

On the taxonomy of the genus *Dasypolia* (Lepidoptera, Noctuidae, Xylenini)

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Abstract

Descriptions of three new species and a new subspecies of the genus *Dasypolia*, *Dasypolia* (*Dasypolia*) *mazandarana* **sp. n.** and *Dasypolia* (*Dasypolia*) *rivandana* **sp. n.** from Iran, *Dasypolia* (*Dasypolia*) *marijana marijana* **sp. n.** from China and *Dasypolia* (*Dasypolia*) *marijana almatinka* **ssp. n.** from Kazakhstan are presented.

Keywords: *Dasypolia*, taxonomy, Central Asia, Iran, Kazakhstan, China

Zusammenfassung

Drei neue Arten und eine neue Unterart aus der Gattung *Dasypolia* werden beschrieben: *Dasypolia* (*Dasypolia*) *mazandarana* **sp. n.** und *Dasypolia* (*Dasypolia*) *rivandana* **sp. n.** aus dem Iran, *Dasypolia* (*Dasypolia*) *marijana marijana* **sp. n.** aus China und *Dasypolia* (*Dasypolia*) *marijana almatinka* **ssp. n.** aus Kasachstan.

Introduction

The latest checklist of *Dasypolia* was published by RONKAY et al. 2001. Since then, the taxonomical knowledge about the genus is significantly increased; the number of the known species is now close to one hundred which indicates one of the largest triline Noctuidae genera in the Palaearctic region. The genus comprises several different lineages, the relationship between these groups and their taxonomical rank are still unclear in many points and, according to the special lifestyle (the moths are on wing in the late autumn and early spring time; endophagous larvae) suggests that there are still numerous unknown taxa to be discovered and described. The present paper contains the description of four new *Dasypolia* taxa from the mountainous areas of Central Asia, they are compared with their closest relatives and framed into the given species-groups due to our best knowledge.

Materials and methods

The moths studied were all collected at ultraviolet lights. The images were improved and prepared for publication using Corel Draw 15 and Corel Photo-Paint 15. The genitalia of both sexes were examined using standard methods. Abdomens were macerated in a heated 10% aqueous alkali solution for 10 minutes before genitalia were dissected out with a micro-forceps. The separated aedeagus and complete female genitalia were stained with "Evans blue" dye (0.1% aqueous) for 5 minutes prior to being mounted in euparal and labeled.

Nomenclature used in this study relies upon taxonomical experts and relevant literature (BOURSIN 1954; 1968; CHEN et al. 1990; DRAUDT 1950; GYULAI & RONKAY 1995; HACKER & RONKAY 1996; HACKER & PEKS 1996; HREBLAY et al. 1998; RONKAY et al. 1995, RONKAY et al. 1998; VARGA 1982).

Abbreviations for personal and institutional collections used herein include: AFM = Alessandro Floriani (Milan, Italy); BBT = Balázs Benedek (Törökbálint, Hungary); GBG/ZSM = Gottfried Behounek (Grafing, Germany) / Zoologische Staatssammlung, München (Germany); HNHM = Hungarian Natural History Museum (Budapest, Hungary); NRCV = Nature Research Centre (Vilnius, Lithuania).

Systematic account - Descriptions of new taxa

***Dasypolia (Dasypolia) mazandarana* BENEDEK, SALDAITIS & BABICS sp. n.** (Figs 1, 2, 10, 17)

Material. Holotype: male (Fig. 1), Iran, Prov. Mazandaran, Elburz Mts, 20 km E of Valiabad, 3190 m, 26. X. 2000, leg. B. Benedek & Gy. Fábíán, slide No. BB15m, (coll. BBT).

Paratype: female (Fig. 2), Iran, Prov. Mazandaran, Elburz Mts, 2600 m, 30 km W of Balade, 21-22. V. 2001, leg. B. Benedek & G. Csorba, slide No. RL7391f, (coll. HNHM).

Diagnosis. *Dasypolia mazandarana* sp. n. is closely related to *Dasypolia fraterna* BANG-HAAS, 1912 (Figs 3, 4). Externally it differs from *D. fraterna* in the smaller size and the somewhat paler, yellowish-green ground colouration. The male genitalia of *D. mazandarana* sp. n. (Fig. 10) differ in the slightly longer uncus, larger anterior processes of the fultura, weaker vinculum, larger and longer clasper, smaller costal process and broader, more oblong cucullus than in *D. fraterna* (Fig. 11). The aedeagus of *D. mazandarana* sp. n. (Fig. 10) is shorter and broader with more acute coecum than that of *D. fraterna* (Fig. 11), the carinal process is reduced and the vesica is broader. The female genitalia of new species (Fig. 17) differ from those of *D. fraterna* (Figs 18, 19) in the broader papillae anales, the larger antrum, the shorter but broader ductus bursae and the larger corpus bursae.

Description. Wingspan 41 mm, length of forewing 19 mm. Head, front and thorax light reddish-brown coloured, gently mixed with gray scales; male antennae shortly dentate and fasciculate, those of the female ciliate. Forewings elongated-triangular in shape, ground colour light yellowish-green in male, darker, olive-green in female, basal part decorated with a fine orange coloured patch, orbicular stigma and reniform stigma more

or less distinct, yellowish-grey coloured, reniform stigma filled with darker-brown scales; antemedial and postmedial fascia remarkably and strongly waved, subterminal fascia diffuse, cilia similarly coloured like the ground colour. Hindwings of male light yellowish-white coloured, those of the females darker whish-grey coloured.

Male genitalia (Fig. 10). Uncus short but broad, tegumen relatively strong, high positioned; penicular lobes well developed. Fultura shield-like in shape with two small, tooth-like anterior processes; vinculum narrow, V-shaped. Saccus relatively small; valvae triangular shaped, strongly tapering, apical part straight but elongated. Cucullus more or less oblong in shape; clasper relatively large and elongated, horn-like in shape, dynamically curved at middle, costal process small, digitiform. Aedeagus straight, medium long and relatively broad with well-developed sclerotization at the carinal plate; vesica broad, dorsally everted with two small diverticula on the distal part.

Female genitalia (Fig. 17). Papillae anales short but broad, apophysis posterioris and apophysis anterioris short and strongly sclerotized. Ostium bursae characteristically wide and deeply incised; antrum moderately broad. Ductus bursae medium long with granulose sclerotization, cervix bursae broad and conical, corpus bursae large, globular.

Bionomics and distribution. Both specimens were found at light, the holotype male was collected in a high mountain pass (Fig. 20) partly covered with snow at the time together with a long series of *Dasypolia templi armeniaca* RONKAY & VARGA, 1985 and *Dasypolia (Dasymixis) diva* RONKAY & VARGA, 1990. The overwintering female was captured just a few kilometers away from the pass, together with typical elements of the early summer Noctuidae fauna. The type locality area was covered with different *Umbelliferae* species - the foodplants of many *Dasypolia* species.

Etymology. The name is given after the type-locality, Mazandaran province in Northern Iran.

***Dasypolia (Dasypolia) marijana marijana* SALDAITIS, BENEDEK & BABICS sp. n.** (Figs 5, 6, 12, 13)

Material. Holotype: male (Fig. 5), China, Xinjiang, SW from Kashi, Keng Tau Mts., Oyttag loc., N38°54.363", E075°13.788", h-2650 m, Floriani, 29-30. IX. – 1. X. 2013, slide No. JB2213m, (coll. GBG/ZSM). **Paratypes:** 2 males (Fig. 6) with the same locality as the holotype, slide No. JB2232m, (coll. AFM and NRCV).

Diagnosis. *Dasypolia marijana marijana* sp. n. (Figs 5, 6) is a member of the *templi*-species group and it is easily separable from the related *Dasypolia templi* (THUNBERG, 1792) by the intensive pinkish colouration of the forewing and the thorax. The male genitalia of the new species (Figs 12, 13) differ from those of *D. templi* in the broader uncus and tegumen and the medially nearly horizontally angled clasper. The aedeagus of *D. marijana marijana* sp. n. (Figs 12, 13) is shorter, with more developed, ridge-like carinal process and the two medial diverticula are smaller than those of *D. templi*.

Description. Wingspan 45-52 mm, length of forewing 21-25 mm. Antennae of males shortly bipectinate, head and thorax darker pinkish-red coloured; forewings elongated-triangular in shape with rounded apex, ground colour intensively and uniformly pinkish-red. Antemedial and postmedial fascia conspicuously sinuous-shaped; subterminal fascia more or less diffuse, pale coloured. Cilia relatively elongate, similarly pinkish-red like

the forewing ground colour. Hindwings shiny ochreous-white with some fine pinkish-red shade; discal spot pale brown coloured, cilia long, pinkish-red coloured.

Male genitalia (Figs 12, 13). Uncus relatively short but broad, apically flattened, covered with well developed subapical hairs; tegumen relatively high positioned and characteristically small. Penicular lobes well developed, broad and conical; fultura elongated and broad, shield-like in shape with deep apical incision, medial process short and conical. Vinculum well-developed, elongate, V-shaped; sacculus moderately large but elongated. Valvae triangular in shape, apically tapering with rounded cucullus; clasper elongated, thick, strongly angled at middle, terminal half branch-like, sinuous in shape. Costal process relatively small, thorn-like, triangular but somewhat variable in shape. Aedeagus moderately elongate, evenly curved; carinal process well developed, ridge-like in shape. Vesica dorsally everted, elongated and moderately broad with two small distal diverticula.

The female is yet unknown.

Bionomics and distribution. Three males were collected at ultraviolet light in the end of September 2013 in West China's Xinjiang Province, in a remote area at the northwestern edge of the Kunlun Shan mountains, Keng Tau Mts (Fig. 21). The new species was encountered in the particularly dry mountain slopes covered by sparse bushes and *Juniperus*. It flies with some other *Dasypolia* species such as *Dasypolia shugnana* VARGA, 1982, *D. akbar* BOURSIN, 1968 and *D. psathyra* BOURSIN, 1968.

Etymology. The new species is named after our good friend, Mrs Marijana Panic (Kranj, Slovenia) for her multiple help in Xinjiang expeditions organization.

***Dasypolia (Dasypolia) marijana almatinka* BENEDEK, SALDAITIS & BABICS ssp. n.**
(Figs 7, 8, 14, 15)

Material. Holotype: male (Fig. 7), Kazakhstan, Prov. Almaty, Kuluktau Mt., Uzunbulak, 1600 m, 28. IX. 2002, leg. B. Benedek & T. Csővári, slide No. JB1542m, (coll. BBT). **Paratypes:** 2 males (Fig. 8), Kazakhstan, Prov. Almaty, Zailiskiy Alatau Mts, 15 km S Issyk, Issyk lake, 1710 m, 6. and 8. X. 2002, leg. B. Benedek & T. Csővári, slide No. JB2233m (coll. BBT).

Diagnosis. *Dasypolia marijana* ssp. *almatinka* ssp. n. externally differs from the nominotypical species by lighter wing colour and the shorter but more hooked clasper of the male genitalia.

Bionomics and distribution. This subspecies was found occasionally in places with rich herbaceous vegetation at medium-high elevations of the Northern foothills and slopes of the Tien-Shan massif (Fig. 22).

Etymology. The name is given after Almaty province in SE Kazakhstan.

***Dasypolia (Dasypolia) rivandana* BENEDEK, SALDAITIS & BABICS sp. n.** (Figs 9, 16)

Holotype: male (Fig. 9), Iran, Prov. Khorasan, Kopet-dagh Mts., 80 km NE of Qucan, 1900 m, 37°28'N, 58°34'E, 30. X. 2000, leg. B. Benedek & Gy. Fábíán, slide No. JB2229m, (coll. BBT).

Diagnosis. The new species is related to *D. templi*; it differs in the smaller size, the more acute forewing, the larger, fully dark filled reniform stigma and the more diffuse antemedial and postmedial fascia. The male genitalia (Fig. 16) of the new species differ from the related *D. templi* in the broader valvae, the wider vinculum and the configuration and the position of the clasper and the costal process. The aedeagus of the new species is shorter than that of *D. templi* and the vesica has only one characteristically large diverticulum at the middle.

Description. Wingspan 41 mm, length of forewing 19 mm. Antennae of male shortly dentate and fasciculate, head and thorax light olive-green. Forewings elongated, triangular-shaped with moderately acute apex; ground colour of forewings light ochre coloured with some olive shade. Antemedial and postmedial fascia diffuse, strongly sinuous in shape; subterminal fascia split into pale yellowish patches among veins. Cilia relatively elongated, similar coloured to the forewing. Hindwings pale yellowish-white coloured with some golden shine, discal spot hardly visible.

Male genitalia (Fig. 16) Uncus short and characteristically narrow, apically finely pointed with fine subapical hairs; tegumen low positioned. Penicular lobes well developed, broad and conical; fultura relatively large, somewhat elongated, shield-like in shape, with large semicircular apical incision and short medio-apical process. Vinculum broad and V-shaped; sacculus relatively small. Valvae rather broad and gently tapering, crescent-like shaped; cucullus more or less rounded, clasper large, thick, finger-shaped, distinctly low and nearly horizontally positioned. Costal process relatively well developed, thorn-like. Aedeagus moderately long with small coecum; carinal process ridge-like. Vesica dorsally everted, relatively narrow with a single, large median diverticulum.

The female is yet unknown.

Bionomics and distribution. The holotype was collected at light, under bad weather conditions in a deep rocky gorge (Fig. 23), together with just a few other late autumnal noctuid species.

Etymology. The name is given after the Persian name of the Kopet-Dagh mountain range, Rivandan-Kuh.

Acknowledgements

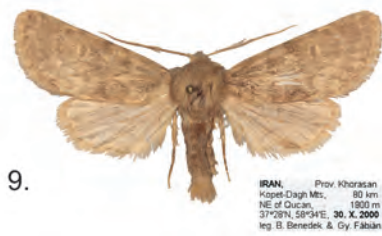
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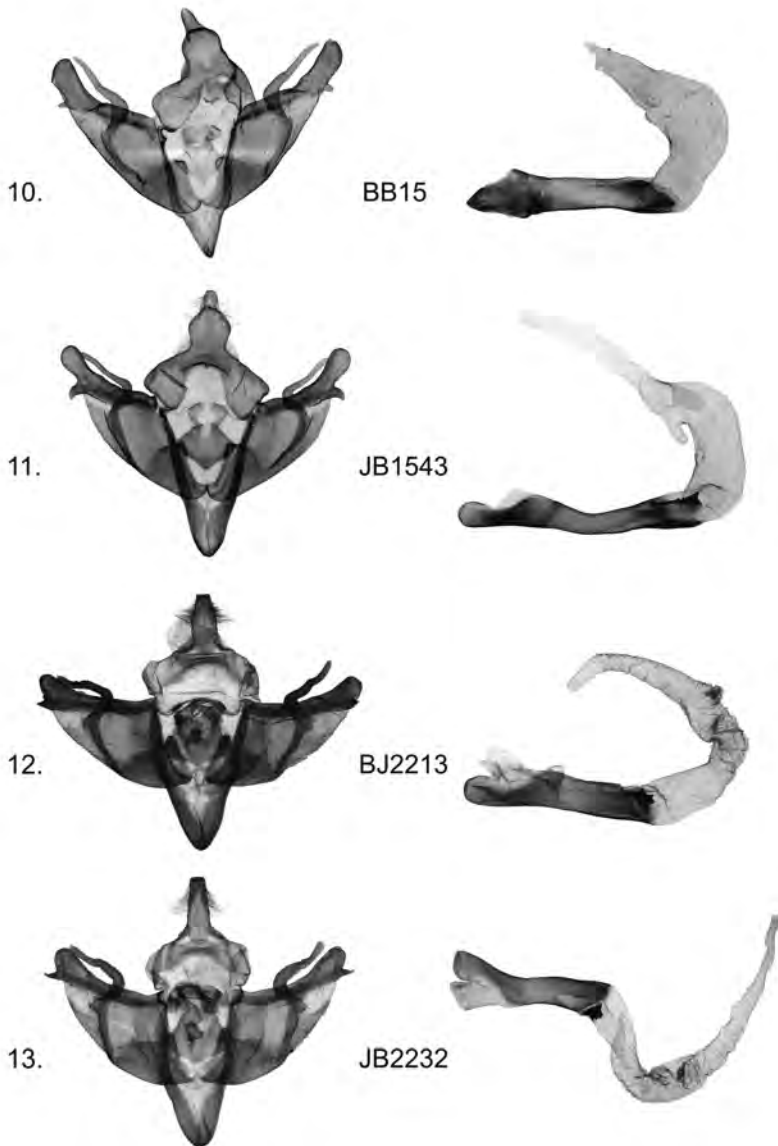
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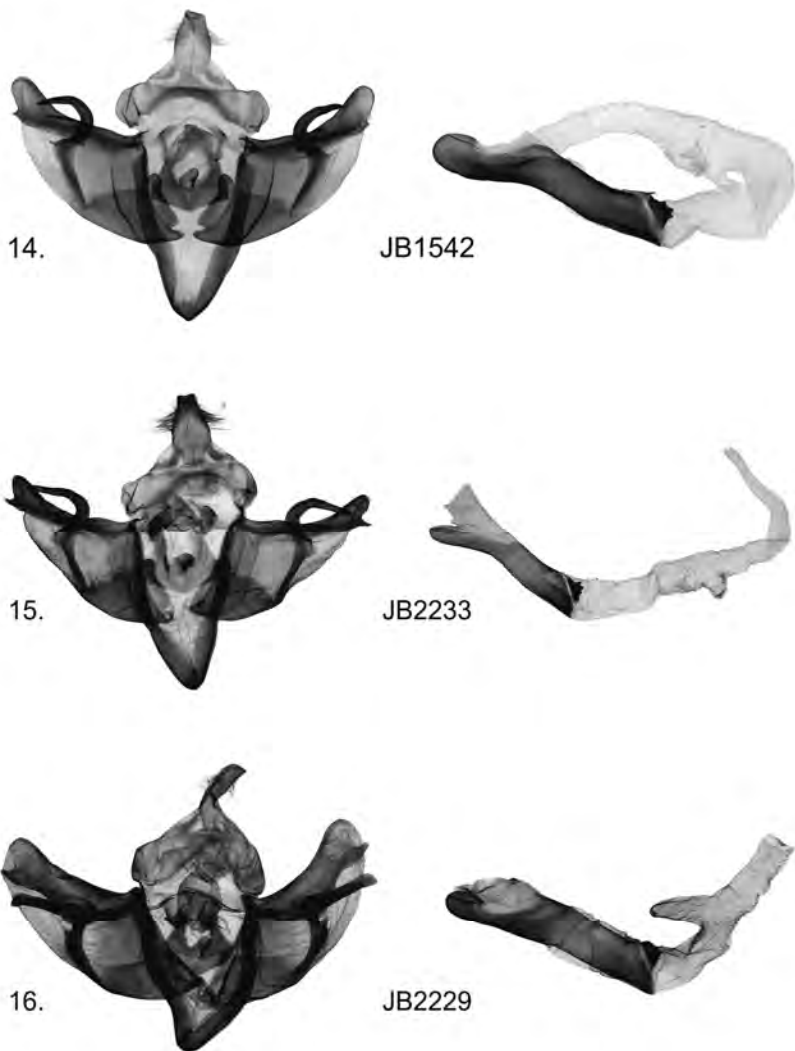
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Figures 1–8. *Dasypolia* ssp. adults. 1. *D. mazandarana* **sp. n.**, male, holotype, Iran, Prov. Mazandaran (coll. BBT); 2. *D. mazandarana* **sp. n.**, female, paratype, Iran, Prov. Mazandaran (coll. HNHM); 3. *D. fraterna*, male, Kazakhstan, Prov. Almaty (coll. BBT); 4. *D. fraterna*, female, Kazakhstan, Prov. Almaty (coll. BBT); 5. *D. marijana marijana* **sp. n.**, male, holotype, China, Prov. Xinjiang (coll. GBG/ZSM); 6. *D. marijana marijana* **sp. n.**, male, paratype, China, Prov. Xinjiang (coll. AFM); 7. *D. marijana almatinka* **ssp. n.**, male, holotype, Kazakhstan, Prov. Almaty (coll. BBT); 8. *D. marijana almatinka* **ssp. n.**, male, paratype, Kazakhstan, Prov. Almaty (coll. BBT); 9. *D. rivandana* **sp. n.**, male, holotype, Iran, Prov. Khorasan (coll. BBT).

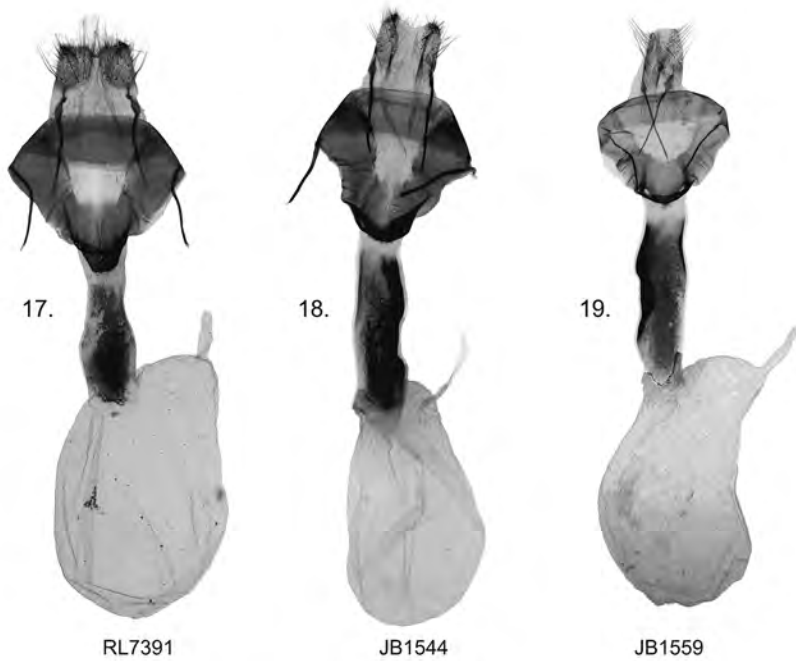




Figures 10–13. *Dasypolia* ssp. male genitalia. 10. *D. mazandarana* **sp. n.**, holotype, prep. BB15m; 11. *D. fraterna*, prep. JB1543; 12. *D. marijana marijana* **sp. n.**, holotype, prep. JB2213; 13. *D. marijana marijana* **sp. n.**, paratype, prep. JB2232.



Figures 14–16. *Dasypolia* ssp. male genitalia. 14. *D. marijana almatinka* **ssp. n.**, holotype, prep. JB1542; 15. *D. marijana almatinka* **ssp. n.**, paratype, prep. JB2233; 16. *D. rivandana* **sp. n.**, holotype, prep. JB2229.



Figures 17–19. *Dasypolia* ssp. female genitalia. 17. *D. mazandarana* **sp. n.**, paratype, prep. RL7391; 18. *D. fraterna*, prep. JB1544; 19. *D. fraterna*, prep. JB1559.



Figures 20–23. Biotopes. 20. Iran, Prov. Mazandaran, Elburz Mts, type locality of *D. mazandarana* **sp. n.** (pictured by Dr. Károly Víg); 21. China, Xinjiang, SW from Kashi, Keng Tau Mts, type locality of *D. marijana marijana* **sp. n.** (pictured by Alessandro Floriani); 22. Kazakhstan, Prov. Almaty, Zailiskiy Alatau Mts, 15 km South Issyk, Issyk lake, type locality of *D. marijana almatinka* **ssp. n.** (pictured by Mr. Vladimir Kurbatzky); 23. Iran, Prov. Khorasan, Kopet-dagh Mts, type locality of *D. rivandana* **sp. n.** (pictured by Dr. Károly Víg).

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