

THE STATUS AND DISTRIBUTION IN SINGAPORE OF *PLOCOTLOTTIS JAVANICA* BLUME (ORCHIDACEAE)

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INTRODUCTION

This paper documents the status and distribution of the terrestrial orchid, *Plocoglottis javanica* (Fig. 1) in Singapore. *Plocoglottis* is a genus comprising of about 40 species distributed throughout Southeast Asia, with its centre of distribution in Indonesia and New Guinea (Seidenfaden & Wood, 1992). In Singapore, only three species — *Plocoglottis gigantea*, *Plocoglottis javanica*, and *Plocoglottis lowii* — are known to occur (Keng et al., 1998; Chong et al., 2009).

Members of the genus are terrestrial herbs that are found only in moist forests that lack pronounced dry seasons, in relatively dark localities, and have a preference for fertile soils (Comber, 1990). The genus is noted for the mechanical movement of the hinged lip that springs upwards against the column like a mousetrap when visited by insect pollinators. This action is thought to increase the chances of pollinia removal by unbalancing or trapping the insect pollinator temporarily in the flower (Comber, 1990).



Fig. 1. Flowers and buds of *Plocoglottis javanica* on the inflorescence axis. The petals and sepals are yellow-based, with blotches of deep red. (Photograph by: Ang Wee Foong).



Fig. 2. *Plocoglottis javanica* growing on the forest floor of Nee Soon Swamp Forest. (Photograph by: Ang Wee Foong).

PAST AND PRESENT RECORDS

Of the three species of *Plocoglottis* native to Singapore, *Plocoglottis lowii* is nationally extinct, not having been observed in the wild and collected for the past 50 years (Chong et al., 2009). The extant *Plocoglottis gigantea* and *Plocoglottis javanica* are assigned the national conservation status categories of ‘Critically Endangered’.

In Singapore, this species has been collected from Seletar, Chan Chu Kang, Bukit Mandai, Sungei Loyang, and Nee Soon Swamp Forest (Table 1) (Keng et al., 1998).



Fig. 3. Slender and cylindrical pseudobulb with relatively thick roots exposed with the removal of leaf litter. (Photograph by: Ang Wee Foong).



Fig. 4. A newly formed plicate leaf (light green) of a young plant. (Photograph by: Ang Wee Foong).

Table 1. Previous Singapore collections of *Plocoglottis javanica* Bl. deposited in the Herbarium, Singapore Botanic Gardens (SING).

S/No.	Bar Code No.	Collector	Collector's No.	Date Collected	Locality
1.	0010916	H. N. Ridley	s.n.	29 Mar.1889	Seletar
2.	0010919	H. N. Ridley	s.n.	1890	Chan Chu Kang FR, FRNS
3.	0010918	H. N. Ridley	s.n.	1892	Bukit Mandai
4.	0010917	H. N. Ridley	s.n.	25 Jan.1894	Chan Chu Kang FR, FRNS
5.	0010920	Mat	s.n.	1894	Sungei Loyang
6.	0072986	A. K. Nura et al.	203	26 Jan.1995	Nee Soon
7.	0123481	H. Kurzweil et al.	2774	10 Jun.2009	Nee Soon Forest

Plocoglottis javanica is a terrestrial herb, with creeping and branching rhizomes that are about 1 cm thick (Fig. 2) (Comber 1990, 2001; Seidenfaden & Wood, 1992; Go & Hamzah, 2008). Pseudobulbs are slender, cylindrical, about 9–12 cm long and 1 cm across, each bearing a single leaf (Fig. 3). Leaves are elliptic, narrowing to an acute tip, 20–30 cm long by 9–12 cm wide, with a 15–30 cm long petiole (Fig. 4). Numerous flowers are born on lateral inflorescences that extend from the base of the pseudobulb growing beyond the leaves, up to 90 cm long. Each flower is spaced about 1 cm apart, subtended by a lanceolate floral bract. The flower is about 1.7 cm broad, with yellow-based sepals and petals that are speckled with blotches of deep red (Fig. 5). Sepals are lanceolate, narrowing at the tip, concave, 1.0–1.5 cm long, and 6 mm wide. Petals are thinner, linear and narrowing at the tip, curving towards the front of the flower, 1.35 cm long by 2–3 mm wide. The lip is squarish, hinged, with a truncate apex and a short cusp in the centre. The column is 5.5 mm long, curved and shortly winged.



Fig. 5. Close-up of a flower showing the highly curved, thin petals, and a distinctively squarish lip. Scale bar = 2 mm. (Photograph by: Alvin Francis Lok Siew Loon).

This terrestrial orchid species has a natural distribution from the Andaman Islands to the south Thailand, throughout Peninsular Malaysia, to Singapore, Sumatra, Java, and Borneo, in lowland to montane forests up to 1,200 m altitude. It is usually found in wet forests, often in dark localities (Comber 1990, 2001; Seidenfaden & Wood, 1992; Go & Hamzah, 2008).

CONCLUSIONS

This delicate and nationally rare orchid species was encountered by us in a patch of freshwater swamp forest adjacent to the Executive Golf Course driving range (Mandai Road Track 7) on several occasions, with the latest on 2 Nov.2010. Vegetatively, *Plocoglottis javanica* looks similar in form and habit to *Peliosanthes teta* (Asparagaceae) which also occurs in the same locality. A brief survey of the swamp forest area outside Executive Golf Course driving range indicated that *Plocoglottis javanica* seemed to be restricted to a small area. It is unknown whether this orchid still persists in the other localities where it has been collected. However, it is highly probable that the population at Sungei Loyang has been extirpated, as the area is now a built-up industrial and residential area. Hence it is likely that the only known population of *Plocoglottis javanica* in Singapore is in Nee Soon Freshwater Swamp Forest, as it has also not been collected from the Bukit Mandai, Chan Chu Kang and Seletar localities for more than a century. Fortunately, this remnant patch of freshwater swamp forest lies within the boundaries of the legally protected Central Catchment Nature Reserve.

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