

JOURNAL of the ADELAIDE BOTANIC GARDENS

AN OPEN ACCESS JOURNAL FOR AUSTRALIAN SYSTEMATIC BOTANY

flora.sa.gov.au/jabg

Published by the

STATE HERBARIUM OF SOUTH AUSTRALIA

on behalf of the

BOARD OF THE BOTANIC GARDENS AND STATE HERBARIUM

© Board of the Botanic Gardens and State Herbarium,
Adelaide, South Australia

© Department of Environment, Water and Natural Resources,
Government of South Australia

All rights reserved

State Herbarium of South Australia
PO Box 2732
Kent Town SA 5071
Australia



Board of the
Botanic Gardens and
State Herbarium



**ACACIA SPOONERI (LEGUMINOSAE: MIMOSOIDEAE:
SECT. PHYLLODINEAE), A NEW SPECIES FROM THE
FLINDERS RANGES, SOUTH AUSTRALIA**

M.C. O'Leary

State Herbarium of South Australia, Plant Biodiversity Centre,
PO Box 2732, Kent Town, South Australia 5071.
Email: OLeary.Martin@saugov.sa.gov.au

Abstract

A new species, *Acacia spooneri*, is described and illustrated. It occurs in three isolated populations in the central and southern Flinders Ranges, South Australia. Until now *A. spooneri* has been treated as a variant of *A. watsiana*, to which it is closely related, together with *A. quornensis*.

Introduction

The new species described here as *A. spooneri* was noted as a variant of *A. watsiana* by Jessop & Toelken (1986) and Whibley & Symon (1992). It was included, as *A. watsiana* 'Nectar Brook Variant', in the recently published electronic interactive key, *WATTLE Acacias of Australia* (Maslin 2001), and was informally treated in the *Flora of Australia*, 11A (p.267) (Maslin 2001a). It was also listed as *Acacia* 'Nectar Brook', in the 'Natural History of the Flinders Ranges', Gell & Bickford (1996). However, recent field studies and a re-examination of herbarium collections indicate that formal species rank is appropriate for this taxon.

Taxonomy

Acacia spooneri O'Leary, *sp. nov.* Fig. 1.

A. watsiana *auctt. non* F. Muell. ex Benth.: Whibley in Jessop & Toelken (eds), Fl. S. Austr. 2 :567(1986); Whibley & Symon, *Acacias* S. Austr. :148 (1992).

Acacia 'Nectar Brook' Gell & Bickford in Davies et al., *Nat. Hist. Flinders Ranges* :101 (1996).

Ab *A. watsiana* et *A. quornensis* habitu arborum erectarum araneosarum, phyllodiis majoribus ellipticis ad obovatis plerumque glandibus duabus, axibus racemi longioribus 30–75 mm longis, stipitibus basalibus ad florem primum 10–35 longum, inflorescentiis 20–40 floribus, et florescentiis et frutescentiis longioribus differt.

Typus: South Australia, Winninowie Range, Nectar Brook, ridge top above tanks 14 May 1997, M.C. O'Leary 3308; holo.: AD; iso.: K, NSW, PERTH.

Erect, slender *shrub* or *tree* to 4 m tall, with a spindly, open habit. *Branchlets* reddish brown, prominently angular at first but soon terete, finely ribbed, glabrous. *Bark* smooth, grey. *Phyllodes* narrowly elliptic to oblanceolate or obovate, (22-) 25–70 (-102) mm long, 6–22 (-26) mm wide, commonly variable in size range on a single branch, ascending, straight, rarely shallowly incurved, coriaceous to thinly coriaceous, glabrous, pale-green to glaucous, *midrib* central to slightly excentric, prominent together with *marginal nerves*, pale yellow-green, *lateral nerves* clearly visible and more prominent than in *A. watsiana* and *A. quornensis*; *apices* variable, obtuse to acute, with small and innocuous to coarsely pungent mucro, straight to uncinatate, occasionally obliquely mucronulate; *glands* 1 or along upper margin of phyllode, lowermost gland 0–18 mm above the pulvinus. *Inflorescences* racemose, *raceme axes* 30–75 (-110) mm long, flattened and glabrous, length between raceme base and first flower 10–35 mm; *peduncles* 3–13 mm long, slender, glabrous; *heads* globular, 8–9 mm diam. when fresh, 5–6 mm diam. when dry, 20–40 flowered, light to mid

golden. *Flowers* 5-merous; sepals united to near their apices, $1/3$ – $2/3$ petal length, glabrous; *petals* 0.8–1 mm long, united for c. $2/3$ their length, glabrous, or with minute hairs at apex and along margins; *ovary* variably clothed with short white hairs. *Legumes* broadly linear to narrowly oblong, to 80 mm long, (4-) 5–8 (-9) mm wide, firmly chartaceous to thinly coriaceous, light brown-grey to glaucous, with scattered semi-appressed hairs that are denser along margins and at base. *Seeds* longitudinal, oblong to elliptic, 4–5 mm long, dark brown-black with a satin sheen; *funicle* encircling seed in a double fold, brittle, glossy dark red-black; *aril* clavate.

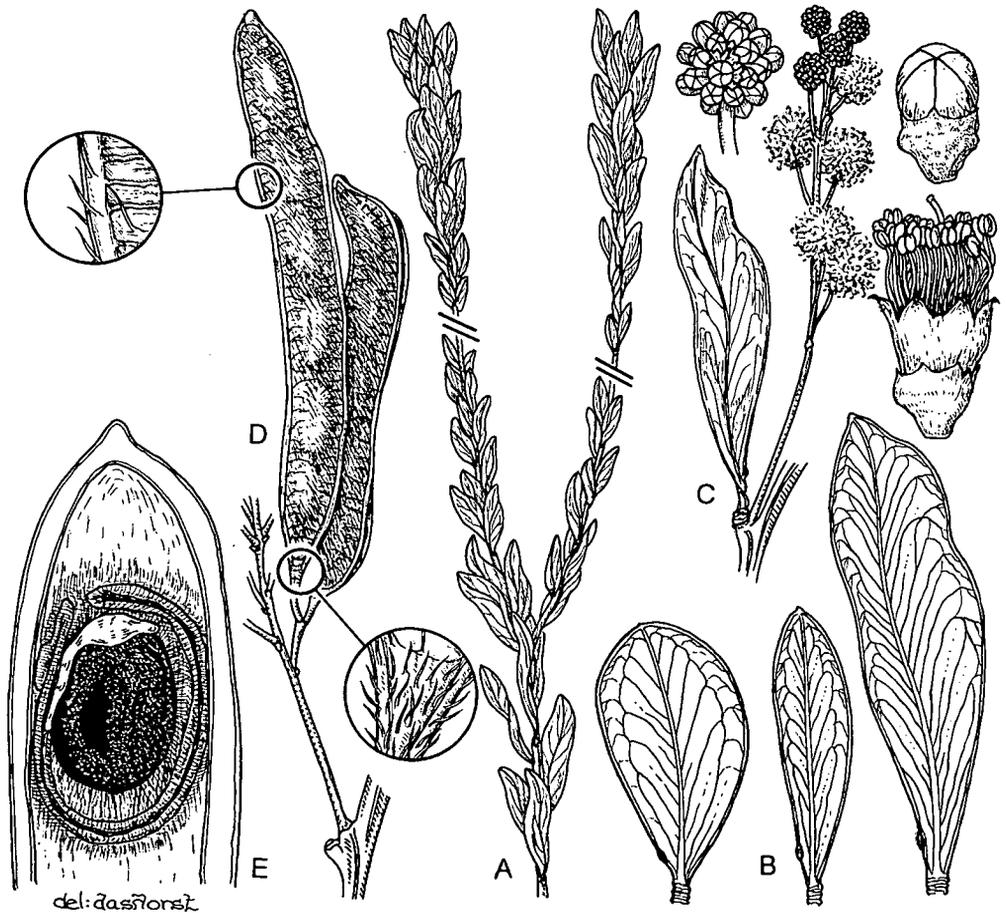


Fig. 1. *A. spooneri* (A, from M.C.O'Leary 2691; B, MO'L 2676 & 2691; C, MO'L 3308; D & E, MO'L 2691). A, habit, showing typical phyllode variation along branch; B, phyllodes showing range of variation; C, inflorescence and phyllode showing slender peduncle and raceme; D, pod with two windows showing scattered hairs; E, pod with longitudinal seed, showing encircling funicle. A, $\times 5$; B, $\times 1$; C, $\times 1$; D, $\times 1$; E, $\times 4$.

Selected specimens examined

SOUTH AUSTRALIA: **Flinders Ranges**: near The Guardians, Brachina Gorge. *E.N.S.Jackson* 165 (AD); The Guardian, elev. 630 m, *B.Lay* 1830 (AD); The Guardian, Brachina Gorge, *M.C. O'Leary* 2676 (pop.coll.) (AD); Wilpena Pound Range, western tributary of Edeowie Creek, upstream from Kanalla Falls, *L.Haegi* 2765 (BRI, CORD, RSA). **Eyre Peninsula**: ESE of the old Cudnia H.S., Nectar Brook, *T.Hall* 262 (AD); Winninowie Range, *A.G.Spooner & G.L.Howie* 9179 (AD); Winninowie Range, *A.G.Spooner* 9181 (AD); rocky range S of Nectar Brook Reservoir, *P.Copley* 412 (AD); Nectar Brook Range, *M.C.O'Leary* 2691 (AD); Nectar Brook Range, above the Winninowie tanks, *M.C.O'Leary* 3308 (pop.coll.) (AD, K, NSW, PERTH); Nectar Brook Range, *M.C.O'Leary* 2691 (pop.coll.) (AD); hills, eastern part of Nectar Brook Range, *A.G.Spooner* 11114 (AD).

Distribution

Known from two disjunct areas 150 km apart in the Flinders Ranges, South Australia. Two northern populations occur near the summit of The Guardian, at Brachina Gorge, and 18 km south, on the north-western slopes of Wilpena Pound. A southern population occurs at Nectar Brook on the Winninowie Range, SE of Port Augusta.

Habitat

Occurs on rocky ridgetops, in *Callitris* pine and mallee communities over *Triodia* grassland, with an annual rainfall of 300-400mm. Associated species in the northern populations include; *Callitris glaucophylla*, *Xanthorrhoea quadrangulata*, *Eucalyptus porosa*, *E. flindersii*, *E. aff. odorata*, *E. intertexta*, *Acacia havilandiorum*, *A. continua*, *Calytrix tetragona*, *Callistemon teretifolius*, *Spyridium phlebophyllum*, *Cassinia uncata*, *Olearia ramulosa* and *Triodia sp.*. Associated species in the southern population include; *Eucalyptus porosa*, *Xanthorrhoea quadrangulata*, *Acacia pycnantha*, *A. continua*, *A. calamifolia*, *Olearia ramulosa*, *Olearia decurrens*, *Templetonia aculeata*, *Callistemon teretifolius*, *Calytrix tetragona*, *Pommaderris paniculosa* subsp. *paniculosa*, *Cassinia laevi*, and *Triodia scariosa*.

Conservation status

The northern population around The Guardian comprised 20–40 mature plants in 1995 (in a 1km area), while the population 18 km south on the slopes of Wilpena Pound is of a similar size. (*L.Haegi*, pers.comm.). These two populations occur within the Flinders Ranges National Park. Similar habitat occurs along the Heysen Range between these two locations, and it is likely that more populations occur in this area. The southern population on the Winninowie Range numbers several hundred plants and occurs over a 5km area. The land tenure at this location is Crown Lease Perpetual. In following the criteria set down by Briggs and Leigh (1996), a code of 3RCi is recommended for this species.

Browsing by goats appears to be a significant threat to the populations of *A. spooneri*. While the Yellow Footed Rock Wallaby, (*Petrogale xanthopus*) and Euro, (*Macropus robustus*) occur in these areas, and are likely browsers of this species, damage from goats was noted at the population at The Guardian. This was evident by high broken branches in trees, and the presence of only two plants below 1m high in the area. The southern population at the Winninowie Range was in healthy condition when visited in 1997, with no obvious damage from browsers. Part of this population was burnt in the early 1990s, with a subsequent proliferation in the number of young plants. It is recommended that the

future long-term health of *A. spooneri* populations would require the monitoring and control of goat numbers. Furthermore, a study of the importance of fire for population recruitment and stability would be beneficial.

Flowering and fruiting period

Flowering and fruiting within *A. spooneri* appears to be related to seasonal climatic variations, perhaps to the timing and intensity of rainfall events. It is recorded as flowering throughout the year including the months of February, May, June, August, October and November, but peak flowering appears to occur between May and August. Legumes containing mature seed have been collected in November, December, and May; the peak fruiting period is in November and December.

Affinities

A. spooneri is a member of the 'microbotrya' group, Maslin (2001) and appears most closely related to *A. watsiana*, and *A. quornensis*. Indeed, as noted in the Introduction above, this new species has in the past commonly been referred to as a variant of *A. watsiana*, however the latter species is readily distinguished from *A. spooneri* in having a bushy, multi-branched habit, less variable oblanceolate to obovate phyllodes with less distinct venation and a central mucro, smaller flower heads 12–20 flowered, on raceme axes 10–25mm long, with 3–11 mm between the raceme base and the first flower. Habitat differences also exist between the two species, *A. spooneri* occurs on rocky ridges over *Triodia* grass with an annual rainfall of 300–400mm, while *A. watsiana* occurs on more fertile loams with woodland species and an annual rainfall of 450–600mm. *A. quornensis* is distinguished from *A. spooneri* by its bushy, multi-branched habit, less variable narrowly elliptic to oblanceolate phyllodes with less distinct venation and consistent uncinuate tip, flower heads 8–15 flowered, on raceme axes 10–25 mm long, and 3–11 mm between the raceme base and the first flower. Habitat differences are less pronounced between *A. spooneri* and *A. quornensis*, though the latter species favours lower hill slopes in denser vegetation.

Based on field observations at the Winninowie Range it appears as though *A. spooneri* hybridises with *A. calamifolia*, another member of the *A. microbotrya* group. Both parents occur in the same population as the putative hybrid, which is present as scattered individuals in the population of *A. spooneri*. These hybrids have an open shrubby habit with linear-lanceolate phyllodes that superficially resemble *A. rivalis* or wide phyllode forms of *A. euthycarpa*, and intermediate legumes which are sub-moniliform (M.C.O'Leary, 2685 AD; *A.G.Spooner*, 8952 AD).

Biology

Seed with funicles and arils removed have been observed deposited around ant holes (together with *Triodia* husks) at the Winninowie Range population. An ant collected beside these holes was identified as a *Calomyrmex* sp. by South Australian Museum staff.

Etymology

Named in honour of the late Dr. Tony Spooner. Tony has made significant contributions to the knowledge of the South Australian flora through his innumerable collections (some 16000 lodged in the Herbarium), publications and enthusiasm. He was a life long member of the Botany Club in the Field Naturalists Society of South Australia, Kraehenbuehl

(1999). Tony had a particular interest in this species, and gave much encouragement for its publication.

Notes

Known locally in the Nectar Brook area as spear wood Graham Herde recalled being told by his father that the stems of this wattle were collected and traded as spears by the local Nukunu people. (G. Herde, pers. comm)

Acknowledgements

Particular thanks are given to Thelma Hall of The Field Naturalists Society of South Australia, for her collections and information relating to this new species. I am indebted to Bruce Maslin for his encouragement and many constructive comments. Gilbert Dashorst is thanked for preparing the comprehensive plate of illustration. Hellmut Toelken is gratefully acknowledged for providing the Latin description. Graham and Iris Herde of Nectar Brook are thanked for access to their property and local information. Laurie Haegi, Ann Stefanovic, Brendon Lay, Joe Tilley, Shirley Meyer and Michael Diorio are thanked for their help and information. Archie Roach from the South Australian Museum is thanked for the ant identification. Susan Semple is thanked for the preparation of the manuscript and assistance in the field.

References

- Briggs, J.D. and Leigh, J.H. (1996). *Rare or Threatened Australian Plants 1995*, rev. edn, 50. (CSIRO: Collingwood).
- Gell, P.A., & Bickford, S (1996). In Davies, M., et al *Natural History of the Flinders Ranges*. Royal Society of South Australia: 101.
- Jessop, J.P. and Toelken, H.R. (1986) *Flora of South Australia*. 2. :567-568 (Govt Printer: Adelaide).
- Kraehenbuehl, D.N. (1999) in *The South Australian Naturalist*. Vol. 73, No. 3/4, Mar/June 1999. 65-66.
- Maslin, B.R. (coordinator) (2001). *WATTLE Acacias of Australia*. CD-ROM, Version 1.0 (Australian Biological Resources Study: Canberra, and Department of Conservation and Land Management: Perth)
- Maslin, B.R. (2001a) *Acacia wattsi*, *Flora of Australia*. 11A: 266-267.
- Whibley, D.J.E., & Symon, D.E. (1992) *Acacias of South Australia* :148. (Govt Printer: Adelaide).