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Acacia yalwalensis (Fabaceae, Mimosoideae sect. *Botrycephalae*), a new species from the South Coast of New South Wales, Australia

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Abstract

Acacia yalwalensis Kodela (Fabaceae, Mimosoideae sect. *Botrycephalae*) is here described from the South Coast region of New South Wales, Australia. It was previously confounded with *Acacia oshanesii* F.Muell. which occurs in the North Coast region of New South Wales and southeast Queensland.

Introduction

Tindale and Kodela (2001) informally recognised a variant of *Acacia oshanesii* with ciliate pinnules (with ± pilose hairs along the margin) and submoniliform pods 50–85 mm long and 4–6.5 mm wide with valves discernibly raised over the seeds. It occurs in the South Coast of New South Wales, 450–500 km from the northeastern New South Wales and southeast Queensland occurrences of *A. oshanesii*. After further examination of the morphological variation within *A. oshanesii s. lat.*, the southern variant is here described as a new species, *Acacia yalwalensis*. *A. oshanesii s. str.* is restricted to the North Coast of New South Wales and southeast Queensland.

Methods

The study is based on morphological observations and assessment of herbarium specimens at NSW, including duplicates to be distributed to other herbaria. The morphological feature 'young foliage-tips' that is used here, and which is often found in descriptions of taxa of *Acacia* section *Botrycephalae*, refers to the young leaves in an early stage of development that occur at the apices of branches. Submoniliform pods have a margin that is moderately to prominently constricted between the seeds, with the surface slightly to prominently swollen over the seeds (Maslin et al. 2010). Botanical regions cited for New South Wales follow those used by the National Herbarium of New South Wales (NSW) developed by Anderson (1961) and Jacobs and Pickard (1981).

Taxonomy

Acacia yalwalensis Kodela, ***sp. nov.***

[*Acacia oshanesii auct. non* F.Muell. & Maiden: Tame 1992: 196, *p.p.*: Tindale and Kodela 2001: 229, *p.p.*; Kodela and Harden 2002: 472, *p.p.*; Mills and Jakeman 2010: 144]

Diagnosis: differs from *Acacia oshanesii* most obviously in the following ways: pinnules ciliate; pods narrower (4–6.5 mm wide), with margin more noticeably constricted between seeds and valves discernibly raised over seeds; upper surface of rachis with a shallow, longitudinal groove flanked on either side by a narrow ridge; young foliage-tips white-hairy; heads seemingly fewer-flowered.

Type: New South Wales: South Coast: Yalwal, at Danjera Dam, W of Nowra, *K. Mills s.n.*, 4 Jan 1986 (holo: NSW262035; iso: CANB, K, MEL).

Illustrations: Tindale and Kodela (2001: 226, fig. 7K–L) – pod and seed illustrated only (fig. 7M–N is cited incorrectly as the *Acacia oshanesii* variant (fig. 7M–N represents typical *A. oshanesii*); Mills and Jakeman (2010: 144), as *A. oshanesii*.

Erect, straggly or bushy shrub or tree commonly to 9 m or more high (some trees at Yalwal reach 20 m high, the trunk of one tree recorded with a dbh of 48 cm), often with pendulous branches. *Bark* smooth or slightly fissured, grey-brown or green. *Branchlets* terete, slightly angled or flattened towards apices, often pruinose, pilose with fine white-translucent hairs especially on ridges. *Leaves*: petiole to 0.7 cm long (sometimes obscured by basal pinnae arising from near pulvinus), mostly with a raised, circular to broadly elliptic or slightly obovate gland at base of or near lowest pair of pinnae; rachis (2.5–)5–12 cm long, grooved above (a shallow, longitudinal groove flanked on either side by a narrow ridge, or appearing more as a broad ridge with a shallow groove running down middle), pilose mostly above (with hairs mainly on the ridges either side of groove and on sides of rachis) but sometimes on both sides, with a jugary (or near-jugary) gland similar to the petiolar gland occurring mostly at the uppermost 1–4 pairs of pinnae (these glands sometimes occur just below to half-way down, appearing interjugary; glands are sometimes present between the uppermost 9 pairs of pinnae, often irregularly so); pinnae (6–)10–22(–29) pairs, (1–)2–4(–4.7) cm long, lowermost pair often slightly shorter than others; pinnules dark green above, paler green beneath, (12–)20–45(–51) pairs, oblong to narrowly oblong, (1–)1.5–2.5(–3.5) mm long, 0.5–0.7(–0.9) mm wide, ciliate often with pilose hairs (sometimes sparsely so), apex obtuse or acute. *Inflorescences* in terminal and axillary racemes and panicles. Peduncles (1–)2–5 mm long, glabrous. *Heads* globose, c. 9–13-flowered, c. 3–5 mm diam. (when dry), pale yellow or cream-coloured. *Flowers* 5-merous; calyx cupular, 0.5–0.7 mm long, dissected to c. ¼ its length, glabrous or with whitish hairs in upper parts, near apex and/or along keels; corolla 1.2–1.3 mm long, dissected to ½ or splitting further, glabrous or sometimes petals with obscure, minute hairs near their acute apex; ovary glabrous. *Pods* straight to curved, ± submoniliform (margin usually slightly to moderately, ± regularly to irregularly constricted between seeds), ± flat but discernibly raised over seeds, (20–)50–85 mm long, 4–6.5 mm wide, coriaceous, brownish black or blue-black, usually ± pruinose, with few, fine lateral veins, glabrous; seeds longitudinal, to c. 4.5 mm long; funicle filiform. Fig. 1

Flowers: about June–August; buds may occur from about December–February. Fruiting: September–January.

Distribution: New South Wales: South Coast: what is known of the 'natural' distribution of *Acacia yalwalensis* is that it has 'primarily been found in the lower Danjera Creek/Yalwal Creek catchment and nearby, including the Bundundah Creek valley. The main known occurrence is around the old gold mining area east of Danjera Dam, the site of the old township of Yalwal [a former settlement dismantled and destroyed after gold mining ceased in the area], with occurrences in the valleys to the north and to the west' (Mills 2014).

The general distribution previously cited for *Acacia yalwalensis* (as *A. oshanesii*) (e.g. Tindale and Kodela 2001, Kodela and Harden 2002) included the Shoalhaven–Nowra area west to the Yalwal–Yarramunmun area and possibly south to near Wandandian. The species' natural distribution within this range was somewhat uncertain due to the likelihood of introductions and the possibility of 'garden escapes', with specimen collections from the Nowra area likely to be from, or originating from, cultivated plants. Particularly in the 1940s and 1950s Frederick A. Rodway collected specimens from Nowra, citing the plants growing in streets, along paths and other urban settings. He sometimes included the names of property owners related to collection sites and described 'trees in a row'. Mills (2014) states that 'collections from Nowra are almost certainly gathered from planted street or garden trees'. In the Wandandian area a tree grew near to the Princes Highway at Condies Creek, just north of the village, for many years and was collected in 1987 by Mills but has since died (Mills and Jakeman 2010, Mills 2014). There are earlier collections also from Condies Bridge/Creek by other collectors,

Fig. 1: Holotype of *Acacia yalwalensis*, showing the relatively narrow, indented pods which help differentiate the species from *A. oshanesii*.

possibly from the same plant, and it has been suggested (K. Mills *pers. comm.*) that seed may have been transported to this locality by motor vehicle tyres. Further investigation is required on the distribution and status of populations of *A. yalwalensis*.

Habitat: recorded growing on Devonian volcanics and granite, also old sediments, in clayey soils and sandy loams, on hill slopes, creek banks and roadsides, commonly with *Eucalyptus beyeriana*, *E. punctata*, *E. ralla*, *E. tereticornis*, *Angophora floribunda*, *Acacia filicifolia*, *A. mearnsii*, *Bursaria spinosa* and *Olearia viscidula*. In a sheltered forest in Sawpit Gully it also grows with rainforest species (Mills 2014). The population at Yalwal occurs in relatively dry forest with rainfall of c. 1000 mm per year, which is considered a low rainfall for the region in general (Mills 2014). *Acacia yalwalensis* readily colonises cleared land while the largest plants occur in sheltered gullies (Mills 2014).

Conservation status: Rare, threats unknown. *Acacia yalwalensis* should be considered as vulnerable, as although occurring in Morton National Park, it has a restricted distribution (less than 100 km) with limited site records.

Etymology: the specific epithet refers to Yalwal, from where the type specimen was collected.

Common name: Yalwal Wattle is recommended as a suitable common name.

Selected specimens (c. 24 collections examined): **New South Wales**: **South Coast**: Yalwal, *Baeuerlen s.n.*, 13 Mar 1891 (NSW8371); North Street, Nowra, *Beard 891*, 19 Aug 1957 (NSW42191); Condies Bridge, Wandandian, c. 15 miles [24 km] SSW of Nowra, *Constable s.n.*, 17 Jun 1960 (NSW53899); 1 mile [1.6 km] W of Cemetery at Yalwal, *Ellison s.n.*, 18 Sep 1979 (NSW376290); SW of Nowra, near Danjera Dam, Yarramunmun area, *Gilmour 5191*, 10 Sep 1985 (CBG8600188 n.v., NSW261239); Condies Creek, near Wandandian, *Ingram & Craig*, 16 May 1960 (AD, BRI, CANB, HO, NSW97077); 1 mile [1.6 km] W of Cemetery at Yalwal, *Ellison s.n.*, 18 Sep 1979 (NSW376290); Condies Creek, Wandandian, S of Nowra, *Mills s.n.*, 4 Sep 1987 (NSW376296); Bundundah Creek, near Yalwal Creek, Morton National Park, *Mills s.n.*, 3 Nov 1987 (NSW376295); Yalwal, to the W of Nowra, on old town site E of Danjera Dam, *Mills s.n.*, 24 Sep 2014 (BRI, NSW931320); RC School grounds, North Street, Nowra, *F.A. Rodway s.n.*, 15 Jul 1948 (K, NSW376289), North Road, Nowra, *F.A. Rodway s.n.*, 18 Jul 1950 (NSW47249); Osborne Street, Nowra, *Tindale s.n.*, 17 Dec 1986 (CANB, NSW8613, PERTH).

Related species: specimens of *Acacia yalwalensis* had been previously identified as *A. oshanesii* and later recognised as an informal variant of this more northerly distributed species. Without fertile material specimens can most readily be distinguished by observing the upper side of the leaf rachis (a shallow, longitudinal groove flanked on either side by a narrow ridge, possibly seen as a broad shallowly grooved ridge, occurs in *A. yalwalensis*; a single raised narrow ridge occurs in *A. oshanesii*) and pinnules (ciliate in *A. yalwalensis*; glabrous in *A. oshanesii*). In addition to these features, *A. yalwalensis* differs from *A. oshanesii* in having white-hairy young foliage-tips (hairs yellowish to golden in *A. oshanesii*), leaf glands being circular to broadly elliptic or obovate (the glands in *A. oshanesii* are ± elliptic to obloid or obovate, often with a paler rim around a small orifice), leaves often having a somewhat different appearance regarding pinnae and pinnule dimensions and orientation (e.g. pinnae often ± perpendicular to rachis and pinnules up to 5 mm long in *A. oshanesii*), seemingly fewer-flowered heads (heads usually over 20-flowered in *A. oshanesii*) and different pod characters (pods to 85 mm long, 4–6.5 mm wide, ± submoniliform, with margin regularly or irregularly, often variably constricted between seeds and valves discernibly raised over seeds in *A. yalwalensis*; whereas the pods of *A. oshanesii* are to 140 mm long, 7–12 mm wide, ± straight-sided to irregularly and variably constricted between seeds and ± flat or slightly raised over seeds).

Acacia trachyphloia Tindale is morphologically similar to *A. yalwalensis* and occurs in the South Coast and Southern Tablelands of New South Wales, c. 50–60 km south of where *A. yalwalensis* is found. It differs most obviously from the new species in having a (usually dense) indumentum of yellow to whitish silky hairs on its branchlets and leaf axes, young foliage-tips usually golden-velvety, pinnules with hairs on surfaces as well as margins, and peduncles usually with hairs. Less closely related, superficially similar *A. parramattensis* Tindale differs most obviously from *A. yalwalensis* in having concolorous pinnules, more numerous flowers per head, often appressed-hairy peduncles, more regular jugary glands, and when present the branchlet and rachis hairs are mostly shorter and ± appressed (unlike the erect to spreading pilose hairs in *A. yalwalensis*).

Putative hybrids between *Acacia baileyana* F.Muell. and *A. yalwalensis* have been recorded (as *A. baileyana* × *oshanesii*) from Nowra; examples of specimen collections include Bridge Road, Nowra, *F.A. Rodway s.n.*, 6 Jul 1944 (NSW47240); 31 Oct 1944 (NSW47246); 4 Dec 1944 (NSW47247); Osborne Street, Nowra, *M.D. Tindale s.n.*, 17 Dec 1944 (NSW47238, NSW47239). These specimens were collected from seedling plants, shrubs and a small tree, and are from an urban area where both parent species are likely to be cultivated. The seedlings possibly indicate natural hybridisation and the possibility for naturalisation of the taxon in the area. Further investigation of *A. yalwalensis* and hybrids in Nowra and the surrounding area is required for an understanding of their current occurrences and possible spread.

Key to distinguish *Acacia yalwalensis* from the related species *Acacia oshanesii*

Leaf rachis with a shallow, medial groove on upper surface; pinnules ciliate; pods 4–6.5 mm wide, discernibly raised over seeds (N.S.W. South Coast) ..... ***A. yalwalensis***

Leaf rachis with a raised, narrow medial ridge on upper surface; pinnules glabrous; pods 7–12 mm wide, ± flat or slightly raised over seeds (Qld, N.S.W. North Coast) ..... ***A. oshanesii***

Note: Inflorescence features, including the number of flowers in heads, are described from a limited number of specimens and therefore may be more variable than indicated here.

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Kevin Mills, of Jamberoo, kindly provided comments and detailed notes of his observations on *Acacia yalwalensis* (as *A. oshanesii*) in the Shoalhaven region. Thanks go to Bruce Maslin (PERTH), Barry Conn (NSW) and Peter Wilson (NSW) for their useful comments.

References

Anderson RH (1961) Introduction. *Contributions of the New South Wales National Herbarium* 1–18: 1–15

Jacobs SWL, Pickard J (1981) *Plants of New South Wales* (D West, Government Printer: Sydney) 226 pp.

Kodela PG, Harden GJ (2002) *Acacia*, pp. 381–476, in Harden GJ (ed.), *Flora of New South Wales* Vol. 2. Revised edition. (UNSW Press: Sydney)

Maslin BR, van Leeuwen SJ, Reid JE (2010) *Wattles of the Pilbara*. CD-ROM, Version 1.0. (Department of Environment and Conservation: Perth). Glossary available in *World Wide Wattle* http://www.worldwidewattle.com/speciesgallery/descriptions/pilbara/html/glossary.htm

Mills K (2014) Preliminary notes on *Acacia oshanesii* (Fabacaeae) on the South Coast of New South Wales. Unpubl. report. (held at NSW Herbarium library)

Mills K, Jakeman J (2010) *Native Trees of the NSW South Coast*. (Envirobook: Canterbury)

Tame T (1992) *Acacias of Southeast Australia*. (Kangaroo Press: Kenthurst)

Tindale MD, Kodela PG (2001) *Acacia oshanesii*, p. 229, in Orchard AE, Wilson AJG (eds), *Flora of Australia* Vol. 11A, Mimosaceae, *Acacia* part 1. (ABRS/CSIRO Publishing: Melbourne)

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