

***Drepananthus pruniferus* Maingay ex Hook.f. & Thomson (Annonaceae), a new record for Singapore**

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Abstract. *Drepananthus pruniferus* is a new species of *Drepananthus* recorded in Singapore. We discuss this new finding, which, based on its known distribution, should be considered a nationally Critically Endangered species.

Key words. *Drepananthus pruniferus*, Annonaceae, Singapore, Nee Soon, new record, *Cyathocalyx*

INTRODUCTION

Drepananthus Maingay ex Hook.f. & Thomson is a genus of over 20 species of trees widely distributed in primary and secondary tropical forests of Southeast Asia to the Fiji Islands. The generic name *Drepananthus* was first established in 1872 by Hooker & Thomson in the Flora of British India with the type species *Drepananthus pruniferus* collected by Alexander Carroll Maingay in Malacca (Hooker & Thomson, 1872).

In 1955, Sinclair combined the species in *Drepananthus* into *Cyathocalyx*, citing similarities in floral structures for both genera (Sinclair, 1955). In 2006, Wang & Saunders's revision of *Cyathocalyx* sensu lato returned most of the species (except two) to *Drepananthus*, including *Drepananthus pruniferus* as well as two species known to be native to Singapore, *Drepananthus ramuliflorus* Maingay ex Hook.f. & Thomson and *Drepananthus ridleyi* (King) Survesw. & R.M.K.Saunders.

DISCOVERY OF *DREPANANTHUS PRUNIFERUS* IN SINGAPORE

Drepananthus pruniferus is a monopodial tree found mostly in primary and secondary forests of Peninsular Malaysia and Sumatra (Wang & Saunders, 2006). It can grow up to 23 m tall with stout spreading branches. Branches are rusty tomentose when young (Fig. 1). Leaves are coriaceous, distichous, with lamina measuring 20–30 cm by 10–12 cm with cordate bases (Fig. 2).

The flowers are rusty tomentose, about 2 cm in diameter, occurring in clusters along branches (Fig. 3). Pedicels are about 2 cm in length (Fig. 4). Sepals are about 2 cm in length, broadly ovate and tomentose. Petals are constricted in the middle, about 1.5 cm long. Outer petals have boat-shaped cavities at the end. Inner petals have almost spherical bases (Fig. 5). Carpels are numerous, about 0.5 cm long, and covered with silky hairs. Each fruit is 3 cm long and about 2.7 cm in diameter, sessile and pruinose (Fig. 6). Seeds are brown, flat and shiny, with a layer of translucent green aril that turns dark brown when exposed (Figs. 7–9).

When fruiting, *Drepananthus pruniferus* is easily distinguished from the other species as it is the only one that has fleshy arils covering the seeds. In the absence of fruits, *Drepananthus pruniferus* has broader petals compared to other species of the genus in Singapore (Wang & Saunders, 2006) (Figs. 11, 12).

Henry Nicholas Ridley mentioned *Drepananthus pruniferus* in his Flora of Singapore as “a tall straight tree. Garden jungle, Kranji” (Ridley, 1900). In 1922, in his Flora of Malay Peninsula, Ridley's account listed Singapore as one of the localities where *Drepananthus pruniferus* can be found (Ridley, 1922). However, there were no specimens cited in these works, and no specimens can be located of *Drepananthus pruniferus* collected by Ridley in Singapore. In the Singapore Botanic Gardens' Herbarium (SING), there are only specimens of *Drepananthus ramuliflorus* collected by H. N. Ridley from Kranji (specimen Ridley 6176, labelled as ‘*Cyathocalyx ramuliflorus*’) as well as from the Singapore Botanic Gardens Rain Forest (specimens Ridley 604 and Ridley 4454). Hence, there is a possibility that Ridley could have misapplied this species name to *Drepananthus ramuliflorus*, which is commonly found throughout Singapore, in his flora accounts.

Subsequent flora accounts by Sinclair (1955) and Keng (1990) did not mention *Drepananthus pruniferus* as being present in Singapore. Chong et al. (2009) listed only three species of *Cyathocalyx*: *Cyathocalyx ramuliflorus*, *Cyathocalyx ridleyi*



Fig. 1. Habit of *Drepananthus pruniferus*. (Photograph by: Ng Xin Yi).



Fig. 2. Flowering and leafy branch of *Drepananthus pruniferus* (SING 2018-332). (Photograph by: Ng Xin Yi).



Fig. 3. Clusters of flowers along branch (SING 2018-332). Scale bar = 1 cm. (Photograph by: Ng Xin Yi).



Fig. 4. Rusty-tomentose sepals and petals. Scale bar = 1 cm. (Photograph by: Ng Xin Yi).

and *Cyathocalyx sumatranus*. The first two should now be *Drepananthus ramuliflorus* and *Drepananthus ridleyi*, while *Cyathocalyx sumatranus* is one of the two species that remains in *Cyathocalyx* (Wang & Saunders, 2006).

In April 2018, a fallen individual of *Drepananthus pruniferus* was discovered along a stretch of disturbed vegetation in Nee Soon Swamp Forest (Fig. 10). It was flowering at that time. Another flowering, healthy individual about 16 metres tall was found nearby. A flowering specimen was subsequently collected and sent for identification in the SING herbarium (SING 2018-332). Both individuals were monitored and observed for fruits. Only the standing individual produced several clusters of fruit high up on the tree with only one fallen cluster collected in July 2018. Seeds were sown in the Native Plant Centre, Pasir Panjang Nursery, but none of the seeds germinated. The same individual was observed to be flowering again in December 2019 but unfortunately, no fallen fruits were found. No other individuals were found in the immediate area in this period.

This newly recorded species could be easily mistaken as *Drepananthus ramuliflorus* or *Drepananthus ridleyi* when vegetative. This species is considered to be a new native record as these two individuals are found at the edge of the primary swamp forest, where many native species specific to the swamp forest are present, and no evidence of cultivation of this species (i.e., from introduced individuals) has been recorded previously.



Fig. 5. Outer and inner petals. Scale bar = 1 cm. (Photograph by: Ng Xin Yi).



Fig. 6. Fruits of *Drepananthus pruniferus*. Scale bar = 2 cm. (Photograph by: Ng Xin Yi).



Fig. 7. Cross section of *Drepananthus pruniferus* fruit showing the arillate seeds. Scale bar = 1 cm. (Photograph by: Ng Xin Yi).



Fig. 8. Aril of *Drepananthus pruniferus* fruit turning brown after exposure. Scale bar = 1 cm. (Photograph by: Ng Xin Yi).



Fig. 9. Brown, flat seeds of *Drepananthus pruniferus*. (Photograph by: Ng Xin Yi).



Fig. 10. The fallen individual that was discovered in April 2018, and subsequently removed. (Photograph by: Reuben C. J. Lim).



Fig. 11. Flowers of *Drepananthus* and *Cyathocalyx* species in Singapore. A, *Drepananthus ramuliflorus*, scale bar = 0.5 cm; B, *Drepananthus ridleyi*, scale bar = 2 cm; C, *Drepananthus pruniferus*, scale bar = 1.5 cm; D, *Cyathocalyx sumatranus*, scale bar = 2 cm. (Photographs by: Ng Xin Yi).

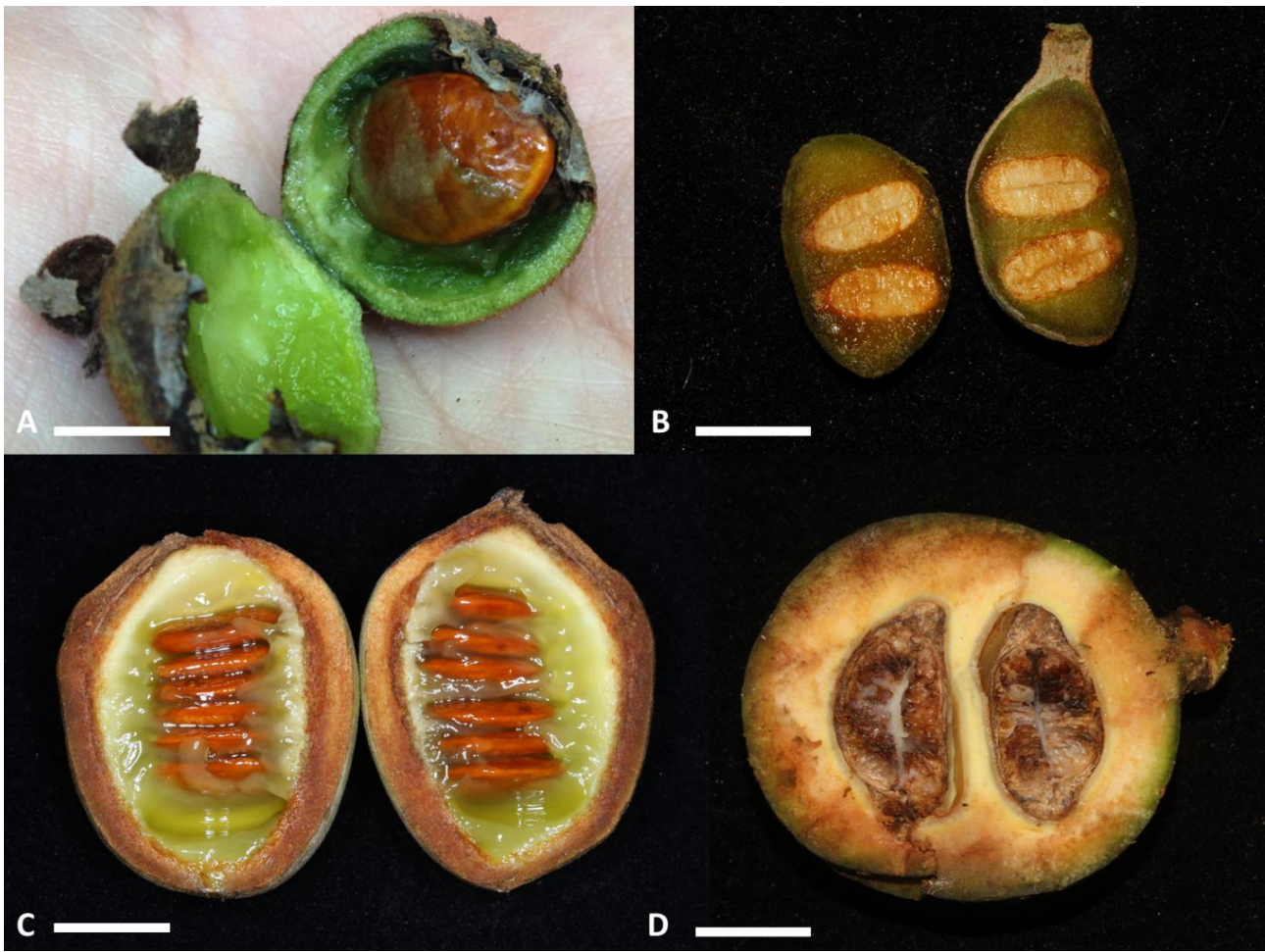


Fig. 12. Fruits of *Drepananthus* and *Cyathocalyx* species in Singapore. A, *Drepananthus ramuliflorus*, scale bar = 1 cm; B, *Drepananthus ridleyi*, scale bar = 1 cm; C, *Drepananthus pruniferus*, scale bar = 1 cm; D, *Cyathocalyx sumatranus*, scale bar = 1 cm. Note the non-arillate fruitlets of all except *Drepananthus pruniferus*. (Photographs by: Ng Xin Yi).

CONCLUSION

Drepananthus pruniferus is a new native species record for Singapore's flora with the only known locality being Nee Soon Swamp Forest. Recent floral surveys in Nee Soon Swamp Forest have not recorded the presence of this species (Chong et al., 2018). With its very limited distribution and only a single living individual still known in Singapore, this species should be assigned a nationally Critically Endangered status until further assessments are done.

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