

***Acacia yinnetharra* (Fabaceae: Mimosoideae), a new species from the Gascoyne bioregion of Western Australia**

Bruce R. Maslin^{1,2}  and Annette J.G. Wilson¹

¹Western Australian Herbarium, Biodiversity and Conservation Science,
Department of Biodiversity, Conservation and Attractions,
Locked Bag 104, Bentley Delivery Centre, Western Australia 6983

²Corresponding author, email: Bruce.Maslin@outlook.com

SHORT COMMUNICATION

Acacia yinnetharra* Maslin & A.J.G. Wilson, *sp. nov.

Type: Yinnetharra Station, Western Australia [precise locality withheld for conservation reasons], 17 October 2015, *L.S.J. Sweedman* 8968 (*holo:* PERTH 08786542! ex KPBG; *iso:* K n.v., KPBG 29719!).

Acacia sp. Yinnetharra (L. Sweedman 8229), Western Australian Herbarium, in *Florabase*, <https://florabase.dbca.wa.gov.au/> [accessed 12 December 2024].

Trees 5–8(–12) m tall, with pendulous branchlets and phyllodes; trunks and branches somewhat crooked, the main trunk to 30 cm diam. on oldest plants. *Bark* rough and grey on main trunk(s). *Branchlets* terete, obscurely ribbed, at extremities the ribs possess a thin overburden of translucent resin (not viscid) that ages yellow and is lost on mature branchlets where the ribs are scarcely visible, glabrous except young branchlets sericeous between the ribs. *Phyllodes* terete, (7–)10–20(–30) cm long, 0.5–0.7 mm diam., slender, sub-straight to shallowly or moderately incurved or occasionally sigmoid, not rigid, finely multiveined, with veins slightly resinous (not viscid), glabrous except very young phyllodes obscurely sericeous between veins, green. *Gland* situated on upper surface of phyllode (0–)2–10(–18) mm above the indistinct yellowish pulvinus, inconspicuous, *c.* 0.5 mm long, not raised, the phyllodes sometimes very slightly to ±obviously kinked in region of gland and/or lamina slightly swollen about the gland. *Inflorescences* axillary, normally comprising 2 pedunculate spikes per node with a new shoot arising from within their axil, sometimes single at the node. *Spikes* bright yellow, 10–25 mm long; peduncle *c.* 4 mm long in flower, to 6 mm long in fruit, densely sericeous in flower but sparsely so in fruit. *Flowers* very small, readily falling apart upon dissection when dry, mostly 4-merous but also a few 5-merous in the few spikes examined; calyx minute (*c.* 0.3 mm long), dissected to *c.* 1/2 its length or almost to the base, the lobes light brown, oblong and subglabrous; petals *c.* 1.2 mm long, glabrous, with veins not visible; ovary densely white-tomentose. *Bracteoles* light brown, spatulate, minute (*c.* 0.3 mm long). *Pods* moniliform to sub-moniliform (i.e. low-domed to clearly raised over seeds and shallowly to prominently constricted between them), mostly 6–12 cm long, 6–7 mm wide (2–5 mm wide at isthmus), coriaceous, straight to shallowly curved, acute, gradually narrowed at base to stipe *c.* 5 mm long, obviously longitudinally striate by light brown slightly resinous plane veins 0.5–1.5 mm apart, anastomoses very few or absent, densely minutely silvery-white closely appressed-hairy between the veins; marginal vein light brown, not raised. *Seeds* longitudinal, obloid (and rather abruptly narrowed at hilar end) or elliptic (gradually narrowed at hilar end), somewhat compressed (*c.* 2 mm thick), 8–10 mm long, 4–5 mm wide, brown except dull yellow in centre associated with areole, not shiny; areole U-shaped to elongated U-shaped (open at hilar end), indistinct, 0.5–4 mm long, *c.* 1 mm wide at the opening; funicle ±filiform, slightly expanded into a very small aril. (Figures 1, 2)



Figure 1. *Acacia yinnetharra*. A – plants on Yinnetharra Station adjacent to the Gascoyne River; B – population on rocky rise at Gifford Creek Station. Photographs by Luke Sweedman (A, unvouchered) and Jerome Bull (B, unvouchered).



Figure 2. *Acacia yinnetharra*. A – lush habit of plant growing on floodplain at Yinnetharra Station; B – branchlet *in situ* on Gifford Creek Station, showing pendulous, finely multistriate phyllodes slightly kinked near their base; C – branchlet of plant in cultivation at Kings Park & Botanic Garden, showing spicate inflorescences and pendulous foliage. Photographs by Luke Sweedman (A, from *L. Sweedman* 8229), Jerome Bull (B, unvouchered) and Bruce Maslin (C, from *B.R. Maslin s.n.* 1 Apr. 2022).

Distinctive features. Small trees with pendulous branchlets and phyllodes. Phyllodes long (mostly 10–20 cm), slenderly terete (0.5–0.7 mm diam.), finely multistriate. Gland mostly 2–10 mm above pulvinus, indistinct but phyllodes slightly to obviously kinked and/or slightly swollen at the gland. Inflorescences spicate. Flowers 4(5)-merous. Bracteoles minute. Pods $\pm$ moniliform, 6–12 cm long, 6–7 mm wide, longitudinally striate by brown veins, densely minutely silvery-white appressed-hairy between the veins.

Other specimens examined. WESTERN AUSTRALIA: [localities withheld for conservation reasons] 24 May 2023, *J.P. Bull* ONS-5251 (PERTH 09624252); 4 Aug. 2023, *J.P. Bull* ONS-5415 (PERTH 09624260); 4 Aug. 2023, *J.P. Bull* ONS-5417 (PERTH 09624198); 11 Aug. 2023, *J.P. Bull* ONS-5720 (PERTH 09624244); 11 Aug. 2023, *J.P. Bull* ONS-5722 (PERTH 09624171); 23 July 2011, *L. Sweedman & G. Brand s.n.* (PERTH 07984375); 5 Oct. 2011, *L. Sweedman* 8229 (KPBG 27804); 5 Oct. 2011, *L. Sweedman* 8229 (PERTH 08310475); cultivated in Kings Park Botanic Garden, 1 Apr. 2022, *B.R. Maslin s.n.* (PERTH 09747311); cultivated in Kings Park Botanic Garden, 2021, *M. Zhao s.n.* (PERTH 09690778).

Phenology. Due to the paucity of collections the phenology of this species in nature is poorly known. The single flowering specimen was collected in late July, at which time there were nearly mature pods also present, and a specimen with mature pods was collected in mid-October. In cultivation at Kings Park and Botanic Garden, Perth, plants have been observed at peak anthesis in early April, with immature pods in early June and mature seeds about September. It is postulated that in nature the flowering and fruiting in this species is influenced by the timing and intensity of rainfall events.

Distribution. Known only from a restricted area about 100 km east of the Kennedy Range National Park in the Gascoyne IBRA region, about 250 km due east of Carnarvon, Western Australia. It occurs in two areas within the Gascoyne River drainage system, namely Gifford Creek Station, and Yinnetharra Station approximately 90 km to the south. Collectors' labels note that the species is relatively common in the places where it has been found. For example, for Yinnetharra Station, Luke Sweedman records about 50 trees of mixed age at the type locality, while on Gifford Creek Station Jerome Bull records a frequency of 20–75 plants per hectare in a series of populations. The general region in which the species is found has been relatively poorly collected and it is therefore possible that surveys will yield additional populations. Interestingly, the Yinnietharra Rock Dragon, *Ctenophorus yinnietharra* (Storr 1981), has a similar disjunct distribution (Atlas of Living Australia 2024).

Habitat. On Yinnetharra Station the species grows in red sandy clay or on red clay pans associated with the Gascoyne River and spreading for *c.* 3–5 km into adjacent sandy country. On Gifford Creek Station it grows in silty loam associated with the Gifford Creek watercourse, on rocky (siliciclastic) plains and adjacent hills.

Conservation status. Listed as Priority One under Conservation Codes for Western Australian Flora (Western Australian Herbarium 1998–), as *A. sp.* Yinnetharra (*L. Sweedman* 8229).

Etymology. The species name refers to Yinnetharra Station, a cattle station in the Upper Gascoyne Shire about 250 km due east of Carnarvon, and is treated as a noun in apposition. It is noted, however, that there is some variation in the spelling of that Station name on maps and in gazetteers, where sometimes it is spelt 'Yinnietharra'. This was also the spelling adopted for the aforementioned Yinnietharra Rock Dragon. However, we have adopted the spelling 'Yinnetharra' because this is what is used on maps that we have seen, on herbarium specimen labels, on signage in Kings Park and Botanic Garden, and on *Florabase* when the species was treated as a phrase-named taxon.

Affinities. *Acacia yinnetharra* belongs to sect. *Juliflorae* (Benth.) Maiden & Betche and is most closely related to *A. atopa* Pedley. Both species have terete, finely multiveined phyllodes, spicate inflorescences, very similar flowers and bracteoles, and pods that are longitudinally striate with a dense sericeous indumentum between the veins. The two species grow in the same general region where they are broadly

parapatric, with current knowledge showing the more widespread *A. atopa* occurring to the west and south of *A. yinnetharra*, with a distribution extending from Erong Springs Station west to Pimbee Station and north to the Kennedy Range, in an arc 100–150 km from Yinnetharra Station (Western Australian Herbarium 1998–). *Acacia atopa* is most readily distinguished from the new species by its non-pendulous branches and phyllodes, and by its much smaller pods (15–40 mm long, 2–4 mm wide) that are $\pm$ quadrangular in section and not constricted between the seeds; it also has shorter phyllodes (normally 5–9 cm long) and narrower seeds (c. 2 mm wide). See further discussion under *Variant* below.

In the absence of pods, *A. yinnetharra* can easily be mistaken for *A. paraneura* Randell which, apart from its arborescent stature, weeping branchlets and phyllodes, and spicate inflorescences, resembles the new species in having phyllodes that are long, terete, finely multiveined and often slightly but discernibly kinked at the gland. *Acacia paraneura* is most readily distinguished from *A. yinnetharra* by its flat, winged pods that are normally 8–12 mm wide, and its generally longer peduncles (normally 5–12 mm long). The closest known occurrences of *A. paraneura* to those of *A. yinnetharra* are about 300 km to the east and northeast (Maslin & Reid 2012).

The longitudinally striate pods that are densely sericeous between the veins suggest that *A. yinnetharra* has a relationship to *A. ramulosa* W.Fitzg., a variable species comprising two varieties that are both widespread in the arid zone. This species is in need of critical review which makes it difficult to comprehensively assess its relationship to *A. yinnetharra*. However, *A. ramulosa* is normally a shrub to 6 m tall and does not have a weeping habit, its phyllodes are rigid and vary from flat (var. *ramulosa*) to terete (var. *linophylla* (W.Fitzg.) Pedley), its flowers are larger (petals to 2.5 mm long), and its pods are often wider (to c. 10 mm, or sometimes 15 mm).

In its pendulous habit and long phyllodes, the new species is superficially similar to *A. coriacea* subsp. *pendens* R.S.Cowan & Maslin, which is also cultivated in Kings Park and Botanic Garden. However, the two taxa are not closely related, with subsp. *pendens* belonging to sect. *Plurinerves* (Benth.) C.Moore & Betche and readily recognized by its flat, albeit narrow phyllodes (1–4 mm wide), globose heads arranged in condensed racemes, wide pods (6–13 mm) and conspicuous, bright orange seed arils.

Variant. The above description and discussion of *A. yinnetharra* does not include *G. Johnstone* 1/84 (PERTH 00346942 & PERTH 09747303), which was collected in late July 1984 from Dalgety Downs Station (specimen in flower and with slightly immature pods). In common with *A. yinnetharra* and *A. atopa* it possesses terete, finely multistriate phyllodes, spicate inflorescences and small flowers. It resembles *A. yinnetharra* in its long phyllodes (to 20 cm) and is described by the collector as having a pendulous habit, however, it possesses the distinctive, very short, quadrangular pods of *A. atopa*. While further field and laboratory studies are needed to understand this variation, it is known that the weeping habit occurs sporadically in a few other species of sect. *Juliflorae* that usually have an upright habit, e.g. *A. acuminata* Benth. and *A. papyrocarpa* Benth.

This variant was collected c. 40 km east of where *A. yinnetharra* occurs on Yinnetharra Station, and c. 100 km to the north and northeast of the closest known collections of *A. atopa* on Erong Springs Station and Dairy Creek Station respectively.

Notes. This species was discovered in July 2011 by Luke Sweedman and Grady Brand, both then employed by Kings Park and Botanic Garden, Perth. The species has been successfully cultivated in Kings Park where it forms a small tree which is very attractive on account of its long, pendulous and slenderly terete phyllodes.

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Luke Sweedman and Grady Brand are acknowledged for first discovering this species (on Yinnetharra Station) and are thanked for bringing it to our attention, providing information and field photographs,

and introducing it into cultivation at Kings Park and Botanic Garden (KPBG). We also thank Jerome Bull who subsequently discovered multiple populations from Gifford Creek Station and provided us with detailed-labelled specimens and photographs, some of which he has generously permitted us to use in this publication. We also extend our thanks to Myriam Everall, Peter Nguyen and Jessica Glover from KPBG, who facilitated our collection and observation of the new species under cultivation. Kelly Shepherd is gratefully acknowledged for compiling the figures.

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