

Four new species of *Acacia* section *Juliflorae* (Fabaceae: Mimosoideae) from the arid zone in Western Australia

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Abstract

Maslin, B.R. Four new species of *Acacia* section *Juliflorae* (Fabaceae: Mimosoideae) from the arid zone in Western Australia. *Nuytsia* 24: 193–205 (2014). Four new species from *Acacia* Mill. sect. *Juliflorae* (Benth.) Maiden & Betche are described, namely, *A. curryana* Maslin, *A. doreta* Maslin, *A. lapidosa* Maslin and *A. petricola* Maslin. Apart from *A. doreta* which extends into the Northern Territory and South Australia these species are endemic in Western Australia. Three of the species have conservation value under Department of Parks and Wildlife Conservation Codes for Western Australian Flora, namely, *A. curryana* (Priority One), *A. lapidosa* (Priority One) and *A. petricola* (Priority Two).

Introduction

Four new species that occur in the arid zone of Western Australia are described, with one extending to south-central Northern Territory and north-west South Australia. These species belong to *Acacia* Mill. sect. *Juliflorae* (Benth.) Maiden & Betche and all are included in the online identification key to Australian acacias (Maslin 2014).

Taxonomy

Acacia curryana Maslin, *sp. nov.*

Type: near Minnie Creek Station, Western Australia [precise locality withheld for conservation reasons], 7 October 2007, B.R. Maslin, J. Miller & J.E. Reid BRM 9177 (*holo*: PERTH 07778635).

Acacia sp. Minnie Creek (B.R. Maslin 5217), Western Australian Herbarium, in *FloraBase*, <http://florabase.dpaw.wa.gov.au> [accessed April 2014].

Obconic or rounded, multi-stemmed, spreading *shrub* 1.5–2.5 m tall, crown 3–4 m wide and dense (but becoming sparse on oldest plants), stems and main branches ±contorted. *Bark* grey, rough and longitudinally fissured on stems, ±smooth on upper branches. *Branchlets* terete, obscurely ribbed, sericeous at extremities but glabrous with age, the light grey epidermis normally fracturing into rectangular, exfoliating plates. *Stipules* early caducous, triangular, *c.* 1 mm long, scarious. *Phyllodes*

elliptic to obovate, (15–)20–30(–35) mm long, 10–20 mm wide, l: w = 1.5–2(–2.5), coriaceous, straight, dark green with a silvery sheen (when fresh), sericeous with minute, closely appressed, straight, silvery white hairs that are dense on new shoots but becoming sparse on oldest phyllodes; *longitudinal nerves* numerous, fine, close together, 5–8 per mm, of uniform prominence or the central nerve and normally one nerve on either side of it slightly more pronounced than the rest, free to base (nerves neither confluent with one another or with the lower margin), anastomoses absent or very occasional; *marginal nerve* discrete, resinous, light brown to dark red-brown; *apices* rounded, occasionally sub-retuse, mucronulate, innocuous; *pulvinus* 1.5–2 mm long, scarcely wrinkled. *Gland* situated on upper margin of phyllode at distal end of pulvinus, not prominent. *Inflorescences* simple; *peduncles* (3–)4–8 mm long, with sparse to moderately dense, spreading to appressed, straight to shallowly curved, short, white hairs; *spikes* (judging from fruiting receptacles which are 5–7 mm long) short-cylindrical. *Flowers* not seen. *Pods* broadly oblong, 30–70 mm long, 11–18 mm wide, not or scarcely constricted between the seeds, flat but slightly rounded over seeds, crustaceous to ±sub-woody, straight to variously curved, sometimes irregularly sigmoid, sessile, light brown, densely villous, the hairs golden on young pods but becoming white or tinged golden with age, margins thickened. *Seeds* oblique in the pods, widely ellipsoid or sometimes obloid, 8–9 mm long, 6–7.5 mm wide, flattened (2.5–4 mm thick), brown except dull yellow at centre, dull with a very slight sheen, minutely rugose; *pleurogram* fine and obscure; *areole* 'u'-shaped, open at end facing the aril, 1–2 mm long, 0.5–0.8 mm wide; *funicle* expanded into a thickened, sub-clavate or sub-conic *aril* 2.5–3 mm long situated at end of seed. (Figure 1)

Characteristic features. Obconic or rounded, multi-stemmed *shrubs* 1.5–2.5 m tall, crown dense, stems and main branches ±contorted. *Phyllodes* elliptic to obovate, (15–)20–30(–35) mm long, 10–20 mm wide, l: w = 1.5–2(–2.5), coriaceous, sericeous with hairs densest on new shoots; *longitudinal nerves* numerous, fine, of uniform prominence or 1–3 slightly more pronounced than the rest, anastomoses absent or occasional; *marginal nerve* discrete, resinous, light brown to dark red-brown; *apices* rounded, innocuous. *Peduncles* (3–)4–8 mm long; *spikes* short-cylindrical. *Pods* broadly oblong, 11–18 mm wide, crustaceous to ±sub-woody, straight to variously curved, densely villous, the hairs golden on young pods but aging white or tinged golden. *Seeds* large (8–9 × 6–7.5 mm), flattened, brown except dull yellow at centre, minutely rugose.

Other specimens examined. WESTERN AUSTRALIA: [localities withheld for conservation reasons] 10 Aug. 1981, R.J. Cranfield 1875 (PERTH); 9 May 1982, B.R. Maslin 5214 (MEL, PERTH) & 5217 (CANB, K, NSW, PERTH).

Distribution. Occurs in the western extremity of the Gascoyne bioregion in Western Australia, where it is known from only a very few populations on Minnie Creek and Williambury Stations (about 60 km apart), which are located about 200 km north-east of Carnarvon. This area, which is in the watershed region of the Minilya and Lyons Rivers, is rather poorly collected and it is therefore quite possible that future survey will reveal more populations.

Habitat. Grows on low granite hills in skeletal, brown, clayey loam where it favours water-gaining sites such as diffuse drainage channels. It is often locally abundant where it grows but seemingly does not form dense populations.

Phenology. All but one of the existing collections are sterile or with old pods. Only the type, which was collected in early October, has mature seed.

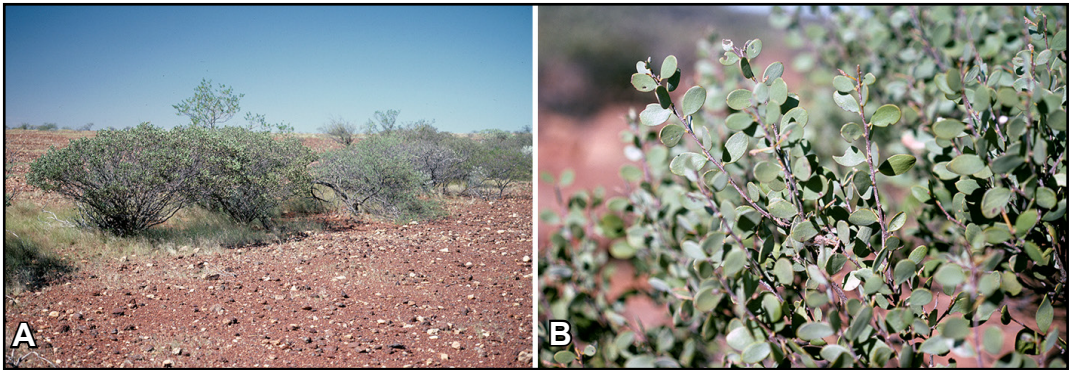


Figure 1. *Acacia currayana*. A – habit; B – small and obtuse phyllodes. Photographs by Bruce Maslin.

Conservation status. *Acacia currayana* was recently listed as Priority One under Department of Parks and Wildlife Conservation Codes for Western Australian Flora, under the name *Acacia* sp. Minnie Creek (B.R. Maslin 5217) (Western Australian Herbarium 1998–). Although known populations of *A. currayana* occur close to (and between) Kennedy Range National Park and Mount Augustus National Park, the species is not recorded as occurring in any conservation reserve.

Etymology. This species is named for Suzanne Curry and is a long-overdue acknowledgement for her exemplary work as my Research Assistant between 1980 and 1988. During this period Suzanne provided invaluable and competent support in the laboratory, the field and on a number of interstate herbarium visits. Her organisational skills and attention to detail were especially appreciated during the preparation of the *Acacia* treatment for the *Flora of Australia* volumes (Orchard & Wilson 2001, 2001a). A by-product of this work was a book detailing the Australian collecting localities of Allan Cunningham (Curry *et al.* 2002). It is additionally fitting that this species be named for Suzanne because she was present when B.R. Maslin 5217, the voucher for the phrase name *Acacia* sp. Minnie Creek, was collected, and because she coordinated the compilation of the draft management plan for Kennedy Range National Park, which is located to the immediate west of where the species grows (DEC/CCWA 2008).

Common name. Suzanne's Golden-pod Wattle.

Affinities. *Acacia currayana* is a very distinctive species on account of its relatively small but broad, elliptic to obovate, obtuse, sericeous phyllodes with light brown to dark red-brown, resinous margins, and its broad, densely villous pods that are golden-hairy when young. It is related to the more easterly distributed *A. xanthocarpa* Cowan & Maslin which also has multi-striate phyllodes, short peduncles supporting non-globular heads, and most particularly, golden-hairy young pods. However, *A. xanthocarpa* is readily recognised by its terete phyllodes that are 6–9.5 cm long. Sterile specimens of *A. currayana* may superficially resemble members of the Mulga group (Maslin & Reid 2012) that have short, broad phyllodes, especially *A. craspedocarpa* F.Muell. (which is readily distinguished by its reticulately veined phyllodes) and *A. mulganeura* Maslin & J.E.Reid (which is readily distinguished by its branchlet ribs being covered by a thick layer of resin that is absent from the new species). However, these Mulga species are not especially closely related to the new species.

Acacia doreta Maslin, *sp. nov.*

Type: Little Sandy Desert, *c.* 6.5 to 7 km along the track from H Dowd Water Hole to Clay Hole, 210 km south and 80 km east of Newman, Western Australia, 31 May 2012, *M. Stone & S. Colwill* 34381 (*holo:* PERTH 08400830; *iso:* K, MEL).

Obconic, multi-stemmed *shrub* or small *tree* 1.5–5 m tall and 1.5–3 m or more wide, crown ±flat-topped to sub-rounded (more rounded on young plants), ±openly branched with foliage normally not especially dense, the upper branches sometimes wide-spreading, main stems normally a little contorted. *Bark* ‘Minni Ritchi’ (i.e. red to red-brown and exfoliating in narrow shavings that curl retrorsely from each end), commonly extending to the upper branchlets. *Branchlets* terete, ribs not visible or scarcely visible, with variably thick, resin-ridges (not viscid, at least when dry) at the normally yellowish or light brown extremities, the resin transversely fractured and often segmented with age, often scurfy between the resin ridges, glabrous but young growth with scattered, microscopic, circular, sessile, red-brown glandular trichomes. *Stipules* early caducous, triangular, microscopic (*c.* 0.5 mm long), erect, yellow. *Phyllodes* terete or sometimes sub-terete, infrequently interspersed with a few compressed to flat, (15–)20–60(–70) mm long, 0.8–1.5 mm diam., shallowly to strongly incurved (curving either from the base or along entire length of phyllode), sometimes a few straight, often crowded on and confined to relatively short terminal branchlets, sub-rigid, ascending to erect, green, glabrous or occasionally ±sparsely hairy between the nerves, resinous, not viscid (at least when dry); finely *multi-striate*, the nerves not raised and often obscured by resin; *apices* terminated by an acute or sub-acute, hard, innocuous point; *pulvinus* 1–1.5 mm long. *Gland* inconspicuous (easily overlooked), situated on upper edge of phyllode at distal end of pulvinus. *Inflorescences* simple, 1–3 per axil, often with a vegetative bud arising from base of peduncles at anthesis; *peduncles* (6–)8–22 mm long, glabrous but sometimes with scattered red-brown, sessile glandular trichomes as on branchlets; *basal peduncular bract* single, caducous, 0.5–1 mm long; flowers densely arranged in ±resinous, light golden, (globular–) obloid *heads* or cylindrical *spikes*, 5–22 mm long at anthesis when dry. *Bracteoles* *c.* 1 mm long, claws linear, abruptly expanded at apex into small, inflexed, abaxially thickened laminae. *Flowers* 5-merous; *calyx* 1/2–3/4 length of petals, gamosepalous, shortly dissected into triangular lobes; *calyx tube* glabrous or ±sparsely puberulous; *petals* 1.5–2 mm long, 1-nerved. *Pods* narrowly oblong to linear, 15–50(–70) mm long, 2.5–5 mm wide, thinly coriaceous-crustaceous, straight to shallowly curved, flat but slightly raised over seeds along midline, not or scarcely constricted between the seeds, light brown to mid-brown, glabrous, nerves few and obscure, valves deflexed along their outer rim to form a narrow (0.3–0.4(–0.6) mm wide) flat edge perpendicular to the face of the valve, the edge the same colour as face of valve. *Seeds* longitudinal to oblique in the pods, obloid to ellipsoid, 2–4(–5) mm long, 1.5–2(–2.5) mm wide, dark brown to black, sometimes obscurely mottled dull yellow, normally dull yellow at or near centre of seed associated with the areole, ±shiny; *pleurogram* very obscure; *areole* ‘u’-shaped, open at end facing the aril, very small (0.3–0.4 mm long); *aril* once-folded, cream coloured (?white when fresh). (Figure 2)

Characteristic features. Multi-stemmed *shrub* or small *tree* with ‘Minni Ritchi’ bark. *Phyllodes* normally terete or sometimes sub-terete, (15–)20–60(–70) mm long, shallowly to strongly incurved, sub-rigid, ascending to erect, resinous, finely multi-striate with ±obscure nerves, the apices terminated by a hard, innocuous point. *Inflorescences* simple; *peduncles* mostly 8–22 mm long; flowers in globular or obloid *heads* or cylindrical *spikes*. *Calyx* 1/2–3/4 length of petals, gamosepalous, shortly dissected into triangular lobes. *Pods* narrowly oblong to linear, 15–50(–70) mm long, 2.5–5 mm wide, thinly coriaceous-crustaceous, flat, brown, valves deflexed along outer rim to form a narrow, perpendicular edge which is the same colour as the valve face. *Seeds* 2–4(–5) mm long, 1.5–2(–2.5) mm wide, arillate.



Figure 2. *Acacia doreta*. A – habit; B – stem base showing ‘Minni Ritchi’ bark; C – ‘Minni Ritchi’ bark; D – flowering branchlet showing short-cylindrical heads and short, terete phyllodes; E – pods. Photographs by Bruce Maslin (A, B, C, E); Western Botanical (D).

Selected specimens examined. WESTERNAUSTRALIA: Mt Margaret, 31 Aug. 1948, *J.B. Cleland s.n.* (AD n.v., BRI n.v., PERTH 02525100); on flat S of Lake Mason Homestead, 17 Sep. 2004, *D.J. Edinger & G. Marsh* DJE 4853 (PERTH); Carnarvon Range, Blue Hills area, 11 Aug. 2012, *N. Gibson, S. van Leeuwen, M.A. Langley & K. Brown* NG 6715 (AD, CANB, K, MEL, NT, PERTH); Coolbro Creek, just off track from Telfer to Rudall River, June 1981, *E.M. Goble–Garratt* 139 (BRI, PERTH); near Well 24 on Canning Stock Route, N of Lake Disappointment, 12 Sep. 1971, *B.R. Maslin* 2268 (BRI, K, NSW, PERTH, US); 19.5 km NE of Carnegie Homestead on Gunbarrel Highway to Warburton, 7 Sep. 1984, *B.R. Maslin* 5637 (PERTH); Lorna Glen Conservation Park (c. 150 km ENE of Wiluna), on track 2 km N of No. 9 Well, 15 km due SW of old homestead building, 23 Oct. 2007, *B.R. Maslin, J. Miller & J.E. Reid* BRM 9316 (AD, CANB, K, MEL, NSW, PERTH); 76.5 km E of Leonora on road to Laverton, 27 Oct. 2007, *B.R. Maslin, J. Miller & J.E. Reid* BRM 9336 (PERTH); salt lake in Plumridge Lake Nature Reserve, 13 May 2008, *W.A. Thompson* 345 (CANB, PERTH); N of Queen Victoria Spring Nature Reserve in Mulga Rock area, Officer Basin, c. 200 km ENE of Kalgoorlie, 17–26 June 1985, *A.S. Weston* 14926 (PERTH). NORTHERN TERRITORY: Mt Capitor, 20 km ENE of Santa Teresa, 30 Aug. 1995, *D.E. Albrecht* 6898 & *P.K. Latz* (DNA n.v., NT n.v., PERTH);

old telegraph station, Tennant Creek, 5 May 1987, *P. Blackwood s.n.* (DNA *n.v.*, NT *n.v.*, PERTH 00814563); 1 km SE of Kathleen Spring, 18 July 1981, *P.K. Latz* 8738 (CANB *n.v.*, NT *n.v.*, PERTH). SOUTH AUSTRALIA: far north-west, c. 50 km S of Cheesman Peak, 1966, *R.B. Major* 33 (AD *n.v.*).

Distribution. Scattered mainly in the eastern desert regions of Western Australia, ranging eastwards to south-central Northern Territory and far north-west South Australia. In Western Australia it occurs from the southern extremity of the Great Victoria Desert near Queen Victoria Spring Nature Reserve (c. 200 km east of Kalgoorlie) north to the northern edge of the Gibson Desert and Little Sandy Desert, in the general vicinity of Rudall River National Park (c. 200 km north-east of Newman) and eastwards. In the southern part of its range it extends to the south-western edge of the Murchison bioregion, especially in the general vicinity of Leinster; the most westerly known occurrence is from Lake Mason, c. 100 km west of Leinster (*D.J. Edinger & G. Marsh* DJE 4853).

Habitat. Occurs in a variety of habitats but often in skeletal soil on the slopes of rocky hills (of sandstone, granite, Banded Iron Formation or quartz schist lithology) or on plains in (often stony or lateritic) sandy loam; sometimes occurs over calcrete or in sand near salt lakes. Seemingly often in Mulga (*A. aneura* and relatives) shrubland. *Acacia doreta* commonly forms monotypic stands.

Phenology. As with many plurinerved acacias from the arid zone the flowering and fruiting in this species is probably influenced by the timing and intensity of rainfall events. Plants of *A. doreta* with flowers at anthesis have been collected from early April to mid-September while those with mature seed have been collected in August, October and late May.

Conservation status. Not considered rare or endangered.

Etymology. The species name is derived from the Greek *doretos* (generous, freely given). This species is dedicated to the team of volunteers at the Western Australian Herbarium who so generously and graciously give of their time and skills to assist the institution in a range of tasks, particularly specimen mounting and identification, and image manipulation. While not intending in any way to detract from any individual's effort, recognition is given to volunteers Gilbert Marsh and Daphne Edinger, who provided additional, invaluable field assistance to the author during the *Understanding Mulga* project (Maslin & Reid 2012).

Common name. Vollies' Minni Ritchi.

Variation. This species shows an unusually wide range of variation for inflorescence shape. In the western part of its geographic range the flowers most commonly occur in obloid or sometimes globular heads; however, in some specimens from the Gibson Desert and Little Sandy Desert in Western Australia and those from the Northern Territory and South Australia, they occur in clearly cylindrical spikes. There is also a considerable range of variation in phyllode length. On some specimens the phyllodes are consistently short (about 15–30 mm long), whereas on others they reach 50–70 mm. There does not seem to be any particular geographic correlation for phyllode length although specimens with the shortest phyllodes are often found on the ex-pastoral lease of Lorna Glen (east of Wiluna) and in the Carnarvon Range area. While most specimens possess terete phyllodes there are a few where some of the phyllodes range to flattish, e.g. *B.R. Maslin* 2268, *B.R. Maslin et al.* 9316 and *A.S. Weston* 14926. As noted below, it is possible that in some cases at least these specimens with a mixture of terete and flattish phyllodes may possibly suggest introgression with *A. rhodophloia* Maslin.

Affinities. *Acacia doreta* is a member of *Acacia* sect. *Juliflorae* and is related to *A. grasbyi* Maiden and more particularly, to *A. rhodophloia*. These species are shrubs or small trees that possess the highly distinctive ‘Minni Ritchi’ bark (see description); they also share finely multi-striate, relatively short, innocuous phyllodes and gamosepalous calyces that are at least 1/2 the length of the corolla and which are shortly dissected into triangular lobes.

Acacia rhodophloia can be distinguished from *A. doreta* by its flat phyllodes that are (2–)4–10(–13) mm wide, and these are the only characters that will reliably separate the species. Although these are seemingly rather trivial differences upon which to erect a new species, there are practical reasons for doing so. *Acacia doreta* and *A. rhodophloia* are broadly sympatric over a wide area of the arid zone and although both have been quite well-collected there is limited evidence of introgression between them. While *A. doreta* could be treated as an infraspecific taxon of *A. rhodophloia* such an action would serve to compound the large amount of variation within this species, thus making it more difficult to intuitively distinguish *A. rhodophloia* from related ‘Minni Ritchi’ species, especially *A. grasbyi*. At present *A. doreta* and *A. grasbyi* are easily distinguished from *A. rhodophloia* by their terete phyllodes. As currently defined *A. rhodophloia* is very polymorphic; it undoubtedly comprises more than one species and is in need of critical review. It is within the context of such a revision that the status of *A. doreta* will need to be re-assessed where attributes like habit, habitat and phyllode dimensions will probably prove most important in discriminating entities. However, undertaking this research is likely to prove troublesome, costly and time-consuming because the species are widespread over a large geographic area that is often difficult to access, and their flowering and fruiting will most likely be dependent upon the incidence and intensity of rainfall (which in the arid zone is notoriously variable, patchy and unreliable). It may therefore be some time before any review will be undertaken. In the meantime it is prudent and practical to recognise *A. doreta* as a separate species.

Acacia doreta is clearly distinguished from *A. grasbyi* by its carpological features and by having a more easterly geographic range. Although these species sometimes exhibit inflorescence, phyllode or habit differences, these characters alone will not always reliably distinguish them. Indeed, in the absence of pods they can sometimes be difficult to separate, unless it is known from where the specimen was collected. *Acacia grasbyi* has clearly larger seeds than those of *A. doreta*, i.e. 5–8(–9) mm long and 4–5(–7.5) mm wide, and this is the one character that will always reliably separate the species, even in the few cases where their pod width is the same. The pods of *A. grasbyi* are also different in being of a harder texture (crustaceous-coriaceous to sub-woody), longer and/or wider (50–100(–150) mm long, 5–8(–10) mm wide) and often having dissimilar margins. In both species the pod valves are deflexed along their outer rim to form a flat edge that is perpendicular to the face of the valves. In *A. grasbyi* this edge is quite well-developed (0.4–1.5 mm wide), is yellow to light brown and as such is normally paler-coloured than the face of the valve. In *A. doreta* on the other hand the edge is generally less well-developed (commonly 0.3–0.4 mm wide) and is the same brown colour as the face of the valve. These pod margin attributes can be helpful in separating the species when specimens are in young pod. In *A. grasbyi* the flowers are normally arranged in cylindrical spikes (10–30 mm long at anthesis when dry), only rarely do they occur in shorter, obloid heads. The flowers of *A. doreta* on the other hand are often arranged in globular to obloid heads; however, in some areas they form cylindrical spikes (see above). The normally terete phyllodes of *A. grasbyi* are 30–100 mm long, thus sometimes longer than, and never as short as, the new species. Although habit information for both species is somewhat sketchy it is possible that the new species more commonly has a shrubby growth form with more numerous main stems arising from ground level. In the past specimens of *A. doreta* had commonly been treated as *A. grasbyi*. For example, the account of *A. grasbyi* in *Flora of Australia* (Orchard & Wilson 2001) included elements of both taxa, with all information pertaining to the Northern Territory, South Australia and the eastern deserts of Western Australia applying to the new species. A revised treatment of *A. grasbyi* is available through *WATTLE2* (Maslin 2014).

Acacia lapidosa Maslin, *sp. nov.*

Type: north of Mount Magnet, Western Australia [precise locality withheld for conservation reasons], 2 June 1994, B.R. Maslin 7339 (*holo:* PERTH 03585344; *iso:* K).

Acacia sp. Diorite (B.R. Maslin 7329), Western Australian Herbarium, in *FloraBase*, <http://florabase.dpaw.wa.gov.au> [accessed April 2014].

Erect, ±obconic or rounded, multi-stemmed (stems few to many), ±*gnarled shrub* 1–3.5 m tall, with spreading, flat-topped to sub-rounded, dense crown to *c.* 3 m across and occupying the upper 20–40% of the plant, main stems and branches ±twisted and contorted. *Bark* grey, fibrous and longitudinally fissured to upper branches. *Branchlets* terete (slightly angled at extremities), obscurely ribbed (ribs not evident on mature branchlets), the ribs rarely coated with a layer of opaque, light grey resin, glabrous except sparsely sericeous at extremities (hairs short, straight, appressed and silvery white), brown or reddish brown and often partially covered with a light grey epidermis, aging grey. *Phyllodes* narrowly linear, (5–)6–9.5 cm long, 1–1.5 mm wide, flat to compressed or sub-terete, straight to shallowly incurved or shallowly sigmoid, erect, firm but not especially rigid, slightly shiny, glabrous or (especially when young) sparsely silvery white appressed-hairy, green; *longitudinal nerves* numerous, fine and close together, the nerves of uniform prominence or the central one slightly more pronounced than the rest; *marginal nerves* not prominent, yellow and not resinous or sometimes red-brown and resinous; *apices* acuminate with delicate, ±shallowly curved, innocuous tips; *pulvinus* 2–3 mm long, often sparsely to moderately appressed-hairy. *Gland* situated on upper margin of phyllode, 0–0.5 mm above pulvinus, not prominent. *Flowers* not seen but judging from fruiting receptacle (to 4 mm long) would be arranged in obloid heads or possibly short spikes. *Peduncles* (fruiting) 3–5 mm long, glabrous to sparsely appressed-hairy. *Pods* narrowly oblong to broadly linear, 4–13 cm long, 7–9.5 mm wide, rounded over seeds with umbo extending to the edge of valves, straight-edged to moderately or rarely strongly constricted between seeds, firmly coriaceous-crustaceous to ±sub-woody, sub-straight to shallowly curved, greyish mid-brown to very dark brown (almost black), sparsely to moderately appressed-hairy with the silvery white hairs densest on young pods (mature pods sometimes almost glabrous), very obscurely nerved; *marginal nerve* not thickened, valves deflexed along their outer rim to form a narrow (*c.* 0.7 mm wide), flat edge ±perpendicular to the face of the valve, the edge same colour as face of valve or a paler brown. *Seeds* longitudinal in pods, obloid to ellipsoid, (7–)8–10 mm long, 5–7.5 mm wide, compressed (3–3.5 mm thick), shallowly concave at centre, dull to slightly shiny (satin lustre), dark brown to black except sometimes light brown at centre; *pleurogram* continuous or open at end facing the aril; *areole* ‘u’-shaped or (when pleurogram is continuous) narrowly oblong to elliptic, 1–2(–2.5) mm long, (0.8–)1–1.5 mm wide, sometimes minutely pitted; *funicle* short, expanded into a small, dull yellow to pale orange (when dry) *aril* beneath the seed. (Figure 3)

Characteristic features. Multi-stemmed shrubs with ±twisted and contorted main stems and branches. *Phyllodes* narrowly linear, (5–)6–9.5 cm long, 1–1.5 mm wide, straight to shallowly incurved or shallowly sigmoid, erect, flat to compressed or sub-terete, finely multi-nerved; *apices* delicately acuminate by ±shallowly curved, innocuous tips. *Peduncles* (fruiting) 3–5 mm long. *Pods* 7–9.5 mm wide, rounded over seeds, greyish mid-brown to very dark brown (almost black), firmly coriaceous-crustaceous to ±sub-woody; *marginal nerve* not thickened, rim of valve deflexed to form an outer, flat edge *c.* 0.7 mm wide. *Seeds* large (mostly 8–10 × 5–7.5 mm), shallowly concave at centre, dark brown to black; *aril* small.

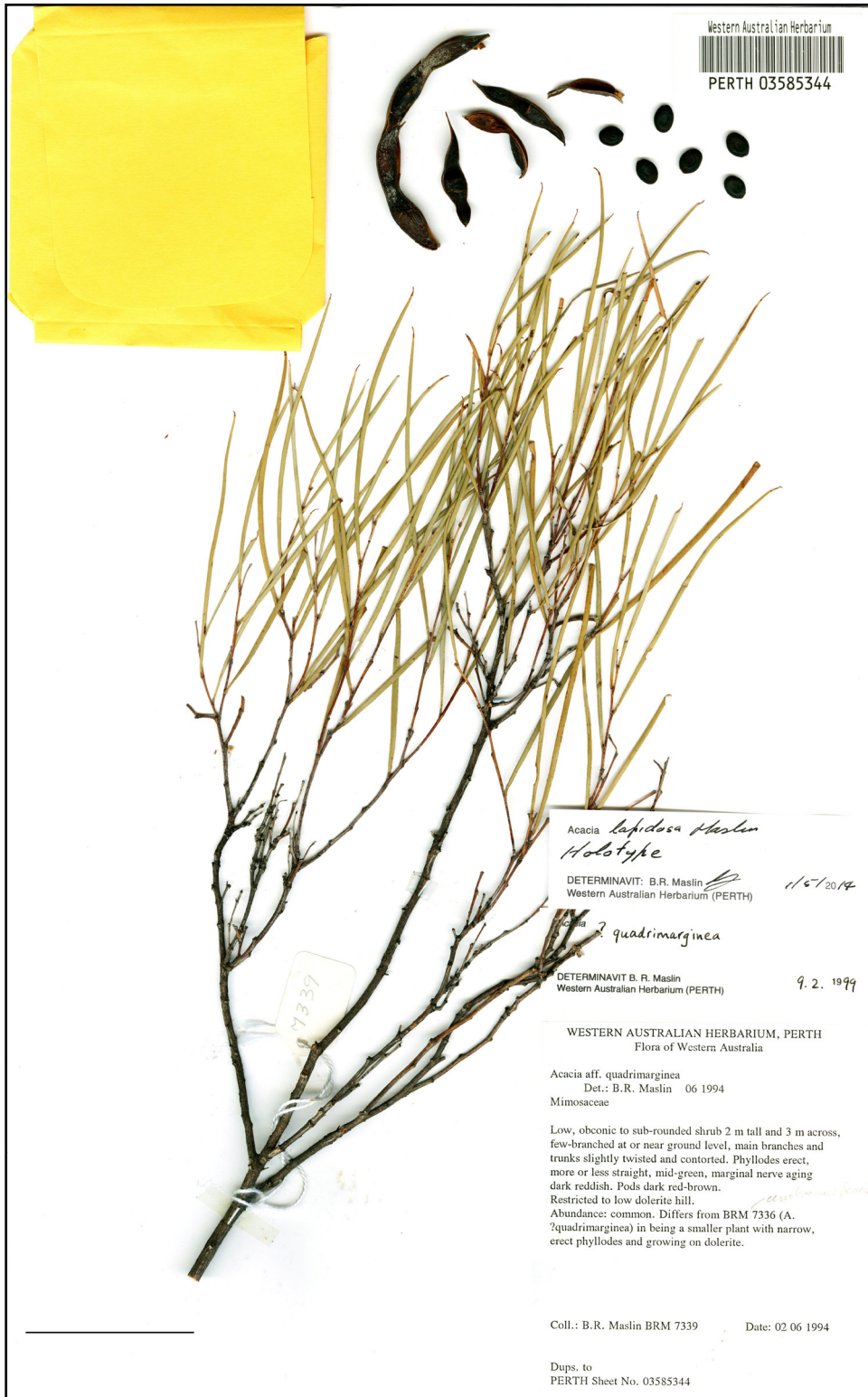


Figure 3. *Acacia lapidosa*. Scan of holotype sheet (B.R. Maslin 7339). Scale bar = 5 cm.

Other specimens examined. WESTERN AUSTRALIA: [localities withheld for conservation reasons] 26 Sep. 1993, *D.A. Blood* 3976 (PERTH); 1 June 1994, *B.R. Maslin* 7329 (PERTH); 14 Oct. 1999, *B.R. Maslin, J. Miller, L. Sweedman & B. Cole* BRM 7895 (PERTH); Oct. 1993, *T. McKenzie* 2 (PERTH); 25 Sep. 1993, *H. Pringle* 3972 (MEL; PERTH).

Distribution. Known only from a few populations in the vicinity of Mt Magnet, in the Murchison bioregion of Western Australia. It is seemingly common in the places where it grows.

Habitat. Occurs in skeletal soils on diorite hills and ridges or gabbro plains (both diorite and gabbro are igneous rocks derived from plutonic magmas). Grows in open shrubland in association with a range of *Acacia* species, including *A. umbraculiformis* Maslin & Buscumb.

Phenology. Pods with mature seeds have been collected in early June (perhaps resulting from a summer flowering event) and late September to October (perhaps resulting from a winter flowering event). It is possible that flowering and fruiting in this species is dependent on the timing and intensity of rainfall events.

Conservation status. *Acacia lapidosa* was recently listed as Priority One under Department of Parks and Wildlife Conservation Codes for Western Australian Flora, under the name *Acacia* sp. Diorite (B.R. Maslin 7329) (Western Australian Herbarium 1998–).

Etymology. The species name is derived from the Latin *lapidosus* (stony) in allusion to the habitat of the species.

Common name. Mount Magnet Rock Wattle.

Affinities. *Acacia lapidosa* is a distinctive species on account of its narrowly linear, acuminate, innocuous phyllodes and large pods and seeds. Its carpological characters, phyllode nervature and probable obloid heads indicate that *A. lapidosa* is most closely related to *A. umbraculiformis*. These two species are at least sometimes sympatric and seemingly occasionally hybridise (see below). *Acacia umbraculiformis* is readily distinguished from *A. lapidosa* by its characteristically wide-spreading, falcately recurved, broader phyllodes (mostly 3–7.5 mm wide); it also has a different habit, growing to shapely, obconic trees with normally a single trunk. The pods of *A. umbraculiformis* differ slightly from those of *A. lapidosa* in one respect, namely, they are either glabrous or possess microscopic, reddish glandular trichomes that are embedded in a thin, patchy layer of resin. In *A. lapidosa* the pods are not resinous and glandular trichomes are absent; the pods, however, normally possess (sometimes sparse) conventional, white, appressed hairs.

Hybridity. One population located just north of Mt Magnet containing both *A. lapidosa* and *A. umbraculiformis* also possessed occasional plants deemed, from morphological criteria, to represent a hybrid between the two species (e.g. *B.R. Maslin* 8938; PERTH, MEL). This putative hybrid has very narrow, straight phyllodes (like those of *A. lapidosa*) but resinous pods with glandular trichomes (like some plants of *A. umbraculiformis*). The growth form of *B.R. Maslin* 8938 is similar to that of *A. lapidosa* except that the plant was single-stemmed.

***Acacia petricola* Maslin, sp. nov.**

Type: Mount Augustus, Western Australia [precise locality withheld for conservation reasons], 6 July 2005, *J.E. Wajon* 1284 (*holo:* PERTH 07431600).

Acacia sp. Mt Augustus (S.D. Hopper 3181), Western Australian Herbarium, in *FloraBase*, <http://florabase.dpaw.wa.gov.au> [accessed April 2014].

Erect, multi-stemmed, rounded or obconic *shrub* 2–3(–5) m tall, the spreading crown open or dense and 3–6(–8) m wide, main stems rather contorted. *Bark* dark grey, thick and fissured. *Branchlets* terete, finely ribbed, glabrous, rarely sparsely appressed-hairy (at extremities), commonly red-brown (often partially covered with a light grey, ±flaking, waxy epidermis) aging grey. *New shoots* resinous, not viscid (at least when dry), brown, young phyllodes densely silvery sericeous. *Stipules* early caducous, 1–2 mm long, scarious, brown. *Phyllodes* narrowly elliptic to oblong-elliptic, (3–)4–8 cm long, 8–20 mm wide, straight, often slightly twisted or undulate, green, glabrous or with minute, appressed, silvery, straight hairs; *longitudinal nerves* numerous, very fine and close together, 5–10 per mm, anastomoses absent or few, the central nerve and often a sub-central nerve on either side of it slightly more prominent than the rest; *marginal nerve* discrete, light yellow (aging light brown), sometimes scurfy white; *apices* acute to obtuse, innocuous; *pulvinus* 1.5–3 mm long. *Gland* situated on upper margin of phyllode at distal end of pulvinus. *Inflorescences* simple, 1 or 2 per axil; *peduncles* 2–4 mm long, glabrous or with sparse, appressed, white hairs, often resinous; *spikes* 10–20 mm long, light golden. *Bracteoles* 1–1.5 mm long, glabrous, claws linear and expanded into a short, narrow, ±thickened, distinct laminae. *Flowers* 5-merous, ±resinous; *sepals* free or shortly united near base, *c.* 1 mm long, 1/2–2/3 the length of petals, glabrous or sparsely ciliolate, claws linear to narrowly oblong, slightly expanded at apices into very narrow, slightly thickened laminae (less prominent than bracteole laminae); *petals* 2 mm long, glabrous, nerveless or obscurely 1-nerved. *Pods* narrowly oblong, 5.5–7.5 cm long, 8–11 mm wide, straight edged, not or scarcely raised over the seeds, sub-straight to shallowly curved, valves twisted following dehiscence, nerveless or obscurely and openly reticulately nerved, firmly crustaceous to ±woody, glabrous or with occasional, white, appressed hairs and microscopic red glandular trichomes (juvenile pods resinous, but not viscid when dry, with microscopic red glandular trichomes embedded within the resin matrix), shiny; *margins* with a vertical flange 2–4 mm wide perpendicular to face of valve (as in *A. quadrimarginea*). *Seeds* oblique in the pods, widely ellipsoid to obloid, 4.5–5 mm long, 3.5–4 mm wide, slightly shiny, dark brown, flattened; *areole* ‘u’-shaped, open at end facing the aril, 0.5 mm long, 0.4–0.5 mm wide, not raised; *pleurogram* bordered externally by a narrow but distinct yellowish band of tissue; *funicle* to 5 mm long, expanding into a moderately developed white to cream *aril*. (Figure 4)

Characteristic features. Multi-stemmed *shrub* 2–3(–5) m tall, 3–6(–8) m wide, main stems rather contorted. *Branchlets* normally glabrous. *New shoots* resinous, young phyllodes silvery sericeous. *Phyllodes* (3–)4–8 cm long, 8–20 mm wide, straight; *multi-striate* by numerous, very fine, parallel, non-anastomosing nerves; *marginal nerve* discrete, light yellow aging light brown, sometimes scurfy white; *apices* acute to obtuse, innocuous. *Inflorescences* simple; *peduncles* 2–4 mm long; *spikes* 10–20 mm long. *Bracteoles* with linear claws and short, distinct, ±thickened laminae. *Flowers* 5-merous, ±resinous; *sepals* ±free. *Pods* 8–11 mm wide, firmly crustaceous to ±woody, normally glabrous; *margins* with a vertical flange 2–4 mm wide. *Seeds* oblique, 4.5–5 mm long, 3.5–4 mm wide, dark brown except yellowish bordering pleurogram; *aril* white to cream.

Selected specimens examined. WESTERNAUSTRALIA: [localities withheld for conservation reasons] 2 Aug. 1991, *B. Briggs* 8791 & *L.A.S. Johnson* (PERTH); 8 July 2003, *G. Byrne* 130 (PERTH); 22 July 1986, *M.G. Corrick* 9863 (PERTH); 19 Aug. 1983, *S.D. Hopper* 3181 (PERTH); 8 Oct. 2007, *B.R. Maslin, J. Miller & J.E. Reid* BRM 9190 (PERTH).

Distribution. Known only from Mt Augustus, 195 km north-east of Gascoyne Junction in the Gascoyne bioregion. Judging from specimen label information the species is reasonably common on the steep,

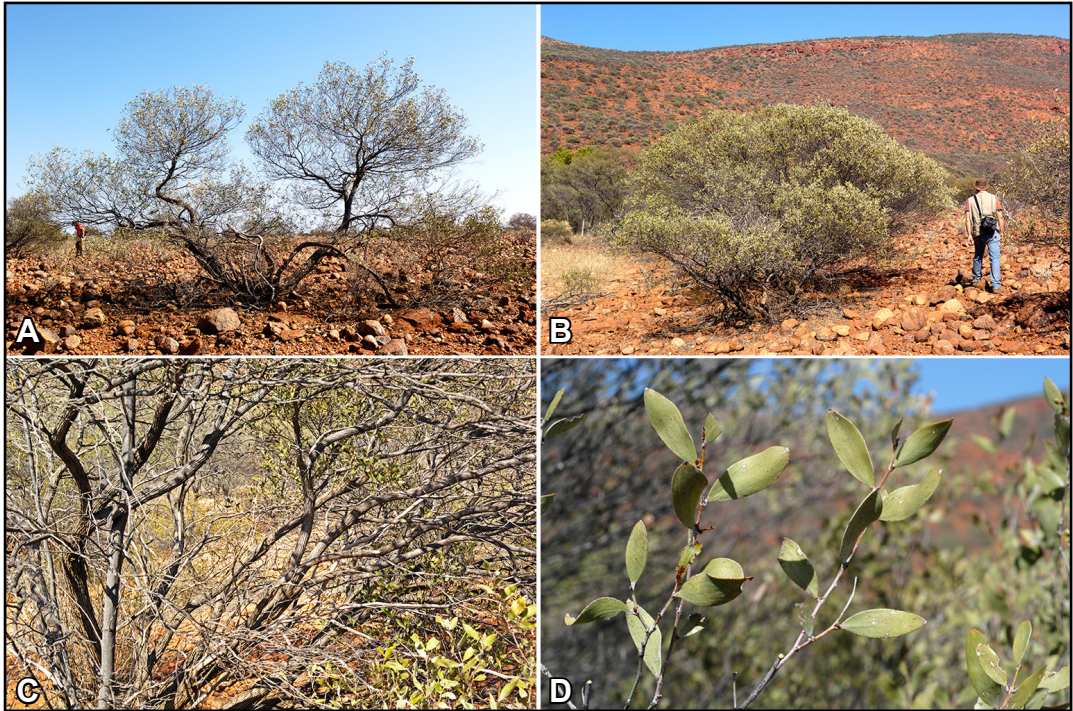


Figure 4. *Acacia petricola*. A – habit (old plant); B – habit (adolescent plant); C – contorted branches; D – phyllodes. Photographs by Bruce Maslin.

rocky slopes of this edifice. Most collections are from within Mount Augustus National Park but a single one is from just outside the park boundary, on the rocky apron at the base of Mt Augustus.

Habitat. Grows in skeletal, sandy soil on granite slopes in low open shrubland over Spinifex (*Triodia* sp.).

Phenology. The relatively few available collections show this species as flowering in July and possessing pods with mature or near-mature seeds in August and September. However, further information is needed to determine the full range of its flowering and fruiting phenology (which is likely to be influenced by the timing and intensity of rainfall).

Conservation status. *Acacia petricola* was recently listed as Priority Two under Department of Parks and Wildlife Conservation Codes for Western Australian Flora, under the name *Acacia* sp. Mt Augustus (S.D. Hopper 3181) (Western Australian Herbarium 1998–).

Etymology. The species name is derived from the Latin *petra* (a rock) and *-cola* (dweller, inhabitant) in reference to the habitat of the species.

Common name. Mount Augustus Rock Wattle.

Affinities. The finely multi-striate phyllodes, spicate inflorescences, ±free sepals, and especially the marginally flanged, hard-textured pods show *A. petricola* as being related to *A. quadrimarginea* F.Muell. *Acacia quadrimarginea* is most readily distinguished from the new species by its narrower

phyllodes (2–5 mm wide) that are shallowly to strongly falcately recurved, never obtuse, and which possess a red or brown marginal nerve (but yellow or light brown on oldest phyllodes); it also has larger seeds (mostly 6–8 × 4.5–6.5 mm) that are longitudinally orientated within the pods. *Acacia quadrimarginea* is widely distributed to the south-east of where *A. petricola* occurs (extending from near Meekatharra east to Lorna Glen, south to near Kalgoorlie and east to the Great Victoria Desert). *Acacia petricola* resembles some forms of *A. kempeana* F.Muell., especially insofar as phyllode shape, size and nervature, but the two species are not especially closely related. *Acacia kempeana* is most readily distinguished by its longer peduncles (5–12 mm), clearly united sepals and chartaceous pods that are not flanged on their margins. *Acacia kempeana* is widespread in arid areas of Australia; it occurs in the vicinity of Mt Augustus, including the plains around the base of the mount, but there are no records of it growing on the rocky slopes of Mt Augustus itself. As presently defined *A. kempeana* is a very polymorphic species in need of critical revision (Maslin 2014).

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