

New taxa of Tortricidae moths from West Kazakhstan (Lepidoptera: Tortricidae)

E. V. Tsvetkov

Abstract

Three new species and one new subspecies of Tortricidae are described from West Kazakhstan (Atyrau and Mangistau Provinces). They are *Phtheochroa suleimana* Tsvetkov, sp. n., *Phtheochroa accurata* Tsvetkov, sp. n., *Eucosma fulvana suncretana* Tsvetkov, ssp. n. and *Eucosma paulorosea* Tsvetkov, sp. n. The adult of male, female and the genitalia of all described taxa are illustrated.

KEY WORDS: Lepidoptera, Tortricidae, new species, Kazakhstan.

Nuevas taxas de Tortricidae del oeste de Kazajstán (Lepidoptera: Tortricidae)

Resumen

Se describen tres nuevas especies y una subespecie de Tortricidae del oeste de Kazajstán (Provincias de Atyrau y Mangystau). Son: *Phtheochroa suleimana* Tsvetkov, sp. n., *Phtheochroa accurata* Tsvetkov, sp. n., *Eucosma fulvana suncretana* Tsvetkov, ssp. n. y *Eucosma paulorosea* Tsvetkov, sp. n. Se ilustran el macho, la hembra y la genitalia de todas las especies descritas.

PALABRAS CLAVA: Lepidoptera, Tortricidae, nuevas especies, Kazajstán.

Introduction

Descriptions in the present paper are based on material collected by the author in West Kazakhstan. Our first expedition to this area was undertaken in May 2016 and the visited localities were along the route Atyrau-Kulsary-Beineu-Shetpe. The habitats in the area are semidesert or steppe saline lands, sandy semideserts, chalk steppes, rocky canyons and rocky mountain places at low altitude (up to 450 m). Formally the territory belongs to Atyrau and Mangistau Provinces of Kazakhstan.

Fluorescent lamp (85 W, 6400 K) was used for attracting to light, some material on the family Tortricidae was collected by net during the evening time.

As a result, two undescribed species, *Phtheochroa* sp. and *Eucosma* sp., were distinguished. Unfortunately, the series consisted of rather worn specimens. Another *Phtheochroa* sp. much resembled *P. sodaliana* (Haworth, 1811) externally but didn't belong to the latter species. Judging by females its status was not certainly clear, but males were missing in the series. Also, a large species of *Eucosma* sp. with light unusual coloration was noticeable among the collected samples. Its population inhabits plateau Akkergeshen and the moth seemed to relate to chalk soil. After more detailed studying it became clear that this population can be referred to a new subspecies of *Eucosma fulvana* (Stephens, 1834).

The second author's expedition to West Kazakhstan was in late April and in the beginning of

May 2019. More fresh specimens of the same leaf-roller moths were collected and males of *Phtheochroa* sp. It came over that this species is undescribed, it is related to *P. sodaliana* and *Phtheochroa reisseri* (Razowski, 1970) and well differs from them by male genitalia. So, three new species and one new subspecies of leaf-roller moths are described below.

***Phtheochroa accurata* Tsvetkov, sp. n. (figs 1, 2, 7, 9)**

Type material: Holotype ♂, KAZAKHSTAN, Mangistau Province, 11 km E of vill. Sarga, 3-V-2016, leg. E. Tsvetkov. Paratypes (4 ♂♂, 3 ♀♀): KAZAKHSTAN, Mangistau Province, 11 km E of vill. Sarga, 3 ♂♂, 3-V-2016, leg. E. Tsvetkov; the same locality, 1 ♂, 2 ♀♀, 5-V-2019, leg. E. Tsvetkov; Atyrau Province, Akkergeshen Plateau, 47°19'14" N, 54°24'14" E, 1 ♀, 1-V-2016, leg. E. Tsvetkov. Type material is deposited in the collection of Zoological Institute, St. Petersburg.

Imago (figs 1, 2): Head and body covered by whitish, creamy and olive scales. Legs brown, each segment with white ring distally. Labial palps pointed ahead, nearly 1.7 diameters of eye. Maxillary palps short and stout, club like. Proboscis strongly reduced, very short. Antennae ciliate in both sexes, male cilia slightly longer (1.5 of segment width) than female cilia (nearly a segment width). Female antennae shorter (2/5 of the forewing) than male antennae (1/2). Forewing 5-5.5 mm elongate with costa parallel to inner margin, termen almost straight, apex pointed. Rather variable forewing pattern formed by composition of olive spots (sometimes creamy or brownish). The spots are divided by streaky white lines. Basal area olive with traces of white strigulae. Five spots located along costa in terminal 1/2 of the wing, subterminally located spot (second from the apex) is the largest. Costal strigulae indistinct. Medial fascia dark olive brown varies in shape. It is contrasted by white background on the sides. Subterminal fascia not reaching inner margin, shorter, as an oblong spot which is almost merged with neighboring spots. Dark brown terminal line rangy, often interrupted, formed by merging spots. Fringe white and partly olive brown with variable pattern. Underside of the forewing dark brown with whitish costal area. Several brown spots located in this area in terminal 1/2 of the wing. Hindwing underside and upper side grey, in some cases with lighter whitish basal part. Fringe whitish with contrast grey basal band occupying from 1/3 to 1/4 of fringe width.

Male genitalia (fig. 7): Uncus reverse T-shaped with free stick like distal part which is slightly curved. Socii as very small thin angulate plates. Anal tube short, cup shaped. Tegumen elongate, heavily sclerified along the anterior edge. Cucullus of valvae weakly sclerified with almost parallel edges, widely rounded at apex, densely covered with bristles in ventrocaudal 1/2. Costa relatively wide, heavily sclerified. Dorsal edge of valva with strongly sclerified basal bidentate prominence adjacent to transtilla. Sacculus straight and well sclerified. Its distal part forms convexity of ventrocaudal edge of valva. Transtilla very short (on fig. 7 it is shown separated from valvae), medial part trapezoidal with small central hollow and tiny spines on the edge. Juxta relatively large, nearly semicircular. Vinculum well sclerified, more stout on the sides. Aedeagus pointed distally, not thick with thinner distal half which is evenly curved down. Dorsal side of aedeagus with excavation at distal end occupying 1/3 of the length. Dentate plate is present distally on the left side. Ductus ejaculatorius arises from nearly a middle of aedeagus. One rather thin nail like cornutus in vesica (nearly 2/3 of aedeagus).

Female genitalia (fig. 9): Papillae analis elongate, densely covered by small bristles. Posterior apophyses nearly twice longer than papillae analis and almost equal to anterior apophyses. Posterior apophyses bear large triangular broadenings in their anterior half. Eighth tergum broad, angulate on sides. Anterior edge of the tergum with central hollow. Lateral convex sclerites form distal part of sterigma. Proximal part of sterigma - a plate covering antrum. Posterior edge of this plate with V-shaped hollow. Antrum trapezoidal and well sclerified, flat. Ductus bursae short and wide, slightly tapering. Its sclerotization weak and usually heavier on the right side. Corpus bursae small membranous. It's elongated with large bulb located dorsally at ductus base. The bulb is rather variable in shape, it can be conical, spherical or digitate (as on fig. 9) and it bears the base of seminal duct. Posterior part of corpus bursae weak easily damaged during dissection.

Diagnosis: *P. accurata* is close to *Phtheochroa amasiana* (Ragonot, 1894) and *Phtheochroa gracillimana* (Rebel, 1910) in genitalia and resembles the last species externally. Exact separation is possible by genitalia structure. Males of both *P. amasiana* and *P. gracillimana* are distinguished from males of the described species by presence of free pointed termination of sacculus and much longer uncus. Also, the edge of medial part of transtilla is convex without hollow. In *P. accurata* it is concave with small hollow dividing two small vanes. Aedeagus much shorter in *P. gracillimana*. In females of *P. amasiana* sterigma lacks V-shaped hollow, large triangular broadenings of posterior apophyses are absent, bursa copulatrix without a bulb on dorsal side. *Phtheochroa cymatodana* (Rebel, 1927) is another species close to *P. accurata* in genitalia. But in this species forewing ground color white and forewing pattern quite different. In male genitalia very short free termination of sacculus present, cornutus less than half of aedeagus in length, uncus narrowing from base to apex, socii larger.

Etymology: The name emphasizes a fine forewing pattern with many small elements.

Biology: The series of *P. accurata* were taken in saline land at the foot of rocky slope. This place represents a terrace at the edge of plateau Ustyurt. Semidesert vegetation such as *Salsola arbusculiformis* Drobow, *Convolvulus fruticosus* Pall., *Athraphaxis spinosa* L., *Caragana grandiflora* M. Bieb., *Artemisia* sp. can be mentioned for the habitat. One male of the described species comes from Akkergeshen plateau, from a habitat with various calcifilic semidesert and steppe vegetation.

***Phtheochroa suleimana* Tsvetkov, sp. n. (figs 3, 8, 10)**

Type material: Holotype ♂, KAZAKHSTAN, Mangistau Province, 10 km NE of vill. Taushchik, 2-V-2019, leg. E. Tsvetkov. Paratypes (1 ♂, 4 ♀♀): KAZAKHSTAN, Mangistau Province, 10 km NE of vill. Taushchik, 1 ♂, 3 ♀♀, 2-V-2019, leg. E. Tsvetkov; Mangistau Province, S env. of spring Akmysh, 1 ♀, 9-V-2016, leg. E. Tsvetkov. Type material is deposited in the collection of Zoological Institute, St. Petersburg.

Imago (fig. 3): Head and thorax in white or light creamy scales. Abdomen and labial palpi covered by whitish and brown scales. Forelegs and midlegs brown: femur in white and brown scales, tibia dark brown with medial and distal white rings, each tarsomere dark brown also with white ring distally. Femur of hindlegs covered by whitish and brown scales, tibia white like most part of tarsus, tarsomeres checkered only dorsally (brown and whitish areas on each segment). Labial palps nearly 1.6-1.7 diameters of eye, pointed ahead, third segment slightly drooping. Maxillary palps extremely small. Proboscis very short. Antennae white from dorsal side, nearly 2/5 of the forewing. Cilia of female antennae shorter (0.5 of flagellomere width) than cilia in males which is nearly equal to flagellomere width. Forewing 5-5.5 mm, triangular, apex rounded, termen straight. Costa insignificantly convex, inner margin convex in basal 1/2. Ground color of the forewing white, black medial and subterminal fasciae very contrast. Basal area white with delicate dark costal streaks forming a variable pattern and two small black spots. A spot at the inner angle and one spot adjacent to costa. The latter spot usually continued with fine black line directed at right angle to inner margin. Sometimes only a part of this line present as a black streak in the center of basal area (as on fig. 3). Medial fascia consists of two black contrast spots and brownish grey framing. Subterminal fascia can be partly dark ash grey, partly brownish grey. It is crossed by light line. Area between fasciae ash grey. Also, ash grey angulate spots and fine streaks present adjacent to costa in medial and subterminal parts. Rusty or brown spot near apex. A series of black dots (4-7) along inner margin in medial part. Fringe consists of brown and dark grey scales. Underside of the forewing dark brown and partly black. White areas copying white pattern of the upperside. Hindwing grey densely covered with white rounded spots except for the apical part of the wing. Underside with the same pattern. Two dark grey and two whitish stripes on the fringe.

Male genitalia (fig. 8): Uncus broad and heavy, distal half abruptly curved down almost at right angle. Apical part resembles a duck beak. Large concavity at junction of tegumen and uncus present (seen in lateral view). Socii large, nearly triangular. Inner surface of socii bristly. Tegumen large, elongate. Its posterior margin angulate. Anterior margin with deep V-shaped hollow. Sacculus of valva

well sclerified, almost straight, sharply angled terminally. Cucullus oblong, apex widely rounded. Costa well sclerified. Dorsal edge of valva with strongly sclerified basal bidentate prominence adjacent to transtilla. Transtilla large and heavily sclerified, medial part trapezoidal with tiny central hollow, massive convexities present on sides. Juxta as a heavily sclerified slightly curved plate. Its edge adjacent to vinculum widely rounded, opposite side with shallow hollow and rounded angles on sides. Aedeagus short and thick, spine like sharp distal projection on ventral side. Dorsal side of aedeagus almost entirely membranous, only very short middle part sclerified. Proximal part at nearly 1/5 also membranous. Curved distal sclerified plate present as a protrusion on the right side. Two long nail like cornuti in vesica (nearly 3/4 and 1/2 of aedeagus). The shorter cornutus very thin with small base. The longer cornutus very slightly curved, its base rounded.

Female genitalia (fig. 10): Papillae analis elongate, densely covered by small bristles. Apophyses relatively short, fine without broadenings. Anterior apophyses very short, about 0.18-0.2 mm. Posterior apophyses nearly twice longer and not very much longer than papillae analis. Eighth tergum very short and broad, side protrusions narrow. Anterior edge of the tergum with shallow hollow. Proximal and distal parts of sterigma very broad and short. Heavily sclerified proximal part forming ostium is fused with weakly sclerified anteostial plate which is widely rounded on sides. Bursa copulatrix elongate membranous, fused with very short and rather wide membranous antrum. Right side of bursa bears a bulb posteriorly. Seminal duct arises from ventral side of bursa. Sclerite structure in bursa slightly varies.

Diagnosis: The species is related to *Phtheochroa sodaliana* (Haworth, 1811), *Phtheochroa reisseri* (Razowski, 1970) and *Phtheochroa dodrantaria* (Razowski, 1970), separation from the first two species by external appearance is hardly possible. But differences in genitalia between *P. suleimana* and all compared species are very clear. In male genitalia of *P. suleimana* shape of uncus is characteristic. It is large, heavily sclerified and very broad with abruptly curved down distal part which can't be unbent. Transtilla bears large side convexities, tegumen angulate on sides (in ventral view). Quite different shape of uncus in *P. sodaliana* (slightly bent in proximal 1/2 and much narrower) and in *P. reisseri* (narrower with two short terminal processes). In males of the compared species side convexities of transtilla are absent or insignificant, tegumen not angulate in ventral view. Females differ by sclerite structure in bursa copulatrix. Some similarity *P. suleimana* with *Phtheochroa dodrantaria* should be mentioned. The latter species with lighter subterminal area of the forewing lacking dark spots present in *P. suleimana*. In male genitalia aedeagus of *P. dodrantaria* with one cornutus in vesica (two cornuti in *P. suleimana*), shape of uncus and transtilla quite different.

Etymology: The name comes from Arabic name Suleiman.

Biology: *P. suleimana* is found in two very different habitats: rocky valley of a stream in the Mangistau mountain range and southern calcic slope with saline and calcifilic vegetation (near vill. Taushchik).

Eucosma paulorosea Tsvetkov, sp. n. (figs. 4, 11, 12)

Type material: Holotype ♀, KAZAKHSTAN, Mangistau Province, S env. of spring Akmysh, 44°13'13" N, 51°58'51" E, 3-V-2019, leg. E. Tsvetkov. Paratypes (3 ♂♂, 2 ♀♀): KAZAKHSTAN, Mangistau Province, S env. of spring Akmysh, 44°13'02" N, 51°58'26" E, 1 ♂, 9-V-2016, leg. E. Tsvetkov; the same locality, 1 ♀, 10-V-2016, leg. E. Tsvetkov; Mangistau Province, 11 km E of vill. Sarga, terrace of Ustyurt plateau, 2 ♂♂, 3-V-2016, leg. E. Tsvetkov; Mangistau Province, 9 km SW of vill Sai Otes, canyon, 1 ♀, 7-V-2016, leg. E. Tsvetkov. Type material is deposited in the collection of Zoological Institute, St. Petersburg.

Imago (fig. 4): Head and legs grey, thorax covered with mixture of grey and pink scales, abdomen brownish grey. Labial palps nearly 1.6-1.7 diameters of eye, pointed ahead, third segment drooping. Maxillary palps very small, proboscis developed. Antennae relatively short (about 1/3 of the forewing or some longer), cilia very short. Antennae covered with whitish grey scales from dorsal side. Forewing 7-8.5 mm, elongate triangular with rounded tornus. Costa almost straight or very

slightly convex. Costal fold present in males (nearly 1/3 of the forewing). Forewing ground color yellowish ochreous. Fresh specimens of such coloration can be observed in the beginning of flight period. However, imagines quickly lose this coloration and become worn with greyish forewing. Elements of forewing pattern are speculum and costal strigulae. Speculum yellow with remnants of white metallic lines and two black dots very close to termen. Costal strigulae as whitish metallic lines in subapical area. The lines usually interrupted and sometimes unclear. Fringe pink (pink and grey scales). In worn specimens pink scales of the fringe partly lost as a rule. Underside of the forewing dark brown, subapical area whitish with fine dark brown strigulation. Hindwing brown, basal and medial area usually lighter. Fringe light brown. Underside of the hindwing whitish.

Male genitalia (fig. 11): Uncus very small. Socii well sclerified, short digital with narrowing apical part, widely spaced. Gnathos elongate and narrow, as a small rectangular plate with stout membranous termination. Lobes of gnathos well sclerified and narrow. Transtilla membranous. Cucullus of valva short with wide bristly area along ventrocaudal edge. Ventral prominence of cucullus hardly protruding. Neck of valva very broad and rather short, almost free of bristles. Basal part of valva some smaller than cucullus, covered with bristles. Aedeagus small, tapering with thick base and fine distal part. Dorsal side of aedeagus membranous at apex. Vesica with long tubular plate (cornuti not found).

Female genitalia (fig. 12): Papillae analis elongate, covered by small bristles. Posterior apophyses about 1.3-1.4 of papillae analis and some longer than anterior apophyses. Posterior apophyses robust, anterior apophyses gradually narrowing to their ends. Eighth tergum trapezoidal, broadest posteriorly. Postostial plate very short and small. Its margins bear tiny projections: two symmetrically located projections of anterior margin, and three projections of posterior margin. Anteostial plate relatively large, tapering distally with massive proximal part. Anterior margin widely rounded; two vane-like protrusions of posterior margin are enfolding ostium. Ductus bursae membranous. Cingulum nearly cylindrical, irregularly curved, covered by anteostial plate (in ventral view). Bursa copulatrix ovate membranous with two equal signa in posterior part.

Diagnosis: *E. paulorosea* is related to *Eucosma subluclidana* (Kennel, 1901), a species endemic to Spain. Type material of *E. subluclidana* was examined by RAZOWSKI (1971) who described the male. Judging by illustration of male genitalia the new species is close to *E. subluclidana* in shape of valva. In *E. paulorosea* uncus very small, socii widely spaced. While uncus of *E. subluclidana* is much larger, socii closely spaced. *E. paulorosea* can be easily separated from all *Eucosma* species by its peculiar coloration: forewing fringe of *E. paulorosea* is pink (bright pink and grey scales), inner angle of the forewing is decorated with pink scales.

Etymology: “Paulo rosea” means “a little pink” in Latin. The name is associated with pink elements in the forewing pattern.

Biology: *E. paulorosea* inhabits rocky slopes, canyons, stony semidesert places. The species seems to be widely distributed in West Kazakhstan; however, it occurs rather rarely in the habitat. Flight period in late April and early May.

***Eucosma fulvana suncretana* Tsvetkov, ssp. n.** (figs. 5, 6, 13, 14)

Type material: Holotype ♂, KAZAKHSTAN, Atyrau Province, Akkergeshen plateau, 47°19'14" N, 54°24'14" E, 22-V-2016, leg. E. Tsvetkov. Paratypes (11 ♂♂, 1 ♀): the same locality, 8 ♂♂, 1 ♀, 22-V-2016, leg. E. Tsvetkov; the same locality, 3 ♂♂, 8-V-2019, leg. E. Tsvetkov. Type material is deposited in the collection of Zoological Institute, St. Petersburg (Russia).

Imago (figs 5, 6): Head, thorax, legs and abdomen white. Labial palps nearly 1.4-1.5 diameters of eye, pointed ahead. Maxillary palps very small, proboscis short. Antennae shortly ciliate, covered by white scales from dorsal side. Forewing 9-11 mm, elongate triangular with rounded apex and tornus. Costa slightly convex or sometimes almost straight, inner margin convex in basal 1/2. Costal fold present in males (nearly 0.4 of the forewing). Forewing ground color whitish grey. Basal area grey or brownish grey except for whitish stripe along costa. This grey area is contrasted from outer

side by whitish medial area, but only in hind 1/2 of the wing where oblique border between areas clearly defined. Subterminal area whitish grey, sometimes with brownish tinge. Two parallel white metallic lines and black dots and streaks form speculum. The inner black pattern of speculum much varies. In some cases, black dots also present in medial area near speculum. Costal strigulae indistinct, pale ochreous, occupy subapical part. Fringe brown from apex to nearly M_2 vein and white in the hind 1/2 of the forewing. Forewing underside dark brown. White costal streak widening from 1/2 of costa to apex, short brown costal strigulations present on the streak. Hindwing light brown, underside whitish with slight brownish tinge and darker subcostal area. Fringe white.

Genitalia (figs 13, 14): No significant differences from the genitalia of nominative subspecies were found.

Diagnosis: The described subspecies is well distinguished from the nominative subspecies by its whitish coloration. In *E. fulvana suncretana* thorax clearly white and lacks reddish or brownish tinge unlike the thorax in *E. fulvana fulvana*. Ground color of the forewing in subspecies *suncretana* contrastingly different, it is whitish grey and not fulvous, reddish or brown like in *E. f. fulvana*. Externally *E. f. suncretana* resembles *Eucosma caliacrana* (Caradja, 1931) which has whitish forewing with pale brown strigulation. But in *E. caliacrana* such strigulation occupies also basal area. Basal area in the forewing of *E. caliacrana* not darker than medial and subterminal areas. In the described subspecies pale ochreous strigulation is mostly in subapical area, basal area much darker than medial and subterminal areas. Male and female genitalia is well distinguished from those of *E. caliacrana*. In males of *E. caliacrana* cucullus of valva shorter and smaller, its ventral prominence hardly defined. In females of *E. caliacrana* posterior edge of anteostial part of sterigma bears two pointed projections on sides, but in *suncretana* anteostial part of sterigma bears widely rounded projections. Light colored species *Eucosma getonia* Razowski, 1972, described from Mongolia, can be mixed with *suncretana*. Easy separation of males is possible as males of *E. getonia* lack costal fold on the forewing. Neck of valva longer in males of *E. getonia*, postostial part of sterigma quite different in females of *E. getonia* and *E. fulvana subcretana*. *Eucosma halophilana* Budashkin, 2009 and *Eucosma lacteana* (Treitschke, 1835) can be separated by light colored basal area of the forewing. In male genitalia of these species ventral prominence of cucullus much wider, neck of valva longer. In female genitalia anteostial part of sterigma longer and narrower. Light colored *Eucosma metzneriana* (Treitschke, 1830) can be mixed with *suncretana*, especially if the specimens of *E. metzneriana* are worn and dorsal streak on the forewing is undistinguishable. *Eucosma albicosta* Falkovitsh, 1964 from Kazakhstan is characterized by different male and female genitalia structure.

Etymology: *Suncretana* is a fictional two-part word related to the moth habitat. "Sun" - the Sun, "creta" - chalk in Latin.

Biology: *E. fulvana suncretana* inhabits chalk steppe and semidesert areas of plateau Akkergeshen and highly possible also plateau Aktolagai in West Kazakhstan where the vegetation is similar. The hostplant of *E. fulvana suncretana* is probably *Centaurea kazakorum* Iljin as imagines were observed only in places where this plant grows. The butterflies were active in the evening hours, series were attracted to light in the nighttime. Flight period in May.

Systematic remarks: According to AGASSIZ & LANGMAID (2004) *Eucosma hohenwartiana* group of species includes *Eucosma hohenwartiana* ([Denis & Schiffermüller], 1775), *Eucosma fulvana* (Stephens, 1834) and *Eucosma parvulana* (Wilkinson, 1859). The group was revised basing on the differences in ovipositor of females. However, several authors are skeptical of these conclusions as the differences between species were not demonstrated sufficiently. SINEV (2008) treated *E. fulvana* as a synonym of *E. hohenwartiana*. In contrary to this opinion both *E. hohenwartiana* and *E. fulvana* are listed in Nordic-Baltic Checklist of Lepidoptera (AARVIK *et al.*, 2017). So, the status of the discussed taxa is disputable. Having studied female ovipositor in *E. fulvana suncretana* I found short posterior apophyses nearly equal to papillae analis. This corresponds to *E. fulvana* sensu Agassiz & Langmaid, 2004. So, *E. suncretana* is described here as a subspecies of *E. fulvana*.

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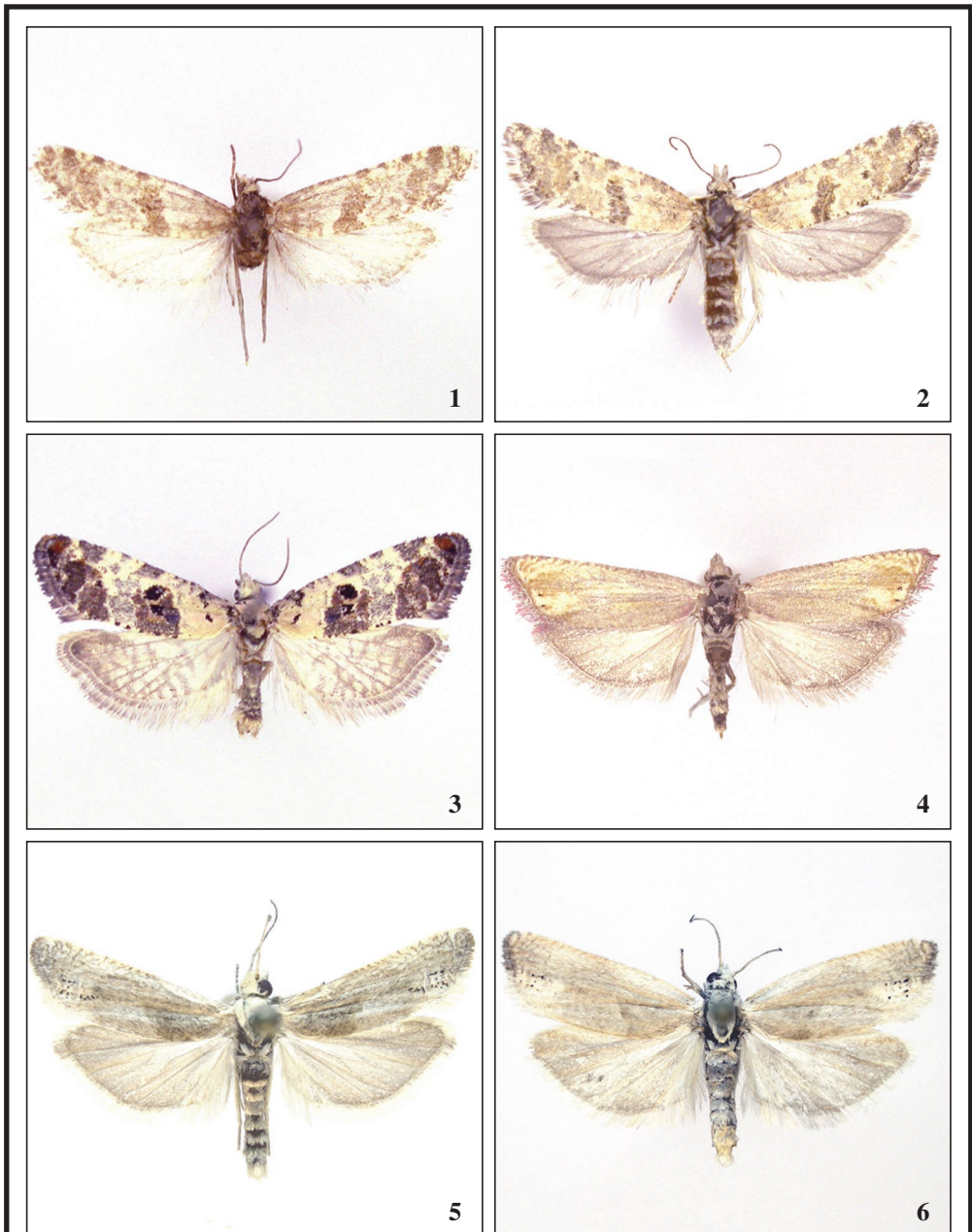
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E. V. T.
 Mechnikova, 3-1-30
 195271, St. Petersburg
 RUSSIA / RUSSIA
 E-mail: tsvcountal@rambler.ru
<https://orcid.org/0000-0003-0614-9810>

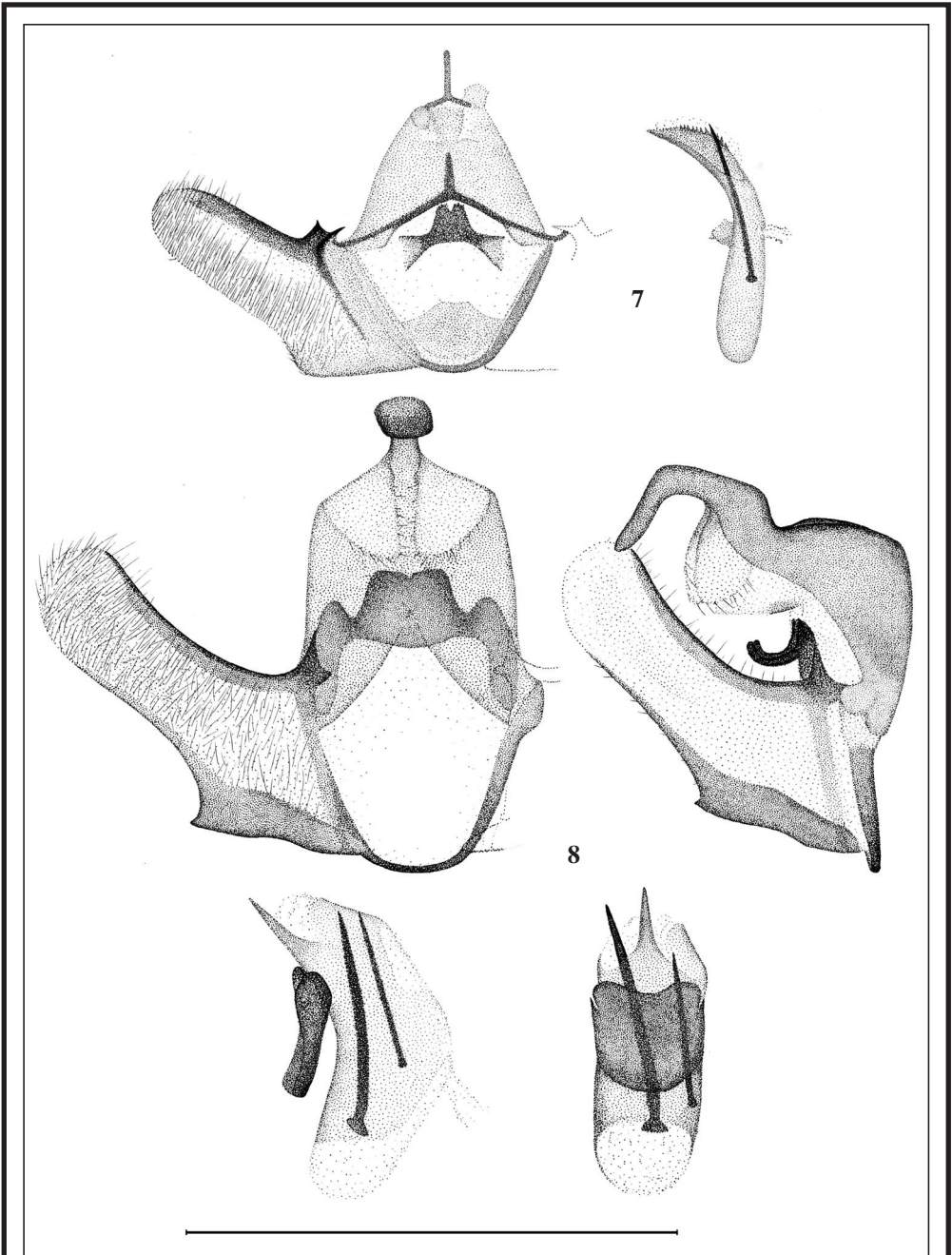
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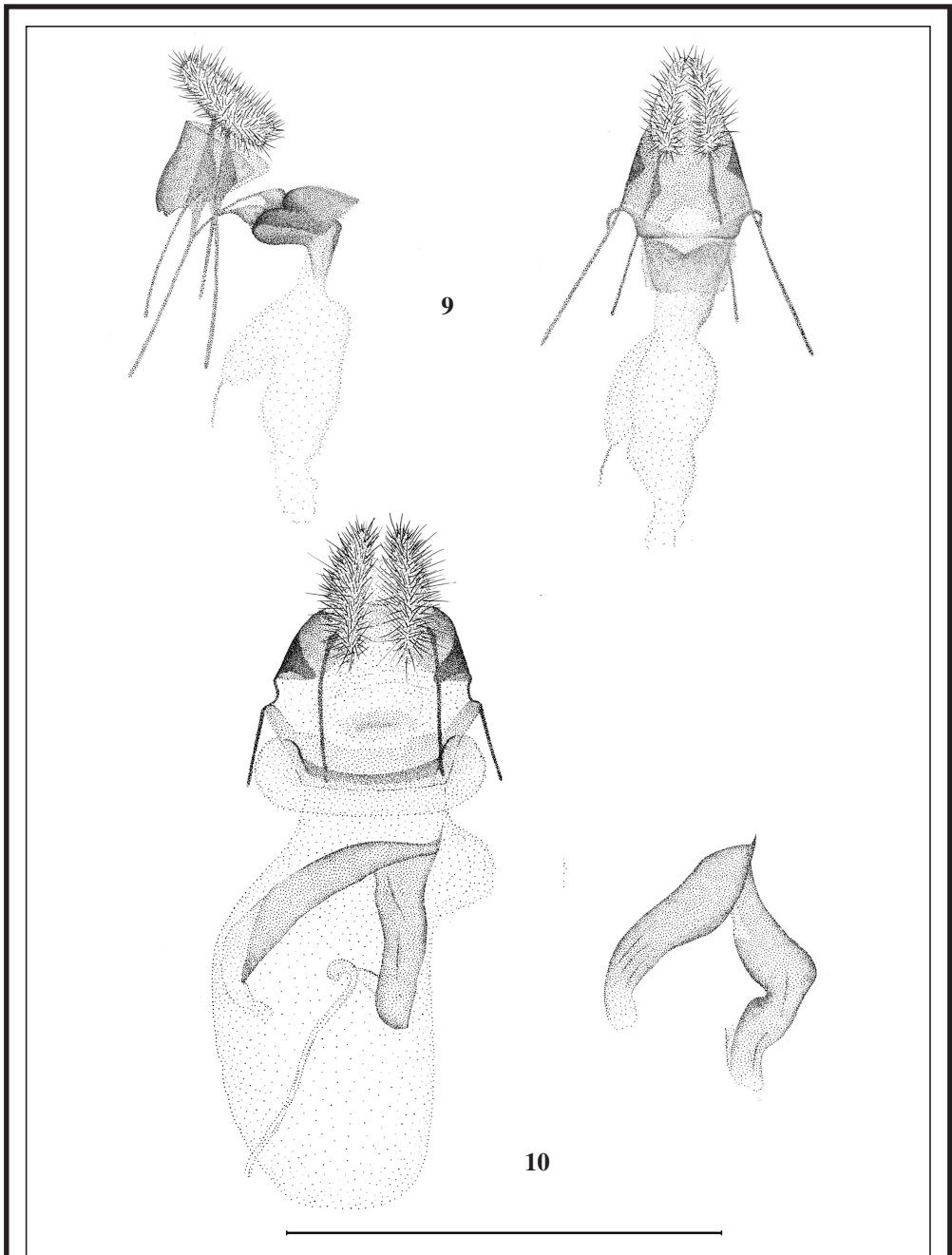
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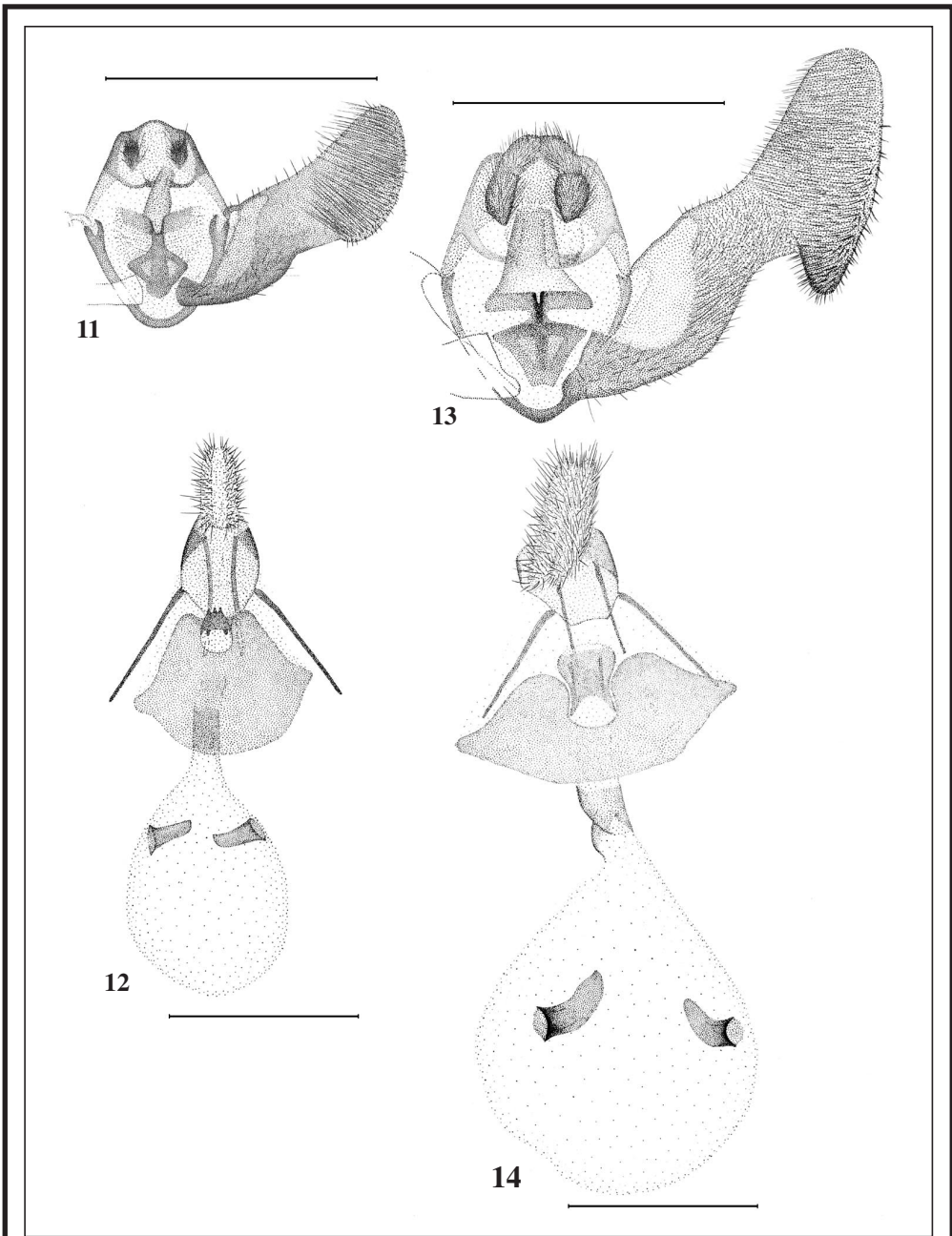
Figs. 1-6.— Type specimens of the described leaf-roller moths. **1.** *Phtheochroa accurata* Tsvetkov, sp. n., holotype; **2.** *Phtheochroa accurata* Tsvetkov, sp. n., paratype, ♀; **3.** *Phtheochroa suleimana* Tsvetkov, sp. n., holotype; **4.** *Eucosma paulorosea* Tsvetkov, sp. n., holotype; **5.** *Eucosma fulvana suncretana* Tsvetkov, ssp. n. (holotype); **6.** *Eucosma fulvana suncretana* Tsvetkov, ssp. n., paratype, ♀.



Figs. 7-8.— Male genitalia of *Phtheochroa* sp. (scale 1 mm). **7.** *Phtheochroa accurata* Tsvetkov, sp. n., transtilla is shown separated from valvae; **8.** *Phtheochroa suleimana* Tsvetkov, sp. n.



Figs. 9-10.– Female genitalia of *Phtheochroa* sp. (scale 1 mm). **9.** *Phtheochroa accurata* Tsvetkov, sp. n.; **10.** *Phtheochroa suleimana* Tsvetkov, sp. n., variation of sclerite on the right image.



Figs. 11-14.– Genitalia of *Eucosma* sp. (scale 1 mm). **11.** *Eucosma paulorosea* Tsvetkov, sp. n., male genitalia; **12.** *Eucosma paulorosea* Tsvetkov, sp. n., female genitalia; **13.** *Eucosma fulvana suncretana* Tsvetkov, ssp. n., male genitalia; **14.** *Eucosma fulvana suncretana* Tsvetkov, ssp. n., female genitalia.