



Three New Species from Gunung Kanthan, a Limestone Tower Karst in Perak, Malaysia

TAN, J.P.C., KIEW, R., SAW, L.G. & UMMUL-NAZRAH, A.R.

Forest Research Institute Malaysia, 52109 Kepong, Selangor, Malaysia. E-mail: joannetan@frim.gov.my

Abstract

Three new species, *Gymnostachyum kanthanense* Kiew (Acanthaceae), *Meiogyne kanthanensis* Ummul-Nazrah & J.P.C. Tan (Annonaceae) and *Vatica kanthanensis* Saw (Dipterocarpaceae), from Gunung Kanthan, Perak, are described and illustrated. All three are Critically Endangered CR B2ab (iii, iv), D1 being known from very small, restricted populations at the type locality. Gunung Kanthan is currently being quarried for cement on a large scale, which if it continues threatened all three species with extinction.

Key words: *Gymnostachyum kanthanense*, *Meiogyne kanthanensis*, *Vatica kanthanensis*, Gunung Kanthan, limestone, new species.

Introduction

At present, limestone hills are not legally protected in Peninsular Malaysia, except the few located within National, State or Geo-Parks. Most lie on state land and can be exploited for the commercial value of the limestone or, more recently, for the ecotourism value of their caves, cave temples or for rock climbing. Despite the vast limestone bedrock that underlies areas with tower karst limestone formations, quarry companies prefer to irreversibly blast away the iconic limestone hills. The fact that below-ground mining is commercially viable is shown by an internationally well known cement group operating such a quarry in the southern state of Selangor.

Gunung Kanthan near Chemor, Perak, 04°45'50.0"N, 101°07'21.2"E, is a limestone massif on the verge of irreversibly losing its priceless geological, biological, cultural, tourist and recreational values to quarrying for cement (Kiew *et al.* 2013). Since the 1960s a cement quarry has operated at the northern part of Gunung Kanthan (Fig. 1A). However, recently the quarry company plans to extend its activities to the more extensive pristine southern part (Fig. 1B–C). This is of grave conservation concern because Gunung Kanthan has already been identified as one of the outstanding tower karst hills in Perak. Out of 45 hills surveyed (MNS 1991), 14 were identified as needing conservation protection for their sensitive fauna and flora and their geological formations. Gunung Kanthan was one of the four that topped the list of hills with the greatest conservation important. In May 2012, the Mayor of Ipoh, Perak, announced that 16 prominent limestone hills with Gunung Kanthan heading the list were important areas for their unique biodiversity and should be protected for tourism, research and recreation instead of being destroyed by mining or quarrying (NST 2012). He said that the Ipoh City Council in the Ipoh Local Draft Plan 2020 would be recommending to the Perak State Government that no new approval licenses for new quarry sites be issued. In response to the threat of extending quarrying to the southern part of the Gunung Kanthan that would eventually level the hill to the ground, botanists from the Kepong Herbarium, Forest Research Institute Malaysia, undertook several field surveys to completely inventory the flora. One of the results of the survey was the discovery of three new species, all named for the locality, that are described here. All three species, using the IUCN Categories and Criteria version 3.1, fall within the Critically Endangered category because of their small population size and Area of Occupancy being less than 10 km².

Conservation status:—Critically Endangered CR B2ab (iii, iv), D1. Currently known only from the type locality, we saw less than 50 adult trees with no seedlings or saplings around the ridge and summit where the mature trees are found.

Additional specimens examined:—MALAYSIA. Perak: Kinta, Chemor, Gunung Kanthan. 04°46.02'N, 101°07.39'E, 26 February 2014, *Saw L.G. et al. FRI 48442* (KEP); 26 February 2014, *Tan J.P.C. et al. FRI 81788* (KEP).

Notes:—In the revision of Symington's *Foresters' Manual of Dipterocarps*, Ashton & Appanah (2004) listed 23 *Vatica* species for Peninsular Malaysia. Since then six species have been added to the flora of Peninsular Malaysia either as new species or new records (El-Taguri & Latiff 2010, 2013). This new species belongs to section Sunaptea, species having a fruiting calyx with unequal lobes. The species falls within the group of *Vatica* which has free calyx lobes that do not fuse into a cup that is adnate to the nut. Vegetatively, the species has rather large leaves with a blade to 29 cm long, much larger than any species within this group. It can, however, be confused with *Vatica odorata*, see the diagnosis above for the differences.

Acknowledgements

This study was funded by the Ministry of Science, Technology and Innovation, Malaysia (MOSTI) under the 'Flora of Peninsular Malaysia project' (01-04-01-000 Khas) and 'Documentation & Inventory Flora of Malaysia project' based at Forest Research Institute Malaysia. We thank Lafarge Malaysia Bhd for permission to access the area and carry out the plant survey. We are also grateful to Director General of Forest Research Institute Malaysia, Dato' Dr. Abd. Latif Mohmod for his support and advice during the study. To the Kepong Herbarium field team, A. Angan, H. L. Kueh and K. Imin for their support, to the monks from the Malaysia Dhamma Sakyamuni Monastery for guiding the team up onto the ridge, to Liz Price for advice on collecting from an obscured cave mouth, to M. Aidil for the preparation of the *Vatica* botanical plate, to Dr. David Johnson for expert advice on the identity of *Meiogyne*, to P.T. Ong, for permission to use photographs, to S. Kamarudin and L.S.L. Chua for advice in identifying specimens and to the Curators of the Kew and Singapore Herbaria for permission to examine specimens in their care.

References

- El-Taguri, H.M.A. & Latiff, A. (2010) Two new records of *Vatica* L. (Dipterocarpaceae) in Peninsular Malaysia and its taxonomic significance. *The Malaysian Forester* 74 (1): 111–122.
- El-Taguri, H.M.A. & Latiff, A. (2013) Two new species and two new records of *Vatica* L. (Dipterocarpaceae) for Peninsular Malaysia. *The Malaysian Forester* 75 (2): 127–134.
- Hansen, B. (1985) Notes on *Andrographis* and *Gymnostachyum* (Acanthaceae). *Nordic Journal Botany* 5: 353–356.
<http://dx.doi.org/10.1111/j.1756-1051.1985.tb01664.x>
- Heusden, E.C.H. van. (1994) Revision of *Meiogyne* (Annonaceae). *Blumea* 38: 487–511.
- Kiew, R., Tan, J.P.C. & Vermeulen, J.J. (2013) Conservation management of limestone hills in Perak – Gunung Kanthan. *Malaysian Naturalist* 67(1): 52–57.
- Malaysian Nature Society (MNS) (1991) *A Conservation Assessment of Limestone Hills in Kinta Valley*. Malaysian Nature Society, Kuala Lumpur, pp. 202.
- News Straits Times (NST) (2012) Ipoh Council to Protect Limestone Hills. Available from: <http://www.nst.com.my/nation/general/ipoh-council-to-protect-limestone-hills-1.80873>
- Ridley, H.N. (1923) Acanthaceae. In: *The Flora of Malay Peninsula* 2. Reeve & Co. Ltd., London, pp. 554–610.
- Symington, C.F. (2004) *Foresters' Manual of the Dipterocarps*. Revised by P.S. Ashton & S. Appanah. Forest Research Institute Malaysia, Kepong, 509 pp.