

## *Acacia dealbata* subsp. *subalpina* (Fabaceae: Mimosoideae), a new subspecies from south-eastern Australia

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### Abstract

*Kodela, Phillip G. and Tindale, Mary D. (National Herbarium of New South Wales, Royal Botanic Gardens, Mrs Macquaries Road, Sydney NSW 2000, Australia) 2001. Acacia dealbata subsp. subalpina (Fabaceae: Mimosoideae), a new subspecies from south-eastern Australia. Telopea 9(2): 319–322. Acacia dealbata subsp. subalpina (Acacia sect. Botrycephalae), is described from south-eastern New South Wales and northeastern Victoria. It occurs at higher altitudes of the tablelands, being distinguished from subsp. dealbata mainly by its smaller stature and leaves.*

### Introduction

*Acacia dealbata* Link is often characterised as a tree up to 30 m high, with bluish grey or silvery foliage. The bipinnate leaves are hairy with orbicular jugary glands. It occurs mainly on the tablelands (south from Guyra) and western slopes (south from Mudgee) of New South Wales, as well as being widespread in Victoria and eastern Tasmania. There are naturalised records from the Mount Lofty Range, South Australia, and south-western Western Australia. At higher altitudes (mainly above 700 m) in New South Wales and Victoria there is often a shrub to small tree form with smaller leaves; this is described here as subsp. *subalpina*.

### Taxonomy

***Acacia dealbata* Link subsp. *subalpina* Tindale & Kodela, subsp. nov.**

Differt ab *A. dealbata* subsp. *dealbata* statura minore, arbusculae vel fruticis habitu ad 5 m (raro 10 m) alto, foliis 1.5–8.5 cm longis, pinnis plerumque 0.5–2.5 mm longis, pinnulis 0.7–4 mm longis, capitulis saepe aureis et floribus in capitulo 13–34.

Holotype: New South Wales: Southern Tablelands: Tinderry Mountains, 13.2 km by road ESE of Michelago, R.G. Coveny 6589, P.D. Hind & M. Parris, 2 Aug 1975 (NSW). Isotypes: A, AD, BRI, CANB, HO, K, MEL, MO, NE, NY, PERTH, UC, US, Z.

Straggly or dense, sometimes several stemmed shrub 1–3 m high or small tree to 5 m high (rarely to 10 m high); bark smooth, grey, grey-green or brown, usually mottled by lichens; branches sometimes pendulous. *Branchlets* slightly angular towards apices, becoming terete with low ridges, densely puberulous to pubescent with short and long white hairs (similar indumentum occurs on the leaves and inflorescence axes), glabrescent with age. *Young foliage-tips* white, cream-coloured or rarely yellowish. *Leaves* bipinnate, glaucous, bluish grey or silvery; petiole to 0.5 cm long, hairy; rhachis (0.8–) 1–8 cm long, hairy, with an orbicular, ± tomentose jugary gland (with a round aperture) at the base of each pair of pinnae, interjugary glands absent; pinnae (4–) 6–20 (–22) pairs, 0.5–2.5 (–3) cm long (the lowermost pair of pinnae often smaller than others and sometimes only c. 0.3 cm long), hairy; pinnules (6–) 10–37 pairs, herbaceous,

narrowly oblong or oblong-elliptic, 0.7–3 (–4) mm long, (0.4–) 0.5–0.6 (–0.7) mm wide, silvery-puberulous, the upper surface sometimes  $\pm$  glabrous, the apex obtuse or subacute. *Inflorescences* in axillary and/or terminal racemes and panicles; axes often slightly zig-zagged, hairy; peduncles 1.5–4 (–5) mm long, hairy; bract at base of peduncles ovate to broadly ovate, brown, ciliolate, puberulous (sometimes only at base). *Capitula* yellow to bright yellow, 13–34-flowered, 3–8 mm diam. (when dried); bracteoles dark brown,  $\pm$  peltate or spatulate, lamina ciliolate and often with minute white hairs on upper surface, claw glabrous or with a row(s) of white hairs. *Flowers* 5-merous; calyx cupular, 0.6–1.2 mm long, dissected to c.  $\frac{1}{5}$  its length, sepals white-ciliolate and often with minute white hairs especially towards apices, tube  $\pm$  glabrous except ribs often tomentulose especially towards the apex; corolla 1.1–1.6 mm long, petals acute, sometimes with a few hairs near the apex; ovary glabrous or with numerous white hairs in the upper half. *Legumes* 2–9.5 cm long, 7–12 mm wide, subcoriaceous, straight-sided or indented between the seeds, flat except convex over seeds, pruinose, glabrous. *Seeds* 2–10 arranged longitudinally in the legume, obloid to broadly obloid, 3.5–5 mm long, dark brownish black to black, dull to subglossy; areole open, same colour as rest of the seed; funicle cream-coloured to fawn, filiform, expanded into a cap-like aril.

**Phenology:** flowers (July–) August to November (–December); fruits November to February (–April).

**Habitat:** grows in sandy to clayey, often loam or stony soils, on granite, basalt, shale, sandstone and metamorphics, mainly in tall open forest, open forest, tall woodland and woodland (understorey of tall moist eucalypt forest or drier open forest, to Snow Gum woodlands), on mountain ridges, gentle to steep slopes, in gullies and near creeks.

**Distribution:** occurs at higher altitudes (mainly above 700 m alt. but down to 300 m alt.) of the tablelands mainly south from the Brindabella Range–Braidwood area, New South Wales, to Mt Disappointment, Victoria; common in the Snowy Mountains. There are large stands of *A. dealbata* subsp. *subalpina* on the Tinderry Mountains (near Michelago), Big Badja Mountain, the Brindabella Range and Tuross River (near the Tuross Falls).

**Conservation status:** occurs in several national parks and other reserves; presently not considered threatened.

**Etymology:** refers to the often subalpine habitat of this subspecies.

**Chromosome counts:**  $2n = 26$ , *vide* B.G. Briggs, on *M. Gray & M.D. Tindale* NSW64114, 23 Jan 1964, Bulls Head, on the road to Mt Franklin, A.C.T. (B, CANB, MO, NSW, NY, US);  $3n = 39$ , *vide* B.G. Briggs, on *M. Gray & M.D. Tindale* NSW64113, 23 Jan 1964, 3 miles [4.8 km] beyond Bulls Head on Mt Franklin road, A.C.T. (BRI, CANB, K, MEL, NSW). A chromosome count of  $2n = 26$  has been recorded for subsp. *dealbata*, *vide* B.G. Briggs, on *E.F. Constable* NSW107046 (NSW).

**Notes:** subsp. *subalpina* differs from subsp. *dealbata* by its smaller stature, the habit being a small tree or shrub up to 5 m (or rarely 10 m) high, generally smaller leaves (1–) 1.5–8.5 cm long with shorter pinnae, and commonly brighter yellow flower-heads often with fewer flowers.

Intermediates between the two subspecies are common in areas where subsp. *dealbata* occupies the lower mountain slopes and subsp. *subalpina* the upper slopes. This has been observed by M.D.T. at Mt Franklin, Australian Capital Territory, where subsp. *dealbata* occurs in groves as trees up to about 14 m high and subsp. *subalpina* in large stands as a bushy shrub or small tree to 3 m high. Some specimens from the Liverpool Range (e.g. Norfolk Island Ck Falls, *I.R. Telford* 9829 & *M.D. Crisp*, 26 Sep 1984; AD, CANB, MEL, NSW) and Barrington Tops (e.g. near Mt Polblue, *H. Salasoo* 1785; NSW)

on the Northern Tablelands of New South Wales are somewhat intermediate between the two subspecies and require further investigation in the field.

Further research could be undertaken to investigate possible edaphic and other environmental factors that might influence the characteristics (e.g. foliage size and growth habit differences) and distribution of the subspecies. For example, the reduced growth habit in subsp. *subalpina* might be a response to colder climate or shallower soils. Population studies and seedling trials would help determine whether the variation between the subspecies is continuous or if any morphological differences are genetically fixed. Some information is already available from specimens cultivated in Canberra from seed collected from near Bulls Head, Brindabella Range, which have retained the small leaf character of subsp. *subalpina* (L.D. Pryor s.n., Nov 1953, NSW107055 & 107056), and there are specimens of subsp. *dealbata* with shrub and small tree habits from higher altitudes outside the distribution range of subsp. *subalpina*. Field studies of intermediate populations may lead to a better understanding of the boundaries of the two taxa.

### Key to subspecies

- 1 Leaves mostly 5–14 cm (or sometimes more) long; pinnae mostly 1.5–5.5 cm long; pinnules 1.5–6 mm long, (14–) 19–68 pairs. Capitula 22–42-flowered, pale yellow to yellow or sometimes bright yellow. Tree to 30 m high, occasionally a shrub ..... subsp. **dealbata**
- 1\* Leaves mostly 1.5–8.5 cm long; pinnae 0.5–2.5 (–3) cm long; pinnules 0.7–4 mm long, mostly 10–37 pairs. Capitula 13–34-flowered, yellow to bright yellow. Shrub or tree to 5 (or rarely 10 m) high ..... subsp. **subalpina**

**Selected specimens:** New South Wales: Southern Tablelands: S of Big Badja Mtn, L.G. Adams 2962 & 2963, 4 Feb 1973 (CANB, MEL, NSW); Quidong Stn, c. 18 km W of Bombala, L.G. Adams 3953, 2 Oct 1985 (CANB, NSW); Fiery Ra., 12 miles [19.3 km] SSW of Brindabella, B.G. Briggs NSW84579, 25 Dec 1960 (NSW); Tinderry Mountains, 8 miles [12.8 km] E of Michelago, B.G. Briggs NSW84568, 26 Dec 1965 (NSW); Tinderry Ra., B.G. Briggs 2644 & 2646, 24 Mar 1969 (NSW); between Bulls Head and Bendora, N.T. Burbidge 6416, 10 July 1959 (CANB, K, NSW, PERTH); Corang R., Braidwood, E. Cheel NSW8176, June 1917 (NSW); Bendora Hut, 5 miles [8 km] SW of Bulls Head Camp, Brindabella Ra., E.F. Constable NSW44252, 29 Apr 1958 (BRI, K, MEL, NSW, PERTH); Gudgenby to Naas R., A.C.T., M. Gray 5954 (CANB, HO, MEL, NSW); Sawpit Creek, [near Jindabyne, Kosciusko Natl Park], M. Hancock 438, Jan 1992 (CANB, NSW); N of Boboyan, Rendezvous Ck district, R.D. Hoogland 6435 & 6437, 23 Sep 1959 (CANB, NSW); Tuross R., c. 2 miles [3.2 km] above Tuross Falls, L.A.S. Johnson NSW130114, 26 Apr 1968 (NSW, PERTH); 0.5 km due NE of Wyanbene Caves Mtn Trig., Deua Natl Park, P.G. Kodela 119, 20 Sep 1991 (CANB, MEL, NSW); c. 21 km SSE of Captains Flat, Tallaganda State Forest, R.O. Makinson 852 & H. Streimann, 13 Sep 1991 (CANB, K, L, NSW, US); Brindabella Rd, A.C.T., H.S. McKee 7321, 25 Sep 1960 (NSW); Boboyan Rd, c. 3 miles [4.8 km] S of Gudgenby Crossing, R. Pullen 2556 & 2558, 25 Jan 1961 (CANB, NSW); c. 1 mile [1.6 km] NW of Big Badja Mill, A.N. Rodd 662 & L.A.S. Johnson, 28 Apr 1968 (A, AD, BRI, HO, K, MEL, MO, NSW, NY, US); 12 km W of Condor Creek crossing on Brindabella Rd, G.M. Stewart 224 & B. O'Shea, 18 Oct 1984 (CANB, MEL, MO, NSW); near Lake Eucumbene, M.D. Tindale 711, 8 Oct 1972 (NSW).

Victoria: Snowfields: 17 miles [27.4 km] S of Mt Hotham, B.G. Briggs NSW72257, 28 Dec 1964 (NSW); Cobberas Tingaringy Natl Park, Nunniong Plateau, F.E. Davies 666, M.J. Winsbury & S. Donaldson, 13 Nov 1988 (CANB, MEL, NSW). Eastern Highlands: Mt Disappointment, J.S. Beard 912, 3 Sep 1957 (NSW); 30 miles [48.2 km] E of Tallangatta, M. McDermott s.n., Jan 1977 (NSW). East Gippsland: Boundary Ck, 30 miles [48.3 km] by road N of Buchan, E.F. Constable 5344, 30 Oct 1964 (AD, CANB, MEL, MO, NSW, PERTH); Mt Delegate, H. van Rees 084, 25 Oct 1979 (MEL, NSW).

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