**Nuytsia** The journal of the Western Australian Herbarium

31: 213–216 Published online 1 September 2020

# *Acacia lachnocarpa* (Fabaceae), a new, geographically restricted Wattle from the Coolgardie bioregion of Western Australia

**Robert W. Davis[1] and Michael Hislop**

Western Australian Herbarium, Biodiversity and Conservation Science,
Department of Biodiversity, Conservation and Attractions,
Locked Bag 104, Bentley Delivery Centre, Western Australia 6983
[1]Corresponding author, email: Robert.Davis@dbca.wa.gov.au

## SHORT COMMUNICATION

*Acacia* Mill. is one of Australia's most iconic plant groups and has long been the subject of highly focused taxonomic research (largely by Bruce Maslin, Richard Cowan and Les Pedley). Over the past 50 years, this research has led to the description of 390 new Western Australian taxa, of which 180 are conservation-listed (Western Australian Herbarium 1998–). There are still 75 informally named taxa in Western Australia that require further taxonomic research, including several recent discoveries of potentially rare taxa such as the species dealt with in this paper.

The new species described below was first collected by Brian Ellery and Dave Angus of Mattiske Consulting during surveys of mineral leases in the Coolgardie bioregion near Forrestania. The rapid taxonomic resolution of this discovery was enabled by the excellent existing taxonomic framework for the genus (e.g. Maslin 2001), a comprehensive Lucid key (Maslin 2018), and the collection of fruiting material in 2018 by Brian Ellery.

**Acacia lachnocarpa** R.W.Davis & M.Hislop, *sp. nov.*

*Type*: south of Southern Cross, Western Australia [precise locality withheld for conservation reasons], 16 June 2018, *B. Ellery* BE 1210 (*holo*: PERTH 09083669; *iso*: CANB).

*Acacia* sp. Mt Holland (B. Ellery BE 1147), Western Australian Herbarium, in *FloraBase*, https://florabase.dpaw.wa.gov.au/ [accessed 10 July 2018].

Dense, rounded *shrubs* 70–100 cm high, 70–90 cm wide. *Branchlets* terete, with dense, woolly, grey-white hairs to *c.* 1.2 mm long. *Stipules* subulate to narrowly triangular, 1.8–2.5 mm long, 0.3–1.0 mm wide, conspicuous and long-persistent on old wood, variably hairy on abaxial surfaces, glabrescent; margins ciliate. *Phyllodes* flat, narrowly elliptic, often asymmetrically so, 18–35 mm long, 1.5–3.5 mm wide, thick, rigid, straight to distinctly incurved along longitudinal axis, initially sparsely hairy with a mixture of white hairs and red resin-hairs, the surfaces glabrescent and variably tuberculate; *longitudinal nerves* 6–9 per face, usually distinctly raised, with occasional anastomoses; *apices* ± asymmetric, sharply pungent-pointed; *pulvinus* 1.5–2.5 mm long, with dense, woolly, grey-white hairs, often becoming glabrous with age on the abaxial surface; *gland* 1, prominent, elliptic,


https://florabase.dpaw.wa.gov.au/nuytsia/
ISSN 2200-2790 (Online)
ISSN 0085-4417 (Print)

slightly raised, *c.* 0.5 mm long, located on the adaxial margin of the blade 8–12 mm from the base of the pulvinus. *Inflorescences* comprising single, axillary, pedunculate, globular heads; *peduncles* erect or apparently becoming deflexed, 4–7 mm long, with a dense covering of white hairs intermixed with red resin-hairs, subtended at base by a pair of ovate, strongly cupped, caducous bracts 1.1–1.8 mm long; *heads* 4.5–5.5 mm diam., 23–30-flowered; *bracteoles* oblanceolate to spathulate, with sparse white hairs on the upper portion. *Flowers* 5-merous; *calyx* gamosepalous, *c.* 1/2 as long as petals, the sepals variably united for *c.* 1/4–2/3 their length, with sparse, crisped hairs towards the apex, otherwise glabrous, the lobes faintly striate; *corolla* 1.6–1.8 mm long, glabrous, the lobes 1-nerved. *Pods* oblong, raised over the seeds and not constricted between them, 11–15 mm long, 6–8(–9) mm wide, thick-crustaceous, straight to slightly curved, with a dense, woolly covering of white hairs intermixed with red resin-hairs. *Seeds* transversely arranged in the pods, elliptic, *c.* 3 mm long, 2 mm wide, 1 mm thick, glossy black; *aril* terminal, white, crested, *c.* 3 mm long, extending down one side of the seed. (Figure 1) (Note that the descriptions of seed shape, dimensions and aril given in the text are based on a single, apparently mature seed and must therefore be regarded as provisional.)

*Characteristic features*. Dense, rounded *shrubs*. *Branchlets* with a dense, woolly indumentum with hairs to *c.* 1.2 mm long; stipules long-persistent on old wood. *Phyllodes* flat, narrowly elliptic, straight to distinctly incurved, 18–35 mm long, 1.5–3.5 mm wide, with 6–9 raised nerves per face, variably tuberculate; *apices* ± symmetric, sharply pungent. *Inflorescences* comprising single, pedunculate, globular heads; *peduncles* 4–7 mm long with a dense covering of white hairs and red resin-hairs and strongly cupped basal bracts; *heads* 4.5–5.5 mm diam. *Flowers* 5-merous; *calyx c.* 1/2 as long as petals, the sepals variably united for *c.* 1/4–2/3 their length. *Pods* oblong, 11–15 mm long, 6–8(–9) mm wide, densely woolly-hairy with a mixture of white hairs and red resin-hairs. *Seeds* transversely arranged.

*Other specimens examined*. WESTERN AUSTRALIA: [localities withheld for conservation reasons] 9 Sep. 2017, *D. Angus* DA 2844 (PERTH); 9 Sep. 2017, *B. Ellery* BE 1147 (PERTH); 5 Feb 2018, *B. Ellery* BE 1204 A (PERTH); 5 Feb. 2018, *B. Ellery* BE 1204 B (PERTH); 16 June 2018, *B. Ellery* BE 1207 (PERTH); 16 June 2018, *B. Ellery* BE 1208 (PERTH); 16 June 2018, *B. Ellery* BE 1209 (PERTH).

*Distribution and habitat*. *Acacia lachnocarpa* is known only from a relatively small area near Forrestania. It has been recorded from open woodlands on grey-brown, sandy clay with white quartz. Associated species include *Eucalyptus incrassata*, *E. tenera*, *Melaleuca depauperata*, *M. scapigera* and *M. condylosa*.

*Phenology*. Apparently flowering mostly in winter and early spring. Fruiting is probably from mid-spring to late summer, although it appears that old fruits are quite persistent on plants after dehiscence.

*Etymology*. The epithet is from the Greek *lachno-* (woolly) and *-carpus* (-fruited), in reference to the densely woolly pods (Figure 1D).

*Vernacular name*. Woolly-fruited Wattle.

*Conservation status*. *Acacia lachnocarpa* has been recently listed as Priority One under Conservation Codes for Western Australian Flora, under the name *A.* sp. Mt Holland (B. Ellery BE 1147) (Western Australian Herbarium 1998–). At this stage the species is only known with certainty from the vicinity of Mount Holland, an area that is highly prospective for mining (but refer under notes below regarding a problematic collection possibly indicating a wider distribution).

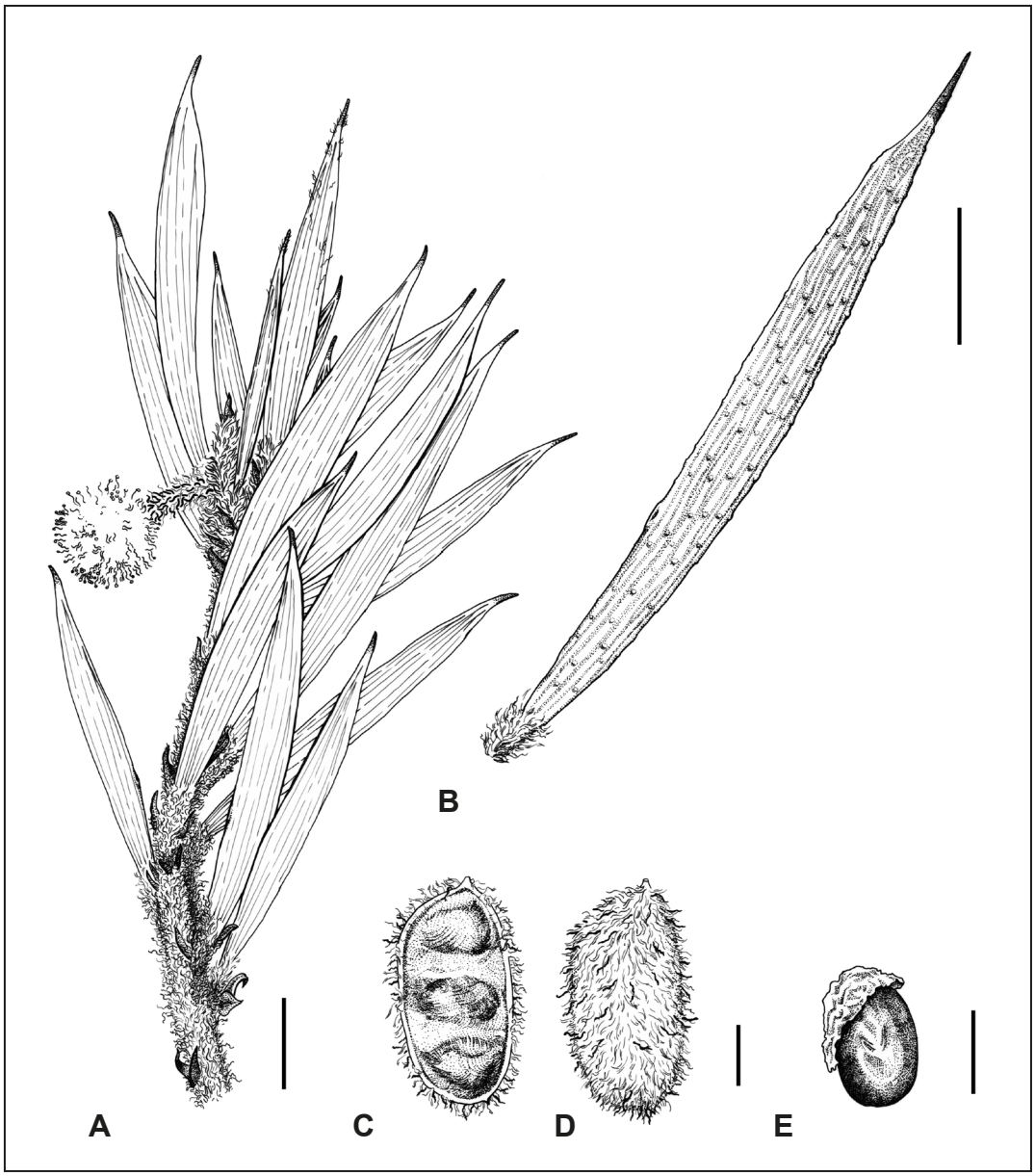


Figure 1. *Acacia lachnocarpa*. A – flowering branchlet; B – phyllode, showing nervation and woolly pulvinus; C, D – pod, displaying inner and outer surface respectively; E – seed. Scale bars = 4 mm (A–D); 2 mm (E). A, B from *B. Ellery* 1210; C–E from *B. Ellery* BE 1204 A. Illustrations by Cielito Marbus.

*Affinities*. *Acacia lachnocarpa* is a member of sect. *Plurinerves* (Benth.) Maiden & Betche. Within this large and diverse assemblage, it shows some affinities with the *A. densiflora* Group (*sensu* Cowan & Maslin 1995). This group was rather loosely defined by a combination of mostly 'tomentulose branchlets with the indumentum often extending to the adaxial surface of the pulvinus, cucullate basal peduncular bracts and small heads on short peduncles'. While the indumentum of *A. lachnocarpa* is significantly longer than in any of the currently accepted members of that group, it is very similar in its quality and frequent presence of resin-hairs. The new species conforms well with the other defining features of the group except that, with an upper limit of 7 mm, the peduncle is rather long.

There are significant differences between *A. lachnocarpa* and all other accepted members of the *A. densiflora* Group. The pod width of 6–9 mm is well beyond that found elsewhere in the group (*cf.* to 3 mm wide) and no other species have transversely arranged seeds. The prominent, persistent stipules are also a distinctive feature not found elsewhere in the group. These vegetative and fruiting differences readily distinguish *A. lachnocarpa* from both *A. densiflora* Morrison and *A. hadrophylla* R.S.Cowan & Maslin, the two members of the group that are otherwise the most similar in general morphology. Both *A. densiflora* and *A. hadrophylla* also have shorter peduncles (to 1.5 mm and 2 mm long respectively, compared to 4–7 mm in *A. lachnocarpa*).

Although not a member of the *A. densiflora* Group, the Western Australian species *A. resinistipulea* W.Fitzg. is morphologically similar to *A. lachnocarpa*, as determined using the WATTLE interactive key (Maslin 2018) and the following 'Fast Find' characters: phyllode length and width; peduncle length and hair presence; phyllode apex character; inflorescence shape; pod width; seed orientation. The distributions of the two species overlap; however, *A. resinistipulea* differs from the new species in having glaucous, straight or slightly recurved phyllodes and a short, black pulvinus encased in resin.

*Notes.* A sterile collection (*K. Newbey* 9162; PERTH) from south-west of Marvel Loch and at least 60 km to the north of the Mt Holland area, raises the possibility that the species may be more widespread. This specimen is similar to *A. lachnocarpa* but differs in its narrower phyllodes (to 1.2 mm wide) with a slightly deflexed rather than a more or less symmetric apical point. It will be necessary to examine fruiting material from this population in order to confidently assign it to the new species.

## Acknowledgements

We thank Dave Angus and Brian Ellery of Mattiske Consulting for advice regarding the habit and habitat of *A. lachnocarpa*, Bruce Maslin for giving us a preliminary opinion as to the likely affinities of the new species, Juliet Wege and Kevin Thiele for their useful comments on the manuscript, Julia Percy-Bower and the curation staff of the Western Australian Herbarium for help with specimens, and Cielito Marbus for her exquisite illustrations. This research was supported by a Science Project Support Grant from DBCA Biodiversity and Conservation Science.

## References

Cowan, R.S. & Maslin, B.R. (1995). *Acacia* Miscellany 15. Five groups of microneurous species of *Acacia* (Leguminosae: Mimosoideae: section *Pulurinerves*), mostly from Western Australia. *Nuytsia* 10 (2): 205–254.

Maslin, B.R. (2001). *Acacia. In*: Orchard, A.E. & Wilson, A. (eds) *Flora of Australia*. Vols 11A & 11B. (Australian Biological Resources Study: Canberra.)

Maslin, B.R. (coordinator) (2018). *WATTLE: Interactive identification of Australian* Acacia. Version 3. (Australian Biological Resources Study: Canberra; Department of Biodiversity, Conservation and Attractions: Perth; Identic Pty. Ltd., Brisbane.) [accessed 2 November 2019].

Western Australian Herbarium (1998–). *FloraBase—the Western Australian Flora*. Department of Biodiversity, Conservation and Attractions. https://florabase.dpaw.wa.gov.au/ [accessed 4 January 2019].