



Far Eastern Entomologist

Дальневосточный энтомолог

Journal published by Far East Branch
of the Russian Entomological Society
and Laboratory of Entomology,
Institute of Biology and Soil Science,
Vladivostok

Number 219: 1-8

ISSN 1026-051X

December 2010

A NEW SUBFAMILY OF GRYLLOBLATTIDS URALOPRISCINAE SUBFAM. N. (GRYLLOBLATTIDA: LEMMATOPHORIDAE) FROM THE PERMIAN OF RUSSIA

D. S. Aristov¹⁾ and S. Yu. Storozhenko²⁾

1) Paleontological Institute of Russian Academy of Sciences, Profsoyuznaya str., 123, Moscow 117997, Russia. E-mail: danil_aristov@mail.ru

2) Institute of Biology and Soil Science, Far Eastern Branch of the Russian Academy of Sciences, Vladivostok 690022, Russia. E-mail: storozhenko@ibss.dvo.ru

New subfamily Uralopriscinae Aristov et Storozhenko, **subfam. n.** of family Lemmatophoridae is described. Review of the type genus *Uraloprisca* Aristov, 2009 is given. Neotype of *Paraprisca uralica* Zalesky, 1952 is designated. New synonymy is proposed: *Uraloprisca uralica* (Zalesky, 1952) = *Paraprisca causaria* Novokschonov, 2000, **syn. n.**

KEY WORDS: Grylloblattida, Lemmatophoridae, taxonomy, new subfamily, new synonymy, Permian, Russia.

Д. С. Аристов¹⁾, С. Ю. Стороженко²⁾. Новое подсемейство гриллоблаттидовых Uralopriscinae subfam. n. (Grylloblattida: Lemmatophoridae) из перми России // Дальневосточный энтомолог. 2010. N 219. С. 1-8.

В семействе Lemmatophoridae описано новое подсемейство Uralopriscinae Aristov et Storozhenko, **subfam. n.** Приведен обзор типового рода *Uraloprisca* Aristov, 2009. Выделен неотип *Paraprisca uralica* Zalesky, 1952. Установлена новая синонимия: *Uraloprisca uralica* (Zalesky, 1952) = *Paraprisca causaria* Novokschonov, 2000, **syn. n.**

1) Палеонтологический институт РАН, ул. Профсоюзная, 123, Москва 117997, Россия.

2) Биолого-почвенный институт Дальневосточного отделения Российской Академии наук. Владивосток-22, 690022, Россия.

INTRODUCTION

Family Lemmatophoridae Sellards, 1909 is known from the Permian of Europe and North America. Up to now this family is divided in two subfamilies (Carpenter, 1935; Storozhenko, 1998). Subfamily Lemmatophorinae consists of 16 species in 5 genera, and subfamily Parapriscinae Carpenter, 1935 consists of 21 species in 12 genera (Aristov, 2009). Genus *Uraloprisca* was described recently in the subfamily Parapriscinae (Aristov, 2009), but considerably differs from all known genera of Lemmatophoridae in wing venation. Therefore a new subfamily is established and a revision of the genus *Uraloprisca* is given below.

All studied material was gathered by A.G. Sharov in 1959-1961 and stored in the Paleontological Institute of Russian Academy of Sciences (PIN).

ORDER GRYLLOBLATTIDA WALKER, 1914

SUBORDER GRYLLOBLATTINA WALKER, 1914

Family Lemmatophoridae Sellards, 1909

Subfamily Uralopriscinae Aristov et Storozhenko, subfam. n.

Type genus: *Uraloprisca* Aristov, 2009.

DESCRIPTION. Small insects. Head hypognathous; eyes medium-sized; antennae filiform; maxillary palps long; coxa large; legs very thin and long; cerci long. Forewing narrow, 3.2-3.6 times as long as broad; anterior margin of forewing straight; costal area narrower or as broad as subcostal one; *RS* originated in the basal one-third to one-fifth of forewing; *M* forked distal to the base of *RS*; the base of *CuA* straight, *CuA*₁ simple, *CuA*₂ with 2-3 branches; intercubital area narrow, not expanded at base; *A*₁ and *A*₂ simple; crossveins simple. Hind wing with large anal area, slightly shorter than forewing.

DIAGNOSIS. New subfamily differs from Lemmatophorinae in narrow forewing and very thin legs (in Lemmatophorinae forewing 2.2-2.5 as long as broad and legs stout), and similar in these characters with Parapriscinae. From latter subfamily new one is distinguished by the shape of intercubital area (in Parapriscinae the base of *CuA* curved, therefore the intercubital area distinctly expanded at base). Uralopriscinae subfam. n. differs from both known subfamilies in the more distal main fork of *M* (in Lemmatophorinae and Parapriscinae *M* forked at the level of the base of *RS* or basally).

COMPOSITION. Type genus only.

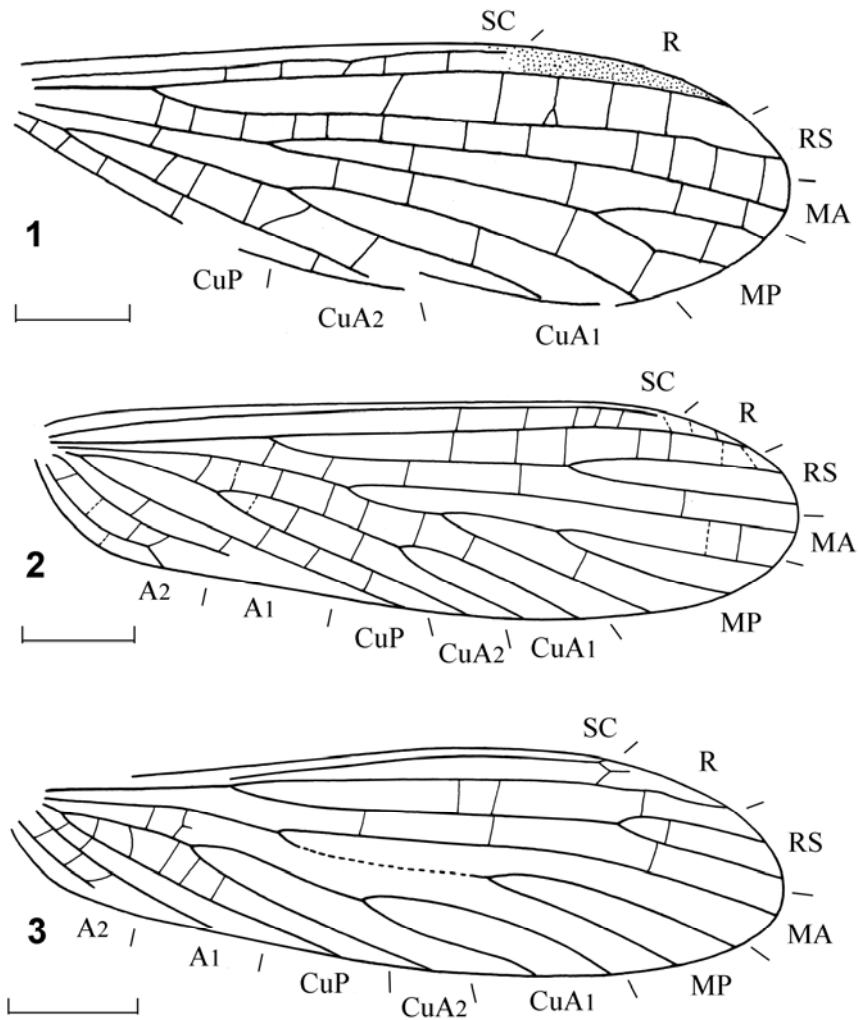
Genus *Uraloprisca* Aristov, 2009

Uraloprisca Aristov, 2009: 38.

Type species: *Uraloprisca lisca* Aristov, 2009, by original designation.

DESCRIPTION. In forewing *SC* extending to basal one-third of wing or almost reaching its apex; costal area without anterior branches of *SC*; *R* simple; *RS* simple or bifurcate; *MA* simple; *MP* with 2-3 branches; *CuA* with 3-4 branches, distinctly divided in *CuA₁* and *CuA₂* near the origin of *RS*.

COMPOSITION. Two species from the Lower and Middle Permian of European part of Russia.



Figs. 1–3. Forewings of *Uraloprisca*. 1) *U. lisca* Aristov, 2009, holotype PIN, No. 3353/368; 2-3) *U. uralica* (Zalesky, 1952): 2) type, lost; 3) neotype PIN No. 1700/765. (Fig. 1 from Aristov, 2009; fig. 2 from Zalesky, 1952 with emendations). Scale bar: 2 mm.

Key to the species of *Uraloprisca*

- 1(2) Forewing: costal area near the origin of *RS* as broad as subcostal one; *RS* simple, originated in basal one-fifth of wing (Fig. 1) ***U. lisca***
2(1) Forewing: costal area near the origin of *RS* narrower than subcostal one; *RS* originated in basal one-third of wing, with two branches (Figs. 2, 3)
..... ***U. uralica***

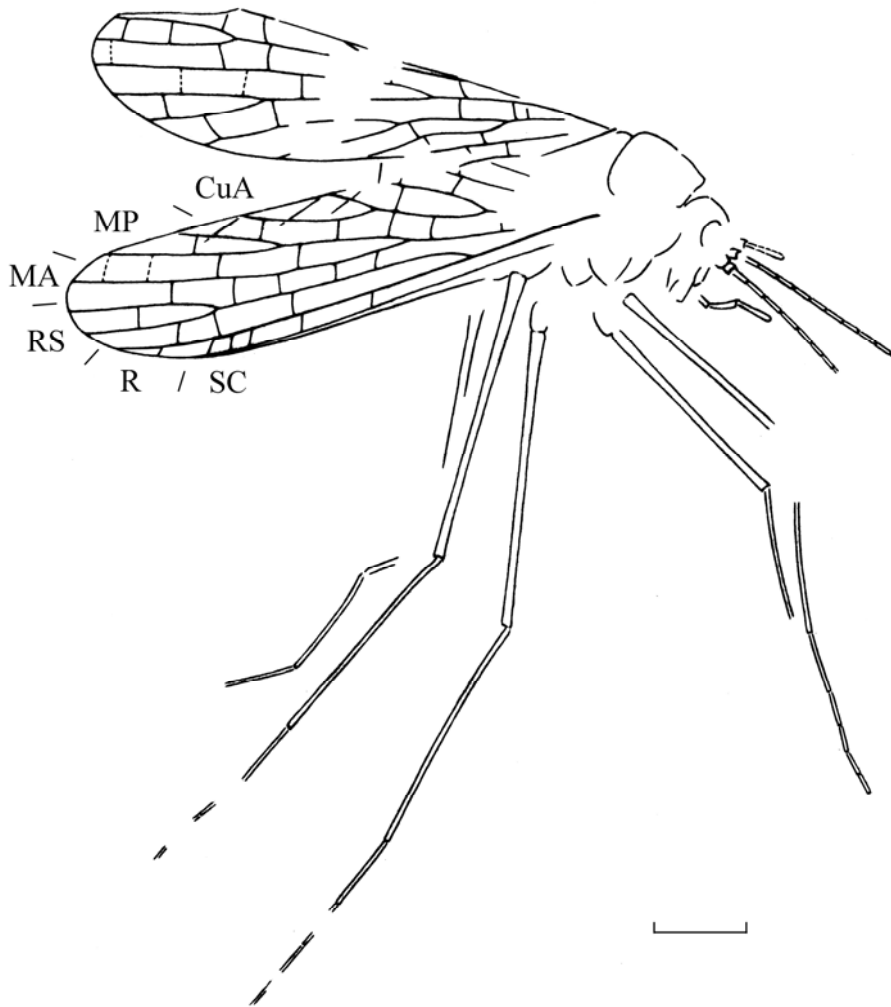


Fig. 4. General appearance of *Uraloprisca uralica* (Zalessky, 1952), spec. PIN No. 168/13 (from Novokshonov, 2000). Scale bar: 2 mm.

***Uraloprisca lisca* Aristov, 2009**

Fig. 1

Uraloprisca lisca Aristov, 2009: 38, figs. 1v, 2b (holotype – PIN No. 3353/368, positive and negative imprints of well-preserved forewing; Russia, Arkhangelsk Region, Mezen' District, right bank of the Soyana River, 56–60 km upstream of its mouth, Soyana locality; Middle Permian, Lower Kazanian Substage, Iva-Gora beds; in PIN, studied).

MATERIAL. Holotype.

LOCALITY AND HORIZON. Russia: Soyana locality; the Middle Permian, Lower Kazanian Substage.

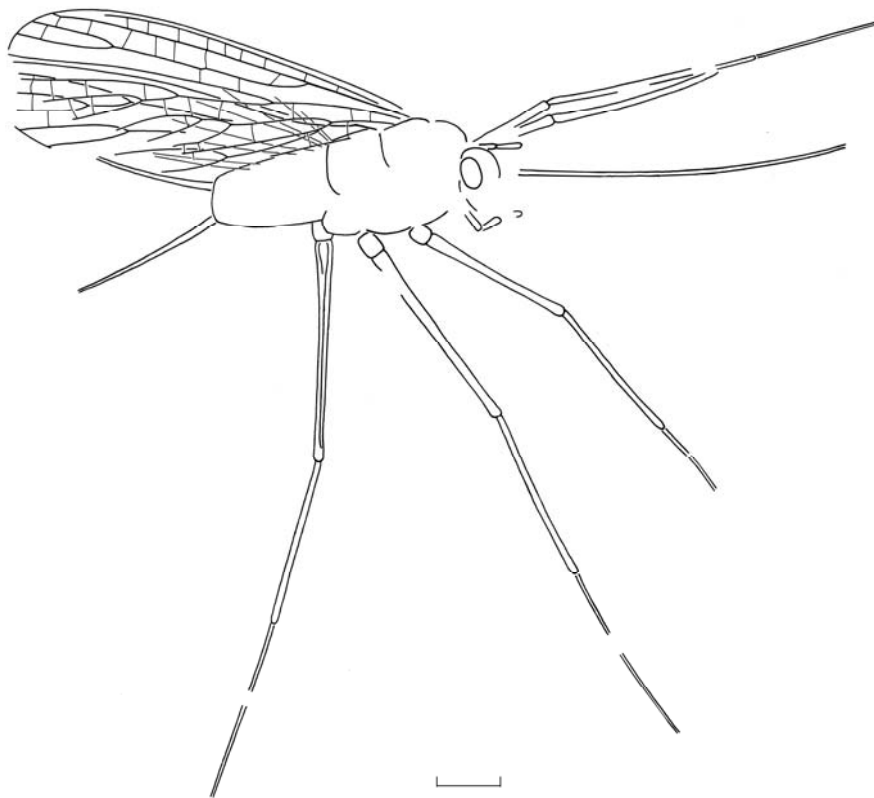


Fig. 5. General appearance of *Uraloprisca uralica* (Zalessky, 1952), spec. PIN No. 1700/763. Scale bar: 2 mm.

DESCRIPTION. *SC* extending to apical one-third of forewing; costal area as broad as subcostal one (near origin of *RS*); *RS* simple; *MP* with two branches; intercubital area very narrow, distinctly narrower than area between *CuA*₁ and *CuA*₂;

CuA_1 with two branches, the distal of which extends into the distal quarter of the wing. Forewing uncolored, pterostigmal area pigmented. Body and hind wing unknown.

MEASUREMENTS. Length of forewing 13 mm.

***Uraloprisca uralica* (Zalessky, 1952)**

Figs 2–6

Paraprisca uralica Zalessky, 1952: 985, fig. 1 (holotype – positive and negative imprints of forewing; Russia, Perm Region, Suksun District, left bank of the Sylva River near the mouth of Tshekarda River, the northeastern slope of the Krasnaya Gora Mountain, Tshekarda locality; Lower Permian, Kungurian Stage, Iren' Horizon, Koshelevka Formation; lost). Neotype (here designated) – PIN No. 1700/765, positive and negative imprints of forewing; the same locality; in PIN; Sharov, 1962: 130, fig. 326; Storozhenko, 1998: 80, fig. 131; Novokshonov, 2000: 44; Aristov, 2004: 85.

Uraloprisca uralica: Aristov, 2009: 38.

Paraprisca causaria Novokshonov, 2000: 43, fig. 1, b (holotype – PIN No. 168/13, imprint of body, legs and forewings; Russia, Perm Region, Suksun District, left bank of the Sylva River near the mouth of Tshekarda River, the northeastern slope of the Krasnaya Gora Mountain, Tshekarda locality; Lower Permian, Kungurian Stage, Iren' Horizon, Koshelevka Formation; in PIN, studied) **syn. n.**; Aristov, 2004: 85.

Uraloprisca causaria: Aristov, 2009: 39.

MATERIAL. Neotype of *Paraprisca uralica*, holotype of *P. causaria*, and imprint PIN No. 1700/763; all from Tshekarda locality.

LOCALITY AND HORIZON. Russia: Tshekarda locality; the Lower Permian, Kungurian Stage.

DESCRIPTION. Eyes medium-sized, oval. Maxillary palps long, with three segments. Antennae longer than body; scape large; pedicel short, broader than segments of flagellum. Pronotum transversal, as broad as mesonotum or metanotum. Legs very long and thin; hind leg about two times longer than body. Fore legs shorter than mid or hind ones; coxa large, conical; trochanter large, as broad as long; femur widened near the base, as long as tibia; tarsus as long as tibia, with five segments, first tarsal segment as long as two apical segments combined. Mid and hind legs similar with fore one, but femora longer. Abdomen short and broad. Cercus as long as fore femur.

Forewing. *SC* extending to apical one-sixth of wing; costal area distinctly narrower than subcostal one (near origin of *RS*), in apical half closely related to anterior margin of wing; *RS* with fork in apical quarter of wing; *MP* with 2-3 branches; intercubital area as broad as the area between CuA_1 and CuA_2 ; CuA_1 with 2-3 branches, the distal of which extends into the distal quarter of the wing. Forewing (including pterostigmal area) uncolored.

Hind wing slightly shorter than forewing; *RS* originates in the basal part of the wing, forming together with *MA* an anastomosis (with three branches); *MP* with two branches; *CuA* with two branches; anal area large; anal veins simple.

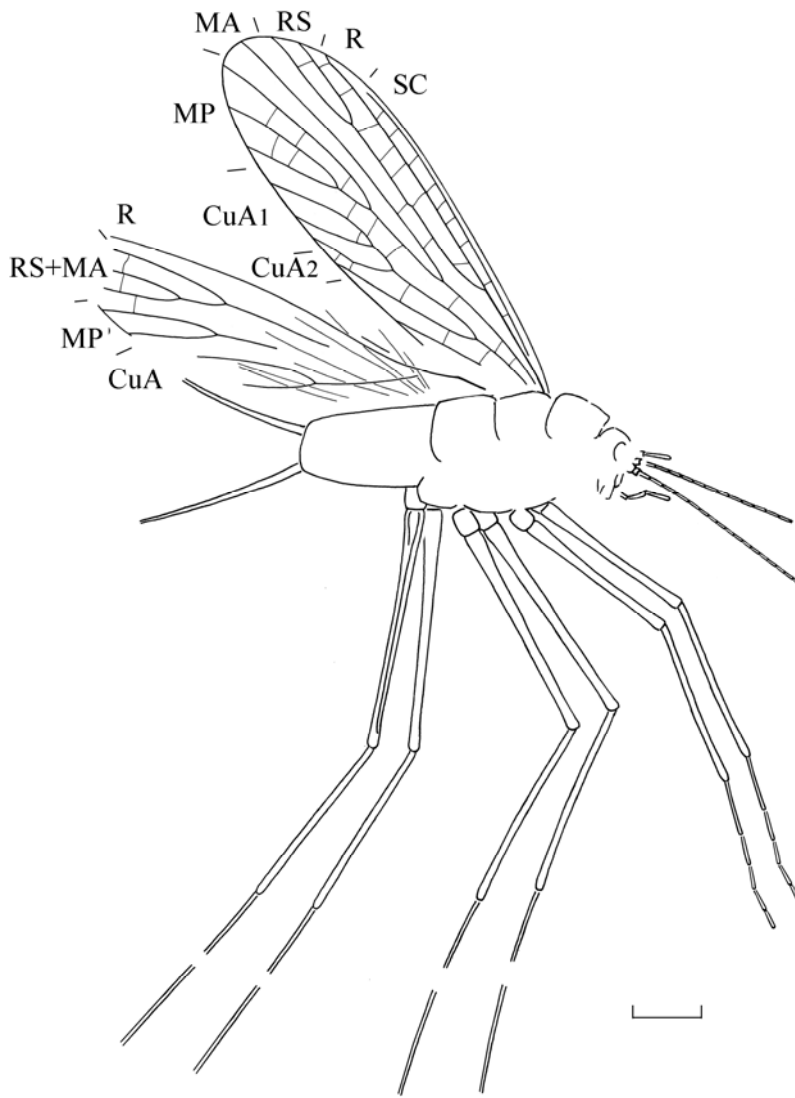


Fig. 6. Reconstruction of the general appearance of *Uraloprisca uralica* (Zalessky, 1952) based on spec. PIN No. 168/131, 1700/763, and 1700/765. Scale bar: 2 mm.

MEASUREMENTS. Length of body (without antennae and cerci) 10 mm; length of forewing 11-14 mm; length of hind wing 9-12 mm.

REMARKS. The types of described by Yu.M. Zalessky species are stored in the collection of the V.I. Vernadsky's State Geological Museum (Moscow). This collection was examined by first author. The holotype of *Paraprisca uralica* was not found. The positive and negative imprints of forewing PIN No. 1700/765 from

the type locality well agrees with the original description of *P. uralica* (Zalessky, 1952), therefore the neotype of *P. uralica* is designated herein for stability of nomenclature. According to original description *Paraprisca causaria* differs from *P. uralica* in *MP* with two branches and smaller size (Novokshnov, 2000). The study of additional material show that the size of forewing of *Uraloprisca uralica* is 11-13 mm, and the number of *MP* branches varies from two to three. Therefore a new synonymy is proposed: *Uraloprisca uralica* (Zalessky, 1952) = *Paraprisca causaria* Novokshonov, 2000 **syn. n.**

ACKNOWLEDGMENTS

This study is supported by the Program ‘Biosphere Origin and Evolution of Geo-Biological Systems’ of the Presidium of the Russian Academy of Sciences and the Russian Foundation for Basic Research No. 09-04-01241 and No. 10-04-01713.

REFERENCES

- Aristov, D.S. 2004. The Fauna of Grylloblattid Insects (Grylloblattida) of the Lower Permian Locality of Tshekarda. *Paleontological Journal* 38 (Suppl. 2): 80–145.
- Aristov, D.S. 2009. New Grylloblattids of the family Lemmatophoridae (Insecta: Grylloblattida) from the Permian of Russia. *Paleontologicheskii Zhurnal* 42(3): 37–41. (In Russian).
- Carpenter, F.M. 1935. The Lower Permian insects of Kansas. Pt. 7. The order Protoperlaria. *Proceedings of the American Academy of Arts and Sciences* 70(4): 103–146.
- Novokshonov, V.G. 2000. New Fossil Insects (Insecta: Grylloblattida, Ordinis incertis) from the Lower Permian of the Middle Ural Mountains. *Paleontologicheskii Zhurnal* 34(5): 42–47. (In Russian).
- Sharov, A.G. 1961. Paleozoic insects of Kuznetsk Basin: Orders Protoblattodea, Paraplecoptera. *Trudy Paleontologicheskogo Instituta Akademii Nauk SSSR* 85: 157–234. (In Russian).
- Storozhenko, S.Yu. 1998. Systematics, phylogeny and evolution of the grylloblattids (Insecta: Grylloblattida). Vladivostok: Dalnauka. 207 p. (In Russian).
- Zalessky, Yu.M. 1952. On Pre-stoneflies from the Permian of the Ural Mountains. *Doklady Akademii Nauk SSSR* 82(6): 985–988. (In Russian).