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ENCOUNTER WITH A NEWLY EMERGED MOTH, *ALOMPRA FERRUGINEA*, IN SINGAPORE (LEPIDOPTERA: LASIOCAMPIDAE)

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INTRODUCTION

The lasiocampid moth *Alompra ferruginea* Moore, 1872, is the type species for the genus, with Darjeeling (India) as its type locality (Holloway, 1987; Zolotuhin & Pinratana, 2005). This species has a broad South and Southeast Asian distribution and has been recorded from the northeast Himalayas (India, Nepal), southern China, Vietnam, northern Thailand, Myanmar, Peninsular Malaysia, Sumatra, Borneo and the Philippines (Mindanao—distinct subspecies) (Zolotuhin & Pinratana, 2005). The genus is represented by two other species, namely *Alompra roepkei* Tam, 1953, from South and Southeast Asia, and *Alompra hyalina* Kishida & Wang, 2007, from Guangdong, south China (Zolotuhin & Pinratana, 2005; Kishida & Wang, 2007). In Singapore, there have only been records of *Alompra ferruginea*, thus far, with all these being from within the Central Catchment Nature Reserve. A recent encounter with a freshly eclosed female moth of this species is summarised, with observations of possible pheromone broadcast behaviour, and a brief description of its diagnostic ova.

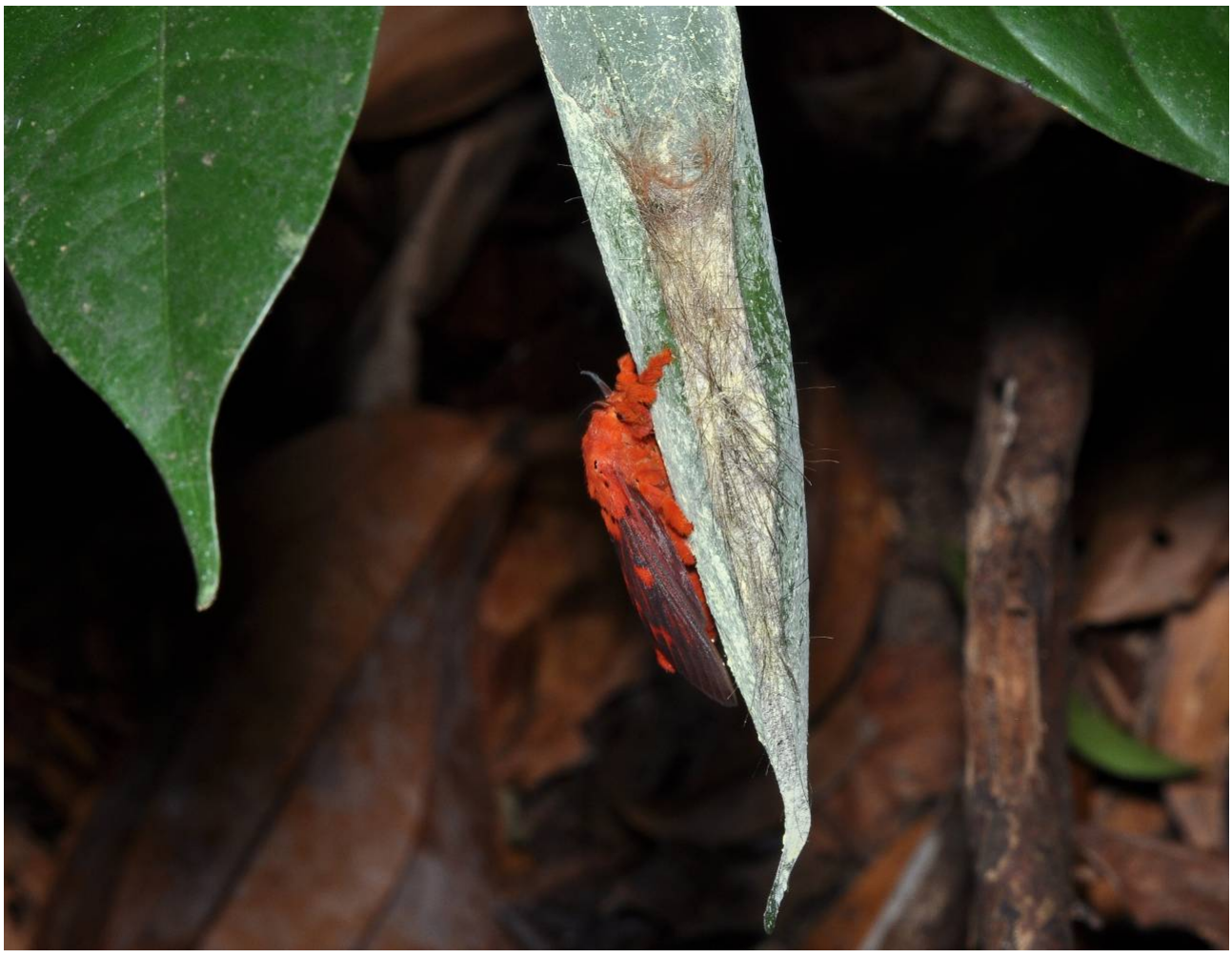

Fig. 1. Lateral view of recently eclosed female *Alompra ferruginea* encountered within the Upper Peirce Reservoir forest on the night of 23 Jan.2010 (ca. 2030 hours). It was perched at knee-level upon the curled leaf of a sapling *Garcinia forbesii* (Guttiferae), which had been employed to wrap around its cocoon. (Photograph by: Tzi Ming Leong).

OBSERVATIONS

While conducting a faunal survey within the Upper Peirce Reservoir forest on the night of 23 Jan.2010, a striking red moth was sighted along a transect trail, recently eclosed and perched at knee-level on a leaf of a sapling (Fig. 1). Upon closer inspection, the curled leaf had in fact been utilised to envelope its cocoon, which consisted of the recycled setae of the final instar larva. There was an overall whitish, powdery bloom on the surface of the leaf as well as the cocoon (Fig. 2). The lamina of the leaf was 115 mm long, while the enclosed cocoon spanned 70 by 17 mm. The sapling itself was ca. 1.2 m tall and was subsequently identified as *Garcinia fergusonii* (family Guttiferae). The moth (body length: 28 mm, forewing length: 26 mm, abdomen width: 9 mm) was confirmed to be a female *Alompra ferruginea* as it clearly matched the dimensions and wing morphology for the species (Zolotuhin & Pinratana, 2005: 144, Pl. 19—Fig. 12).

Upon closer examination of its antennae, their pectinations were readily observed (Fig. 3). These lateral processes (rami) would be more pronounced in males of the species, especially at the proximal half of the antenna. Males would also be relatively smaller in size, with a different wing profile (Holloway, 1987; Zolotuhin & Pinratana, 2005). While the female moth was being observed and photographed in-situ, it would repeatedly extrude a bright yellow gland at its posterior (Fig. 4). This appeared to be an expandable inter-segmental membrane between the seventh abdominal segment and the genital segments (8–10), in a similar position to that of the corethrogyne seen in some other Lepidoptera such as the Lymantriidae, where the expansion bears a dense mass of scales that are used to cover the egg mass (J. D. Holloway, pers. comm.).

During the extrusion and retraction of this yellow structure, it would momentarily adopt a peculiar form which resembled a pair of pouting lips (Fig. 4c), before or after full expansion. This organ remained fully inflated for merely a few seconds, but this sequence was repeated sporadically over the next half an hour. It was hypothesised that such a repetitive behaviour in this female moth might serve the purpose of dispersing its pheromones to advertise its presence to prospective males.

The female moth was subsequently collected and found to be gravid. Prior to preservation, it had deposited around 10 eggs in captivity. The elliptical eggs were speckled with an overall light brown, and attractively marked with four darker brown spots, with two at each end of the ellipse and two on the sides (Fig. 5). Each of these spots was outlined with a thin, white ring. The eggs were measured to be 1.7 by 1.4 mm (using vernier calipers). The ova, as well as the female moth, were then preserved as voucher specimens at the Zoological Reference Collection (ZRC) of the Raffles Museum of Biodiversity Research (RMBR), National University of Singapore (ZRC.LEP.283).

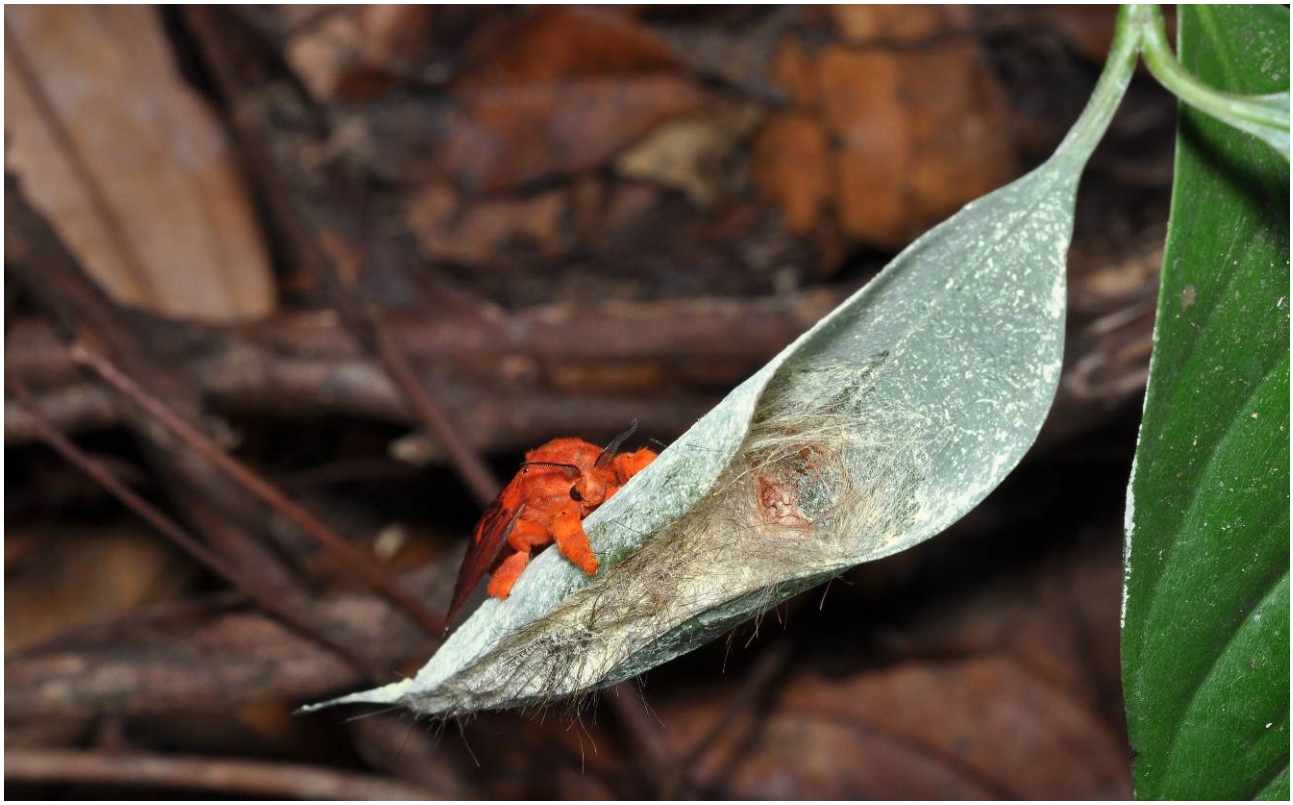

Fig. 2. Dorsal view of emergent female moth (as in Fig. 1; body length: 28 mm, forewing length: 26 mm, abdomen width: 9 mm). Note powdery bloom over entire leaf and incorporated into the cocoon. The leaf was 115 mm long and the cocoon was 70 by 17 mm. (Photograph by: Tzi Ming Leong).

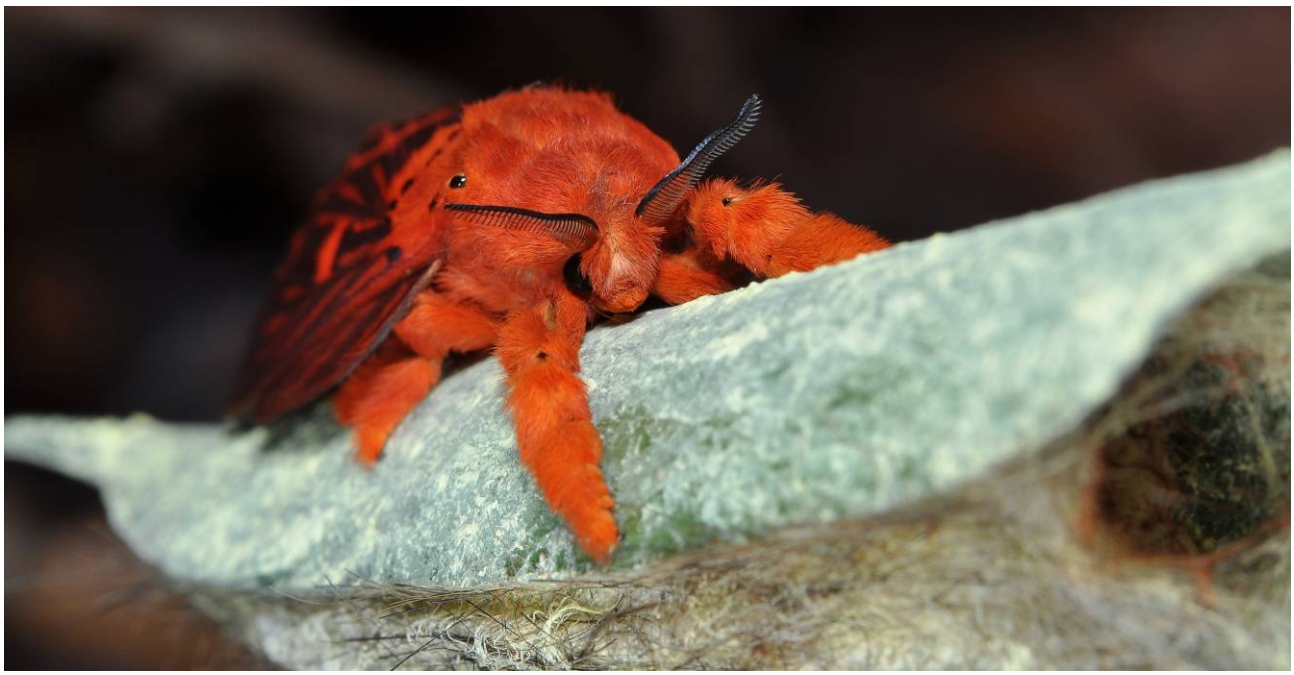

Fig. 3. Frontal close-up of female moth. Note degree of pectination on its antennae. In the males of this species, the pectinations are noticeably longer, particularly at the proximal half of the antenna. (Photograph by: Tzi Ming Leong).

At the ZRC, two other representative specimens of *Alompra ferruginea* from Singapore were examined: ZRC.LEP.281 (male, body length: 19 mm, apices of forewings tattered, coll. Central Nature Reserves survey, SICC light trap, 7 May 1993); ZRC.LEP.282 (female, body length: 24 mm, forewing length: 25 mm, coll. T. M. Leong & Derek Liew, Bukit Kallang, 8 Sep.2004).

To date, neither larval identity nor the larval hostplant/s has been reported for members of the genus *Alompra* (Holloway, 1987; Zolotuhin & Pinratana, 2005; Robinson et al., 2010). Under the circumstance that a low leaf of the *Garcinia forbesii* sapling was selected as a pupation site by the *Alompra ferruginea* individual, there is a possibility that this may have been the larval hostplant. Among the lasiocampids in this region, at least one species, the polyphagous *Metanastria hyrtaca* (Cramer, 1779), has been documented to feed on *Garcinia schomburgkiana* in Thailand (Zolotuhin & Pinratana, 2005; Robinson et al., 2010). With continued field research efforts, the eventual elucidation of the characteristic larvae of *Alompra* species would be a desirable outcome. This would then be a significant input to help us better ascertain its affinity with other lasiocampid genera; with *Alompra* being one of five genera in the family that Zolotuhin & Pinratana (2005) did not assign to a subfamily or tribe.

ACKNOWLEDGEMENTS

I am grateful to the dedicated volunteer field surveyors (Central Nature Reserve) for spotting the moth and bringing it to my attention. I thank Paul K. F. Leong (Herbarium, Singapore Botanic Gardens) for identifying the sapling on which the moth was perched. Jeremy D. Holloway and Ian J. Kitching (Natural History Museum, London) kindly shared their thoughts on the behavioural and morphological aspects. Lua Hui Kheng (Raffles Museum of Biodiversity Research) granted permission to examine the lasiocampid specimens in the Lepidoptera collection. An anonymous lepidopterist reviewer is much appreciated for suggesting appropriate and meticulous refinements to the original manuscript.

LITERATURE CITED

Holloway, J. D., 1987. *The Moths of Borneo, Part 3. Superfamily Bombycoidea: Families Lasiocampidae, Eupterotidae, Bombycidae, Brahmaeidae, Saturniidae, Sphingidae*. Southdene, Kuala Lumpur. 199 pp.

Kishida, Y. & M. Wang, 2007. A new species of the genus *Alompra* Moore, 1872 (Lepidoptera, Lasiocampidae) from Guangdong, S. China. *Tinea*, **19**(4): 261–262.

Robinson, G. S., P. R. Ackery, I. J. Kitching, G. W. Beccaloni & L. M. Hernández, 2010. *HOSTS—A Database of the World's Lepidopteran Hostplants*. Natural History Museum, London. http://www.nhm.ac.uk/research-curation/research/projects/hostplants/. (Accessed: 14 Feb.2010).

Zolotuhin, V. V. & A. Pinratana, 2005. *Moths of Thailand, Volume 4: Lasiocampidae*. Brothers of Saint Gabriel in Thailand, Bangkok. 205 pp.

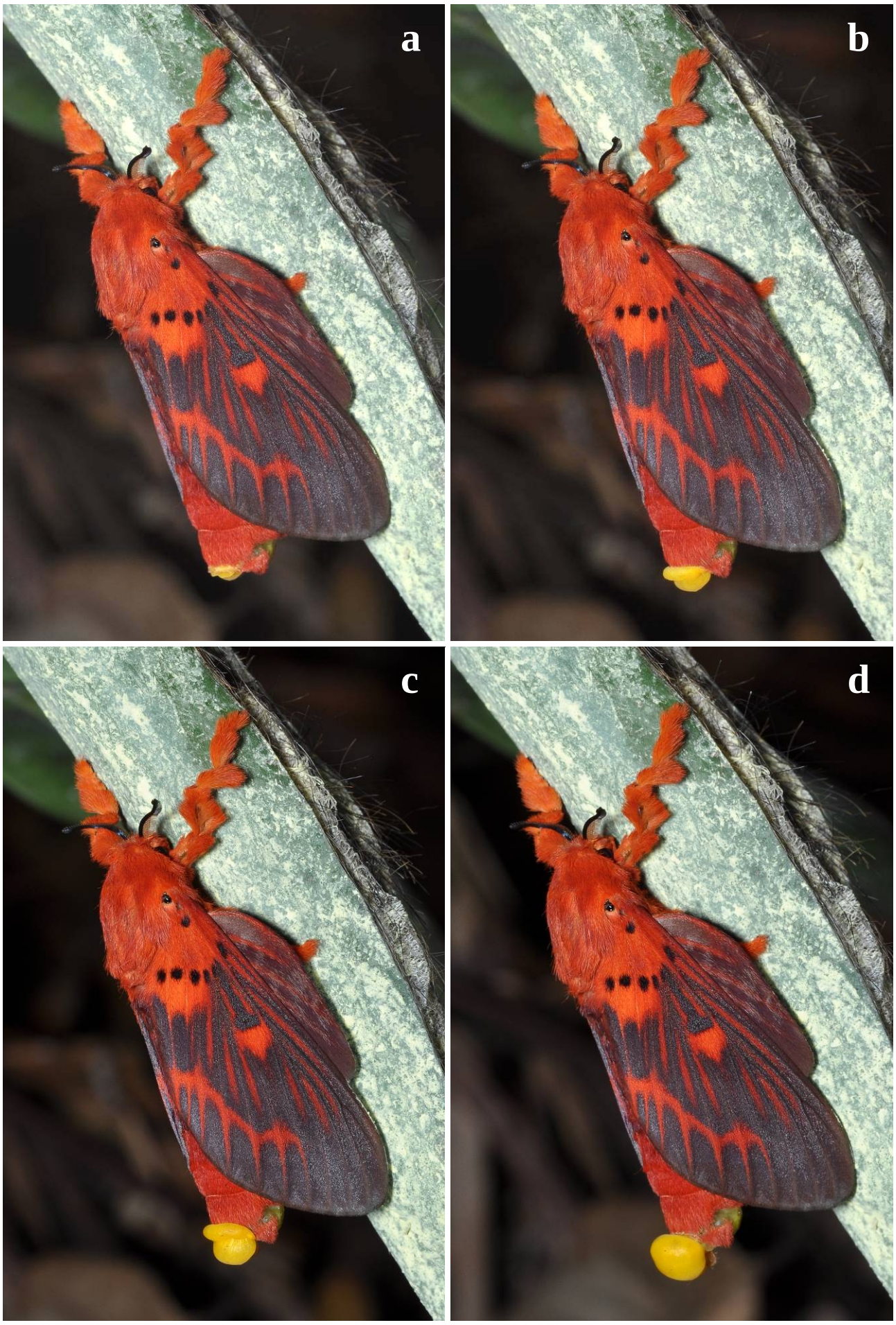

Fig. 4. Progressive extrusion (a–d) of the posterior abdominal gland by the female moth. (Photographs by: Tzi Ming Leong).

Fig. 5. Freshly deposited eggs (1.7 by 1.4 mm) attached to a leaf surface. Each egg was patterned with four dark brown spots (two at the poles, two on the sides). Each brown spot was encircled with a white ring. The ova were subsequently preserved and catalogued (ZRC.LEP.283). (Photograph by: Tzi Ming Leong).