

The Greens and the Greys :

the life of plants that colonize vertical rocky habitats

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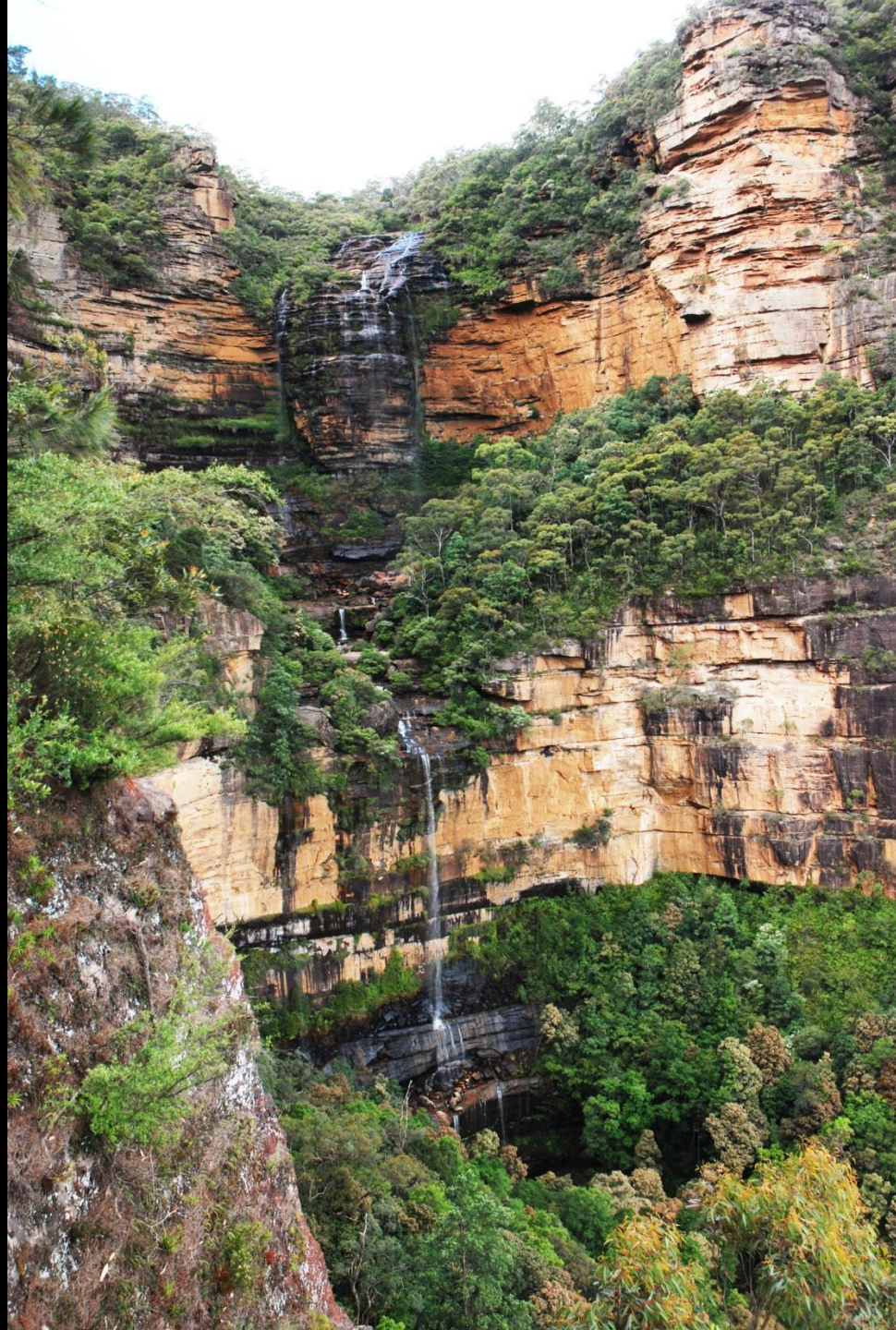






































































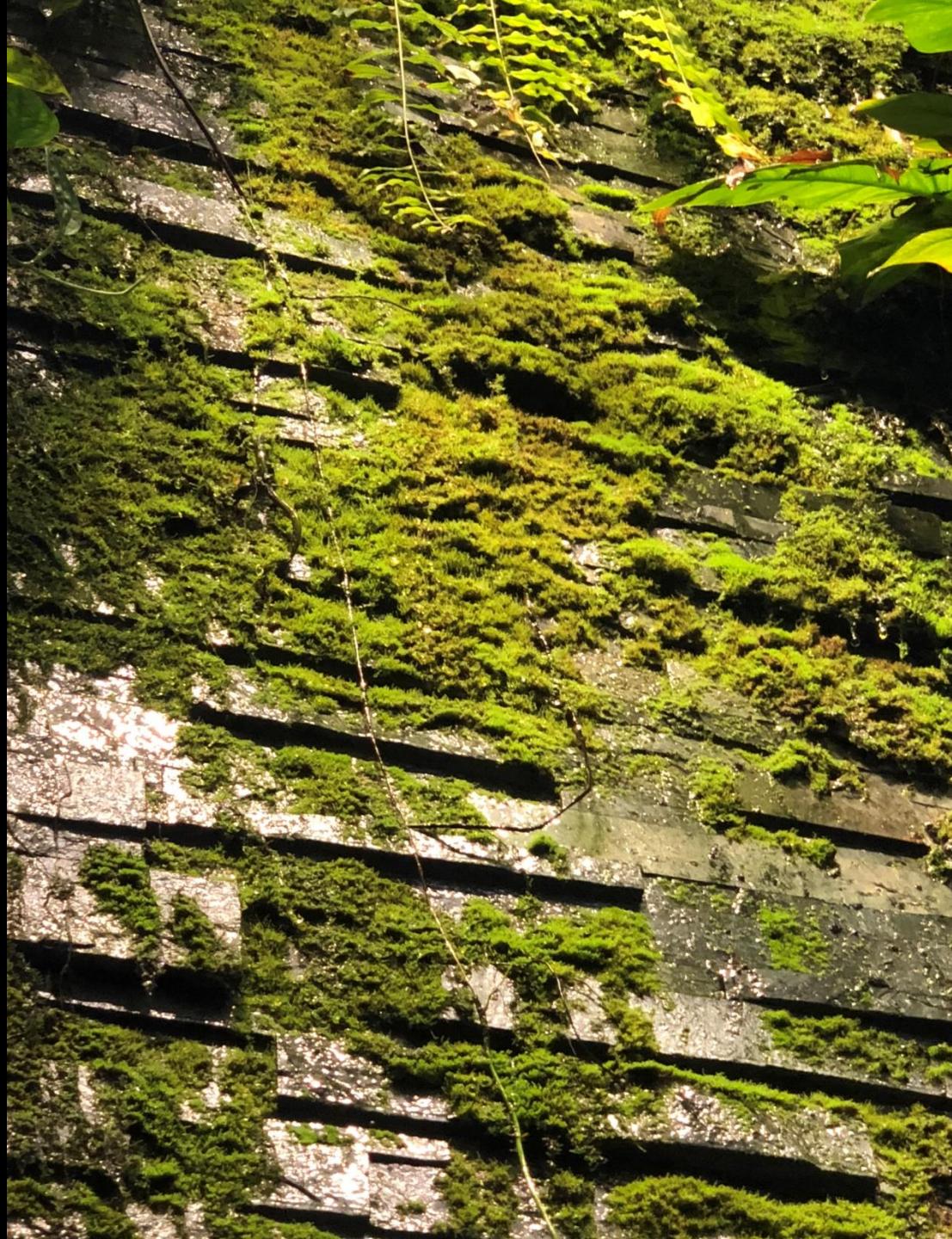


































































































































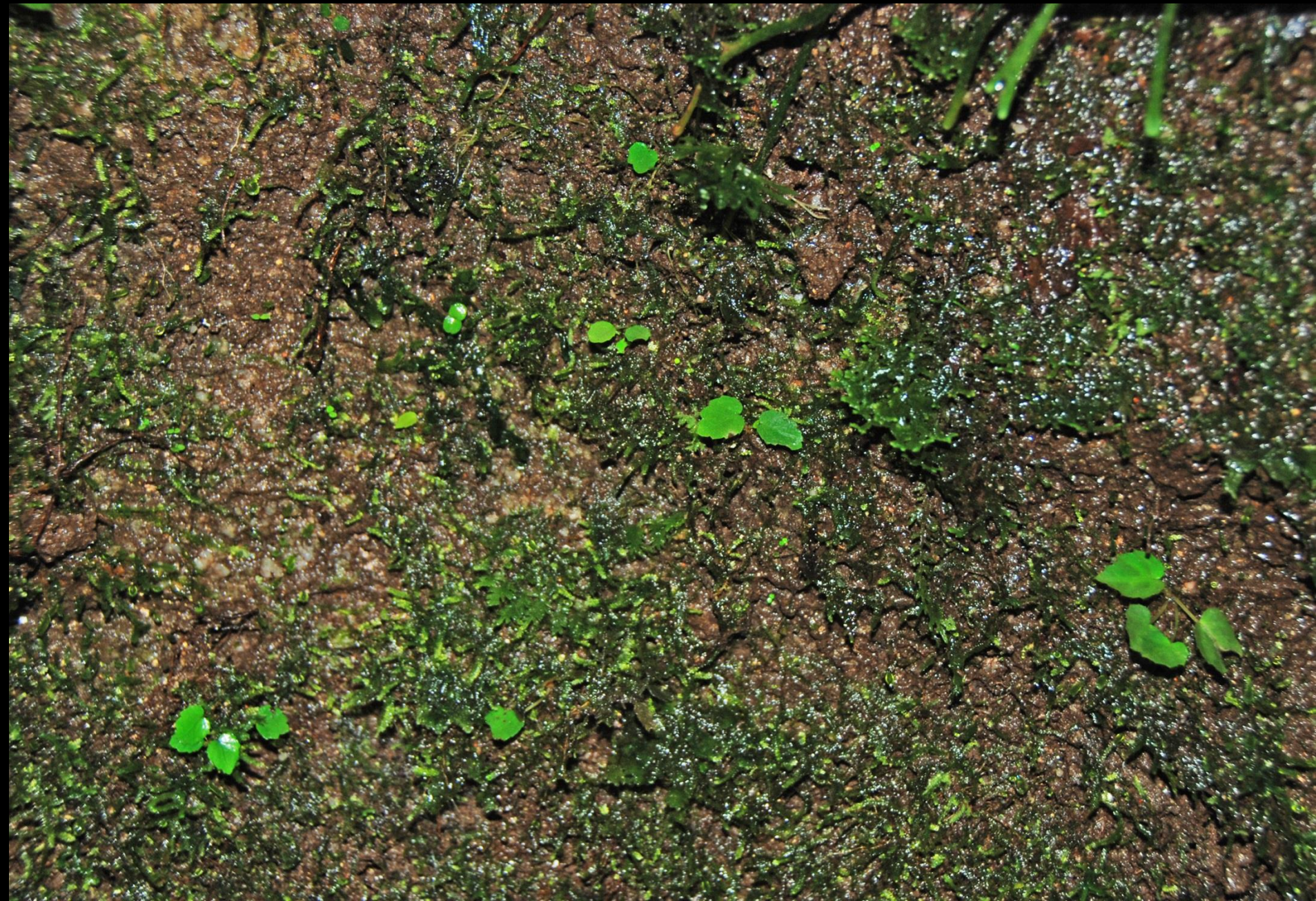






















## *Begonia blancii* (sect. *Diploclinium*, Begoniaceae), a new species endemic to the Philippine island of Palawan

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**ABSTRACT.** A new species of *Begonia* in sect. *Diploclinium*, *B. blancii* M. Hughes & C.-I. Peng, is described from the Bulalakaw Falls area in Palawan. A somatic chromosome number of  $2n = 30$  was determined. *Begonia blancii* is allied to *B. suborbiculata* and other 2-locular species in *Begonia* sect. *Diploclinium*, but is very distinct in having triangular-spathulate leaves. It shares clustered stomata with a number of other *Begonia* species, which are likely to help it reduce water loss through transpiration during the dry season. Its IUCN status is considered to be Least Concern.

**Keywords:** *Begonia blancii*; *Begonia gueritziana*; *Begonia suborbiculata*; Chromosome number; Leaf anatomy; New species; Palawan, Philippines; Stomata.

### INTRODUCTION

The *Begonia* of Palawan have recently been revised (Hughes and Coyle, 2009a; Hughes et al., 2010). However, given the narrow endemism prevalent in *Begonia* and the relatively low collection density of Palawan, recent exploration has brought a very distinct new species, *B. blancii* M. Hughes & C.-I. Peng, to light, which is described below, bringing the total number of species known from the island to 14. It belongs to *Begonia* sect. *Diploclinium* and is allied to other Malesian species in that section with 2-locular fruit and often fleshy leaves (*B. acclivis* M. Hughes, *B. anisoptera* Merr., *B. cleopatrae* M. Hughes, *B. gueritziana* Gibbs, *B. suborbiculata* Merr. and *B. wilkii* M. Hughes). However, it is immediately distinct from its allies in having triangular-spathulate leaves. All these species are endemic to Palawan with the exception of *B. anisoptera*, which is only found in Zamboanga, Mindanao, and *B. gueritziana*, which is endemic to Borneo. The new species is named after Patrick Blanc, who first brought this interesting plant to our attention.

### MATERIALS AND METHODS

#### Cryo scanning electron microscopy

Fresh leaves of *Begonia blancii* and allied species, *B.*

*gueritziana* and *B. suborbiculata*, were dissected and attached to a stub. The samples were frozen with liquid nitrogen slush then transferred to a sample preparation chamber at  $-160^{\circ}\text{C}$ . After 5 min, when the temperature rose to  $-130^{\circ}\text{C}$ , the samples were fractured. The samples were etched for 10 min at  $-85^{\circ}\text{C}$ . After coating at  $-130^{\circ}\text{C}$ , the samples were transferred to the SEM chamber and observed at  $-160^{\circ}\text{C}$  with a cryo scanning electron microscope (FEI Quanta 200 SEM/Quorum Cryo System PP2000TR FEI) in Academia Sinica. Voucher specimens (*Begonia blancii*: Peng et al. 22545; *B. gueritziana*: Peng et al. 21976; *B. suborbiculata*: Rubite 325) are deposited at HAST.

#### Chromosome preparation

Root tips of *Begonia blancii*, *B. gueritziana* and *B. suborbiculata* were pretreated with 2 mM 8-hydroxyquinoline solution at  $15-18^{\circ}\text{C}$  for about 8 h and fixed overnight in ethanol-acetic acid (3:1) below  $4^{\circ}\text{C}$ . They were macerated in an enzyme mixture containing 2% Cellulase Onozuka R-10 (Yakult Honsha, Tokyo, Japan) and 1% Pectolyase (Sigma, St. Louis, MO, USA) at about  $37^{\circ}\text{C}$  for 1 h. Chromosomes were stained with a 2% Giemsa solution (Merck, Darmstadt, Germany). Classification of the chromosome complements based on centromere position at mitotic metaphase follows Levan et al. (1964). Voucher specimens (*B. blancii*: Peng et al. 22545, *B. gueritziana*: Peng et al. 21976 and *B. suborbiculata*: Rubite 325) are deposited in HAST.

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