



Eleven new species of *Begonia* (Begoniaceae) from the Crocker Range, Sabah, Malaysia

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Abstract

Eleven new species of *Begonia* (*Begonia alabensis*, *B. bintang*, *B. bosuangiana*, *B. crockerensis*, *B. doloisii*, *B. flammea*, *B. inobongensis*, *B. kinahimiae*, *B. kipandiensis*, *B. rambutan* and *B. tomaniensis*) are described from the Crocker Range, Sabah. Nine species belong to sect. *Petermannia* and one, *B. doloisii*, belongs to sect. *Baryandra* while the section for *B. tomaniensis* is uncertain. All the species grow within the Crocker Range areas either within or outside the park boundary.

Introduction

Crocker Range Park (CRP) was gazetted under the Sabah Parks Enactment in 1984. It is the largest terrestrial park in Sabah, covering an area of 139,919 ha and is situated in NW Sabah between 5° 07' to 5° 56' N and 115° 50' to 116° 28' E (Figure 1). The Park is dominated by the 110 km-long Crocker Range that runs in a NE-SW direction from Gunung (Mt.) Kinabalu in the north to Gunung Lumaku in the south and is about 15 km wide. In elevation it ranges from 100 m in lowland areas to 2,076 m on Gunung Minduk Sirung. The vegetation consists of five zones of forests, which are classified according to elevation. There are some patches of secondary forests due to the effect of human activities and forest fire (Nais, 2004). Passing from lowland mixed dipterocarp forest (below 300 m), hill dipterocarp forest (300–800 m), upper dipterocarp forest (800–1,300), lower montane forest (1,300–1,800 m) to upper montane or mossy forest (above 1,800 m), the Crocker Range is dissected by 14 major rivers and many streams forming rugged terrain with a variety of microhabitats in steep, shaded humid valleys suitable for begonias. The average annual precipitation is about 3,000 mm with little seasonal variation but it can exceed 4,000 mm around Gunung Alab. The substrate is of mudstones and sandstone that forms the Crocker Range Formation.

In spite of its size and accessibility (it is about 40 km from the state capital, Kota Kinabalu), it is very much eclipsed by Mount Kinabalu and in contrast is still very poorly known botanically except for a few plant groups like gingers (Takano *et al.*, 2004) and orchids (Hamelda *et al.*, 2011). Just 200 flowering plant species were recorded from the First and Second Crocker Range International Scientific Expeditions organized by Sabah Parks and their collaborators in 1999 and 2002 respectively (Latiff *et al.*, 2001; Rimi *et al.*, 2004) compared with more than 4,500 flowering plant species known from Kinabalu Park. For example, while 18 native begonia species are recorded for Kinabalu Park (Beaman *et al.*, 2001) only four, *B. cauliflora* Sands (1990: 68) and three unidentified species, are listed in Rimi *et al.* (2004). Based on the recent findings of a tree checklist from six 0.25 ha permanent research plots in CRP, a total of 73 tree families with 199 genera and 527 species were identified from the plots (Rimi *et al.*, 2012), proving that the CRP is diverse and rich in terms of the tree flora. Since CRP is twice the size of Kinabalu Park, it is clear that this is an underestimation.

The establishment of CRP Master Plan during the Bornean Biodiversity and Ecosystems Conservation programme 2002–2007 provides the development of building infrastructure and accessibility to various sites within the CRP, mainly for monitoring and enforcement. The CRP also promotes research and is also an ecotourism destination. Botanical collecting has been actively conducted internally by Sabah Park research staff and also through collaboration with local institutions, notably University of Malaysia Sabah (UMS), Forest Research Centre (FRC) of Sabah Forestry Department and other international institutions.