leprosa* var. *crassipoda* had the lowest number of cap cells (4–8 and 4 or 5 respectively), whereas *A. leprosa* var. *graveolens* had 5–8 cap cells. *Acacia rostriformis* and *A. stictophylla* both consistently had 8 cap cells per resin-gland. Because a limited sampling was undertaken the full range of variation in the resin-gland head cell number of the *A. leprosa* – *A. verniciflua* group remains to be quantified. However, we postulate that resin-gland head cell number provides some indication of relatedness of the taxa in this study, especially when combined with other characters, and therefore the taxa listed in Table 1 are ordered accordingly.

Boughton (1989), reviewing previous work, divided trichomes on *Acacia* phyllodes into five non-glandular and six glandular types. There is no published account for all the taxa included in the present study regarding the anatomical details of the resin-glands that secrete the resinous “varnish”. Collins (1920) completed a detailed study using light microscopy of the development of the resin-glands in *A. verniciflua* collected from near Adelaide (although a voucher is not cited), while Gardner *et al.* (2005) characterised the resin-glands and head cell numbers using SEM from four of the taxa recognised herein. The resin-glands of the taxa in the *A. leprosa* – *A. verniciflua* group resemble the type illustrated in Dell (1977, Fig. 1D).

Boughton (1990) hypothesised that *Acacia* species maintain mechanical mechanisms to allow stomatal opening when phyllodes are coated with resinous material, and it was apparent (via SEM) that there were gaps in the resin coating above the stomata in *A. verniciflua* (Fig. 5). It is not known if resinosity is associated

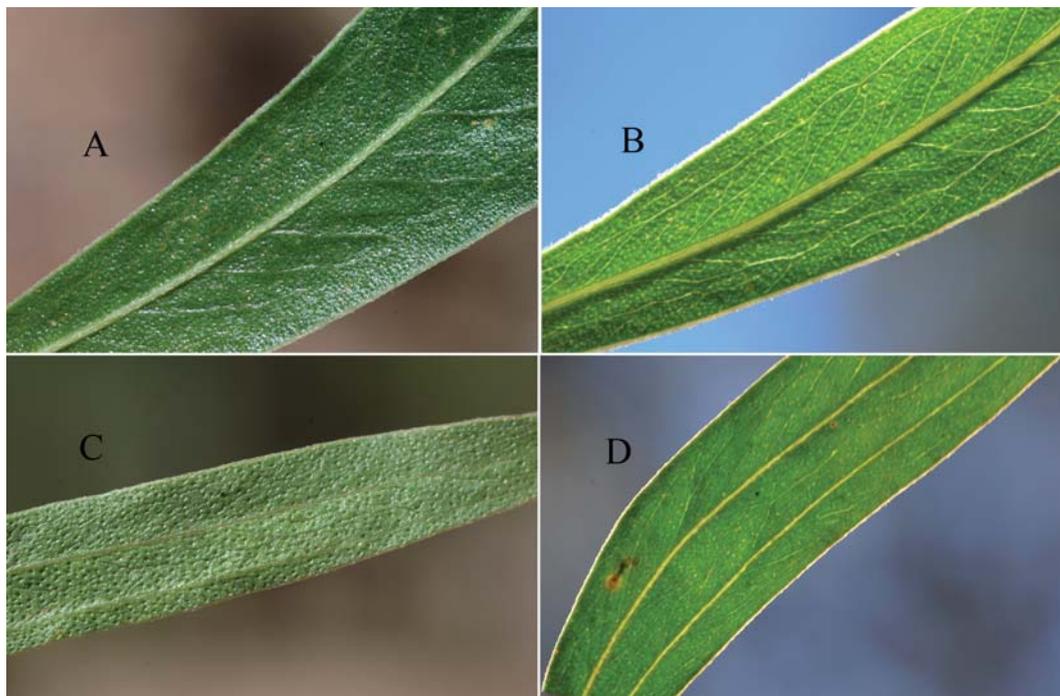


Figure 3. Phyllode nerves. A & B. *Acacia leprosa* var. *uninervia* (Large bracteole variant). Phyllodes with one longitudinal nerve that is more obvious with transmitted light (b) than with incident light (a). Note distal coalescence of fine lateral nerves to form continuous but uneven intra-marginal nerve on sides of the phyllode (most evident in B). (B.R. Maslin 9945). **C & D.** *Acacia verniciflua*. Phyllodes with two longitudinal nerves that are more obvious with transmitted light (d) than with incident light (c). Note punctae on surface of phyllode (A). (B.R. Maslin 9946).





with aromatic compounds in *Acacia*. While some taxa in the *A. verniciflua* – *A. leprosa* group are aromatic this does not clearly correlate with levels of resinosity.

Taxonomy

1. *Acacia exudans* Lindl., in T.L. Mitchell, *Three Exped. Australia* 2: 212 (1838)

Acacia verniciflua var. *latifolia* Benth., *Fl. austral.* 2: 358 (1864). *Type citation*: "Plains of the Glenelg, Mitchell." **Type**: interior of New Holland [just N of Casterton, Victoria], 1836 (sphalm. '25 March'), T.L. Mitchell '34'; *holotype*: CGE; *isotypes*: K (ex Herb. Cunningham, sphalm. '1835' and ex Herb. Bentham, sphalm. '1838'), MEL (dated 7 Aug. 1836), W (sphalm. '1839'). (See under *Typification* for discussion of these types.)

Acacia verniciflua (*Casterton variant*) *sensu* T.J. Entwisle *et al.*, *Fl. Victoria* 3: 618 (1996).

Acacia verniciflua *third variant sensu* B.R. Maslin, *Fl. Australia* 11A: 597 (2001).

Acacia exsudans Benth., *orth. var.* [see A.D. Chapman, *Australian Plant Name Index*, A–C, p. 12 (1991) and B.R. Maslin, *Fl. Australia* 11A: 597 (2001)].

Illustrations. T.J. Entwisle *et al.*, *Fl. Victoria* 3: 615, fig. 124j (1996); B.R. Maslin, *Fl. Australia* 11A: 595, fig. 84F (2001).

Slightly aromatic, dense rounded *shrubs* 1–4 m tall, generally multi-stemmed from near base. *New shoots* slightly viscid, shiny. *Branchlets* not or only slightly

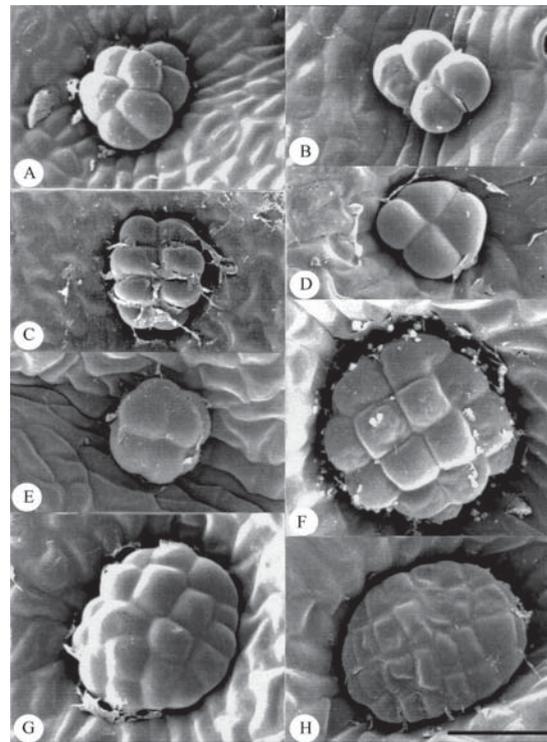


Figure 4. Scanning electron micrographs of phyllode resin-glands and head cell numbers. **A.** *A. stictophylla* (D.J. Murphy 14). **B.** *A. leprosa* var. *uninervia* (D.J. Murphy 103). **C.** *A. leprosa* var. *graveolens* (D.J. Murphy 125). **D.** *A. leprosa* var. *crassipoda* (D.J. Murphy 47). **E.** *A. rostriformis* (D.J. Murphy 25). **F.** *A. verniciflua* (D.J. Murphy 54). **G.** *A. verniciflua* (D.J. Murphy 156). **H.** *A. exudans* (D.J. Murphy 74). Scale bar = 50 µm.

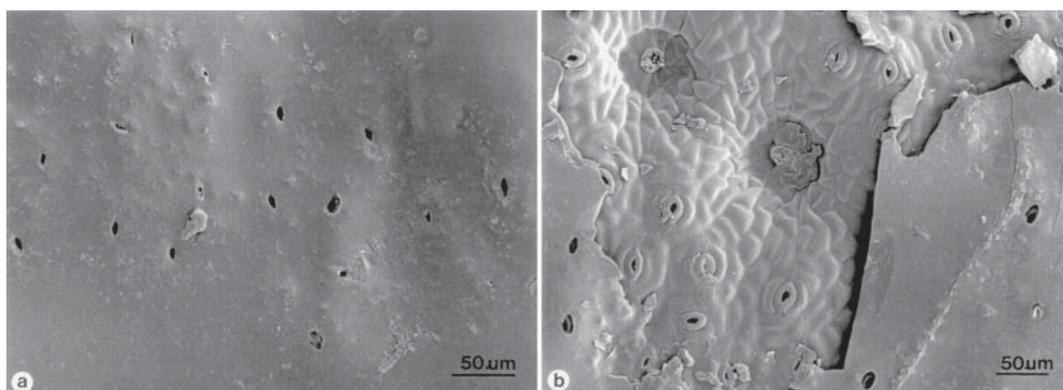


Figure 5. Scanning electron micrographs of phyllode surfaces. **A.** Phyllode surface of air dried *Acacia verniciflua* specimen without treatment to remove resin. Pores in the resin layer are visible above stomata. **B.** Phyllode surface from the same specimen with the resin partially removed. Note visible stomata and the depressions (punctae) in which damaged resin-glands are present. (D.J. Murphy 41).



**Artificial key to taxa**

- 1 Phyllodes with 2 longitudinal nerves on each face (the second nerve sometimes not well developed) 2
- 1: Phyllodes with 1 longitudinal nerve on each face (ignore any incipient second longitudinal nerve on upper side of main nerve; also ignore any uneven intra-marginal nerves formed by the distal confluence of lateral nerves) 7
- 2 Penultimate branchlets glabrous (except rarely sparsely appressed-hairy on some South Australian specimens), terete or slightly angled, marked with broad, flat (or slightly raised), pale-coloured bands often with thick resin in the narrow space between the bands..... 3
- 2: Penultimate branchlets appressed-hairy on raised ribs or if glabrous then lacking bands as above, often angled, not resinous or with a only a very thin veneer of resin between the ribs 4
- 3 Peduncles densely spreading-hairy, with persistent, large (3–4 mm long) basal bracts. Stipules normally persistent. Branchlets not flexuose. (Near Casterton, Victoria) **1. *A. exudans***
- 3: Peduncles glabrous or appressed-hairy, basal bract normally caducous, small (0.5–2 mm long). Stipules caducous. Branchlets commonly flexuose. (Very variable species: South Australia, Queensland, New South Wales, Australian Capital Territory, Victoria) **5. *A. verniciflua***
- 4 Phyllode apices obtuse and excentrically mucronate, rostriform to sub-uncinate; phyllodes mostly 20–45 mm long and 5–10 mm wide; peduncles very densely hairy; pods densely hairy at least when young. (Bacchus Marsh and Werribee, Victoria) **3. *A. rostriformis***
- 4: Phyllode apices acute to acuminate or if obtuse the mucro centrally positioned; phyllodes often longer or wider than above; pods glabrous or sparsely appressed-hairy 5
- 5 Bract at base of peduncles persistent and large (3–4 mm long); bracteoles c. 2 mm long, with large acuminate laminae that are longer than the very short claws; peduncles 4–6 mm long, sub-glabrous to ±sparsely and minutely appressed or sub-appressed hairy (Otway Range, Victoria) **2d. *A. leprosa* var. *magna***
- 5: Bract at base of peduncle early caducous or if persistent (rare) then smaller than above 6
- 6 Peduncles 2–4 (–5) mm long (often obscured by stamens at anthesis so that the heads superficially look sessile), very densely puberulous-tomentulose, c. 1 mm wide (including indumentum). Bracteoles often clearly acuminate with laminae longer than claws. Gland 0–1 mm above the pulvinus. (Grampians and Pyrenees Range, Victoria) **2e. *A. leprosa* var. *crassipoda***
- 6: Characters not combined as above. (Very variable variety: Queensland, New South Wales, Victoria, Tasmania.) **2c. *A. leprosa* var. *graveolens***
- 7 Branchlets glabrous, terete, marked with broad, flat or scarcely raised pale-coloured bands, often prominently flexuose. Phyllodes 1–5 mm wide, moderately to strongly incurved. (Near Seymour, Victoria) **5. *A. verniciflua* (1-nerved variant)**
- 7: Branchlets appressed-hairy on ribs or if glabrous then lacking pale-coloured, flat bands and often angled. Phyllodes often more than 5 mm wide, straight to shallowly incurved 8
- 8 Phyllodes some or all more than 7 mm wide, the lateral nerves quite evident but few to numerous. Gland normally 2–8 mm above pulvinus. (Vic. and N.S.W.) **2b. *A. leprosa* var. *uninervia***
- 8: Phyllodes 2–7 mm wide, lateral nerves normally few and obscure or superficially absent. Gland 0–1.5 mm above pulvinus 9
- 9 Bracteoles spatulate, the laminae small (shorter than claws), acute or obtuse and not exerted in the buds; peduncles with a dense indumentum of uniformly very short, straight, closely appressed hairs; branchlet ribs often moderately to densely appressed-hairy (with hairs shorter than below). (Scattered distribution in New South Wales and Queensland) **2a. *A. leprosa* var. *leprosa***
- 9: Bracteoles lanceolate, the laminae large (longer than claws), acuminate, exerted beyond flowers in young buds (but not in mature buds); peduncles with a looser, more open indumentum than above (the hairs quite long, curved and not closely appressed); branchlet ribs glabrous or very sparsely appressed-hairy (hairs to c. 0.5 mm long). (Dandenong Range, Victoria) **4. *A. stictophylla***





flexuose, \pm angled at extremities but soon terete, glabrous, marked with broad, flat or slightly raised bands of yellow tissue, the region between the bands narrow, dark-coloured and often filled with a thick coating of resin, the bands and/or resin obscure or absent with age. *Stipules* normally persistent (but brittle when dry and therefore sometimes absent from some nodes on herbarium material), brown (except green on new shoots), often recurved, (1–)2–4 mm long, 0.5–1 mm wide, acute. *Phyllodes* on raised stem projections which persist on older branchlets after phyllodes detach, narrowly oblong–elliptic to narrowly elliptic or oblanceolate, elliptic when phyllodes very broad, occasionally lanceolate, (25–)30–60 (–70) mm long, (5–) 6–17(–20) mm wide, straight or almost so, somewhat shiny, not obviously viscid (but see note below), dark green, normally glabrous (rarely appressed-puberulous on margins, especially young phyllodes), punctate with scattered, normally very obscure, shallow, circular depressions that often exude a glistening resin (the punctae large: observe at $\times 10$ mag.); with 2 *longitudinal nerves* on each face, the nerves of equal prominence or the adaxial one slightly more prominent than the abaxial one; *lateral nerves* few and obscure; *apices* acute or obtuse, mucronate (mucro \pm central); *pulvinus* 1–1.5 mm long, glabrous. *Gland* situated on upper margin of phyllode 0–3(–4) mm above the pulvinus, c. 1 mm long, sometimes not readily observable. *Inflorescences* simple, 1–2(–3) per axil; *peduncles* (4–)5–10 mm long, \pm stout, densely tomentose with short, crisped, spreading hairs; *basal peduncular bract* early caducous or persistent to anthesis, cucullate-rostriform, sometimes cleft at apex, large (3–4 mm long, 2–3 mm wide), brown, glabrous; *heads* globose, large (6–9 mm diam. dry, not seen fresh), densely 50–60-flowered, presumably lemon yellow. *Bracteoles* exerted beyond flowers in young buds but not exerted when buds mature, spatulate, 1.5–2 mm long (equal to or exceeding calyx, but shorter than petals), the dark brown laminae quite large (about as long as the narrowly oblong or linear claws), acute to short-acuminate, densely pubescent abaxially and with an obvious (when dry) central nerve. *Flowers* 5-merous; *calyx* gamosepalous, shortly lobed. *Pods* often occurring in clusters of up to 5 per head, narrowly oblong, 20–70 mm long, 5–7(–8) mm wide, straight to curved, thinly coriaceous-crustaceous, glabrous, acute to short-acuminate, marginal nerve slightly thickened.

Seeds longitudinal in the pods, obloid–orbicular, 3.8–4.3 mm long, 2.3–3.6 mm wide, shiny, dark brown to black; *funicle* normally twice-folded, sometimes once-folded; *aril* 1.4–2.4 mm long and 2.2–3.8 mm wide. Fig. 6.

Selected specimens examined: VICTORIA: Beside Glenelg Highway, c. 4 km E of Casterton, 3.xi.1982, M.G. Corrick 8553 (MEL 658947); Lower Glenelg River, 1891, [J.P.] Eckert 109 (MEL 1528984); Tahara, W of Hamilton, 15.vii.1991, E.J. Fenton s.n. (MEL 2012338); near Tahara, Murndal road, 28.ii.1996, D.J. Murphy 65 & N. Middleton (MEL 2312603, PERTH, CANB); East Greenwald road 2.2 km from Princes Highway, 28.ii.1996, D.J. Murphy 72 & N. Middleton (MEL 2312604, PERTH); 8.7 km SW Digby, Dartmoor–Hamilton road, 28.ii.1996, D.J. Murphy 78 & N. Middleton (MEL 2312602, PERTH); Wando Vale, without date, V. Robertson s.n. (NSW 167413); about 5 km E of Casterton–Dartmoor main road, along Moonlight road (about 22 km SSW of Casterton), 1.x.1981, P.S. Short 1316 (BRI, MEL 592248); Winnap, 24.ix.1967, I.B. Wilson 774 (CANB).

Distribution and habitat: Endemic in south-western Victoria where it occurs in the Wannon Natural Region in a small area bounded approximately by the towns of Casterton, Hamilton and Dartmoor. The Glenelg River and the Wannon River form the approximate western and northern limits of distribution respectively. *Acacia exudans* grows in low undulating country in heath or low eucalypt woodland. However, the region in which it grows has been extensively cleared for agriculture and most remaining plants are found along degraded road verges. Fig. 7A.

Conservation status: Based on the small number of populations and no known occurrences in conservation reserves, *A. exudans* is regarded as Endangered according to the criteria of the IUCN (EN b1a, biii *sensu* IUCN 2001). In addition, the occurrence of a hybrid between *A. exudans* and *A. howittii* (N.G. Walsh 6771, C. Hurry & D.J. Murphy, MEL) is cause for concern due to the risk of introgression and genetic pollution of the limited number of known individuals of *A. exudans*.

Flowering and fruiting period: Flowers in September and October. Pods with mature seeds have been collected from December to February and judging from extant material it is likely that seed would occur on plants until at least March.

Typification: The specimen regarded as the holotype of *A. exudans* is at herb. Cambridge (CGE) and is labeled "Interior of New Holland. *A. exudans* m [mihij]. Major Mitchells Expedition, 1836. 25 March (34)" [underlining





shows the information that is written in Lindley's hand]. Lindley described *A. exudans* in a footnote to Mitchell's journal entry for 10 August 1836 (Mitchell 1838), however, we have not been able to locate any specimen bearing

this date. It is likely that the date given on the holotype is an error because on 25 March 1836 the Mitchell expedition was at the Lachlan River in New South Wales and there is no mention of *A. exudans* on that date in

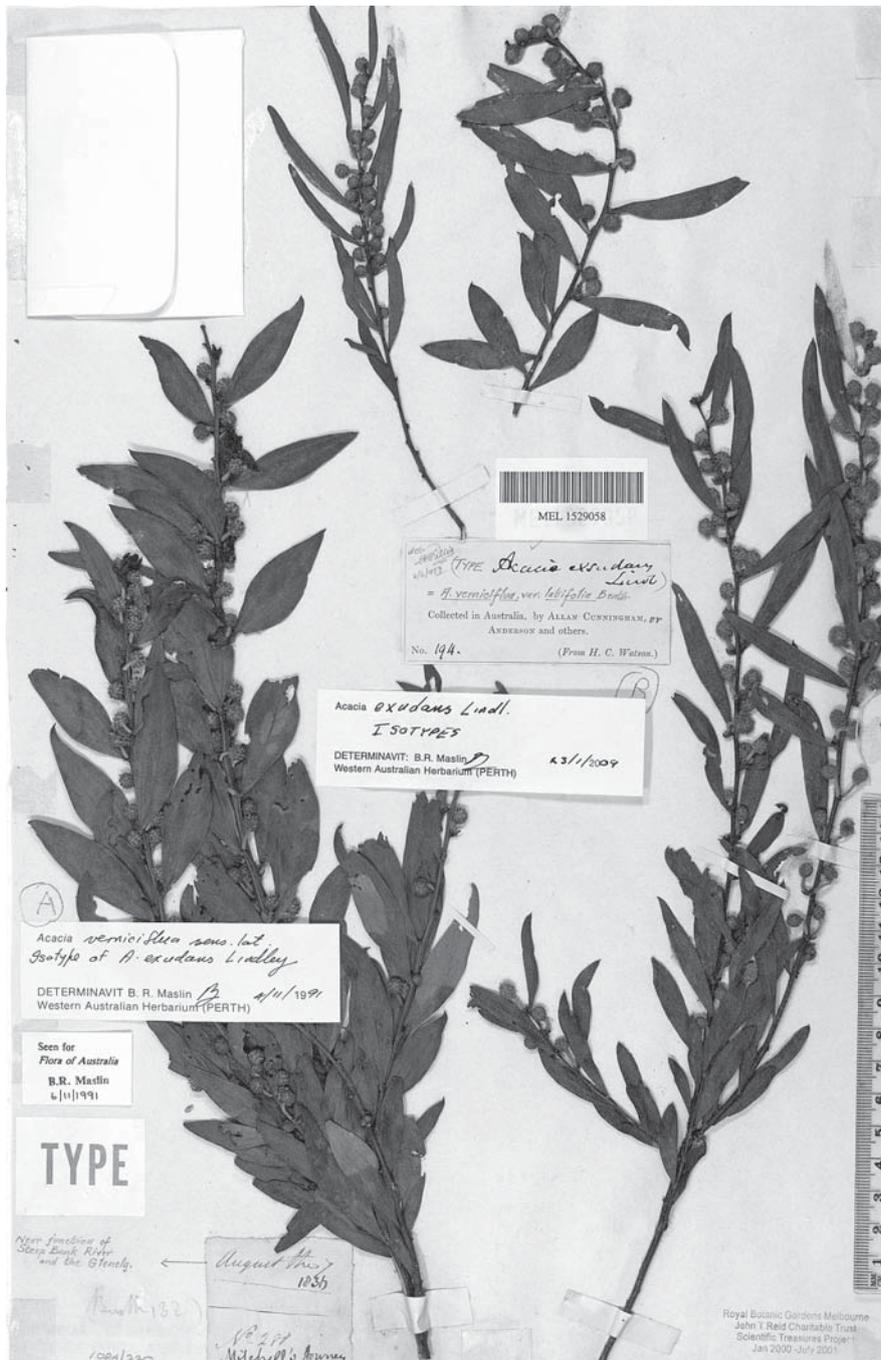


Figure 6. *Acacia exudans*. Isotype sheet at herb. MEL (see text for discussion).





Mitchell's journal nor is *A. exudans* known to occur in that area. On 10 August Mitchell was on the Glenelg River, about 6 km north of the town of Casterton in south-western Victoria (see Map 28 in Eccleston 1985). At the National Herbarium of Victoria (MEL) there is a Mitchell specimen of *A. exudans* which is regarded as an isotype (fig. 6), despite being dated 7 August 1836. On this day the Mitchell expedition was 18 km north of its 10 August locality, namely, at Stickfast Hill near the source of Steep Bank Rivulet (Map 27 in Eccleston 1985). Therefore, based on information currently available we are not able to say with certainty where exactly the type of *A. exudans* was collected. Perhaps Mitchell erred in ascribing his journal entry of the species to 10 August, perhaps the date on the MEL specimen (7 August) is an error for 10 August, or perhaps Mitchell collected the species on both 7 and 10 August 1836 and there is a specimen somewhere bearing the latter date. There are also Mitchell specimens of *A. exudans* at herb. Kew (K) and Vienna (W) that appear to be duplicates of the CGE holotype; these collections are also regarded as isotypes although they are erroneously dated 1835, 1838 or 1839.

Affinities: *Acacia exudans* is related to *A. rostriformis*

on account of its 2-nerved phyllodes, densely tomentose peduncles and a somewhat similar banding on its branchlets. Both these species have very restricted geographic distributions and they are separated by a distance of about 300 km. *Acacia rostriformis* is most readily distinguished from *A. exudans* by its appressed-hairy branchlets which are not obviously resinous (glabrous and often thick-resinous in *A. exudans*), rostriform phyllodes with an excentric mucro (mucro central in *A. exudans*), caducous stipules (\pm persistent in *A. exudans*) and fewer-flowered heads (25–30 compared with 50–60). *Acacia exudans* may sometimes resemble *A. leprosa* var. *crassipoda* (see that variety for differences).

Acacia exudans is also related to *A. verniciflua*; these two species have the highest numbers of head cells in their resin-glands (see Table 1). However, *A. exudans* differs most obviously from *A. verniciflua* in having persistent stipules, large and often persistent basal peduncular bracts, and densely tomentose indumentum on its peduncles.

Note: In his account of the discovery of *A. exudans* Mitchell (1838, p. 214) describes the phyllodes as being 'covered with a clammy exudation resembling honey-

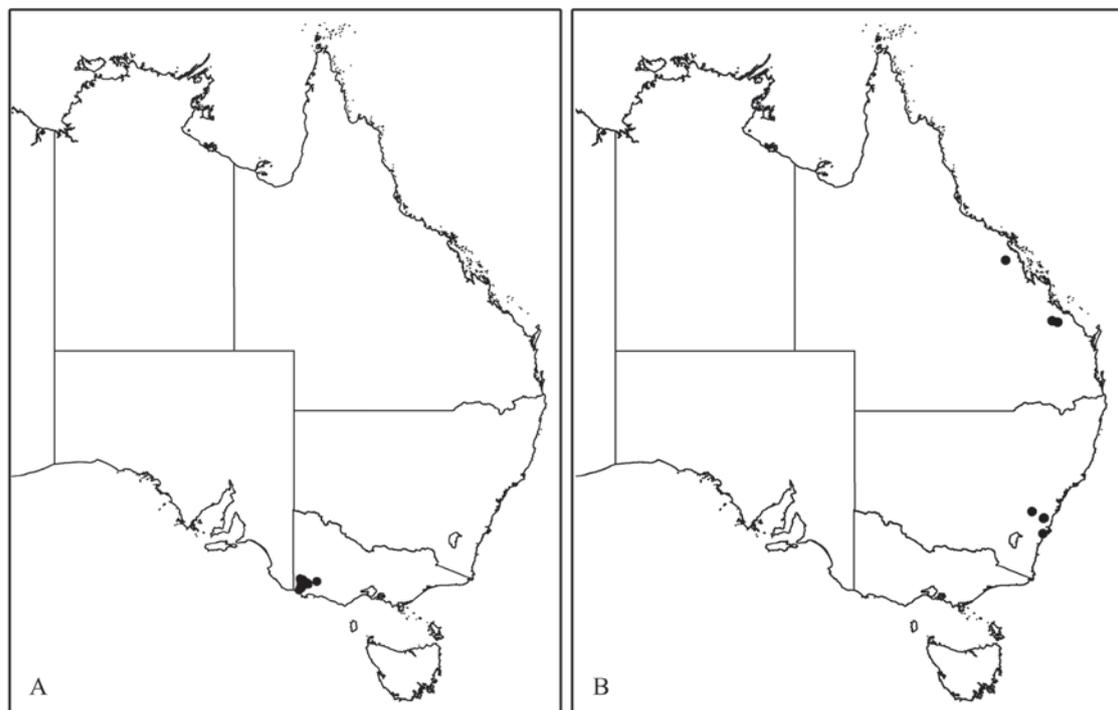


Figure 7A. Distribution maps for: **A.** *Acacia exudans*; **B.** *Acacia leprosa* var. *leprosa*.





dew'. However, no such exudate has been observed by us on herbarium specimens or from the second author's observations of living plants in the field. However, in greenhouse growth trials the plants commonly have a thin and viscid resinous coating, especially on younger phyllodes; presumably this is the type of exudate to which Mitchell was referring.

Hybridity: A hybrid between a cultivated plant of *A. howittii* and a naturally occurring plant of *A. exudans* was recently discovered near Casterton (N.G. Walsh 6771, C. Hurry & D.J. Murphy).

Common name: Casterton Wattle.

Etymology: The botanical name is derived from the Latin *exudans* (exudate) and refers to the viscid phyllodes that were reported by Mitchell when he first discovered the species in August 1836 (but see under *Note* above).

2. *Acacia leprosa* Sieber ex DC., *Prodr.* 2: 450 (1825)

Type citation: "In Nova-Hollandia". **Type:** Fl. Novae Holl. [New South Wales], F.W. Sieber 455; **holotype:** G-DC; **isotypes:** A, K, MEL, MO, NSW, NY, Z.

Slightly aromatic or non-aromatic *shrubs* 1–5 m tall, occasionally *trees* to 8–10 m, normally 1- or 2-stemmed with sparse (rarely bushy) crowns, the main branches erect or occasionally slightly pendulous. *Bark* grey and smooth. *New shoots* shiny and resinous, slightly viscid or not viscid. *Branchlets* straight or very slightly flexuose, not pendulous, rarely pruinose (var. *magna*), somewhat angled at extremities but becoming sub-angular then terete with maturity, finely ribbed, the ribs raised (commonly obviously so), yellowish to light brown or dark red-brown and sparsely to moderately appressed-puberulous with very short hairs, rarely glabrous, the inter-rib region wider than the ribs with \pm same colour or darker-coloured and either non-resinous or with a very thin veneer of resin. *Stipules* caducous. *Phyllodes* elliptic or narrowly elliptic to lanceolate, rarely oblong-elliptic, oblanceolate-elliptic or \pm linear, normally 50–140 mm long and 7–30 mm wide (occasionally 30–40 mm long and 3–4 mm wide in var. *graveolens* in Tasmania), straight to shallowly incurved, dull or (at least when fresh) slightly shiny, not obviously viscid, very thinly coriaceous, light green to dark green, sparsely and minutely appressed-puberulous on margins and nerves or sometimes glabrous, punctulate with normally numerous and

evident or obscure (at $\times 10$ mag.), shallow, circular depressions that often exude a glistening resin (the punctae often darker-coloured than the surrounding lamina: observe at $\times 10$ mag.); with 1 or 2 *longitudinal nerves* on each face, the nerves quite evident (raised when dry), when 2-nerved the nerves are of equal prominence or the adaxial one more pronounced than the abaxial one and they are sometimes contiguous or confluent for a short distance (to 10 mm) above the pulvinus; *lateral nerves* fine, commonly apparent ($\times 10$ mag.) when dry, occasionally (especially in var. *leprosa*) superficially absent, openly anastomosing, few to numerous, normally distally coalescing to form a fine, continuous but uneven intra-marginal nerve on one or both sides of the phyllode; normally gradually narrowed at *apices* to an acute or acuminate (rarely obtuse-mucronulate with central mucro), straight or rarely shallowly recurved tip, rarely abruptly narrowed and obtuse-mucronate (with a central mucro); *pulvinus* 1–2 mm long, appressed-puberulous or glabrous. *Gland* situated on upper margin of phyllode 0–8 mm above pulvinus, circular to clearly elongated. *Inflorescences* normally simple intermixed with rudimentary racemes, the racemes 1–2(–4) mm long, 1–3-headed and sometimes terminated by a vegetative bud; *peduncles* 2–6(–7) per axil, (2–)4–8(–11) mm long, sub-glabrous to densely puberulous, the hairs straight to sub-crisped and appressed to sub-appressed or occasionally wide-spreading; *basal peduncular bract* early caducous or occasionally (var. *magna*) persistent to anthesis, navicular-rostrate, acuminate or sometimes apically cleft, normally 1–2 mm long but 3–4 mm in var. *magna*, dark brown, glabrous; *heads* globular to slightly obloid, 10–15 mm diam. when fresh, (4–)6–10 mm when dry, (20–)28–40(–45)-flowered, pale yellow to lemon yellow. *Bracteoles* commonly obscure and over-topped by flowers in mature buds, occasionally exerted beyond flower buds, spatulate or lanceolate, 0.7–2 mm long (equal to or exceeding length of calyx), claws narrowly oblong, the dark brown laminae shorter to longer than the claws, puberulous abaxially and acute to acuminate (rarely obtuse). *Flowers* 5-merous; *calyx* gamosepalous, shortly lobed, 1/2–2/3 length of corolla, \pm sparsely puberulous; *petals* glabrous or very sparsely hairy at apex. *Pods* (not seen for var. *magna*) linear to narrowly oblong, 30–90 mm long, 4–6 mm wide, raised over seeds along mid-line, straight to shallowly curved, chartaceous to thinly coriaceous, glabrous (rarely sparsely pilose)





or with sparse appressed hairs on margins (especially when young), sometimes transversely reticulate with nerves most evident at either edge of pods, marginal nerve indistinct. *Seeds* longitudinal in the pods, obloid to obloid-ellipsoid, 4–5 mm long, 1.5–2 mm wide, shiny, dark brown to black; *funicle* normally expanded into a once-folded terminal aril.

Distribution: Discontinuous along the Great Dividing Range from southern Queensland through New South Wales to the Grampian Range in western Victoria; also in Tasmania.

Taxonomy: *Acacia leprosa* is a highly variable species and five allopatric varieties are recognised to accommodate the variation (which is most pronounced in Victoria). As can be seen from Table 1 and from the synonymy presented below these varieties were treated as variants of either *A. leprosa* or *A. verniciflua* in Entwisle *et al.* (1996, pp 617–620) and Maslin (2001, pp 596–601). Most of the numerous specimens we examined can be accommodated by the five varieties but there are a few that cannot be satisfactorily placed and these are noted as variants under the variety that they most closely resemble.

The principal characters that have been used to define varieties within *A. leprosa* are phyllode width and the number of longitudinal nerves on the phyllodes, i.e. one or two (these two characters vary independently of one another), the types of peduncle indumentum, the persistence or otherwise of the basal peduncular bracts, and the shape and size of the bracteoles. Although bracteole morphology is a cryptic character that is hard to accurately assess without the use of a microscope it is an important and very useful character for recognising morphotypes.

Most of the variation within *A. leprosa* is found in Victoria where all the taxa, except var. *leprosa*, occur. The conventional definition of *A. leprosa* was that of a species comprising plants with 1-nerved phyllodes, however, we now expand this definition to also include plants with 2-nerved phyllodes. Phyllode nerve number is consistent within each variety but this may, to some extent at least, be a function of how we have defined the varieties! Phyllode nerve number is an easy character to see and to characterise, but as with any morphological attribute, nerve numbers may possibly be the result of convergence or reversals. Notwithstanding this we

have used phyllode nerve number (one or two) to help define and key the varieties that are recognised here. While some of our taxa may well be redefined by future workers we believe that the classification that we propose is a reasonable attempt at providing meaningfully defined taxa to accommodate the very complex patterns of variation that exist within this species. The notes on variation and affinities provided under the varieties will assist future workers who wish to re-assess our classification, this applies particularly to var. *leprosa*, var. *graveolens* and var. *uninervia*.

Etymology: The species name is derived from the Latin *leprosus* (scaly) and refers to the punctae that mark the surface of the phyllodes of this species.

2a. *Acacia leprosa* var. *leprosa*

Acacia leprosa (type variant) *sensu* T.J. Entwisle *et al.*, *Fl. Victoria* 3: 619 (1996), pro parte (excluding elements referable to Victoria).

Acacia leprosa first variant *sensu* B.R. Maslin, *Fl. Australia* 11A: 598 (2001).

Illustrations. T. Tame, *Acacias SE Australia* 109, fig. 107a & b, pl. 107 (1992); T.J. Entwisle *et al.*, *Fl. Victoria* 3: 622, fig. 125a (1996); B.R. Maslin, *Fl. Australia* 11A: 595, fig. 841 (2001).

Shrubs 1.5–4 m tall. *Phyllodes* (40–)50–90 mm long, 3–7 mm wide, the punctae quite evident (observe at $\times 10$ mag.); with 1 *longitudinal nerve* (rarely an incipient second nerve in New South Wales plants); *lateral nerves* superficially absent or very few and obscure. *Gland* 0–1.5 mm above the pulvinus. *Peduncles* (2–)4–5 mm long when in flower, to 8 mm in fruit, densely puberulous with hairs short, \pm straight and closely appressed; *basal peduncular bract* early caducous, c. 1.5 mm long. *Bracteoles* scarcely visible in mature buds being overtopped by flowers, spatulate, 0.7–1 mm long (\pm equal in length to calyx), the laminae small (less than length of the claws) and acute or occasionally short-acuminate. Fig. 8.

Selected specimens examined: QUEENSLAND: 8.2 km by road, NE of Doolool Tops homestead, via Monto, A.R. *Bean* 928 (BRI *n.v.*, NSW *n.v.*, MEL, MEXU *n.v.*); Sydney Heads, 32 km NNW of Nebo, 10.xi.1990, A.R. *Bean* 2552 (BRI). NEW SOUTH WALES: Hill Top, Jan. 1915, E. *Cheels* *s.n.* (NSW 451625); Fire Road 3, Chain of Ponds Crossing South, 9.x.1969, A.S. *Mitchell* 556 (K, CANB, P *n.v.*, NSW, MEL); 1 mile [1.6 km] S of Chain of Ponds crossing, 9.x.1969, A.[S.] *Mitchell* *s.n.* (NSW 167415, PERTH 02941651).





Distribution and habitat: Widespread but not common in eastern Australia where it is known from a few scattered localities associated with the Great Dividing Range from southern Queensland and central New South Wales. In Queensland it occurs in the Denham Range, about 70 km SW of Mackay (Leichhardt district) and about 400 km to the SE in the vicinity of

the Calliope Range (about 120 km NW of Bundaberg) in the Port Curtis district. In New South Wales it occurs in the Central Tablelands near Mittagong (Hill Top and Chain of Ponds Creek) and may possibly occur also at Mt Werong in the Blue Mountains, about 80 km due NW of Mittagong (see discussion under *A. leprosa* var. *graveolens* for details). In Entwisle *et al.* (1996, p. 619)

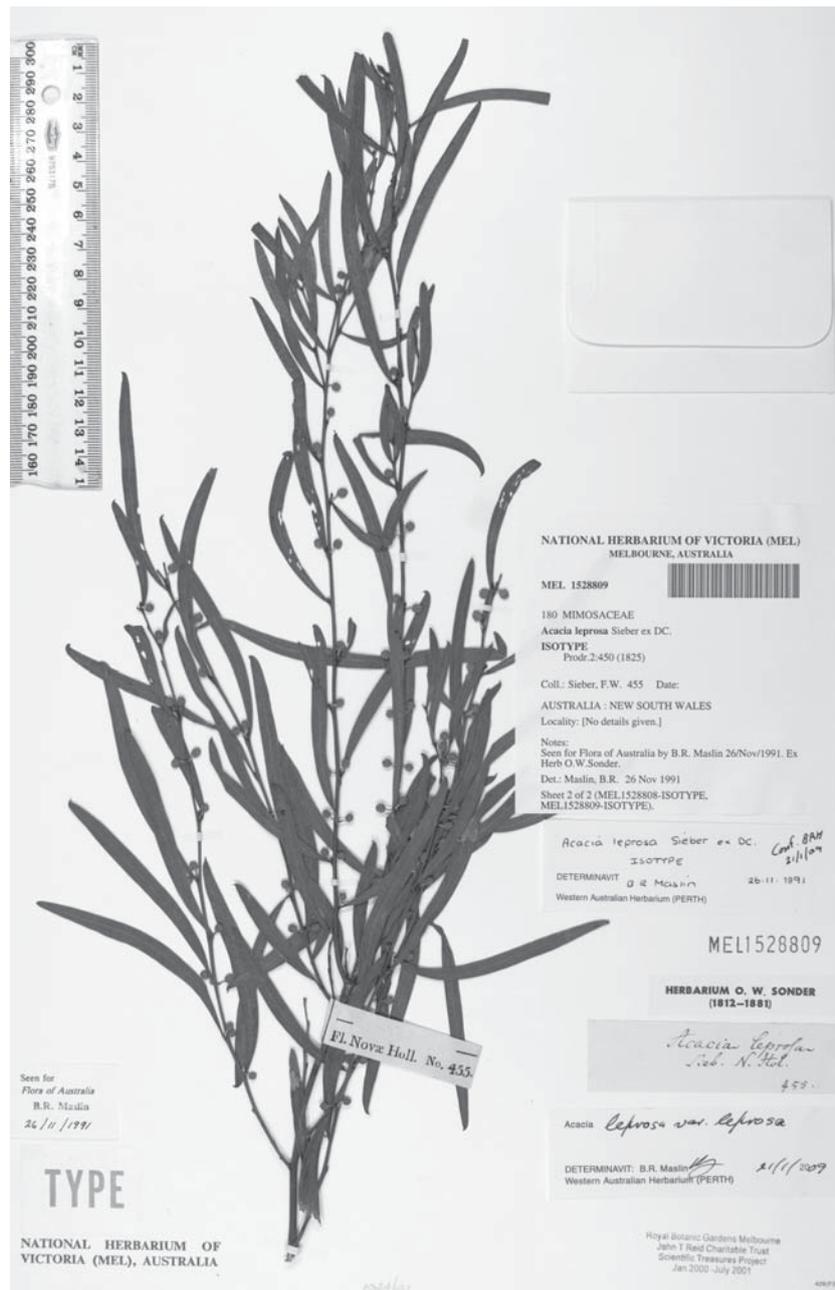


Figure 8. *Acacia leprosa* var. *leprosa*. Isotype (F.W. Sieber 455), herb. NSW specimen.





and Maslin (2001, p. 599) var. *leprosa* (as *A. leprosa*) was considered to occur in Victoria but the specimens upon which these records were based are now referred to *A. leprosa* var. *uninervia*. Variety *leprosa* grows in eucalypt woodland on ridge tops and steep slopes, in grey clay loam or shallow sand. Fig. 7B.

Taxonomy: As defined here var. *leprosa* is distinguished from the other varieties of *A. leprosa* by its narrow (not above 7 mm wide), 1-nerved phyllodes. While this is a convenient classification it may, to some extent at least, be artificial because this variety seems to grade into both *A. leprosa* var. *graveolens* (around Mt Werong in New South Wales) and *A. leprosa* var. *uninervia* (in the high country to the north-east of Melbourne, Victoria) – see under these two varieties for further discussion. Some plants of *A. stictophylla* from the Dandenong Range, Victoria, superficially resemble those of var. *leprosa* but are distinguished most readily by their bracteole morphology and peduncle indumentum (see *A. stictophylla* for discussion).

Conservation status: Due to the small number of collections and scattered distribution of this taxon, and limited information about population sizes, *A. leprosa* var. *leprosa* is considered to be Near Threatened according to the criteria of the IUCN (NT *sensu* IUCN 2001).

Flowering and fruiting period: Flowers in September and October. Pods with mature seeds have been collected in late November to December.

Common name: Cinnamon Wattle.

2b. *Acacia leprosa* var. *uninervia* Maslin & D.J. Murphy, var. nov.

Frutices 2–5 m alti. *Ramuli* tenuiter costati, costis plerumque sparse vel modice appresse-puberulis. *Phyllodia* plerumque (40–)70–140 mm longa, (6–)8–15(–18) mm lata, punctulate; *nervo longitudinali* 1 prominenti in quoque facies posito. *Glans* (0–)2–8 mm supra pulvinum. *Inflorescentiae* plerumque simplices immixtae cum racemis rudimentaribus; *pedunculi* 3–5(–7) mm longi, modice vel dense \pm appresse puberuli; bractea basalis peduncularis mature caduca. *Bracteolae* 1(–2) mm longae, laminae longitudine unguis brevioribus vel \pm aequantibus acutis vel breviter acuminatis. *Flores* 5-meri; calyx breviter lobatus. *Legumina* linearia vel anguste oblonga, 30–90 mm longa, 4–6 mm lata. *Semina* in leguminibus longitudinaliter ordinata, arillata.

Shrubs 2–5 m tall. *Branchlets* finely ribbed, the ribs normally sparsely to moderately appressed-puberulous. *Phyllodes* mostly (40–)70–140 mm long, (6–)8–15(–18) mm wide, punctulate; with 1 prominent *longitudinal nerve* on each face. *Gland* (0–)2–8 mm above the pulvinus. *Inflorescences* normally simple intermixed with rudimentary racemes; *peduncles* 3–5 (–7) mm long, moderately to densely \pm appressed-puberulous; *basal peduncular bract* early caducous. *Bracteoles* 1(–2) mm long, the laminae shorter than or \pm equal to length of claws and acute or short-acuminate. *Flowers* 5-merous; calyx shortly lobed. *Pods* linear to narrowly oblong, 30–90 mm long, 4–6 mm wide. *Seeds* longitudinal in pods, arillate.

Type: 4 km NE of Healesville on the Maroondah Highway to Alexandra, Victoria, 12.ix.1985, B.R. Maslin 5941; *holotype*: PERTH 00822469; *isotypes*: CANB, K.

Acacia leprosa (large phyllode variant) *sensu* T.J. Entwisle *et al.*, *Fl. Victoria* 3: 620 (1996).

Acacia leprosa fourth variant *sensu* B.R. Maslin, *Fl. Australia* 11A: 599 (2001).

Illustrations. T.J. Entwisle *et al.* *Fl. Victoria* 3: 622, fig. 125d (1996); B.R. Maslin, *Fl. Australia* 11A: 595, fig. 84J–L (2001).

Bushy or openly branched *shrubs* 2–5 m tall. *Phyllodes* mostly (40–)70–140 mm long, (6–)8–15(–18) mm wide; with 1 *longitudinal nerve*, the nerve prominent; *lateral nerves* few to numerous, often quite evident (at least when dry) and distally coalescing to form a fine, continuous but uneven intra-marginal nerve on one or both sides of the phyllode. *Gland* commonly 2–8 mm above the pulvinus but sometimes less (0–2 mm), often clearly elongated and 1–2 mm long (but ranging to circular or oblong-elliptic and 0.5 mm long). *Peduncles* 3–5(–7) mm long, moderately to very densely puberulous with straight, appressed or sub-appressed hairs; *basal peduncular bract* early caducous, c. 1.5 mm long. *Bracteoles* usually scarcely visible in mature buds being over-topped by the flowers (slightly exerted in the large bracteole and Nayook Creek variants), spatulate, usually c. 1 mm long and equal in length to calyx (c. 2 mm long and exceeding the calyx, but shorter than the corolla in the large bracteole variant), the laminae shorter than or \pm equal to length of claws and acute or short-acuminate. Fig. 9.





Selected specimens examined: Typical variant. NEW SOUTH WALES: Mt Tayar, 17 miles [27 km] SE of Rylestone, 24.ix.1964, *E.F. Constable 5059* (MEL, NSW, PERTH). **VICTORIA:** Woori Yallock, 18.iv.1904, *anonymous* (MEL 1500499); Kilmore Junction [near Seymour], 10.xi.1906, *anonymous* (MEL 1500501); Upper Yarra, [*J.*] *Dallachy* [414] (MEL 1528797, specimen seen by Bentham); Toolebewong to Healesville

road, 1 mile [1.6 km] S of Le Chateau Private Hospital gateway, 1.ix.1965, *R. Filson 7380* (MEL); Melbourne area, Riddells Creek, Gap Road, 28.v.1990, *J.C. Kissane 1567* (MEL, PERTH); Kinglake National Park, Full and Plenty track, 26.ix.1996, *K. Macfarlane 173* (MEL); 2.5 km W of Melba Highway on Kinglake Road, c. 7 km E of Kinglake, 4.ix.2004, *B.R. Maslin 8583 & D.J. Murphy* (MEL, PERTH); Buffalo River, 18.ix.1928, *W. Mitchell s.n.* (MEL 674575);

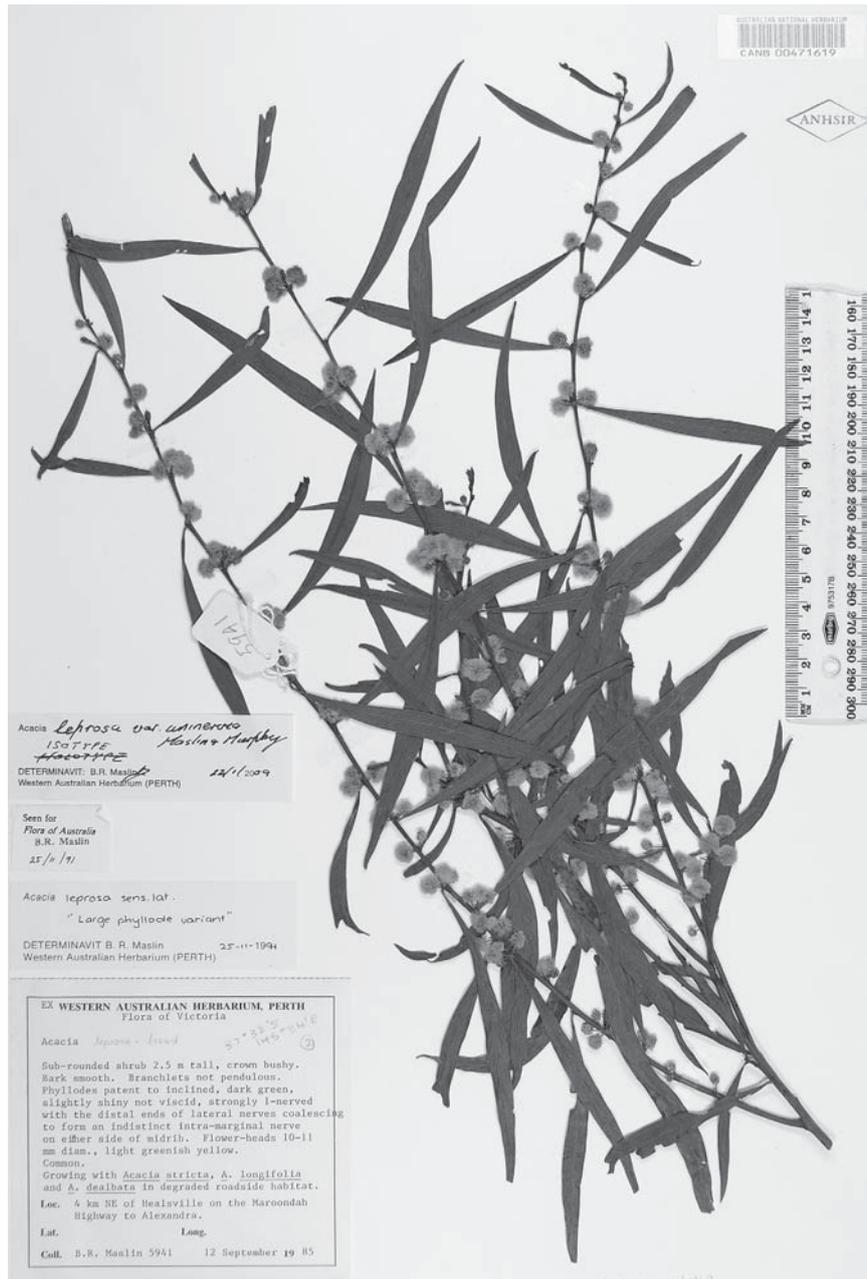


Figure 9. *Acacia leprosa* var. *uninervia*. Isotype (*B.R. Maslin* 5941), herb. CANB specimen.





Black Range State Forest near Buxton, 19.ix.1979, *A. Morton* 337 (MEL); 6 miles [9.6 km] N of Bullengarook and c. 2 miles [3.4 km] SE of Trentham, 3.ix.1961, *I.B. Muir* 2179 (MEL); Orbost, Sep. 1900, *E. Pescott s.n.* (MEL 1500484); Yarrabula Creek Road, Hurdle Creek Pine Plantation, Carboor East, Sep. 1990, *M.H. Simmons* 2332 & *J.G. Simmons* (NSW, PERTH); Womba State Forest, c. 3 km ESE from Spargo Creek on Cairns Road, 24.ix.2006, *V. Stajsic* 4486 & *J. Eichler* (MEL); Grampian Mts, Sep. 1898, *C. Walter s.n.* (AD 97316052, specimen ex MEL); Bacchus Marsh, 1882, *W.H. Webster s.n.* (MEL 1520912); Myers Creek Road, Healesville, 15.ix.1965, *L.H. Williams* 557 (NSW). **Narrow phyllode variant. VICTORIA:** Upper Yarra Park [Healesville district], 37°44'S, 145°37'E, 21.xi.1982, *A.C. Beaglehole* 71619 & *C.M. Beardsell* (MEL); Mt Buffalo National Park, NE study area, 14.ix.1987, *A.C. Beaglehole* 88526 & *A.D.J. Piesse* (MEL); Boulder Creek, on Yarraboula Creek track, at base of Mount Buffalo Range, c. 30 km S of Myrtleford, 19.i.2009, *B.R. Maslin* 9947 & *A. Gibb* (MEL, PERTH); Boulder Creek bank a few metres downstream from track and 10.4 km SSE of track junction with Lake Buffalo–Myrtleford road, 23.ix.1987, *W.S. Wilson, A.D.J. Piesse* & *N.T. Rossiter* NTR 90 (MEL, PERTH); Mt Buffalo plateau, at Mollisons Gallery in far SW sector, 19.ii.1963, *J.H. Willis s.n.* (MEL 1528943); Mt Buffalo plateau, at Mollisons Gallery in far SW sector, 28.i.2000, *N.G. Walsh* 5151 (MEL). **Large bracteole variant. VICTORIA:** 14 km SW of Alexandra, 9.viii.1982, *A.C. Beaglehole* 70683 (MEL); Toolangi State Forest, c. 5 km S

of Murrindindi Casacades picnic area, on Wilhelmina Falls Road, 20.v.2007, *V. Stajsic* 4445 & *N. Klazenga* (MEL); 6 km E of Marysville, 18.i.2009, *B.R. Maslin* 9945 (MEL, PERTH). **Nayook Creek variant. NEW SOUTH WALES:** Nayook Creek, about 1–2 km upstream of Deep Pass, 18.ii.1990, *P.D. Hind* 5972 & *C.K. Ingram* (NSW, MO); upper Nayook Creek, upstream of Deep Pass, 21.i.1993, *P.D. Hind* 6584 & *W. Cherry* (MEL, NSW).

Distribution and habitat: Occurs in Victoria where it is most common in the ranges from the north to east of Melbourne, but with scattered occurrences west to the vicinity of Ballarat (e.g. *V. Stajsic* 4486 & *J. Eichler*). There is a disjunct occurrence of the typical variant in New South Wales at Mt Tayar, about 30 km southeast of Rylestone; also, a variant with long bracteoles occurs on Nayook Creek in the Newnes State Forest, about 40 km to the south-east of Mt Tayar. Early Victorian records from Orbost (*E. Pescott s.n.*), near Seymour (*anonymous* MEL 1500501), Bacchus Marsh (*W.H. Webster s.n.*) and the Grampian Range (*C. Walters s.n.*) have not been confirmed with recent collections; these records may be errors, based on cultivated plants, or they may indicate that the variety no longer exists in these areas. *Acacia leprosa* var. *uninervia* is generally found in the understorey of damp *Eucalyptus* woodland or forest. Fig. 10A.

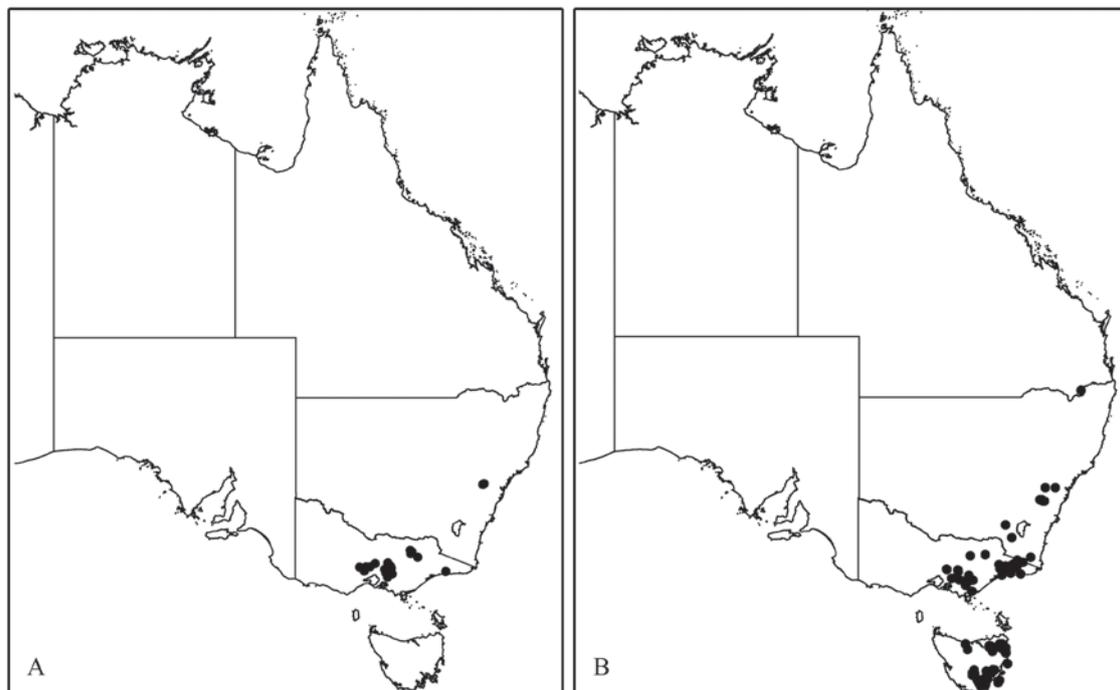


Figure 10. Distribution maps for: **A.** *Acacia leprosa* var. *uninervia*; **B.** *A. leprosa* var. *graveolens*.



Conservation status: Based on the criteria of the IUCN *A. leprosa* var. *uninervia* is regarded as a taxon of Least Concern (LC *sensu* IUCN 2001).

Flowering and fruiting period: Flowers from late August to early October. Pods with mature seeds have been collected in January (fruiting is likely to extend to February).

Taxonomy: Further study is needed to verify the taxonomic status of *A. leprosa* var. *uninervia* as defined here. The variety is distinguished from the other varieties of *A. leprosa* by a combination of its broad phyllodes (mostly 8–15 mm wide) which are prominently 1-nerved and which normally have quite evident (when dry) lateral nerves that distally coalesce to form an uneven intra-marginal nerve on one or both sides of the midrib. Another character that is useful in recognising this variety is that the gland is often, but not always, 2–8 mm above the pulvinus. See further notes below under *Variation* and *Affinities* below.

Variation: Some Victorian plants from Yarra Park (in the Healesville district) and Mount Buffalo (150 km due NE of Healesville) have narrower than normal phyllodes [6–9(–12) mm wide] with the gland situated at the distal end of the pulvinus. Normally the phyllodes of var. *uninervia* are 8–15 mm wide and with the gland 2–8 mm above the pulvinus. The narrow phyllode variant of var. *uninervia* is represented by the few collections cited above and closely resembles plants of *A. leprosa* var. *leprosa* (which occurs in Queensland and New South Wales) but are provisionally excluded from that variety because at least some phyllodes exceed 7 mm wide and have (when dry) a more pronounced lateral nervation. This narrow phyllode variant of var. *uninervia* appears to be uncommon and although it is found in the general area where the typical variant (with wide phyllodes) occurs, the two are not known to be sympatric.

A variant of var. *uninervia* characterised by larger and more acuminate bracteoles than normal occurs in the high mountain region of Victoria around Marysville, Alexandra (about 25 km due N of Marysville) and Toolangi State Forest (about 30 km due E of Marysville). The bracteoles on these plants are about 2 mm long and are slightly exerted beyond the flowers in the mature buds. In the typical variant of var. *uninervia* (which occurs at Healesville, 25 km SE of Marysville and which is at a lower elevation) the bracteoles are about 1 mm long and acute to short-acuminate, they are scarcely evident

in mature buds being over-topped by the flowers. Plants of the large bracteole variant also have patent-hairy peduncles (peduncle hairs appressed or patent in the normal variant) and 35–45 flowers per head (slightly more than the normal variant which has 25–35 flowers per head). Limited observations by the first author of the Marysville plants suggest that the large bracteole variant may commence flowering about a month later than the normal variant (the typical variant represented by *B.R. Maslin 5941*, the type, from Healesville that was at full anthesis in mid-September 1985 whereas the large bracteole variant from Marysville represented by *B.R. Maslin 5942* was with semi-mature flower buds at that same time). Future studies may show that formal recognition of this large bracteole variant is warranted. Finally, it is worth noting that a very unusual red-flowered form of this large bracteole variant was discovered in 1995 from near Wilhelmina Falls, Victoria, and subsequently named as the cultivar *Acacia leprosa* ‘Scarlet Blaze’ (Brueggemeier 2007; Plant Breeders Rights Australia 2001). The parent plant of *Acacia leprosa* ‘Scarlet Blaze’ is apparently extinct from the original collection locality, although progeny have been widely disseminated in horticulture (Cross 2001).

A variant, known from only the two collections cited above (one in young bud, the other in mature fruit), occurs at Nayook Creek, New South Wales, and it is described as a common shrub 1–3 m tall. It has distinctively long, linear to linear-lanceolate, long-acuminate bracteoles that extend well beyond the flowers in the young buds. Its phyllode, branchlet and pod characters are those of *A. leprosa* var. *uninervia* but the bracteoles are so distinctive that the entity warrants further investigation. Typical var. *uninervia* has small, acute bracteoles and is apparently rare in New South Wales, being known only from Mount Tayar about 30 km north of Nayook Creek.

Affinities: As already noted above *A. leprosa* var. *uninervia* is closely related to the typical variety; both varieties have 1-nerved phyllodes and are distinguished (perhaps arbitrarily) by phyllode width. Variety *uninervia* is also related to *A. leprosa* var. *graveolens* which is characterised by having 2-nerved phyllodes and it might be phylogenetically closer to the New South Wales variants of var. *graveolens* (which have short, densely hairy peduncles) than to the Victorian variants of var. *graveolens* (which have longer,



sparsely hairy peduncles). Interesting and complex patterns of variation exist between these two varieties in the mountainous country to the northeast and east of Melbourne and these require further detailed study. For example, in the vicinity of Kinglake (about 20 km due W of Marysville) there occurs both the common Victorian variant of var. *graveolens* (characterised by \pm sparsely appressed-hairy, relatively long peduncles and prominently 2-nerved phyllodes, see B.R. Maslin 8584 & D.J. Murphy and J. Soues s.n.) and the typical variant of var. *uninervia* (characterised by densely, \pm appressed-hairy, short peduncles and prominently 1-nerved phyllodes, see B.R. Maslin 8583 & D.J. Murphy and K. Macfarlane 173). The two Maslin & Murphy specimens just listed were sympatric in a population located about 7 km east of Kinglake; no putative hybrids were detected in this population. However, in the Kinglake area there are plants that are seemingly hybrids between these two varieties, being characterised by having both 1- and 2-nerved phyllodes on the same specimen (e.g. M.D. Tindale s.n. collected from 11.3 km from Toolangi on the crossroads near Slide Inn, 9.i.1968, MEL 2038070, NSW 211584, PERTH; S.K. Gardner 16, (MELU)). Note: Specimens with densely hairy peduncles and consistently 2-nerved phyllodes also occur around Kinglake (see under var. *graveolens* for discussion). Similar complexity occurs in the Gembrook area, along the Gembrook–Tonimbuk road, where a population, represented by two separate collections made at different times, shows variation in phyllode nerve number. These collections are: A.C. Cochrane 719 & J.C. Reid and I.C. Clarke, 17.viii.1999, MEL2062415 and J.C. Reid 2579, 2.ix.2004, MEL2312550, the latter specimen has clearly 2-nerved phyllodes and is assigned to var. *graveolens*, whilst the former specimen has mostly 1-nerved phyllodes with an occasional poorly developed second nerve on some phyllodes and is assigned to var. *uninervia*. The apparent difference in nerve number in this population over time may flag developmental differences in phyllode nerve number from younger to older plants. A difference in phyllode nerve number has previously been noted in juvenile versus mature *Acacia stricta* phyllodes (Gardner et al. 2005).

Etymology: The variety name is derived from the Latin *unicus* (singular) and *nervus* (nerve) in reference to the prominently 1-nerved phyllodes.

2c. *Acacia leprosa* var. *graveolens* Maslin & D.J. Murphy, var. nov.

Frutices (1–)2–6 m alti vel interdum (in Tasmania) *arbores* ad 8 m alta. *Ramuli* tenuiter costati, costis plerumque sparse vel modice appresse-puberulis. *Phyllodia* (30–)50–110 mm longa, (3–)7–20(–30) lata, punctulata, *nervis longitudinalibus* 2 in quoque facies positis. *Glans* plerumque ad extremum pulvini posita, (1–)2–4 mm supra pulvinum in Kinglake–Marysville forma. *Inflorescentiae* plerumque simplices immixtae cum racemis rudimentaribus; *pedunculi* (3–)4–8(–11) mm longi, sub-glabri vel modice (dense) \pm appresse puberuli; bractea basalis peduncularis mature caduca. *Bracteolae* 1(–1.5) mm longae, acutae vel interdum acuminatae. *Flores* 5-meri; calyx breviter lobatus. *Legumina* linearia vel anguste oblonga, 30–90 mm longa, 4–6 mm lata. *Semina* in leguminibus longitudinaliter ordinata, arillata

Shrubs (1–)2–6 m tall or sometimes (in Tasmania) *trees* to 8 m tall. *Branchlets* finely ribbed, the ribs normally sparsely to moderately appressed-puberulous. *Phyllodes* (30–)50–110 mm long and (3–)7–20(–30) mm wide, punctulate; with 2 *longitudinal nerves* on each face. *Gland* usually at distal end of pulvinus, (1–)2–4 mm above the pulvinus in the Kinglake–Marysville variant. *Inflorescences* normally simple intermixed with rudimentary racemes; *peduncles* (3–)4–8(–11) mm long, sub-glabrous to moderately (densely) \pm appressed-puberulous; *basal peduncular bract* early caducous. *Bracteoles* 1(–1.5) mm long, acute or sometimes acuminate. *Flowers* 5-merous; calyx shortly lobed. *Pods* linear to narrowly oblong, 30–90 mm long, 4–6 mm wide. *Seeds* longitudinal in pods, arillate.

Type: Gippsland Lakes, carpark below summit of Mt Elizabeth No. 2, Mt Elizabeth State Forest, Victoria, 14.xi.1986, D.E. Albrecht 2876; *holotype*: MEL 2079232; *isotypes*: BRI, PERTH.

Acacia graveolens Lodd., *Bot. Cab.* 15: t. 1460 (1828); G. Don, *Gen. hist.* 2: 404 (1832). *Type citation*: "a native of New Holland [Australia], introduced in 1820". *Type. n.v.*

Acacia verniciflua (*southern variant*) sensu T.J. Entwisle et al., *Fl. Victoria* 3: 618 (1996).

Acacia verniciflua *second variant sensu* B.R. Maslin, *Fl. Australia* 11A: 597 (2001).





Acacia verniciflua var. *graveolens* [as 'Graveolens'] (D.E. Albrecht 1883) Vic Herbarium, Australian Plant Census CHAH (2006).

Illustrations. W.J. Hooker, Bot. Cab. 15: t. 1460 (1828); T.J. Entwisle *et al.* *Fl. Victoria* 3: 615, fig. 124I (1996); B.R. Maslin, *Fl. Australia* 11A: 595, fig. 84H (2001).

Often somewhat spindly *shrubs* (1–)2–6 m tall, sometimes (in Tasmania) *trees* to 8 m tall, normally 1- or 2-stemmed with a sparse crown. *Phyllodes* normally (40–)50–110 mm long and (5–)7–20(–30) mm wide, occasionally 30–40 mm long and 3–4 mm wide in Tasmania; with 2 *longitudinal nerves*, the nerves of equal prominence or the adaxial one slightly less pronounced than the abaxial one; *lateral nerves* obscure or quite evident. *Gland* usually at distal end of pulvinus, \pm circular to oblong and c. 0.5 mm long, (1–)2–4 mm above the pulvinus and elongated in the Kinglake–Marysville variant. *Peduncles* (3–)4–8(–11) mm long, normally sub-glabrous to moderately appressed to sub-appressed hairy (occasionally interspersed with a few patent hairs), sometimes densely appressed-hairy; *basal peduncular bract* early caducous, 1–2 mm long. *Bracteoles* not or scarcely visible in mature buds being over-topped by the flowers, spatulate, 1(–1.5) mm long (equal to, or slightly exceeding, length of calyx), the laminae \pm equal to length of claws and acute, sometimes acuminate. Fig. 11.

Selected specimens examined: Typical variant. NEW SOUTH WALES: Coolangubra State Forest, Big Jack fire trail, c. 1 km NW of the summit of Big Jack Mountain, 21.x.1986, D.E. Albrecht 2928 (MEL, NSW); Brown's Gap, Lithgow, 10.x.1961, C. Burgess *s.n.* (CANB 001586); Ruby Creek, Mt Werong, L.A.S. Johnson & E.F. Constable *s.n.* (NSW 19460); 1.6 km N of Bindook Gap, 55 km SW of Katoomba, 16.ix.1967, R.G. Coveny *s.n.* (MEL 118360, NSW 148473); Tumut State Forest, 24.v.1979, J. Johnson *s.n.* (NSW); Mount Shivering (E of Mount Werong), 18.ix.1967, A.N. Rodd 529 (NSW). **VICTORIA:** 2.2 km by road from Erica township towards Walhalla, 25.ix.1985, D.E. Albrecht 1883 (MEL); Gippsland Lakes, carpark below summit of Mt Elizabeth No. 2, 14.x.1986, D.E. Albrecht 2876 (BRI, MEL, PERTH); Delegate River, Apr. 1889, W. Baeuerlen *s.n.* (NSW 374230, PERTH); c. 14 miles [22.5 km] from Ensay towards Bentley's Plain, 5.i.1969, E.M. Canning 1477 (BRI, CANB, MEL, PERTH); Vicinity of Walhalla, 6.x.1983, B.R. Maslin 5471 (PERTH); 2.5 km W of Melba Highway on Kinglake Road, c. 7 km E of Kinglake, 4.ix.2003, B.R. Maslin 8584 & D.J. Murphy (MEL, PERTH); Kinglake, 5.x.1910, J. Soues *s.n.* (MEL 1528947). **TASMANIA:** 20 miles [32 km] W of St Helens, 10.i.1949, N.T. Burbidge 3081 (HO, ex CANB); Styx River

road (near Maydena), 4.ii.1969, E.M. Canning *s.n.* (CANB, HO, K, MEL, MO); Tasman Highway S of Gray, 18.ix.1988, P. Collier 3355 (HO); St Columbia Falls, 30.iv.1984, R. Cumming 3441 (PERTH); Hobart, 7.ii.1819, A. Cunningham 125 (K); Mt Victoria, 1.v.1980, M.G. Noble 29266 (HO); Hobart, 1842, R. Gunn 479 (NSW); Cascades, Hobart, 15.x.1899, L. Rodway 199 (HO). **Kinglake–Marysville variant. VICTORIA:** Upper Yarra Park [Healesville district], 37°39'S, 145°53'E, 25.xi.1982, A.C. Beauglehole 71774A & C.M. Beardsell (MEL); Mt Slide, 4 miles (6.4 km) E of Kinglake, 6.v.1972, A.B. Court & M.D. Tindale 800 (CANB, K, MEL, NSW, US *n.v.*); Cumberland Falls reserve, c. 9 miles [16 km] ESE of Marysville, 26.ix.1962, C. Harding Browne *s.n.* (MEL 1529097, PERTH 01493221). **Stanthorpe variant. QUEENSLAND:** Stanthorpe, G. Ward *s.n.* (BRI 52201, NSW 255307, PERTH 04558367). **Small phyllode variant. TASMANIA:** Levendale, 1.x.1996, A.M. Buchanan 14287 (HO); near summit of Rogers Lookout, adjacent to Skyline Tier Road, 15.i.1991, A.M. Gray 741 (CANB, HO); near summit of Rogers Lookout, adjacent to Skyline Tier Road, 15.i.1991, A.M. Gray 742 (CANB, HO).

Distribution and habitat: Occurs along the Great Dividing Range from south-east Queensland (Stanthorpe), then the Mount Werong area east of Sydney, New South Wales, with scattered occurrences further south in New South Wales (including the Tumut State Forest) to north-east and east of Melbourne in Victoria; it also occurs in Tasmania. Grows in tall *Eucalyptus* forest. Fig. 10B.

Conservation status: Based on the widespread occurrence of this taxon and its presence in conservation reserves, *A. leprosa* var. *graveolens* is regarded as of Least Concern according to the criteria of the IUCN (LC *sensu* IUCN 2001).

Flowering and fruiting period: Flowers in mid-August to November. Pods with mature seeds have been collected from December to March.

Nomenclature: We have not been able to locate the type of *A. graveolens* Lodd., however, judging from the protologue it most likely represents the same entity as *A. leprosa* var. *graveolens*, which is described above. We considered it best to describe a new variety rather than basing our name on *A. graveolens* because we can unequivocally fix the name through the designation of a new type.

Taxonomy: Variety *graveolens* is the most widespread and common variety of *A. leprosa* and is broadly circumscribed here to accommodate plants of this species with 2-nerved phyllodes that are not referable to the geographically restricted var. *magna*



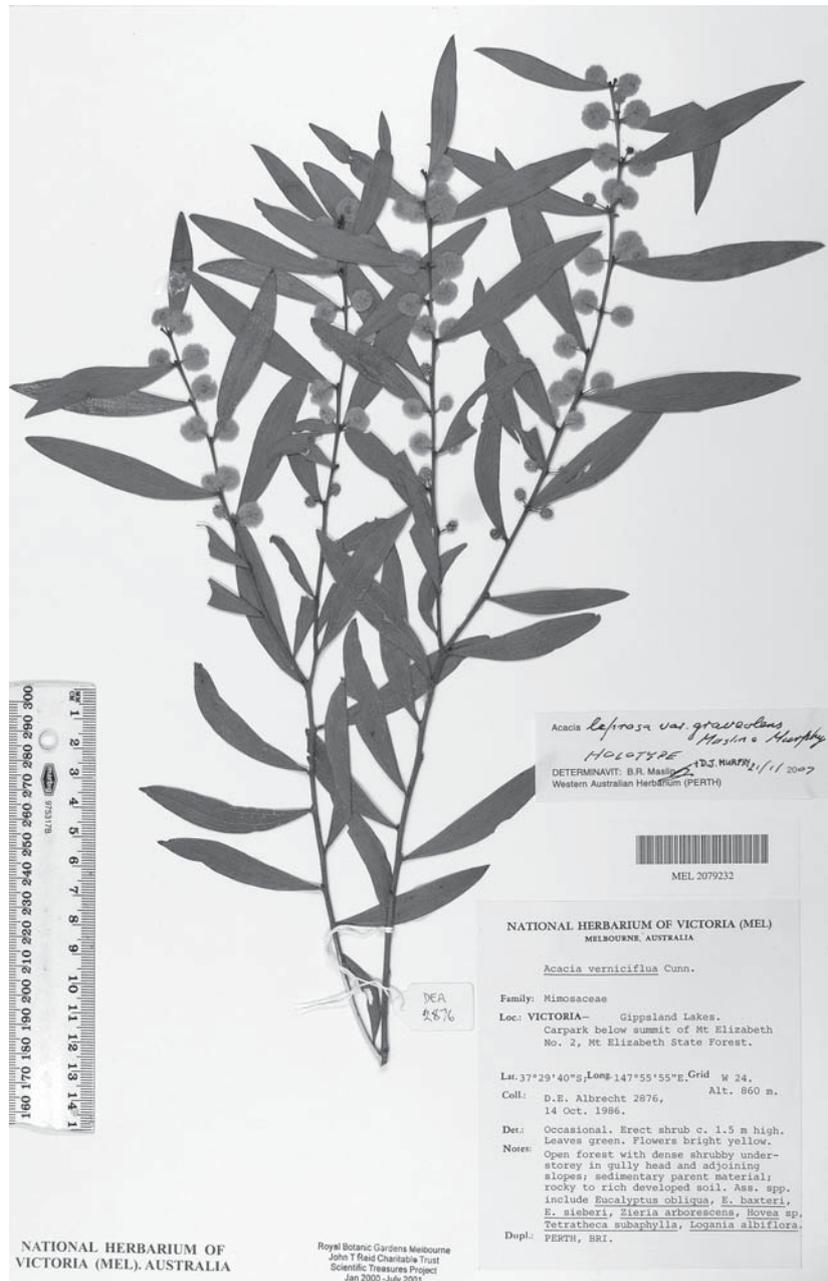


Figure 11. *Acacia leprosa* var. *graveolens*. Holotype (D.E. Albrecht 2876), herb. MEL specimen.

and var. *crassipoda*. As is discussed under *Variation* below var. *graveolens* is very variable and it is likely that future studies will attribute formal rank to some of the variants recognised here.

Variation: Phyllodes very variable in size. Normally they are about 50–110 mm long and 7–20(–30) mm wide, however, a few specimens with shorter (to

about 40 mm long) or narrower (to about 5 mm wide) phyllodes occur scattered throughout the range of the species. In Tasmania some phyllodes are atypically short (30–40 mm long); these have been recorded from Levendale (about 50 km due NE of Hobart) and also from near the summit of Rogers Lookout (W of St Helens, about 150 km N of Levendale). The phyllodes





on these short phyllode Tasmanian plants may be atypically narrow (3–4 mm wide) or within the normal width range for the variety (7–12 mm wide) and these two forms may co-occur (compare *A.M. Gray 741* – broad phyllodes with *A.M. Gray 742* – narrow phyllodes). Plants with the largest stature occur in Tasmania where they are sometimes trees 6–8 m tall (but the normal shrub forms also occur in that state).

The peduncles on plants of *A. leprosa* var. *graveolens* from New South Wales are generally slightly shorter [3–4(–5) mm long] and with a denser indumentum than plants from Victoria, and their phyllodes are normally 50–70 mm long (often above 70 mm in Victoria). The New South Wales plants are variable with respect to their phyllode width with the widest ones found on plants from Brown's Gap near Lithgow (see *C. Burgess s.n.*). Apart from the Kingslake–Marysville variant referred to below, the peduncles on plants of var. *graveolens* in Victoria are normally sparsely to moderately, appressed to sub-appressed hairy. A few plants of this variety from Tasmania also have densely hairy peduncles.

There is a single collection (in young bud) from the granite country around Stanthorpe, Queensland (see citation above). These specimens are unusual in having clearly patent hairs on their relatively long peduncles, and acuminate bracteoles. They seem otherwise to be typical of the more southerly occurring var. *graveolens*.

Plants with similar acuminate bracteoles occasionally occur around Mount Werong in New South Wales but their peduncles are typical of other New South Wales plants of this variety in being 3–4 mm long and appressed-hairy, e.g. *L.A.S. Johnson & E.F. Constable s.n.* (NSW 19460). The bracteoles on most other New South Wales plants are acute, not acuminate. Mount Werong is an area that would benefit from further study. Apart from the plants just mentioned typical var. *graveolens* (acute bracteoles), var. *uninervia* and a possible hybrid between var. *graveolens* and var. *leprosa* (see below) occur in this area.

There are a few specimens from the Kingslake–Marysville area in Victoria (listed above) that are provisionally referred to *A. leprosa* var. *graveolens*. These plants resemble the typical form of the variety in having wide, 2-nerved phyllodes but differ most obviously from other Victorian plants of var. *graveolens* in their densely hairy peduncles (hairs patent or appressed) and their phyllodes which have a clearly

elongated gland that is located (1–)2–4 mm above the pulvinus (in typical var. *graveolens* the gland is \pm circular to oblong and located at the distal end of the pulvinus). The relationship of these plants to *A. leprosa* var. *crassipoda* and to the large bracteole variant of *A. leprosa* var. *uninervia* requires further study.

Hybridity: A possible hybrid between *A. leprosa* var. *graveolens* and var. *leprosa* is represented by two specimens, *B.G. Briggs s.n.* (NSW 167431) and *W.F. Blakely & F.J. Ludowici s.n.* (NSW 27535). These specimens have rather narrow phyllodes (5–7 mm wide) that are both 1- and 2-nerved on the one plant. The closest records of var. *leprosa* to Mount Werong are from about 50 km to the south-east (from Hill Top, near Mittagong). As already noted, *A. leprosa* var. *uninervia* (phyllodes 1-nerved) also occurs at Mount Werong.

Etymology: The varietal name is derived from the Latin *graveolens* (strong-smelling). The name was first used by Loddiges (1828) who described this taxon as a species based on a plant in horticulture in England; he described them as having a 'powerful and unpleasant' smell but we have not assessed this odour in nature.

2d. *Acacia leprosa* var. *magna* Maslin & D.J. Murphy, var. nov.

Frutices ad 3 m alti, vel interdum *arbores* ad 10 m alta. *Ramili* tenuiter costati, costis plerumque sparse vel modice appresse-puberulis. *Phyllodia* 80–130 mm longa, (12–)15–20(–30) lata, punctulate; *nervis longitudinalibus* prominentibus 2 in quoque facies positus. *Glans* ad extremum pulvini posita, circularis. *Inflorescentiae* plerumque simplices immixtae cum racemis rudimentaribus; *pedunculi* 4–6 mm longi, sub-glabri vel \pm puberuli; *bractea basalis peduncularis* persistens, prominens (3–4 mm longa). *Bracteolae* in gemma perspicue manifestae, lanceolatae, c. 2 mm longae, acuminatae. *Flores* 5-meri; *calyx* breviter lobatus. *Legumina* non visa.

Shrubs to 3 m tall or sometimes *trees* to 10 m. *Branchlets* finely ribbed, the ribs normally sparsely to moderately appressed-puberulous. *Phyllodes* 80–130 mm long, (12–) 15–20(–30) mm wide, punctulate; with 2, prominent *longitudinal nerves* on each face. *Gland* situated at distal end of pulvinus, circular. *Inflorescences* normally simple intermixed with rudimentary racemes; *peduncles* 4–6 mm long, sub-glabrous to sparsely \pm puberulous;





basal peduncular bract persistent, prominent (3–4 mm long). Bracteoles clearly evident in buds, lanceolate, c. 2 mm long, acuminate. Flowers 5-merous; calyx shortly lobed. Pods not seen.

Type: Lardners Track, South Gellibrand, Cape Otway, Victoria, 21.ix.1963, R. Filson 5317; holotype: MEL 37874; isotype: BRI.

Shrubs to 3 m tall or sometimes trees to 10 m, sometimes single-stemmed; branchlets rarely pruinose. Phyllodes 80–130 mm long, (12–)15–20(–30) mm wide; with 2, prominent longitudinal nerves of equal prominence. Gland often indistinct, situated at distal end of pulvinus, circular. Peduncles 4–6 mm long, sub-glabrous to \pm sparsely and minutely appressed or sub-appressed

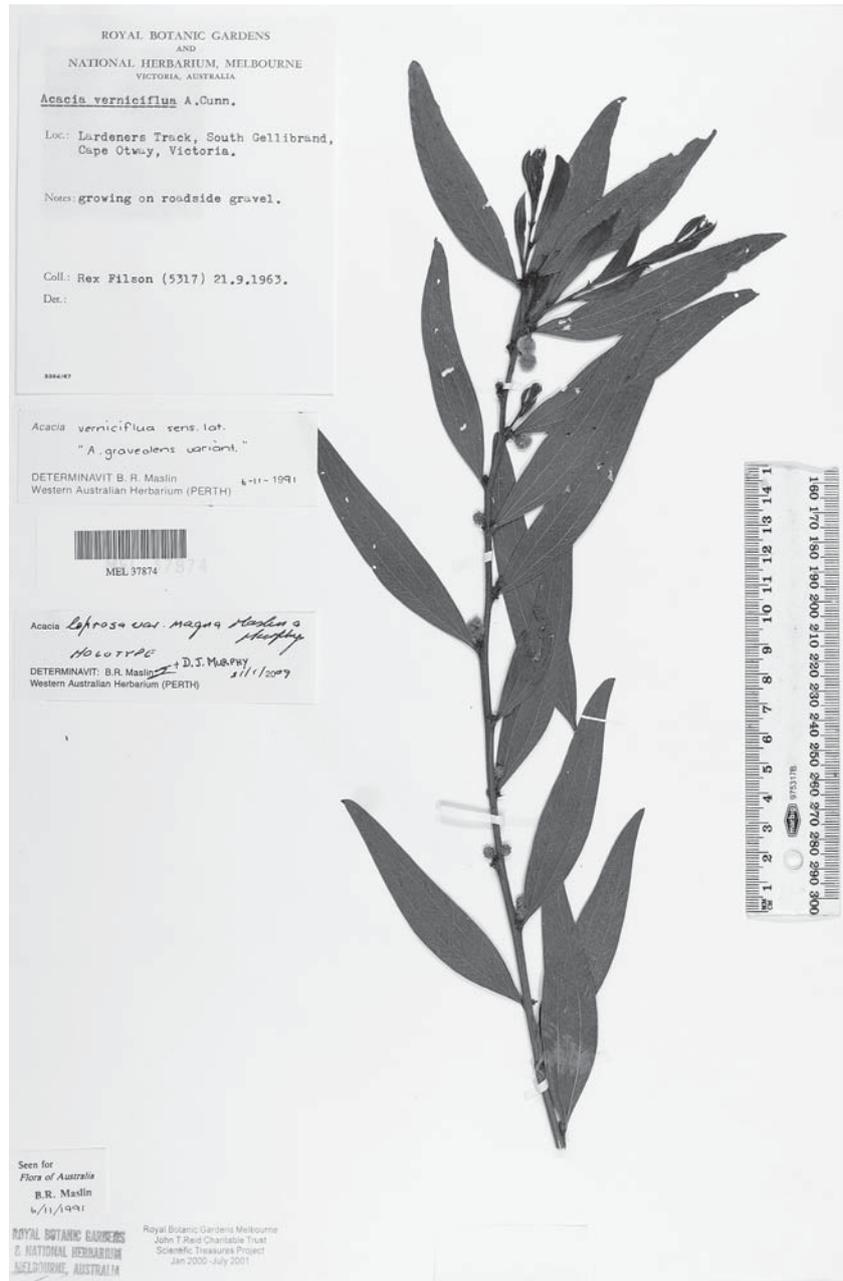


Figure 12. *Acacia leprosa* var. *magna*. Holotype (R. Filson 5317), herb. MEL specimen.



puberulous with straight hairs; *basal peduncular bract* prominent and persistent to anthesis, 3–4 mm long, cleft at apex. *Bracteoles* clearly evident in buds and overtopping the flowers, lanceolate, c. 2 mm long (as long as, or slightly exceeding, the petals), the laminae large (much longer than the very short claws), acuminate, appressed-hairy and 1-nerved abaxially. *Pods* not seen. Fig. 12.

Other specimens examined: VICTORIA: Anglesea, Gum Flats Road, 30.x.2005, *R.J. Adair s.n.* (MEL 2292814); Otway Ranges, 5 km SW of Carlisle River, 31.viii.1986, *P.F. Barnett 173* (MEL); Otway Ranges, W of Lavers Hill, 14.xi.1959, *A.C. Beaglehole 18973* (MEL); Angahook–Lorne State Park, Erskine Creek, 28.vii.1996, *J.W. Grimes 3382 & B. Meurer-Grimes* (MEL); 11 miles [17.6 km] from Apollo Bay towards Beech Forest (via Ocean Road), 14.xi.1970, *P. McDonnell 383* (MEL); 32 km SW of Colac, Colac–Lavers Hill road, 27.v.1997, *P.G. Neish 271* (MEL).

Distribution and habitat: Endemic in Victoria where it occurs from the Otway Plain at Anglesea, scattered through the Otway Ranges to as far west as Carlisle River. This variety grows on mesic hillsides in tall wet sclerophyll forest or rainforest near creeks. Fig. 13A.

Conservation status: *Acacia leprosa* var. *magna* has a restricted known distribution and is regarded as

Vulnerable according to the criteria of the IUCN (VU Ba, biii sensu IUCN 2001).

Flowering and fruiting period: Flowers from September to November. Fruiting specimens have not been seen.

Taxonomy: Variety *magna* is unique within *A. leprosa* in having large, persistent basal peduncular bracts. There are other varieties of *A. leprosa* that occur within the geographic range of var. *magna*.

Affinities: Most closely related to Victorian forms of *A. leprosa* var. *graveolens* that have large, 2-nerved phyllodes and sparsely appressed-hairy peduncles. Variety *magna* is, however, readily distinguished by its large, persistent basal peduncular bracts and large, lanceolate, acuminate bracteoles. Although the lanceolate to narrowly elliptic phyllodes are normally narrowed to acute or acuminate apices they are occasionally obtuse (with a central mucro) and in these cases var. *magna* may superficially resemble *A. rostriformis* which occurs around Bacchus Marsh, about 100 km to the north-east. *Acacia rostriformis* is most readily distinguished by its generally smaller phyllodes with rostriform, excentrically mucronate apices, longer peduncles with a denser indumentum and smaller basal bracts, and smaller, acute bracteoles.

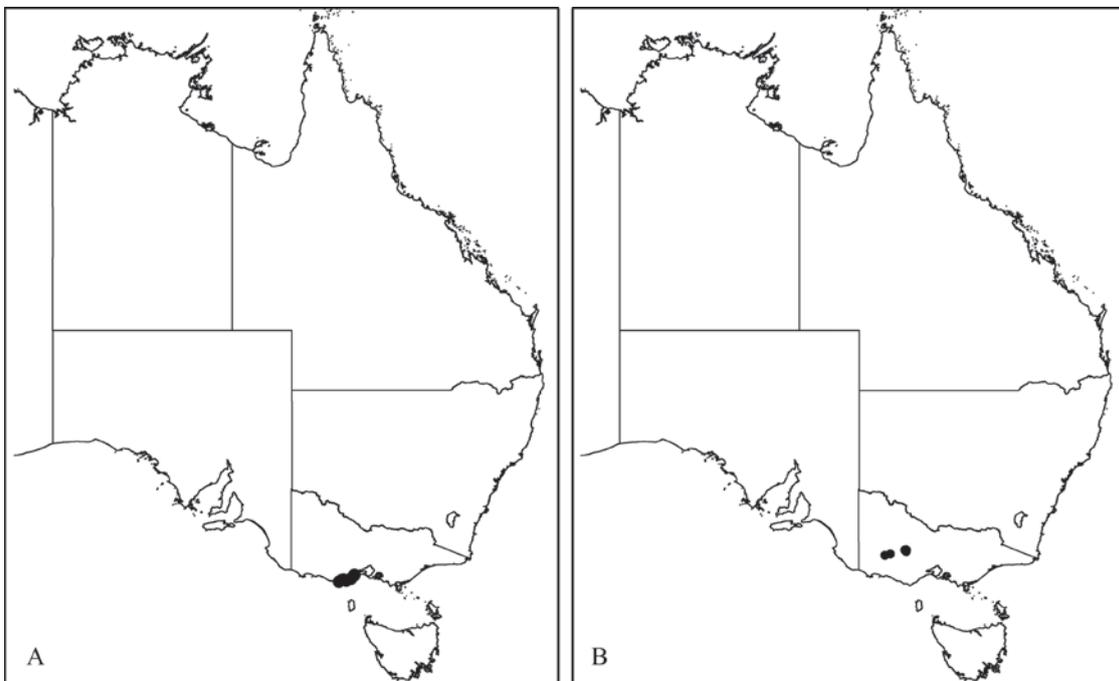


Figure 13. Distribution maps for: A. *Acacia leprosa* var. *magna*; B. *A. leprosa* var. *crassipoda*.



Variation: One specimen with pruinose branchlets has been seen (*A.C. Beaglehole 18973*) but it is not known how common this attribute is within the variety; pruinose branchlets are otherwise not known within *A. leprosa*. There are not many extant specimens of this variety and there is very little habit information provided on their herbarium labels. Some labels (e.g. *P.G. Neish 271*) describe the plants as shrubs about 3 m tall, but one (*P.F. Barnett 173*) describes them as a tree 10 m tall. Similar arborescent plants occur in *A. leprosa* var. *graveolens* in Tasmania.

Etymology: The varietal name is derived from the Latin *magnus* (large) and refers to the characteristically large bracteoles and basal peduncular bracts.

2e. *Acacia leprosa* var. *crassipoda* Maslin & D.J.Murphy, var. nov.

Frutices graciles 1.5–3 m alti. *Ramili* tenuiter costati, costis plerumque sparse vel modice appresse-puberulis. *Phyllodia* (40–)50–90(–120) mm longa, (10–)15–20(–30) lata, punctulate; *nervis longitudinalibus* 2 in quoque facies positae. *Glans* 0–1 mm supra pulvinum posita. *Inflorescentiae* plerumque simplices immixtae cum racemis rudimentaribus; *pedunculi* 2–4(–5) mm longi, dense puberuli-tomentulosi; *bractea basalis peduncularis* caduca. *Capitula* grandia (8–10 mm in statu sicco), (30–)35–45-flora. *Bracteolae* c. 2 mm longae, acuminatae. *Flores* 5-meri; *calyx* breviter lobatus. *Legumina* linearia vel anguste oblonga, 30–90 mm longa, 4–6 mm lata. *Semina* in leguminibus longitudinaliter ordinata, arillata.

Spindly *shrubs* 1.5–3 m tall. *Branchlets* finely ribbed, the ribs normally sparsely to moderately appressed-puberulous. *Phyllodes* (40–)50–90(–120) mm long, (10–)15–20(–30) mm wide, punctulate; with 2 *longitudinal nerves* on each face. *Gland* 0–1 mm above the pulvinus. *Inflorescences* normally simple intermixed with rudimentary racemes; *peduncles* 2–4(–5) mm long, densely puberulous-tomentulose; *basal peduncular bract* caducous. *Heads* large (8–10 mm diam. when dry), (30–)35–45-flowered. *Bracteoles* c. 2 mm long, acuminate. *Flowers* 5-merous; *calyx* shortly lobed. *Pods* linear to narrowly oblong, 30–90 mm long, 4–6 mm wide. *Seeds* longitudinal in pods, arillate.

Type: Pyrenees Range, c. 8 km W of Avoca, on road to Lookout No. 3, 2 km NW of Vinoca Road, 3.ix.2004,

Victoria, *B.R. Maslin 8576* & *D.J. Murphy*; *holotype*: MEL 2212578; *isotypes*: CANB, K, PERTH.

Spindly *shrubs* 1.5–3 m tall. *Phyllodes* (40–)50–90(–120) mm long, (10–)15–20(–30) mm wide; with 2 *longitudinal nerves* of \pm equal prominence; *lateral nerves* fine but reasonably evident when dry. *Gland* 0–1 mm above the pulvinus, circular or elongated. *Peduncles* 2–4(–5) mm long, often obscured by stamens at anthesis so that the heads superficially look sessile, densely puberulous-tomentulose with somewhat matted, \pm appressed to widely spreading, straight to shallowly curved or sub-crisped hairs; *basal peduncular bract* caducous, 1.5–2(–3) mm long. *Heads* large (8–10 mm diam. when dry), (30–)35–45-flowered. *Bracteoles* visible (but not prominent) in mature buds, usually lanceolate, c. 2 mm long (exceeding the calyx but slightly shorter than the corolla), the laminae distinctly acuminate and longer than the claws (but see note under *Variation* below). Plates 1 & 2. Fig. 14.

Selected specimens examined: VICTORIA: upper source of Glenelg River, Victoria Range, Grampians, 25.ii.1957, *A.C. Beaglehole 4667* (MEL); about 12 km W of Avoca P.O., 19.viii.1975, *A.C. Beaglehole 50246* (BRI, MEL); base of Mount White, Grampians, without date, *Joshuas s.n.* (NSW 258341 – bracteoles smaller than normal); 5.6 km from Mt William car park, 20.i.1997, *P.G. Neish 88* & *A.M. Muasya* (MEL, MELU); Mount William Road, c. 4 km towards summit from Grampians Road, 22.x.1996, *A. Paget 2549* (MEL – bracteoles smaller than normal); The Pyrenees, Percydale historic area, Mt Avoca Tourist Road, c. 3 km WSW of the lookout, 11.x.2003, *V. Stajsic 3374* & *K. Rule* (MEL); just W of Mountain Hut Track at a point c. 7 km from Pyrenees Hwy, c. 2.5 km SE of Mt Avoca, 23.ix.2005, *N.G. Walsh 6415*, *J.A. Jeanes* & *H. Rommelaar* (MEL).

Distribution and habitat: Endemic in Victoria where it occurs in the Grampian Range (recorded from Mount William, Mount White and the Victoria Range) and about 50 km to the east, from the Pyrenees Range which is located to the west of Avoca. Variety *crassipoda* grows in steep mountainous country in eucalypt forest, and occurs in a series of small disjunct populations. It grows in clay soils over sandstone or shale. Fig. 13B.

Flowering and fruiting period: Flowers from late August to November. Pods with mature seeds have been collected in January and February.

Taxonomy: This is the least distinctive of the varieties of *A. leprosa* but is recognised by a combination of the





following characters: broad, 2-nerved phyllodes (but these characters are not unique to var. *crassipoda*), short, stout, densely hairy peduncles (see discussion below), large heads with normally numerous flowers (head 8–10 mm diam. when dry and normally 35–45-flowered; in most other varieties of *A. leprosa* the heads do not exceed 8 mm diam. when dry and are

normally 20–35-flowered) and with normally distinctly acuminate bracteoles (but see discussion below).

The peduncles in var. *crassipoda* are distinctively densely hairy, short (often obscured by the filaments at anthesis so that the heads often appear superficially sessile) and seemingly stout (about 1 mm wide). In actuality the peduncle width is about the same as in

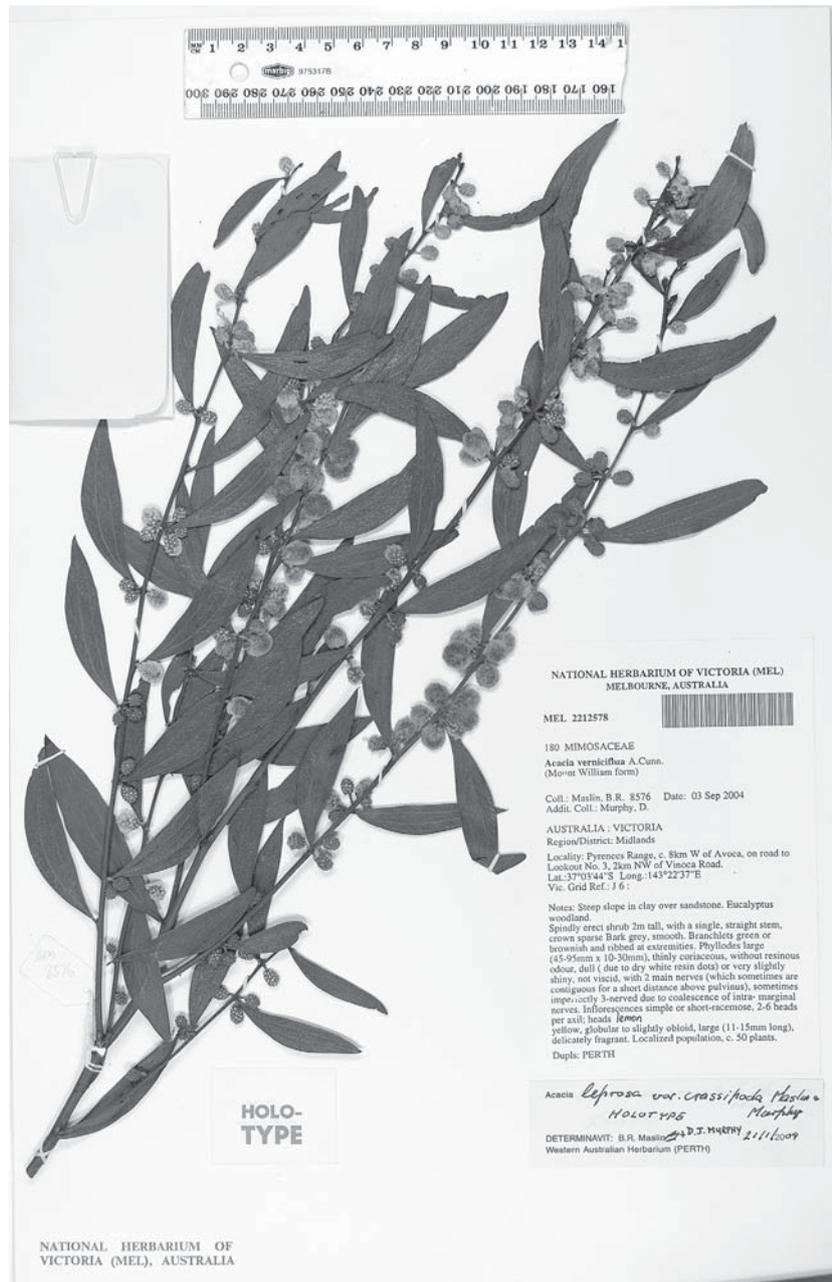


Figure 14. *Acacia leprosa* var. *crassipoda*. Holotype (B.R. Maslin 8576 & D.J. Murphy), herb. MEL specimen.





the other varieties of *A. leprosa* (c. 0.5 mm wide) but they appear wider being covered by a thick layer of sometimes \pm matted hairs.

Variation: The bracteoles are normally about 2 mm long (clearly longer than the calyx, but slightly shorter than the petals) with clearly acuminate laminae that are longer than the short claws. These distinctive bracteoles occur elsewhere in *A. leprosa* but are uncommon (they occur in var. *magna* and in the large bracteole variant of var. *uninervia*). In var. *crassipoda* we have seen two atypical specimens (*A. Paget 2549* and *Joshuas s.n.*) that have slightly shorter than normal bracteoles (1.2–1.5 mm long) with short-acuminate laminae that are equal in length to the claws; the *A. Paget 2549* is further atypical in having few-flowered heads, c. 25. These two specimens appear otherwise typical of var. *crassipoda*; they occur in the Grampians within the geographic range of the variety.

The phyllodes in *A. leprosa* var. *crassipoda* are normally gradually narrowed to acute or acuminate apices but on *V. Stajsic 3374* & *K. Rule* they are abruptly narrowed to obtuse apices (with a central mucro) and as such superficially resemble those of *A. exudans* (from around Casterton) or *A. rostriformis* (from around Bacchus Marsh). *Acacia exudans* is most readily distinguished by its glabrous branchlets that are marked with broad, flat bands (like those of *A. verniciflua*) whereas the branchlets on *V. Stajsic 3374* & *K. Rule* are marked with distinctly raised, appressed-hairy ribs. *Acacia rostriformis* is distinguished from var. *crassipoda* by its narrower phyllodes (mostly 5–10 mm wide) with a distinctive, excentric mucro and generally longer peduncles (mostly 5–9 mm) with persistent basal bracts (phyllodes normally 15–20 mm long with a centric mucro and peduncles 2–4(–5) mm long with caducous basal bracts in var. *crassipoda*).

Affinities: Variety *crassipoda* is most closely related to *A. leprosa* var. *graveolens* (2-nerved phyllodes) which is normally recognised by having longer (4–8 mm), more sparsely hairy peduncles and small bracteoles (about 1 mm long) with the acute laminae \pm equal in length to the claws. There is, however, a variant of var. *graveolens* from the Kinglake–Marysville area that has densely hairy, rather short (4–5 mm long) peduncles; these plants superficially resemble var. *crassipoda* but are distinguished most readily by their clearly elongated glands which are normally 2–4 mm above

the pulvinus (gland 0–1 mm above pulvinus in var. *crassipoda*).

Conservation status: *Acacia leprosa* var. *crassipoda* occurs in less than five known locations and its range is highly fragmented. Therefore this taxon is regarded as Vulnerable according to the criteria of the IUCN (VU Ba, biii *sensu* IUCN 2001). However, enhanced surveys for this taxon based on its known habitat preferences may discover additional populations.

Etymology: The varietal name is derived from the Latin *crassus* (thick) and *poda* (foot) in allusion to the short, stout peduncles.

3. *Acacia rostriformis* Maslin & D.J.Murphy, *sp. nov.*

Frutices 1–6(–8) m alti. *Ramili* manifeste costati, costis appresse-puberulis. *Phyllodia* anguste elliptica vel oblongo-elliptica, plerumque oblanceolata vel \pm lanceolata, 20–45(–60) mm longa, (3–)5–10(–13) mm lata, punctulate; *nervis longitudinalibus* 2 in quoque facies positis; *apices* obtusi vel sub-acuti, excentraliter mucronati, rostriformes, saepe sub-uncinati. *Glans* 0–1 mm supra pulvinum posita. *Inflorescentiae* simplices; *pedunculi* (3–)5–9(–10) mm longi, dense tomentosi; *bractea basalis peduncularis* persistens. *Capitula* globularia vel parum obloidea, dense 25–30 flora, citrine. *Bracteolae* 0.7–1 mm longae, acutae vel brevi-acuminatae. *Flores* 5-meri; *calyx* gamosepalus, breviter lobatus. *Legumina* linearia vel anguste oblonga, 35–80 mm longa, 3–5 mm lata, tenui-texturata dense appresse-puberula in statu juvenili, indumento sparso maturitate. *Semina* in leguminibus longitudinaliter ordinata, 3.5–4.7 mm longa, arillata.

Shrubs 1–6(–8) m tall. *Branchlets* prominently ribbed, the ribs appressed-puberulous. *Phyllodes* narrowly elliptic to oblong-elliptic, sometimes oblanceolate or \pm lanceolate, 20–45(–60) mm long, (3–)5–10(–13) mm wide, normally appressed-puberulous on margins and main longitudinal nerves, punctulate; with 2 *longitudinal nerves* on each face; *apices* obtuse to sub-acute, excentrically mucronate, rostriform and often sub-uncinate. *Gland* situated 0–1 mm above pulvinus. *Inflorescences* simple; *peduncles* (3–)5–9(–10) mm long, densely tomentose; *basal peduncular bract* persistent; *heads* globular or slightly obloid, densely 25–30-flowered, lemon yellow. *Bracteoles* 0.7–1 mm long, acute to short-acuminate. *Flowers* 5-merous,





calyx gamosepalous, shortly lobed. *Pods* linear to narrowly oblong, 35–80 mm long, 3–5 mm wide, thin-textured, densely appressed-puberulous when young, indumentum sparser with age. *Seeds* longitudinal in the pods, 3.5–4.7 mm long, arillate.

Type: about 8 km due N of Bacchus Marsh, on Seereys Road, 0.3 km E of Camerons Road, Victoria, 3.ix.2004, B.R. Maslin 8575 & D.J. Murphy; *holotype:* MEL 2212577; *isotypes:* CANB, K, NSW, NY, PERTH.

Acacia verniciflua (*Bacchus Marsh* variant) *sensu* T.J. Entwisle *et al.*, *Fl. Victoria* 3: 618 (1996).

Acacia verniciflua fourth variant *sensu* B.R. Maslin, *Fl. Australia* 11A: 598 (2001).

Acacia verniciflua var. *Bacchus Marsh* (B.R. Maslin 3497) Vic Herbarium, Australian Plant Census CHAH (2006).

Illustrations. T.J. Entwisle *et al.*, *Fl. Victoria* 3: 615, fig. 124k (1996); B.R. Maslin, *Fl. Australia* 11A: 595, fig. 84G (2001).

Slightly aromatic, obconic *shrubs* with dense rounded crowns, 1–6(–8) m tall, generally multi-stemmed from the base. *Bark* grey, smooth except fissured at base of stems on oldest plants. *New shoots* light green, slightly viscid. *Branchlets* not flexuose, angled towards extremities but aging terete, prominently ribbed, the ribs appressed-puberulous, rather broad, \pm flat or more commonly raised, yellow or sometimes light green, the inter-rib region light brown to dark red-brown and not obviously resinous. *Stipules* caducous, present on young shoots only, acute, 0.5–1 mm long. *Phyllodes* narrowly elliptic to oblong-elliptic, sometimes oblanceolate or \pm lanceolate, 20–45(–60) mm long, (3–)5–10(–13) mm wide, generally straight and wide-spreading, slightly shiny, not viscid, dark green, normally appressed-puberulous on margins and main longitudinal nerves, punctulate with numerous, small, shallow, circular depressions that often exude a glistening resin (the punctae rather prominent: observe at $\times 10$ mag.); with 2 longitudinal nerves on each face with the adaxial one slightly more prominent than the abaxial one, nerves not raised in fresh material but raised when dry; *lateral nerves* few and obscure; *apices* obtuse to sub-acute, excentrically mucronate, rostriform and often sub-uncinate; *pulvinus* 1 mm long, appressed-puberulous. *Gland* situated on upper margin of phyllode 0–1 mm above pulvinus, small (c. 0.5 mm long) and sometimes

not readily observable. *Inflorescences* simple, 1–3(–5) per axil; *peduncles* (3–)5–9(–10) mm long, c. 1 mm diam., densely tomentose with short, crisped or curved, normally spreading hairs; *basal peduncular bract* persistent through flowering, brown, 2–3 mm long, navicular-cuculate, acute, sometimes apically cleft; *heads* globular or (especially in buds) slightly obloid, 9–10 mm diam. when fresh, 6–7 mm diam. when dry, densely 25–30-flowered, lemon yellow. *Bracteoles* visible but not prominent in mature buds being over-topped by flowers, spatulate, 0.7–1 mm long (about as long as the calyx), the laminae acute to short-acuminate, about as long as the claws, densely appressed-puberulous on abaxial surface and obscurely longitudinally nerved. *Flowers* 5-merous, *calyx* gamosepalous, shortly lobed. *Pods* linear to narrowly oblong, 35–80 mm long, 3–5 mm wide, firmly chartaceous to thinly coriaceous, densely appressed-puberulous when young (indumentum sparser with age), acute, marginal nerve not prominent. *Seeds* longitudinal in the pods, obloid, 3.5–4.7 mm long, 2.1–2.4 mm wide, shiny, dark brown or black; *funicle* normally twice-folded, *aril* 1.1–1.8 mm long and 1.6–2.4 mm wide. Plates 1 & 2. Fig. 15.

Selected specimens examined: VICTORIA: Werribee Gorge, Oct. 1945, A.C. Beaglehole 39928 (MEL 1528976); Lerderberg Gorge, Bacchus Marsh, May 1966, L. Langley FRI 13644 (CANB 00439901); between Bacchus Marsh and the Brisbane Ra., 4.xi.1973, B.R. Maslin 3497 (CANB, PERTH); In Australia felix [most probably collected from Bacchus Marsh], Sep. 1852, F. Mueller 49 (MEL 1528987); Bacchus Marsh, Jan. 1853, F. Mueller s.n. (MEL 1529009); Ex horto Bot. Melb. [cultivated, Royal Botanic Gardens, Melbourne], 1863, F. Mueller s.n. (MEL 1529053); near Balliang, 22.vii.1968, N. Scarlett s.n. (CANB 028558); Werribee, Werribee River, reserve between the west end of Redgum Close and the Southern Water Diversion Weir, 3.x.2006, V. Stajsic 4163 & N. Karunajeewa & Werribee River Association (MEL); Goodman's Creek, near Coimadai, N of Bacchus Marsh, 17.ix.1945, J.H. Willis s.n. (MEL 1011069).

Distribution and habitat: Endemic in Victoria where it is confined to a small area around Bacchus Marsh (Lerderberg Gorge, Long Forest Nature Conservation Reserve, Coimadai and Balliang) with an outlier population from Werribee. *Acacia rostriformis* occurs as discontinuous populations within a region that has been extensively cleared for agriculture, but it is common in the places where it is found. It grows in low hilly country on brown clay in *Eucalyptus* woodland. Fig. 16A.





Conservation status: *Acacia rostriformis* is found in a limited number of reserves and may be regarded as depleted in its former natural range. This taxon is regarded as Vulnerable according to the criteria of the IUCN (VU C1 *sensu* IUCN 2001), although it is possible that future survey work will identify additional populations.

Flowering and fruiting period: Flowers from late August to early October with the main flush in September. Because of the paucity of fruiting material it is difficult to accurately determine when seed is produced, however, it is probable that plants with mature pods would occur from about December to February.



Figure 15. *Acacia rostriformis*. Holotype (B.R. Maslin 8575 & D.J. Murphy), herb. MEL specimen.





Affinities: *Acacia rostriformis* is unique among the species dealt with in this paper in having rostriform, excentrically mucronate phyllode apices and densely hairy pods (at least when young). It appears to be most closely related to *A. exudans* (which grows around Casterton, about 300 km to the east of where *A. rostriformis* occurs) on account of having 2-nerved phyllodes and densely tomentose peduncles (see *A. exudans* for differences). *Acacia leprosa* var. *crassipoda* also has 2-nerved phyllodes and a similar peduncle indumentum (see var. *crassipoda* for differences); this variety grows in the Pyrenees Range west of Avoca (about 150 km northeast of Bacchus Marsh) and in the Grampian Range further west.

Notes: The normally yellow branchlet ribs on the penultimate branchlets in *A. rostriformis* are broad and sometimes not dissimilar to the 'bands' that occur in *A. exudans* and *A. verniciflua*; however, in *A. rostriformis* these structures are more commonly obviously raised (low-profile and flat in the other two species) and are always invested with an indumentum comprising appressed hairs (glabrous in *A. exudans* and *A. verniciflua*).

It is rather surprising that there are relatively few contemporary collections of this species. It grows only

about 50 km east of Melbourne and although it has a restricted distribution near Bacchus Marsh and Werribee it is common in the places where it occurs and is very showy when in flower. The first collection of this species was that of Mueller in September 1852 (MEL 1528987); although this specimen is without a precise locality it was almost certainly collected from Bacchus Marsh. In January 1853 Mueller again collected *A. rostriformis* and this specimen (MEL 1529009) is labelled as having been collected from Bacchus Marsh. Mueller seemingly considered the species to have had horticultural significance because there is a specimen of his taken from a plant grown at the Royal Botanic Gardens, Melbourne in 1863 (MEL 1529053). In all likelihood this cultivated plant was grown from seed collected by Mueller in January 1853. Most of the early collections of this species were named *A. exudans* which is now known to be a distinct, but closely related, species.

Common name: Bacchus Marsh Wattle

Etymology: The species name is derived from the Latin *rostrum* (a beak) and *forma* (shape) in allusion to the distinctive, obtuse to sub-acute and excentrically mucronate phyllode apices that often resemble a bird's head in profile.

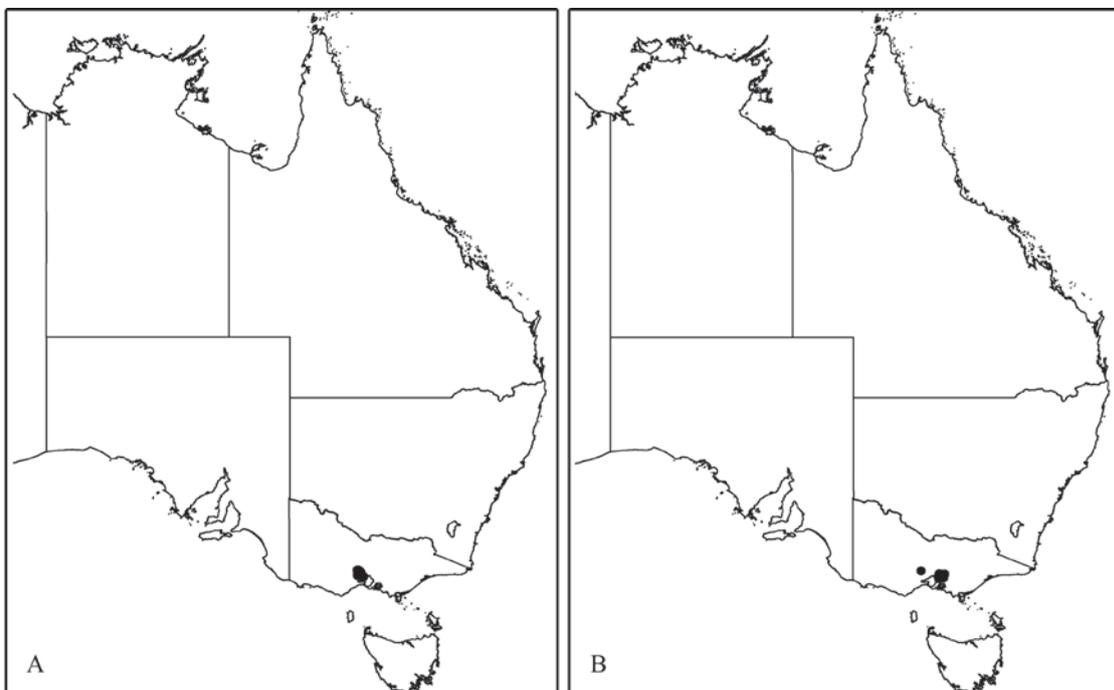


Figure 16. Distribution maps for A. *Acacia rostriformis*; B. *A. stictophylla*.





4. *Acacia stictophylla* Court ex Maslin & D.J.Murphy, sp. nov.

Frutices aromatici, 2–4 m alti. Ramili tenuiter costati, costis glabris vel sparse appresse-puberulis. *Phyllodia* anguste elliptica vel lanceolato-elliptica, raro \pm linearia, (40–)50–90(–100) mm longa, (2–)3–6(8–12) mm lata, tenui-texterata, atro-viridia, glabra vel costa et margine sparse appresso puberuli, punctulate; *nervo longitudinali* 1 in quoque facies posito; *apices* acuti vel brevi-acuminati, interdum obtuso mucronati. *Glans* supra marginem phyllodii posita, 0(–0.5) mm supra pulvinum. *Inflorescentiae* plerumque simplices; *pedunculi* 4–8(–10) mm longi, modice dense et aliquantum laxe pubescentes; *bractea basalis peduncularis* caduca vel interdum persistens. *Capitula* globularia sed gemmae plerumque obloidea, 30–50-flora, citrina. *Bracteolae* trans flores exsertae in statu juvenili, 1.2–1.5 mm longae, acuminatae vel brevi-acuminatae. *Flores* 5-meri; *calyx* gamosepalus, breviter lobatus. *Legumina* linearia, 20–60 mm longa, 3–4 mm lata, chartacea, glabra vel sparsissima appresse-puberula. *Semina* in leguminibus longitudinaliter ordinata, arillata.

Aromatic *shrubs* 2–4 m tall. *Branchlets* finely ribbed, the ribs glabrous or very sparsely appressed-puberulous. *Phyllodes* narrowly elliptic to lanceolate-elliptic, rarely \pm linear, (40–)50–90(–100) mm long, (2–)3–6(8–12) mm wide, thin-textured, dark green, glabrous or sparsely appressed-puberulous on mid-rib and margin, punctulate; with 1 *longitudinal nerve* on each face; *apices* acute to short-acuminate, sometimes obtuse-mucronate. *Gland* situated on upper margin of phyllode 0(–0.5) mm above the pulvinus, not prominent. *Inflorescences* normally simple; *peduncles* 4–8(–10) mm long, moderately densely and rather loosely pubescent; *basal peduncular bract* caducous or sometimes persistent; *heads* globular but often obloid in bud, 30–50-flowered, lemon yellow. *Bracteoles* exserted beyond flowers when young, 1.2–1.5 mm long, acuminate to short-acuminate. *Flowers* 5-merous; *calyx* gamosepalous, shortly lobed. *Pods* linear, 20–60 mm long, 3–4 mm wide, chartaceous, glabrous to very sparsely appressed-puberulous. *Seeds* longitudinal in the pods, arillate.

Type: Dandenong Range east of Melbourne, on Belgrave–Gembrook road due NE of Belgrave township just N of Black Hill road, Victoria, 27.viii.1985, *B.R. Maslin*

5868; *holotype*: MEL 712039; *isotypes*: CANB, K, NSW, NY, PERTH.

Acacia leprosa var. *elongata* Guilf., *Austral. Pl.* 34, 403, pl. (1911), *nom. inval.* (description not diagnostic).

Acacia leprosa (*Dandenong Range variant*) *sensu* T.J. Entwisle *et al.*, *Fl. Victoria* 3: 620 (1996).

Acacia leprosa *second variant sensu* B.R. Maslin, *Fl. Australia* 11A: 599 (2001).

Acacia leprosa var. *reclinata* (*B.R. Maslin* 5868), *Australian Plant Census* CHAH (2006).

Illustrations. L.F. Costermans, *Native Trees & Shrubs SE Australia* 311, fig.a (1981); T. Tame, *Acacias SE Australia* 109, fig. 107f–h, pl. 105 (1992); T.J. Entwisle *et al.*, *Fl. Victoria* 3: 622, fig. 125c (1996); B.R. Maslin, *Fl. Australia* 11A: 595, fig. 84M (2001).

Aromatic, rounded or \pm narrowly obconic, single-stemmed *shrubs* 2–4 m tall, main stems to about 3 cm in diam., crowns moderately open with ultimate branchlets sometimes arching downwards. *Bark* smooth and grey. *New shoots* light green and slightly shiny. *Branchlets* straight or very slightly flexuose, somewhat angled at extremities but ageing terete, finely ribbed, the ribs raised, yellowish or red-brown and glabrous or very sparsely appressed-puberulous (hairs to c. 0.5 mm long), inter-rib space wider than the ribs, light brown to dark red-brown and with a thin veneer of resin. *Stipules* caducous. *Phyllodes* narrowly elliptic to lanceolate-elliptic, rarely \pm linear, mostly (40–)50–90(–100) mm long, (2–)3–6 mm wide, rarely wider (8–12), shallowly to moderately incurved, sometimes straight, viscid or not viscid (when fresh), slightly shiny, thin-textured, dark green, glabrous or sparsely appressed-puberulous on mid-rib and margin, punctulate with numerous, evident, shallow, circular depressions that often exude a glistening resin (the punctae are often blackish when dry and darker-coloured than the surrounding lamina: observe at $\times 10$ mag.); with 1 *longitudinal nerve* on each face, this midrib fine yet evident, yellow and slightly raised when dry; *lateral nerves* few and very obscure or very often superficially absent, sometimes (on broadest phyllodes) distally coalescing to form a very obscure, continuous, uneven intra-marginal nerve on either side of phyllode; *apices* acute to short-acuminate, sometimes obtuse-mucronate (mucro central); *pulvinus* c. 1 mm long, glabrous or appressed-puberulous. *Gland*





situated on upper margin of phyllode 0(–0.5) mm above the pulvinus, not prominent. *Inflorescences* simple or occasionally very rudimentary 1-headed racemes 0.5–1 mm long, (1–)2(–4) per axil; *peduncles* 4–8(–10) mm long, c. 0.5 mm diam., moderately densely and rather loosely pubescent, the hairs tolerably long (to c. 0.5 mm), appressed, sub-appressed or somewhat spreading and straight to shallowly curved or wavy; *basal peduncular bract* caducous or sometimes persistent to anthesis, navicular, acute to acuminate, c. 1.5 mm long, dark brown, glabrous; *heads* globular but when in bud often obloid, c. 1.1 mm diam. when fresh, c. 8 mm diam. dry, 30–50-flowered, lemon yellow. *Bracteoles* exerted beyond flowers in young buds but not exerted in mature buds, lanceolate, 1.2–1.5 mm long (slightly longer than the calyx), dark brown, the laminae large (longer than the very short claws), acuminate to short-acuminate and appressed hairy (especially near margins). *Flowers* 5-merous; *calyx* gamosepalous, 1/2–2/3 length of corolla, shortly lobed, sparsely to moderately puberulous; *petals* sparsely appressed-hairy at apex (sometimes a few glabrous), c. 2 mm long. *Pods* linear, 20–60 mm long, 3–4 mm wide, raised over seeds along mid-line, shallowly curved, chartaceous, glabrous to very sparsely appressed-puberulous, marginal nerve indistinct. *Seeds* longitudinal in the pods, obloid, 3.5–4.5 mm long, 1.5–2 mm wide, shiny, black; *funicle* normally expanded into a twice-folded terminal *aril*. Plates 1 & 2. Fig. 17.

Selected specimens examined: VICTORIA: Lilydale, 24.ix.1906, *anonymous* (MEL 1500496); Woori Yallock, 20.x.1905, *anonymous* (MEL 1500478); Melbourne suburban area, Pamela Drive, Ringwood, 5.viii.1984, *D.E. Albrecht 635* (BRI, CBG, MEL, PERTH); Lower Ferntree Gully, Jul. 1942, *C. Davis 9* (NSW); W side of Courtneys road, 1 km N from Wellington Road, South Belgrave, c. 45 km E of Melbourne, 29.viii.1993, *P.C. Jobson 2129 & A.J. Raisums* (BRI, CANB, MEL, NSW, S); Baluk William Flora Reserve, Courtneys Road, 19.xii.1995, *D.J. Murphy 18* (MEL, PERTH); Myrning Creek, Sep. 1899, *C. Walter s.n.* (NSW 167421).

Distribution and habitat: Endemic in Victoria where it is restricted to the vicinity of the Dandenong Ranges east of Melbourne. It grows from Ringwood to Lilydale and Woori Yallock then south to Dandenong township; an early collection by C. Walter said to have been gathered from Myrning Creek (10 km NW of Bacchus Marsh,) is possibly an error or an introduction to that area; there are no other known collections of *A. stictophylla* from this locality. It is common in the

places where it occurs. Maslin (2001, p. 599) provisionally referred the specimen *A.C. Beauglehole 30149* (MEL) from the Grampians to this species; this specimen is now known to be *A. verniciflua*. *Acacia stictophylla* grows on hillsides in tall *Eucalyptus* forest or open woodland, on moderately steep slopes under *Eucalyptus* or sometimes in wet riparian vegetation along watercourses. It is found on white sandy loam or clay derived from Silurian sandstone or mudstone. Fig. 16B.

Conservation status: According to the criteria of the IUCN *A. stictophylla* is regarded as Vulnerable (VU C1 *sensu* IUCN 2001). This taxon occurs in conservation reserves but is at risk due to ongoing urban development across its range.

Flowering and fruiting period: Flowers from August to mid November. Pods with mature seeds have been collected in December, however, too few have been seen for us to ascertain range of fruiting.

Variation: Normally the phyllodes on *A. stictophylla* are 3–6 mm wide but they are occasionally wider with the broadest ones (to 12 mm) occurring on a few plants from near Belgrave (e.g. *D.J. Murphy 18*). Wide phyllode forms of *A. stictophylla* may superficially resemble *A. leprosa* var. *uninervia* (the distribution of the two taxa overlap around Woori Yallock) but the latter is most easily distinguished by its gland being located 2 mm or more above the pulvinus (gland \pm at distal end of pulvinus in *A. stictophylla*); also, the indumentum and other characters discussed under *Affinities* below that separate *A. leprosa* var. *leprosa* from *A. stictophylla* apply also to *A. leprosa* var. *uninervia*. On a few specimens from around Belgrave the branchlet ribs approach those of *A. verniciflua* (e.g. *P.C. Jobson 2129 & A.J. Raisums*).

Affinities: *Acacia stictophylla* is related to *A. leprosa*, especially the typical variety which occurs in New South Wales and Queensland; these taxa are most easily distinguished by their bracteole morphology and peduncle indumentum, but as noted below there are other characters that separate them. The bracteoles of var. *leprosa* are less conspicuous than those of *A. stictophylla*, they have short, acute laminae (which are less than half the length of the narrowly oblong claws) that are not exerted in the flower buds; by contrast the bracteole laminae in *A. stictophylla* are rather large (longer than the very short claws), acuminate and extend beyond the flowers in young buds (but not the mature buds). The peduncles of var. *leprosa*



are generally shorter than those of *A. stictophylla* but more importantly they have a dense indumentum of uniformly very short, straight, closely appressed hairs that often obscure the surface of the peduncles. In *A. stictophylla* the peduncle indumentum is a little less dense and comprises hairs that are about twice as long as those found on var. *leprosa*, furthermore the hairs

are more curved and less closely appressed, they form a much looser and open indumentum than that which is found in var. *leprosa*. These different indumentum types are also found on the branchlet ribs of the two species. Variety *leprosa* has generally fewer flowers in the heads (20–30) than *A. stictophylla* (30–50).

Plants of *A. stictophylla* with very narrow phyllodes

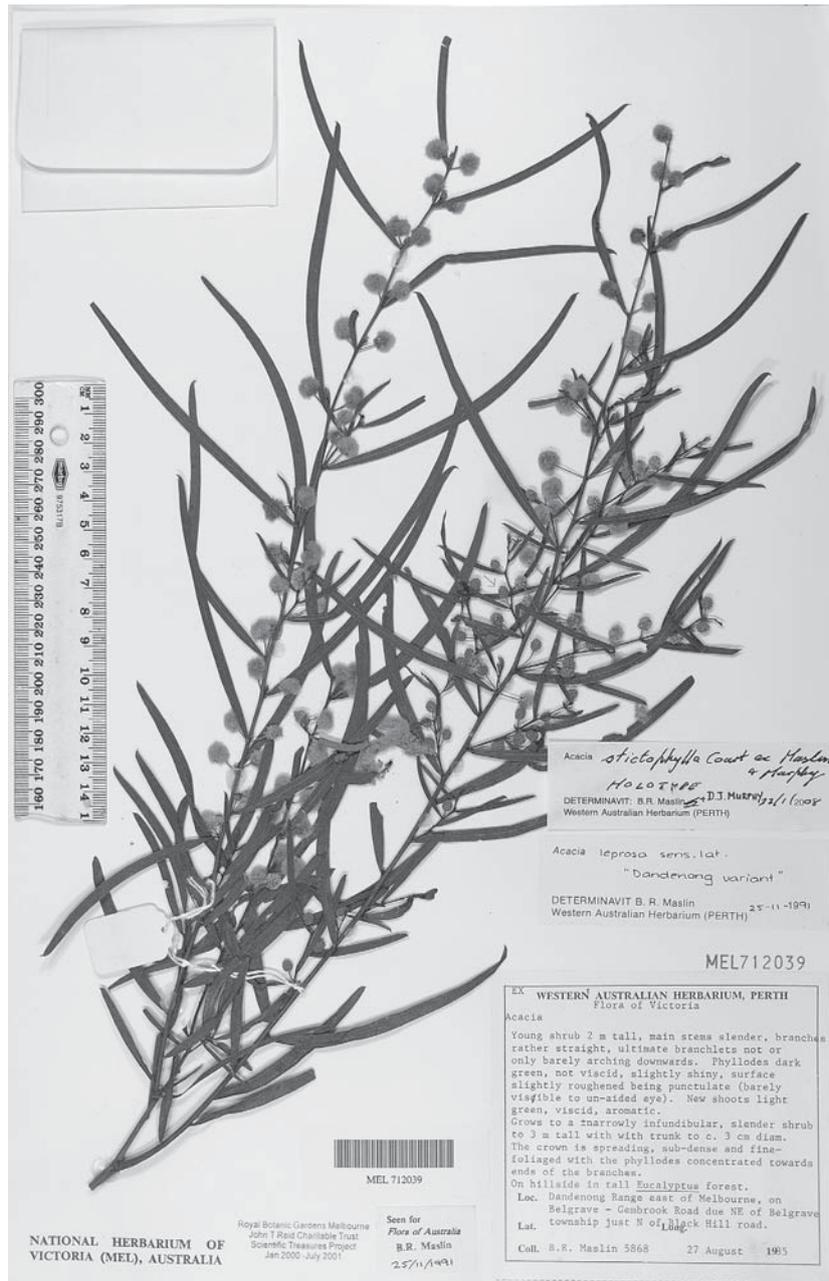


Figure 17. *Acacia stictophylla*. Holotype (B.R. Maslin 5868), herb. MEL specimen.



superficially resemble *A. cognata* which is distinguished by its normally 3-nerved phyllodes which are very obscurely punctulate (observe carefully at $\times 10$ mag.) and by its persistent basal peduncular bracts (normally caducous in *A. stictophylla*). Furthermore, *A. cognata* attains a taller stature than *A. stictophylla* (it grows as a shrub or tree 3–10 m high) and in Victoria does not extend west of Orbost on the south coast (about 300 km due east of the Dandenongs where *A. stictophylla* occurs).

Hybrids: Based on morphological criteria the following specimens which were collected from Pamela Place, Ringwood (a suburb of Melbourne), probably represent a hybrid between *A. howittii* and *A. stictophylla*: D.E. Albrecht 651 & 652 and B.R. Maslin 582 (all at MEL and PERTH). These plants are characterised by lanceolate to elliptic, short phyllodes (30–40 mm long); they occurred in remnant bushland in a built-up area together with the two putative parents. *Acacia stictophylla* also appears to hybridise with *A. paradoxa* in this same general area, e.g. B.R. Maslin 5865 (K, MEL, PERTH) which grew with both putative parents. This putative hybrid is the same entity that was reported by Court (1972, p. 216) under *A. leprosa* \times *armata*.

Common name: Dandenong Cinnamon Wattle

Etymology: The species name is derived from the Greek *sticto-* (punctured, spotted, dappled) and *phyllon* (leaf) in allusion to the punctulate phyllodes.

5. *Acacia verniciflua* A.Cunn., in B. Field, *Geogr. Mem. New South Wales* 344 (1825)

Racosperma vernicifluum (A.Cunn.) Pedley, *Austrobaileya* 2: 357 (1987). *Type citation*: "Rocky Hills, near Cox's River, &c. Collected first in 1817 by me [A. Cunningham], during Mr. Oxley's Expedition." **Type**: Cox's River, New South Wales, Oct. 1822, *A. Cunningham* 220; *holotype*: K; *isotype*: BM.

Acacia virgata G.Lodd., *Bot. Cab.* 13: t. 1246 (1827), *nom. nud.* (plate not accompanied by analysis).

Acacia binervata Dehnh., *Cat. horti camald.* 2nd edn, 17 (1832), *nom. illeg., non DC.* (1825). *Type citation*: "Nov. Holl. Flor. Mart.": *Type*: cultivated at the Camalduli botanic garden, Naples, Italy, *F. Dehnhardt*; *holotype*: W.

Acacia gracilis Dehnh., *loc. cit.* *Type citation*: "Nov. Holl. Flor. Aug. Septemb.": *Type*: cultivated at the Camalduli botanic garden, Naples, Italy, *F. Dehnhardt*; *holotype*: W.

Acacia verniciflua var. *pendula* Seem., *Verh. K. K.*

Gartenbauges. Wien 1846: 42 (1846). *Type citation*: "Ob in Garten erzeugt oder auch im Vaterlande versomme ist mir unbesannt". *Type*: n.v.

Acacia reclinata F.Muell., *First Gen. Rep. Govt. Bot.* 12 (1853), *nom. nud.*; *J. Proc. Linn. Soc., Bot.* 3: 131 (1859), *pro syn. sub A. leprosa*. Note: it is perhaps equivocal as to whether or not Mueller's name was validly published in 1859; Chapman (1991, p. 77) considers that it was, but Maslin (2001, p. 598) treated it as it is presented here.

Acacia leprosa var. *binervis* F.Muell., *J. Proc. Linn. Soc., Bot.* 3: 131 (1859). *Type citation*: "In collibus graniticis ad flumen Broken River." *Type*: on granite hills between the Broken River and Miles Creek, Victoria, 10.ii.1852, *F. Mueller s.n.*; *holotype*: MEL 1529061.

Acacia leprosa var. *tenuifolia* Benth., *Fl. austral.* 2: 358 (1864). *Type citation*: "Between the Goulburn and Broken rivers, Victoria, F. Mueller." *Type*: between the Goulbourne [Goulburn] and Broken Rivers, Victoria, F. Mueller s.n.; probable *holotype*: MEL 1528780; ?*isotypes*: K, MEL 1529063 (specimens annotated by F. Mueller as "Trans. fl. Goulbourne").

Acacia verniciflua (*common variant*) *sensu* T.J. Entwisle et al., *Fl. Victoria* 3: 617 (1996).

Acacia verniciflua *first variant sensu* B.R. Maslin, *Fl. Australia* 11A: 597 (2001).

Acacia leprosa (*Seymour variant*) *sensu* T.J. Entwisle et al., *Fl. Victoria* 3: 620 (1996).

Acacia leprosa *third variant sensu* B.R. Maslin, *Fl. Australia* 11A: 599 (2001).

Illustrations. W.J. Hooker, *Bot. Mag.* 60: t. 3266 (1833); N.T. Burbidge & M. Gray, *Fl. Austral. Cap. Terr.* 199, fig. 193G (1970); G.M. Cunningham et al., *Pl. W New South Wales* 374 (1981); D.J.E. Whibley & D.E. Symon, *Acacias S. Australia* 2nd edn, 181 (1992); T.J. Entwisle et al., *Fl. Victoria* 3: 615, fig. 124i and 622, fig. 125b (1996); B.R. Maslin, *Fl. Australia* 11A: 595, fig. 84A–E & N (2001).

Non-aromatic or slightly aromatic, often viscid *shrubs* mostly 1–3 m tall, occasionally small *trees* to 4 m, single- or multi-stemmed, the main branches slender and erect or pendulous. *Bark* grey and smooth, may become rough on older trunks. *New shoots* usually shiny and resinous. *Branchlets* straight to flexuose and/or pendulous, terete or slightly angled, glabrous or occasionally (in few South Australian specimens) minutely appressed-puberulous, normally marked with broad (0.5–1 mm wide), \pm flat or





scarcely raised, yellow or green bands that sometimes age brown in dry material and sometimes have a very narrow (<0.5 mm wide), raised nerve along their mid-line, interstices (i.e. the region between the bands) often dark red-brown and filled with resin which may be elevated above the bands to form a discontinuous or crenulated "resin rib" (especially in plants near Seymour, Victoria). *Stipules* caducous. *Phyllodes* very variable in shape and size, elliptic to narrowly elliptic, sometimes lanceolate or (when very narrow) rarely linear, sometimes narrowly oblong to oblong-oblancheolate, usually 20–80 (–90) mm long and (1.5–)3–15(–24) mm wide, straight, incurved or sometimes shallowly sigmoid, usually shiny or viscid-resinous but sometimes dull and not viscid, thinly coriaceous, light green to grey-green or dark green, glabrous or rarely sparsely appressed-puberulous on margins and main nerves (mainly in few South Australian specimens), obviously *punctate* with \pm numerous, shallow depressions that are often filled with resin; 2 *longitudinal nerves* on each face, the nerves of equal prominence or the adaxial one sometimes poorly developed, rarely 1-nerved (near Seymour, Victoria); *lateral nerves* superficially absent or obscure when dry, anastomosing to form an open reticulum; *apices* acute to obtuse-mucronate (mucro normally \pm central); *pulvinus* 0.5–1.5 mm long, glabrous. *Gland* situated on upper margin of phyllode 0–2 mm above pulvinus, circular to \pm elongated. *Inflorescences* simple and 1–3 per axil or 2–6-headed racemes with axes to 2–5 mm long; *peduncles* (3–)4–15(–20) mm long, often resinous, glabrous to sparsely appressed-puberulous, the hairs straight and appressed; *basal peduncular bract* early caducous or occasionally persistent to anthesis, navicular, acuminate, 0.5–2 mm long, dark brown, glabrous; *heads* globular to slightly obloid, 30–60-flowered, bright lemon yellow to golden. *Bracteoles* normally obscure and over-topped by flowers in mature buds, very rarely exerted, normally spatulate and 1–1.5 mm long (\pm equal in length to calyx), the dark brown laminae shorter or longer than the narrowly oblong claws, puberulous abaxially and acute to acuminate. *Flowers* 5-merous; *calyx* gamosepalous, shortly lobed, 1/2–2/3 length of corolla, puberulous; *petals* glabrous or puberulous at apex. Pods narrowly oblong to linear, 25–90 mm long, 3–6 mm wide, thinly coriaceous, glabrous, often shiny resinous or viscid when young and ageing to dull and sometimes rugose, marginal nerves indistinct

or distinct. *Seeds* longitudinal in the pods, obloid to obloid-ellipsoid, 3.5–5 mm long, 2–3 mm wide, shiny, dark brown to black; *funicle* normally expanded into a once-folded terminal *aril*. Plates 1 & 2. Fig. 18.

Selected specimens examined: Typical variant. SOUTH AUSTRALIA: Near the summit of North Bold, c. 5.5 km ENE of Clarendon, *L. Haegi* 476 (AD); Mt Lofty Range, Torrens Gorge, c. 10 km NE of Adelaide, 10.viii.1966, *E.N.S. Jackson* 713 (AD, MEL). **QUEENSLAND:** Amiens, c. 16 km W of Stanthorpe, *G. Ward* 281 (BRI). **NEW SOUTH WALES:** c. 4.5 km from Denman, 8.ix.1969, *R.G. Coveny* 2443 (NSW, PERTH); Rocky Hills near Cox's River, Oct. 1904, *J.H. Maiden* & *R.H. Cambage* s.n. (NSW); S of Seymour turn-off on Northern Highway between Heathcote and Pyalong, 27.viii.1985, *B.R. Maslin* 5860 (MEL, PERTH); about 3 km SE of Brogedah H.S. on the road to Muswellbrook, 8.ix.1985, *B.R. Maslin* 5923 (MEXU, NSW, PERTH); Carboor-Docher road, S of Wangaratta, 19.i.2009, *B.R. Maslin* 9946 (MEL, PERTH); 1.2 miles [c. 2 km] S of Capertree Bridge (between Lithgow and Kandos), 25.v.1967, *I.V. Newman* 413 (NSW); c. 4.5 km from Denman, 8.ix.1969, *R.G. Coveny* 2443 (NSW, PERTH); 22 km from the Mudgee–Dunedoo road intersection towards Cassilis, Oct. 1989, *T. Tame* 2554 & 2555 (both PERTH); Between Boat Hill and Grong Grong, 29.ix.1986, *J. Thomas* & *E. Norris* 643 (NSW); **AUSTRALIAN CAPITAL TERRITORY:** Mid N slope of Mt Tennent, *R. Pullen* 2923 (CANB). **VICTORIA:** Gippsland Lakes, Hinterland, Mt Difficulty, 29.ix.1985, *D.E. Albrecht* 1958 (MEL, PERTH); Grampians, 1.5 miles [2.4 km] ENE of Halls Gap, 21.xii.1968, *A.C. Beaglehole* 30149 (MEL); Chiltern State Park, near Cyanide Dam, 22.viii.1994, *R.J. Fletcher* 288 (MEL); Mount Cole State Park, Ferntree Waterfalls Road, 27.ii.1996, *D.J. Murphy* 37 & *N. Middleton* (MEL, PERTH); The Grampians, c. 4 km N of Zumsteins, 8.ix.1985, *S.T.W. Parfett* 56 (MEL, PERTH); **Large bracteole variant. VICTORIA:** 0.5 km E of Heathcote–Tooborac road on Seymour–Tooborac road, 4.ix.2004, *B.R. Maslin* 8578 & *D.J. Murphy* (MEL, PERTH); 17 miles [27.3 km] from Lancefield on road to Tooborac, 9.ix.1972, *C.W.E. Moore* 6223 (CANB, MEL, NSW). **Warby Range variant. VICTORIA:** Warby Range, on road skirting N slopes of Mt Killawarra, 29.xi.1972, *E.M. Canning* 3242 (CANB, L, A); Ryans Lookout, Warby Ranges State Park, 15 km W of Wangaratta, 11.ix.1970, *P.C. Jobson* 110 (MEL); 21 km from Wodonga on Beechworth Road, Feb. 1992, *T. Tame* 3326 (NSW). **1-nerved variant. VICTORIA:** Avenel Road (at Hume Hwy overpass). c. 5 km N of Seymour, 4.ix.2004, *B.R. Maslin* 8579 & *D.J. Murphy* (MEL, PERTH, K, CANB).

Distribution and habitat: Widespread and common in eastern Australia where it occurs from near Tamworth, New South Wales, south through the Australian Capital Territory to Casterton in Victoria; there are also restricted





occurrences in the Stanthorpe region of southeast Queensland and the southern Lofty Range area near Adelaide, South Australia. Mostly occurs in *Eucalyptus* dominated woodland and grows in a wide range of habitats, from skeletal rocky areas to sand or loam soils derived from granites, sandstones and shales. Generally

prefers slopes and rocky hillsides or the banks of watercourses, but is also frequently found in roadside remnants in degraded habitats. Fig. 19.

Conservation status: Based on the widespread occurrence of *A. verniciflua* and its presence in conservation reserves this taxon is regarded as of Least



Figure 18. *Acacia verniciflua*. Specimen of typical *A. verniciflua* collected by J.H. Maiden & R.H. Cambage in October 1924 from Cox's River (type locality of the species) at herb NSW.





Concern according to the criteria of the IUCN (LC *sensu* IUCN 2001).

Flowering and fruiting period: Flowers from August to November. Pods with mature seeds have been collected from December to March.

Typification: We have followed Pedley (1979, p. 264) in regarding *Cunningham 220* as the type of *A. verniciflua*.

Taxonomy: Hitherto the definition of *A. verniciflua* encompassed only plants with 2-nerved phyllodes. However, we have broadened the concept of the species through the inclusion of (a few) individuals with 1-nerved phyllodes (these are confined to a small area near Seymour, Victoria). While this is less convenient for the user we believe that this more broadly defined *A. verniciflua* represents a 'good' biological entity that properly reflects the phylogenetic relationships of the included morphotypes.

Variation: In *A. verniciflua* the phyllodes normally have two longitudinal nerves on each face. These nerves can be of uniform prominence but commonly the adaxial one is less prominent than the abaxial (\pm central) one. In the latter cases the phyllodes could be misinterpreted as being 1-nerved; however, true 1-nerved phyllodes are rare (see below under *Variants*). The phyllode nerves are most easily observed in fresh material (using $\times 10$ magnification with transmitted sunlight); on herbarium material, however, careful observation with a microscope is sometimes needed to accurately determine nerve number. As discussed below under *Variants* the phyllodes of this species are extremely variable in shape and size.

Variants: *Acacia verniciflua* is perplexingly variable, particularly in phyllode shape and size, and this variation does not appear to follow any obvious geographic patterns or clines. While it is possible that future studies may recognise discrete (intraspecific) taxa we have been unable, despite extensive study of a large number of specimens, to justify the establishment of formal taxa to accommodate this variation. Nevertheless, there are some more or less distinctive morphotypes, the most obvious of which are the following. (Note: these morphotypes account for only a relatively small proportion of the total range of variation that exists within the species).

1. 1-nerved variant. Specimens with consistently 1-nerved phyllodes are found only near Seymour, Victoria; they are further characterised by having moderately to

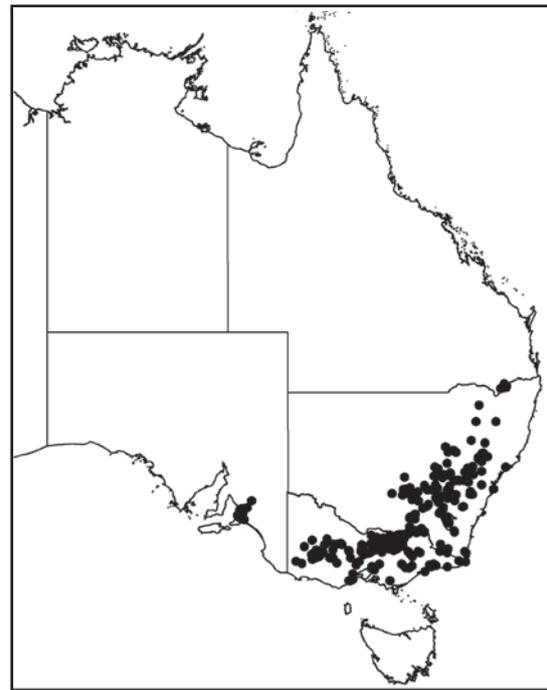


Figure 19. Distribution map for *A. verniciflua*.

strongly incurved, narrow phyllodes (1.5–5 mm wide). These plants correspond to the entities described as *Acacia leprosa* var. *tenuifolia* Benth. (Fig. 20) and *Acacia reclinata* F.Muell. (e.g. *B.R. Maslin 8579* & *D.J. Murphy*). However, typical 2-nerved *A. verniciflua* occurs also in the vicinity of Seymour and there are a number of specimens that are intermediate for nerve number (including the type of *A. leprosa* var. *binervis* F.Muell.). Because there appears to be no sharp discontinuity between the 1- and 2-nerved individuals we have refrained from attributing formal status to the Seymour entity. Nevertheless, future studies may suggest that formal recognition of var. *tenuifolia* is warranted. There are also a few specimens from New South Wales with narrow, prominently incurved phyllodes, which although 2-nerved the second nerve may be poorly developed (e.g. *J. Thomas & E. Norris 643*; *B.R. Maslin 5923*).

2. Warby Range variant. Specimens with very wide phyllodes occur in the Warby Range about 10 km W of Wangaratta, and also near Beechworth, Victoria (e.g. *E.M. Canning 3242*). These specimens have more obvious than normal lateral nerves on their phyllodes. The Warby Range plants also have a distinctive field facies by their flexuose, pendulous branchlets. Similar wide phyllode entities occur throughout the range of the species.



3. Large bracteole variant. Near Tooborac, Victoria, there is a variant characterised by its large bracteoles (c. 2 mm long), long peduncles, short ± elliptic and grey-green phyllodes (e.g. *C.W.E. Moore 6223*). These distinctive bracteoles are similar to those found in *A. leprosa* var. *crassipoda* and *A. exudans*. They are exerted beyond flowers in young buds but

not exerted when the buds are mature, are c. 2 mm long (equal in length to corolla) and have acuminate laminae that are densely pubescent abaxially and have a prominent central nerve. Plate 1.

We also note specimens with straight, narrow phyllodes (2–3 mm wide × 30–45 mm long) occurring in the Grampians, Victoria (e.g. *A.C. Beaglehole 30149*).
Continued on p. 223

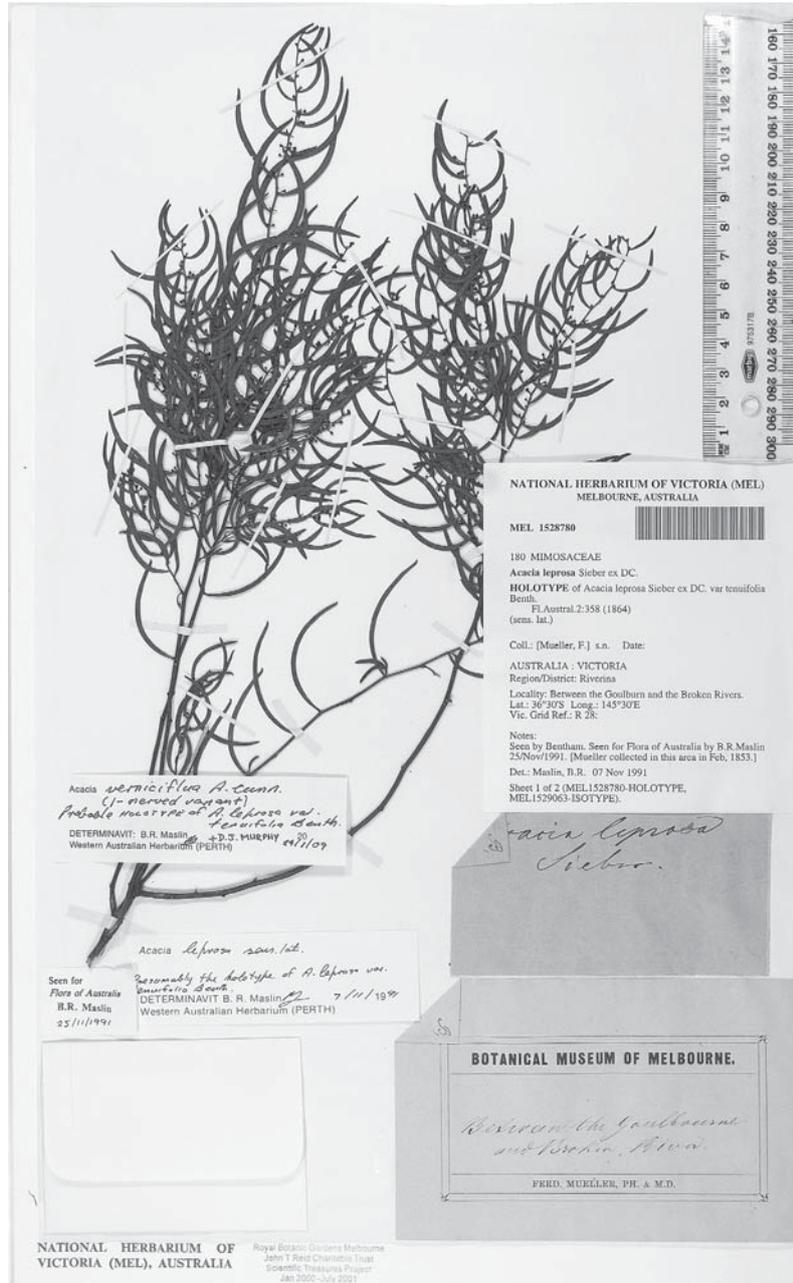


Figure 20. *Acacia verniciflua* (1-nerved variant). Holotype (F. Mueller s.n.) of *A. leprosa* var. *tenuifolia* at herb. MEL.



Plate 1. The *in situ* habit of some taxa in the *Acacia verniciflua* – *A. leprosa* group in Victoria.

Clockwise from top left. *Acacia leprosa* var. *crassipoda*, Pyrenees Range near Avoca, B.R. Maslin 8576 & D.J. Murphy (type). *Acacia rostriformis*, north of Bacchus Marsh, B.R. Maslin 8575 & D.J. Murphy (type). *Acacia verniciflua* (Large bracteole variant), near Tooborac, B.R. Maslin 8578 & D.J. Murphy. *Acacia verniciflua* (typical variant), Mount Ida, with B.R. Maslin 5859. *Acacia stictophylla*, Belgrave, B.R. Maslin 5868 (type). Photographs B.R. Maslin.





Plate 2. Flowering branchlets of some taxa in the *Acacia verniciflua* – *A. leprosa* group in Victoria.

Clockwise from top left. *Acacia leprosa* var. *crassipoda*, Pyrenees Range near Avoca, B.R. Maslin 8576 & D.J. Murphy.
Acacia rostriformis, Long Forest Conservation Reserve, B.R. Maslin 8574 & D.J. Murphy (type). *Acacia verniciflua*,
Mount Ida, B.R. Maslin 5859 (typical variant). *Acacia stictophylla*, Belgrave, B.R. Maslin 5868 (type). Photographs B.R. Maslin.





Continued from p. 220

Specimens of typical *A. verniciflua* (with incurved and/or wider phyllodes) occur also in this same area. Similar short straight phyllode plants occur in New South Wales; in these specimens the second nerve on the phyllodes is sometimes not well developed (e.g. *I.V. Newman 413*).

Affinities: Judging from the presence of broad, flat bands of tissue associated with the branchlet ribs it seems probable that *A. verniciflua* is most closely related to *A. exudans* and *A. rostriformis*. *Acacia verniciflua*, however, differs from both these species by having glabrous or sparsely appressed-puberulous peduncles and (with some very rare exceptions in South Australia) glabrous branchlets and pods. There are superficial similarities between *A. verniciflua* and 2-nerved varieties of *A. leprosa* but *A. leprosa* is distinguished by its raised, normally appressed-hairy branchlet ribs, generally less overall resinous appearance (especially on branchlets), fewer flowers per head, and more numerous and obvious lateral nerves on the phyllodes.

Common name: Varnish Wattle.

Etymology: According to Hall and Johnson (1993) the species name is derived from the neo-Latin *vernix*, *verniceis*, from a non-classical word of Romance languages, *vernice* (dissolved resinous material, varnish). It alludes to the varnished appearance of the phyllodes, which is most noticeable in fresh material.

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