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**ACACIA TOONDULYA (LEGUMINOSAE: MIMOSOIDEAE:
SECT. PHYLLODINEAE), A NEW SPECIES FROM EYRE
PENINSULA, SOUTH AUSTRALIA**

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Abstract

A new species, *Acacia toondulya*, is described and illustrated. It has a restricted distribution in the western Gawler Ranges, Eyre Peninsula, South Australia and is most closely related to *A. notabilis*.

Introduction

The taxon described here as *A. toondulya* was first collected in 1969, and again in 1972. These specimens were identified as *A. beckleri* and *A. notabilis* due to their large phyllodes and flowers, or pods with transverse seed. A specimen collected from Toondulya Bluff in 1981 with a distinct pruinose coating on its branchlets and racemes (but in young bud) at first remained undetermined for some time and then finally identified as *A. cretacea*. At this time a study of the biology of *A. cretacea* was being conducted by the Conservation Biology Unit at the Black Hill Flora Park, and with earlier reports of populations of *A. cretacea* occurring in the Gawler Ranges a visit was made to Toondulya Bluff. The resulting collections made with inflorescences containing 80 flowers per head, pods with transverse seed, and photos showing a slender, erect habit, indicated all the previous determinations to be incorrect. This relatively inaccessible and poorly collected area was then visited by the author, where population collections and field studies have shown this taxon to be worthy of formal species ranking. *Acacia toondulya* was not included in the recently published Flora of Australia treatment of *Acacia* (Maslin 2001a) but it was included (as an informal name) in the electronic companion to the Flora, namely, *WATTLE Acacias of Australia* (Maslin 2001).

Taxonomy

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

Ab *A. notabili* et speciebus aliis combinatione sequenti characterum differt: arbores parvae habitu erecto araneoso, ramuli juniores perpruinosi, inflorescentiae majores 55–105 floribus et 8–10 mm diametro, phyllodia magna siccentia palide virido-lutea, et legumina semenibus transversaliterdispositis.

Typus: South Australia, Eyre Peninsula Region, Kondoolka Station, 2 km W of Toondulya Bluff summit, 10 July 2000, *M.C. O'Leary* 3382; holo: AD; iso: K, NSW, PERTH.

Erect, slender *tree* to 4 metres. *Branchlets* angled at extremities but soon terete, glabrous, pruinose when young (aging dark red-brown). *New shoots* pruinose. *Bark* smooth, grey. *Phyllodes* narrow to broadly elliptic to narrowly oblong, (50-) 55–110 (-120) mm long, (8-) 10–25 (-39) mm wide, straight, coriaceous, green to sub-glaucous, often drying light yellow-green, *midrib* central to slightly excentric, *marginal nerves* prominent, thick, often drying yellow-green, *lateral nerves* visible but not prominent, *apices* obtuse to sub-acute or emarginate, mucro innocuous to coarsely pungent; *glands* 1 rarely 2 along upper margin of phyllode, lowermost gland 0–1 mm above pulvinus, second gland midway along phyllode. *Inflorescences* racemose, occasionally paniculate on terminal branchlets, the axes 40–60

mm long, stout, pruinose, and glabrous; *peduncles* 4–6 mm long, pruinose, and glabrous; *heads* globular, to obloid or ellipsoid, 8–11 mm diam. when fresh, 5–7 mm diam. when dry, (50-) 55–105 (-110) flowered, deep yellow-golden. *Flowers* 5-merous; *sepals* 1/3 petal length, fused for at least 3/4 their length, slightly thickened at apex, with scattered white hairs concentrated at the apex; *petals* free to base, slightly thickened at apex, glabrous, or with minute hairs lining the apex. *Ovary* glabrous, pruinose. *Legumes* narrowly oblong, straight to slightly curved, to 80 mm long, (9-) 10–12 (-13) mm wide, raised over seeds alternately on each side, firmly chartaceous to thinly coriaceous, glabrous, dark brown, lightly pruinose. *Seeds* transverse, oblong-elliptic, 4–7 mm long, dark brown-black; funicle 1/2–3/4 encircling seed, dark red-brown; *aril* clavate.

Selected specimens examined

SOUTH AUSTRALIA: Gawler Range, 28/4/1981, *Anonymous* (AD); S of Hiltaba, 1/8/1969, *B.Copley 2735* (AD); Hiltaba Station, 10/9/1997, *M.Jusaitis* and *L.Palomka 72* (AD); Kondoolka Station, 2km W of Toondulya Bluff summit, 10/7/2000, *M.C.O'Leary 3382* (pop.coll.) (AD, K, NSW, PERTH); 1km N of Hiltaba Homestead, 28/8/1996, *A.G.Spooner 15948* (AD); 2 km N of Chinaman Well, S of Lake Acraman, 5/10/1972, *D.E.Symon 8167* (AD,B,BRI,MO,NSW).

Distribution

Extant collections show the species as occurring in a restricted area of 60 km, in the western Gawler Ranges, where it grows on Toondulya Bluff, east to the hills around Hiltaba, and south of Lake Acraman. It is also reported (S. Haigh, pers.comm.) as occurring on Waverly Hill, 14 km to the north of Toondulya Bluff. However, specimens have yet to be collected from this location.

Habitat

Occurs on low rounded hills of granite and shale in red-brown loam, in mixed open shrubland and *Triodia* grassland with an annual rainfall 200-300 mm. Associated species include *Eucalyptus gracilis*, *E. phenax*, *Acacia beckeri*, *A. continua*, *A. tarculensis*, *A. rigens* (Gawler Range variant), *A. ligulata*, *Grevillea parallelinervis*, *Stenanthemum leucophractum*, *Eremophila alternifolia*, *Senna artemisioides* subsp. *artemisioides*, *Eriostemon linearis*, *Cryptandra amara* var. *floribunda*, *Anthocercis anisantha* subsp. *collina* and *Triodia irritans*.

Conservation status

More fieldwork is needed to properly assess the conservation status of *A. toondulya*, however current indications are that it is a rare species. The known populations of this species lie within the Kondoolka, Hiltaba and Yardea Pastoral Leases. It is estimated that several thousand plants occur in the Toondulya Bluff area, and these extend over a distance of 5 km. Most are mature plants, with few juveniles seen. Using the criteria of Briggs and Leigh (1996), a code of 2R is recommended for *A. toondulya*.

Field studies were conducted by the author in the Toondulya Bluff area during the year 2000. The general health of the vegetation appeared to be good, despite recent dry conditions. Several Euro's (*Macropus robustus*) were observed and Yellow Footed Rock

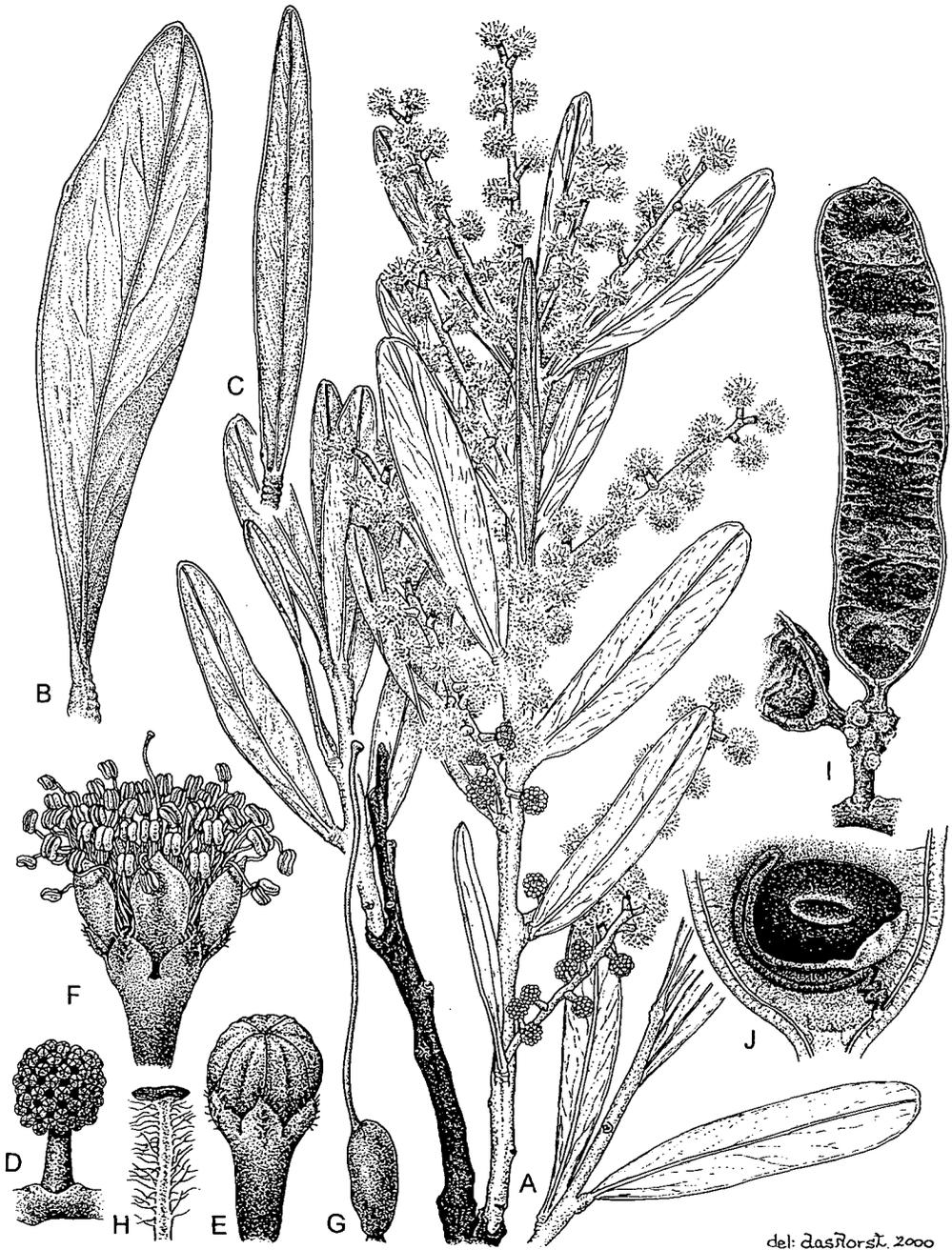


Fig. 1. *A. toondulya* (A-I, from M.C.O'Leary 3382). A, habit; B & C, phyllodes showing range of variation; D, inflorescence; E, flower in bud showing fused sepals; F, flower at anthesis; G, gynoeceum; H, bracteole; I, pod inserted on receptacle; J, pod showing transverse seed with $\frac{1}{2}$ encircling funicle. A, $\times 5$; B, $\times 1$; C, $\times 1$; D, $\times 2$; E, $\times 8$; F, $\times 12$; G, $\times 30$; H, $\times 10$; I, $\times 25$; J, $\times 3$.

Wallabies (*Petrogale xanthopus*) were seen in the area many years ago (T. Haigh, pers.comm.), and were known to occur near Mt. Hiltaba, 10 km east in the 1980s. (Robinson, et al, 1988). These macropods would be expected to exert some browsing pressure on the new species. Perhaps of more significance, however, was the observation that some browsing by goats had occurred in the area, and it is recommended that goat numbers be monitored in the future. The relevance of fire to seedling recruitment and long term population viability is also likely to yield information relevant to the management of this rare species.

Flowering and fruiting period

Flowering specimens to hand were collected in July and judging from these it is likely that the flowering period would probably extend from June to September. Legumes with mature seed are likely to occur from November to December. However, fresh fruiting specimens are yet to be collected.

Affinities

A. toondulya is closely related to *A. notabilis*, which differs most obviously in having fewer-flowered heads (27–36 flowers), non-pruinose branchlets, phyllodes drying more grey-glaucous, and having a smaller, densely branching bushy habit. Similarities shared by these two species include coriaceous phyllodes, robust racemose inflorescences and flowers with fused sepals and free petals, a flowering period from June to September, and oblong legumes with transverse seeds.

It appears that *A. toondulya* and *A. notabilis* hybridise 10km to the north of the population on Toondulya Bluff. Putative hybrid plants have been collected by the author in a dry drainage channel beside the road into Kondoolka Station (*M.C.O'Leary 3401*, AD). The putative hybrid plants have an open shrubby habit, non-pruinose new growth, and an intermediate flower number of 45–50 flowers per head. Neither of the putative parent plants were observed in this area.

Etymology

The specific epithet, a noun in apposition, refers to the main known occurrence of this species near Toondulya Bluff and Spring.

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