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## A new species of *Rafflesia* (*Rafflesiaceae*) from Panay Island, Philippines

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*Summary.* One new species of *Rafflesia*, *R. speciosa*, from Panay Island, Philippines is described. A discussion of its similarities with two other species, *R. patma* Blume from Borneo and Sumatra, and *R. kerrii* Meijer from S Thailand and Malay Peninsula, is provided. The conservation status of the two other Philippine species, *R. manillana* Teschem. and *R. schadenbergiana* Göpp. is also discussed.

### INTRODUCTION

*Rafflesia* R. Br. (*Rafflesiaceae*) is a genus of parasitic plants, currently with perhaps 18 species known from the Kra Isthmus of Thailand through West Malesia (Meijer 1997, Nais 2001). Two endemic species, *Rafflesia manillana* Teschem. and *R. schadenbergiana* Göpp. have, thus far, been recorded from at least four of the larger islands in the Philippines.

*Rafflesia manillana* is regarded as the smallest known *Rafflesia* with flowers only about 15 – 20 cm in diameter (Brown 1919, Pancho 1983, Meijer 1997). Although known from Luzon, Samar and Leyte (Merrill 1923, Meijer 1997), all of the modern records of this species, apart from those cited by Merrill (1923: 121) are those from Mt Makiling on Luzon. Very recently, a population (Fernando 1619: LBC) with much smaller flowers (to c. 14.2 cm diam.) was found at a new locality and at a lower elevation (c. 450 m) than previous records on the northwestern side of the mountain. A specimen collected in 1991 from Mt Isarog, Camarines Sur Prov. on Luzon (Balete & Peñas s.n.: CAHUP) probably also belongs to this species. *Rafflesia manillana* is considered a rare and endangered species (Tan *et al.* 1986, Meijer 1997).

*Rafflesia schadenbergiana* has larger flowers, nearly four times that of *R. manillana*, reaching to about 80 cm in diameter (Meijer 1997). This species is still known only from the type specimen at K and collected in 1882 from Mt Apo on Mindanao Island (Meijer 1997, Heaney & Regalado 1998). Sightings of a *Rafflesia* from nearby Mt Matutum have not been confirmed.

Both *Rafflesia manillana* and *R. schadenbergiana* are surprisingly excluded from the recent IUCN Red List of Threatened Species (IUCN 2000).

Our attention has recently been called with photographic evidence, to the presence of a 'large flower growing from the ground' on Panay Island, in the central part of the Philippine archipelago. This plant has also gained the attention

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of the broadcast and print media, and has become a botanical curiosity attracting hoards of local tourists. This particular plant turned out to be a *Rafflesia* and is described below. The new species is unlike any of the known species so far described from the Philippines or Malesia (Meijer 1997).

***Rafflesia speciosa*** *Barcelona & Fernando, sp. nov.*, *R. patmae* Blume (species *Borneensem* *Sumatrensem*que) magnitudine floris, structura magnitudineque ramentorum similis sed lobis perigonii plerumque latioribus, diaphragma subtus uniformiter colorata maculis albis destituta, antheris paucioribus differt. *Rafflesia kerrii* Meijer (species in Thailandica atque Peninsula Malaysica crescens) magnitudine formaque lorum perigonii similis, sed diaphragma generaliter laevi verrucis albis destituta differt. Typus: Philippines, Panay Island, Antique Prov., Sibalom Municipality, Sibalom Natural Park, Mt Poras, 1 April 2002, *Barcelona* 1221 (holotypus PNH, spirit collection; isotypus LBC).

*Mature buds* 18–20 cm in diameter; cupule of mature flowers 2.5 cm high, 8.5 cm wide, bud scales to 11 cm long. *Flowers* (45–)50–56 cm diam., 13–16 cm high when expanded. *Perigone lobes* orbicular, (10–)12–18.5(–20) × 14–22.5 cm, c. 1 cm thick at base, dark-, reddish- or rusty-brown, becoming paler with age; upper surface warty, warts whitish, generally small and narrow, rather scattered, irregular in shape, whitish on a reddish-brown background in new bloom, undersurface smooth with white, roundish blots; margin entire to sinuate. *Diaphragm* 18–20 cm diam., to 7 mm thick, usually darker than the perigone lobes, upper surface appearing generally smooth, devoid of the white warts present on the perigone lobes, instead numerous smaller irregular white specks present all over, some occurring in groups that form two concentric rings around the rim, very prominent in newly opened flowers (Fig. 2) and fading with age (Fig. 3), appearing brown on dark background when dry; the rim entire, whitish; orifice 9.5–10.0 cm diam. *Disk* c. 9.5–12(–14.3) cm in diam., c. 6 mm thick, dome-shaped centrally, yellow-orange becoming reddish-orange at the periphery; rim of disk steeply raised with 1.0–1.5 cm raised part, entire to irregularly finely crenulate, reddish orange in new bloom; column to 2.5 cm above the base of the perianth tube, or c. 6.5 cm from cupule base to the tip of disk, neck of column to 5.5 cm diam.; processes (17–)20–27(–31), usually arranged in 2–3 concentric rings pointing outward towards the rim, to 1.3–2.3 cm long, c. 6 mm wide at base, reddish proximally, darker distally. *Ramenta* distributed all over the undersurface of the diaphragm, those above the perigone attachments generally stouter and reduced to tubercles, those below to c. 2 mm long, becoming shorter towards the diaphragm base, simple or shallowly variably lobed. *Male flowers* with 19–24 anthers; anthers c. 4.5 × 5 mm, anther cavity c. 1.3 × 1.0 cm, densely hairy. Female flowers not known. Figs 1–3.

**DISTRIBUTION AND HABITAT.** Philippines, Panay Island, in lowland secondary forest patches on well-drained soils, in gullies, and old reforested, generally dry, areas under thick leaf litter, c. 560–680 m alt.; flowering in late February to April. The *Rafflesia* seen in the adjacent towns San Remegio, Tibiao, and Mt Baloy in Valderama, all in Antique Province, and in adjacent towns of Igaras, Leon and San Joaquin, all in Iloilo Province, may also belong to this species. Endemic.

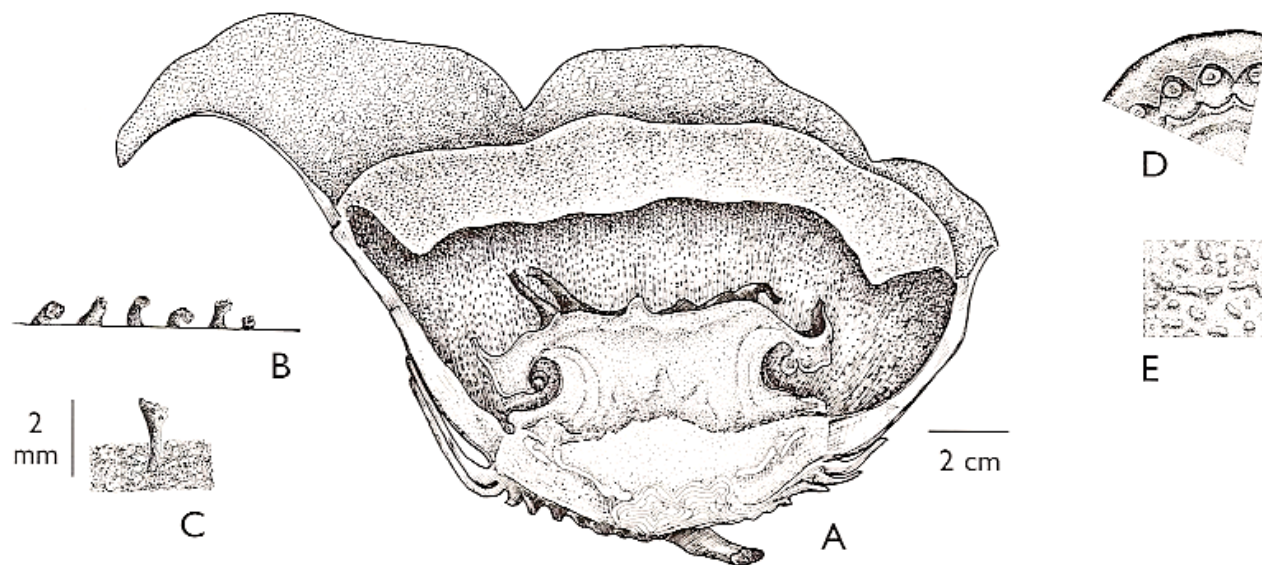


FIG. 1. *Rafflesia speciosa*. **A** longitudinal section of male flower showing internal structure of disk and perigone tube; **B** variably-shaped ramenta on the inside of cupula and diaphragm; **C** detail of a ramentum; **D** details of anthers on undersurface of disk; **E** details of warts on the perigone lobes. Scale bars: **A**, **D** & **E** 2 cm; **C** 2 mm. Drawn by Nemesio Diego.

LOCAL NAMES. *uruy* and *kalò posong* (Panay: karay-a).

ECOLOGY. Host plant *Tetrastigma harmandii* Planch. (*Vitaceae*); voucher specimen: *Barcelona* 1222 (PNH, LBC). The flowers of *Rafflesia speciosa* take about 18 hours to expand fully and last up to 3–5 days. Buds were observed on stems up to c. 4 m above the ground. On one site alone, a total of 7 buds, 1 flower in bloom, and 23 senesced flowers and buds were recorded within an area approximately 150 m<sup>2</sup>. The populations of this new species are vulnerable as the area is threatened by slash-and-burn agriculture, wildlife hunting and unregulated tourism activities.

SPECIMENS EXAMINED. PHILIPPINES, Panay Island, Antique Prov., Sibalom Municipality, *Barangay* Cabladan, *Sitio* Danao, Sibalom Natural Park, off the trail underneath escaped bananas, soil well-drained, loose, black humus, 25 March 2002, *Barcelona* 1218 (PNH); *Sitio* Igkurbasa, in old growth shaded forest with thick leaf litter on well-drained, rocky soil, c. 685 m, 25 March 2002, *Barcelona* 1219 (PNH); *Sitio* Danao, on well-drained slopes in secondary forest just above a river bank, c. 600 m, 26 March 2002, *Barcelona* 1220 (PNH); *Barangay* Imparayan, Mt Poras, old second-growth forest planted with *Gmelina arborea* and *Swietenia macrophylla*, c. 560 m alt., 1 April 2002, *Barcelona* 1221 (holotype PNH, spirit collection; isotype LBC).

NOTES. *Rafflesia speciosa* is similar to *R. patma* Blume of Borneo and Sumatra in the overall flower size and structure and size of the ramenta. It differs, however, by the broader perigone lobes (10–14 cm in *R. patma*, 14–22.5 cm in *R. speciosa*), the uniform colour of the diaphragm undersurface devoid of white blots, and the fewer anthers (25–32(–38) in *R. patma*, 19–24 in *R. speciosa*). It is also similar to *Rafflesia kerrii* Meijer from southern Thailand and the Malay Peninsula in size and characters of the perigone lobes, but the diaphragm is generally smooth, almost devoid of the white warts found on the perigone lobes.





FIG. 2. *Rafflesia speciosa*, newly opened flower. Sibalom Natural Park, Panay Island, Philippines. Photograph taken at 4.00 am, c. 2–3 hours after opening. Photo: Erma Grasparil.



FIG. 3. *Rafflesia speciosa*, fully expanded and mature flower. Sibalom Natural Park, Panay Island, Philippines. Photo: Ferdinand Tubeza.

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