

**A NEW SPECIES OF THE GENUS *MACHIMUS* LOEW, 1849 (DIPTERA:
ASILIDAE) FROM THE RUSSIAN FAR EAST**

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Summary. New species of robber flies, *Machimus leleji* sp. n., is described and illustrated from Primorsky Krai, Russia. One male and eight females of this species were collected in a deciduous forest on Gamov Peninsula. New species differs from congeners by golden tomentum and setae on tergites, and the shape of the epandrium in males. The genus *Trichomachimus* Engel, 1934 is excluded from the fauna of Russia. Currently the fauna of robber flies of the Russian Far East numbers 99 species, of them four species from the genus *Machimus*.

Key words: robber flies, Machimini, *Machimus*, *Trichomachimus*, *Asilella*, fauna, new species, Palaearctic Region.

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Резюме. Из Приморского края описан новый вид мух-ктырей *Machimus leleji* sp. n. Один самец и восемь самок этого вида собраны в лиственном лесу на полуострове Гамова. Новый вид отличается от других видов рода *Machimus* золотистым опушением и волосками на тергитах брюшка, а также формой эпандрия у самцов. Род *Trichomachimus* Engel, 1934 исключен из фауны России. В настоящее время фауна ктырей Дальнего Востока России насчитывает 99 видов, 4 из них относятся к роду *Machimus*.

INTRODUCTION

Machimus Loew, 1849 is a large genus of robber flies from the subfamily Asilinae. These flies are medium to large (10.0–30.0 mm), with the prominent gibbosity of the face, covered by dense macrosetae. The most tergites with postlateral macrosetae (Hull, 1962). Style longer than half length of postpedicel. Scutellum with six or more apical setae. Dorsocentral macrosetae well developed and reach transverse suture (Lehr, 1999). The genus includes more than 150 species, widely distributed throughout the world, about 80 species of *Machimus* genus are recorded from the Palaearctic Region (Engel, 1934; Lehr, 1999; Robber flies..., 2023), twelve species are known from Russia (Richter, 1969; Lehr, 1988; Astakhov, 2015), and three species – from Russian Far East (Lehr, 1999; Poletkov & Lelej, 2015). New species was collected in the south of Primorsky Krai and described below.

MATERIAL AND METHODS

The material was collected by net in Primorsky Krai (Russian Far East) in 2019 and 2021. A total of 9 specimens of the new species was collected and examined. The male genitalia of the new species were extracted from the abdomen, then were treated with 10% potassium hydroxide at 100°C for approximately 15 min. They were then dissected and were mounted in glycerine for observation and illustration. Photographs were made using a stereomicroscope Olympus SZX12 with a Leica Application Suite vs. 4.12. The stacks of digital images were processed using Helicon Focus 7.6.4. The final illustrations were post-processed for contrast and brightness with Adobe® Photoshop® software. The holotype and paratypes of a new species are deposited at the Faculty of Biology, Belarusian State University, Minsk, Belarus [BSU], one paratype in the Federal Scientific Center of the East Asia Terrestrial Biodiversity, Vladivostok, Russia [IBSS].

TAXONOMY

Subfamily Asilinae Latreille, 1802

Tribe Machimini Lehr, 1996

Machimus leleji Sakhvon, sp. n.

<https://zoobank.org/NomenclaturalActs/7E4B6BA8-6737-477E-A12E-BAB632064DE5>

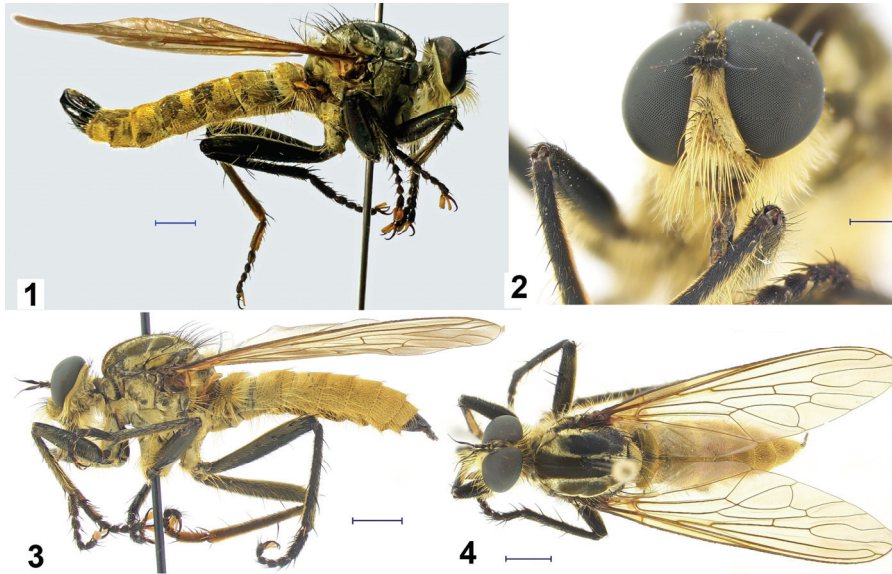
Figs 1–9

TYPE MATERIAL. Holotype: ♂, **Russia**, Primorski Krai, Khasanski district, Gamov Peninsula, Vityaz settl., 42°35'28"N, 131°12'0"E, 12–14.IX 2019, leg. V. Sakhvon (BSU). Paratypes: **Russia**, 6♀, same place, 12–14.IX 2019, leg. V. Sakhvon [BSU]; 2♀, same place, 21–26.VIII 2021, leg. M. Sergeev [IBSS].

DIAGNOSIS. MALE. Body length 19.0–24.0 (holotype 20.5) mm. Mystax golden with black macrosetae and setae in upper margin. Orbital macrosetae and setae, ocellar setae, 12–16 postocular macrosetae black (Fig. 2). Antenna black. Postpedicel equal or shorter than length of scape and pedicel combined; style equal to postpedicel length (Fig. 2). Thorax black. Scutum with short black setae. Scutellum with 6–8 black or yellow apical setae; disk with dense long yellow setae. 1 posthumeral, 2 notopleural, 3–4 supraalar, 3 postalar macrosetae black. 3–6 dorsocentral macrosetae black, not reaching transverse suture (Figs 1, 3, 4). Wings slightly darkened. Legs black. Tergites and sternites black, golden tomentose, with short and long golden setae (Figs 1, 3, 4). Hypopygium black with black setae. Posterior margin of epandrium with an indentation forming two projections (Fig. 5). Aedeagus elongated and 3-pronged (Figs 7–8). Female. Similar to the male but almost without silvery tomentum on the thorax, therefore appears completely golden.

DESCRIPTION. MALE. Head black. Face and vertex golden, frons with mixed silvery and bronze tomentose. Black stripe from antennal socket to ocellar tubercle. Facial gibbosity large. Length from upper margin of mystax to antennal socket shorter than length of scape and pedicel combined. Mystax in length reaching apex of proboscis. Long macrosetae and setae of mystax mostly golden, shorter macrosetae and setae of mystax black in upper part. Palpus black with few golden setae. Proboscis black with few yellow proboscis and labial setae. Orbital macrosetae and setae dense and black, some of them in length equal to length of scape. Ocellar setae black. 12–16 postocular macrosetae black, numerous setae yellow. Occipital and lower occipital setae golden. Antenna black. Scape and pedicel with black

macrosetae and setae, some of them yellowish. Postpedicel below with few short black setae. Postpedicel equal or shorter than length of scape and pedicel combined. Style equal to postpedicel length (Fig. 2).



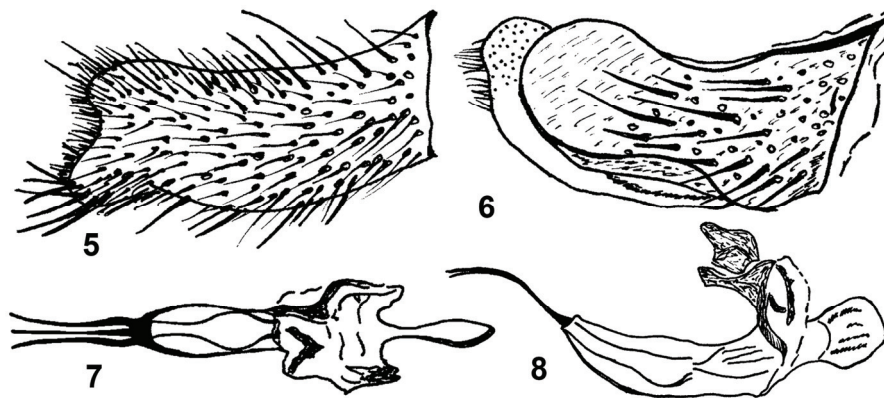
Figs 1–4. *Machimus leleji* sp. n.: 1–2 – holotype, ♂; 3–4 – paratype, ♀. 1, 3, 4 – habitus; 2 – head. Scale bar 1.0 mm for 2; 2.0 mm for 1, and 3.0 mm for 3–4.

Thorax black. Scutum with silvery tomentum forming clear pattern. This silvery tomentum area separates distinct paramedian and median stripes, presutural and postsutural spots, covered with dark brown tomentum. Postpronotal lobe with silvery tomentum and short black setae. Wide stripe of silvery and bronze tomentum extends from anterior margin to scutellum in lateral view. Pleuron with silvery tomentum, but anepisternum with golden tomentum and long yellow setae; row of long setae in dorsal margin is black. Katepisternum and anepimeron with golden tomentum and long yellow setae. Scutum with short black setae. Scutellum with silvery tomentum and 6 (6–8 in different specimens) black or yellow apical setae; disk with long dense yellow setae; 1 posthumeral, 2 notopleural, 3–4 supraalar, 3 postalar macrosetae black; 3–6 dorsocentral macrosetae black, not reaching transverse suture (Figs 1, 3, 4).

Wings darkened by yellowish microtrichia along veins, especially dense on basal costal, costal and subcostal cells; veins brownish (Fig. 4).

Legs black. Coxae with silvery and golden tomentum and dense long yellow setae. Fore femur with short mostly black setae and long yellow setae, especially dense ventrally; some of long setae black. Mid femora with short black and yellow setae and long yellow setae, especially dense ventrally; ventroproximally with few yellow macrosetae. Hind femur with short yellow setae and few black and yellow macrosetae. Fore and mid tibiae with short black and yellow setae and long yellow setae and few black and yellow macrosetae. Hind tibia and tarsomere I with dense golden setae. Tarsi with mostly short black setae and macrosetae. Claws black, brownish basally. Pulvillus well developed, reddish (Figs 1, 3).

Abdomen. Tergites and sternites black, with golden tomentum and short golden setae, which longer on sternites. All tergites with row of long golden setae on posterior margin (Figs 1, 3).



Figs 5–8. *Machimus leleji* sp. n., holotype, ♂: 5 – epandrium, external view; 6 – gonocoxite, external view; 7 – aedeagus, dorsal view; 8 – aedeagus, lateral view.

Genitalia. Hypopygium black with black setae. Posterior margin of epandrium with indentation forming two projections. Gonocoxite elongated and widened posteriorly. Aedeagus elongated and 3-pronged. Apodeme of ejaculator small (Figs 5–8).

FEMALE. Similar to the male but almost without silvery tomentum on the thorax, therefore appears completely golden.

DISTRIBUTION. Russian Far East (Primorski Krai).

NATURAL HISTORY. This species occurring in the edges of deciduous forests (Fig. 9). The specimens are usually sitting on fallen tree trunks, branches and leaves of trees on sunny side. One female was with prey – Formicidae, 6 mm (Hymenoptera).

ETYMOLOGY. I am proud to name this species in honor Arkady S. Lelej, who supported me and helped in the study of Palaearctic Asilidae.

DISCUSSION

A new species resembles the species of the genus *Trichomachimus*, especially *T. scutellaris* (Coquillett, 1898), but differs by the epandrium shape. After the revision of the genus *Trichomachimus* this valid species which distributed in Japan and China (including Taiwan) was transferred to the *Machimus* Loew, 1849 (Lehr, 1989). The genus *Trichomachimus* Engel, 1934 was wrongly recorded from Russia by misidentified *T. pallipes* (Ricardo, 1922) which distributed in China, India and Nepal (Lehr, 1979, 1988; Database Asilidae ... 2023). The material of the latter from the Russian Far East, after the study of the type of *Machimus pallipes* Ricardo, was described as *Asilella londti* Lehr, 1989 (Lehr, 1989). There are no recorded species of *Trichomachimus* Engel, 1934 from Russia and this genus should be excluded from the Russian fauna. Currently the fauna of robber flies of the Russian Far East numbers 99 species, of them four species from the genus *Machimus*.



Fig. 9. Habitat of *Machimus lejei* sp.n. on Gamov Peninsula, Primorsky Krai.

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REFERENCES

- Astakhov, D.M. 2015. Robber flies (Diptera: Asilidae) of Low[er] Volga Area. *Proceedings of the Russian Entomological Society*, 86(1): 1–410. [In Russian]
Database Asilidae: Catalog of species. 2023. Available at: <https://www.geller-grimm.de/catalog/species.htm> (accessed 17 October 2023)
Engel, E.O. 1934. Schwedisch-chinesische wissenschaftliche Expedition nach den nord-westlichen Provinzen Chinas. II. Diptera. 3 Asilidae. *Arkiv för Zoologi*, 25A(22) (1933): 1–17.

- Hull, F.M. 1962. *Robber Flies of the World: The Genera of the Family Asilidae*. P. 431–906. In: Smithsonian Institution, United States National Museum. Bulletin 224. part 2. Smithsonian Institution, United States National Museum, Washington, D.C., DOI: 10.5479/si.03629236.224
- Lehr, P.A. 1979. Robber flies (Diptera, Asilidae) of the Priamurye region. P. 60–77. In: *Biological studies in the Far East*. Vladivostok. [In Russian]
- Lehr, P.A. 1988. Family Asilidae. P. 197–326. In: *Catalogue of Palaearctic Diptera. Volume 5: Athericidae–Asilidae*. Akadémiai Kiadó, Budapest.
- Lehr, P.A. 1989. Revision of the genera *Asilella*, *Trichomachimus*, and *Acanthopleura* (Diptera, Asilidae). *Zoologicheskyy Zhurnal*, 68(2): 228–241. [In Russian]
- Lehr, P.A. 1999. Family Asilidae. P. 591–640. In: *Key to the insects of Russian Far East. Vol. VI. Diptera and Siphonaptera. Pt. 1*. Dalnauka, Vladivostok. [In Russian]
- Poletkov, E., Lelej, A. 2015. Fauna and geographical distribution of robber flies (Diptera, Asilidae) of the Russian Far East. *A.I. Kurentsov's Annual Memorial Meeting*, 26: 300–312. [In Russian with English summary]
- Richter, V.A. 1969. Fam. Asilidae – Robber flies. P. 504–531. In: *Key to the insects of European part of the USSR. Volume V: Diptera, Siphonaptera. Pt. 1*. Nauka, Leningrad. [In Russian]
- Robber flies of the world. 2023. Databases. Available at: www.robberfliesoftheworld.com/Databases/DatabaseTaxa.php (accessed 15 October 2023).