

A New Noctuid Moth of the Genus *Amphipyra* (Lepidoptera) from Amami-ôshima, the Central Ryukyus¹⁾

By

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Abstract A new species of the amphipyrid noctuid moth is described from mountains of Amami-ôshima Island, the Ryukyu Islands, under the name of *Amphipyra sublivida*. It is very similar to the Eurasian species, *A. livida*, but the male genitalic characters are clearly different, and it is concluded that the new species is a relict, having been isolated in warm temperate forests of Amami-ôshima. The subspecies name, *A. livida cupreina* BRYK, 1949, from Korea, is synonymized with *A. livida corvina* MOTSCHULSKY, 1886, from Japan.

In the autumn of 1987, I made a short collecting trip to the Ryukyu Islands, southwestern Japan. On Mt. Yuwan-dake in Amami-ôshima Island, where warm temperate forests, consisting of evergreen broadleaved trees, are preserved, I was able to capture two species of *Amphipyra*, whose constituents are mainly distributed in the temperate zone of Eurasia.

One of them is very similar to *A. livida* distributed from Europe to Japan, but as the genitalic structure is specifically different, I will describe it in the following lines. The other species will be dealt with in a separate paper.

Amphipyra sublivida OWADA, sp. nov.

(Figs. 3–4, 6)

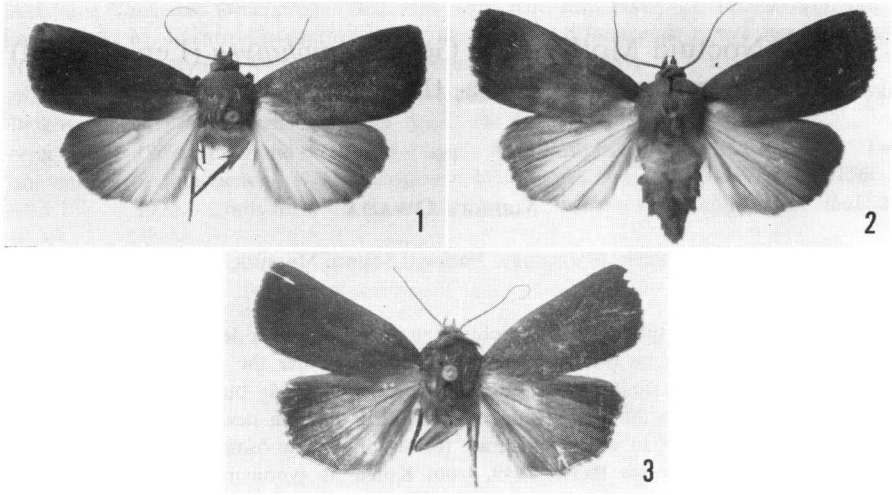
Very similar to *Amphipyra livida* ([DENIS et SCHIFFERMÜLLER], 1775) in coloration.

Male. Length of forewing: 19–20 mm. Head and thorax dark purplish brown glossed with bronze. Abdomen dark purplish brown glossed with reddish bronze. Forewing uniformly dark purplish brown with bronze gloss. Hindwing cupreous red, costal and upper terminal portions purplish red brown, anal portion covered with greyish hairs.

Male genitalia. Uncus smooth, markedly curved. Valva simple, costal edge almost straight, apex rounded, sacculus with a short apical process. Aedeagus short, thick, with a large curved cornutus, several long spines and a mass of short spines.

Female. Length of forewing: 20 mm. Coloration as in male.

1) This study is supported by the Grant-in-aid for Scientific Research No. 62540572 from the Ministry of Education, Science and Culture, Japan.



Figs. 1–3. Male adults. — 1. *Amphipyra livida livida* ([DENIS et SCHIFFERMÜLLER]), Germany. — 2. *A. livida corvina* MOTSCHULSKY, Tanabe, Wakayama Pref., Japan. — 3. *A. sublivida* OWADA, sp. nov., holotype.

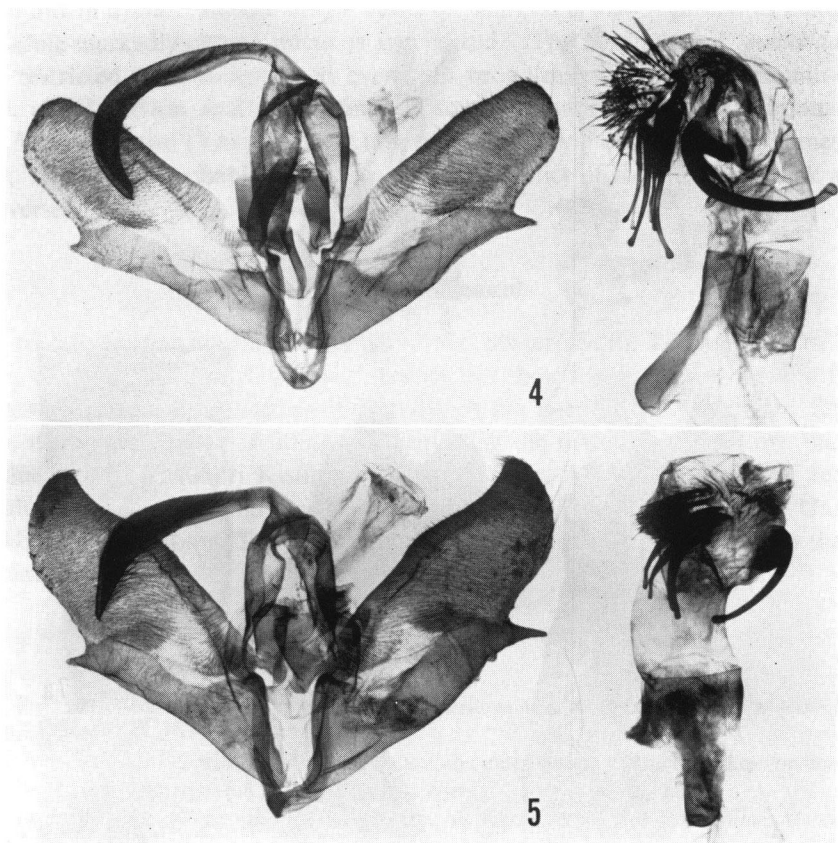
Female genitalia (virgin). Papillae anales and 8th abdominal segment rather slender. Bursa copulatrix slender; lamella postvaginalis consisting of a pair of sclerotized patches; sclerotized and granulate plates present on anterior part of ductus bursae and on basal part of ductus seminalis, respectively; signum present on anterior 1/3 of bursa copulatrix, ovate, slightly protruding; ductus seminalis arising from basal part of ductus bursae.

Type series. Holotype ♂, Japan, Amami-ôshima Is., Uken, Mt. Yuwan-dake (460 m), 21. XI. 1987, M. OWADA leg., Genitalia Slide No. NSMT 2010 ♂, preserved in the National Science Museum (Nat. Hist.), Tokyo. Paratypes: 1 ♂, same locality as the holotype, 6. VI. 1968, Y. KISHIDA leg. (NSMT 2016 ♂); 1 ♂ 1 ♀, Amami-ôshima Is., Setouchi, Mt. Yui-dake, 13–15. VIII. 1977, A. SEINO leg. (NSMT 2038 ♀, 2039 ♂).

Japanese name. Yuwan-Karasuyotô.

Diagnosis. It is very difficult to separate this species from *A. livida* by external characters (Figs. 1–3), but the former is a little smaller than the latter from the main Japanese islands (forewing length: 19–23 mm); ground colour on the upperside in *sublivida* is darker, especially in cupreous red hindwing, of which the inner area is much paler in *livida*.

In male genitalia, difference between the two is very clear (Figs. 4–5). Markedly curved uncus of *sublivida* is quite different from slightly curved one in *livida* which is swollen beyond middle. In *sublivida*, the valva is rather short and the costa is nearly straight; in *livida* the valva is rather long, and the costa is swollen at middle and concave before the apex. The cornuti are much larger in *sublivida* than in *livida*. The

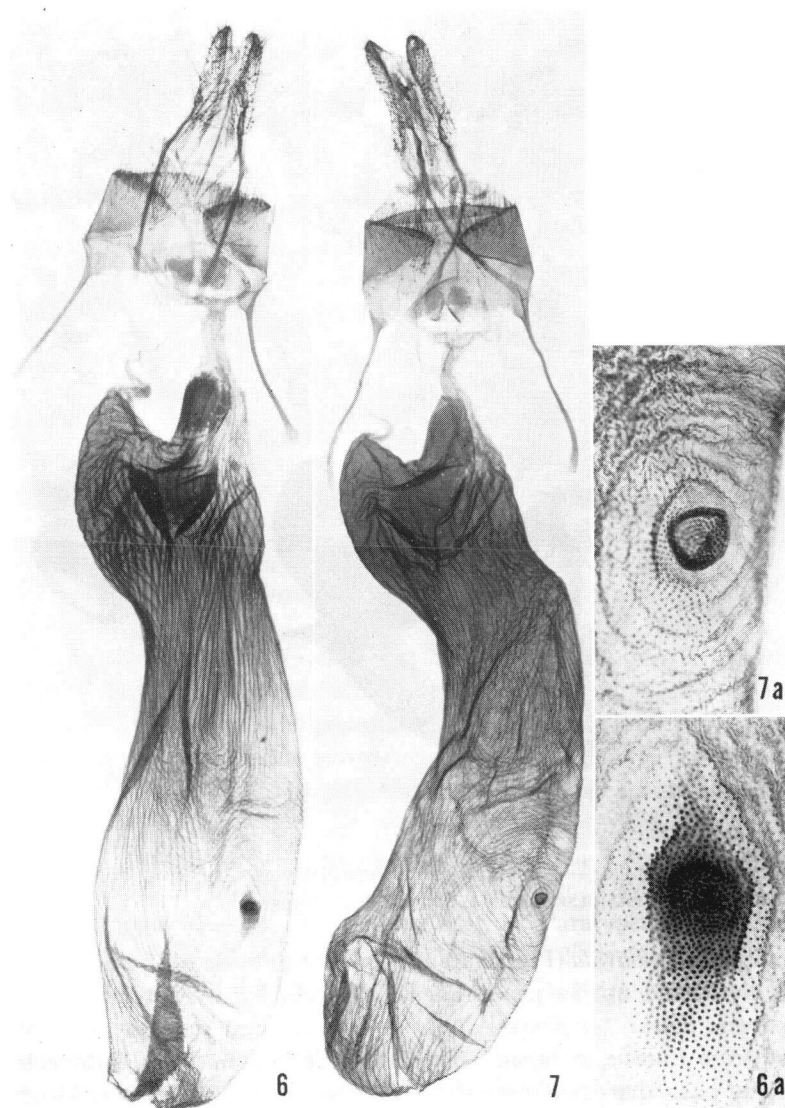


Figs. 4-5. Male genitalia. — 4. *Amphipyra sublivida* OWADA, sp. nov., holotype. — 5. *A. livida corvina* MOTSCHULSKY, Iruma, Saitama Pref., Japan.

female genitalia of *sublivida* (Fig. 6) are very similar to those of *livida* (Fig. 7), but the signum is ovate and not so protruding as the rounded one in *livida*.

Taxonomic notes. *Amphipyra livida* is a small-sized amphipyran moth, widely distributed from Europe to Japan. The European nominotypical subspecies (Fig. 1) is smaller and paler than the East Asian race (Fig. 2), *A. livida corvina* MOTSCHULSKY, 1866, distributed in Japan (Hokkaido, Honshu, Shikoku, Kyushu, Yakushima Is. and Tsushima), Korea and China (HAMPSON, 1908; WARREN, 1911; SUGI, 1982), and the subspecies name, *A. livida cupreina* BRYK, 1949 (p. 89), described from Korea, is a junior subjective synonym of the latter (syn. nov.). It can be said that moths in the northern Japanese populations of *A. livida* are paler than the southwestern ones. *Amphipyra sublivida*, to be described in this paper, is quite similar to the southwestern Japanese form of *A. livida*.

Most of *Amphipyra*-species have well maculate forewings and dark fuscous brown or cupreous red hindwings. However, *A. livida* has uniformly dark purplish brown



Figs. 6-7. Female genitalia. — 6. *Amphipyra sublivida* OWADA, sp. nov., paratype. — 7. *A. livida corvina* MOTSCHULSKY, Kiyose, Tokyo, Japan. a: Signum.

forewings and whitish hindwings, and these characteristics are considered to be derivative. It can also be pointed out that, in the genitalic characters, the short triangular process of male sacculus and the female signum are unique in *livida*. As regards the coloration, the cupreous red hindwings in *sublivida* are similar to those in *A. pyramidea* and its allies, and are considered to be a primitive character as compared with the

whitish one in *livida*. Rather simple valva of *sublivida* is also regarded as being primitive, while markedly curved uncus is specialized. The habitat of *A. sublivida* seems to be restricted to well-developed evergreen broadleaved forests on Amami-ôshima Island, about 250 km southwest from the southern limit of the distributional range of *A. livida* in Japan (Yakushima Is.), and about 750 km east from the Chinese Continent. It is most probable that *A. sublivida* is a relict of the *A. livida* stock and not the reverse.

Acknowledgements

I wish to express my sincere thanks to Mr. Shigero SUGI, Tokyo, and Dr. Hiroshi INOUE, Otsuma Women's University, Iruma, for their invaluable advice and for providing with the material used in this study. I am deeply indebted to Dr. Shun-Ichi UÉNO of our museum for reading and criticizing the manuscript. Hearty thanks are also due to Mr. Yasunori KISHIDA, Tokyo, and Mr. Akio SEINO, Niigata, for giving me valuable specimens, and Dr. Tsukané YAMASAKI, Tokyo Metropolitan University, and Mr. Kiyoshi HORIE, Tokyo, for their kind aid in the collecting trip to the Island of Amami-ôshima.

References

- BRYK, F., 1949. Zur Kenntnis der Gross-Schmetterlinge von Korea. Pars II. Macrofrenatae II (finis). *Ark. Zool.*, **41A** (1): 1-225, pls. 1-7.
- [DENIS, M., & I. SCHIFFERMÜLLER], 1775. Ankündigung eines systematischen Werkes von den Schmetterlingen der Wienergegend. 323 pp., 3 pls. Wien.
- MOTSCHULSKY, 1866. Catalogue des insectes reçus du Japon. *Bull. Soc. imp. Natur. Moscou*, **39**(1): 163-200.
- HAMPSON, G. F., 1908. *Catalogue of the Lepidoptera Phalaenae in the Collection of the British Museum*, **7**: i-xv+1-709.
- SUGI, S., 1982. Noctuidae, excluding Herminiinae. In INOUE, H., et al. (eds.), *Moths of Japan*, **1**: 699-913, **2**: 344-405, 461-466, pls. 164-223, 229, 355-380. (In Japanese with English synopsis.)
- WARREN, W., 1909-1913. Noctuidae. In SEITZ, A. (ed.), *Macrolepidoptera of the World*, **3**: 9-444, pls. 2-75.

