

REDISCOVERY OF *CALLOSTYLIS PULCHELLA* (LINDL.) S.C.CHEN & Z.H.TSI (ORCHIDACEAE) IN SINGAPORE

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ABSTRACT. — *Callostylis pulchella* (Lindl.) S.C.Chen & Z.H.Tsi, previously thought to be extinct in Singapore, was recently rediscovered in the Nee Soon Swamp Forest. As such, it has recently been assigned the new national conservation status of critically endangered as it is currently only known from one locality in the Republic.

KEY WORDS. — Orchidaceae, *Callostylis pulchella*, *Eria pulchella*, *Mycarantes*, *Tylostylis*, extinct, rediscovery, Nee Soon Swamp Forest

INTRODUCTION

This paper documents the rediscovery and status of *Callostylis pulchella* (previously *Eria pulchella*) (Fig. 1). *Callostylis* is a very small genus consisting of five to six taxa (Chen & Wood, 2009), with two previously from the section *Tylostylis* in the relatively large genus *Eria*. The size of the genus has prompted some authors to increase the number of sections in the genus, while others prefer to keep them in separate genera altogether (Seidenfaden & Wood, 1992). Previous treatments of *Eria* by J. J. Smith and R. E. Holttum excluded genera like *Trichotosia* and *Ascidieria*. Sections *Mycarantes* and *Tylostylis*, which were previously viewed as potential candidates for such a split from the genus *Eria*, have since been removed. Section *Mycarantes* was elevated to generic level, while the two members in section *Tylostylis* were placed in the genus *Callostylis* (Govaerts et al., 2012).

Callostylis species are epiphytic herbs with stout, creeping rhizomes covered by sheaths (Chen & Wood, 2009). The pseudobulbs are thick and somewhat club-shaped, consisting of only a few internodes or terete and with many internodes. The base is loosely covered by dried sheaths and well spaced on a stout rhizome with 2–5 leaves at the apex. The leaves are distichous, suberect, conduplicate, and leathery. The inflorescences are short and erect with many flowers opening in succession, with its axis covered completely by short, dense, and stellate hairs. The flowers are usually resupinate, but sometimes non-resupinate flowers do occur. The medium-sized pubescent flowers are usually cream to orange-yellow, often with a dark brown lip. The sepals are abaxially covered with dense, brown, stellate hairs. The dorsal sepal is elliptic or elliptic-ovate while the lateral sepals are obliquely triangular, ventrally broadened at the base, adnate to the elongated column foot forming a long and distinct mentum. The petals are oblong, narrow, and smaller than the sepals. The lip is entire, articulate to the column foot, pressed closely to the column and column foot, and often expanding at the base or folded to form a pouch. The column is curved and short and held at right angles to the foot and somewhat sigmoid, with a fleshy apical swelling. There are eight pollinia, obliquely and shortly club-shaped and more or less equal in shape and size.

There are five to six species distributed throughout China, the Himalayan region, India, Indonesia, Laos, Malaysia, Myanmar, Thailand, and Vietnam (Chen & Wood, 2009).

PAST AND PRESENT RECORDS

Callostylis pulchella is an epiphytic orchid that is usually seen covering large portions of branches (Fig. 1) with long, stiff, creeping rhizomes, and somewhat flattened, 6 cm long by 2 cm wide pseudobulbs spaced out every 6–10 cm (Fig. 2; Chen & Wood, 2009). The pseudobulbs are rather wrinkled and yellow-green when old, with two to three closely spaced leaves. The leaves are 11–14 cm long, 2.5–3.4 cm wide, and rather thin. The inflorescence is shorter than the leaves, usually appearing at the apex of the pseudobulbs and covered with dense white hairs. Each inflorescence will bear up to 15 flowers opening in succession as the inflorescence slowly lengthens. The flowers are dull orange-yellow-brown, usually around 3 cm across with 15 mm long and 6 mm wide lanceolate sepals with short hairs on the adaxial surface (Fig. 3). The petals are roughly the same length but slightly narrower and obtuse. The lip is almost circular



Fig. 1. A large clump of *Callostylis pulchella* growing high up in the Nee Soon Swamp Forest canopy. (Photograph by: Ang Wee Foong).



Fig. 2. A small section of the plant showing the long, creeping rhizomes. Scale bar = 5 cm. (Photograph by: Peter O'Bryne).



Fig. 3. Close up of a flower. Scale bar = 5 mm. (Photograph by: Peter O'Bryne).

Table 1. Previous Singapore collections of *Callostylis pulchella* (Lindl.) S.C.Chen & Z.H.Tsi deposited in the Herbarium, Singapore Botanic Gardens (SING).

S/No.	Bar Code No.	Collector	Collector's No.	Date Collected	Locality
1.	0010780	H. N. Ridley	s.n.	1890	Sungei Buloh
2.	0010785	J. S. Goodenough	s.n.	Apr.1890	Sungei Murai
3.	0010784	J. S. Goodenough	s.n.	29 May 1890	Tuas
4.	0010783	H. N. Ridley	1793	Oct.1890	Pulau Tekong
5.	0010783	H. N. Ridley	1793	Oct.1890	Pulau Tekong
6.	0010779	H. N. Ridley	s.n.	1892	Chan Chu Kang FR, FRNS
7.	0010781	H. N. Ridley	s.n.	1892	Seletar
8.	0010782	H. N. Ridley	s.n.	1892	Kranji
9.	0010786	J. Sinclair	38901	14 Mar.1950	Pulau Pawai

but slightly indented at the tip, with a large smooth brown callus in the centre, and which thickens towards the apex and is divided into three ridges (Fig. 3). The column is curved, slender, and about 7 mm long with an extremely short foot.

Callostylis pulchella is a rather common lowland epiphyte found in Borneo, Java, Lingga Islands, Peninsular Malaysia, Riau, Singapore, Sumatra, and Thailand (Comber, 1990, 2001; Seidenfaden & Wood, 1992). In Peninsular Malaysia and Borneo, this species is found in coastal forest as well as damp inland forest including kerangas (heath forests of Borneo), mangrove, beach, and inland lowland forest to about 1,000 m (AFLSL, pers. obs.). In Java, it is found in damp forest along the southern coastline (Comber, 1990). In Sumatra this species is found in many provinces, but always below 1,000 m (Comber, 2001). In Singapore, this species was collected from Kranji, Pulau [= Island] Tekong, Pulau Pawai, Seletar, Sungei Buloh, Sungei Murai, and Tuas, and was last collected in 1950 from Pulau Pawai (Table 1). It has since been listed as presumed nationally extinct (Tan et al., 2008; Chong et al., 2009).

On 14 Feb.2012, AWF and YCK rediscovered a large clump of *Callostylis pulchella* in a small patch of swamp forest outside Nee Soon Range. The specimen was found growing high up in the canopy, on the branches of an unidentified tree along a stream. *Callostylis pulchella* has not been collected on Singapore Island for 120 years and was last collected in 1892 at Chan Chu Kang, Seletar, and Kranji. It was last collected from the Republic more recently from the mangrove forest on Pulau Pawai in 1950. From the collection records, *Callostylis pulchella* was previously only collected from coastal areas, and that is expected since this species is a common epiphyte in mangrove and beach forests. This species has never been recorded from the Nee Soon Swamp Forest. This is however not surprising since many of our recent Orchidaceae rediscoveries (Ang et al., 2010, 2011; Lok et al., 2011) were all made from the Nee Soon Swamp Forest, which is proving to be an important stronghold for most of Singapore's orchid flora. Losing such a forest patch would indeed be a great loss to Singapore's flora.

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