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A new section (*Begonia* sect. *Oligandrae* sect. nov.) and a new species (*Begonia pentandra* sp. nov.) in Begoniaceae from New Guinea

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Abstract

Begonia pentandra is described from previously unknown environments on the Juha limestone of Papua New Guinea's Southern Escarpment. It is placed in the newly described *Begonia* sect. *Oligandrae*, along with *B. brassii*, *B. chambersiae*, *B. oligandra* and *B. sandsiana*. The section is endemic to the New Guinea Highlands and is characterised by male flowers with 4–8 stamens and fruits with three, fleshy, horn-like wings.

Key words: *Diploclinium*, limestone environments, Southern Escarpment, Strickland basin

Introduction

Due to perhumid conditions and rugged topography, Papua New Guinea's (PNG) southern limestone has historically ranked among the least known environments in Papuasia (Beehler 1993, Sekhran & Miller 1995). Comprehensive study of its karst vegetation has only recently begun, facilitated by discovery of extensive gas fields underlying the limestone. With the assistance of multinational developers (e.g., Exxon Mobil, Horizon Oil, Oil Search) and their logistic infrastructure, the region's cloudy uplands are finally becoming accessible to scientific investigation.

In 2008, an extensive itinerary of baseline surveys was concluded for the PNG LNG Pipeline Environmental Impact Statement (EIS). The multidisciplinary assessments resulted in numerous zoological, botanical, and ecological discoveries (Crome 2008). *Begonia pentandra* is the third novelty in its genus to be presented from the EIS studies (Takeuchi 2012, 2013) and is described below. Compared to other Asian sections of *Begonia* Linnaeus (1753: 1056), the new species differs in having a small number of stamens in the male flower; short-capitate stigmas in the female flower, and a fleshy fruit with one wing extended into a horn-like projection. The previously described species from the EIS baseline surveys [*B. chambersiae* Takeuchi (2012: 44) and *B. sandsiana* Takeuchi (2013: 32)], have these same characters. Two earlier described begonias from the Archbold Expeditions [*B. brassii* Merrill & Perry (1943: 43) and *B. oligandra* Merrill & Perry (1943: 44)] also exhibit the unusual reduction in number of stamens and the distinctive fruit shape. Although initially assigned to *Begonia* sect. *Diploclinium* (Lindl. 1846: 319) de Candolle (1859: 129), this group of five species differs considerably from the type species [*B. grandis* Dryander (1791: 163)] of that section. The latter species is an erect, caulescent, tuberous, and deciduous species from China, phylogenetically connected to other tuberous-deciduous begonias restricted to southeast Asia. The only shared characters are 4 tepals in the male flower and bifid placentae, characters previously given importance in assigning species to *Begonia* sect. *Diploclinium* (Doorenbos 1978, Doorenbos *et al.* 1998, Merrill & Perry 1943, Sands 2009). However these characters are homoplastic (Thomas *et al.* 2011), and *Begonia* sect. *Diploclinium* is known to be polyphyletic and highly polymorphous (Hughes *et al.* 2010, Rubite *et al.* 2013). There is little resemblance between *B. grandis* and the group of five anomalous species from New Guinea. Given their unique fruit morphology and peculiar androecium, the New Guinea species are assigned here to a new section, *Begonia* sect. *Oligandrae*.

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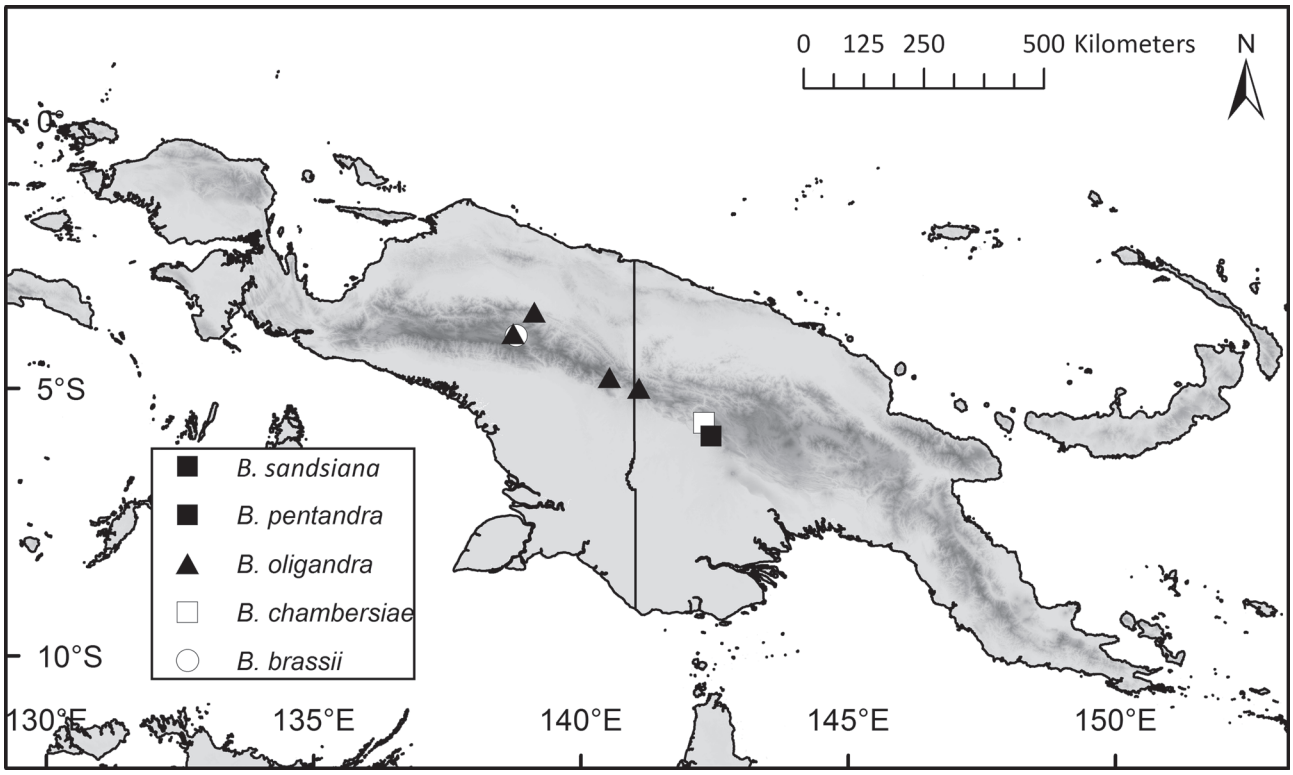

FIGURE 4. Island of New Guinea. Collection localities for the 5 species in *Begonia* sect. *Oligandrae*.

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