

THE STATUS AND DISTRIBUTION OF *NEPHELAPHYLLUM PULCHRUM* BL. (ORCHIDACEAE) IN SINGAPORE

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INTRODUCTION

This paper documents the distribution and status of *Nephelaphyllum pulchrum* Bl. (Figs. 1, 2) in Singapore. *Nephelaphyllum* is a small genus of about 11 recognised species distributed from China, Japan, India, and throughout Southeast Asia (Comber, 1990 & 2001; Seidenfaden & Wood, 1992; Cootes, 2001; Govaerts et al., 2005). Two species are recorded from Peninsular Malaysia, of which only *Nephelaphyllum pulchrum* occurs in Singapore (Keng et al., 1998; Tan et al., 2008; Chong et al., 2009).



Fig. 1. *Nephelaphyllum pulchrum* climbing up a tree trunk in Nee Soon Swamp Forest. (Photograph by: Ang Wee Foong).

Table 1. Previous Singapore collections of *Nephelephyllum pulchrum* Bl. deposited in the Herbarium, Singapore Botanic Gardens (SING) and Herbarium, Raffles Museum of Biodiversity Research, National University of Singapore (SINU).

S/No.	Accession/Bar Code No.	Herbarium	Collector(s)	Collector's No.	Date Collected	Locality
1.	0010884	SING	C. E. Carr	483	Jan.1933	Bukit Mandai
2.	0010883	SING	J. Sinclair	10911	28 Aug.1966	Bukit Mandai
3.	2007014883	SINU	I. M. Turner, J. W. H. Yong, J. A. Hardie, Y. W. K. Khng & S. E. Hin	–	30 Apr.1992	Central Catchment Nature Reserve
4.	2007014884	SINU	I. M. Turner, J. W. H. Yong, J. A. Hardie, Y. W. K. Khng & S. E. Hin	–	30 Apr.1992	Central Catchment Nature Reserve
5.	2007014885	SINU	I. M. Turner, J. W. H. Yong, J. A. Hardie, Y. W. K. Khng & S. E. Hin	–	30 Apr.1992	Central Catchment Nature Reserve
6.	0054960	SING	G.C.H. Tan, D.P.Y. Lim, V. J. K. Lim & M. Marinah	775	6 May 1992	Sector 18, C23 R28
7.	2007014881	SINU	G.C.H. Tan, D.P.Y. Lim, V. J. K. Lim & M. Marinah	–	6 May 1992	Central Catchment Nature Reserve
8.	2007014882	SINU	J. T. W. M. Gan, Y. W. K. Khng & J. A. Hardie	–	9 May 1992	Central Catchment Nature Reserve
9.	0011246	SING	A. K. Nura	202	26 Jan.1995	Nee Soon

The generic name *Nephelephyllum* is derived from the Greek words “nephele”, which means cloud, and “phyllon”, which means leaf, referring to the hazy, marbled look of the leaves (La Croix, 2008) (Figs. 1, 2). The specific epithet *pulchrum* derived from the Latin “pulcher”, meaning beautiful, aptly describes this attractive species with purplish, marbled leaf blades. *Nephelephyllum pulchrum* is also the type species of the genus (Cootes, 2001). Members of the genus are terrestrial, usually possessing fleshy leaves and thick rhizomes that creep along the forest floor.

PAST AND PRESENT RECORDS

Nephelephyllum pulchrum is a terrestrial orchid species, with fleshy, creeping rhizomes (Comber 1990, 2001; Keng et al., 1998; Go & Hamzah, 2008) (Figs. 1, 2). Pseudobulbs are slender and curved at the tip, dull purple, and about 2–3 cm long. The leaf blades are triangular-ovate, basally cordate, with a tip that is acuminate and blunt, 4–10 cm by 2.5–6 cm, light brown or yellowish green with dark blotches on the upper surface and flushed purple on the underside. They are held erect by a very short leaf stalk. The inflorescence develops at the tip of new pseudobulbs, is about 8 cm long with a 1-cm long sheath, and bears flowers close together (Fig. 3). Flowers vary from being almost completely white to very pink, are non-resupinate, with linear and acute sepals and petals that are 1.3–2 cm long and 0.3–1.8 cm broad, downward deflexing, and pale green with purple veins (Fig. 4). The lip is upright, entire, ovate, pale yellow, and fleshy, 1.6–2 cm by 1.1–2 cm, shortly spurred, with five longitudinal rows of fine yellow hairs in the middle, tapering into three ridges near the tip. The column is short and broad and about 5 mm long. This species is distributed from Myanmar, Cambodia, Vietnam, Thailand, south to Peninsular Malaysia, Singapore, Sumatra, Java, and Borneo. This orchid grows in moist localities of lowland to mid-mountain forests.

In Singapore, this species has been collected from Bukit Mandai and Nee Soon Swamp Forest (NSSF; Table 1) (Keng et al., 1998) and is listed as “Critically Endangered” (Tan et al., 2008; Chong et al., 2009).

On 9 Sep.2010, this orchid was encountered by WFA, CKY, and JSYT at Nee Soon Swamp Forest, growing under the thick canopy on swampy ground covered with a thick layer of leaf litter. The orchid was growing and creeping up the trunk of an unidentified tree (Fig. 1). In drier conditions, this species seldom climbs, but rather, it creeps along the forest floor among leaf litter. However in moist conditions such as in swamp forests [e.g., Nee Soon Swamp Forest, Panti Forest Reserve (Peninsular Malaysia), and in Bako National Park (East Malaysia)] and in highland areas [e.g., in Cameron Highlands (Peninsular Malaysia), Fraser’s Hill (Peninsular Malaysia), and Gunung Serapi (East Malaysia)], the increased humidity allows this species to climb a few metres up tree trunks (AFSLL, pers. obs.).

Another individual was encountered growing amongst leaf litter (Fig. 2) at the NSSF. At first sight, the brown-mottled leaves of this terrestrial orchid blend in very well with the surrounding dead leaves. As the usual habit of *Nephelephyllum pulchrum* is that of a herbaceous terrestrial creeper, the leaves are often borne close to the ground. This could possibly serve as camouflage for the thinly succulent foliage of this species from grazing herbivores, by disrupting the outline of its leaves against the leaf litter (Givnish, 1990). Another hypothesis is that the mottling could serve to mimic damage caused by leaf miners (moth caterpillars that feed inside the leaf blades) so as to deter actual

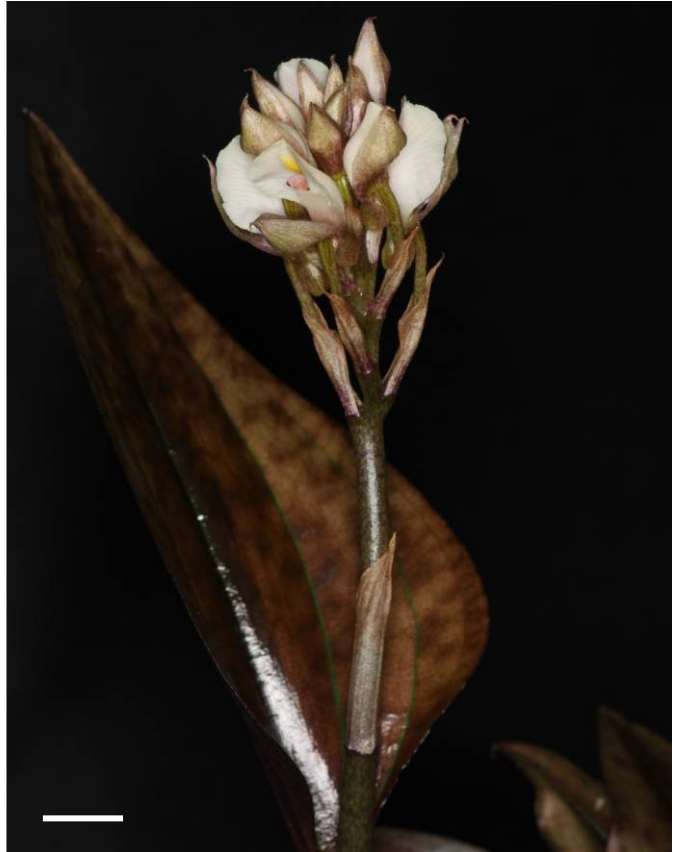


Fig. 2. Individual growing in the leaf litter. (Photograph by: Alvin Ang Wee Foong).

Fig. 3. Inflorescence. Scale bar = 10 mm. (Photograph by: Alvin Francis Lok Siew Loon).



Fig. 4. A close-up of the flowers. Scale bar = 10 mm. (Photograph by: Alvin Francis Lok Siew Loon).

oviposition by leaf miner moths (Smith, 1986). The attractive, mottled leaves give this orchid species its horticultural potential. As it grows naturally under deep shade, it is suitable as an indoor plant as long as the growing medium is kept moist. However, this orchid is currently not employed horticulturally and should be propagated and conserved *ex situ* in the face of an uncertain future of NSSF as it faces the effects of global warming.

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