SHILAP Revista de lepidopterología
ISSN: 0300-5267
ISSN: 2340-4078
avives@orange.es
Sociedad Hispano-Luso-Americana de Lepidopterología
España

Benedek, B.; Tóth, B.
A new species of *Anorthoa* Berio, 1980 from Vietnam (Lepidoptera: Noctuidae, Orthosiini)
SHILAP Revista de lepidopterología, vol. 49, núm. 196, 2021, Octubre-Diciembre, pp. 679-684
Sociedad Hispano-Luso-Americana de Lepidopterología
Madrid, España

SHILAP Revta. lepid., 49 (196) diciembre 2021: 679-684 eISSN: 2340-4078 ISSN: 0300-5267

A new species of *Anorthoa* Berio, 1980 from Vietnam (Lepidoptera: Noctuidae, Orthosiini)

B. Benedek & B. Tóth

Abstract

A new species of *Anorthoa* Berio, 1980 is described from Vietnam, thus the number of the species in this genus is raised to ten. The new taxon bears striking differences in the female genitalia, compared to closely related species.
KEY WORDS: Lepidoptera, Noctuidae, Orthosiini, *Anorthoa*, new species, taxonomy, Vietnam, China, Taiwan.

Una nueva especie de *Anorthoa* Berio, 1980 de Vietnam (Lepidoptera: Noctuidae, Orthosiini)

Resumen

Se describe una nueva especie de Vietnam de *Anorthoa* Berio, 1980, por lo tanto el número de especies en este género ascienden a diez. El nuevo taxón tiene diferencias sorprendentes en la genitalia de la hembra, comparada con la especie relativamente próxima.
PALABRAS CLAVE: Lepidoptera, Noctuidae, Orthosiini, *Anorthoa*, nueva especie, taxonomía, Vietnam, China, Taiwán.

Introduction

Anorthoa Berio, 1980 is a genus in the subfamily Hadeninae, tribe Orthosiini (BERIO, 1980, 1985). According to RONKAY *et al*. (2001), it is closely related to the genera *Perigrapha* Lederer, 1857 and *Harutaeographa* Yoshimoto, 1993, in particular, the *rama*-lineage of the latter. The genus has contained nine known species, they can be separated into three lineages. The proper taxonomic interpretation of these lineages is still disputable. Latest additions of the taxonomy of the genus were given by RONKAY *et al*. (2010) and OWADA *et al*. (2015). Present paper contains the description of a new species found recently in Vietnam, thus the number of species in the genus is raised to ten.

Material and methods

Abbreviations used:

ASZK = private collection of Attila Szabó (Kiskunfélegyháza, Hungary)
BBT = private collection of Balázs Benedek (Törökbálint, Hungary)
HNHM = Hungarian Natural History Museum (Budapest, Hungary)
HT = holotype
PT = paratype
TB = genitalia preparation of Balázs Tóth

Specimens were collected by using artificial light and were examined using modern dissection standards for Lepidoptera genital preparation. Genitalia were stained with eosin. Adults were photographed with an Olympus Camedia 7070 digital camera, genitalia slide with an Olympus DP70 photographic microscope, using the software DPController and DPManager. Images were adjusted and plates were prepared with the software Adobe Photoshop CS6.

Checklist of the genus

Anorthoa Berio, 1980
Type-species: *Anorthoa munda* ([Denis & Schiffermüller], 1775)

munda-group

A. munda ([Denis & Schiffermüller], 1775)
A. plumbeata (Hreblay & Ronkay, 1998)
A. fabiani (Hreblay & Ronkay, 1998)
A. polymorpha Ronkay, Ronkay, Gyulai & Hacker, 2010
***A. dudi* Benedek & Tóth, sp. n.**

angustipennis-group

A. angustipennis (Matsumura, 1926)
A. semifusca Ronkay, Ronkay, Gyulai & Hacker, 2010

rubrocinerea-group

A. rubrocinerea Hreblay & Ronkay, 1998
A. changi Ronkay & Ronkay, 2001
A. biborka Ronkay, Ronkay, Gyulai & Hacker, 2010

***Anorthoa dudi* Benedek & Tóth, sp. n.** (figs 1, 4)

Type material: Holotype 1 (&) (Figs 1, 4), "VIETNAM, Kon Tum prov., Ngoc Linh mt, 1700 m, February 2017, leg. local collector", slide No. TB2038f (coll. ASZK).

Diagnosis: Externally, the new species (Fig. 1) differs from the related species *A. polymorpha* (Fig. 2) and *A. fabiani* (Fig. 3) by its slightly larger size (wingspan of *A. polymorpha* and *A. fabiani* females 43-44 mm, sp. n. 45 mm) and broader, apically less acute but more rounded forewing shape. The female genitalia of the new species (Fig. 4) differ from those of the two related species by the configuration of its appendix bursae which is much shorter and not helicoid, but terminally ovoid, sack-like, and more sclerotized than in the other two species. (Figs 5 and 6, respectively)

Description external morphology of adult (Fig. 1): Wingspan of female holotype 45 mm, forewing length 22 mm. Female antenna filiform. Forewing broad, triangular with rounded apex. Ground colour of frons, thorax and forewing unicolorous ochreous-brown, abdomen darker: fumous brownish-grey. Forewing with very sparse reddish-brown irroration being slightly denser on marginal field than on rest of the wing; ground colour decorated with two faded, reddish-brown subterminal patches: one of them at costa subapically, other on vein M2. Basal line marked with two, antemedian fascia by three tiny black dots on veins; postmedian fascia more distinct, marked by one black dot on each vein from M1 to dorsum. Terminal line represented by blurred greyish

patches between veins. Orbicular spot invisible. Reniform very small, slightly darker than ground colour, lunular in shape. Forewing cilia short, with same colour as forewing. Ground colour of hindwing fumous brownish-grey, same as of abdomen, darker than forewing, veins and discal spot darker than ground colour, latter oblong, somewhat lunular; basal and apical thirds of cilia somewhat lighter than ground colour of wing, ochreous-brown, the basal third the lightest, pale yellowish; medial third with same colour as hindwing. Underside of forewing darker than upper side, ground colour like upper side of hindwing, postmedian fascia represented by dark patches on all veins, marginal field somewhat lighter than rest of the wing, terminal line like on upper side, no further pattern. Hindwing underside lighter than its upper side, ground colour like that of forewing upper side, discal spot prominent, postmedian fascia and terminal line like those of forewing underside.

Female genitalia (Fig. 4): Papillae anales oblong, not sclerotised, rather small and moderately setose with two small, digitiform projections at the edges. Apophyses anteriores short but thick, apophyses posteriores longer and narrower thinner than apophyses anteriores. Ostium bursae broad, flattened. Antrum large, broad, oblong in shape, terminally slightly widening, heavily sclerotized. Ductus bursae short, much less sclerotized than antrum, membranous, medially contracted. Appendix bursae huge, sack-like, pyriform in shape, gelatinous and strongly ribbed, its connection to the ductus and cervix covered with a heavily sclerotized and ribbed plate. Cervix bursae small, conical in shape, membranous but ribbed. Corpus bursae ovoid, membranous with two shorter and two longer, longitudinally directed, narrow signum bands, whole surface with shallow longitudinal ribs.

Male unknown.

Distribution and bionomics: The new species are known only from its type-locality. The preimaginal stages and the foodplant are unknown.

Etymology: The new species is dedicated to Ms. Zsuzsanna Valentin-Bodor.

Acknowledgements

Authors would like to express their sincere thanks to the referees for checking the manuscript and giving valuable corrections and comments.

BIBLIOGRAPHY

BERIO, E., 1980.– Modificazioni al sistema delle Hadeninae e Cuculliinae Italiane attualmente seguito (Lepidoptera - Noctuidae).– *Annali del Museo civico di Storia Naturale Giacomo Doria,* **83**: 1-19.

BERIO, E., 1985.– Lepidoptera. Noctuidae I. Generalitá, Hadeninae, Cuculliinae.– *Fauna d'Italia*, **22**: 970 pp. Edizione Calderini, Bologna.

HREBLAY, M. & RONKAY, L., 1998.– Noctuidae from Nepal - Moths of Nepal, Part 5.– *Tinea,* **15** (Supplement 1.): 113-310.

HREBLAY, M. & RONKAY, L., 1998.– Noctuidae from Nepal - Moths of Nepal, Part 5.– *Tinea,* **15** (Supplement 1.): 113-310.

HREBLAY, M., 1996.– Neue paläarktische Taxa aus der Gattung *Perigrapha* Lederer, 1857 (Lepidoptera, Noctuidae).– *Esperiana,* **4**: 65-94.

OWADA, M., WU, S., FU, C-M., HUANG, H-Y. & YAMAMOTO, M., 2015.– *Anorthoa plumbeata* (Hreblay & Ronkay, 1998), stat. nov. (Noctuidae, Hadeninae), a bona species endemic to Taiwan, with notes of immature stages.– *Tinea,* **23**(3): 171-176.

RONKAY, G. & RONKAY, L., 2001.– New Noctuidae taxa from Taiwan and the adjacent regions (Lepidoptera), II.– *Acta Zoologica Academiae Scientiarium Hungaricae,* **47**(4): 371-398.

RONKAY, L., YELA, J. L. & HREBLAY, M., 2001.– Hadeninae II.– *Noctuidae Europeae*, **5**: 452 pp.

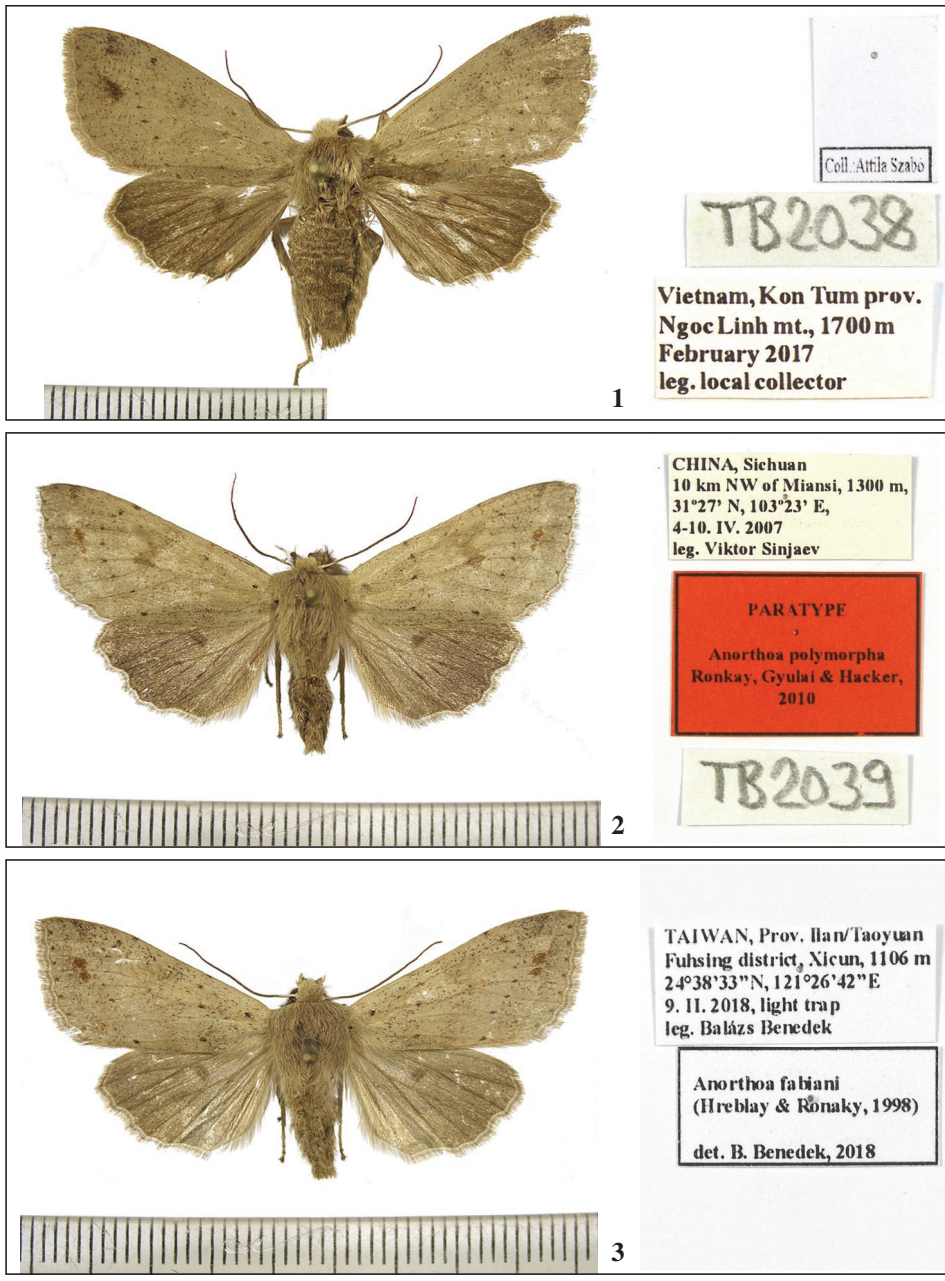
RONKAY, G., RONKAY, L., GYULAI, P. & HACKER, H., 2010.– New Orthosiini (Lepidoptera, Noctuidae, Hadeninae) species and genera from the wide sense Himalayan region.– *Esperiana,* **15**: 127-221.

*B. B.
Árpád utca, 53
H-2045 Törökbálint,
HUNGRÍA / *HUNGARY*
E-mail: benedekia@gmail.com
https://orcid.org/0000-0001-9533-1176

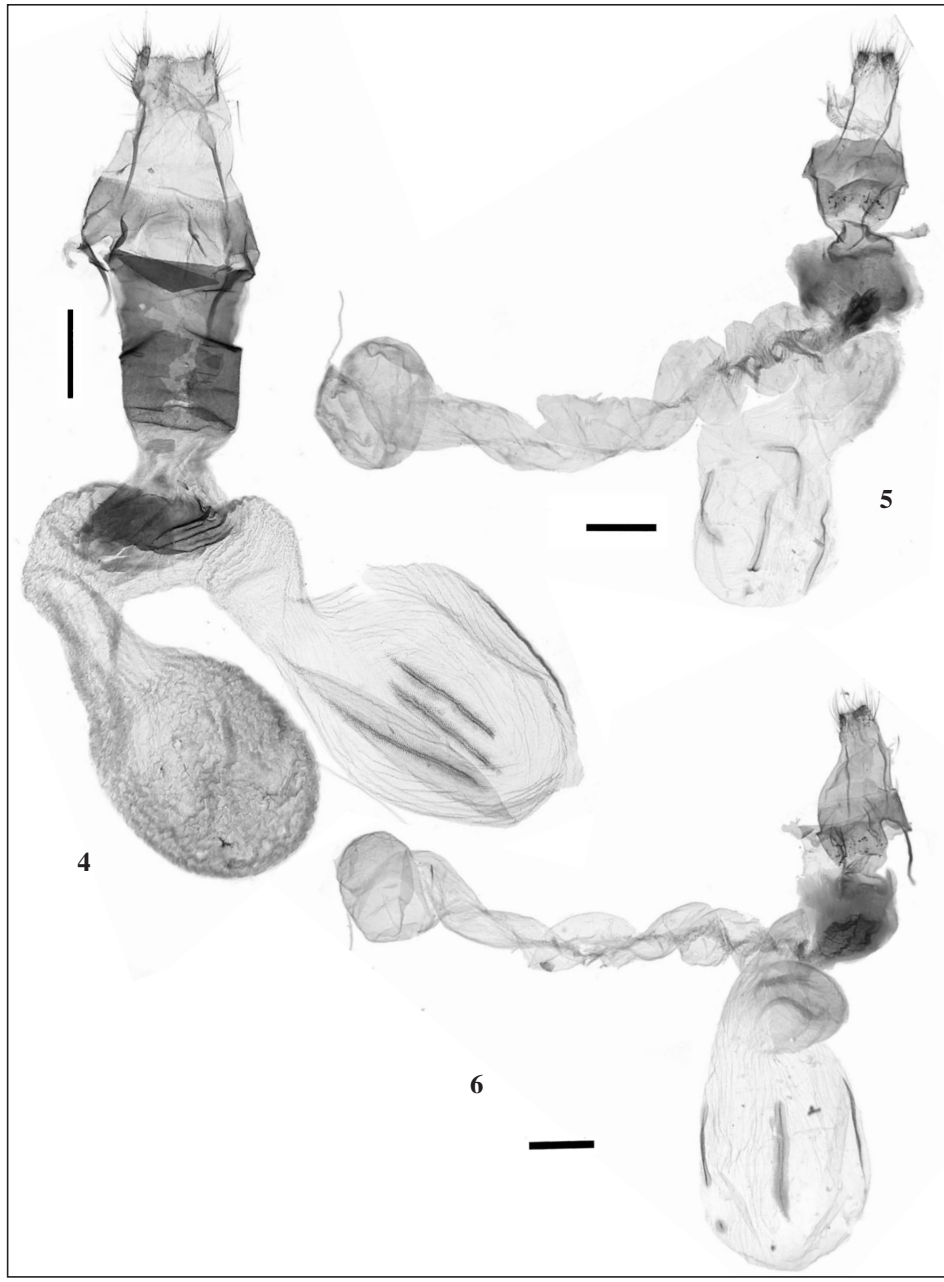
B. T.
Department of Zoology
Hungarian Natural History Museum
Baross utca, 13
H-1088 Budapest
HUNGRÍA / *HUNGARY*
E-mail: toth.balazs@nhmus.hu
https://orcid.org/0000-0002-6089-1218

Autor para la correspondencia / *Corresponding author*

(Recibido para publicación / *Received for publication* 16-II-2021)
(Revisado y aceptado / *Revised and accepted* 20-IV-2021)
(Publicado / *Published* 30-XII-2021)



Figures 1-3.– Adults of *Anorthoa* spp. from Southeast Asia and their labels. **1.** *Anorthoa dudi* Benedek & Tóth, sp. n. **2.** *Anorthoa polymorpha* Ronkay, Ronkay, Gyulai & Hacker, 2010. **3.** *Anorthoa fabiani* (Hreblay & Ronkay, 1998). Photos by Balázs Tóth.



Figures 4-6.– Female genitalia of *Anorthoa* spp. from Southeast Asia. **4.** *Anorthoa dudi* Benedek & Tóth, sp. n. (TB2038f). **5.** *Anorthoa polymorpha* Ronkay, Ronkay, Gyulai & Hacker, 2010 (TB2039f). **6.** *Anorthoa fabiani* (Hreblay & Ronkay, 1998) (TB2040f). Scale bar: 1 mm. Photos by Balázs Tóth.