



## An amended description of *Rafflesia leonardi* and a revised key to Philippine *Rafflesia* (Rafflesiaceae)

JULIE F. BARCELONA<sup>1,2</sup>, EDWINO S. FERNANDO<sup>3</sup>, DANIEL L. NICKRENT<sup>4</sup>, DANILO S. BALETE<sup>5</sup> & PIETER B. PELSER<sup>1</sup>

<sup>1</sup>School of Biological Sciences, University of Canterbury, Private Bag 4800, Christchurch 8140, New Zealand;  
e-mail: barceljf@hotmail.com; pieter.pelsler@canterbury.ac.nz

<sup>2</sup>Philippine Native Plant Conservation Society, Ninoy Aquino Parks & Wildlife Center (NAPWC), Protected Areas and Wildlife Bureau (PAWB), Department of Environment & Natural Resources (DENR), North Avenue, Diliman, Quezon City, Philippines

<sup>3</sup>Department of Forest Biological Sciences, University of the Philippines - Los Baños, College 4301, Laguna, Philippines,  
e-mail: esfernando@hotmail.com

<sup>4</sup>Department of Plant Biology, Southern Illinois University, Carbondale, IL 62901-6509 U.S.A., e-mail: nickrent@plant.siu.edu

<sup>5</sup>Department of Zoology, Field Museum of Natural History, 1400 S. Lake Shore Drive, Chicago, IL 60605, U.S.A.,  
e-mail: danilo.balete@gmail.com

### Abstract

The taxonomic identity of *Rafflesia banaoana* from Kalinga Province in northern Luzon (Philippines) and its affinity with *R. leonardi* of the adjacent Cagayan Province are discussed. Both taxa share a unique combination of morphological characters pertaining to the color and shape of the perigone lobes, their warts, the diaphragm aperture, the size and number of disk processes, and anther number. The only notable difference between *R. banaoana* and *R. leonardi* is flower size and characters correlated with size. Because *Rafflesia* species show large intraspecific variation in flower size, and because *R. banaoana* and *R. leonardi* share a number of other morphological features, we conclude that these two taxa are conspecific. The name *R. banaoana* should therefore be considered a synonym of the earlier name *R. leonardi*. Here, we present an amended description of *R. leonardi*. An updated key to all ten known species of Philippine *Rafflesia* is also provided.

**Key words:** Cagayan, Kalinga, Luzon, parasitic plant, Philippines, *Rafflesia banaoana*

### Introduction

*Rafflesia* Brown (1821: 207; Rafflesiaceae) is a genus of holoparasitic plants that are exclusively dependent on their liana host *Tetrastigma* (Miquel 1863: 72) Planchon (1887: 423; Vitaceae). In his comprehensive review, Nais (2001) discussed all 18 *Rafflesia* species known at that time, two of which, *R. schadenbergiana* Göppert ex Hieronymus (1885: 3) and *R. manillana* Teschemacher (1844: 65) were reported for the Philippines. Since 2001, however, 12 additional names have been published for the Philippines (summarized in Barcelona *et al.* 2009a, 2009b, Balete *et al.* 2010). Of these, we recognize eight as distinct species. One of these new Philippine *Rafflesia* species was described by Malabrido (2010) from a population discovered by staff of the Resources, Environment and Economic Center for Studies, Inc. (REECS) in the Kalinga Province of northern Luzon. Malabrido named it *R. banaoana* Malabrido (2010: 140), in honor of the Banao tribe.

In discussing its affinity, Malabrido (2010) compared *R. banaoana* (Fig. 1A) to other Philippine species and concluded that it resembles *R. baletiae* Barcelona & Cajano (Barcelona *et al.* 2006: 232) (Fig. 1C) of the Bicol Region (southern Luzon) in the shape and density of the perigone warts and the color and morphology of its ramenta. We, however, disagree with these observations. *Rafflesia banaoana* has perigone warts that are