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REDISCOVERY OF *TRICHOTOSIA VELUTINA* (LODD. EX LINDL.) KRAENZL. (ORCHIDACEAE) IN SINGAPORE

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ABSTRACT. *—* *Trichotosia velutina* (Lodd. ex Lindl.) Kraenzl. was presumed nationally extinct in Singapore, having no recent sightings or collections since 1892. It was most recently encountered and rediscovered in the Nee Soon Swamp Forest, and assigned the national conservation status of "Critically Endangered".

KEY WORDS. — Orchidaceae, *Trichotosia velutina*, Nee Soon Swamp Forest, rediscovery

INTRODUCTION

This paper documents the rediscovery and status of *Trichotosia velutina* (Figs. 1, 2) in Singapore. *Trichotosia* belongs to the subtribe Eriinae within the tribe Epidendreae which comprises the most number of species in the family Orchidaceae (Seidenfaden & Wood, 1992). The genus comprises of about 80 species, distributed from southern China,

Fig. 1. Flower of *Trichotosia velutina*, a presumed locally extinct orchid species in Singapore. Scale bar = 5 mm. (Photograph by: Peter O'Byrne).

Fig. 2. Large clump of *Trichotosia veluntina* growing epiphytically on a large unknown tree in Nee Soon Swamp Forest with the recently rediscovered *Dendrobium aloifolium* and an unidentified *Bulbophyllum* species. (Photograph by: Ang Wee Foong).

throughout Southeast Asia to New Guinea and Vanuatu (Govaerts et al., 2012). The centre of diversity is in Southeast Asia, with the islands of Indonesia, Borneo, and the Philippines possessing the largest number of species (Seidenfaden & Wood, 1992). In Singapore, three species were recorded, *Trichotosia gracilis*, *Trichotosia velutina*, and *Trichotosia vestita*, all of which are presumed to be nationally extinct in the wild (Chong et al., 2009).

The genus *Trichotosia* was established by German-Dutch botanist Charles Ludwig de Blume in 1825 in Bijdragen tot de Flora van Nederlandsch Indië when describing *Trichotosia ferox*, *Trichotosia pauciflora*, *Trichotosia microphylla*, and *Trichotosia annulata* (Blume, 1825; Comber, 1990). The generic name *Trichotosia* is derived from the Greek word "trichotos", which means "furnished with hair", referring to the usually hair-covered plants (Patil, 2007). The specific epithet *velutina* means "velvety", referring to the stems and leaves covered densely by very short red-brown hairs (Seidenfaden & Wood, 1992; Stearn, 2002).

PAST AND PRESENT RECORDS

Trichotosia velutina is an epiphytic orchid that usually forms clumps with stems growing up to 40 cm long (Fig. 2) (Comber, 1990, 2001; Seidenfaden & Wood, 1992; Keng et al., 1998). The stems are entirely covered in dense, short red-brown hairs (Figs. 3–6). The leaves are 9 cm by 2 cm long, very fleshy, and also densely covered with very short, red-brown hairs on both sides (Figs. 4, 5). The inflorescences are around 2 cm long, with about six cup-shaped bracts, each 7 mm long (Fig. 6). The flowers do not open widely, and are cream or pale pink, with the base of the lip pink and a white or yellowish midlobe, 1.6 cm long (Figs. 1, 6). The dorsal sepal is oblong, obtuse-tipped, 9 mm long, and 3 mm wide. The lip is 1.2 cm long by 5 mm wide at the tip, with small side lobes, and a short, notched midlobe that has turned down edges.

Trichotosia velutina is a common lowland epiphyte in Malaya, and is known to occur naturally from Myanmar, Thailand, Vietnam, Peninsular Malaysia, Singapore, Indonesia, Borneo, and New Guinea, growing epiphytically on trees in inland and coastal forests (Comber, 1990, 2001; Seidenfaden & Wood, 1992). In Singapore, this species was collected from Jurong, Sungei Murai, Sungei Buloh, Kranji, and Chan Chu Kang (Table 1).

Fig. 3. A small plant found on a fallen branch on top of leaf litter in the Nee Soon Swamp Forest. (Photograph by: Ang Wee Foong).

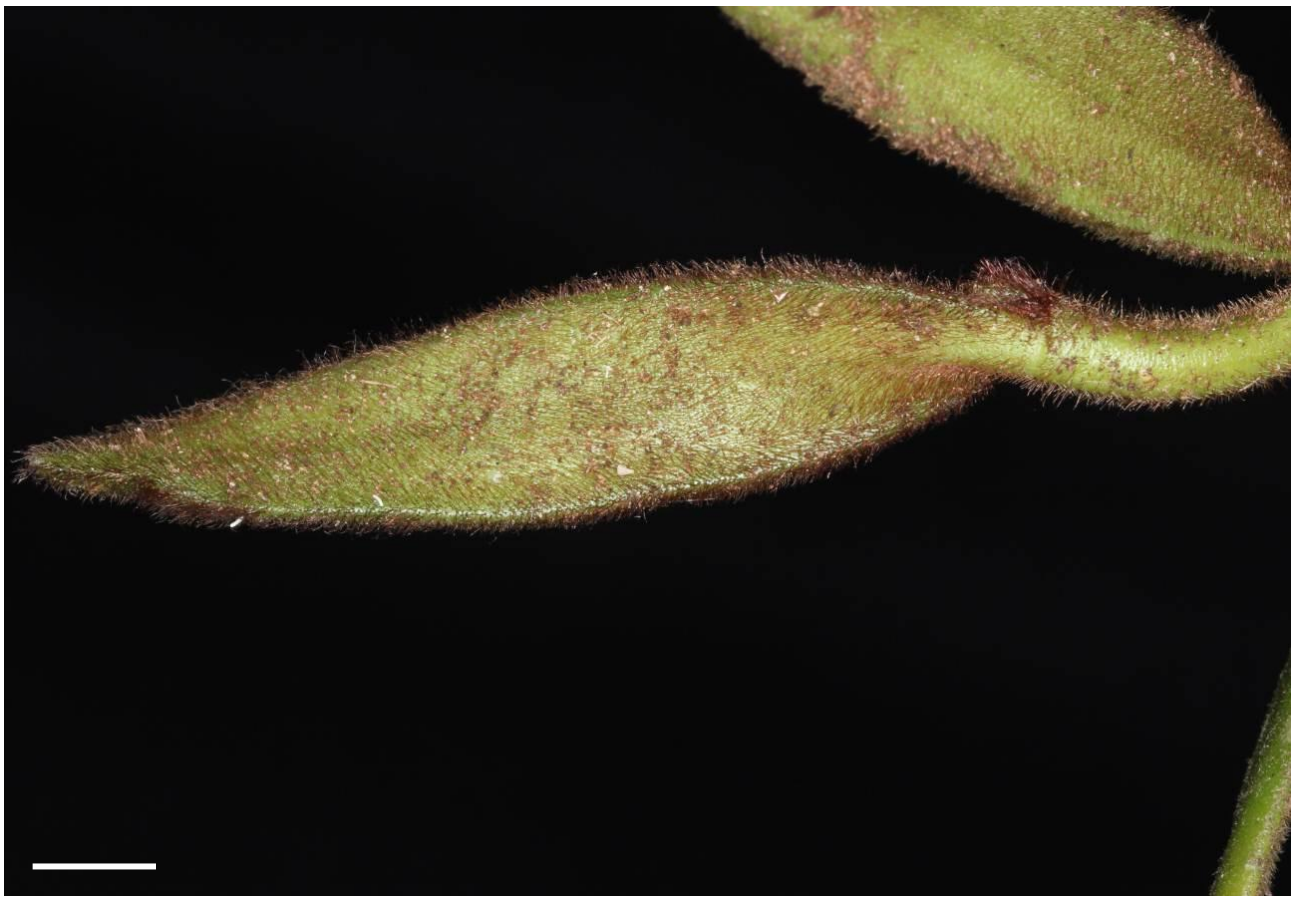

Fig. 4. Hairy underside of a leaf. Scale bar = 1 cm. (Photograph by: Ang Wee Foong).

Fig. 5. Short red-brown hairs cover the stems, and both surfaces of the leaf blades. Scale bar = 1 cm. (Photograph by: Ang Wee Foong).

Fig. 6. Side view of the inflorescence, showing flowers that do not open widely and cup-shaped bracts. Scale bar = 5 mm. (Photograph by: Peter O'Byrne).

Table 1. Previous Singapore collections of *Trichotosia velutina* (Lodd. ex Lindl.) Kraenzl. deposited in the Herbarium, Singapore Botanic Gardens (SING).

S/No.	Bar Code No.	Collector	Collector's No.	Date Collected	Locality
1.	0010978	H. N. Ridley	376	16 Jan.1890	Jurong
2.	0010979	H. N. Ridley	s.n.	1892	Chan Chu Kang FR, FRNS
3.	0010980	H. N. Ridley	s.n.	Mar.1889	Kranji
4.	0010981	H. N. Ridley	s.n.	9 Jan.1890	Sungei Buloh
5.	0010982	H. N. Ridley	s.n.	1892	Sungei Murai

On 19 Oct.2011, a small individual of *Trichotosia velutina* was found on top of a pile of leaf litter in the Nee Soon Swamp Forest (Fig. 3). The plant appeared to have been dislodged from a tree and no parent clump was found when inspecting the upper forest canopy. However on 25 Jan.2012, a large clump of *Trichotosia velutina* was found to be growing together with the recently rediscovered *Dendrobium aloifolium* (Blume) Rchb.f., *Bulbophyllum clandestinum* Lindl., and another *Bulbophyllum* species on a large unidentified tree in Nee Soon Swamp Forest (Fig. 2). Previously, *Dendrobium aloifolium* was rediscovered within the vicinity of the same locality among leaf litter (Ang et al., 2010). Interestingly, no orchids were found on the surrounding trees although they appeared to be as large and mature. This was similarly observed previously in the case of the *Cratoxylum formosum* (Jacq.) Benth. & Hook.f. ex Dyer tree at the entrance of Nee Soon Range I which supported a high diversity of orchid epiphytes (Lok et al., 2011). The study of phorophyte preference among orchid epiphytes is worth pursuing into as it can be applied to orchid conservation in Singapore.

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