

CONTRIBUTIONS TO THE TAXONOMY AND BIOGEOGRAPHY  
OF THE GENUS *DICHAGYRIS* (SUBG. *DICHAGYRIS*) LEDERER, 1867  
(LEPIDOPTERA, NOCTUIDAE, NOCTUINAE) II.  
THE REVIEW OF THE *D. FORFICULA* SPECIES GROUP

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The *forficula* species group of the Holarctic genus *Dichagyris* is revised based on the survey of type specimens and relevant materials of state and private collections. *D. turana* (Staudinger, [1892]) **stat. rev.** and *D. furiosa* (Bang-Haas, 1912) **stat. rev.** are elevated to specific status and lectotypes are designated, *D. forficula devota* (Christoph, 1884) **stat. rev.** is downgraded to subspecies. The specific status of *D. erubescens* (Staudinger, [1892]) and *D. contermina* (Corti, 1930) is confirmed. The junior synonymy of *D. devota eremica* (Amsel, 1935) with *D. forficula devota* (Christoph, 1884) was constated. Seven new subspecies (*D. forficula akdagestana* **ssp. n.**, *D. forficula pseudoturana* **ssp. n.**, *D. forficula chitralensis* **ssp. n.**, *D. turana cisiliensis* **ssp. n.**, *D. furiosa kugitanga* **ssp. n.**, *D. furiosa griseoerythra* **ssp. n.** and *D. contermina melanographa* **ssp. n.**) are described, with considerations on the phyletic lines and biogeography of the taxa of the *D. forficula* species complex. With 79 figures.

Key words: review of Agrotini, taxonomy, lectotype designations, new specific statuses, subspecies descriptions, genital characters, phyletic lines, geographical distributions.

## INTRODUCTION

A considerable part of the Agrotini species (Noctuidae, Noctuinae) is successfully adapted to the extreme climatic and/or edaphic conditions and widely distributed in the arid-semiarid belts, including the xeromontane habitats of the mountains. The highly diverse Holarctic genus *Dichagyris* Lederer, 1857 belongs to this group of taxa, and is subdivided into several subgenera and numerous species groups both in North America and Eurasia (often differently interpreted by e.g. FIBIGER 1997, LAFONTAINE 2004, LAFONTAINE & FIBIGER 2006 vs. LAFONTAINE & SCHMIDT 2010).

The bulk of the species of this genus displays a wide external colour variation and a relatively simplified copulatory apparatus of both sexes. The light

whitish-ochreous vs dark fuscous forms often parallelly appear in the species of different species groups, seemingly dependent from the colouration of the substrate, see e.g. the pale local forms in saline or gypsum areas of Inner Anatolia, opposed to the “funeral” blackish specimens in the areas with dark volcanic rocks of Transcaucasia. In the male genitalia the uncus, tegumen and saccus are generally fairly uniform, without conspicuous autapomorphic characters. The valvae are moderately sclerotised, wide or tapering distally, generally without any saccular process, corona is regularly present and simple, but it seems to be parallelly reduced in some species groups. Aedeagus, including carina is generally moderately sclerotised, the latter rarely has a teeth-shaped extension or is finely serrate. Vesica is usually tubular with a subbasal diverticulum, generally bearing a small, acute cornutus, moderately or extremely elongate, often saccate, more or less helicoidally twining. The female genitalia are, as a rule, weakly sclerotised, the papillae of the ovipositor are generally weakly sclerotised, as well. Ductus bursae is usually membranous with somewhat more sclerotised antrum, corpus bursae is tubular without any signa, the appendix bursae is tubular or globular, often saccate. Most Eurasiatic species of the genus occur in West and/or Central Asia, in Europa mostly in the semiarid mountains of the Mediterranean region.

As the members of numerous species groups are weakly differentiated externally and they often show parallel colour variations, the proper identification of species is coming up against some difficulties in most occasions. Therefore, we considered it opportune to revise step-by-step the subgenera and species groups of the genus (interpretation see: VARGA *et al.* 2021).

## MATERIAL AND METHODS

The surveys were based on the material of numerous state museums and private collections. We established electronic databases and prepared a large set of digitalised microscopic slides. We also revised the comprehensive types and other important voucher specimens from several important European collections (see: Abbreviations).

The genital dissections were made by the technique published by ROBINSON (1976), with some modifications (FIBIGER 1997). Potassium hydroxide (~15% solution KOH) was used to macerate the abdomen. The cleaned genital capsule, everted vesica and female copulatory organs were dehydrated in 96% ethanol; the weakly sclerotized structures were stained with chlorazol black then mounted to Euparal. The mounted slides were photographed either using a Nikon Eclipse80i compound microscope connected to a Nikon DS-Fi1 digital camera (by courtesy of Martin Lödl and Sabine Gaal-Haszler, NHMW) or digitalised with microscopic slide scanner type GT Vision Prime Scan Microscope Slide Scanner. Terminology of genitalia follows the publications of FIBIGER (1997) and LAFONTAINE (1987, 1998).

Abbreviations: BMNH – Natural History Museum, London; GYP – slide of Péter Gyulai; HNHM – Hungarian Natural History Museum, Budapest; MHNG – Muséum d’Histoire Naturelle, Genève; NHMW – Naturhistorisches Museum, Wien; MNB – Museum für Naturkunde, Berlin; OP – collection of Oleg Pekarsky, Budapest; PG – collection

of Péter Gyulai, Miskolc; RG – collection of Gábor Ronkay, Vienna; RL – slide of László Ronkay; SMNK – Staatliches Museum für Naturkunde, Karlsruhe; VZ – slide of Zoltán Varga; ZFMK – Zoologisches Forschungsmuseum Alexander Koenig, Bonn; ZIRAS – Zoological Institute of the Russian Academy of Sciences, St. Petersburg; ZSM – Zoologische Staatssammlung, München.

## RESULTS

### Family Noctuidae Latreille, 1809

Latreille, P. A. 1809. Genera crustaceorum et insectorum secundum ordinem naturalem in familias disposita, iconibus exemplisque plurimus explicata. Tomus 4. Parisiis et Argentorati [= Paris and Strasbourg], A. Koenig, 399 pp.

### Subfamily Noctuinae Latreille, 1809

#### Genus *Dichagyris* Lederer, 1857

*Dichagyris* Lederer, 1857: 206.

### I. THE *DICHAGYRIS FORFICULA*-GROUP

#### The nominotypical subspecies and geographical variation of *D. forficula* (Eversmann, 1851)

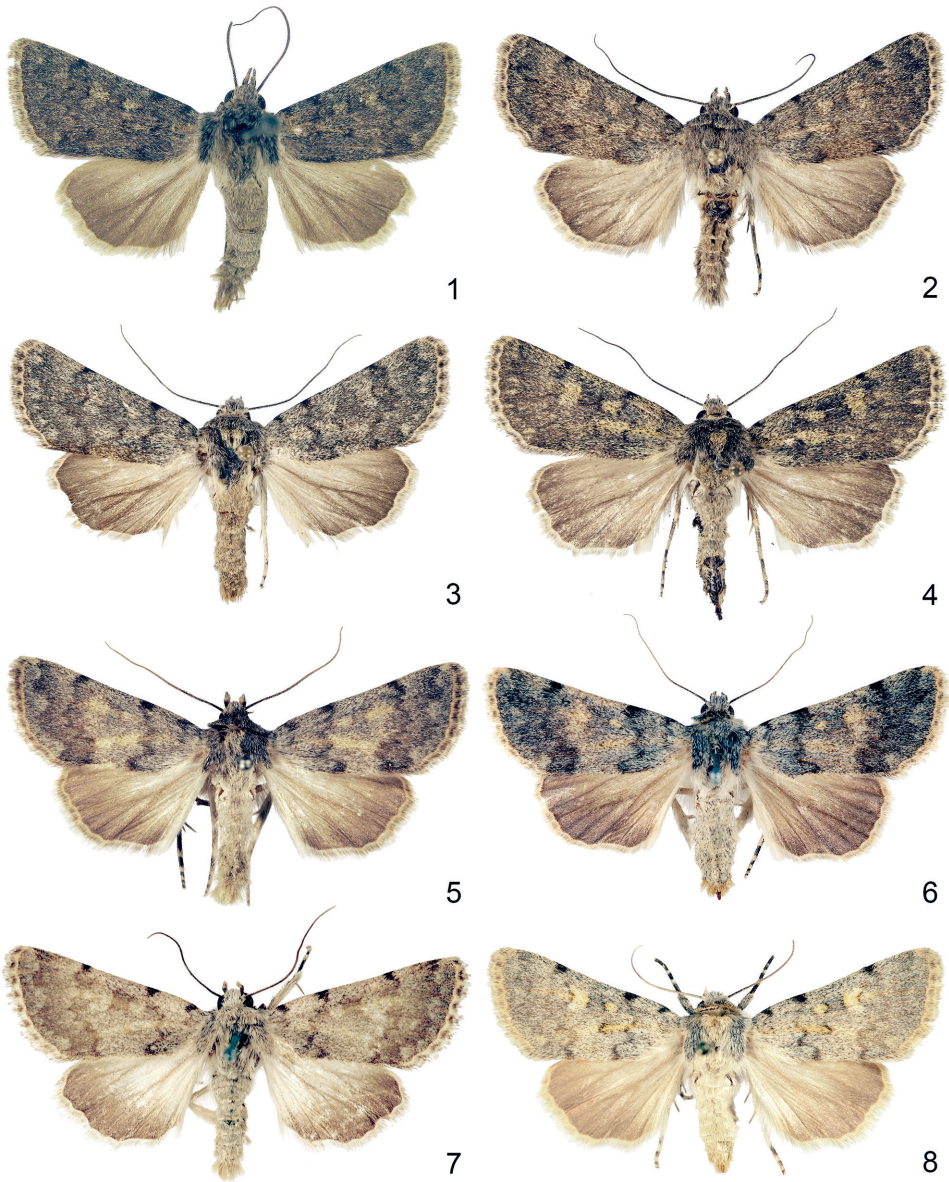
In a recent publication on the biogeography of Palearctic Noctuidae the Eurasiatic species of the genus *Dichagyris* (subgenus *Dichagyris*) were subdivided into several species groups (VARGA 2022). Some of them already have been treated in the Noctuidae Europaeae series (FIBIGER 1997: 101ff) and partly re-considered by VARGA *et al.* (2021). The *forficula*-group is most closely related to the *renigera*-group and consists of only two European species: *D. forficula* (Eversmann, 1851) and *D. erubescens* (Staudinger, 1892). However, both species display an enormous external colour variation, therefore they have been often misidentified, e.g. mixed with some colour variations of *D. renigera* or with some closely related West/Central Asiatic species, considered below.

In the original description *D. forficula* was compared with *D. forcipula* (Denis et Schiffermüller, 1775) (EVERSMANN 1851: 629). Three important differential characters were mentioned (in French, the more detailed diagnose was written in Latin): (i) the yellowish colouration of the orbicular and reniform stigmata, (ii) the expressed black spot below the orbicular stigma, and (iii) the obsolescent yellowish-grey subterminal line. “Géorgie” was mentioned as the origin of the specimen. However, the unique type specimen (Fig. 1) in the collection of the ZIRAS (St. Petersburg) bears three labels as follows: “Forficula Evm.”, “Armenia” (both are handwritten with black ink, by Eversmann) and “coll Eversmann” (printed). The specimen is in good condition with seemingly

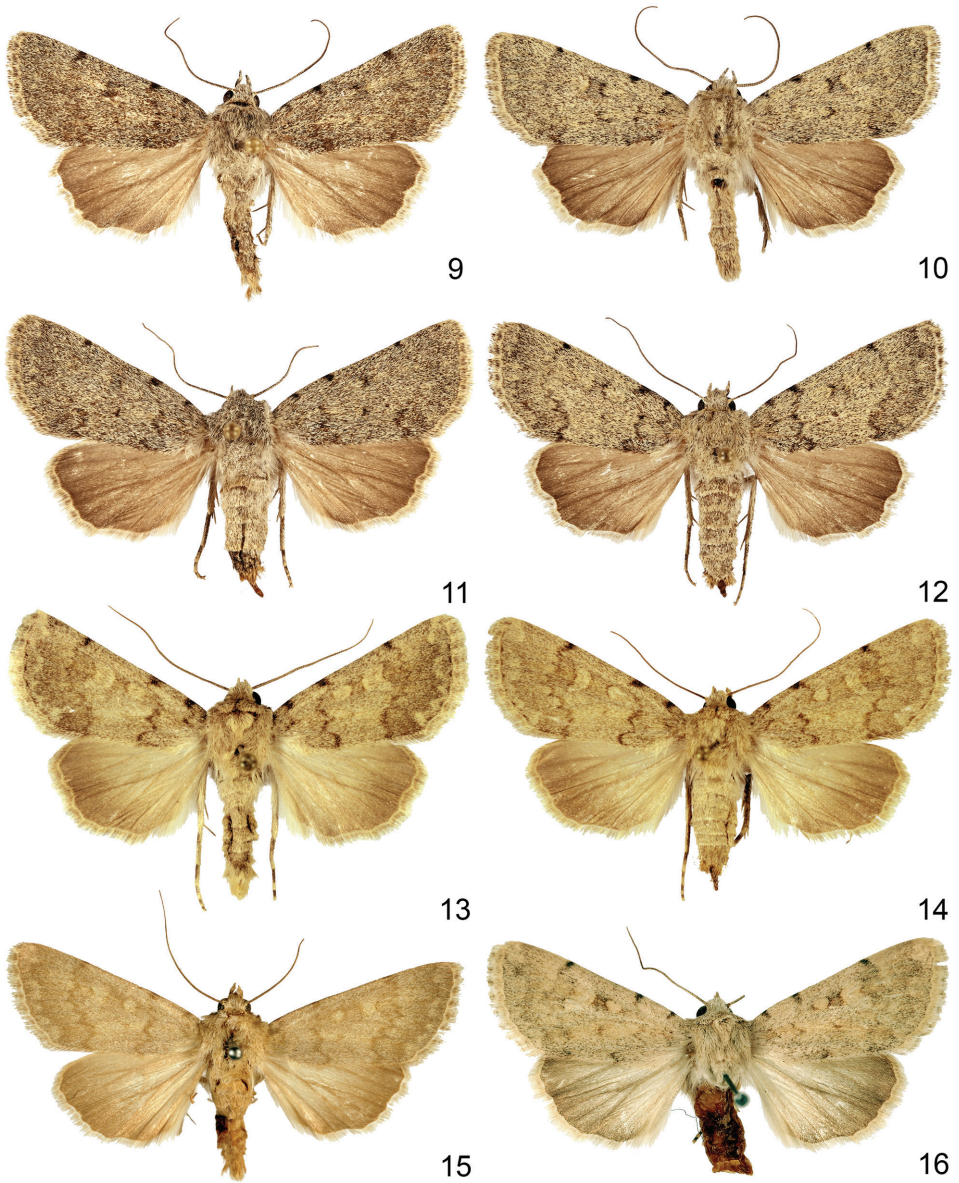
intact abdomen, and perfectly corresponds to the detailed original Latin description in (i) the bluish-grey colouration, (ii) the blackish crenulated transverse lines, (iii) the yellowish filling of the orbicular and reniform stigmata, (iv) the blackish spot below the orbicular stigma, and (v) the blackish-grey hind wings with lighter basal part. It means that “Géorgie” in the original description obviously was a “*lapsus calami*”, and therefore, the unique original specimen of Eversmann should be considered as Holotype (designated by A. Matov). As a consequence, the series of specimens in the ZIRAS from “Eriwan” and the specimens from the neighbouring areas of Turkey (provinces Kars and Van) represent the typical populations of the species (Figs 1–4). *Agrotis caucasica* Staudinger, 1877, described from the “Southwest Caucasus”, can be identified as junior synonym of *D. forficula* (see: <https://ftp.funet.fi/pub/sci/bio/life/insecta/lepidoptera/ditrysia/noctuoidea/noctuidae/noctuinae/dichagyris/>).

The specimens from the Northern Caucasus area seem to be rather uniform in smaller size (wing expanse 33–36 mm), showing a conspicuous whitish to light ash-grey colouration without ochreous or reddish scales and a faint or completely reduced maculation and crosslines. These traits are mostly expressed in the populations of the calcareous hills in Daghestan (Figs 9–12). Since this group of populations is also geographically well-defined and is isolated from those of North-East Anatolia and the Armenian plateau, it will be described below as a distinct geographic subspecies. *D. forficula* is widely distributed and frequent in Asia Minor in externally extremely varied populations, their forewing ground colour varies from whitish-ochreous grey (e.g. near Gürün or at the Ziyaret pass in Central Anatolia) to bluish or dark schist-grey, with more or less lighter noctuid maculation and crenulate crosslines (e.g. in provinces Sivas, Malatya and Bingöl). Some of these colour forms are already named, as f. *coerulescens* Wagner, 1931 (praeoccupied name!) from Akshehir; f. *hadjina* Staudinger, [1892] and f. *zeituna* Staudinger, 1900 from East Anatolia. These forms have been described approximately from the same region (Adana region and hilly areas near to the Anti-Taurus range), thus they display only different forms of a continuous range of colour variation (see the material preserved in coll. Friedel in ZSM, and the collections of GYP and RG). All these named forms only represent, therefore, different local forms of a single subspecies, geographically separated from the nominotypical subspecies on the Caucasus range and the Armenian plateau. It bears the name *D. forficula hadjina* Staudinger, [1892] as the first valid name given for these populations (Figs 5–8).

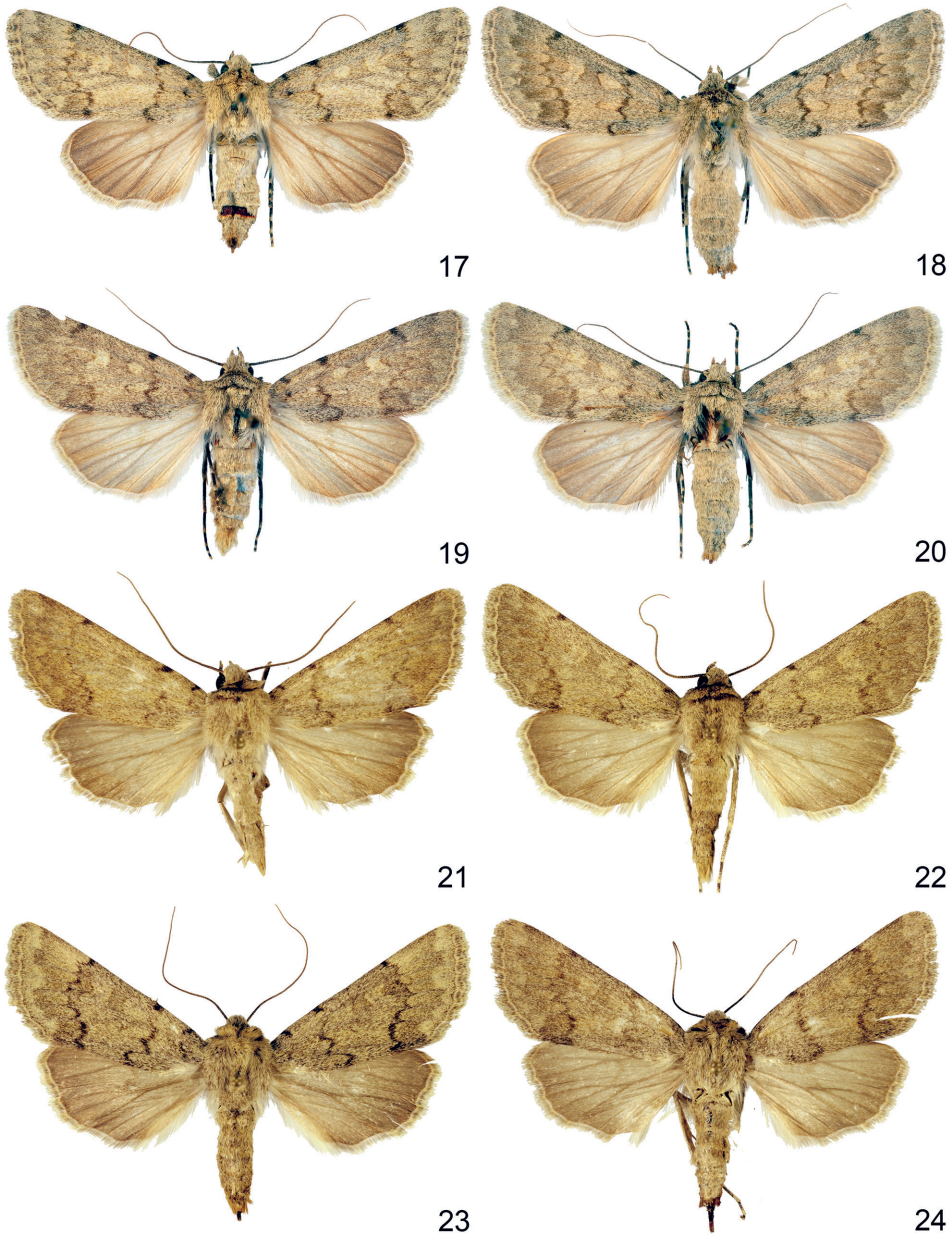
The range of *D. forficula* continuously extends from East of Turkey to the northern and western mountains of Iran (Elburs and Zaghros systems). These populations are somewhat more colourful but show nearly the same colour variations as *D. forficula hadjina*. *D. forficula* also occurs in the hilly semi-desert parts of the Sinai peninsula, Israel and Lebanon (KRAVCHENKO *et al.* 2006; ABDELFAHATTAH & ASHRAF 2019). These populations were described as *Agrotis devota eremica*



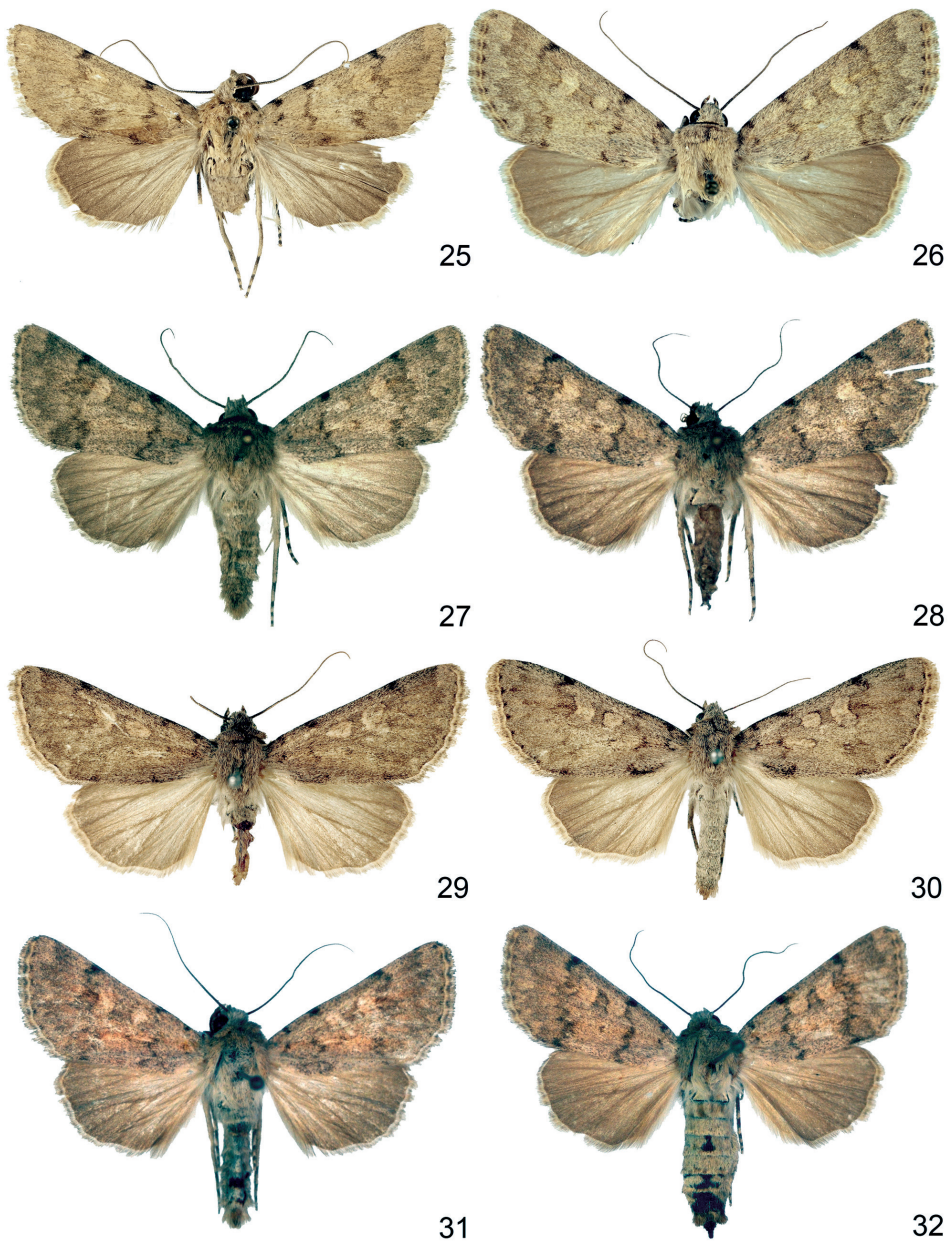
**Figs 1–8.** *Dichagyris forficula* sspp. 1–4 = *D. forficula forficula* (Eversmann, 1851): 1 = holotype, male, Armenia; 2 = male, Turkey, Prov Agri; 3–4 = females, Turkey, Prov Agri; 5–8 = *D. forficula hadjina* (Staudinger, 1892): 5 = syntype, male, Turkey, Hadjin; 6 = syntype, female, Turkey, Hadjin. 7 = Type of *Agrotis hadjina* var. *zeituna* Staudinger, 1899, Turkey, Hadjin. 8 = Holotype of *Agrotis renigera* f. *coerulescens* Wagner, 1931, Turkey, Akshehir



**Figs 9–16.** *Dichagyris forficula* spp. 9–12 = *D. forficula akdagestana* ssp. n., paratypes, Russia, Chechnya, Furtoug: 9–10 = male; 11–12 = females. 13–16 = *D. forficula devota* (Christoph, 1884): 13 = male, Turkmenistan, Kopet-Dagh, 14 = female, Turkmenistan, Kopet-Dagh, 15 = male, Iran, Shah Kuh, 16 = female, paratype of *Agrotis devota eremica* Amsel, 1935, Palestine

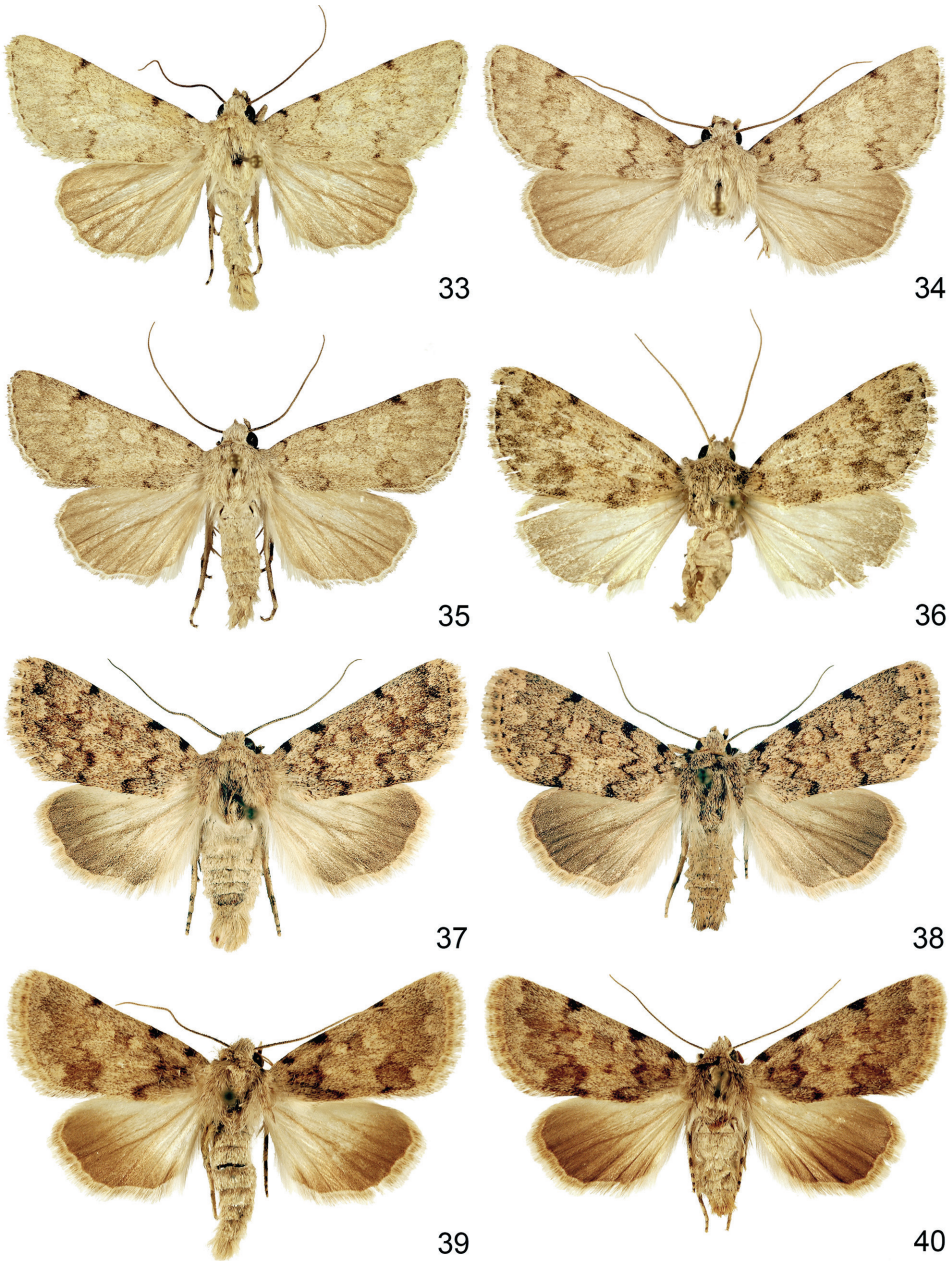


**Figs 17–24.** *Dichagyris forficula* spp. 17–20 = *D. forficula pseudoturana* ssp. n.: 17–18 = paratype, females, Afghanistan, Paghman Mts; 19 = paratype, male, Pakistan, Quetta; 20 = paratype, female, Pakistan Quetta. 21–24 = *D. forficula chitralensis* ssp. n., paratypes, Pakistan: 21–22 = males, 23–24 = females



**Figs 25–32.** *Dichagyris* spp. 25–26 = *D. turana turana* (Staudinger, 1892): 25 = male, Kirghisia, Issyk-Kul, 26 = female, Uzbekistan, Kyzyl-Kum. 27–28 = *D. turana cisiliensis* ssp. n., Kazakhstan, Chu-Ili Mts: 27 = holotype, male, 28 = paratype, male. 29–30 = *D. furiosa furiosa* (Bang-Haas, 1912), Tadjikistan, Peter the Great Mts, Garm: 29 = lectotype, male, 30 = paralectotype, male. 31–32 = *D. furiosa griseoerythra* ssp. n., Kirghisia, Naryn region, Sarykamish: 31 = holotype, male, 32 = paratype, female





**Figs 33–40.** *Dichagyris* spp. 33–35 = *D. furiosa kugitanga* ssp. n., Turkmenistan, Kugitang Tau: 33 = holotype, male; 34–35 = paratype, males. 36–38 = *D. contermina* (Corti, 1929): 36 = holotype of *Dichagyris wolfi* Hacker, 1986, male, Turkey, Prov. Mardin; 37 = male, Turkey, Prov. Urfa, Halfeti; 38 = female, Turkey, Prov. Urfa, Halfeti. 39–40 = *Dichagyris contermina melanographa* ssp. n., Iran, Zagros Mts, Kasri-Shirin: 39 = holotype, male; 40 = paratype, female

Amsel, 1935 (AMSEL 1935: 273, pl. 9, f. 3; Type locality: "Palestine"). The light ochreous grey specimens from NE Iran (Type locality: North Persia; Shahkuh; Hadzhyabad), resembling certain Central Asiatic taxa (see below), were separated from the other populations in Asia Minor under the name *Agrotis renigera* var. *intermedia* Staudinger, [1892]. However, these populations cannot be distinguished from those which populate the mountains of the Kopet-Dagh massif (in Iranian Khorasan and Turkmenistan): *D. forficula devota* Christoph, 1884 (in ROMANOFF, *Mémoires sur les Lépidoptères* 1: 116, Type locality: Ashkhabad). Thus, *eremica* is considered as junior synonym of *devota*, see below.

The smaller and darker specimens of the population inhabiting the Troodos Mts in Cyprus were originally separated as own species: *D. adelfi* Fibiger, Svendsen et Nilsson, 1999. The investigation of the genital features of the type specimens pointed out, however, that they represent an insular subspecies of *D. forficula* only: *D. forficula adelfi* **stat. n.**

All these subspecies and individual forms of *D. forficula* share the following important traits of the genital structures. In the male genitalia (Fig. 41), the valvae are distally gradually tapering, the costa and the dorsal margin are below the cucullus usually slightly concave, the free arm of the harpe is relatively short, acute and moderately curved. The short, semiglobular subbasal diverticulum is armed with a needle-shaped thin cornutus, the main tube of vesica is tubular, only moderately saccate terminally and completely recurved helicoidally.

In the female genitalia (Fig. 69), the papillae of the ovipositor are weakly sclerotised and finely ciliate, the antrum is semilunar-shaped, weakly sclerotised. The corpus bursae and appendix bursae are nearly equally long and moderately saccate terminally, their actual shape is strongly dependent from the level of polyandry, i.e. from the number of enclosed spermatophores.

## II. THE *DICHAGYRIS FORFICULA*-GROUP

Taxonomic status of *Dichagyris forficula devota* (Christoph, 1884)

*Dichagyris forficula forficula* (Eversmann, 1851)  
(Figs 1-4, 41)

*Agrotis forficula* Eversmann, 1851: 629.

Type locality: "Géorgie" ("Armenia" on the original, hand-written label)

*Dichagyris forficula devota* (Christoph, 1884) **stat. n.**  
(Figs 13–16, 47, 48, 70, 71)

*Agrotis devota* Christoph, 1884, in Romanoff, *Mémoires sur les Lépidoptères* 1: 116; Pl. 7, fig. 6.  
Type locality: mountains near Ashkhabad.

In contrast with the colourful habitus and opulence of individual variations in *D. forficula hadjina*, the populations of the mountains of Iranian Khorasan and Turkmenistan display a much more faded and monochromatic colouration which were described as *Agrotis devota* by Christoph (1884). Following the short diagnosis (in Latin), *A. devota* was compared with the closely related but slightly larger and more varied species *D. renigera* and differentiated from it by the more uniform, pale reddish-grey colouration. This species was also contrasted to *Standfussiana defessa* (Lederer, 1858) and clearly distinguished by the darker and dentate transverse lines. According to the description, only two females were captured. The original figure shows, however, based on the tip of the abdomen, a male specimen. Unfortunately, the home page of the ZIRAS does not contain any picture of these specimens ([https://www.zin.ru/collections/Lepidoptera/catalogen.html?taxon\\_id](https://www.zin.ru/collections/Lepidoptera/catalogen.html?taxon_id)).

We found, however, two male (!) specimens in that collection with the label "Askhabad" which may be identical, based on the score of the figure in the original description, with the specimens collected by Christoph, and one of them is designated here as Lectotype of the taxon *Dichagyris forficula devota* (Christoph, 1884) **stat. n.** A third, original specimen from Christoph was discovered in the collection of the BMNH with the following labels: "Shah Kuh" (hand written, black ink), "ex coll. Christoph." (printed), "Ex. coll. H. J. Elwes, 1920" (printed), "Joicey Bequest. Brit. Mus. 1934-120" (printed), "NHMUK01354240" (printed), "42 mm" (printed), "devota/turana" (hand written, black ink). As this specimen does not belong to those which are mentioned in the original description, it cannot be considered as Paralectotype of the species. The series of specimens preserved in the same collection from Kara-Kala (Turkmenistan) and published by KUZNETSOV (1960) as *D. forficula turana* can also be associated to this taxon.

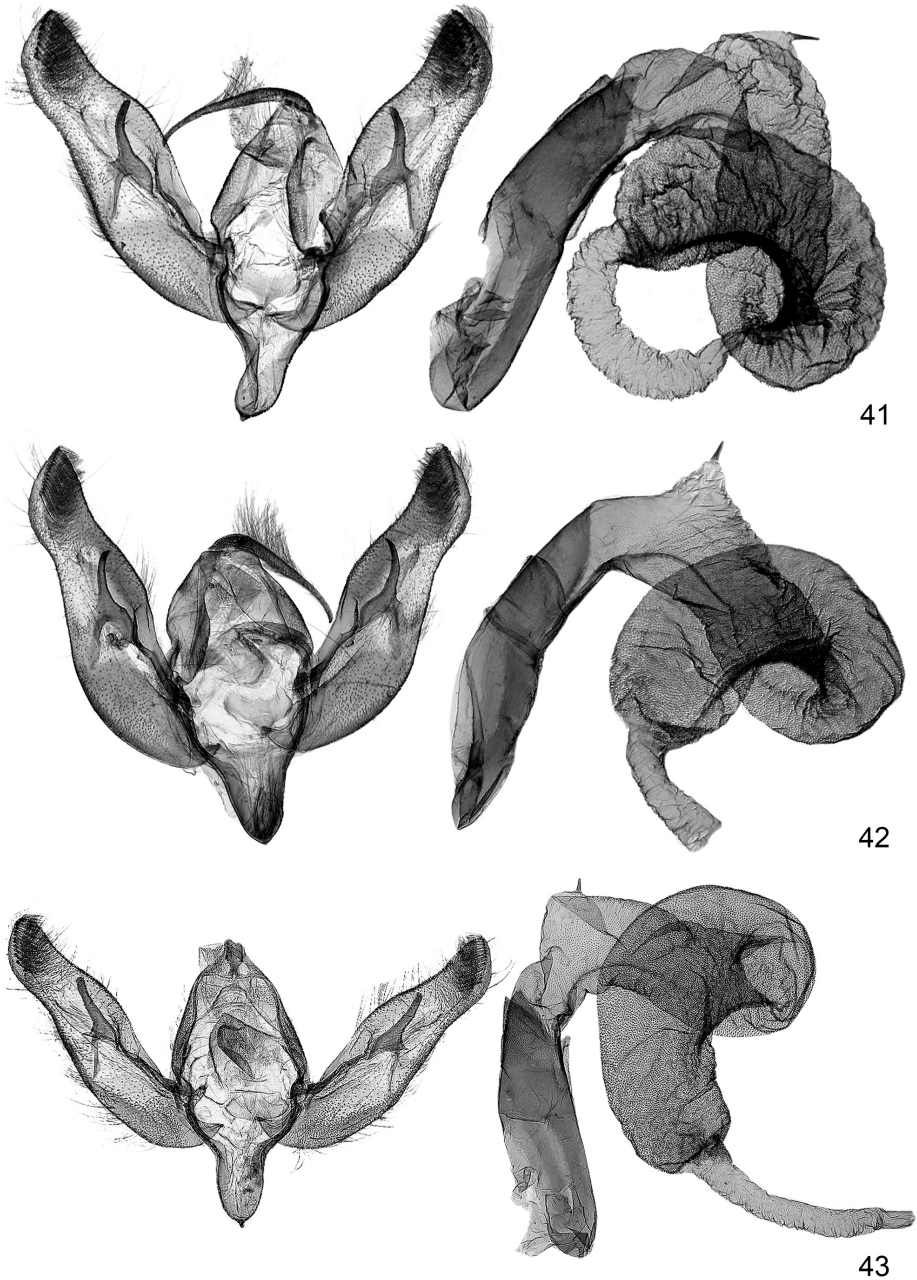
The genital structures of *D. forficula devota* (Figs 47–48, 70–71) essentially agree with those of *D. forficula forficula*. However, the genital capsule seem to be slightly graciler and the thin cornutus is on average slightly shorter. The wing expanse has the same variation as in the case of *D. forficula forficula* (34–42 mm vs 33–41 mm).

### III. *DICHAGYRIS FORFICULA* IN THE NE CAUCASUS RANGE with description of a new subspecies

#### ***Dichagyris forficula akdagestana* subsp. n.**

<http://zoobank.org/8258ACB9-4DB4-43F7-9866-D848803B09C7>  
(Figs 9–12, 42, 69)

**Holotype:** male, "Russia, N Caucasus, Daghestan, Gubden vill., Karabudakhkentsky distr., 42°33'N, 47°25'E, 1000 m, 3. VI. 2021, leg. V. Zurilina", gen. slide GYP5775m (coll. PG).



**Figs 41–43.** Male genitalia of *Dichagyris forficula* ssp. 41 = *D. forficula* (Eversmann, 1851), NE Turkey, Prov. Van, slide No.: VZ10245m. 42 = *D. forficula akdagestana* ssp. n., paratype, Russia, North Caucasus, Ingoushetia, slide No.: VZ9771m. 43 = *D. forficula hadjina* (Staudinger, 1892), Turkey, lectotype of *Agrotis hadjina* var. *zeituna* Staudinger, 1899, slide No.: VZ9548m

**Paratypes.** Russia. Daghestan. 3 males, 1 female, with same data as holotype; 1 female, from the same locality, 27.VII.2020, leg. V. Zurilina; 2 males, from the same locality 21.V. and 2.VI.2021, leg. V. Zurilina; 4 males, 10 females, from the same locality, 42°32'N, 47°25'E, 1030 m, 27.VI.2022, leg. V. Zurilina; 6 males, 11 females, from the same locality, 2.VII. and 8.VII.2022, leg. V. Zurilina (all in coll. PG); 1 male, with same data (coll. Z. Varga). Slides: GYP5586f, GYP5799f, VZ11518m, VZ11973m. Ingoushetia. 1 male, 2 females, "ChIASSR Furtoug 1000 m 12. Juli, 1989 leg. Herczig, Uherkovich, Horváth, Szollát, Sárközi"; 1 male, from the same site, 12-13.VI.1990, leg. L. Ábrahám & Á. Uherkovich; 13 males, 13 females, with the same locality, "2.VII.1991, leg. B. Herczig, V. Markó et Z. Mészáros"; 1 male, 1 female, "NE Caucasus, Lezsgi 1300 m, 8.VII.1991. leg. B. Herczig, V. Markó et Z. Mészáros" (coll. RG). Slide Nos: VZ9771m, VZ11513m, VZ6753f, VZ11473f, VZ11479f, VZ11519f, VZ11523f.

**Diagnosis.** This subspecies belongs to the smaller ones of *D. forficula*, expanse 33–36 mm. Head, collar, thorax and forewings are nearly concolorous whitish-grey or light ash-grey, without any ochreous or reddish colouration, the forewings are nearly patternless or with faintly marked thin, crenulate crosslines only. Maculation weakly defined with some grey scales and filled with whitish scales, the submarginal field is slightly darker; the cilia are chequered with some darker grey scales. Hindwings whitish grey with diffuse slightly darker margins.

The male and female genitalia (Figs 42, 69) agree with those of the typical subspecies.

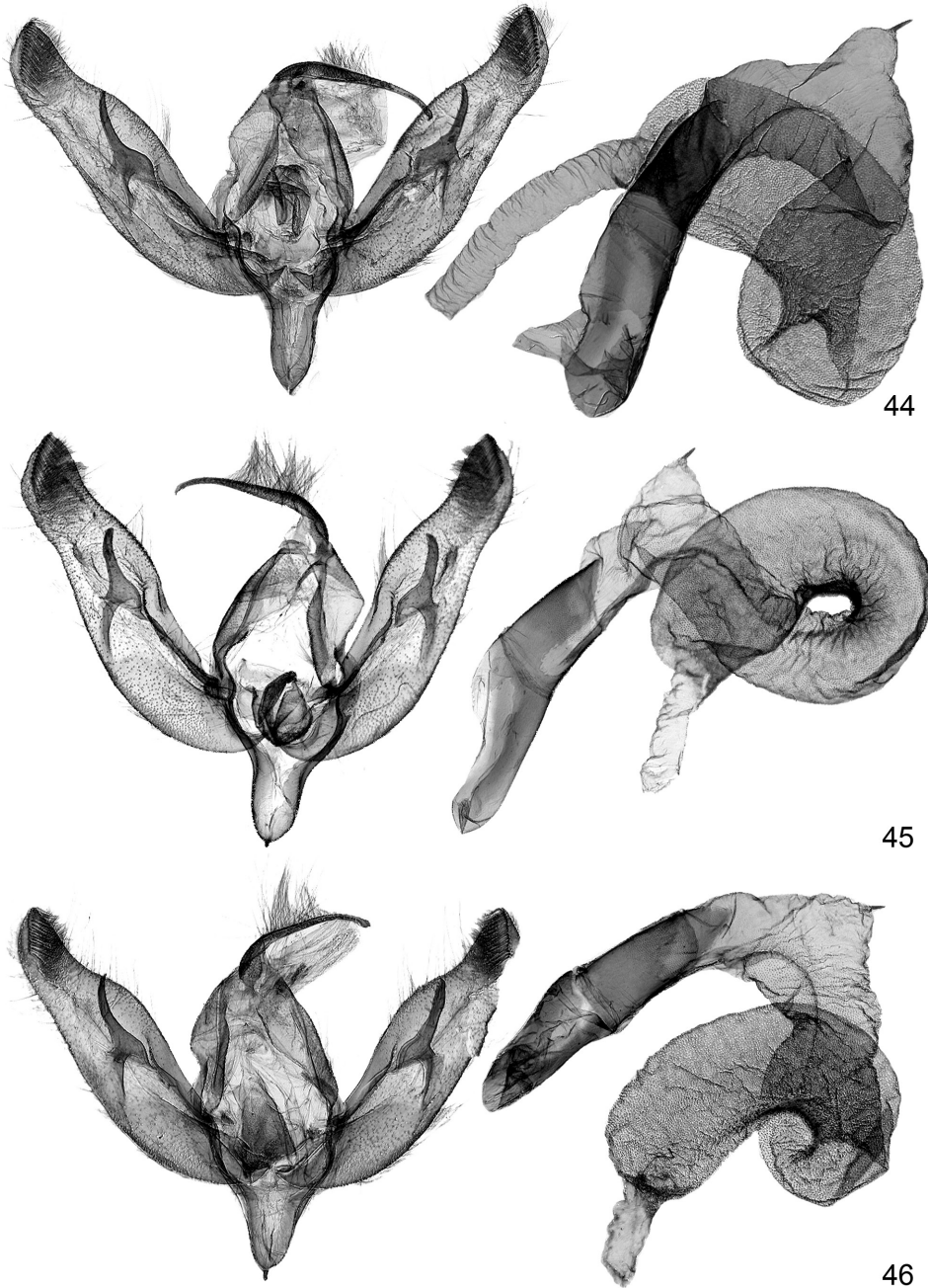
**Distribution.** The new subspecies seems to be confined to certain calcareous hilly areas of the North Caucasus range in Daghestan and in the Ingoushia territory, Russian Federation. Its range seems to be separated from the much more extended distribution of the nominotypical race occurring south from the main ridge of the Great Caucasus massif.

**Etymology.** The name refers to the type locality and the whitish colouration of the subspecies.

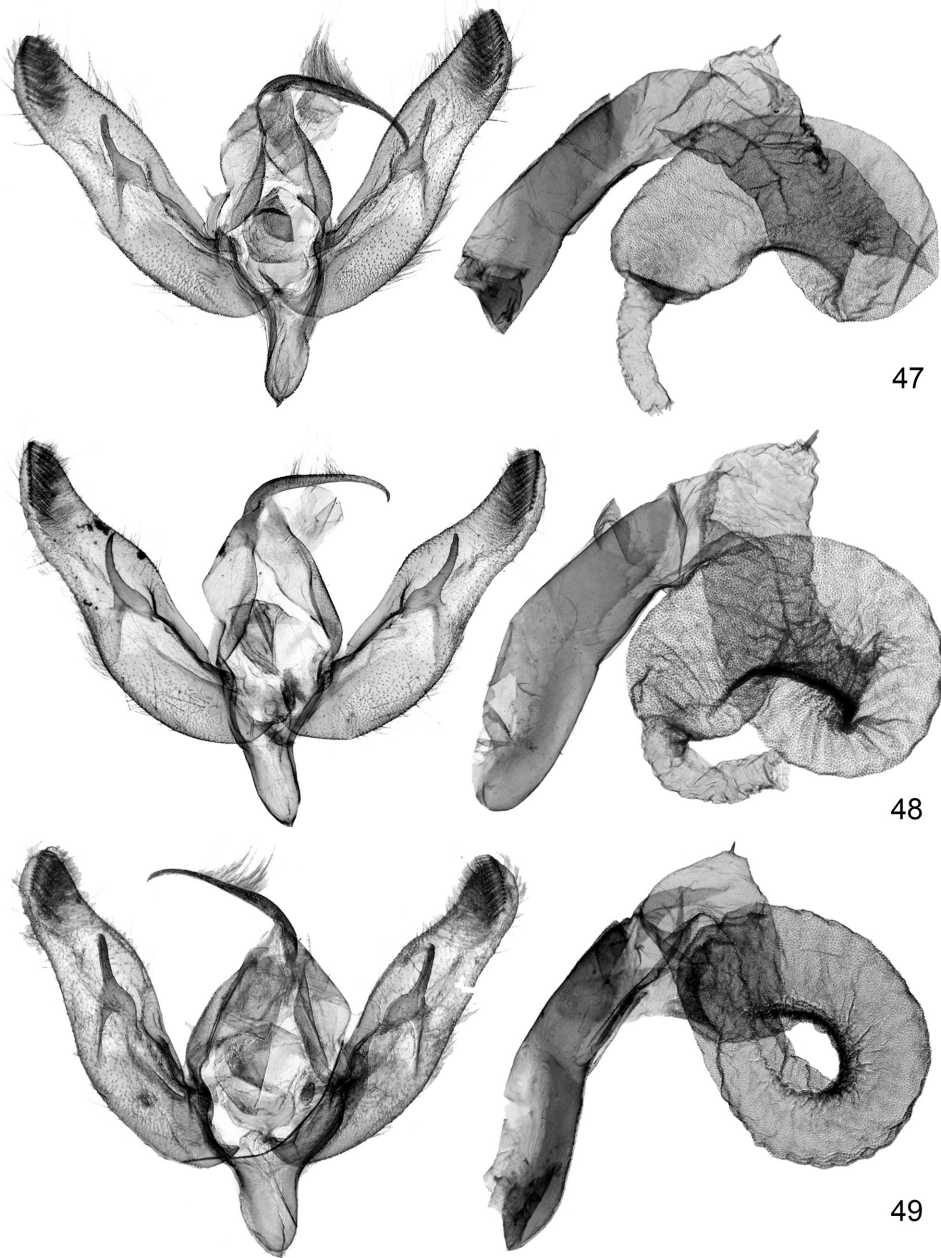
#### IV. TAXONOMIC SUBDIVISION OF *DICHAGYRIS FORFICULA* IN CENTRAL ASIA

##### with description of two new subspecies

The *D. forficula* specimens from the southeastern hilly part of Afghanistan (Sarobi, Khurd Kabul) and adjacent part of Pakistan (Baluchistan, near Quetta) are essentially similar to *D. forficula devota* and they were mentioned and figured (LÖDL *et al.* 2012) as *D. devota turana* due to the misidentification of *Agrotis renigera var. turana* (see below). They display nearly the same light ochreous grey colouration of the thorax and forewings as *D. forficula devota*. However, these specimens have a slightly larger wing expanse (37–43 mm), the forewings are more elongate and the crosslines are more expressed (Figs



**Figs 44–46.** Male genitalia of *Dichagyris forficula hadjina* (Staudinger, 1892): 44 = Turkey, Prov. Malatya, slide No.: VZ9768m; 45 = Turkey, Prov. Hakkari, slide No.: VZ9959m; 46 = Iran, Elburs Mts, slide No.: VZ9770m



**Figs 47–49.** Male genitalia of *Dichagyris forficula* spp. 47–48 = *D. forficula devota* (Christoph, 1884): 47 = Turkmenistan, Kopet-Dagh, slide No.: VZ9961m; 48 = Iran, Prov. Khorassan, slide No.: VZ11518m. 49 = *D. forficula pseudoturana* ssp. n., paratype, Afghanistan, Paghman Mts, slide No.: VZ10134m

17–20) than in *D. forficula devota* (Figs 13–16). The male genitalia (Fig. 49) are essentially identical with those of the other subspecies of *D. forficula*, however the valvae and the claspers are slightly more elongate. The thin subbasal cornutus is somewhat shorter than in other subspecies, however, the completely, helicoidally recurved vesica is similar to those of *D. forficula forficula* and *D. forficula devota*.

***Dichagyris forficula pseudoturana* ssp. n.**

<http://zoobank.org/C8B7BF79-EAB5-4F74-AB63-20CB9E56311F>

(Figs 17–20, 49, 72, 73)

**Holotype:** male, “4.VII.1969 | O-Afghanistan, Paghman 30 km NW Kabul, 2500 m. | leg. Vartian” (NHMW).

**Paratypes.** Afghanistan. 4 females, with same data as holotype; 2 males, 14 females, 10 km NW from Kabul, 1900 m, 1.VI.1965, leg. Kasy & Vartian; 2 females, from the same locality, 25.VI.1965; 1 female, from the same locality, 5.VI.1965, leg. Kasy & Vartian; 1 female, Paghman, 30 km N of Kabul, 2500 m, leg. Vartian; 14 males, 16 females: Khurd Kabul, SO v. Kabul, 1900 m, 20.V.1965, 23.V.1965, 26.V.1965 and 18.VI.1965, leg. Kasy & Vartian”; 1 female, 40 km SW of Kabul, 2300 m, 17.VI.1965, leg. Kasy & Vartian; 1 male, 2 females, Tang-i-Gharu, 1400 m, 30.V.1975, leg. W. Thomas; 1 female, Band-i-Amir, 2800 m, 9-12.VII.1975, leg. W. Thomas; 1 female, SE Afghanistan, Safed Koh, Kotkai, 2350 m, 21.VI.-1.VII.1969, leg. Vartian. MHNG ENTO numbers: 21041, 21043, 21044, 21046, 21048, 21103, 21104, 21286, 21287; slide Nos PL631m, VZ10134m, VZ10197m, VZ10312m, VZ11134m, VZ11652m, VZ11653f, VZ11654f, VZ11655f (coll. NHMW and MHNG). 1 male, Prov. Bamian, Sabzil, 2900 m, 19-20.VII.2013, leg. I. Plyushch, O. Pak & Yu. Skrylnik, slide No. VZ11986m (coll. OP). Pakistan. 2 females, 150 km SW Quetta, 900 m, 13.V.1965, leg. Kasy & Vartian, MHNG ENTO 21270, 21297 (coll. MHNG); 1 male, Baluchistan, Quetta prov., Ziarat, 2500 m, 67°45'E, 30°11'N, 14-19.VI.1992, leg. Z. Weidenhoffer (coll. PG). Slide Nos VZ9097m, VZ10999m, VZ11027m. Tajikistan. 4 males, 7 females, 15 km SE Shaartuz, betw. Dzharkurgan and Kurdzhahot, 300 m, 23.04.2010, leg. Pak (coll. OP), 11 males, 20 females, Babatag Mts., 50 km W Kurgan Tjube, 1200 m, 5. V. 1994, leg. Lukhtanov (coll. PG). Slide Nos GYP 5314, VZ11985m, VZ11991f.

**Diagnosis.** The new subspecies of *D. forficula* can be easily distinguished both from the typical subspecies and from *D. forficula devota* by the larger expanse and much more elongate shape of forewings. Head, collar, thorax and forewings are fairly concolourous greyish ochreous or ochreous grey, according to the locality of specimens. The light ochreous colouration of the forewings is finely scattered by darker scales, the maculation is light ochreous, faintly defined, the crosslines are darker ochreous-brown, the antemedial line is dentate, the postmedian finely crenulate. Females are similar to the males, their measures are on average slightly larger only (36–40 mm vs. 38–42 mm).

The male genitalia (Fig. 49) are similar to those of *D. forficula*, the valvae are, however, slightly more elongate and tapering distally. Vesica helicoidally



recurved, with small rounded subbasal diverticulum armed by a short, fine, needle-shaped cornutus.

The female genitalia (Figs 72, 73) display nearly the same traits as in *D. forficula*, papillae of the ovipositor are weakly sclerotised, densely covered by fine, short setae; ductus bursae membranous, antrum with small semilunar sclerotisation, appendix bursae is only slightly shorter and more saccate than corpus bursae.

Distribution. This subspecies has a wide range in the lower and middle altitudes of eastern Afghanistan and north-western Pakistan, reaching to the southernmost part of Tajikistan, and mostly occurs in semi-desert habitats.

Etymology. The name refers to the necessity of the distinction from the taxon *turana*.

### ***Dichagyris forficula chitralensis* ssp. n.**

<http://zoobank.org/A0225EA5-B090-4595-90AB-7DC1BD41728B>  
(Figs 21–24, 50, 51)

**Holotype:** male, NW-Pakistan, 3 km NW of Garam Chasma, 2600 m, 36°05'N, 71°22'E, Nr. 24, 23.VI.1992, leg. M. Hreblay & G. Csorba, slide No. VZ9097m (coll. RG).

**Paratypes.** Pakistan. 6 males, 6 females with same data as holotype, MHNG ENTO 21247, 21276, 21279, 21280 (coll. RG and NHMG); 2 males, 5 km E of Buni, 2200 m, 72°10'N, 72°03'E, 22.VI.1992, leg. M. Hreblay & G. Csorba, MHNG ENTO 21241 (coll. RG and MHNG). Slide Nos VZ9960 (male), VZ10022 (female).

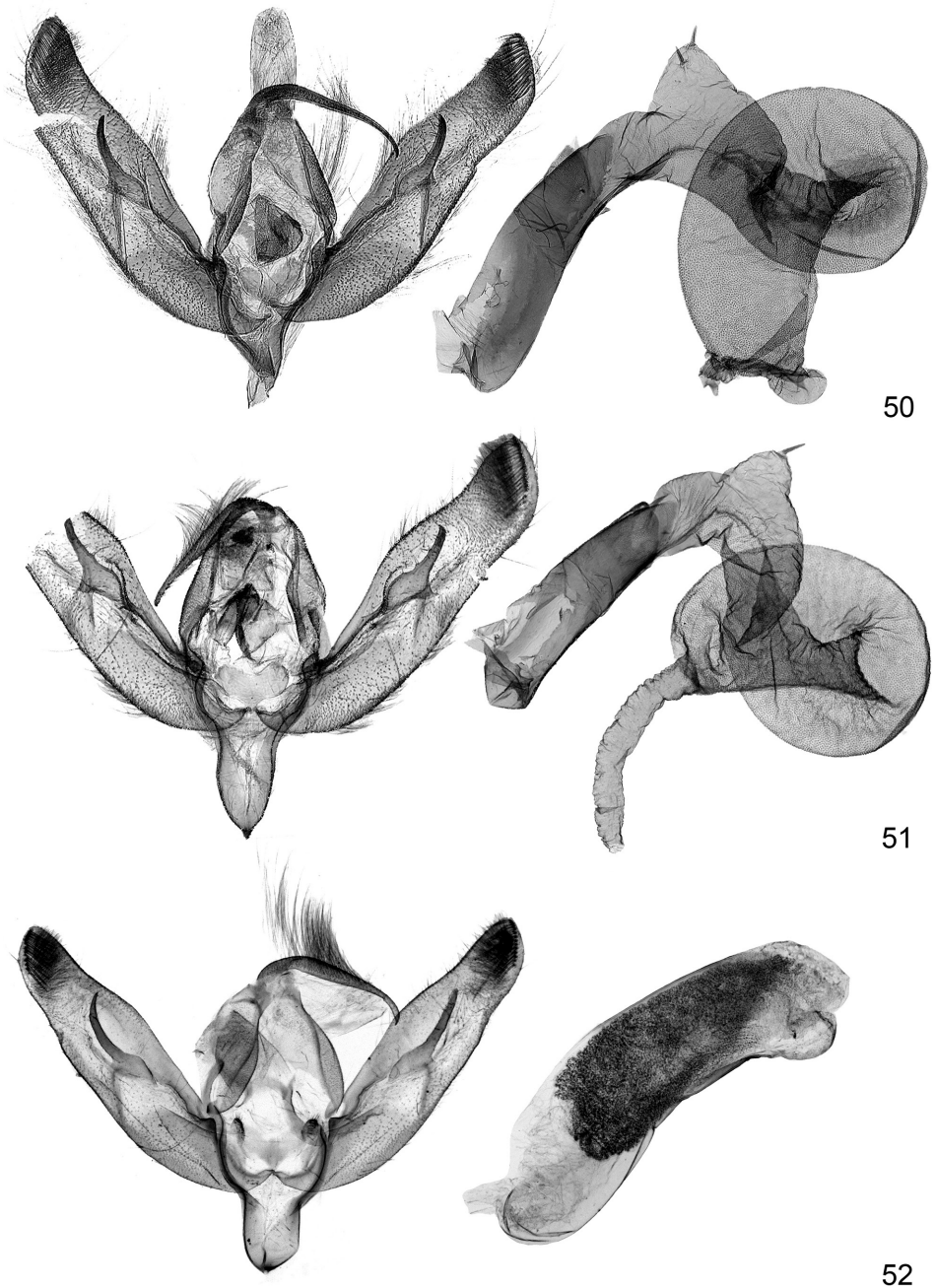
Diagnosis. This subspecies *D. forficula* is most similar externally to the formerly described one due to the elongate shape and acute apex of forewings, however, these traits appear here in a more extreme form. Head, thorax and forewings are more unicolorous dark fuscous-grey with faint maculation and obsolescent blackish brown crosslines. Abdomen and hindwings are only slightly lighter. The expanse of both sexes are similar (38–40 mm).

The male genitalia (Figs 50, 51) are generally similar to those of the typical *D. forficula*, the valvae are, however, proportionally more elongate comparing to the relatively short clasper. Vesica projected ventrally and completely returned helicoidally, the subbasal diverticulum bears one or two needle-shaped cornuti.

In the female genitalia, the antrum is relatively weakly sclerotised and the appendix bursae is only slightly shorter and more saccate than the bursa.

Distribution. This subspecies, known in a few specimens only, seems to be confined to certain medium-high altitude areas in the eastern part of the Hindukush range.

Etymology. The name refers to the region of the type locality in Northern Pakistan.



**Figs 50–52.** Male genitalia of *Dichagyris* spp. 50–51 = *D. forficula chitralensis* ssp. n., Pakistan, Garam Chasma: 50 = holotype, male, slide No.: VZ9097m; 51 = paratype, male, slide No.: VZ9960m. 52 = *D. turana turana* (Staudinger, 1892), holotype, Uzbekistan, Margelan, slide No.: Boursin MB359m

V. TAXONOMIC REVIEW  
OF THE *DICHAGYRIS FORFICULA*-GROUP

Taxonomic status of *Dichagyris turana* (Staudinger, [1892]) (stat. nov.) and *D. furiosa* (Bang-Haas, 1922) (stat. nov.) with description of three new subspecies

*Dichagyris turana turana* (Staudinger, [1892]), **stat. nov.**  
(Figs 25, 26, 52–54)

*Agrotis renigera* var. *turana* Staudinger, 1892: 268. Type locality: “Central Asia und Tekke”.

The taxonomic status of *Agrotis renigera* var. *turana* Staudinger, [1892] was disputed until yet since the original description, written in German (STAUDINGER 1892: 268), was misunderstood and Amasia was erroneously given as the type locality of this taxon ([http://ftp.funet.fi/index/Tree\\_of\\_life/insecta/lepidoptera/ditrysia/noctuoidea/noctuidae/noctuinae/dichagyris/](http://ftp.funet.fi/index/Tree_of_life/insecta/lepidoptera/ditrysia/noctuoidea/noctuidae/noctuinae/dichagyris/)).

Some years later the male and female type specimens were figured by BANG-HAAS (1922: Taf. X., figs 14–15). In the original publication *D. turana* was only shortly diagnosed with the following wording: “*The specimens from Central Asia and Tekke have the lightest sand grey colouration. These light sand grey Renigera, which have sharp dark crosslines, are so different from the typical specimens that they can bear an own name as var. Turana.*” It means that any type specimen and type locality have been specified, only “Central Asia and Tekke” were mentioned as the range of the “variety”.

During the revision of the Staudinger collection (MNB, in March 2018), three specimens of the “var. *turana*” were found. The male from “Margelan” with the label “Origin”, was figured in the publication of Bang-Haas on the Staudinger type specimens (1922: Fig. 14). It was dissected by Boursin (slide MB359 Boursin), and is designated here as the Lectotype of the species. The lectotype male (expanse 38 mm) is in relatively good condition (left antenna broken), head, thorax and fore wings are nearly evenly ochreous grey with finely darker brown surrounded lighter maculation, slightly darker crosslines and subterminal shadow. Hind wings are whitish ochreous grey with silky shine and obsolescent darker marginal shadow.

Unfortunately, the larger (40 mm) female from Alai Mts which also was figured by BANG-HAAS (1922: Fig. 15) cannot be allied to this species as Paralectotype (slide No. Fibiger 2409) due to the external differences (dark greyish brown forewings with strongly crenulate blackish brown crosslines, darker ochreous grey hind wings), the large distance from the locality of the Lectotype and of the different external features comparing with the more recent material from the vicinity of Margelan.

Male genitalia (Figs 52–54). Valvae are much longer and broader, costa is nearly straight, clasper is more elongate than in *D. forficula*. Aedeagus relatively short and broad, vesica tubular, not recurved helicoidally, strongly saccate, without any subbasal diverticulum and cornutus which seems to be a unique character within this species group.

Female genitalia. Papillae of ovipositor weakly sclerotised, somewhat more elongate than in *D. forficula*. Sclerotisation of antrum not semilunar but broader U-shaped. Appendix bursae much shorter and more saccate than corpus bursae.

Distribution and bionomics. The specimens from localities from Uzbekistan, near to Margelan (Kyzyl Kum, Solnetchnyj; Katta-Kum desert, Surkhandarya; coll. PG), and from Kirghisia, Prov. Osh, Sary-Tash, and Tajikistan, Prov. Khatlon, distr. Kulab, Khodzhamumin Mts. (coll. OP) can be allied to *D. turana*. These were collected mainly in a rather early saison (early-mid May, early June). The much darker greyish specimens from Kazakhstan, with similar traits of genitalia will be described below as new subspecies.

### ***Dichagyris turana cisiliensis* ssp. n.**

<http://zoobank.org/9B7C903F-77F2-4D9D-A476-1426DDBE96E5>

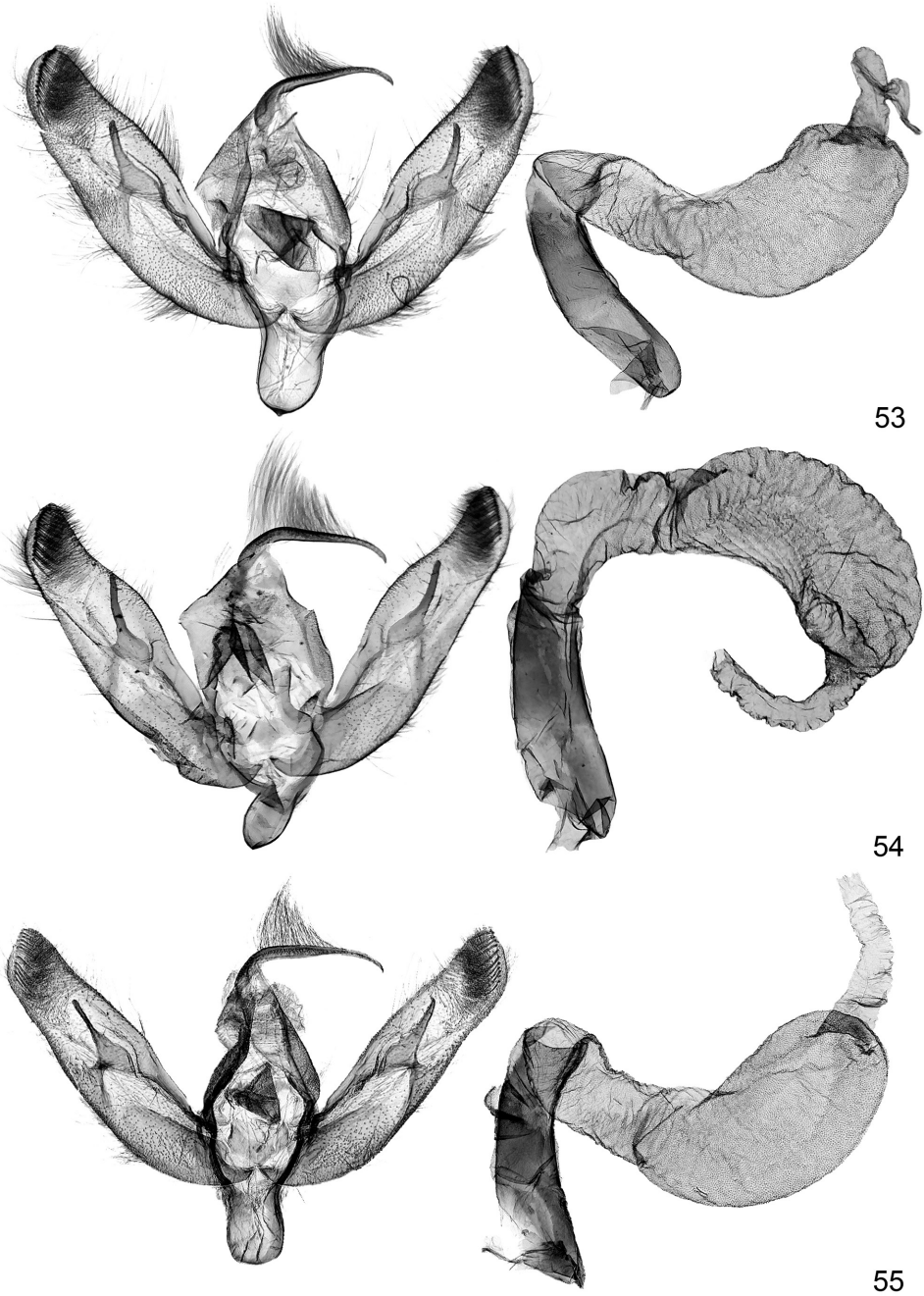
(Figs 27, 28, 55–57, 74)

**Holotype:** male, “Kazakhstan, Chu Ili Mts., Kopolisai, 600 m, 4.VI.1992, leg. M. Danilevsky”, slide GYP5785 (coll. PG).

**Paratypes.** Kazakhstan. 4 males, 1 female, with same data as holotype (coll. PG); 3 males, 2 females, “Kazakhstan Chu-Ily Mts. | Almaly (*sic!*) 900 m 5.6.1992 | leg. Danilevsky”. Slide Nos: VZ9957, VZ962, VZ10006 (males), VZ9962 (female) (coll. VZ, RG); 4 males, 4 females, Dzhambul range, Kurdai pass, 1000m, 43°21'N, 75°00'E, 27-28.VI.1993, leg. V.A. Lukhtanov, slide Nos: GYP5780m, GYP5779f (coll. PG), 1 male, 1 female, Kazakhstan, Kentau, Bayaldir river, 43°37'N, 31°37'E, 586 m, leg. A. Shovkoon (coll. OP). Slide Nos VZ12001m, VZ11993f.

**Diagnosis.** The new subspecies differs externally from the typical specimens of *D. turana* by the darker fuscous-grey colouration and the more obsolescent pattern. Head, thorax and forewings are rather uniformly dark brownish grey, without ochreous shine. The reniform and orbicular stigmata and the subterminal line are marked with lighter grey scales. The crosslines are marked at the costa with diffuse blackish spots, the cilia are chequered with light grey and blackish scales. The abdomen and the basal part of the hindwings are whitish-grey. The specimens are on average slightly larger than the typical *D. turana*: 37–38 mm (males), 40 mm (female).

The male genitalia (Figs 55–57) show the taxonomically most important traits. Valvae are longer than those of *D. forficula* and are only gradually tapering distally, i.e. they have nearly parallel margins. Clasper acute, slightly falcate, corona consists of 12–14 setae. Vesica is projecting ventrally, without



**Figs 53–55.** Male genitalia of *Dichagyris turana* ssp. 53–54 = *D. turana turana* (Staudinger, 1892): 53 = Issyk-Kul, coll. Püngeler, slide No.: VZ9551m; 54 = Kirghisia, Osh, slide No.: VZ11987m. 55 = *D. turana cisiliensis* ssp. n., paratype, Kazakhstan, Chu Ili Mts, slide No.: VZ9751m

subbasal diverticulum and cornutus, strongly saccate, not recurved helicoidally.

Female genitalia (Fig. 74). Antrum broad U-shaped, more strongly sclerotised than in the related species; appendix bursae is strongly saccate and much shorter than corpus bursae.

Etymology. The name refers to the region near to the Ili river in Kazakhstan.

Note. A further, slightly darker greyish brown and larger male specimen (41 mm) was found in the Püngeler collection (MNB) with the labels: "renigera var. turana ♂ v. Tancre 2/1900" (hand written with black ink), "Asia centr. (Issykul) 1894" (printed). It shows the external and genital traits of this subspecies, and it can be geographically allied to this subspecies. Unfortunately, due to the deficient data we desist to consider it as a Paratype of this taxon.

Bionomics and distribution. The new subspecies occurs in semi-desert-like submontane areas near to the border of the Djambul and Almaty regions of Kazakhstan; the moths are on the wing in a relatively early saison (from early June to the end of June).

*Dichagyris furiosa furiosa* (Bang-Haas, 1912), **stat. nov.**  
(Figs 29, 30, 58, 59, 75, 76)

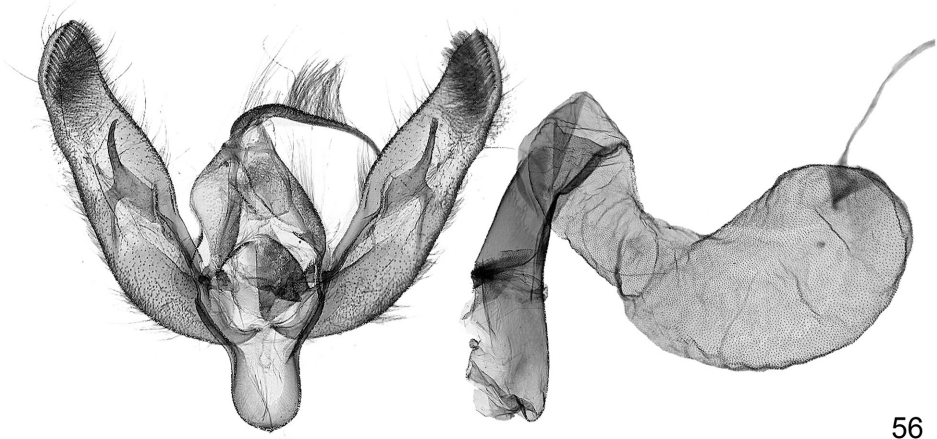
*Agrotis (Lycophotia) renigera* var. *furiosa* Bang-Haas, 1912: 141.

Type locality: Tadjikistan, Peter The Great Mts, Garm. Lectotype: male, here designated.

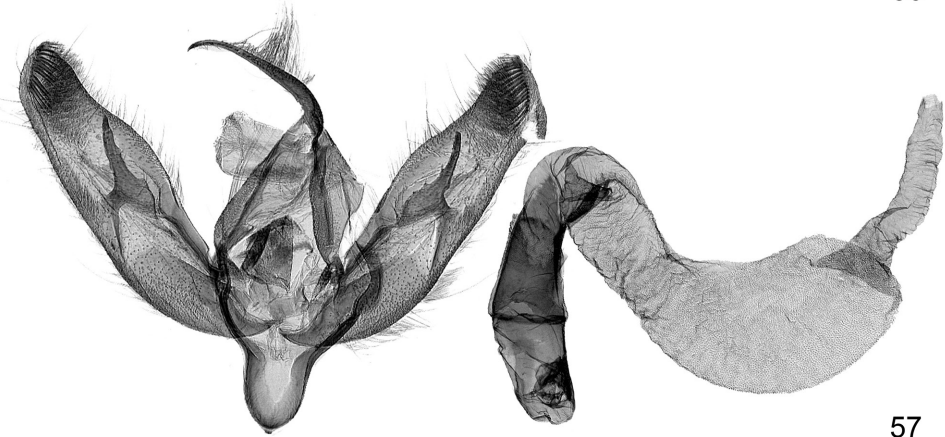
Lectotype designation. The male specimen, figured by BANG-HAAS (1922, Taf. XVII: 9) was dissected by Boursin (Slide No. Boursin MB360) and is designated here as Lectotype (Fig. 29). The female with the same label data was dissected by Fibiger (slide No. MF2508) and is treated here as Paralectotype (Fig. 30).

Diagnosis. The taxon *Agrotis (Lycophotia) renigera* var. *furiosa* Bang-Haas, 1912 was also misidentified until yet, listing as a synonym of *D. forficula* (see, for instance, [http://ftp.funet.fi/index/Tree\\_of\\_life/insecta/lepidoptera/ditrysia/noctuoidea/noctuidae/noctuinae/dichagyris/#8847](http://ftp.funet.fi/index/Tree_of_life/insecta/lepidoptera/ditrysia/noctuoidea/noctuidae/noctuinae/dichagyris/#8847)). According to the short original description the forewings have a violet-reddish colouration with some rosy shade and with prominent pattern. The transverse lines are marked with deep black spots at the costa and the hindwings are blackish grey, with darker marginal area. The underside of wings is nearly evenly blackish grey, the hindwings are slightly lighter. Wingspan 37–42 mm, females slightly larger.

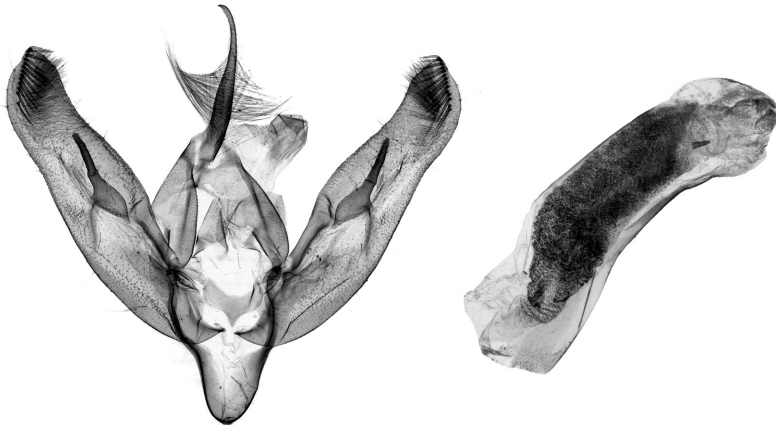
This description can be completed with the following diagnostic traits: the shape of the forewing is more elongate and acute apically than in the related *D. forficula* and *D. turana*, the reddish colouration of the forewings is densely irrorated with blackish-brown scales and the course of the crosslines are more oblique than in *D. turana*.



56



57



58

**Figs 56–58.** Male genitalia of *Dichagyris* spp. 56–57 = *D. turana cisiliensis* ssp. n., Kazakhstan, Chu Ili Mts: 56 = paratype, slide No.: VZ9957m; 57 = paratype, slide No.: VZ10006m. 58 = *D. furiosa furiosa* (Bang-Haas, 1912), lectotype, Tadjikistan, Peter the Great Mts, Garm, slide No.: Boursin MB360m

Male genitalia (Figs 58, 59). Valvae are longer and broader than in *D. forficula*, costa below the cucullus is slightly tapering only, clasper is more elongate and straight than in *D. forficula* and *D. turana*. Aedeagus is relatively thick and short, vesica is tubular, not recurved helicoidally, however it has a short triangular subbasal diverticulum armed with a thin and relatively long needle-shaped cornutus.

Female genitalia (Figs 75, 76). The sclerotisation of the antrum is relatively weak and V-shaped. Appendix bursae is much shorter and more saccate than the corpus bursae but less saccate than in *D. turana*.

Distribution. The nominotypical subspecies of *D. furiosa* seems to be localised to a relatively restricted area in Tajikistan. The recently collected specimens from "Tajikistan, Khodshent reg. Mogoltau, 16-17.05.1996, leg. Lukhtanov" (coll. PG) can also be considered as representatives of the typical subspecies while the specimens from an other mountain system of the Tien-Shan range in Kirghisia belong to a new subspecies, described below.

### ***Dichagyris furiosa griseoerythra* ssp. n.**

<http://zoobank.org/52AC7993-F8A6-4052-949F-FC9A93EC5F63>

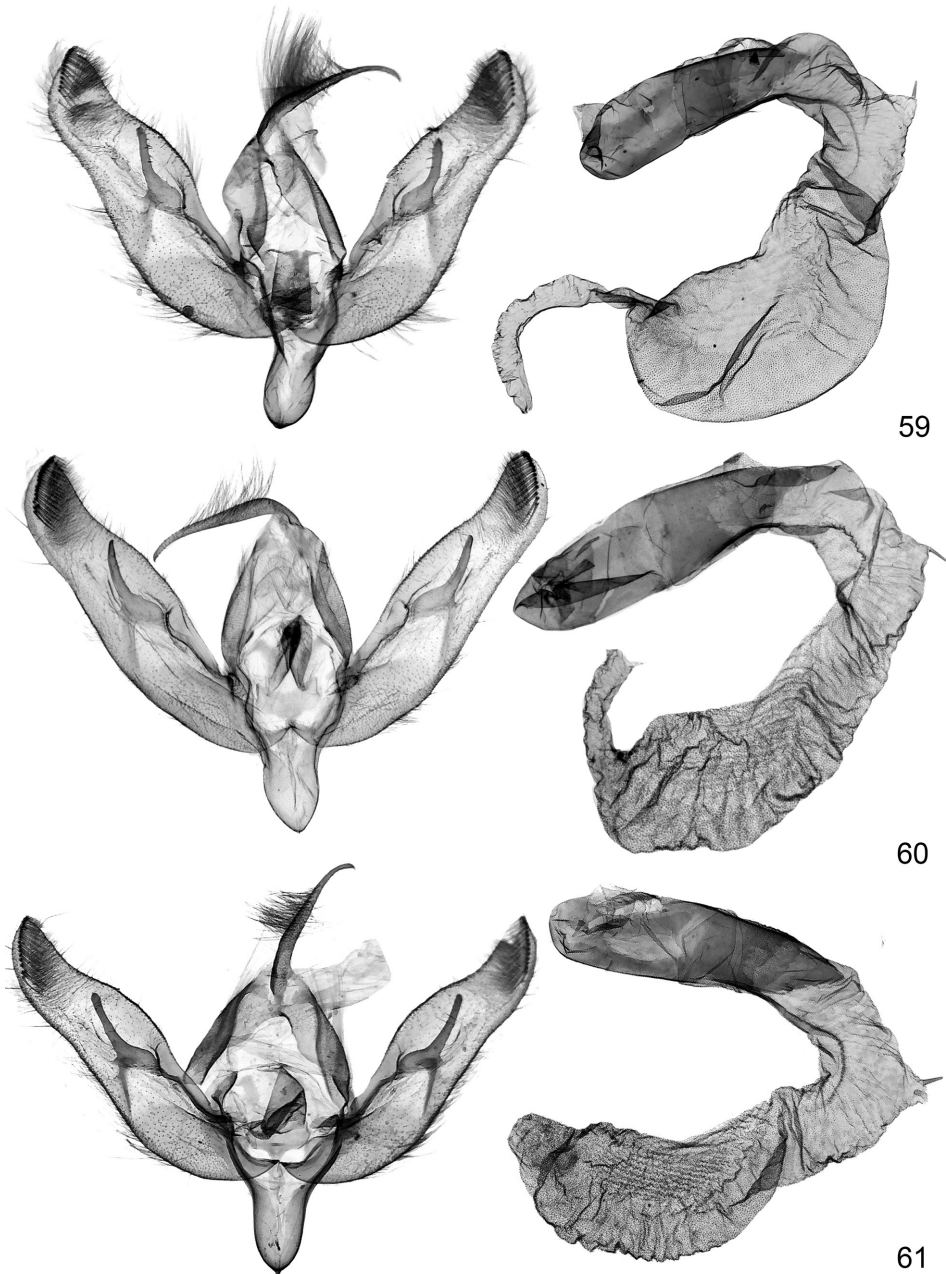
(Figs 31, 32, 60–63, 77)

**Holotype:** male, "Kirghisia, Naryn reg., Sarykamish, Susamyr Mts., Kekemen riv., 1400 m, 6-8.07.1996, leg. L. V. & A. Lukhtanov", slide No. GYP5580 (coll. PG).

**Paratypes.** Kirghisia. 21 males, 19 females, with same data as Holotype; 3 males, 2 females, Susamyr Mts, 2000 m, Komeran river, 9-13.VI.1994, leg. Toropov and Sinjaev; slide Nos: VZ9932m, GYP5581f, VZ9939f (coll. PG, RG and VZ). Tadjikistan. 4 males, 1 females, 23 km S Pendzhikent distr., 1800 m, 10.VII.1994, leg. Lukhtanov; 1 female, Pendzhikent distr., Farob, 1800 m, 5.VII.1994, 1 male, 1 female, Zeravshan river, Pendzhikent, 1200 m, 13.V.1994, leg. Lukhtanov (colls. PG and RG); 8 males, 9 females, Turkestan Mts, Shakristan, Khushikat, 2000 m, 5-8.VI.1994, leg. Lukhtanov, 1 male, 3 females, Turkestan, Zeravshan, VII. 1995, leg. Vodjanov; 1 female, Hissar mts, Romit reserve, 1800 m, Sorbo vill.vicinity, 1-12.VI.2016, leg. D. Goshko; 1 female, Hissar Mts., gorge Takob, 1800m, 21.VII.1961, leg. Stshetkin; slide Nos GYP5578m, GYP5579f, GYP 5766, GYP5786f, VZ11505m, VZ101436m, VZ11467f, VZ11471f (coll. PG and RG); 2 males, 7 females, Alai Mts, NNE Djargatol, 39°23'N, 71°19'E, 2230 m, leg. Pak & Ivanova, slide Nos VZ11989m, VZ11992f (coll. OP).

**Diagnosis.** The new subspecies differs from the typical *D. furiosa* specimens by the lighter reddish-ochreous grey colouration, often with some violaceous shade of the forewings and by the more prominent but rather diffuse maculation and crosslines. Forewings apically elongate triangular; antemedial line dark reddish brown, broad, zigzagged; postmedial line more sharply defined, crenulate; intermaculation between orbicular reniform stigmata and subterminal shadow diffuse and only slightly darker than ground colour; hindwings nearly concolorous ochreous-grey with some reddish shade. The females are slightly robuster and larger in expanse than the males (36–39 mm vs. 38–42 mm).





**Figs 59–61.** Male genitalia of *Dichagyris furiosa* ssp. 59 = *D. furiosa furiosa* (Bang-Haas, 1912), Tadjikistan, Alai range, slide No.: VZ11989m. 60–61 = *D. furiosa griseoerythra* ssp. n., paratypes, Tadjikistan: 60 = Turkestan'skiy Mts, slide No.: VZ11436m; 61 = Zeravshan Mts, slide No.: VZ11487m

The male genitalia (Figs 60–63) are rather similar to those of *D. furiosa furiosa*, however the small subbasal diverticulum with the small, needle shaped cornutus is slightly more prominent. Valvae broad with nearly straight ventral margin, clasper nearly straight, acute terminally.

The female genitalia (Fig. 77) agree with those of *D. furiosa furiosa*, the appendix bursae is about 1/3 shorter than corpus bursae and less saccate.

Distribution and bionomics. This subspecies is distributed eastwards of the range of the nominotypical *D. furiosa* and occurs on a relatively large area in the hilly regions of Kirghisia and Tadjikistan, mostly in low and medium altitudes. The moths show a relatively long flight period from mid-June to mid-July.

Etymology. The name refers to the characteristic colouration of the subspecies.

### **Dichagyris furiosa kugitanga** ssp. n.

<http://zoobank.org/BB79007E-28E3-4388-AC01-2F7558834211>

(Figs 33–35, 64, 65)

**Holotype:** male, “Turkmenia, Kugitang-Tau Mts 1500 m | 7 km SW of Airi-Baba Peak | Kara-Bilent, 66°32'E, 37°50'N | 11-15.V.1991, No. L25 | leg. light trap” (coll. RG).

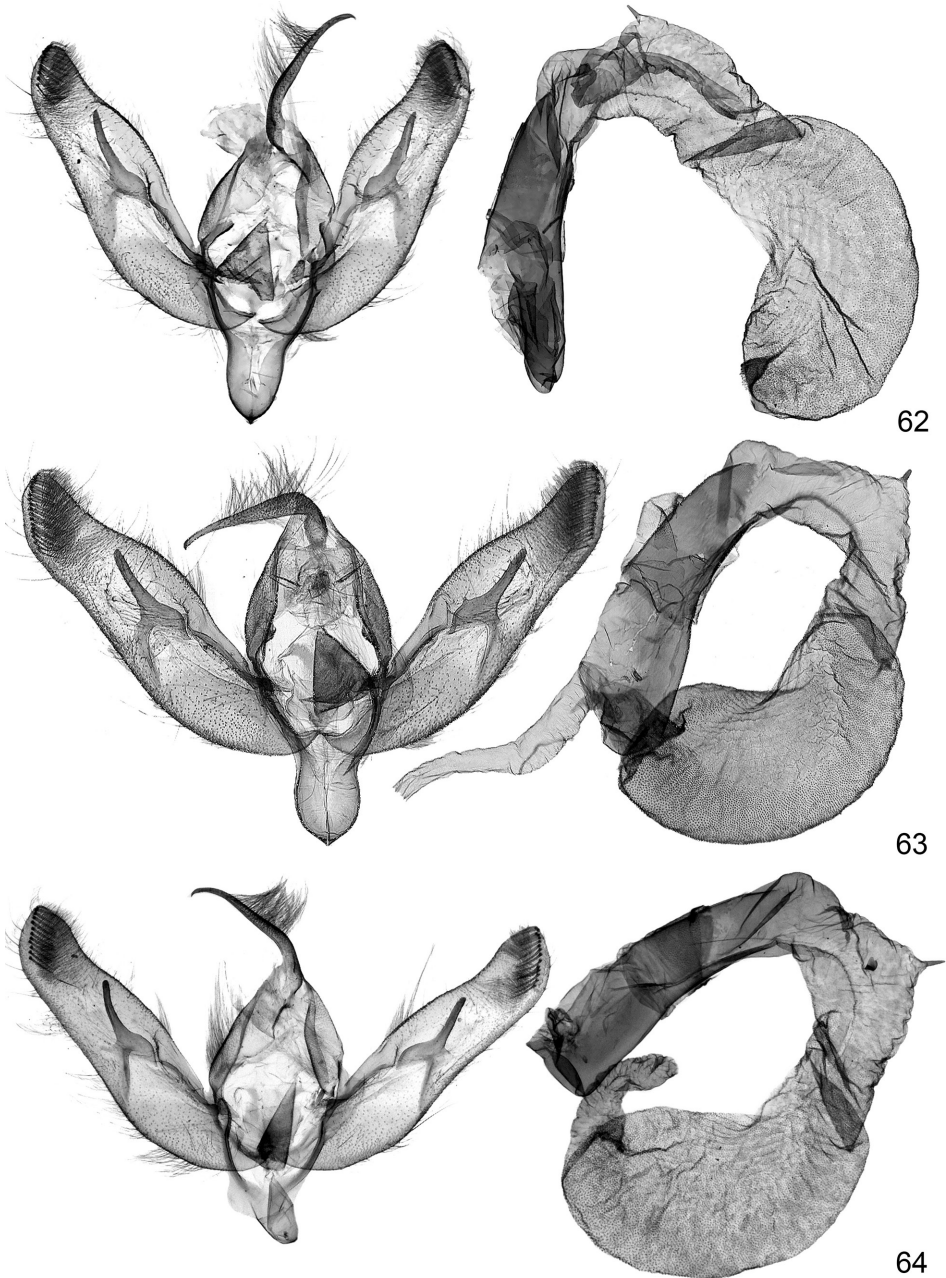
**Paratypes.** Turkmenistan. 3 males, 2 females, with same data as holotype; 3 males, 1 female, Kugitang-Tau Mts, 500-600 m, 6 km SW of Bazar-Tepe, 66°30'E, 37°50'N, 16-19.V.1991, No. L22, leg. M. Hreblay & G. Ronkay; 1 male, Kugitang-Tau Mts, 2000 m, 4 km SW of Airi-Baba Peak, 66°34'E, 37°50'N (coll. PG and RG). Slide Nos: VZ11478m, VZ11504m.

Diagnosis. The size and the forewing pattern of the new subspecies are similar to those of the other subspecies of *D. furiosa*, the colouration of the head, thorax and forewing is, however, prominently light greyish-ochreous without any reddish or pinkish shade, and the forewing is densely irrorated with darker brown scales. The noctuid maculation is light, nearly whitish-ochreous, rather diffuse; the crosslines are also diffuse and faint, the costal spots usually dark brown. Cilia whitish-ochreous with small blackish-brown semi-lunules basally. Abdomen and hindwings shining whitish-ochreous; cilia whitish.

The male genitalia (Figs 64, 65) are most similar to those of *D. furiosa griseoerythra*, the vesica is not recurved, projecting ventrally and strongly saccate distally; the tiny cornutus is attached to a very small trigonal subbasal diverticulum.

Distribution and bionomics. All known specimens were captured in an isolated mountain massif at the easternmost edge of Turkmenistan which has the most close connections with the western foothills of the Tien Shan system.

Etymology. The name refers to the type locality of the subspecies in West of Turkmenistan.



**Figs 62–64.** Male genitalia of *Dichagyris furiosa* ssp. 62–63 = *D. furiosa griseoerythra* ssp. n., paratypes: 62 = Tadjikistan, Turkestanskiy Mts, slide No.: VZ11505m; 63 = Kirghisia, Susamyr Mts, slide No.: VZ9932m. 64 = *D. furiosa kugitanga* ssp. n., paratype, male, Turkmenistan, Kugitang-Tau Mts, slide No.: VZ11478m

VI. REVISION OF *DICHAGYRIS CONTERMINA* (CORTI, 1929)  
and description of *D. contermina melanographa* ssp. n.

*Dichagyris contermina contermina* (Corti, 1929)  
(Figs 36–38, 66, 67, 78)

*Lycophotia renigera* var. *contermina* Corti, 1929: 169, pl. 5. Type locality: Syria, Aleppo.

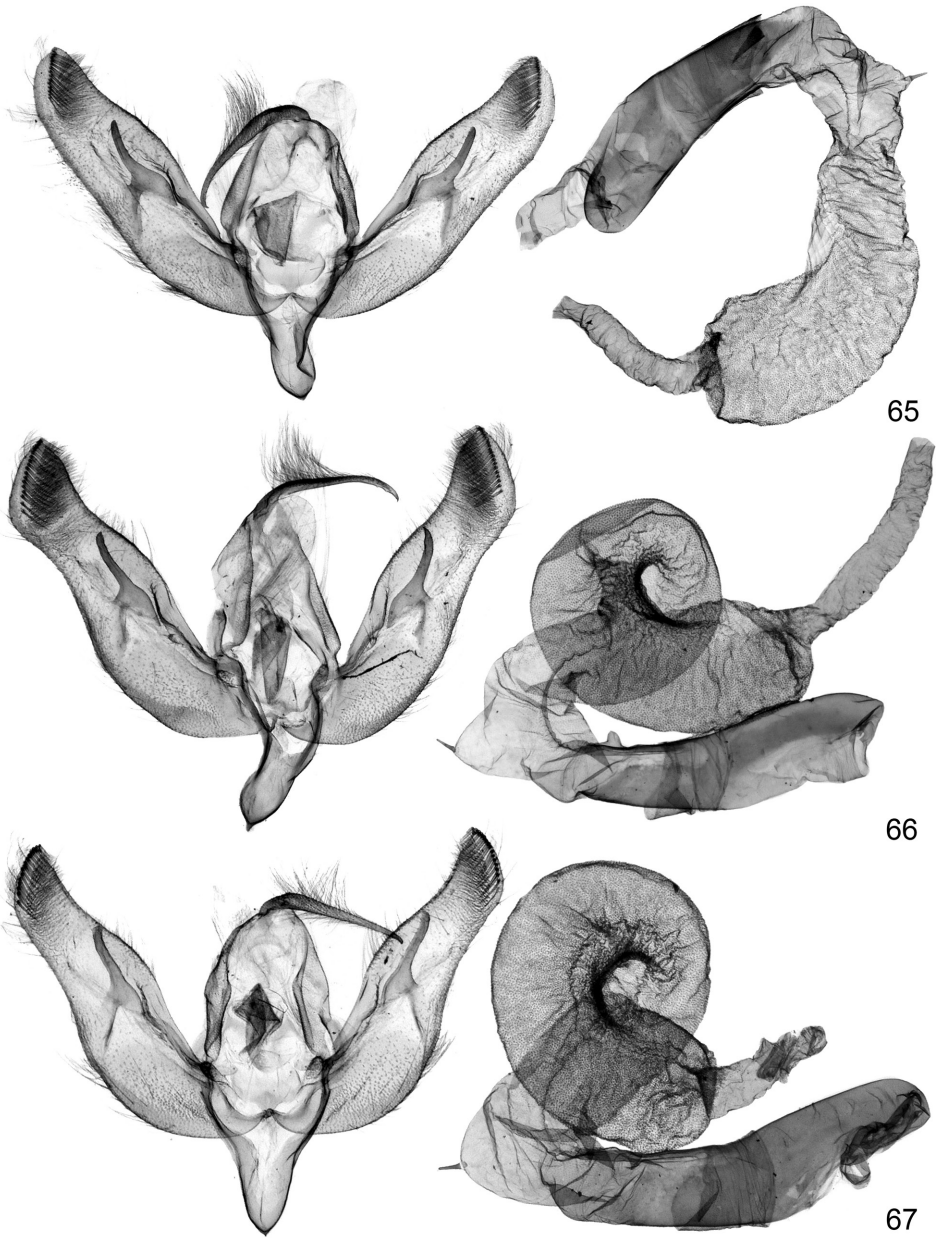
The species was described based on a male and female, collected by Tischendorff at Aleppo. It was compared with *D. renigera* and diagnosed by the concolorous light arenaceous yellow colouration of the head, thorax, forewings and hind wings, with some rosaceous shine mostly on the females. The males are more unicolorous with obsolescent transversal lines and subterminal shadow, faint maculation, and with more expressed quadrangular spot between the reniform and orbicular maculae. Females show a much more contrasty pattern, the transversal lines consist of more or less scattered darker spots, hind wings are densely covered with darker brown scales. Males larger than females (on average 35 vs 31 mm).

This species is widely distributed also in the south-southeastern part of Turkey with considerable colour variation according to the substrate, from whitish-reddish ochreous with faded pattern to reddish-brown colouration with more contrasting brown pattern. Subsequently, it was repeatedly described by HACKER as *Dichagyris wolffi* (1985, *Neue Entomologische Nachrichten* 15: 8) with type locality Mardin (Fig. 36) and mentioning as main diagnostic traits the pale reddish-brown colouration, the faded brown “noctuid” maculation and the somewhat more expressed transverse pattern.

The male genitalia (Figs 64, 65) were compared with those of *D. forficula*, any diagnostic characters were given, however. Therefore we summarise here the main traits. The valvae are proportionally shorter than in *D. forficula*, slightly tapering below the cucullus and corona, terminally obliquely obtuse. Claspers are proportionally longer, acute and curved. Vesica is projecting ventrally, completely recurved helicoidally, similarly as in *D. forficula*, but is relatively shorter and more saccate distally.

In the female genitalia, the papillae of the ovipositor are weakly sclerotised, short and covered by fine setae. Ductus bursae is membranous with weakly sclerotised antrum. Appendix bursae is about 1/3 shorter than ductus bursae.

The range of *D. contermina* is much less extended than the area of *D. forficula*, however they are sympatric over a large part of eastern Asia Minor (e.g. the provinces Mardin, Sivas, Elazığ and Bitlis), Levant and Iran, and co-occur in several localities in considerable individual numbers without any morphological transition. However, the West Iranian populations show several constant differences, described below.



**Figs 65–67.** Male genitalia of *Dichagyris* spp. 65 = *D. furiosa kugitanga* ssp. n., paratype, male, Turkmenistan, Kugitang-Tau Mts, slide No.: VZ11504m. 66–67 = *D. contermina contermina* (Corti, 1929), Turkey, Prov. Urfa, Halfeti: 66 = slide No.: VZ11488m, 67 = slide No.: VZ11503m

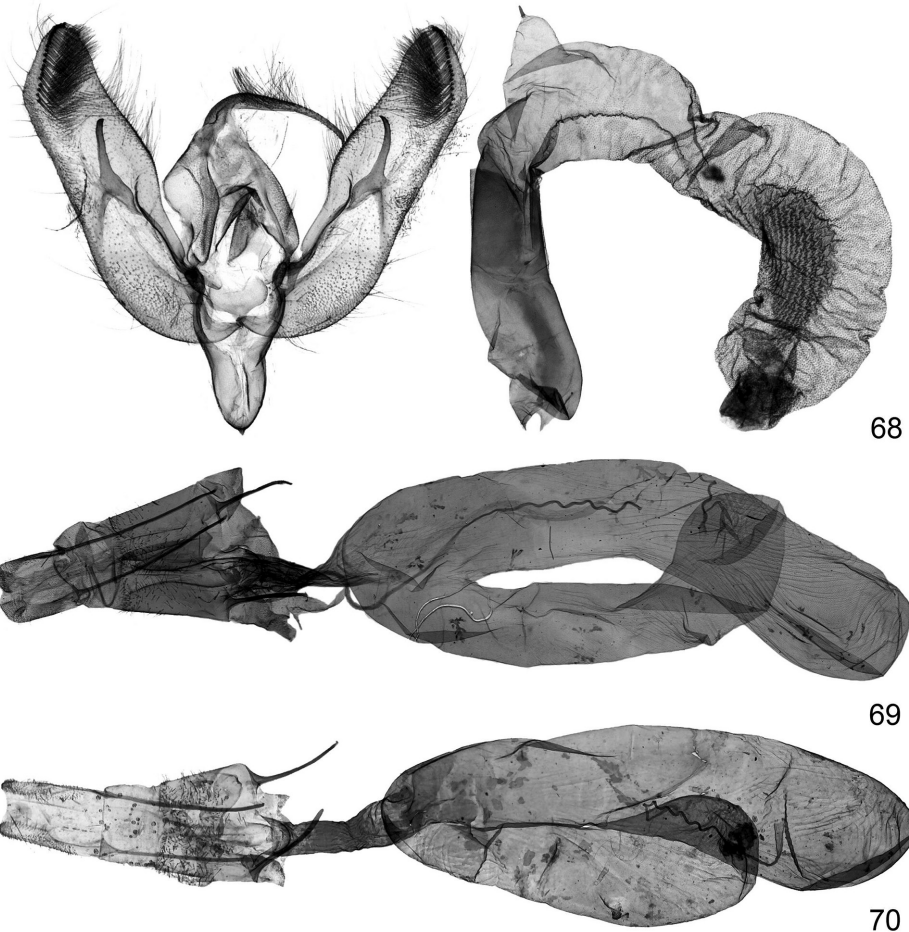
***Dichagyris contermina melanographa* ssp. n.**

<http://zoobank.org/B3EC2759-0B0A-4688-98BF-73F6CEAAC041>

(Figs 39–40)

**Holotype:** male, "24.V.1963 | SW-Iran, Berge O v. Kasri Shirin | Kasy & Vartian" (coll. NHMW). **Paratypes.** Iran. 6 specimens, with same data as holotype (coll. NHMW).

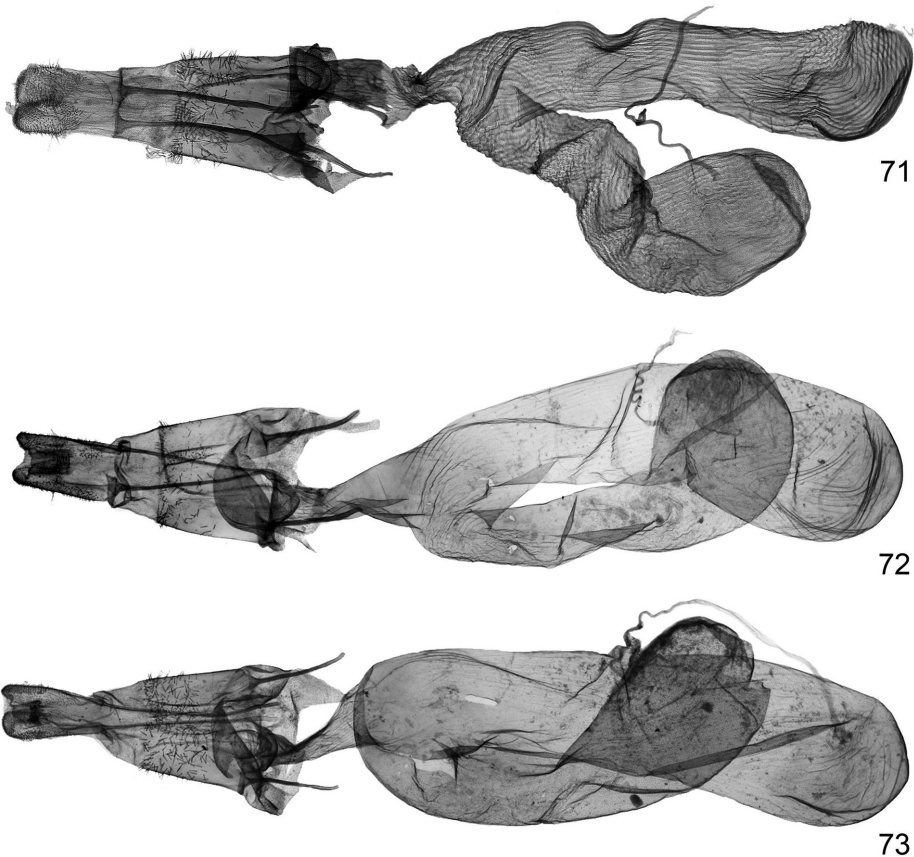
**Diagnosis.** Both sexes are on average smaller (30–31 mm) and more contrastingly patterned than the typical *D. contermina* from Turkey and Syria.



**Figs 68–70.** Genitalia of *Dichagyris* spp. 68 = Male genitalia of *D. erubescens* (Staudinger, 1892), Turkey, Prov. Malatya, slide No.: VZ11515m. 69 = Female genitalia of *D. forficula akdagestana* ssp. n., paratype, Russia, North Caucasus, Ingoushetia, slide No.: VZ6753f. 70 = female genitalia of *D. forficula devota* (Christoph, 1884), Turkmenistan, Kopet-Dagh, slide No.: VZ11483f

Ground colour of head, thorax and forewings is deep ochreous brown, generally without reddish shine. The crosslines are deep brown, in males medially obsolete, strongly crenulate. The reniform and orbicular stigmata are lighter ochreous, diffusely defined only. The most conspicuous trait of the new subspecies is that the basal and subterminal fields are much darker than the medial area. Hindwings are light ochreous-brown, whitish basally and with a diffused deeper brown stripe marginally.

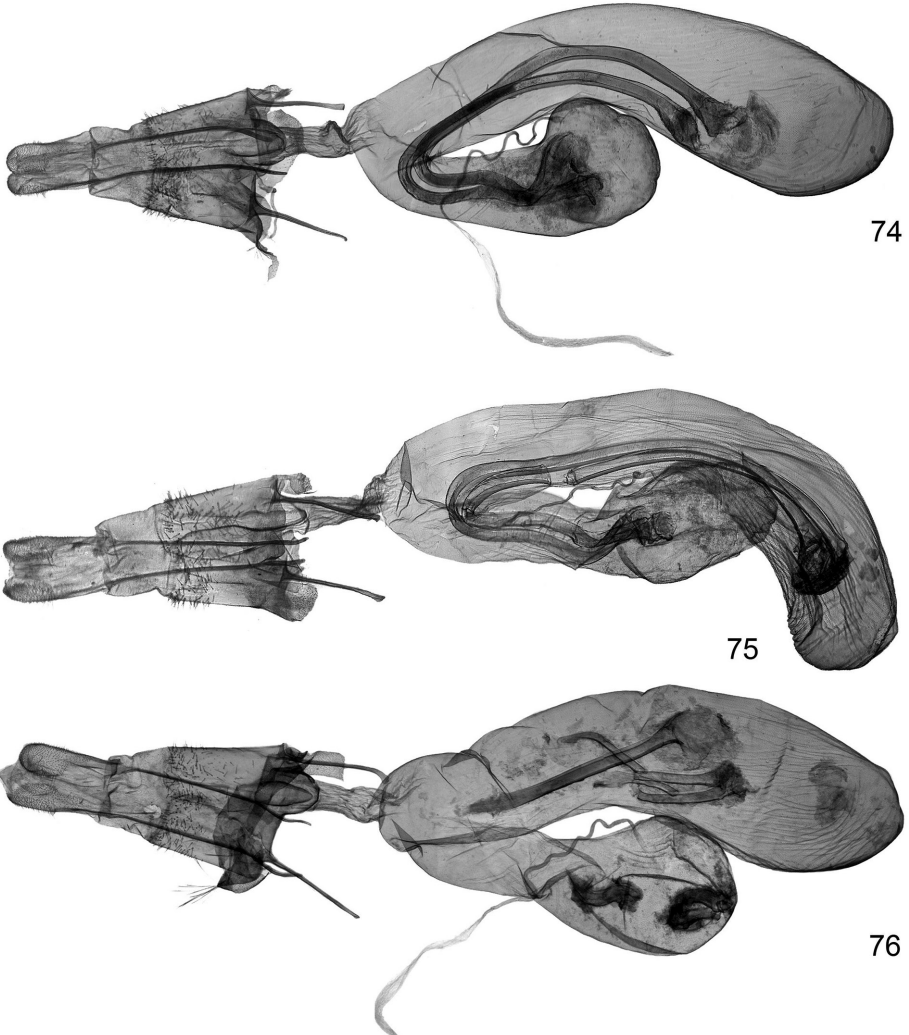
The genitalia of both sexes do not differ from those of the typical subspecies.



**Figs 71–73.** Female genitalia of *Dichagyris forficula* spp. 71 = *D. forficula devota* (Christoph, 1884), Turkmenistan, Kopet-Dagh, slide No.: VZ9984f. 72–73 = *D. forficula pseudoturana* ssp. n., paratypes: 72 = Afghanistan, Paghman Mts, slide No.: VZ11651f; 73 = Pakistan, Quetta, slide No.: VZ11642f

## DISCUSSION AND BIOGEOGRAPHICAL IMPLICATIONS

The *D. forcifula*-group is a rather compact species group of very similar taxa with simplified, often obsolete wing pattern and nearly identical configuration of the somewhat simplified and moderately sclerotised external genital appendages, however with a considerable individual variations in wing colouration, obviously depending on the substrate of the arid habitats. The range

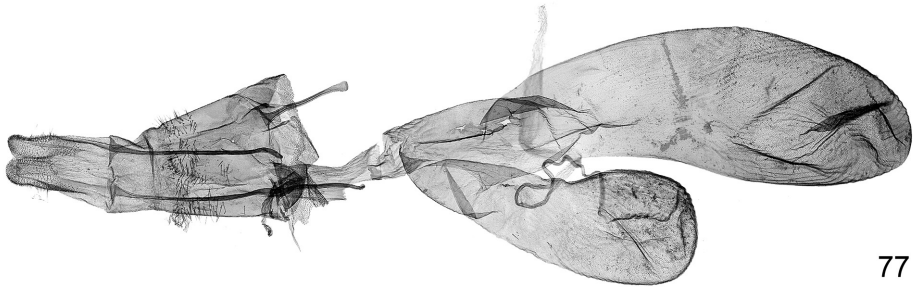


**Figs 74–76.** Female genitalia of *Dichagyris* spp. 74 = *D. turana cisiliensis* ssp. n., paratype, Kazakhstan, Chu Ili Mts, slide No.: VZ9962f. 75–76 = *D. furiosa furiosa* (Bang-Haas, 1912): 75 = Tadjikistan, Hissar Mts, slide No.: VZ9963f; 76 = Tadjikistan, Pamir Mts, Khorog, slide No.: VZ11444f

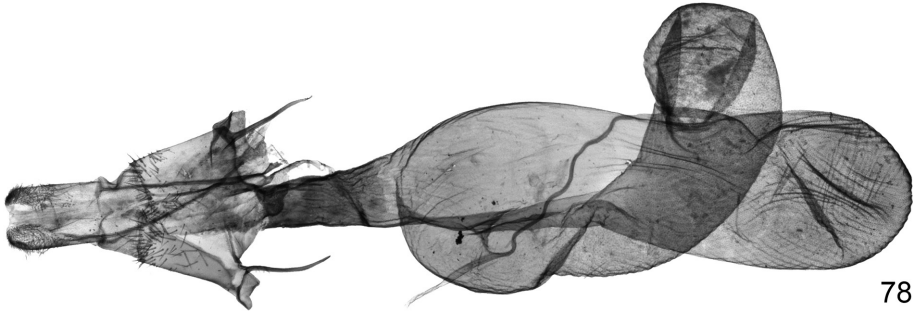


of the species group extends from the South of Greece and some islands of the eastern Mediterranean to the western mountains of the Tien Shan system and Pamirs, with a highest diversity of taxa in some mountains of Iran, Afghanistan, Kirghisia and Tadjikistan, where often 3-4 different taxa of the species group co-occur.

According to the configuration of the inner genitalia the species group is subdivided into three main lineages. The *forficula* lineage consists of a widely distributed East Mediterranean-West-Central Asiatic polytypic species, *D. forficula* and a more restricted west Asiatic sister species, *D. contermina*. This line is characterised by the completely retroflexed helicoidal configuration of



77



78



79

**Figs 77–79.** Female genitalia of *Dichagyris* spp. 77 = *D. furiosa griseoerythra* ssp. n., paratype, Kirghisia, Susamyr Mts, slide No.: VZ9939f. 78 = *D. contermina contermina* (Corti, 1929), Turkey, Prov. Urfa, Halfeti, slide No.: VZ11520f. 79 = *D. erubescens* (Staudinger, 1892), Iran, Zagros Mts, Kasri-Shirin, slide No.: VZ9776f

vesica seminalis in males, and by the nearly equal length of the moderately saccate corpus and appendix of the bursa copulatrix.

The *turana* lineage consists of two, hitherto misinterpreted taxa with extremely similar external appearance, the more restricted Central Asiatic *D. turana* and the more widely distributed West-Central Asiatic *D. furiosa*. Both species have strongly saccate and not helicoidally retroflexed configuration of vesica, with completely reduced basal diverticulum and cornutus in *D. turana*, and with a small, triangular subbasal diverticulum bearing a needle-shaped cornutus in *D. furiosa*. In both species, the strongly saccate subglobular appendix bursae is essentially shorter than corpus bursae; in *D. furiosa* it is somewhat shorter and more saccate than in *D. turana*. Considering the geographical distribution, *D. furiosa* is the more western and southern species, however they seem to have a small range of overlap in western Kazakhstan, while the range of *D. furiosa* is sympatric with that of *D. forficula pseudoturana* in SE Uzbekistan and NW Pakistan.

The third lineage contains only one, widely distributed and essentially monomorphic species, *D. erubescens*, with only some colour variation from whitish-reddish-ochreous to greyish-reddish-brown with transitional forms, from Greece, Asia Minor and Cyprus to Libanon, Israel and South Iran. This species has the most robust external male genitalia, with saccate and only terminally retroflexed vesica.

According to some preliminary analyses, the sister group of this species group is the *D. renigera* complex which will be considered in the next part of our generic revision.

\*

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