NATURE IN SINGAPORE 2013 **6**: 149–152
Date of Publication: 1 July 2013

STATUS AND DISTRIBUTION OF *PTEROSPERMUM* SPECIES IN SINGAPORE

S. K. Ganesan
Centre for Urban Ecology and Greenery (CUGE) – Research
Raffles Building, National Parks Board Headquarters, Singapore Botanic Gardens
1 Cluny Rd, Singapore 259569, Republic of Singapore
(Email: ganesan_s_k@nparks.gov.sg)

ABSTRACT. — Two species of the genus *Pterospermum* are found naturally in Singapore: *Pterospermum diversifolium* Blume and *Pterospermum javanicum* Jungh. *Pterospermum diversifolium* Blume is listed in the Singapore Red Data Book and the Singapore Plant List as nationally extinct. However, a wild population of *Pterospermum diversifolium* Blume has recently been rediscovered in Pulau Ubin. The distribution of *Pterospermum javanicum* Jungh. in the wild in Singapore appears to be more restricted presently compared to historical records. A third species, *Pterospermum lanceifolium* Roxb., is known to occur in Singapore solely from records from Fort Canning and research suggests that it is probably of a cultivated origin.

KEY WORDS. — *Pterospermum*, Malvaceae, Singapore, status, distribution

INTRODUCTION

The genus *Pterospermum* Schreb. comprises 18–40 species that are mostly trees and are distributed from the Eastern Himalayas and South China, through Southeast Asia to Maluku (Wilkie, 2007). It is now widely accepted that *Pterospermum* belongs to the sub-family Dombeyoideae in the family Malvaceae (e.g., Bayer & Kubitzki, 2003). Species of *Pterospermum* are important commercially for their timber (Cheek, 2007) and have ornamental potential (Corner, 1988). No monograph of the genus currently exists and this is currently being undertaken by the author. This paper presents an enumeration for the Republic of Singapore based on the specimens held at the Herbarium, Singapore Botanic Gardens (SING) and augmented by field studies.

LIST OF *PTEROSPERMUM* SPECIES OF SINGAPORE

Pterospermum diversifolium Blume
(Fig. 1A)

This species is found in India, Indochina, China, and Malesia. In Singapore this species is only known from Pulau [=island] Ubin. It was first collected by Ridley in 1890 and he lists Pulau Ubin as the sole locality for the occurrence of this species in Singapore (Ridley, 1900, 1922). This species is listed in the Singapore Red Data Book (Tan et al., 2008) and in Chong et al. (2009) as nationally extinct. However, it was recently collected from Pulau Ubin by Ali bin Ibrahim of the Pulau Ubin Branch, National Parks Board. Fieldwork in Pulau Ubin in Dec.2012 revealed a population of this species in an area of secondary forest composed of seedlings, saplings, and mature trees and confirmed that this species has indeed been rediscovered in Singapore.

The categories and criteria for the International Union for Conservation of Nature (IUCN) Red List are for conservational assessment of species at the global level (IUCN, 2001). This has been adapted for use on a national level in Singapore by Davison (2008). Based on Davison (2008), a conservation status category of Critically Endangered status D (CR/D) is proposed for this species in Singapore since it is estimated there are fewer than 50 mature individuals.

Specimens seen:

Pulau Ubin: H. N. Ridley s.n. 1890 (SING), H. N. Ridley 387 (flowers) 5 Mar.1890 (SING), Ali Ibrahim et al., SING 2007-416 (fruits) Dec.2007 (SING), S. K. Ganesan et al., SKG251 (fruits), SKG252, SKG253 17 Oct.2012 (SING)

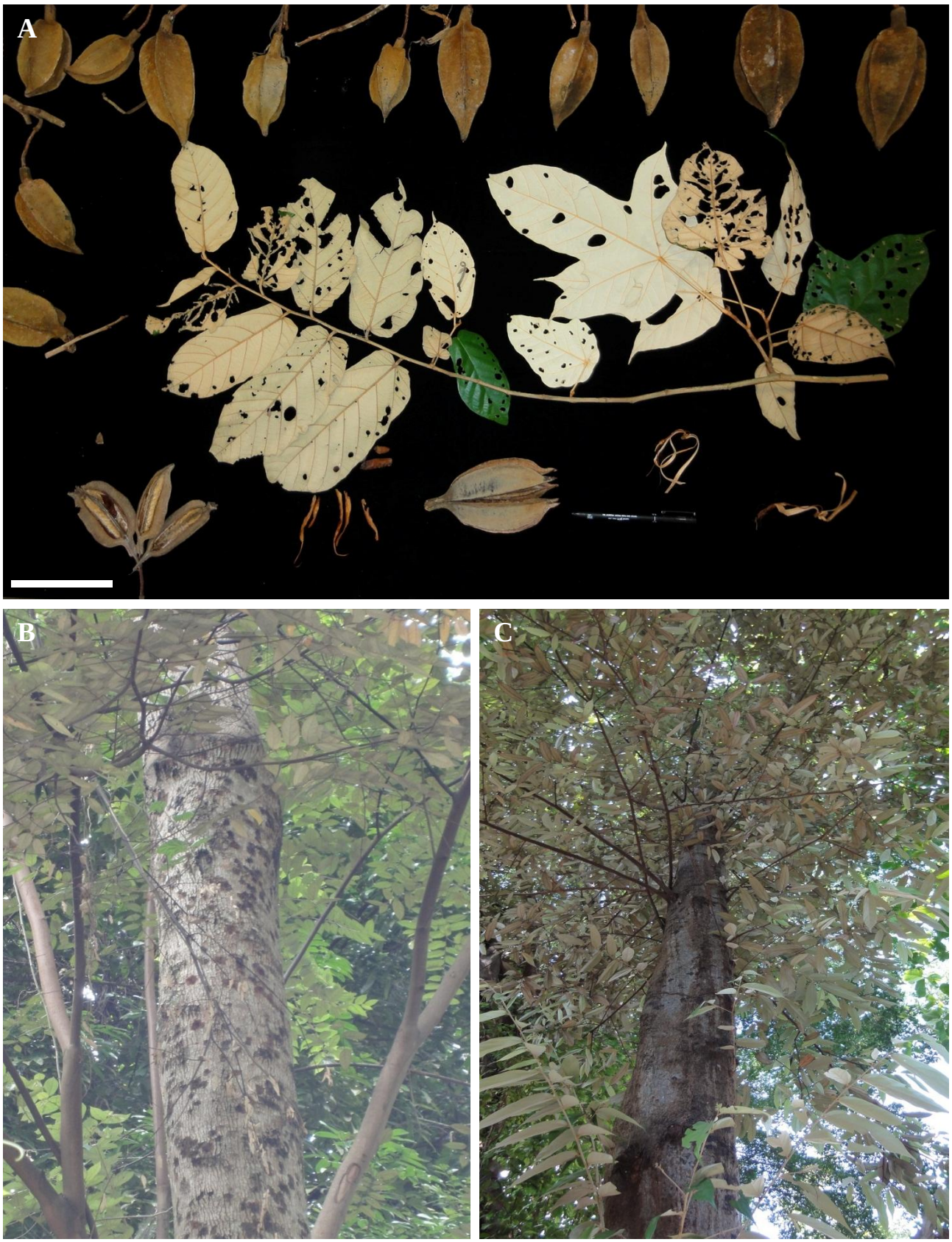

Fig. 1. A, *Pterospermum diversifolium* Blume photographed at Pulau Ubin, Singapore. The leaves show heterophylly on the same branch, hence the specific epithet for the species, i.e., *diversifolium*. Scale bar = 10 cm. B, *Pterospermum javanicum* Jungh. with its distinctly "pocked-marked" bole, photographed at Singapore Botanic Gardens' Jungle, Singapore. C, *Pterospermum lanceaefolium* Roxb., with a light-coloured underside of the crown that is distinctive of *Pterospermum*. This individual was photographed at Fort Canning Park, Singapore. (Photographs by: S. K. Ganesan).

***Pterospermum javanicum* Jungh**
(Fig. 1B)

This species is found in India, Myanmar (Burma), and throughout Malesia. The distribution of this species in Singapore was more widespread historically and included Choa Chu Kang, Sungei Buloh, and Bukit Timah. At present, it is restricted to Bukit Timah Nature Reserve and the Singapore Botanic Gardens' Jungle.

Owing to its restricted distribution in Singapore, it is recommended that the status of critically endangered (CR) listed in the Singapore Red Data Book for this species is maintained.

Specimens seen:

Bukit Timah: H. N. Ridley s.n.(fruits) 1889 (SING), H. N. Ridley 6303 (flowers) Jun.1894 (SING), Ngadiman SF. 36145(flowers) 18 May 1940 (SING), Sinclair SF. 40193 11 Feb.1954 (SING), Ngadiman s.n.(fr.) 29 Jul.1955 (SING), Eugene Tang & Haji Sidek 976 4 Oct.1995 (SING), Joseph Lai LJ25(fruits) 1996 (SING), Khoo, M. S. KMS 76(fruits) 20 Apr.2009 (SING); **Choa Chu Kang**: Mat 6762(flowers) 15 May 1895 (SING); **Sungei Buloh**: H. N. Ridley 6181(flower buds) 1902 (SING); **Gardens Jungle**: S. K. Ganesan SKG216 11 Jan.2012 (SING)

***Pterospermum lanceifolium* Roxb**
(Fig. 1C)**.**

This species is found in Bangladesh, Myanmar (Burma), Indochina, South China, and the northern part of Peninsular Malaysia. It is listed in Tan et al. (2008) and Chong et al. (2009) as critically endangered (CR) in Singapore. It has only ever been recorded from Fort Canning where at present it is represented by a single tree. This single tree is coppicing from its base with a large part of its aerial portion strangled by a large *Ficus*. Fort Canning was historically the site of Singapore's first Botanic Gardens, which was established by Raffles and Wallich in 1822. Therefore it is possible that this species is an introduction to the area. Ridley in his Flora of the Malay Peninsula (Ridley, 1922) does not list this species as occurring in Singapore even though he had collected a specimen from Fort Canning in 1902. This suggests that he considered the collections from Singapore not to be of wild origin.

Examination of the specimens held at SING gives the southern limit of *Pterospermum lanceaefolium* as Pulau Dayang Bunting in the Langkawi Islands off the northern end of the Malay Peninsula. The records from Singapore, if truly wild, would represent a disjunct population situated about 700 km from Langkawi and does not otherwise occur in Singapore or in the neighbouring Southern Johore, the Riau Archipelago, or Sumatra Island. This is highly implausible and therefore strengthens the case that the records at Fort Canning are of probable cultivated origin and therefore should be reflected in the Singapore Red Data Book as such.

Specimens seen:

Fort Canning: H. N. Ridley s.n. 1902 (SING), Joseph Lai LJ180 (flowers) 1996 (SING), S. K. Ganesan SKG213 (flowers) 9 Jan.2011 (SING)

ACKNOWLEDGEMENTS

The following are thanked for their assistance in this study: Ali bin Ibrahim, Joseph Lai, and Robert Teo (National Parks Board, Singapore); Peter Wilkie (Royal Botanic Garden Edinburgh), and David Burslem (University of Aberdeen).

LITERATURE CITED

Bayer, C. & K. Kubitzki, 2003. Malvaceae. In: Kubitzki, K. & C. Bayer (eds.), *The Families and Genera of Vascular Plants. Vol. 5.* Springer Verlag, Berlin. Pp. 225–311.

Chong, K. Y., H. T. W. Tan & R. Corlett, 2009. *A Checklist of the Total Vascular Plant Flora of Singapore: Native, Naturalised and Cultivated Species*. Raffles Museum of Biodiversity Research, National University of Singapore, Singapore. 273 pp. Uploaded 12 Nov.2009. http://rmbr.nus.edu.sg/raffles_museum_pub/flora_of_singapore_tc.pdf.

Cheek, M., 2007. Pentapetaceae. In: Heywood, W. H., R. K Brummitt, A. Culham & O. Seberg (eds.), *Flowering Plants of the World*. Firefly Books, Ontario. Pp. 247–248.

Corner, E. J. H., 1988. *Wayside Trees of Malaya. 3rd Edition. Vol. II*. Malayan Nature Society, Kuala Lumpur. 770 pp.

Davison, G. W. H., 2008. Criteria for determining category of threat. In: Davison, G. W. H., P. K. L. Ng & H. C. Ho (eds.), *The Singapore Red Data Book: Threatened Plants and Animals of Singapore*. *2nd Edition*. The Nature Society (Singapore), Singapore. Pp. 268–271.

International Union for Conservation of Nature (IUCN), 2001. *IUCN Red List Categories and Criteria, Version 3.1*. IUCN Species Survival Commission, Gland Switzerland and Cambridge, UK.

Ridley, H. N., 1900. Flora of Singapore. *Journal of the Straits Branch of the Royal Asiatic Society*, **33**: 27–196.

Ridley, H. N., 1922. *The Flora of the Malay Peninsula. Vol. I: Polypetalae*. L. Reeve & Co., Ltd., London. 918 pp.

Tan, H. T. W., B. C. Tan, K-x. Tan, Ali bin Ibrahim, P. T. Chew, K. S. Chua, H. Duistermaat, S. K. Ganesan, M. W. K. Goh, A. T. Gwee, R. Kiew, S. M. L. Lee, P. Leong, J. Lim, A. F. S. L. Lok, A. H. B. Loo, S. K. Y. Lum, T. Morgany, Saifuddin bin Suran, S. Sim, Haji Samsuri bin Haji Ahmad, Y. C. Wee, K. F. Yap, C. K. Yeo & J. W. H. Yong, 2008. Checklists of threatened species: Seed plants. In: Davison, G. W. H., P. K. L. Ng & H. C. Ho (eds.), *The Singapore Red Data Book: Threatened Plants and Animals of Singapore*. *2nd Edition*. The Nature Society (Singapore), Singapore. Pp. 213–245.

Wilkie, P., 2007. A new species of *Pterospermum* (Dombeyoideae, Malvaceae/Sterculiaceae) from Cambodia and Vietnam. *Edinburgh Journal of Botany*, **64**: 179–183.