A new, unexpected species of the genus *Antheraea* HÜBNER, 1819 (“1816”) from Luzon Island, Philippines (Lepidoptera, Saturniidae)

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**Abstract:** A new species of the genus *Antheraea* Hübn, 1819 (“1816”) in the subgenus *Antheraea* from the Philippines is described: *A. (A.) hagedorni* n. sp., male holotype from Luzon Island, will be deposited in the Zoological Museum of the Humboldt University, Berlin, Germany. The species can be identified by its elongated forewing apex, the typical more or less light orange ground colour, details of fore- and hindwing ocellus, and ornamentation of the males, and details in the very small male genitalia structures. A short comparison to related taxa from the Philippines is given. The new species, a member of the so-called *helferi*-group, *yamamai*-subgroup, within the subgenus, has its nearest relatives on Taiwan and in the PR China, namely *A. (A.) yamamai* (Guérin-Méneville, 1861) and its subordinate or related taxa.

Eine neue, unerwartete Art der Gattung *Antheraea* Hübner, 1819 (“1816”) von der Insel Luzon, Philippinen (Lepidoptera, Saturniidae)


**Introduction**

The genus *Antheraea* Hübner, 1819 (“1816”) was reclassified by Näsäg (1991). He separated three different subgenera, namely *Antheraea* (Teela Hübner, 1819 (“1816”)), *Antheraea* (Antheraeopsis Wood-Mason, 1886), and *Antheraea* (Antheraea Hübner, 1819 (“1816”)), the last one subdivided in several species-groups. It was later further diversified, erecting several more groups and subgroups (review see Paukstadt et al. 2000). An overview about all known taxa of the *helferi*-group, separated into the so-called *helferi*- and *yamamai*-subgroups, was published by Paukstadt & Paukstadt (2007: 222 ff.).

In the present paper a new, surprising species of the *yamamai*-subgroup of the *helferi*-group is described from Luzon Island, Philippines. While on all other Philippine islands, except Palawan and smaller islands around, only...
Colour plate, Figs. 1–6: Specimens of Antheraea (Antheraea). Fig. 1: A. (A.) hagedorni n. sp., HT, dorsal view. Fig. 2: HT, ventral view. Fig. 3: A. (A.) hagedorni, PT, reddish brown morph, dorsal view. Fig. 4: A. (A.) halconensis, dorsal view, specimen collected syntopically with A. hagedorni in Luzon. Fig. 5: A. (A.) superba, Taiwan, dorsal view. — All specimens in CSNB. Figs. 1–5 to the same scale, scalebar 1 cm. — Fig. 6: Biotope of A. hagedorni in Luzon, Sierra Madre, Mingan Mts.
Plate 2, Figs. 7–12: ♂ genitalia structures of Antheraea (Antheraea). Fig. 7: A. (A.) hagedorni n. sp., HT, GP 1557/06 SNB. Fig. 8: A. (A.) hagedorni n. sp., PT, GP 1596/07 SNB. Fig. 9: A. (A.) halconensis, GP 1603/07 SNB. Fig. 10: A. (A.) superba, Taiwan, GP 1764/08 SNB. Fig. 11: A. (A.) yamamai, PR China, Gansu, GP 1763/08 SNB. Fig. 12: A. (A.) semperi, Luzon Island, GP 1556/06 SNB. — Genitalia approximately to the same scale; scalebar 1.0 mm.
Paratypes (Fig. 3) (in total 39 ♂♂): (all Philippines, Luzon Isd.) 11 ♂♂, same data as holotype, GP 1596/07 NAUMANN, barcode SBN 0047 (CSNB); 16 ♂♂, same data as holotype (CJLP); 2 ♂♂, (East), Sierra Madre Mountains, Isabela Province [borderline to Aurora Province], 20 km NW Dibulo, 16°31' N, 122°13' E, 650 m, primary forest, 23. ix. 2006, leg. J. H. LOURENS (CJLP); 6 ♂♂, same data (CSNB); 1 ♂, Ifugao Province, 13 km NE Bontoc, 17°2' N, 121°3' E, E. Chatol, 1950 m, central highlands, 28. i. 2006, leg. J. H. LOURENS (CJLP); 1 ♂, (NW), Cordillera Region, borderline Abra/Kalinga Provinces, 8 km E Malibcong, 17°29.526' N, 122°59.802' E, 1700 m, 8. ii. 2007, leg. J. H. LOURENS (CJLP); 1 ♂, Aurora Province, Sierra Madre, Mangan Mts., 28 km W Baler, 16°41.463' N, 121°23.86' E, 470 m, 18. vii. 2007, leg. J. H. LOURENS (CJLP); 1 ♂, Aurora Province, Sierra Madre, Madre, 585 m, 15 km W Dibulo, 16°32.866' N, 122°14.134' E, 5.—6. ix. 2007, leg. J. H. LOURENS, received iv. 2008 (CSNB).

— Blue paratype labels will be fixed accordingly. Some of the specimens of the senior author’s collection will be deposited in CSLI, CBH and SMFL.

Derivatio nominis: The new species is dedicated to Mayor Edward S. HAGEDORN from Puerto Princesa City in recognition for his efforts for nature conservation on the island of Palawan and his kind support of research on that topic.

Description

♂ (Figs. 1–3): Antennae ochreous brown, 14.5–17.1 mm long, longest rami 3.7–4.3 mm, quadripectinate, apical ca. 2 mm with very short or reduced rami and only bipectinate. Length of right forewing from basis to forewing apex 67.0–73.0 mm (average 69.8 mm, n = 18; HT 67.0 mm). Ground colour on dorsal side variable, most specimens are of dull orange colour, but some are somewhat darker orange or even reddish brown, all with darker brown and greyish pink ornamentation. Proximal two thirds of the forewing costa greyish, apical part in wing colour. Median field in ground colour, antemedian line violet with proximal grey shadow, proximal of the forewing ocellus a typical, dark violet brown pattern along the vein; the forewing ocellus almost round, proximal part violet-pink, distal part of yellow and olive colour, 6.0–7.0 mm in diameter (average 6.6 mm, n = 18), hyaline centre 2.0–3.1 mm (average 2.5 mm, n = 18) in maximum diameter. In some specimens follows a shadow of a dentate median line, the postmedian line almost straight, of violet colour and marginal pinkish white shadows interrupted by the veins; it ends in a greyish violet round forewing apex with curved apical tip. The marginal area again in ground colour, outer margin yellow.

Hindwing of same colour and with same ornamentation: a violet antemedian line, a more intensive dentate median line distal to the round or little oval ocellus of 5.0–6.0 mm maximum diameter, followed by a band of greyish violet triangles, interrupted by the veins, forming the postmedian line. The “eyelid”-like black patch above the hindwing eyespot, typical for most other members of the helferi-group, is lacking or very weakly developed. Outer margin again yellow. On ventral side all specimens of similar reddish-brown ground colour with less ornamentation: Ante- and postmedian line almost missing, in some specimens those structures are visible as outlined dark greyish shadow. In the forewing the postmedian area is suffused with violet scales, in the hindwing the median area as well. Forewing apex dark, almost black, outer margin again yellow. Both fore- and hindwing ocelli bordered dark, followed by violet, olive and yellow scales approaching the hyaline center.

♂ genitalia (Figs. 7, 8): Generally in many Antheraea species, ♂ genitalia show only few differences, as already mentioned in many works on this genus; main differences within the formal groups erected by NÄSSS (1991) are the size, form, length and number of bristles on the dorsal valves, length of the phallic form of uncus and generally the size of the structure. The representatives of the different groups show typical structures. Within the frihi-group of subgenus Antheraea only scarcely very typical elements such as an ear-like process of the valves can be found, as mentioned by LANE et al. (2004) for A. l. loralis M. D. LANE, NAUMANN & D. A. LANE, 2004 from East Timor. In the helferi-group two different main subgroups (HOLLOWAY et al. 1995: 298, PAUKSTADT et al. 1998: 321, 2000: 17 ff.) can be very well separated, namely the helferi- and the yamamai-subgroup, by size and form of their valves and the form of the uncus. A. hagedorni has to be grouped within the yamamai-subgroup.

Genitalia of the new species were compared (see Tab. 1) with those of A. (A.) yamamai from PR China (Fig. 11), A. (A.) superba INOUE, 1965 from Taiwan (Fig. 10), A. (A.) halconensis PAUKSTADT & BROSCH, 1996 (Fig. 9), and A. (A.) semperi C. & R. FELDER, 1861 (a member of the frihi-group, Fig. 12), the latter two from the type locality of A. (A.) hagedorni in Luzon, plus (not figured and not mentioned in the table) A. (A.) helferi MOORE, 1859 and A. (A.) diehli LEMAIRE, 1979.

♂ and preimaginal instars: unknown.

Discussion

The main series of A. (A.) hagedorni specimens was collected in a very inaccessible area in northeastern Luzon rainforests in altitudes of 470–650 m (Fig. 6: photo of biotope in Aurora province, Sierra Madre, 470 m). Only 2 specimens were found in more central areas of Ifugao and around the borderline of Abra and Kalinga Provinces, those two in altitudes of 1950 and 1700 m, respectively (compare NELLES MAPS 2003). This may be the reason why that species was found only
Table 1:♂ genitalia characteristics of Antheraea species.

<table>
<thead>
<tr>
<th></th>
<th>A. hagedorni</th>
<th>A. yamamai</th>
<th>A. superba</th>
<th>A. halconensis</th>
<th>A. semperi</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Size</strong></td>
<td>Small</td>
<td>Small</td>
<td>Medium</td>
<td>Medium to large</td>
<td>Medium</td>
</tr>
<tr>
<td><strong>Uncus</strong></td>
<td>Two double cupolas</td>
<td>Two incurred, widely spread processes</td>
<td>Same structure as in A. yamamai, but a little larger</td>
<td>Two shorter lateral processes</td>
<td>Single, cone-like, round</td>
</tr>
<tr>
<td><strong>Valves</strong></td>
<td>Dorsal apex short with 4–5 long soft bristles, central internal process long and tall, ventral process short with short bristles</td>
<td>Dorsal apex long with 3–4 long bristles, central process round, ventral process long, spoon-like</td>
<td>Same structure as in A. yamamai, but a little larger</td>
<td>Dorsal apex long, with 3–4 strong bristles, central process less developed than in helferi, longish, ventral process broad, paddle-like</td>
<td>Dorsal apex longish, with 3 strong, straight bristles, central process round, ventral process longish.</td>
</tr>
<tr>
<td><strong>Juxta</strong></td>
<td>Central, acute</td>
<td>With hinted central tip</td>
<td>With hinted central tip</td>
<td>Round</td>
<td>Round</td>
</tr>
<tr>
<td><strong>Saccus</strong></td>
<td>Tall, round</td>
<td>Broad-based, round</td>
<td>Broad-based, round</td>
<td>Tall, tail</td>
<td>Broad-based, longest of all five</td>
</tr>
<tr>
<td><strong>Phallos</strong></td>
<td>Length 4.5 mm</td>
<td>Length 5.0 mm</td>
<td>Length 7.0 mm</td>
<td>Length 5.5 mm</td>
<td>Length 8.0 mm</td>
</tr>
</tbody>
</table>

Acknowledgements

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References


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