

# *Acacia pedina* (Fabaceae: Mimosoideae), a new species from the South Coast, New South Wales

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## Abstract

Kodela, Phillip G.<sup>1</sup> and Tame, Terry M.<sup>2</sup> (<sup>1</sup>National Herbarium of New South Wales, Royal Botanic Gardens, Mrs Macquaries Road, Sydney NSW 2000, Australia, <sup>2</sup>Hunter Region Botanic Gardens, Pacific Highway, Heatherbrae NSW 2324, Australia) 1999. *Acacia pedina* (Fabaceae: Mimosoideae), a new species from the South Coast, New South Wales. *Telopea* 8(3): 305–309. **Acacia pedina** Kodela et Tame, a new species of *Acacia* section *Phyllodineae* from the South Coast of New South Wales, is described along with its ecology, distribution and conservation status. It is a rare species closely related to *Acacia pycnantha*, but distinguished by straight to shallowly recurved, oblanceolate to obovate adult phyllodes, large juvenile/intermediate phyllodes and 25–40-flowered heads.

## Introduction

For some time a group of distinctive specimens from the South Coast of New South Wales similar to *Acacia pycnantha* Benth. were separated in the National Herbarium of NSW based mainly on plant habit, foliage characteristics and number of flowers per capitulum. Specimens of this entity were first collected in 1915 and assigned to *A. pycnantha*, however several botanists have drawn attention to it as a possible new taxon requiring investigation. Our studies found that although the flowers and fruit are similar to *A. pycnantha* the South Coast taxon is very characteristic in the field and deserves specific recognition. This new species, *A. pedina*, appears to be restricted to the south coast of New South Wales near Tanja, while *A. pycnantha* is widespread from southern New South Wales (south and west of Queanbeyan region), across much of Victoria and into south-eastern South Australia.

## Taxonomy

***Acacia pedina* Kodela et Tame, sp. nov.**

*A. pycnantha* Benth. affinis sed phyllodiis valde dissimilibus, phyllodiis adultis plerumque brevioribus, capitulis 25–40-floribus (vice c. 40–80-floribus) differt.

Holotype: New South Wales: South Coast: near Tanja, Mimosa Rocks National Park, 19 July 1997, P.G. Kodela 441 & P.C. Jobson (NSW). Isotypes: AD, B, BRI, CANB, K, MEL, NE, MO, PERTH, UNSW, US.

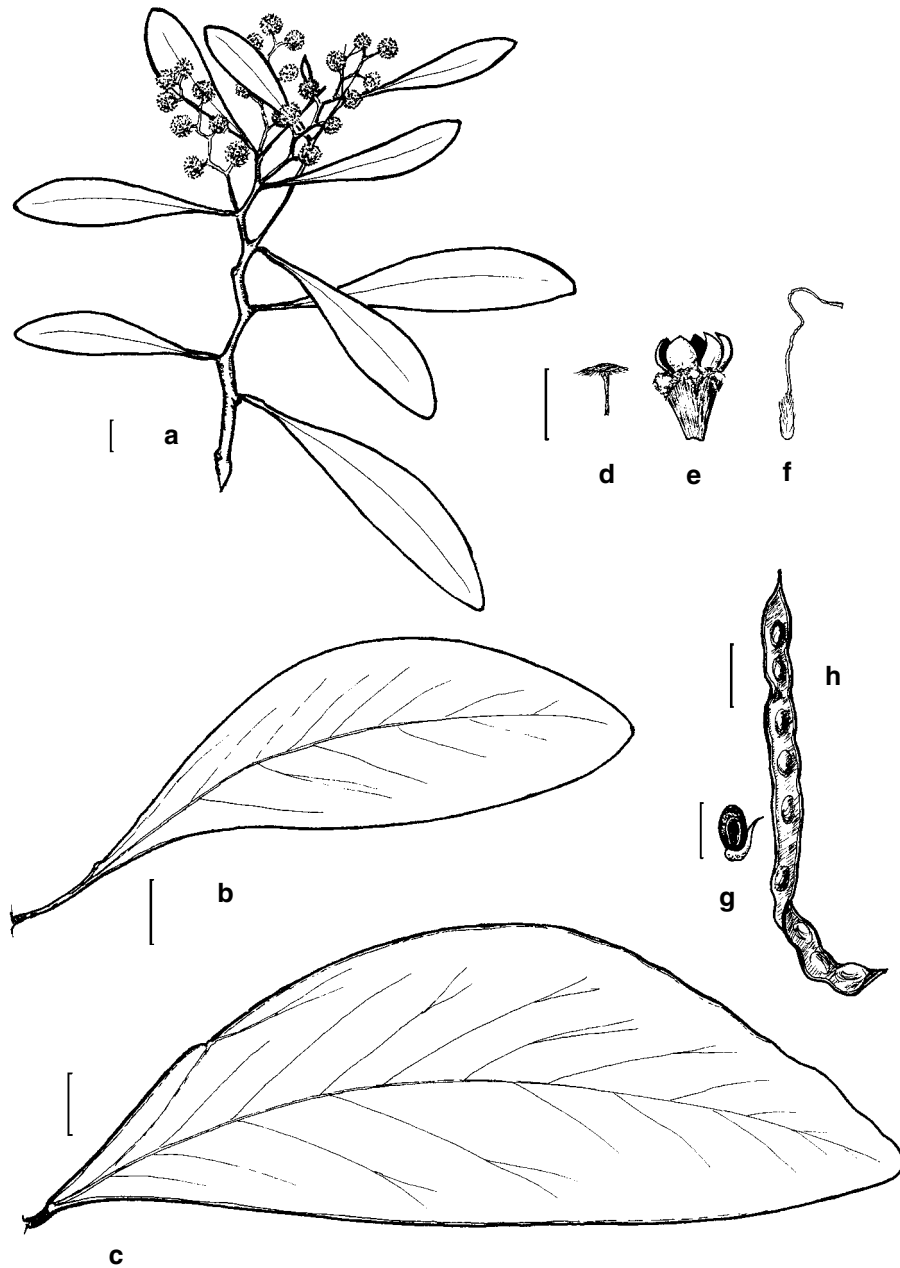
Shrub or small tree 2–5(–7) m high, often slender or spindly but with spreading canopy in larger protected trees; bark hard, smooth and often shallowly fissured and tessellated, light to dark, often mottled, grey. Branchlets terete to subterete, glabrous and usually pruinose, distally somewhat flexuose. Stipules broadly triangular, indurated, dark brown to blackish, glabrous, usually caducous. Phyllodes alternate and articulate, mostly dimorphic with large juvenile/intermediate phyllodes 8.5–16 cm long, 2.7–8 cm wide (with a gradual transition in size to the adult phyllodes), abruptly narrowed to an obtuse or sometimes emarginate apex, with ± cuneate base, bluish- to

brownish-green, glabrous; *adult phyllodes* dark brown- to blackish-resinous when young; pulvinus 3–6 mm long, laterally wrinkled, brown to orange-brown, sometimes pruinose, glabrous; lamina inequilateral (mostly only slightly so), flat, oblanceolate to obovate,  $\pm$  straight to shallowly recurved, with rounded to broadly obtuse apex and somewhat attenuated base, (5–)6–10.5(–12) cm long, (1.2–)1.5–3.5(–4.3) cm wide, the margins veinlike, somewhat undulate when dry, a prominent, glabrous gland present (sometimes at a gradual slight indentation or sometimes raised margin) on the adaxial margin 1–3 cm above the pulvinus, occasionally a second gland present near the midpoint of the adaxial margin or further towards the apex; midvein prominent,  $\pm$  central, the venation penninerved with the secondary venation inconspicuous (but more conspicuous when dry) and a weak vein leading from the proximal part of the midvein to the gland and often extending distally as a inconspicuous intramarginal vein; lamina and veins glabrous, grey-green and becoming pruinose in older phyllodes. *Inflorescence* of axillary and terminal racemes and/or panicles; axis slightly to markedly, often irregularly, flexuose, (1–)3–7(–9) cm long, bearing (3–)8–14(–19) peduncles, sometimes slightly pruinose, bracteate, the bracts triangular, dark brown, glabrous; *peduncles* 2–4(–5) mm long, mostly broadening towards apex, glabrous, bracteate. *Capitula* globular to slightly ovoid (more obvious when in bud), c. (25–)30–40-flowered, 6–8 mm diam., yellow to golden, scented; *bracteoles* with stipe 0.8–1.1 mm long, pale brown, the lamina peltate, orbicular or slightly ovate to rounded-triangular, 0.3–0.5 mm diam., brown, ciliate with whitish hairs. *Flowers* 5-merous; *calyx* cupular, 0.9–1.2 mm long, the sepals united for  $\frac{1}{2}$ – $\frac{2}{3}$  of their length (probably splitting towards base with age), the tube brown, mostly glabrous (hairs mainly along costa towards apex or sometimes continuing down from sinuses), the lobes obtuse triangular to rounded, glabrous to puberulous (especially around the base of the short lobes and near the sinuses, often forming a band of hairs joining the margins where the lobes meet whilst glabrous in apical portion of lobe surface), the margins densely ciliate with matted crisped white hairs; *petals* 1.4–1.6 mm long, free or basally connate for  $\frac{1}{4}$ – $\frac{2}{3}$  their length (splitting with age), glabrous, the apex  $\pm$  acute, slightly thickened. *Stamens* numerous, to 3.5 mm long; *ovary* white pubescent though often glabrous near base and more densely hairy towards apex, sometimes almost glabrous with hairs concentrated at apex; *style* to 3.5 mm long, inserted slightly eccentrically on the apex of the ovary, glabrous; *stigma* barely enlarged. *Legumes* linear, straight to slightly curved, mostly barely or slightly and often irregularly constricted between the seeds (sometimes with occasional narrow constrictions) and moderately raised over them, to 12 cm long, 5–7.5 mm wide, firmly chartaceous to thinly coriaceous,  $\pm$  smooth or slightly rough or sometimes with few veins on surface, brown with paler and slightly thickened margins, glabrous. *Seeds* arranged longitudinally in the legume, ellipsoidal to obloid, 4.1–5.3(–6) mm long, 2.1–3.0 mm wide, smooth, blackish brown to black; *pleurogram* fine, narrow,  $\pm$  U-shaped; *areole* constricted and open towards the hilum, smooth, same colour as rest of seed; *funicle* short, folded once or twice, light brown; *aril* clavate, pale brown to fawn. (Fig. 1).

**Phenology:** flowers July to October; fruits November to January.

**Habitat:** *Acacia pedina* occurs in clayey loams derived from weathered shales, on hillslopes and near creeklines, on and inland of headlands, in eucalypt open forests of *Corymbia maculata* (often with *Eucalyptus globoidea* or *Allocasuarina littoralis*) or other eucalypts, with shrubs and small trees including *Acacia falciformis*, *A. implexa*, *A. irrorata*, *A. longifolia*, *A. terminalis*, *Daviesia mimosoides*, *Dodonaea triquetra* and *Exocarpos cupressiformis*. It also occurs in open forest of *Eucalyptus botryoides* with understorey of *Exocarpos strictus*, *Melaleuca* sp., *Lomandra longifolia*, *Pteridium esculentum* and *Imperata cylindrica*, on flat to gently undulating area behind coastal dunes.

**Distribution:** New South Wales South Coast from near Bermagui south to near Tathra.



**Fig. 1.** *Acacia pedina*. **a**, branchlet; **b**, mature or adult phyllode; **c**, juvenile or intermediate phyllode; **d**, bracteole; **e**, perianth; **f**, gynoeceium; **g**, seed; **h**, legume (**a**, **b**, **d**–**f**, *Egerod* 87285; **c**, *Tame* 5130; **g**, **h**, *Coveny* 7310). Scale bars: **a**–**c** = 1 cm; **d**–**f** = 1 mm; **g** = 5 mm; **h** = 1 cm. Drawn by T.M. Tame.

**Conservation status:** *A. pedina* is restricted to an area of no more than about 30 km in extent, with several of the known stands in conservation areas. However, because of the limited range of *A. pedina* and its proximity to populated areas a conservation rating (Briggs & Leigh 1996) of 2RC is appropriate.

**Etymology:** the specific epithet is derived from the Greek *pedinos*, pertaining to the blade of an oar, since the phyllodes and particularly the large juvenile/intermediate phyllodes of this species are often more or less paddle-shaped.

**Variation:** although the population appears to be quite uniform in morphological characters, the variation between juvenile/intermediate and mature phyllodes is large and conspicuous. Plants growing under larger tree canopies tend to be open and spindly, whereas those growing in more open areas have a more dense habit.

**Notes:** closely related to *Acacia pycnantha* but may be distinguished from it by the mostly shorter stature, the dimorphic phyllodes (morphology of juvenile and intermediate phyllodes differs from that of adult phyllodes), the non-falcate and generally shorter adult phyllodes, the large blue-green juvenile/intermediate phyllodes, and the smaller, fewer-flowered capitula generally on shorter racemes. The foliage in *A. pycnantha* is mostly greener and often more thickly coriaceous than that of *A. pedina*.

The nearest known populations of *A. pycnantha* occur in the ranges of the Great Divide c. 85 km west at Merriangaah Station (north-west of Bombala) and c. 95 km north-west at Mount Dowling (near Bredbo). One specimen, from 2.7 km SE of the summit of Mt Dowling, *J.D. Briggs 2332 & A.V. Slee* (BRI, CANB, MEL, NSW, PERTH), is atypical in having small 27–37-flowered heads similar to *A. pedina*.

*Acacia falciformis* is a similar but unrelated species growing in the same area as *A. pedina*. *A. falciformis* has generally longer, more bluish, straight to falcate phyllodes, pale flower-heads and broader legumes with a prominent reticulation.

**Selected specimens:** New South Wales: South Coast [general localities provided only]: near Tanja, 17 Oct 1974, *Coveny 5829 & Armstrong* (A, AD, B, BRI, CANB, CHR, E, HO, K, MEL, MO, NE, NSW, NY, PE, PERTH, PRE, UNSW); ditto, 16 Dec 1975, *Coveny 7310* (A, CANB, K, MEL, NSW, TL, US); Mumbulla State Forest, 16 Dec 1975, *Coveny 7311* (AD, B, BRI, CANB, DNA, HO, K, MEL, MO, NE, NSW, NY, PE, PERTH, PRE, UNSW); Cuttagee Ck, Aug 1915, *Dunn s.n.* (NSW48649); Tathra, 16 Sep 1987, *Egerod 87285* (NSW); S of Bermagui, 19 July 1997, *Kodala 435 & Jobson* (CANB, MEL, NSW, NY); Mimoso Rocks National Park, 19 July 1997, *Kodala 439 & Jobson* (CANB, MEL, MO, NSW); ditto, *Kodala 440 & Jobson* (NSW); ditto, 20 July 1997, *Kodala 443 & Jobson* (MEL, NSW, PERTH); between Tanja and Bermagui, 31 Dec 1986, *Moriarty 1255* (FRI, NSW); near Baronda Head, 12 July 1979, *Parris 1979/52* (NSW); Dr George Mtn, [Bega–Tanja road], 22 Mar 1997, *Tame 5130* (Hunter Region Botanic Gardens); ditto, *Tame 5132 & 5133* (Hunter Region Botanic Gardens, NSW).

### Key to *A. pedina* and *A. pycnantha*

- 1 Adult phyllodes oblanceolate to obovate, straight to slightly curved, 5–12 cm long; capitula 25–40-flowered ..... **A. pedina**
- 1\* Adult phyllodes narrowly elliptic or oblanceolate, slightly to markedly curved (falcate), 8–20 cm long; capitula (27–)40–80-flowered ..... **A. pycnantha**

### Discussion

*Acacia pedina* has previously been treated as part of the variable species *A. pycnantha*. Indeed, recent phenetic analyses of phyllode characters of *A. pycnantha* showed four groups within the species across its geographic range in south-eastern Australia, with

phyllode width and phyllode thickness-to-width ratio found to be the characters best discriminating between the groups (Sandercock 1997). *A. pedina* represents one of these groups. As recognised by Sandercock (1997) and Maslin (unpubl.), the phyllodes of *A. pedina* have a conspicuous vein extending from the midvein near the pulvinus to the gland, and this vein is often less conspicuous, or not visible without being cleared chemically, in *A. pycnantha*. The conspicuousness of the vein is most likely to be a function of the width of the phyllode at the gland, which is often greater in *A. pedina* than in many of the phyllode forms of *A. pycnantha* (Sandercock 1997).

Some specimens of *A. pycnantha* have fewer than 40 flowers per head, including some collections from Victoria that have more or less glaucous stems and similar phyllode morphology to *A. pedina*. The latter collections come from the Gippsland Plain and East Gippsland regions and include: N of Heyfield, western bank of Glenmaggie Reservoir, *Salasoo 4854* (NSW); Stockdale to Briagolong, c. 3 miles [4.8 km] SW of Stockdale, *Salasoo 4974* (NSW); Red Bluff turn-off, Lake Tyers Rd, E of Lakes Entrance, *Rodd 4291* (K, MEL, NSW) – fruiting specimen; Mottle Range Rd, 2 km N of Monument Track, 3 km W of Stringer Knob, *van Rees 010* (MEL, NSW) – to c. 42 flowers per head; 7.4 miles [11.8 km] from Buchan towards Orbost, *Canning 1267* (NSW). These eastern Victorian specimens appear to have larger flower-heads than *A. pedina*, and further investigations of the taxonomy (e.g. morphology of juvenile and intermediate phyllodes), distribution and ecology of this group are required to assess its status and relationships with *A. pedina*. The distribution and conservation status of *A. pedina* may need to be reviewed in light of future findings.

An atypical specimen of *A. pycnantha* from far south-western Victoria (i.e. Mt Richmond National Park, *Beauglehole 18890*, MEL, NSW) superficially resembles *A. pedina* in adult phyllode shape.

The entity described and proposed by Maiden (1921) as *Acacia westonii* from the slopes of Mount Jerrabomberra, near Queanbeyan, is treated here as falling within the variation of *Acacia pycnantha*. There is scope for further investigation of *A. pycnantha* s. lat. and its allies.

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### References

- Briggs, J.D. & Leigh, J.H. (1996) *Rare or Threatened Australian Plants*, 1995 revised edition. (CSIRO: Collingwood).
- Maiden, J.H. (1921) Notes on two acacias. *J. Roy. Soc. New South Wales* 54: 227–232.
- Sandercock, B. (1997) Geographic variation in *Acacia pycnantha* Benth. Unpublished B.Sc. (Hons) thesis, School of Botany, University of Melbourne.

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