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Could this be Australia's rarest Banksia? *Banksia vincentia* (Proteaceae), a new species known from fourteen plants from south-eastern New South Wales, Australia

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Abstract

Possession of hooked, distinctively discolorous styles, a broadly flabellate common bract subtending each flower pair, and a lignotuber place a putative new species, *Banksia* sp. Jervis Bay, in the *B. spinulosa* complex. Phenetic analysis of individuals from all named taxa in the *B. spinulosa* complex, including *B*. sp. Jervis Bay, based on leaf, floral, seed and bract characters support recognition of this species, which is described here as *Banksia vincentia* M.L.Stimpson & P.H.Weston. Known only from fourteen individuals, *B. vincentia* is distinguished by its semi-prostrate habit, with basally prostrate, distally ascending branches from the lignotuber, and distinctive perianth colouring. Its geographical location and ecological niche also separate it from its most similar congeners.

Introduction

The *Banksia spinulosa* complex has a complicated taxonomic history (Table 1). Smith (1793) first described and named *B. spinulosa* Sm., and subsequent botanists named two close relatives, *B. collina* R.Br. and *B. cunninghamii* Sieber ex Rchb. (Brown 1810, Reichenbach 1827). George (1981) reduced *B. collina* and *B. cunninghamii* to varieties in his circumscription of *B. spinulosa*. The addition of *B. spinulosa* var. *neoanglica* (George 1988), brought the number of generally recognised taxa in the complex to four.

George (1999), considered the *Banksia spinulosa* complex to be part of a larger taxon with hooked styles, *B.* series *Spicigerae*, which included the eastern Australian *B. ericifolia*, as well as five Western Australian species. The monophyly of George's series *Spicigerae* was corroborated by Thiele and Ladiges' (1996) morphology-based cladistic analysis and weakly so by Mast's (1998) analysis of an ITS nrDNA alignment. Mast and Givnish's (2002) molecular phylogenetic analysis of cpDNA sequences strongly confirmed the monophyly of the *B. spinulosa* complex and found a well-supported sister group relationship between *B. spinulosa sensu lato* and *B. ericifolia*, but moderate support for the eastern Australian species of *B.* series *Spicigerae* being more closely related to the eastern Australian *B.* series *Salicinae*, than to the Western Australian members of *B.* series *Spicigerae*. The *B. spinulosa* complex is characterised by four morphological synapomorphies according to Thiele and Ladiges (1996): presence of a lignotuber (secondarily lost in *B. cunninghamii*), a seed having a raphe beak that is much shorter than the wing (a reversal from a raphe beak that is half the length of the wing, which is a synapomorphy for *B.* series *Spicigerae*), a broadly flabellate common bract subtending each flower pair, and a discolorous style (basally green or cream becoming red to maroon to purple, to dark purple or black in the apical 1/3–2/3, further transformed to green in *B. collina*) Within *Banksia*, the last two states were each derived once, according to Thiele and Ladiges' (1996) analysis of their complete dataset. Species in the *Banksia spinulosa* complex are not the only members of the tribe *Banksiae* that have style colour patterns that can reasonably be described as "discolorous". However, style colour patterns of the other species differ qualitatively from that in the *Banksia spinulosa* complex in either the position of the colour transition (in or at the base of the pollen presenter in *B. brownii*, *B. ornata*, *B. speciosa*, *B. prionotes*, *B. victoriae*, *B. ilicifolia*, *B. cuneata*, *B. pallida*, *B. sclerophylla*, *B. kippistiana*, *B. serratuloides*, *B. comosa*, *B. tenuis*,

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