

## REDISCOVERY IN SINGAPORE OF *LEPIRONIA ARTICULATA* (RETZ.) DOMIN (CYPERACEAE)

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**ABSTRACT.** — *Lepironia articulata* (Retz.) Domin, a monotypic, semi-aquatic sedge, was presumed nationally extinct in Singapore. However, it was recently encountered and rediscovered in the Western Catchment, and assigned the national conservation status of Critically Endangered.

**KEY WORDS.** — Cyperaceae, *Lepironia articulata*, Western Catchment, Singapore, rediscovery

### INTRODUCTION

The monotypic genus *Lepironia* consists of a single recognised species, *Lepironia articulata*.

*Lepironia articulata* (Greek *lepiro*, flaky, scaly; Latin *articulata*, knuckled, jointed, referring to its stems) is a rhizomatous, semi-aquatic herb up to 2 m tall (Kern, 1974). The horizontal rhizomes are covered with ovate, ferruginous scales, while the stems are erect, smooth, greyish green or glaucous on the exterior (Figs. 1, 2), 40–200 cm tall and 2–8 mm wide, divided by partitions within. Leaves are reduced to bladeless sheaths at the base of the stems, 10–30 cm long, and dull yellow to brownish. Its flowers are arranged in an inflorescence known as a spikelet. The spikelets occur singly on each stem (Fig. 3), each ovoid to oblong ellipsoid, and 1–4 × 5–15 mm. The fruits are brown nuts that are dorsiventrally compressed, obovate, with longitudinal striations, and, 3–4 × 2.5–3 mm.

*Lepironia articulata* occurs naturally from Madagascar, throughout tropical and subtropical Asia (including Singapore), to the West Pacific, in open swampy places, marshes and streams near coasts and often forming extensive communities (Kern, 1974). In Singapore, this species is Presumed Nationally Extinct (Tan et al., 2008; Chong et al., 2009).

### PAST AND PRESENT RECORDS

In Singapore, *Lepironia articulata* has been collected from the marshes around Jurong and Teban (Table 1).

In a botanical survey conducted on 23 Dec. 2014 at the Western Catchment, we encountered distinct clumps of a grass-like plant along the edges of Poyan Reservoir, particularly at a small pool that extends from the arm of the main reservoir (Figs. 1, 2). The greyish green colour of the plant stood out particularly among the rest of the vegetation (Figs. 1, 2). Upon closer examination of the plant, it was then discovered that it was *Lepironia articulata*, with the distinct single spikelet emerging from the stem towards the tip (Fig. 3).

The loss of freshwater swamps and marsh areas from Singapore may have resulted in the presumed extinction of *Lepironia articulata*. Freshwater swamp forest occupied up to 5% of Singapore's land area in 1819, but the majority has of this has since been filled or converted to other land uses such as reservoirs (Corlett, 1992). The rediscovered

Table 1. Previous Singapore collections of *Lepironia articulata* (Retz.) Domin deposited in the Herbarium, Singapore Botanic Gardens (SING).

S/No.	Bar Code No.	Collector	Collector's No.	Date Collected	Locality
1.	0005028	H. N. Ridley	14172	—	—
2.	0005029	H. N. Ridley	54	10 Jan. 1889	Jurong
3.	0005030	H. N. Ridley	s.n.	1892	Teban
4.	0005031	H. N. Ridley	s.n.	Feb. 1900	Jurong



Fig. 1. The distinctly greyish green stems of *Lepironia articulata* set the species apart from the rest of the vegetation along the edges of Poyan Reservoir. (Photograph by: Ang Wee Foong).

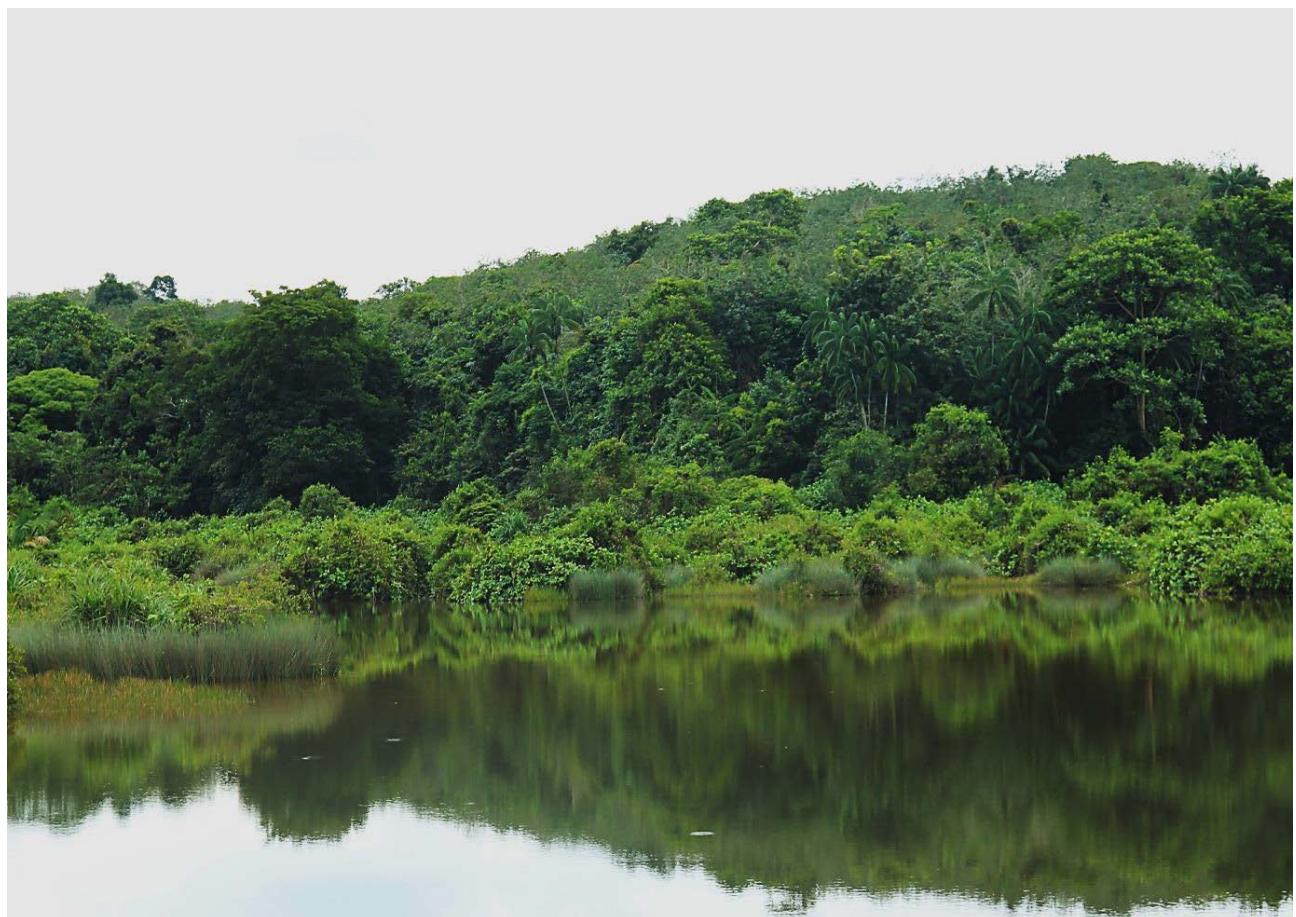


Fig. 2. Several clumps of *Lepironia articulata* growing along the edge of Poyan Reservoir. (Photograph by: Ang Wee Foong).

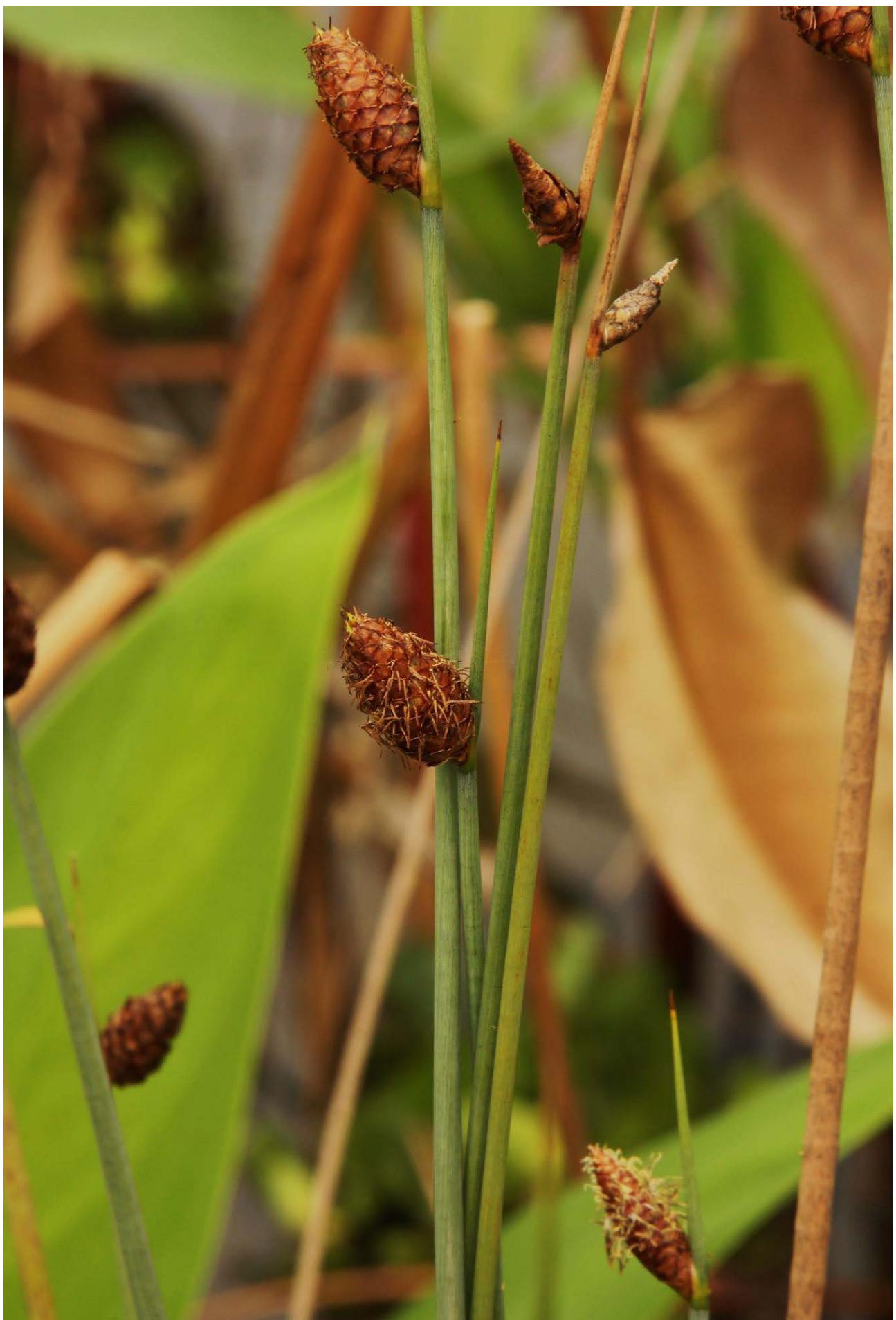


Fig. 3. Spikelets occurring singly along the stem. (Photograph by: Ang Wee Foong).

population of *Lepironia articulata* in the Western Catchment was likely to have been saved as it is located in a Military Training Area (MTA) where public access is limited and the majority of the vegetation remains untouched. The lack of public access could also explain why it was overlooked previously. There could be more populations of *Lepironia articulata* in the other reservoir areas of the Western Catchment as well as Pulau Tekong, and more extensive surveys need to be done to record the populations present in Singapore.

MTAs have enormous potential as conservation areas as they are representative of a variety of ecosystems, distributed around the country, and are often of substantial size with a large number of plant and animal species (Zentelis & Lindenmayer, 2014). Their importance to Singapore also ensures that they will remain as designated training areas not to be developed (i.e., cleared of vegetation). The contribution of MTAs to conservation in Singapore can be enhanced through better documentation of their existing flora and fauna, integrated land management for both military training and conservation, financial investment, and greater political recognition and leadership to pursue this desirable outcome (Zentelis & Lindenmayer, 2014).

## CONCLUSIONS

As there is only one known population of *Lepironia articulata* in the Western Catchment, it is extremely vulnerable to local extinction. More extensive surveys should be conducted in the Western Catchment and other catchment areas where more individuals could be discovered and propagated for greater genetic diversity. Efforts to combine management of MTAs with conservation considerations may lead to discoveries of more presumed nationally extinct species, endangered plant species, or even new species records that can contribute to gene pool strengthening and greater survivability of our native plants.

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