

## THE CONSERVATION STATUS IN SINGAPORE OF *AMPELOCISSUS CINNAMOMEA* (WALL. EX M.A.LAWSON) PLANCH. (VITACEAE)

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**ABSTRACT.** — The conservation statuses of the five native species of *Ampelocissus* (Vitaceae) was previously reviewed based on recently collected plant specimens and sightings (Yeo et al., 2013). It was thought that *Ampelocissus cinnamomea* (Wall. ex M.A. Lawson) Planch. was a misapplied name for *Ampelocissus ascendiflora* Latiff. Examination of available herbarium specimens had supported this view. However, a recent encounter of a living specimen in the field indicated that the existence of *Ampelocissus cinnamomea* in Singapore had been overlooked in herbarium collections. The sighting of this sixth Singapore species of *Ampelocissus* is reported in this paper and the conservation status of nationally critically endangered is proposed for this species. To better distinguish *Ampelocissus cinnamomea* from those Singapore *Ampelocissus* species that may be confusable with it, a key as well as comparison illustrations are provided here.

**KEY WORDS.** — Vitaceae, *Ampelocissus cinnamomea*, *Ampelocissus ascendiflora*, conservation, Singapore

### INTRODUCTION

The genus *Ampelocissus* Planch. belongs to the family Vitaceae and was previously thought to have five species native to Singapore (Yeo et al., 2013). *Ampelocissus cinnamomea* (Wall. ex M.A. Lawson) Planch., which was included in the list of Chong et al. (2009), was originally thought to be a misapplied name for *Ampelocissus ascendiflora* Latiff, even though Keng (1990) had reported the species in Singapore.

Examination of available herbarium specimens in the Herbarium, Singapore Botanic Gardens (SING), and Herbarium, Lee Kong Chian Natural History Museum, National University of Singapore (SINU) in comparison to the descriptions of Latiff (1982) for the two species seemed to support this view (Yeo et al., 2013). However, a recent encounter of a living specimen in the field showed that *Ampelocissus cinnamomea* could have been sighted in Singapore although it was not represented in herbarium collections, thus vindicating Keng (1990).

### PAST AND PRESENT RECORDS

*Ampelocissus cinnamomea* was listed by Chong et al. (2009) as presumed nationally extinct, following Turner (1993) who compiled a list of plant names used in Singapore. As no local specimen of *Ampelocissus cinnamomea* could be found in the two herbaria, Yeo et al. (2013) suspected a misapplication of the name, being convinced of the possibility of confusing it with *Ampelocissus ascendiflora* Latiff after consulting the descriptions of Latiff (1982) and comparing herbarium specimens of both species. The report of Keng (1990) was disregarded even though he indicated that both species had been reported from Singapore and clearly distinguished them in his descriptions, because no specimen of *Ampelocissus cinnamomea* was cited.

This view remained until CKY encountered a living specimen fitting the description of Latiff (1982) and Keng (1990) on 17 Sep.2012 on a dry slope at the edge of a swamp near the end of Catchment Path toward the Belukar Trail in Bukit Timah Nature Reserve (BTNR) (Fig. 1), the locality we refer to as “Murphy’s Pond”. The juvenile phase leaves of *Ampelocissus cinnamomea* are simple and most similar in the size and general appearance to those of *Ampelocissus ascendiflora*, then *Ampelocissus gracilis*, and lastly, *Ampelocissus elegans*. It must be noted that *Ampelocissus ascendiflora* and *Ampelocissus gracilis* only have simple leaves. On the other hand, *Ampelocissus elegans* also has mature phase 3-foliolate leaves so is most easily confusable with *Ampelocissus cinnamomea* in the field. To distinguish these four similar species, a key is provided below.

**KEY TO THE IDENTIFICATION OF *AMPELOCISSUS ASCENDIFLORA*, *AMPELOCISSUS GRACILIS*, *AMPELOCISSUS CINNAMOMEA* AND *AMPELOCISSUS ELEGANS***

- 1a. Mature leaves simple, and if stipules and bracts on tendrils are prominent then stipule apex reflexed or not ..... 2
- 1b. Mature leaves trifoliolate, digitate or pedate, but juvenile leaves may be lobed or simple, stipules and bracts on tendrils not prominent, not reflexed ..... 3
- 2a. Stipules and bracts on tendrils not prominent, subulate, not reflexed; leaves up to 13 × 8 cm, with sparse hairs, petals 4 ..... *Ampelocissus gracilis*
- 2b. Stipules and bracts on tendrils prominent, ovate, reflexed; leaves often larger, with persistent hairs on the lower surfaces, petals 5 ..... *Ampelocissus ascendiflora*
- 3a. Plant covered in thick, persistent, woolly hairs on the stem, petioles, lower surfaces and veins of upper surfaces of mature leaves; stem from about 3.0 mm across; leaves up to 5-foliolate, with terminal leaflets of leaves 9.5–20 × 4–9.5 cm, and the lateral leaflets 5–18 × 2–10.5 cm; inflorescence 21–38 cm long, each flower having green petals and a green disc ..... *Ampelocissus elegans*
- 3b. Plant hairy on stem, leaf veins on upper surfaces, and petioles, getting less hairy with age, with leaf blade surfaces visible through the hairs when mature; stem from about 1.0 mm across, leaves up to 3-foliolate, rarely more divided, with terminal leaflets 13.5–20 cm × 4–6.5 cm, and lateral leaflets 11–17 cm × 3.5–5 cm; inflorescence 11–17 cm long, each flower having red petals and a green disc ..... *Ampelocissus cinnamomea*

A short description of *Ampelocissus cinnamomea* is provided below based on the authors' own observations supplemented by Latiff (1982) and Keng (1990). Illustrations for the species are provided in Figure 2. Illustrations comparing the inflorescences and flowers, and the vegetative parts of *Ampelocissus cinnamomea* and the other species are provided in Figs. 3 and 4, respectively.

***Ampelocissus cinnamomea* (Wall. ex M.A. Lawson) Planch.**

It is a herbaceous climber with a longitudinally ridged stem up to 8 mm across, often white tomentose when young, turning brown when older, with unbranched tendrils (Fig. 2A, D). The leaf is white tomentose when young, remaining brownish tomentose on the veins above and below when older (Fig. 2B, C). The leaf blade is simple, tridentate to 3-foliolate, with the whole range sometimes found on a single stem (Fig. 2B, C). In a simple leaf, the blade is ovate, 8.0–13.5 × 7.0–10.5 cm, and the petiole is 3.5–6.0 cm long. In a compound leaf, the terminal leaflet's blade is obovate, 13.5–20.0 × 4.0–6.5 cm, and the lateral leaflet's blade is asymmetric oblong, 11.0–17.0 × 3.5–5.0 cm. The inflorescence is a leaf-opposed, 11–17 cm long, cirrhiferous panicle of spikes. The flowers have red petals and green discs (Fig. 2E, F). It is reported from the Malay Peninsula and Borneo to be found in the understorey of lowland dipterocarp forest or more rarely, the fringes of hill dipterocarp forest. In Singapore, the it is presently known only from a forest patch at the edge of a swamp in the BTNR.



Fig. 1. Natural habitat of *Ampelocissus cinnamomea* at the Bukit Timah Nature Reserve. (Photograph by: Yeo Chow Khoon).



Fig. 2. A, *Ampelocissus cinnamomea* habit; B, Close up of a simple leaf; C, Close up on a young 3-foliolate leaf; D, Close up of a shoot tip, stipules and tendril; E, Close up of an inflorescence. Scale bars = 1 cm; F, Close-up on flowers (Photographs by: Yeo Chow Khoo [A–D], and Ng Xin Yi [E, F]).

## CONCLUSIONS

From the lack of *Ampelocissus cinnamomea* collections in SING and SINU, and the one known extant population found in relatively good quality forest, this species is currently very rare in Singapore. Based on the report of Keng (1990) that it had been more widely found in Choa Chu Kang, as well as the Bukit Timah and Central Catchment nature reserves, we suspect that its range in Singapore has shrunk, justifying a proposed conservation status of nationally critically endangered to replace the previous status of being presumed nationally extinct.

The loss of the natural forest habitat, attributable to widespread land use changes in Singapore (Corlett, 1991), is most likely the cause of the near-extinction of the species. The lack of collections deposited in the herbaria could be owed to the rarity of the species as well as the dearth of reproductive specimens encountered in the field. Therefore an attempt was made by the authors to propagate the species from stem cuttings rooted in wet sphagnum moss. To date two plants have been successfully grown from stem cutting in the Native Plant Nursery of the National University of Singapore (NUS). This shows the relative ease of propagating the species, which may allow for the ex situ conservation of the species by bringing them into gardens and parks. It did not appear to be a fastidious species in cultivation, being able to grow in partial to full sun under well watered and dry conditions, and thus should not be limited by physical conditions to a narrow range of habitats. Further studies on the autecology of the species may help us determine other causes of its rarity.



Fig. 3. Comparison between the inflorescences and flowers of: A–C, *Ampelocissus ascendiflora*; D–F, *Ampelocissus gracilis*; and G–I, *Ampelocissus elegans*. Scale bars = 2 cm (A, D, G) and 1 mm (B, C, E, F, H, I). (Photographs by: Ang Wee Foong [A] and Yeo Chow Khoo [B–I])

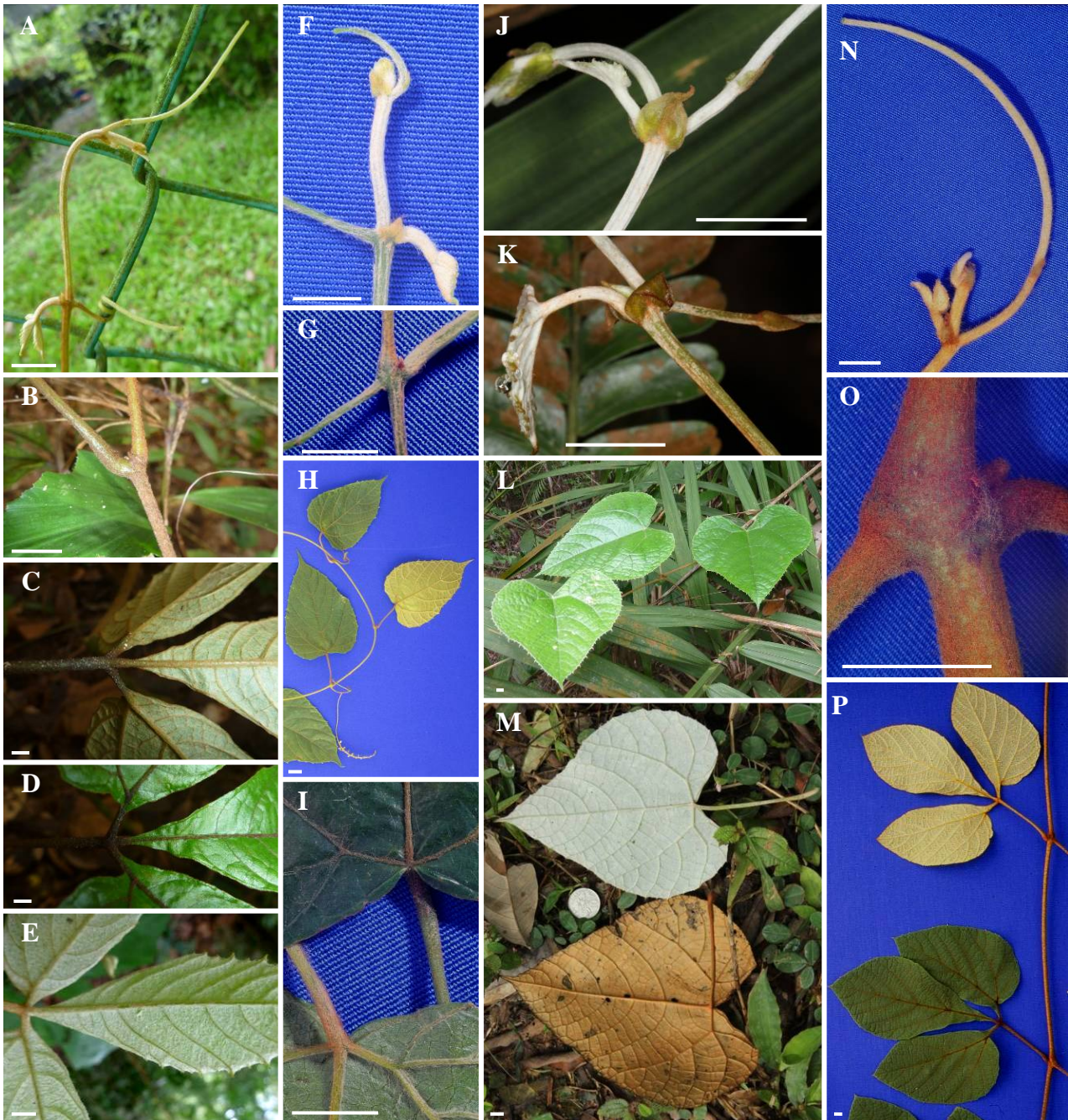


Fig. 4. A comparison of the differences between the vegetative parts: A–E, *Ampelocissus cinnamomea*; F–I, *Ampelocissus gracilis*; J–M, *Ampelocissus ascendiflora*; N–P, *Ampelocissus elegans*. The young shoot tips with stipules, and tendril bracts are compared in Fig. 4A, F, J, and N. The indumentums on the more mature stems of the different species are shown in Fig. 4B, G, K, and O. The general appearance of *Ampelocissus gracilis* and *Ampelocissus ascendiflora* are shown in Fig. 4H, I. The upper and lower surfaces of the leaves are shown in Fig. 4C, D, E, I, M, and P. Scale bars = 1 cm. (Photographs by: Ang Wee Foong [J–M] and Yeo Chow Khooon [all others]).

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