

A New Moth of the Genus *Soritia* (Lepidoptera, Zygaenidae, Chalcosiinae) from Northern Vietnam

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Abstract. A new species of the zygaenid chalcosiine genus *Soritia* Walker, 1854, *Soritia tahuythinhi* Owada et Horie, sp. nov., is described from northern Vietnam. This new species is a member of the *S. elizabetha*-group: *S. elizabetha* Walker, 1854, from central China, *S. choui* Yen et Yang, 1998, from Taiwan, and *S. azurea* Yen, 2003, from Taiwan. The forewing ground colour of this moth changes from bright yellow to yellow with orange brown tinge according to their age.

Key words: moth, *Soritia tahuythinhi*, new species, Vietnam.

Because of sexual dimorphism, identification of male and female of the same species is frequently difficult in moths of the genus *Soritia* Walker, 1854 (Yen & Yang, 1998; Horie *et al.*, 2000; Yen, 2003). In such a case, rearing is indispensable to obtain a true pair.

Endo & Kishida (1999) recorded and illustrated a pair of moths from N. Vietnam under the name of “*Eterusia proprimarginata*”. However, having illustrated the male holotype of *Soritia proprimarginata* (Prout, 1918), Yen (2003) pointed out their misidentification, and suggested that *Soritia azurea* Yen, 2003 from Taiwan was most similar to the moth from Vietnam in question.

In the joint research project of the insect fauna of northern Vietnam, conducted by the National Science Museum (National Museum of Nature and Science), Tokyo, Hanoi Agricultural University, and the Institute of Ecology and Biological Resources, Hanoi, we collected female *Soritia* moths at Tam Dao near Hanoi, which laid several eggs. The breeding of the moth species from the eggs to adults was successfully carried out in laboratory and an adequate number of adult moths were emerged, which were exactly same as “*E. pro-*

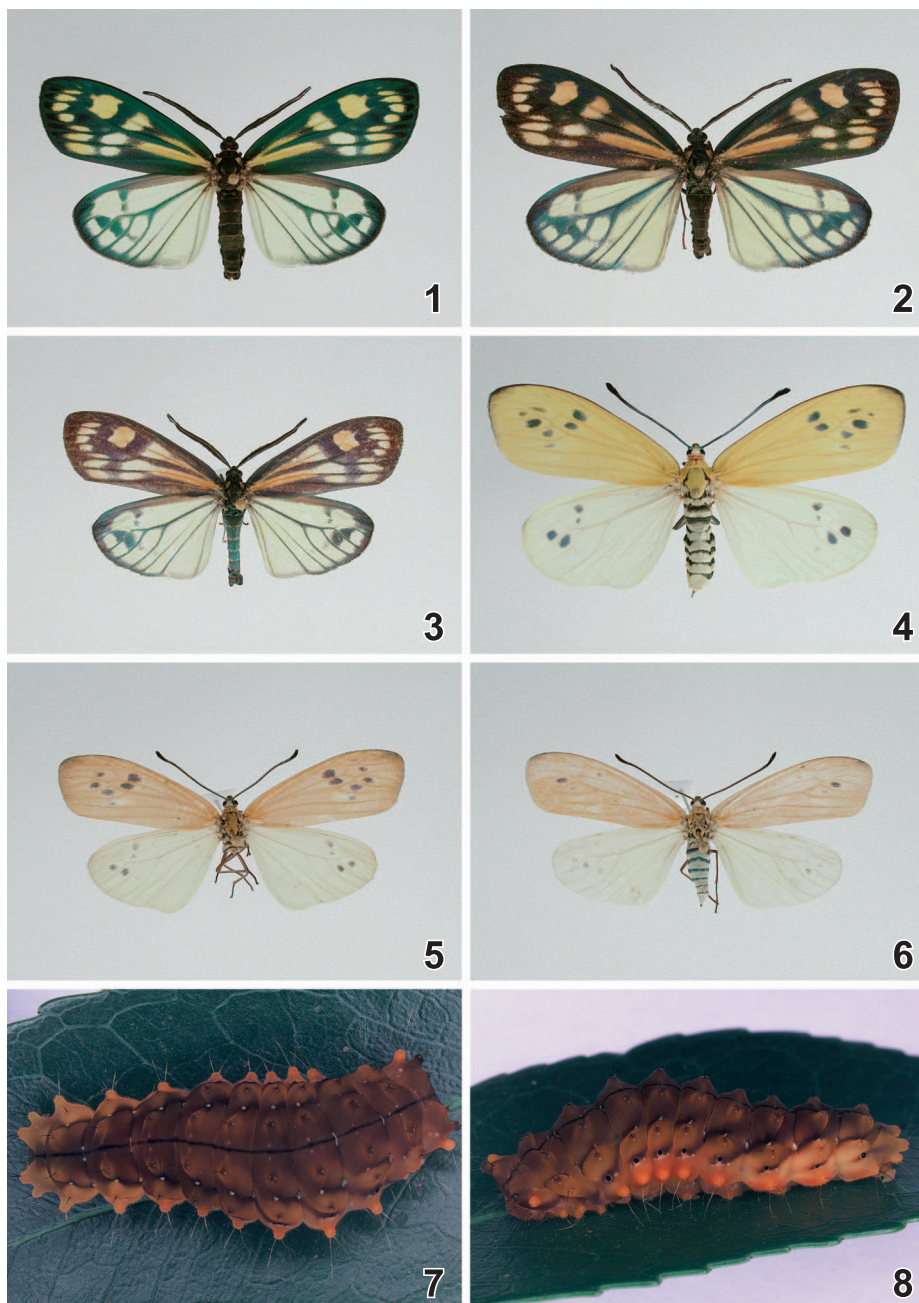
primarginata” sensu Endo & Kishida (1999). After careful examination, we recognized that the moth is new to science. Thus, the new species is described in the present paper.

***Soritia tahuythinhi* Owada et Horie, sp. nov.**
(Figs. 1–6)

Eterusia proprimarginata: Endo and Kishida, 1999, p. 58, figs. 11–12, nec Prout, 1918.
“*Eterusia proprimarginata*” sensu Endo and Kishida: Yen, 2003, pp. 39, 42.

Male (Figs. 1–3). Length of forewing: 20–26 mm; expanse: 41–54 mm. Head bluish black, frons yellow. Antenna bipectinate, bluish black. Thorax bluish black, tegula yellow, legs yellow, light blue dorsally. Abdomen bluish black dorsally, yellow and black ventrally. On the upperside of forewing, ground colour bluish black, with long yellow lines in the cell and along vein CuP, median and submarginal lines yellow, broad, discoidal mark yellow, large, nearly round; ground colour of hindwing yellow, veins stained with bluish black, forming reticulate marking in submarginal area, costa and terminal margin black.

Female (Figs. 4–6). Length of forewing:



Figs. 1–8. *Soritia tahuythinhi* Owada et Horie, sp. nov. 1. Holotype, male, bred. 2, 3. Paratypes, male, collected in the fields. 4–6. Paratypes, female (4, bred; 5, “white-2”; 6, “white-1”. Natural size.). 7, 8. Mature larva.

21–27 mm; expanse: 43–56 mm. Head yellow, margin of frons black. Antenna bipectinate shortly, bluish black. Thorax yellow, legs yellow, light blue dorsally. Abdomen cream

yellow, with blue segmental lines. On the upperside of forewing yellow, costal and terminal margin blue, 5 to 6 blue patches around discocellular vein; ground colour of hindwing



Fig. 9. Male genitalia of *Soritia tahuythinhi*.

whitish yellow, 4 to 5 blue patches around discocellular vein.

Male genitalia (Fig. 9). Tegumen and uncus long, sub-triangular, with long bristles in caudal margin. Vinculum with small rectangular saccus. Valva sclerotized, with a membranous and hairy portion apically; in the inner side of valva, a markedly sclerotized plate present, margin of it heavily dentate. Aedeagus obtusely bent in the middle, gradual-

ly narrowed toward pointed apex. 8th tergite triangular, caudally convex at the middle, with a pair of long sclerotized processes interiorly; 8th sternite with a pair of processes, which bear blackish bristles heavily.

Female genitalia (Fig. 10). Papillae anales and 8th abdominal segment long, slender. Ostium opening present in 7th sternite; ductus bursae long, slightly sclerotized in posterior half; corpus bursae ovate.

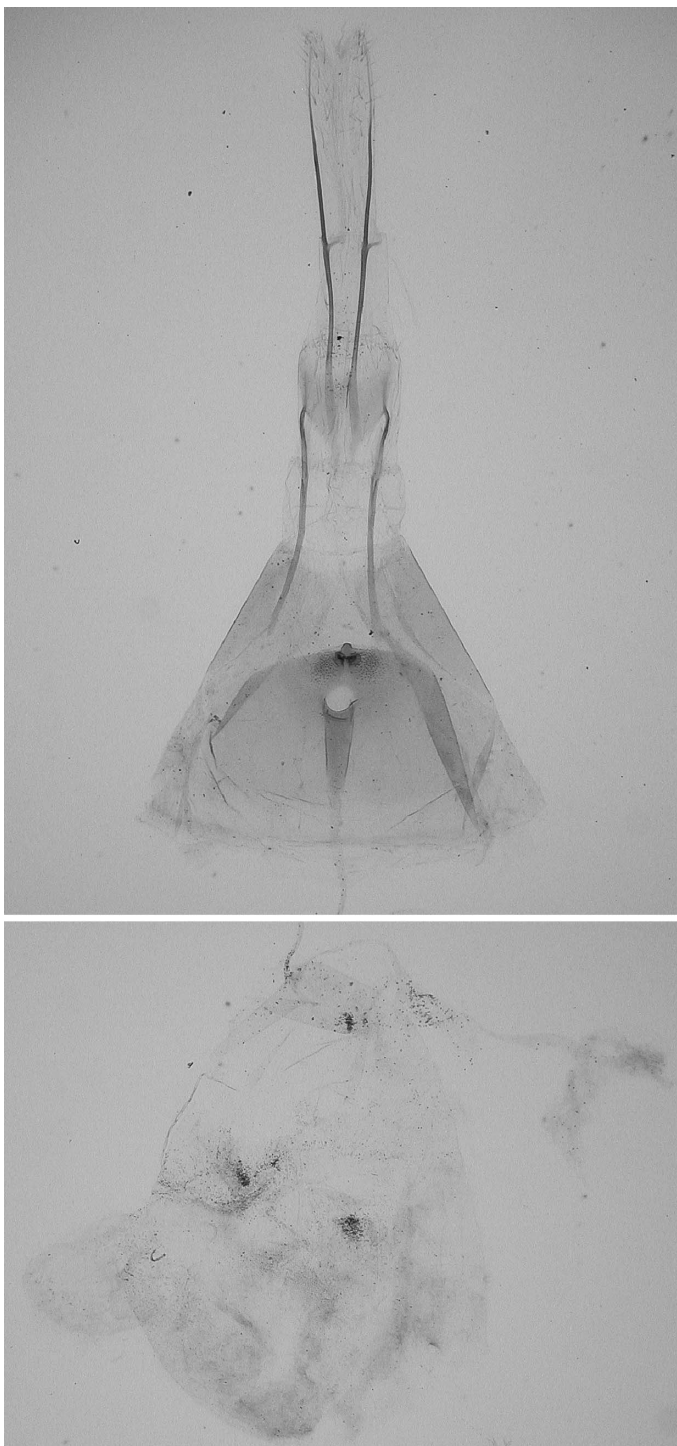


Fig. 10. Female genitalia of *Soritia tahuythinhi*.

Type series. Holotype (Fig. 1), male, Tam Dao, Vinh Phu, Vietnam, bred, em. 7. III. 1998, ex mother "white-2", in the National Museum of Nature and Science, Tsukuba. Paratypes: 60♂ 34♀, same data as holotype, em. from 14. I. to 20. IV. 1998; 1♀, "white-2" (Fig. 6), same locality, 1,230 m, 20–23. X. 1997, M. Owada leg.; 13♂ 12♀, same locality, bred, em. from 11. I. to 7. IV. 1998, ex mother "white-1"; 1♀, "white-1" (Fig. 5), same data as "white-2"; 1♂ (Fig. 2), same locality, 3. V. 1998, Y. Arita leg.; 2♂, same locality, 1–3. VI. 1997, Y. Okushima leg.; 6♂ (Fig. 3) 4♀, same data as "white-2", 1♀, same locality, 1,000–1,230 m, 12–13, 21–23. V. 2003, M. Owada leg.; 3♂ 1♀, same locality, 16–22. V. 1998, ex Y. Kishida coll.; 2♂, same locality, VI. 2003, ex H. Inoue coll.; 1♂ 1♀, Cao Bang, VIII. 2001. In the National Museum of Nature and Science, Tsukuba, and the Institute of Ecological and Biological Resources, Hanoi.

Distribution. Northern Vietnam.

Diagnosis. The male wing maculation of *Soritia tahuythinhi* is unique in moths of *Soritia*. As was pointed by Yen (2003), the wing maculation of male *S. azurea* from Taiwan is rather similar to this species, but the conformation of yellow markings on the forewing is quite different and the hindwing bears bluish luster, which is only found on veins in *S. tahuythinhi*. In the male genitalia, the sclerotized plate with dentate margin of this species is not found in other species of *Soritia*.

Etymology. This species is dedicated to Dr. Ta Huy Thinh, the Institute of Ecology and Biological Resources, Hanoi, for his kind aids to our joint research of the fauna of northern Vietnam.

Relationship and diagnosis. Yen (2003, 2003 a) proposed to separate moths of *Soritia* into several species groups, and listed two species, *S. elizabetha* (Walker, 1854) from central and northern China and *S. choui* Yen et Yang, 1998 from Taiwan, in the *elizabetha*-group. The synapomorphic characters were enumerated by Yen *et al.* (2005) under the *elizabethae*-group

[sic]. It is doubtless that *S. tahuythinhi* form Vietnam and *S. azurea* from Taiwan belong to the *elizabetha*-group by the characters of wing maculation and male genitalia. It is worth noting that two related species are distributed in and endemic to Taiwan, and the Vietnamese species is closely related to one of them, *S. azurea*.

In the male wing maculation, *S. tahuythinhi* is easily distinguished from the other species by the bluish black ground colour, which is dark brown in *S. elizabetha*, and black in *S. choui* and *S. azurea*. The metallic blue hindwing of *S. azurea* is unique. In the female, the hindwing ground colour of *S. elizabetha* is yellow, while it is white in the other species; the forewing of *S. choui* has dark brown patches, which are not found in *S. azurea* and *S. tahuythinhi*; there are 4 to 5 blue patches in the hindwing of *S. tahuythinhi*, while these patches are almost absent in *S. azurea*.

Notes. The holotype of *Soritia tahuythinhi* is a bred specimen. Flesh emerged specimens of this species are bright yellow (Figs. 1, 4), and the ground colour of rather worn specimens (Figs. 2, 3, 5, 6) in the fields is tinged with orange brown to brown.

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References

- Endo, T. & Y. Kishida, 1999. Day-Flying Moths, Chalcosiinae and *Epicopeia*. In Endo, T., ed., *Endless Collection Series*, 8, 119 pp. Endless Science Information, Tokyo.
- Horie, K., D. Y. Xue & M. Owada, 2000. On the *Soritia*-complex in China and Vietnam (Lepidoptera, Zygaenidae, Chalcosiinae). In Tarmann, G. M. & W. G. Tremewan, Abstract of the VIIth international symposium on Zygaenidae, p. 14. Innsbruck.
- Prout, L. B., 1918. New Heterocera in the Joicey Collection. *Annals and Magazine Natural History*, (9) 1: 318–322.
- Yen, S.-H., 2003. A new species of *Soritia* Walker, 1854 from Taiwan, with phylogenetic comments on the genus (Lepidoptera, Zygaenidae, Chalcosiinae). *Nachrichten der Entmologischen Vereins Apollo*, 24: 39–46.
- Yen, S.-H., 2003a. Phylogeny and systematic of the major lineages of Chalcosiinae s. l. (Zygaenidae s. l.): preliminary observations on morphological characters. In Efetov, K. A., W. G. Tremewan & G. M. Tarmann, eds., Proceedings of the 7 th International Symposium on Zygaenidae (Lepidoptera), pp. 293–348. Crimean State Medical University Press, Simferopol.
- Yen, S.-H., G. S. Robinson & D. L. J. Quicke, 2005. The phylogenetic relationships of Chalcosiinae (Lepidoptera, Zygaenoidea, Zygaenidae). *Zoological Journal of the Linnean Society of London*, 143: 161–341.
- Yen, S.-H. & P.-S. Yang, 1998. The genus *Soritia* of Taiwan (Zygaenidae, Chalcosiinae, Chalcosiini). *Tinea*, 15: 207–220.

ベトナム北部産蛾類 *Soritia* 属（鱗翅目，マダラガ科，ホタルガ亜科）の一新種

大和田守・堀江清史

ベトナム北部に分布する新種 *Soritia tahuythinhi* Owada et Horie を記載した。本種は *S. elizabetha* 種群に属し、中国中部に分布する *S. elizabetha* (Walker, 1854), 台湾に分布する *S. choui* Yen et Yang, 1998 と *S. azurea* Yen, 2003 に近縁である。羽化直後の新鮮な個体は鮮やかな黄色であるが、飛び古した個体は橙褐色を帯びる。