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REVIEW OF MACRONYCHIINAE (DIPTERA, SARCOPHAGIDAE) OF THE WORLD

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Обзор Macronychiinae (Diptera, Sarcophagidae) мировой фауны. **Вервес Ю. Г.**, **Хрокало Л. А.** — На основании анализа 269 экз. из собственных сборов и музейных коллекций, а также обобщения литературных сведений, приведены данные по распространению и экологическим особенностям 19 видов рода *Macronychia*, из которых четыре (*Macronychia dolini* Verves et Khrokalo, sp. n., *M. substriginervis* Verves et Khrokalo, sp. n., *M. richterae* Verves et Khrokalo, sp. n., *M. xuei* Verves et Khrokalo, sp. n.) описаны как новые для науки. Установлен новый монотипический подрод *Thomaspapeia* Verves et Khrokalo, subgen. n. для вида *Macronychia malayana* Kurahashi et Pape. Составлена оригинальная таблица для определения всех видов по имаго.

Ключевые слова: Diptera, Sarcophagidae, *Macronychia*, макронихии, обзор, новые таксоны, мировая фауна, экология.

Review of Macronychiinae (Diptera, Sarcophagidae) of the World. Verves Yu. G., Khrokalo L. A. — The faunistic and ecological data on 19 species of *Macronychia* based on 269 specimens and literature are given. *Macronychia dolini* Verves et Khrokalo, sp. n., *M. substriginervis* Verves et Khrokalo, sp. n., *M. richterae* Verves et Khrokalo, sp. n. and *M. xuei* Verves et Khrokalo, sp. n. are described. The monotypic subgenus *Thomaspapeia* Verves et Khrokalo, subgen. n. is established for *Macronychia malayana* Kurahashi et Pape. The original key to all species is provided.

Key words: Diptera, Sarcophagidae, *Macronychia*, review, new taxa, world fauna, ecology.

Introduction

Macronychiinae, according to B. B. Rohdendorf (Родендорф, 1967), is the most plesiomorphic group of sarcophagids. About 20 species of a single genus, *Macronychia*, are known from almost all biogeographical regions, except the Australasian/Oceanian and Madagascan Region. Four special reviews of this subfamily were published by H. Kurahashi (1972), H. Kurahashi, T. Pape (1996) and Yu. Verves (1982 b, 1983). The present paper is the complete revision of all the original and known from literature faunistic and ecological data on this subfamily and includes the first key to all the species of *Macronychia* of the World, with descriptions of 4 new species. 269 specimens of *Macronyhchia* are partly collected by Yu. G. Verves, and partly have been studied in collections of such foundations (in brackets the abbreviations of names of foundations in the present article are given): the Natural History Museum, London, United Kingdom (BMNH); Hungarian National Museum, Budapest, Hungary (HNM); Schmalhausen Institute of Zoology, Kyiv, Ukraine (SIZK); National Museum, Brazilian Academy of Sciences, Rio de Janeiro, Brazil (MNB); Masaryk University, Department of Zoology and Ecology, Brno, Czech Republic (MU); private collection of Yu. Verves, Kyiv, Ukraine (PCV); Staatliches Museum zur Naturkunde, Stuttgart, Germany (SMNS); Tel Aviv University, Tel Aviv, Israel (TAU); National Museum, Smithsonian Institution, Washington, D. C., USA (USNM); Zoological Institute, St. Petersburg, Russia (ZISP); Zoological Museum of the Lomonosov University, Moscow, Russia (ZMUM). New records for local fauna are marked by asterisk (*).

Subfamily Macronychiinae Brauer et Bergenstamm, 1889

Brauer, Bergenstamm, 1889: 76; Rohdendorf, 1967: 73; Verves, 1982 b: 235; Fan, 1992: 583; Povolný, Verves, 1997: 53.

Grey colored, usually medium sized (body length 7—10 mm), sometimes small (to 4 mm) or large (to 13 mm) flies. Sexual dimorphism slight. Frons protruding, parafacial plates broad, setulose; gena high. Head in profile at level of vibrissae distinctly shorter than at lunula. Proepisternum bare. Flagellomere 1.1—2.2 times as long as pedicel, arista almost bare, microscopically pubescent, thickened in basal 0.4—0.7. Vibrissa well-developed and situated high above lower head margin. Thorax with several dark broad vittae on dorsum. Hind spiracle non-operculate, without lappets, with hairs along circular rim very short ventrally and in form of long bristles anteriorly and posteriorly. Hind coxa bare; t_2 with 2 ad. Claws and pulvilli of both sexes strong and elongate. Wing hyaline or sometimes partly fuscous, cell r_{4+5} open at the wing margin; vein r_1 bare. Abdomen grey pollinose, with 3 more or less developed triangular elongate dark spots on each tergite, sometimes these spots indistinct or absent. Male postabdomen: 6^{th} tergite well-developed, with marginal bristles; epiphallus usually present, sometimes absent; distiphallus and basiphallus fast united; dorsolateral and medial processes of paraphallus absent; dorsal protuberance of distiphallus more or less distinct, with spines; acrophallus short. In females, 10^{th} abdominal tergite smaller, 8^{th} tergite in some species (subgenus *Macronychia* s. str.) modified into elongate spine-shaped ovipositor.

The only genus *Macronychia* belongs to this subfamily.

Genus *Macronychia* Rondani, 1859

Rondani, 1859: 229; Bezzi, 1907: 319; Séguy, 1941: 323; Downes, 1965: 936; Parker, Bohart, 1966: 93; Rohdendorf, 1970: 631; Kurahashi, 1972: 173; Peckham, 1977: 823; Mihályi, 1979 b: 60; Verves, 1982 b: 235; 1983: 345; 1986: 59; Pape, 1987: 78; 1996: 94; Spofford et al., 1989: 256; Fan, 1992: 583; Kurahashi, Pape, 1996: 271.

Type species: *Macronychia agrestis*: Rondani, 1859 (misidentification: not *Tachina agrestis* Fallén, 1810), [= *Xysta striginervis* Zetterstedt, 1844], by monotypy.

Theone Robineau-Desvoidy, 1863: 401 [Coleoptera: Chrysomelidae]. Type species: *Theone trifaria* Robineau-Desvoidy, 1863 [= *Tachina polyodon* Meigen, 1824], by designation of Townsend, 1916: 9. Unavailable (junior homonym of *Theone* Gistl, 1857).

Amobiopsis Townsend, 1915 a: 20. Type species: *Amobia aurata* Coquillett, 1902; by original designation.

Theoniodes Strand, 1917: 92; replacement name for *Theone* Robineau-Desvoidy, 1863.

Itamobia Townsend, 1927: 224. Type species: *Itamobia ornata* Townsend, 1927 [= *Amobiopsis ornata* Townsend, 1915], by original designation.

Nineteen species occur in Holarctic, Oriental, Afrotropical and Neotropical Regions. Larvae usually develop in stem and stalk nests of sphecid and eumenid wasps, rarely in terrestrial nests of sphecids, bumblebees and solitary bees. The information on some Nearctic species of *Macronychia* bred from adult tabanids has not been confirmed (Thompson, 1978 a, b; Thompson, Love, 1979).

Key to the subgenera and species of *Macronychia*

Таблица для определения подродов и видов *Macronychia*

1. Male: cerci very broad and apically truncated (fig. 1, *1, 2*); aedeagus without epipahallus (fig. 1, *3*) (subgenus *Thomaspapeia* subgen. n.). Female unknown. ..... *M.* (*T.*) *malayana* Kurahashi et Pape
− Male: cerci of another form, aedeagus with elongate epipahallus (fig. 2). 2

2. Male: pregonites s-shaped (fig. 2, *1*); apical parts of cerci broad, connected together to apex (fig. 2, *3*). Female: ovipositor terminating in elongate spine-shaped shining black piercer (fig. 3, *1, 2, 4*) (subgenus *Macronychia* s. str.). 3
– Male: pregonites hook-shaped (fig. 2, *2*); apical parts of cerci distinctly separated, narrow (fig. 2, *5*). Female: ovipositor inconspicuous, retracted (fig. 3, *3, 5*) (subgenus *Moschusa*). 1
3. 5th abdominal tergite and segments of postabdomen of both sexes gold dusted; basicosta black. .... *M.* (s. str.) *aurata* (Townsend)
– 5th abdominal tergite and postabdomen of both sexes grey pollinose. 4
4. Postgena and occiput intermixed with black and yellowish white hairs. 5
– Postgena and occiput covered with black hairs only. 6
5. Wing membrane more or less darkened (fig. 5, *3*), mediomarginal bristles on 1st + 2nd abdominal syntergite more or less distinct. Male cerci hook-shaped (fig. 5, *1*). ..... *M.* (s. str.) *dolini* sp. n.
– Wing membrane hyaline; mediomarginal bristles on 1+2nd abdominal syntergite absent. Male cerci s-shaped (fig. 6, *1*). ..... *M.* (s. str.) *kanoi* Kurahashi
6. Mediomarginal bristles on 1st + 2nd abdominal tergite strong and erect. Basicosta brownish black. .... *M.* (s. str.) *striginervis* (Zetterstedt)
– Mediomarginal bristles on 1st + 2nd abdominal tergite absent or very fine. 7
7. Basicosta brown to black. 8
– Basicosta yellow. 9
8. Mesonotum grey dusted; palpi black. ..... *M.* (s. str.) *substriginervis* sp. n.
– Mesonotum gold pollinose; palpi light brown. ..... *M.* (s. str.) *ornata* (Townsend)
9. Palpi yellow or light brown. ..... *M.* (s. str.) *lemariei* Jacentkovský
– Palpi black. 10
10. Pleura grey dusted. ..... *M.* (s. str.) *lopesi* Verves
– Pleura gold dusted. ..... *M.* (s. str.) *aurifrons* Hall
11. 1st + 2nd abdominal tergite with strong mediomarginal bristles. 12
– 1st + 2nd abdominal tergite without mediomarginal bristles or they very fine. 14
12. Parafacial with 4—6 irregular vertical rows of setae (fig. 4, *2, 5*). 13
– Parafacial with 1—3 irregular vertical rows of setae. ..... *M.* (*Moschusa*) *agrestis* (Fallén)
13. Frons at level of hind ocelli 0.30 of head width or less. ..... *M.* (*Moschusa*) *utahensis* (Smith)
– Frons at level of hind ocelli 0.33 of the head width or more. ..... *M.* (*Moschusa*) *alpestris* Rondani
14. Abdomen entirely grey with narrow median longitudinal dark stripe. 15
– All abdominal tergites with 3 longitudinal black spots. 16
15. Basicosta yellow. ..... *M.* (*Moschusa*) *griseola* (Fallén)
– Basicostal scale brownish black. ..... *M.* (*Moschusa*) *richterae* sp. n.
16. Parafacial 0.37—0.44 of eye height, with 4—6 irregular vertical rows of setae. 17
– Parafacial 0.22—0.35 of eye height, with 1—3 irregular vertical rows of setae (fig. 4, *6*). .... *M.* (*Moschusa*) *polyodon* (Meigen)
17. Parafrontal and parafacial silvery grey dusted. ..... *M.* (*Moschusa*) *xuei* sp. n.
– Parafacial partly or entirely gold pollinose. 18
18. Parafacial with light gold spot (fig. 4, *2*). ..... *M.* (*Moschusa*) *auromaculata* (Townsend)
– Parafacial entirely yellowish gold pollinose. ..... *M.* (*Moschusa*) *confundens* (Townsend)

Subgenus *Thomaspapeia* Verves et Khrokalo, **subgen. n.**

Type species: *Macronychia malayana* Kurahashi et Pape, 1996.

Diagnosis. cerci very broad and apically truncated; aedeagus without epipahallus; pregonites slightly s-shaped, almost straight. A single species from Oriental Region is known.

This subgenus is named in honor of our friend, Danish dipterist Prof. Thomas Pape.

Macronychia* (*Thomaspapeia*) *malayana Kurahashi et Pape, 1996 (fig. 1, *1—5*)

Kurahashi, Pape, 1996: 268.

Distribution. Oriental Region: Malaysia (Pahang).

Subgenus *Macronychia* s. str.

Type species: *Macronychia agrestis*: Rondani, 1859 (misidentification: not *Tachina agrestis* Fallén, 1810) [= *Xysta striginervis* Zetterstedt, 1844], by monotypy.

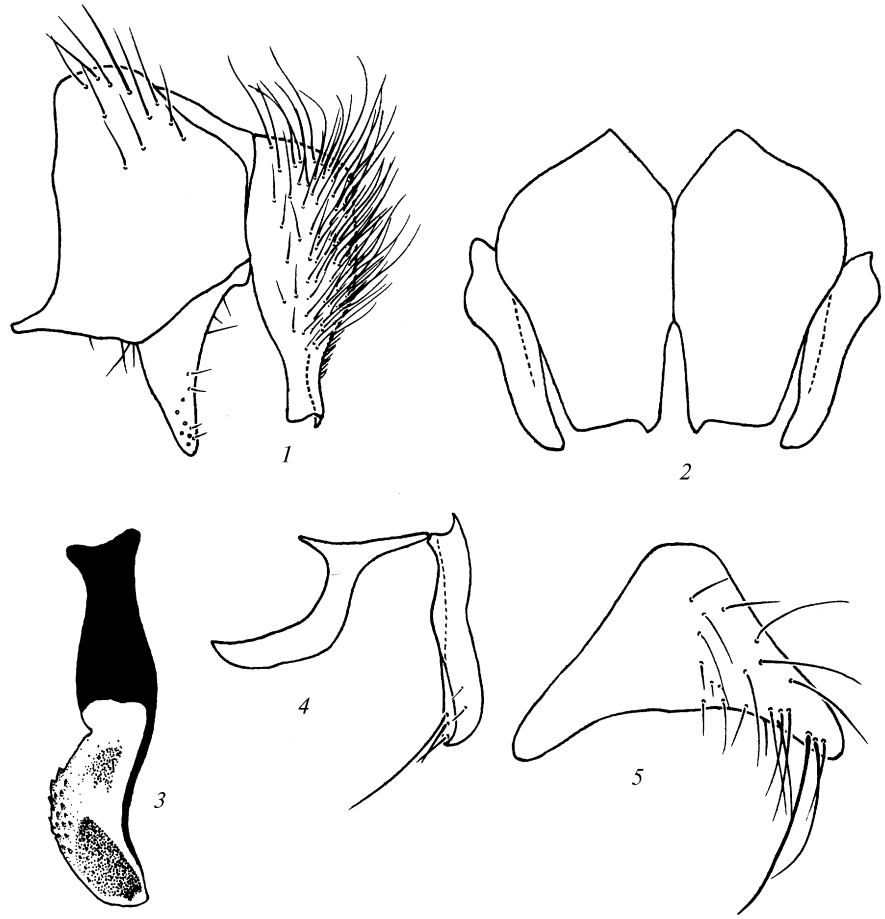

Fig. 1. *Macronychia malayana*, male genitalia (after Kurahashi, Pape, 1996): *1* – epandrium, susrstylus and cercus laterally; *2* – cerci and surstyli, dorsally; *3* – aedeagus, laterally; *4* – gonites, laterally; *5* – 5th sternite, ventrally.

Рис. 1. *Macronychia malayana*, гениталии самца (по: Kurahashi, Pape, 1996): *1* – эпандрий, сурстиль и церка сбоку; *2* – церки и сурстили сверху; *3* – эдеагус сбоку; *4* – гониты сбоку; *5* – 5-й стернит снизу.

Macronychia (**s. str.**) ***aurata*** (Coquillett, 1902) (fig. 2, *1, 3, 4*; 3, *2*)

Coquillett, 1902: 119, *Amobia*; Krombein, 1963: 120; 1964: 73; Downes, 1965: 936; Peckham et al., 1973: 647; Verves, 1983: 346; Spofford et al., 1989: 256; Pape, 1996: 94.

Material. USA: ♂, Connecticut, Canlewood L. K., 30.08.1941 (coll. A. L. Melander); ♂, New York, Chittenango, 5.07.1970; ♀, 9.09.1970 (Peckham); ♀, North Carolina, Smokies, Foney Ridge, 18.07.1941 (coll. A. L. Melander) (USNM).

Distribution. Nearctic Region: Canada (British Columbia, Ontario); USA (California, Connecticut, Florida, Maine, Minnesota, New Jersey, New Hampshire, New York, North Carolina, Oregon, Pennsylvania).

Flies were reared from the nests of sphecid wasps *Oxybelus subcornutus*, *Ectemnius* (*Hypocrabro*) *paucimaculatus* and *E.* (*H.*) *continuus* (Hymenoptera, Crabronidae) in a rotter pear limb. "Presumably the mother fly deposits a larva in the entrance hole during provisioning of the nest. The larva wriggles down to cells and feeds upward or downward on the prey stored for the wasp" (Krombein, 1964).

Macronychia (**s. str.**) ***aurifrons*** Hall, 1937

Hall, 1937: 351; Lopes, 1969: 6, *Itamobia*; Verves, 1983: 348; Pape, 1996: 95.

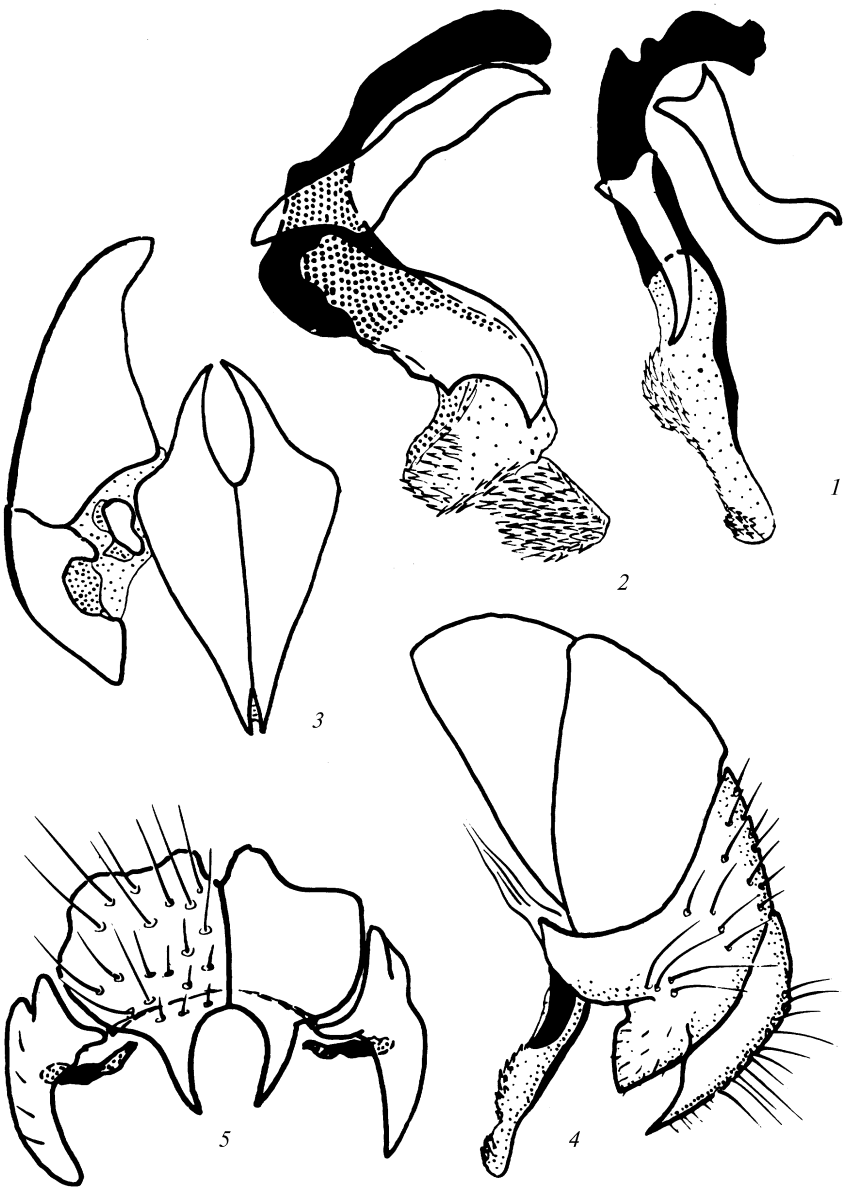

Fig. 2. *Macronychia*, male genitalia (after Verves, 1983): aedeagus and gonites laterally: *1* — *M. aurata*, *2* — *M. utahensis*; cerci and surstyli dorsally: *3* — *M. aurata*, *5* — *M. utahensis*; *4* — postabdomen of *M. aurata* laterally.

Рис. 2. *Macronychia*, гениталии самца (по: Verves, 1983): эдеагус и гониты сбоку: *1* — *M. aurata*, *2* — *M. utahensis*; церки и сурстили сверху: *3* — *M. aurata*, *5* — *M. utahensis*; *4* — постабдомен *M. aurata* laterally.

Distribution. Neotropical: Argentina (Misiones).

We have not seen this species. According to description (Hall, 1937), it allies to *M. ornata* (Townsend), differing by black palpi and silver grey dusted mesonotum.

Macronychia* (s. str.) *dolini Verves et Khrokalo, **sp. n.** (fig. 5, *1—3*)

Macronychia kanoi[1]: [misidentification, not Kurahashi, 1972]: Verves, 1982 a: 546, in part (Russia: Perm Region); 1982 b: 236, in part (Russia: Perm Region); 1986: 59, in part (Russia: Ural); Draber-Mońko, 1991 a: 97 (Poland); Pape, 1996: 95; in part (Croatia, Italy, European Russia, Switzerland); Pape, Merz, 1998: 338 (Switzerland); Verves, 2000: 123 (Ukraine: Dnipropetrovs'k Region).

[1] This species was partly confused with *M. kanoi* occurring in the Far East, in many publications (all European specimens actually belong to *M. dolini*).

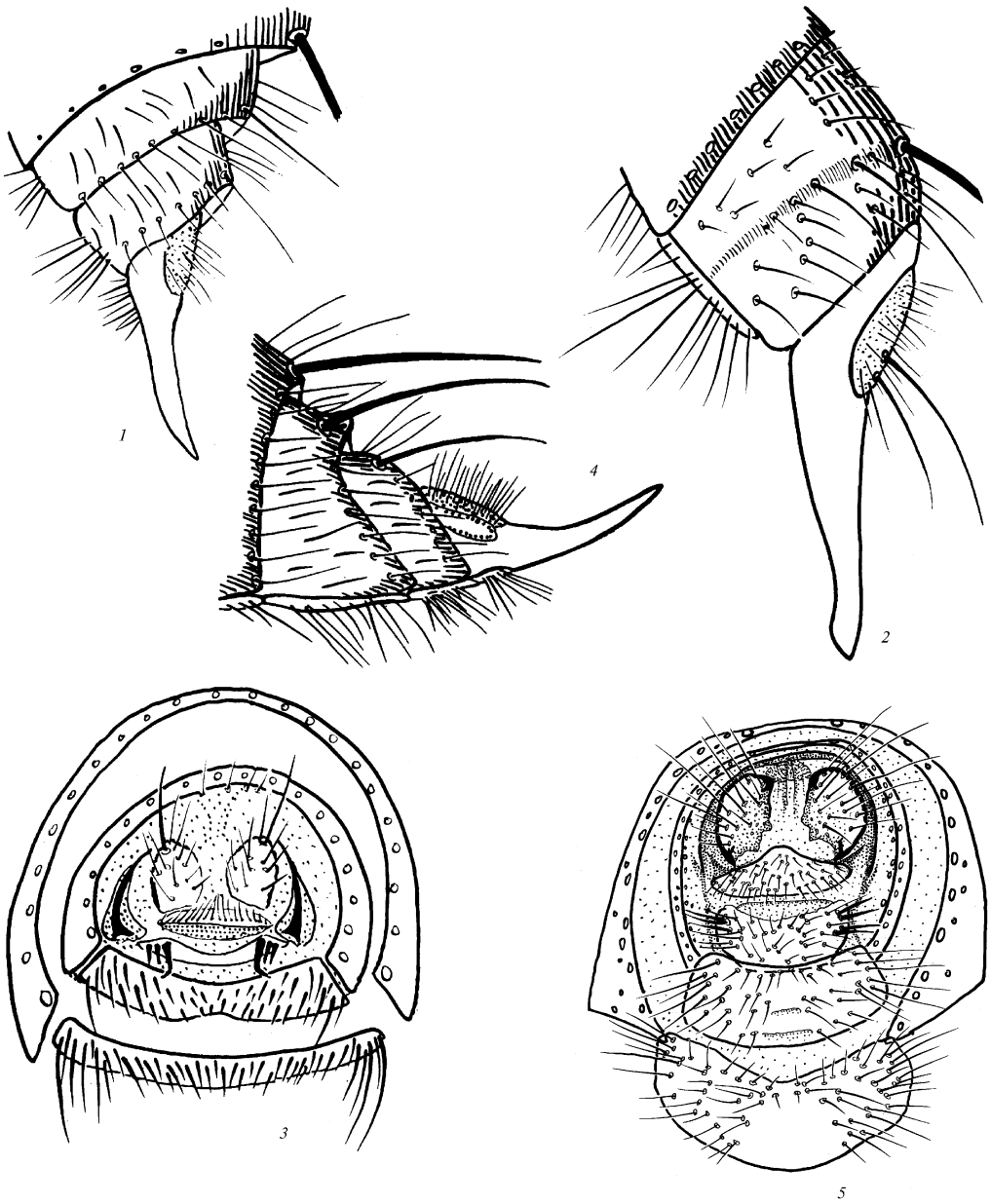

Fig. 3. *Macronychia*, ovipositor (*1—3* — after Verves, 1983; *4* — after Verves, 1980; *5* — after Verves, 1982 b); laterally: *1* — *M. ornata*, 2 — *M. aurata*, *4* — *M. lemariei*; caudally: *3* — *M. utahensis*, *5* — *M. agrestis.*

Рис. 3. *Macronychia*, яйцеклад (*1—3* — по: Verves, 1983; *4* — по: Вервес, 1980; *5* — по: Verves, 1982 b); сбоку: *1* — *M. ornata*, *2* — *M. aurata*, *4* — *M. lemariei*; сзади: *3* — *M. utahensis*, *5* — *M. agrestis.*

Type material. Holotype ♀, Ukraine, Kyiv Region, Brovary District, environs of Rozhny, humid meadow near Desna River, on flowers of *Conium maculatum* L., 18.08.2000 (Verves) (SIZK). Paratypes: Ukraine: ♀, Dnipropetrovs'k Region, Novomoskovs'k District, environs of Andriyivka, 45°15' N 35°00' E, humid meadow, on flowers of *Heracleum* sp., 5.08.2000 (Verves) (PCV); ♂, Ukraine, "Vassiljevka prov. Dnepropet[rovsk] 18—21.VI.1937 (Belanovsky)" and "*Macronychia polyodon* Mg. Belanovsky det. ♂"; Czech Republic: ♂, S Moravia, 7367, Lanžnot-Soutok floodplain forest meadow, 3. Sept. [19]91 (Vanhara) (MU); ♂, Russia, "Molotov [now Perm] Region, environs of Kungur, forestry farm "Preduralye", 28.06.[19]57, on flowers of *Heracleum* sp.; ♂, 5.07.[1]960 (Borisova); ♂, Russia, "Tob.[ol'skaya] gub.[erniya] i u.[ezd], Bron. v.[olost'], d.[erevnya] Serikova" [now Tyumen' District, Tobol'sk Region], 24.07.1907 (Pignatti);

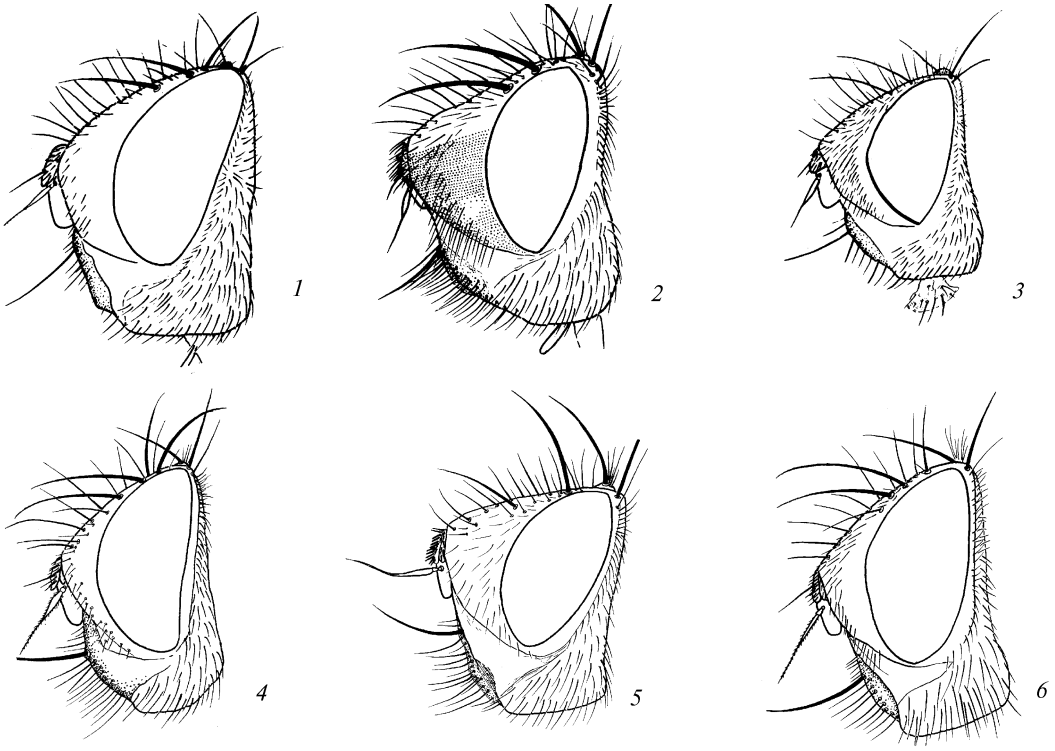

Fig. 4. *Macronychia*, male heads in profile (*1–3* – after Verves, 1983; *4–6* – after Verves, 1982 b): *1* – *M. lopesi*; *2* – *M. auromaculata*; *3* – *M. utahensis*; *4* – *M. striginervis*; *5* – *M. alpestris*; *6* – *M. polyodon*.

Рис. 4. *Macronychia*, головы самцов сбоку (*1–3* – по: Verves, 1983; *4–6* – по: Verves, 1982 b): *1* – *M. lopesi*; *2* – *M. auromaculata*; *3* – *M. utahensis*; *4* – *M. striginervis*; *5* – *M. alpestris*; *6* – *M. polyodon*.

Russia: ♂, Tyva, Eastern Sayan Ridge, tract Karzanak near Mina, 6.07.[1]959 (Grunin) (ZISP); Turkmenistan: ♂, "Transcaspia": Kopet-dag mountains [= Kopet Dagh], Tshulli, 15.05.[19]14 (Hohlbeck) (ZISP).

Distribution. Palaearctic Region: Croatia; Czech Republic (Southern Moravia); Italy; Poland; Russia (European Territory: Perm Region; West Siberia: Tyumen' Region and Tyva); Switzerland; Turkmenistan; Ukraine.

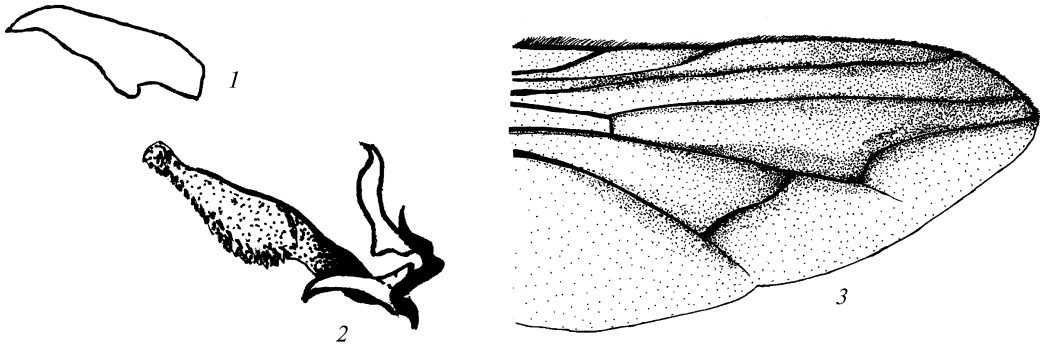

Fig. 5. *Macronychia dolini*: male: *1* – cercus laterally, *2* – aedeagus and golites laterally; female: *3* – apical part of wing.

Рис. 5. *Macronychia dolini*: самец: *1* – церка сбоку, *2* – эдеагус и гониты сбоку; самка: *3* – апикальная часть крыла.

Diagnosis. This species is very similar to *Macronychia* (s. str.) *kanoi* Kurahashi, 1972 by postgena and occiput covered with intermixed black and light hairs, but well differing by partly darkened wings (especially in females), presence of distinct mediomarginal bristles on 2nd tergite, densely greyish white dusted parafacial, and not s-shaped cerci.

Description. Male. Head: frons at level of posterior ocelli 0.31—0.33 times, at level of antennal base — 0.40—0.44 times as wide as head width. Fronto-orbital plate and parafacial densely greyish white dusted, frontal vitta in fore part black, its hind part between the level of upper reclinate orbital setae and orbital triangle densely light brownish-grey pollinose, at level of anterior ocellus 1.1—1.2 times as wide as one of fronto-orbital plates, ratio of the width of anterior to posterior 1 : 1, but narrowing at level of upper reclinate orbital setae. Flagellomere 1.4—1.5 times as long as pedicel, arista almost bare, microscopically pubescent, thickened in basal 0.4—0.5, antenna entirely greyish black; palpus slightly widened at apex, brownish black. Proboscis about 3—4 times as long as high. Parafacial at level of antennal base 0.26—0.32 times, gena 0.33—0.37 times as wide as eye height. One regular row of postocular setae present; outer vertical bristle strong, about 0.5 times as long as inner vertical bristles; ocellar bristles strong and long, directed latero-anteriorly; 2—3 pairs of fine postocellar bristles present; orbital bristles strong, 1 + 2, between proclinate and hind reclinate pairs of them 3—4 erected black hairs; 9—14 pairs of moderately long frontal bristles; fronto-orbitals covered with moderately long erect black setae. Parafacial with 2—3 irregular rows of fine black setae along facial ridge. Face and lunula light silver-grey dusted, genal groove and facial ridge reddish, slightly white pubescent. Vibrissa well developed; subvibrissal setae black, moderately long and relatively strong. Gena grey dusted, covered with black setae, postgena and occiput grey pollinose, intermixed with black and golden white hairs.

Thorax: black, densely light-grey dusted, covered with black hairs; mesonotum with one median broad and two lateral stripes, median stripe subdivided into three narrower stripes near transverse suture; all these stripes slightly shot from black to light-brown colors. Scutellum black, with grey pruinescence on apex. Lateral parts of thorax densely greyish white dusted. acr 0 + 1, dc 2—3 + 3—4, strong; ial 0 + 2—3; prs 1; spal 3—4; h 3—4; ph 2—3; proanepisternum bare; npl 2, in addition to these bristles, notopleural area covered with numerous erected hairs; anepisternum in posterior half covered with moderately long and dense hairs and a row of 6—8 longer and strong posterior bristles; katepisternum with long anterior and posterior bristles (1 + 1), a patch of long erect hairs between them; scutellum with long and strong paired crossed preapical, lateral and basal bristles, apical absent, one pair of discals well developed, much longer than discal hairs. Fore and hind metathoracic spiracles brownish black.

Wing (fig. 5, *3*): hyaline, distinctly obscured in antero-apical part; veins blackish brown; basicosta and tegula black. Costal spine very short, indistinct; cell r_{4+5} open; vein R_1 bare, node of vein R_{4+5} with 1—2 black setae above and below; vein dm-cu slightly curved, almost straight; M rectangular; the ratio of 3rd and 5th costal sections is 1 : 0.8—1.0; the ratio of length of 2nd and 3rd M-sections is 1 : 0.3—0.4. Thoracic squama yellowish white, bare on upper surface. Halteres light brown except for whitish knob.

Legs: claws elongate, slightly curved, as long as 5th tarsomere; fore tibia with 2 p and 2—3 very short spine-liked ad on basal half; mid tibia with 2—3 ad, 2—3 p and 1 v; hind tibia with rows of several fine and 2—3 strong ad and *pd*, and 1 *av*.

Abdomen: narrow, elongate-conic, black, densely light grey dusted, with three elongate triangle black spots on 2—5th tergites; 2rd and 3rd tergites with pair of moderately long mediomarginal bristles; 4th and 5th tergites with rows of marginal bristles. Each of 2d—4th sternites covered with long erect hairs.

Genitalia: small, not prominent, 6th tergite, 7th + 8th syntergosternite and epandrium black, distinctly grey dusted, with row of mediomarginal bristles. Cerci in profile hook-like, not s-shaped (fig. 5, *1*). Gonites and aedeagus typical for subgenus *Macronychia* s. str. (fig. 5, *2*).

Female. Very similar to male, but dark spots on abdomen more distinct, and wing more intensively darkened. Frons at level of posterior ocelli 0.33—0.35 times as wide as head. Terminalia modified into straight spine-shaped shining black ovipositor.

Length: Male 11.0—12.0 mm, female 9.0—11.5 mm, including ovipositor.

Etymology. Species is named in memory of the eminent Ukrainian entomologist, Professor Vladimir G. Dolin.

Macronychia* (s. str.) *kanoi Kurahashi, 1972 (fig. 6, *1—4*)

Kurahashi, 1972: 174; Artamonov, 1980: 32; Verves, 1982 a: 546, in part; 1982 b: 236, in part; 1986: 59, in part; Artamonov, 1993: 223; Pape, 1996: 95, in part.

Material. Russia: ♀, Krasnoyarskiy Kray, Ubey-Biryusa, 4.07.[18]97 (Wagner); ♂, Khabarovskiy Kray, environs of Pivan', 31.07.[19]76 (Bodrova) (ZISP); ♂, Southern Sakhalin, Anivsk Aniva District, Novoaleksandrovsk, larvae in decomposing woodreared in January-February 1987 (M. Nesterov) (SIZK).

Distribution. Palaearctic Region: Japan (Honshu); Russia (East Siberia: Krasnoyarskiy Kray*; Far East: Amur Region, Khabarovskiy Kray, Primorye, Sakhalin*). Oriental Region: Japan (Ryukyu Is.).

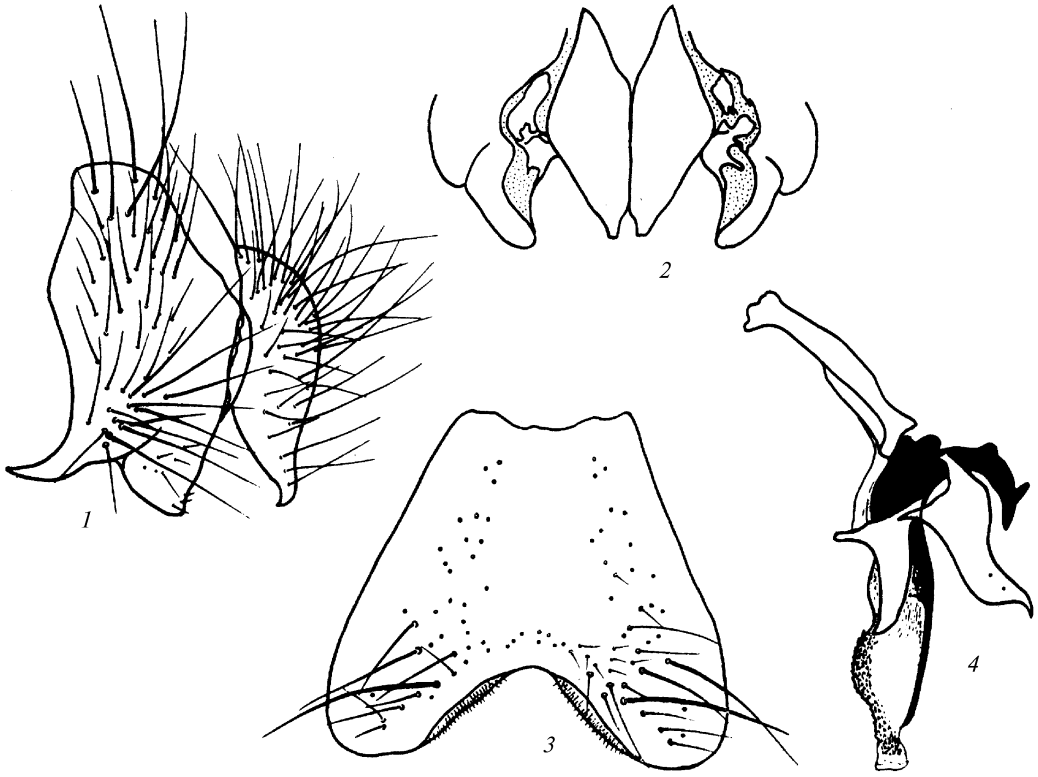

Fig. 6. *Macronychia kanoi*, male genitalia (after Kurahashi, 1972): *1* — susrstylus and cercus laterally; *2* — cerci and surstyli dorsally; *3* — 5th sternite ventrally; *4* — aedeagus and gonites laterally.

Рис. 6. *Macronychia kanoi*, гениталии самца (по: Kurahashi, 1972): *1* — сурстиль и церка сбоку; *2* — церки и сурстили сверху; *3* — 5-й стернит снизу; *4* — эдеагус и гониты сбоку.

Macronychia (s. str.) *lemariei* Jacentkovský, 1941 (fig. 3, *4*; 7, *1*)

Jacentkovský, 1941: 4, 9; Verves, 1980: 920; 1982 a: 546; 1982 b: 237; 1986: 59; Fan, Pape, 1996: 239; Pape, 1996: 95; Povolný, 1997: 98; Povolný, Verves, 1997: 55; Verves, 2000: 123.
vervesi Mihályi, 1979 a: 160; 1979 b: 61; Papp, 2001: 427.
sinerea Chao, Zhang, 1988: 280, *Senotainia* (*Sphixapata*); Fan, 1992: 587, *Senotainia* (*Sphixapata*).

Material. Israel: ♀, Rehoboth bei Jaffa, 1.07.1931 (Aharoni) (SMNS); ♂, Mt. Hermon, 1650 m a. s. l., 9.06.1975 (Freidberg); ♂, Beit Dajan, 1.09.1976 (Nitzan); ♂, Tel Aviv, 13.06.1971 (Kugler); ♀, Ein-Feshkha, 15.02.1977 (Kaplan); ♀, N. Amud, 6,10.1974 (Freidberg); ♀, 30.09.1975 (Kaplan); ♂, Ramat, 13.05.1945 (collector unknown); ♂, Wadi Faria, 31.05.1973 (Freidberg); ♂, Wadi Ugga, 28.04.1976 (Simon) (TAU); Greece: ♂, Poros I., (Krüper) (ZISP); ♂, Czech Republic, S. Moravia Lanžnot field pathway 6.08.1991 (Rozkošný) (MU); Turkey: 2 ♂, Ankara, Kavaklidere, 8, 12.08.1960, 2700 ft a. s. l.; ♀, 16 km W Kirikkale, 30.06.1960, 2700 ft a. s. l., (Guihard, Harvey) (BMNH); Turkmenistan: ♂, Mary District, forestry, 16.07.1958, on *Medicago sativa* (Charykuliev); Ukraine: 3 ♂, ♀, Dnipropetrovs'k Region, Novomoskovs'k District, environs of Andriyivka, 45°15' N 35°00' E, humid meadow along Samara River, 100—110 m a. s. l., on flowers of *Heracleum* sp., 1, 5.08.2000 (Verves) (PCV).

Distribution. Palaearctic Region: China (Neimenggu); Czech Republic (Moravia); Greece; Hungary; Israel; Slovakia; Turkey (European and Asian Territory); Turkmenistan*; Ukraine; Uzbekistan.

Flying period from June to August; flies prefer humid meadows and feed on flowers of *Heracleum* sp.

Macronychia (s. str.) *lopesi* Verves, 1983 (fig. 4, *1*)

Verves, 1983: 348; Pape, 1996: 95.

Material. Holotype ♂, Brazil, Rio de Janeiro, Jacarepaguá, 8.08.1934 (Lopes, Proença) (MNB).

Distribution. Neotropical Region: Brazil (Rio de Janeiro).

Macronychia (s. str.) *ornata* (Townsend, 1917) (fig. 3, *1*)

Townsend, 1917: 221; Verves, 1983: 348; Pape, 1996: 95;
ornata Townsend, 1927: 224, *Itamobia* [junior secondary homonym of *Amobiopsis ornata* Townsend, 1917]; 1935: 214, *Itamobia*; Lopes, 1936: 851, *Itamobia*; 1969: 6; Verves, 1983: 348 (as a synonym of *Amobiopsis ornata* Townsend, 1917); Pape, 1996: 95.

Material. Brazil: ♀, Angra dos Reis, Japuhuba, E. do Rio, 09.1931 (Travassos),"*Itamobia ornata* Towns., comparado com paratypo, Det. H. S. Lopes, 5.09.[19]36" (MNB).

Distribution. Neotropical Region: Brazil (Mato Grosso, Rio de Janeiro, São Paulo).

Macronychia (s. str.) *striginervis* (Zetterstedt, 1838) (fig. 4, *4*; 7, *2*)

Zetterstedt, 1838: 633; 1845: 4260. (*Xysta*); Rohdendorf, 1970: 631; Khitzova, 1977: 19; Kolomyietz, 1979: 139; Mihályi, 1979 b: 62; Alekseev, 1980: 385; Artamonov, 1980: 32; Verves, 1982 a: 546; 1982 b: 238; 1986: 59; Artamonov, 1988: 31; Pape, 1987: 83; Verves, 1990: 519; Draber-Mońko, 1991 b: 246; Fan, 1992: 583; Artamonov, 1993: 223; Čepelák, Slamečková, 1996: 135; Fan, Pape, 1996: 239; Pape, 1996: 96; Povolný, 1997: 98; Povolný, Verves, 1997: 55; Pape, Merz, 1998: 338; Verves, 1998: 49; 2000: 123; Pape et al., 2002: 218.
ungulans Pandellé, 1895: 301, *Miltogramma*; Wainwright, 1928: 235; Séguy, 1941: 327; Venturi, 1960: 109; Kurahashi, 1972: 178.

Material. Czech Republic: ♂, S. Moravia, Soutok, Lanžnot meadow, 20.08.1991 (Rozkošný (MU); Hungary: ♂, Bükk hg. Sikfökut, erdó, 8.08.1973 (Bajza-Papp); ♂, Börzsöny hg, Magyarkút, patak-völgy, 6.08.1972, (L. Papp) (PCV); Ukraine: ♀, Dnipropetrovs'k Region, Novomoskovs'k District, environs of Andriyivka, 45°15' N 35°00' E, humid meadow along Samara River, 100—110 m a. s. l., at flowers of *Heracleum* sp., 1,5.08.2000 (Verves) (PCV); 2 ♀, Kharkiv Region, Kuryaszh, 22.06. and 24.07.[18]84 (Jaroszewsky) (ZISP); 3 ♂, 2 ♀, Kyiv, Golosieve forest, banks of pond "Didorovs'kiy", 26.08.1999; ♂, 5.09.1999; 2 ♀, Golosieve District, sandy area near Williams street, 12.08.2002; 5 ♂, 9 ♀, Sovky, coast of pond, humid meadow, 30—31.07.2002; 3 ♂, 5 ♀, 9.08.2002; ♂, 27.08.2004; ♂, Kyiv Region, Myronivka District, environs of Tulyntzy, feather-grass steppe with shrubs, 4.06.2003 (Verves); Russia: ♂, ♀, Moscow Region, envorons of Krasnaya Pakhra, Malinky, from pupae in birch decomposed wood 19, 29.05.1973, exit 7, 16.06.1973 (V. Kovalev) (PCV); ♂, 4 ♀, Molotov [now Perm] Region, environs of Kungur, forestry farm "Preduralye", 20.06.1957, 8, 15 and 17.07.1957, 23.06.1960, meadows on bank of Sylva River, on flowers of

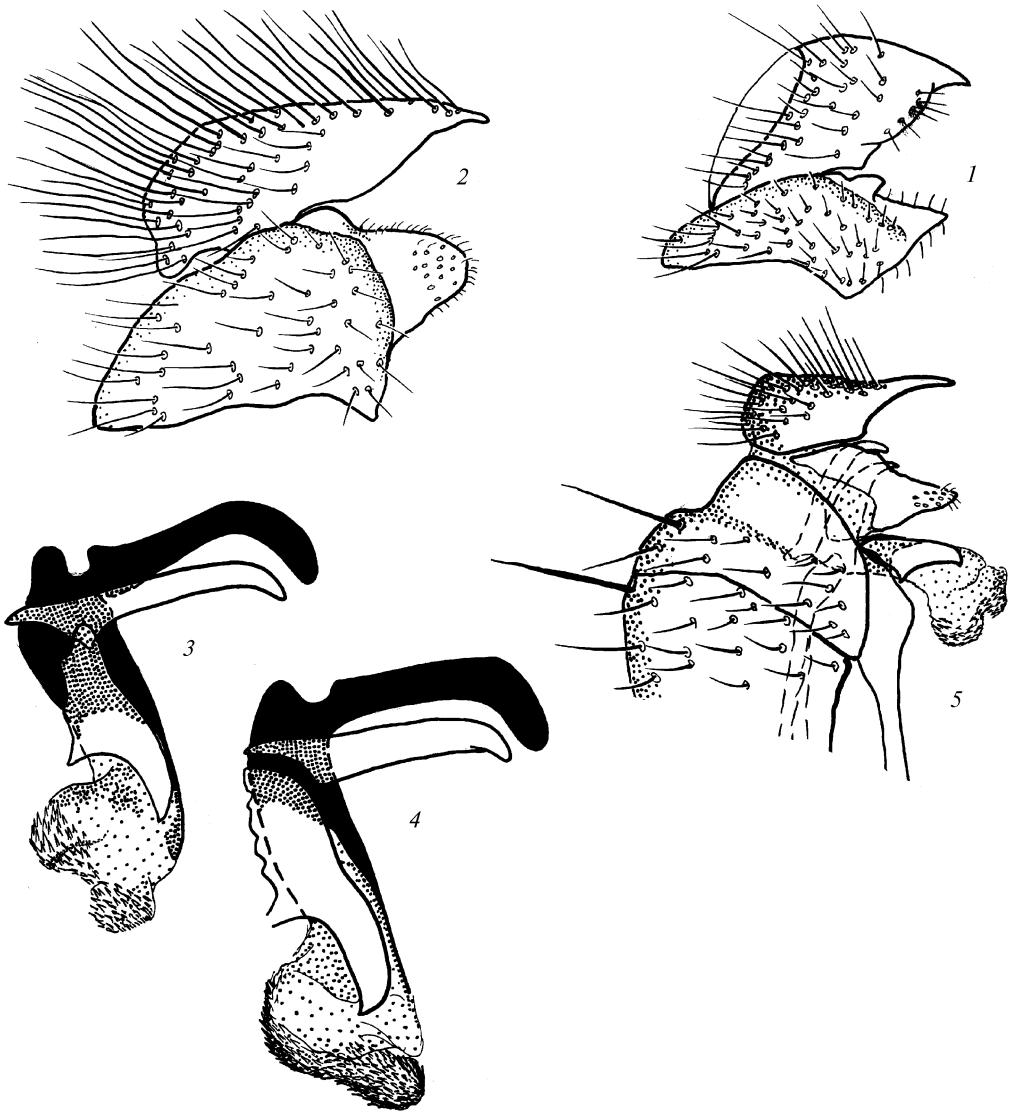

Fig. 7. *Macronychia*, male genitalia (after Verves, 1982 b): surstylus and cercus laterally: *1* — *M. lemariei*, *2* — *M. striginervis*; aedeagus and gonites laterally: *3* — *M. xuei*, *4* — *M. alpestris*; postabdomen laterally: *5* — *M. agrestis.*

Рис. 7. *Macronychia*, гениталии самцов (по: Verves, 1982 b): сурстиль и церка сбоку: *1* — *M. lemariei*, *2* — *M. striginervis*; эедеагус и гониты сбоку: *3* — *M. xuei*, *4* — *M. alpestris*; постабдомен сбоку: *5* — *M. agrestis.*

Heracleum sp. (Borisova); ♂, "Klukhorskiy rayon, Gruzia" [now Karachay-Cherkessia], Teberda, 14.07.[1]939 (Stepanov); ♀, Tyumen' Region, Berdhuzhye, 30.06.[19]63 (G. Veselkin); ♀, Tomsk, 4.07.[19]64 (N. Kolomyietz); ♀, formerly Tomsk government [now Khakassia], environs of Abakan, mouth of Matur River, 30.06.[18]97; ♂, Kyzas River N of Abakan, 29.06.[18]97 (Wagner) (ZISP); ♂, Altay, banks of Teletzkoe lake, 10.06.[19]68 (N. Kolomyietz); 3 ♀, Uymen', 6.07.[19]60 and 5.07.[19]62 (A. Rasnitzyn) (PCV); 2 ♂, ♀, Krasnoyarskiy Kray, S of Taseevo, 30.06.[19]73, 3 and 5.07.[19]73; ♀, Pochet, 10.08.[19]74 (N. Kolomyietz) (ZISP); ♀, Buryatia, Baysa on Vitim River, 26.07.1969 (Sukhacheva) (PCV); ♀, Primorskiy Kray, Pidan Ridge, Khualaza, 3.07.1963 (Narchuk); ♀, Mt Kuklinskaya, 24.06.[19]36; ♂, Mt Morozovskaya, 16.07.[19]36; 2 ♂, 3 ♀, Mt Podnebesnaya, 26—27.06 and 3.07.[19]36; 2 ♀, Sankhobe, 17.07.[19]36, on flowering Apiaceae; ♀, Mt Serebryanaya, 1.08.[19]36 (Grunin) (ZISP); ♂, ♀, Southern Sakhalin, Aniva District, Novoaleksandrovsk, larvae in decomposing wood, coll. summer 1987, exit January-March 1988 (M. Nesterov) (SIZK); ♀, Georgia: Abkhazia: Novyy Afon, 19.07.[19]53 (B. Rohdendorf); ♂, ♀, "Sukhum" [Sukhumi] (collector unknown, probably I. Portschinsky); Azerbaijan: ♂, Geokchay, 4.06.[19]56; ♀,

3.08.1957 (G. Trofimov) ♀, Talysh, Lerik District, Kosmolyan, 8.06.1967 (V. Richter) (ZISP); ♂, environs of Amburder, 31.05.1976 (Dolin) (PCV); Kazakhstan: ♂, Aksu-Dzhabagly Nature Reserve, 11.06.1965 (L. Zimina) (ZMUM).

Distribution. Palaearctic Region: Austria; Azerbaijan; Czech Republic (Moravia); Denmark; Estonia; Finland; France; Germany; Georgia (including Abkhazia); Hungary; Ireland; Italy; Japan (Hokkaido, Honshu); Jordan; Kazakhstan; Moldova; Norway; Poland; Portugal (Madeira); Romania; Russia (European Territory: Karachay-Cherkessia*, Leningrad, Moscow, Perm, Stavropol' and Voronezh Regions; West Siberia: Altay, Khakassia*, Novosibirsk, Tomsk* and Tyumen'* Regions; East Siberia: Buryatia*, Krasnoyarskiy Kray; Far East: Amur Region, Primorye, Sakhalin*); Slovakia; Sweden; Switzerland; Tajikistan; Tibet; Turkmenistan; Ukraine (Cherkasy, Chernigiv, Dnipropetrovs'k, Ivano-Frankivs'k, Kharkiv, Krym Republic, Kyiv, L'viv, Poltava, Rivne, Sumy, Vinnytsya and Zakarpattya Regions); United Kingdom; Uzbekistan; Afrotropical: Kenya; South Africa.

Larvae are inquilines in the nests of sphecid wasps *Ectemnius* [= *Clytochrysus*] *cavifrons*. Flying activity from May to September; flies are common on various flowers, preferring outskirts of forests and meadows, usually hygrophilous. *Creator spissicornis* (Hymenoptera, Megasphilidae) is known as parasite in its puparia.

Macronychia* (s. str.) *substriginervis Verves et Khrokalo, **sp. n.**

Type material. Holotype ♀, Ukraine, Kyiv, Sovky, humid meadow nr pond, 30.07.2002 (Verves) (SIZK); Paratypes, ♀, same label data as in holotype (PCV); ♀, Kyiv, Theophania, humid meadow nr pond, 25.08.1999 (Verves) (PCV); ♂, Dnipropetrovs'k Region, Novomoskovs'k District, environs of Andriyivka, 45°15' N 35°00' E, humid meadows along Samara River, 100—110 m a. s. l., 5.08.2000 (Verves) (SIZK); Russia: ♀, Krasnoyarskiy Kray, Pochet, 5.07.[19]74 (Kolomyietz); Turkmenistan: ♀, source of Ipay-Kala River, 40 km SW of Bakharden, 1500 m a. s. l., 29.06.[1]972 (Narchuk); Uzbekistan: ♀, Aman-Kutan, 21.06.[19]38 (N. Fursov) (ZISP).

Distribution. Palaearctic Region: Russia (Siberia); Turkmenistan; Ukraine; Uzbekistan.

Diagnosis. This species fits near *Macronychia* (s. str.) *striginervis* (Zetterstedt, 1844) in postgenae and occiput covered with black hairs, in black basicosta and shape of male genitalia and female ovipositor, but differing by an absence of distinct mediomarginal bristles on 2nd tergite.

Description. Male and female. Head: Frons 0.29—0.30 times as wide as head at level of posterior and 0.35—0.40 at level of antennal base. Fronto-orbital plate and parafacial densely greyish white dusted, frontal vitta greyish black, at level of anterior ocellus 1.3—2.0 times as wide as fronto-orbital plate, as wide at anterior margin as at posterior. Flagellomere 1.2—1.4 times as long as pedicel, arista almost bare, microscopically pubescent, thickened in basal 0.5, antenna entirely greyish black; palpi slightly widened at apex, brownish black. Proboscis about 3—4 times as long as high. Parafacial at level of antennal base equals 0.26—0.28x, genae 0.31—0.38x of eye-height. One regular row of postocular setae presents; outer vertical bristles strong, about 0.4—0.5 times as long as inner vertical bristles; ocellar bristles strong and long, directed latero-anteriorly; one pair of distinct postocellar bristles present; orbital bristles strong, 1 + 2—3; 8—14 pairs of moderately long frontal bristles present; fronto-orbitals covered with moderately long erect black setae. Parafacial with 2—4 irregural rows of fine black setae along facial ridge. Face and lunula light silver-grey dusted, genal groove and facial ridge reddish, slightly white pubescent. Vibrissa well-developed; subvibrissal setae black, moderately long and relatively strong. Genae, postgenae and occiput silver grey dusted, covered with black setae.

Thorax: black, densely light-grey dusted, covered with black hairs; mesonotum with a single broad median and two lateral stripes (transiting from black at anterior margin to light-brown in posterior half), median stripe subdivided into three narrower ones near transverse suture. Scutellum black, with grey pruinescence on apex. Lateral

parts of thorax densely greyish white dusted. acr 2—3 + 2—3 (usually only one prescutellar pair strong and distinct, the others ones short and hair-liked), dc 2—3 + 3, strong; ial 0 + 3—4; prs 1; spal 3—4; h 3—4; ph 2—3; proanepisternum bare; npl 2, in addition to those bristles the notopleural area covered with a single erect seta in male and 3—6 similar hairs in females; anepisternum in hind half covered with moderately long and dense hairs and a row of 6—8 more long and strong posterior bristles; katepisternum with long anterior and posterior bristles (1 + 1), a patch of long erect hairs present between them; scutellum with long and strong paired crossed preapical, lateral and basal bristles, apical ones absent, one pair of discals well-developed, much longer than discal hairs. Fore and hind metathoracic spiracles brownish black.

Wing: hyaline, not obscured; veins blackish brown; basicosta and tegula brownish black. Costal spine very short, indistinct; cell r_{4+5} open; vein R_1 bare, node of vein R_{4+5} with 1—2 black setae above and below; vein dm-cu distinctly s-formed curved; M rectangular; ratio of 3rd and 5th costal section lengths 1 : 0.9—1.1; ratio of 2nd and 3rd M section lengths 1 : 0.4—0.5. Thoracic squama yellowish white, bare on upper surface. Halter light brown except for whitish knob.

Legs: claws elongate, slightly curved, as long as 5th tarsomere; fore tibia with 2 p and 2—3 very short spine-liked ad on basal half; mid tibia with 2 ad, 2 p and 1 v; hind tibia with rows of several fine and 2—4 strong ad and pd, and 1 av.

Abdomen: narrow, elongate-conic, black, densely light grey dusted, with three elongate triangle black spots on 2—5th tergites; 2rd tergite without mediomarginals or those bristles hair-liked, not erect; 3rd tergite with a pair of moderately long mediomarginal bristles; 4th and 5th tergites with rows of marginal bristles. Each of 2—4th sternites covered with long erect hairs.

Male genitalia and ovipositor as in *M. striginervis*.

Length: 7.5 mm in male, 7.0—12.5 mm, including the length of ovipositor, in females.

Etymology. The species name is composed of "*striginervis*", the name of closely related species and prefix "*sub*" (latin "near") referring to their similarity.

Subgenus *Moschusa* Robineau-Desvoidy, 1863

Robineau-Desvoidy, 1863: 139; Verves, 1982 b: 240; 1983: 350; 1986: 59; Povolný, Verves, 1997: 56.

Type species: *Tachina polyodon* Meigen, 1824, by original designation.

Theone Robineau-Desvoidy, 1863: 401, as genus (Junior homonym of *Theone* Gistl, 1857; Coleoptera: Chrysomelidae). Type species: *Theone trifaria* Robineau-Desvoidy, 1863 (= *Tachina polyodon* Meigen, 1824), by designation of Townsend, 1916: 9.

Dolichamobia Townsend, 1915 b: 408. Type species: *Dolichamobia auromaculata* Townsend, 1915; by original designation.

Theonioides Strand, 1917: 92, replacement name for *Theone* Robineau-Desvoidy, 1863.

Macronychia* (*Moschusa*) *agrestis (Fallén, 1810) (fig. 3, *5*; 7, *5*)

Fallén, 1810: 270; Séguy, 1941: 324; Venturi, 1960: 109; Rohdendorf, 1970: 631; Mihályi, 1979 b: 63; Verves, 1982 a: 547; 1982 b: 241; 1986: 59; Pape, 1987: 80; Verves, 1990: 520; Draber-Mońko, 1991 b: 246; Pape, 1996: 94; Povolný, 1997: 98; Povolný, Verves, 1997: 56; Pape, Merz, 1998: 338; Verves, 1998: 49; Papp, 2001: 427.

Material. Hungary: ♀, Zalaszántá Tátlka, 15—18.07.1958 (HNM); ♂, Vérteskozma, Fánien-v., 7.07.1961 (F. Mihályi) (PCV); Ukraine, ♂, environs of Kharkiv, 28.06.1887, on flowers *Aegopodium* sp. (Jaroszewsky) (ZISP); ♂, ♀, environs of Kyiv, Theophania, humid meadow near pond, 16.08.2002 (Verves) (PCV); Russia: ♂, Moscow Region, Prioksko-Terrasnyy reserve, 22.06.[19]48, on flowers (Lomakina); ♂, Altay, Koyshanak, 7.07.[19]64 (N. Violovich) (ZISP); ♂, Buryatia, Vitim basin, Dzhidotoy, 12.06.[19]61 (Chernova) (PCV).

Distribution. Palaearctic Region: Austria; Czech Republic; Denmark; Estonia; Finland; France; Germany; Hungary; Norway; Poland; Russia (European Territory; West Siberia: Altay; East Siberia: Buryatia*); Slovakia; Sweden; Ukraine.

Larvae are inquilines in nests of sphecid wasps *Psenulus* sp. Flies are common in hygrophytic forests, especially on outskirts. Flies feed on flowers of *Aegopodium* and *Heracleum*. Flying period in Central Europe in May-Septemder, with peak in July.

Macronychia* (*Moschusa*) *alpestris Rondani, 1865 (fig. 4, *5*; 7, *4*)

Rondani, 1865: 218; Jacentkovský, 1941: 4, 9; Venturi, 1960: 108; Pape, 1987: 80; Verves, 1990: 520; Draber-Mońko, 1991 a: 97; Fan, Pape, 1996: 239; Pape, 1996: 94; Povolný, 1997: 98; Povolný, Verves, 1997: 56; Verves, 1998: 49; Pape, Merz, 1998: 338; Pape et al., 2002: 218.
dumosum Pandellé, 1895: 301, *Miltogramma*; Verves, 1982 a: 547; 1982 b: 242; 1984: 528; 1986: 59; Draber-Mońko, 1991 b: 246.
conica [misidentification: not *Amobia conica* Robineau-Desvoidy, 1830]: Schiner, 1862: 502; Bezzi, 1907: 519; Séguy, 1941: 325; Venturi, 1960: 109; Rohdendorf, 1970: 631; Mihályi, 1979 b: 61; Papp, 2001: 427.

Material. Germany: ♂, Bavaria, Zwieselstein Ötztal, 1450 m a. s. l., 21.07.1953 (Lindner) (SMNS); Hungary: ♀, Bakony – sz. lászly, 30.07.1959 (F. Mihályi (HNM); ♂, "Eger 7" and second label "*Macr. agrestis* Fallén, Kowarz det." (ZISP); Lithuania: ♂, 10.07.[19]01 (Sintenis; coll. Lichtwardt); Ukraine: ♂, environs of Kharkiv, 28.06. [18]87 (Jaroszewsky); Russia: 2 ♂, ♀, Irkutsk Region, Balagansk District, Kharyuzovka, 21.07.1932 (A. Zakhvatkin) (ZISP); Kazakhstan: ♀, East Kazakhstan Region, bank of Karaungur River, 12.06.[19]67 (Pritykina); Tadjikistan, ♂, Shurab, 11.10.1961 (collector unknown) (PCV); 3 ♂, ♀, Gissar Ridge, pass Anzob, 15.07.[1]956 (Grunin); Mongolia: ♂, Ara Khangaiin Aimak, 40 km SSW of Tevshrulekh, 18.06.[1]975 (Narchuk); ♂, Bayan-Ulegey Aimak, bank of Ikh-Dzhargalantyn-gol River, 20 km NW of Bulgan, 6.07.1980 (M. Kozlov) (ZISP); ♂, ♀, Dzavhan Aimak, Choit chunch, 26 km ENE of Telmen Nuur Lake, 2150 m a. s. l., 13.07.1968 (Kaszab) (HNM); ♂, East Aimak, 10 km NE of Khavirga, 21.08.[1]975; 6 ♂, Kobdo Aimak, Ikh-Khavtgyin-Nuru Ridge, Naryin-Bulak spring, 24.07.[1]970. (V. Zaitzev and Narchuk); ♂, Ubur Khangaiin Aimak, Dzhargalant, 20.07.1975 (Narchuk); ♂, China, Gansu ["Gumboldt Ridge, Nan'shan"], Ulan-Bulak, 15.04.[18]94 (Roborowsky and Kozlov) (ZISP).

Distribution. Palaearctic Region: Austria; China (Gansu); Czech Republic; Finland; France; Germany; Hungary; Italy; Kazakhstan; Liechtenstein; Lithuania; Mongolia (Ara Khangaiin, Bayan-Ulegey, Dzavhan, East, Hövsgöl, Kobdo and Ubur Khangaiin* aimaks); Poland; Russia (East Siberia: Buryatia); Slovakia; Spain; Switzerland; Tajikistan; Ukraine (Kyiv and Kharkiv* Regions).

Larvae in nests of wasps: eumenids *Eumenes* sp., *Ancistrocerus* [= *Odynerus*] *parietum*, and vespid *Polistes gallicus*. Flying period in Mid-Europe in June–August. Flies feed on flowering *Petroselinum sativum* and other Apiaceae.

Macronychia* (*Moschusa*) *auromaculata (Townsend, 1915) (fig. 4, *2*)

Townsend, 1915 b: 408, *Dolichamobia*; Lopes, 1969: 6, *Dolichamobia*; Verves, 1983: 348; Pape, 1996: 95.

Material. Chile: ♂, Arica, with second label "*Dolichamobia auromaculata* Townsend Det. H. S. Lopes" (MNB).

Distribution. Neotropical Region: Chile (Arica, Nuble, Tarapacá); Ecuador; Peru.

Macronychia* (*Moschusa*) *confundens (Townsend, 1915)

Townsend, 1915 a: 20; Downes, 1965: 936; O'Hara et al., 2000: 172; Pape, 1996: 95; Spofford, Kurczewski, 1992: 993; Spofford et al., 1989: 256; Verves, 1983: 351.

Material. USA: ♀, Minnesota, University Farm, Ramsey, 15.08.1954, on corn (Warters) (USNM).

Distribution. Nearctic Region: Canada (Alberta, Nova Scotia); USA (Arizona, California, Colorado, Florida, Georgia, Idaho, Michigan, Minnesota, New Hampshire, New York, North Dakota, Oregon, Pennsylvania, South Dakota).

Larvae develop in nests of sphecid wasps *Bembix sayi*, *Crabro advena* and *Oxybelus uniglumis*. Flying period in June–August.

Macronychia* (*Moschusa*) *griseola (Fallén, 1820)

griseola Fallén, 1820: 10; Draber-Mońko, 1991 b: 246; Fan, 1992: 584; Fan, Pape, 1996: 239; Lin, Chen, 1999: 116; Mihályi, 1979 b: 61; Pape, 1987: 81; 1996: 95; Pape, Merz, 1998: 338; Papp, 2001: 427; Povolný,

Verves, 1997: 57; Rohdendorf, 1970: 631; Séguy, 1941: 325; Venturi, 1960: 109; Verves, 1982 a: 546; 1982 b: 244; 1984: 528; 1986: 60; 1990: 519; 1998: 49; 2000: 123; Wainwright, 1928: 235;
viatica Meigen, 1824: 321, *Tachina*.

Material. Czech Republic: ♀, Moravia, Strachotín, light trap, 1.08.1978 (V. Bělín (MU); Germany: ♀, Siegen, Zocht, bred from nest *Coleocrabro cinxius*[2] in branch of *Rubus* (H. Wolf); ♀, with labels, "Württemberg, v. Roser [collector], 1872—1875", "blonda Z" and "*Macronychia griseola* Fall., Villeneuve det."; ♂, [Germany ?] labelled, "Genthinstein, G", "471" and "*Macronychcia griseola* Fall., Stein det. 1921"; Hungary: ♀, "Ungarn, Flugsandsteppe Sájò, 21.07.[18]95" and second label, "*Macronychcia griseola* Fall., Stein det. 1921"; ♀, "Ungarn, Flugsandsteppe Sájò" (SMNS); Russia: ♀, "Kis-jz-Miklis" and second label, "*Macronychcia griseola* Fall., Stein det. 1921"; ♀, Leningrad Region, Luga District, Fan der Flit, 11.07.1925 (Stackelberg); ♀, Leningrad Region [as "S Petersburg government"], [1]919 (Fridolin; ♂, Orenburg Region, left bank of Ural River, near Verkhnyaya Dneprovka, 21.07.[1]932 (L. Zimin); ♀, Altay territory, Biysk District, Verkh-Katunskoye, 21.06.[1]967 (Litvinchuk); ♂, Irkutsk Region, Balagansk District, Kharyuzovka, 28.07.1932, (Zakhvatkin) (ZISP); Ukraine: ♀, Dnipropetrovs'k Region, Novomoskovs'k District, environs of Andriyivka, 45°15' N 35°00' E, humid meadow, on flowers of *Heracleum* sp., 5.08.2000 (Verves); ♀, Kyiv, Golosieve Distr., yard, on leaves, 19.07.2002 (Verves) (PCV); 8 ♂, 9 ♀, environs of Kyiv, Zhukiv Khutir, mesophitic meadows, on flowers of *Daucus carota* and *Pyrethrum* sp., 1, 15.06, 5, 10, 13.07, 10, 22.08, 13.09.1972 (Verves); ♂, ♀, Poltava Region, Gryakove at River Orchyk, 4.07.[18]97 (Zarudnyy); ♂, Sumy, 18.06.[18]84 (Jaroszevsky); Kazakhstan: ♀, West Kazakhstan, Urda, 22.06.1953, on *Tamarix*, (Rafes); Kyrgyzstan: ♀, Porshnev, 28.07.[19]62, garden (collector unknown); Tajikistan: ♀, West Pamir, bank of Sangou-Dara River, 3000 m a. s. l., 22.08.1962 (Syczevskaya) (ZISP).

Distribution. Palaearctic Region: Austria; Byelorussia; China (Neimenggu); Czech Republic (Moravia); Denmark; Finland; France; Germany; Hungary; Ireland; Kazakhstan (East Kazakstan); Kyrgyzstan; Poland; Russia (European Territory: Leningrad, Orenburg and Voronezh Regions; West Siberia: Altay; East Siberia: Irkutsk Region); Slovakia; Sweden; Switzerland; Tajikistan; Ukraine (Cherkasy, Chernigiv, Dnipropetrovs'k, Ivano-Frankivs'k, Kharkiv, Kirovograd, Krym Republic, Kyiv, L'viv, Poltava, Rivne, Sumy*, Ternopil', Zakarpattya and Zhytomyr Regions); United Kingdom. Oriental Region: Taiwan.

Larvae were recorded from nests of sphecid wasp *Oxybelus* sp. Flying period in mid-Europe from May to September. Flies common mesophitic meadows where they feed on flowers, especially Boraginaceae, Lamiaceae, Euphorbiaceae, Apiaceae and Asteraceae. In mountains on altitudes to 3000 m a. s. l.

Macronychia (*Moschusa*) *polyodon* (Meigen, 1824) (fig. 4, *6*)

Tachina polyodon Meigen, 1824: 302; Schiner, 1862: 502; Wainwright, 1928: 235; Séguy, 1941: 325; Venturi, 1960: 110; Rohdendorf, 1970: 631; Kurahashi, 1972: 176; Khitzova, 1977: 19; Mihályi, 1979 b: 61; Artamonov, 1980: 32; Verves, 1982 a: 547; 1982 b: 246; 1984: 528; 1986: 60; 1990: 520; Pape, 1987: 83; Draber-Mońko, 1991 b: 246; Fan, 1992: 584; Artamonov, 1993: 223; Fan, Pape, 1996: 239; Pape, 1996: 96; Adema, 1997: 103; Povolný, 1997: 98; Povolný, Verves, 1997: 57; Pape, Merz, 1998: 338; Verves, 1998: 49; Chandler et al., 2000: 18; Papp, 2001: 427; Pape et al., 2002: 218; Verves, 2003: 44.
trifaria Robineau-Devoidy, 1863: 402, *Theone*.
villana Robineau-Devoidy, 1863: 402, *Theone*.
sylvestris Rondani, 1865: 218, *Macronichia*.

Material. Switzerland: ♂, Tessin, Gordola, 8.08.[19]69 (collector unknown) (PCV); Germany: ♂, Wolfratshaus, Hütte, Lecht. A, 14.07.[19]31 (Lindner), and second label, "*Macronychia dumosa* Pand., Villeneuve det." (SMNS); Czech Republic: ♂, N Moravia, Klokoćov, Vitkov forest edge, 20.07.1991, coll. R. Rozkošný (MU); ♂, Hungary, Asch, 19.07.1875, N 570 and second label, "*Macr. agrestis* Fallén Kowarz det."; ♂, Sajò (collector unknown) (ZISP); ♀, Vácrátót, 30.07.1959, coll. Lipthay; ♂, Fácánkert, 23.06.1965, fénycsapda, (Mihályi) (HNM); Russia: 2 ♂, 3 ♀, Leningrad Region, Luga District, Yashchera, 17.07.1967 and 18.07.1971 (Stackelberg) (ZISP); ♂, Samara [as "Kuybyshev"], 1957 (collector unknown) (PCV); ♂, Tatarstan, Kazan', 4.06.[18]71, and second label, "*Macr. agrestis* Fall., Kowarz det."; ♂, Volgograd, 12.08.1960 (V. Zaitzev); ♀, "Klukhorskiy rayon, Gruzia" [now Karachay-Cherkessia], Teberda, 20.07.1939 (Stepanov); ♂, Altay, 20 km SE of Onguday, 28.06.1964 (Narchuk) (ZISP); ♂, Altay territory, Biysk, 10.07.1966 (N. Kolomyietz); ♂, Biysk District, Verkh-Katunskoye, 21.06.1967 (Litvinchuk) (ZISP); 2 ♂, ♀, Chita, 5.07.1977, 26—29.06.1983 (Zherikhin and D. Szerbakov) (PCV); ♂, Sakhalin, Yuzhno-Sakhalinsk, 19.07.1956 (Violovich) (ZISP); Ukraine: ♀, Cherkasy Region, environs of Cherkasy, 2.05.1988 (Zrazhewsky) (SIZK); ♂, Kaniv Reserve, 7.06.2003, shrubs near pond; ♂, Smila District, Zalevky,

[2] This sphecid species is recorded for the first time as the host of *M. griseola*.

27.06.1960, on leaves of elm (Rogocha); ♂, Chernivtzi Region, Vyzhnytzya District, 1 km S of Lopushnya, humid meadow near River, 600 m a. s. l., 21.07.2000 (Verves) (PCV); ♀, "Crymea" (Portschinsky) (ZISP); ♂, ♀, 6 km SW of Alushta, 26.07.1975, bushes, 200 m a. s. l. (Verves); 2 ♂, Kyiv, Golosieve forest, banks of pond "Didorovs'kiy", 26.08.1999 and 11.07.2002; ♀, Sovky, coast of pond, humid meadow, 30—31.07.2002; ♀, Golosieve District, Vasylkivs'ka street 98, yard, on leaves, 17.06.2002; 16 ♀, 4—22.07.2002 (Verves) (PCV); ♀, Golosieve District, 15.07.[19]31; ♀, Kyiv Region, Bilychy, 18.08.1932; ♂, Fastiv, 29.07.[19]25, (Belanovskiy) (SIZK); ♀, Kharkiv Region, Kuryazh, 14.08.1884 (Jaroszewsky) (ZISP); ♀, Ternopil' Region [as "Volyn' government"], Krasne (V. Karavaev); 2 ♂, Zhytomyr Region [as "Kyiv government"], Korostyshiv, 21.06.1905 (Wagner) (SIZK); Israel: ♂, "Palestine", Judean Highlands, 15.07.[19]30 (collector unknown) (BMNH); Tajikistan: ♀, Garm District, environs of Karaylyabiob, 4.07.1947 (Syczewskaya); 2 ♀, Varzob, Kondara, 1100 m a. s. l., 14.08.1937 and 14.09.1938 (Gussakovsky); ♀, Kukhinal 60 km S of Khorog, 2500 m a. s. l., 18.07.1964 (V. Zaitzev) (ZISP).

Distribution. Palaearctic Region: Andorra; Austria; Belgium; Bulgaria; China (Beijing, Neimenggu); Croatia; Cyprus; Czech Republic; Estonia; Finland; France; Germany; Hungary; Ireland; Israel; Italy; Japan (Hokkaido, Honshu); Malta; Moldova; Mongolia (South Gobi Aimak); Morocco; Netherlands; Norway; Poland; Russia (European Territory: Leningrad, Moscow, Samara, Stavropol', Tatarstan, Volgograd and Voronezh Regions; West Siberia: Altay, Novosibirsk and Tomsk Regions; East Siberia: Chita Region; Far East: Amur Region, Khabarovskiy Kray, Primorye, Sakhalin); Serbia; Slovakia; Sweden; Switzerland; Tajikistan; Ukraine; United Kingdom.

Larvae feed as inquilines in nests of sphecid wasps *Cenomus* sp., *Clytochrysis chrysostomus*, *Coleocrabro cinxius*, *Crossocerus elongatulus*, *Ectemnius rubicola*, *Lestica lapidarius*, *Oxybelus* sp., *Pemphredon* sp., *Solenius larvatus*, bumblebees *Bombus hortorum* and *B. terrestris* and were reared also from dead wood. Flies are common on outskirts of mesophytic forests and at scrubs of mountainous region from April to September in mid-Europe. Imago nectarophagous, on flowering Apiaceae (*Aegopodium*, *Heracleum*, *Pastinaca,* etc.), Asteraceae, Euphorbiaceae. The hymenopteran *Dibrachys boucheanus* is known to be a parasite in puparia.

Macronychia* (*Moschusa*) *richterae Verves et Khrokalo, **sp. n.**

Type material. Holotype ♂, Russia, Chita Region, 9 km W of station Urulyunguy, 5.07.[1]975, steppe (V. Richter) (ZISP).

Distribution. Palaearctic Region: Russia (East Siberia: Chita Region).

Diagnosis. This species is similar to *Macronychia* (*Moschusa*) *griseola* (Fallén, 1820) by absence of lateral black spots on abdominal tergites, but well differentiated by black basicosta.

Description. Male. Head: Frons at level of posterior ocelli 0.28 times, at level of antennal base 0.45 as wide as head. Fronto-orbital plate densely dark grey microtrichose, frontal vitta in anterior part brownish red, its posterior part black, sparsely light brownish-grey pollinose, at level of anterior ocellus 2 times as wide as fronto-orbital plate, as wide at anterior as at posterior margin, but narrowed at level of upper reclinate orbital setae. Flagellomere 1.3 times as long as pedicel, arista almost bare, microscopically pubescent, thickened in basal 0.5, flagellomere greyish black, scapus and pedicel brownish black; palpus not widened at apex, brownish black. Proboscis about 3—4 times as long as high. Parafacial reddish, slightly whitish grey microtrichose, at level of antennal base 0.28 times as wide as, gena 0.28—0.29 times as wide as eye high. Three regular rows of postocular setae present; outer vertical bristle strong, about 0.5 times as long as inner vertical bristles; ocellar bristles strong and long, directed lateroanteriorly; 2—3 pairs of fine postocellar bristles present; orbital bristles strong, 1 + 2; 7 pairs of moderately long frontal bristles present; fronto-orbitals covered with dense short black setae. Parafacial with 3 irregular rows of fine black setae along facial ridge. Face and lunula light silver-grey microtrichose, genal groove and facial ridge reddish, slightly white pubescent. Vibrissa well-developed; subvibrissal setae black, moderately

long and relatively strong. Gena grey microtrichose, covered with black setae, postgena and occiput grey pollinose too, with black hairs only.

Thorax: black, densely grey microtrichose, covered with black hairs; mesonotum with 3 median and two lateral stripes; all these stripes black, except median stripe black to light-brown. Scutellum entirely grey microtrichose. Lateral parts of thorax densely grey microtrichose. acr 2—3 + 2, only prescutellar pair long and strong, other short and indistinct; dc 2+3, strong; ial 1 + 3; prs 1; spal 3; h 3; ph 2; proanepisternum bare; npl 2, in addition to those bristles the notopleural area covered with 5—6 fine hairs; anepisternum in posterior half with moderately long and dense hairs and row of 5—7 longer and stronger posterior bristles; katepisternum with long anterior and posterior bristles (1 + 1), patch of long erect hairs between them; scutellum with long and strong paired crossed preapical, lateral and basal bristles, apical ones absent, 3 pairs of discals well-developed, much longer than discal hairs. Fore and hind metathoracic spiracles brownish black.

Wing: hyaline, not obscured, veins blackish brown; basicosta and tegula black. Costal spine very short, indistinct; cell r_{4+5} open; vein R_1 bare, node of vein R_{4+5} with 2—3 black setae above and below; vein dm-cu distinctly s-shaped curved; M rectangular; ratio of 3rd and 5th costal sections 1 : 1; 2nd and 3rd M section length ratio 1 : 0.4. Thoracic squama yellowish white, bare on upper surface. Halter light brown except whitish knob.

Legs: claws elongate, slightly curved, as long as 5th tarsomere; fore tibia with 3 p and 2—3 very short spine-liked ad on basal half; mid tibia with 2 ad, 2 p and 1 v; hind tibia with rows of several fine and 2—3 strong ad and pd, and 1 av.

Abdomen: narrow, elongate-conic, entirely grey with narrow median longitudinal dark stripe and without lateral black spots on 2—5th tergites. 2rd and 3rd tergites without of mediomarginal bristles; 4th and 5th tergites with rows of marginal bristles. Each of 2—4th sternites covered with long erect hairs.

Genitalia: small, not prominent, 6th tergite, 7 th + 8th syntergosternite and epandrium black, distinctly grey microtrichose, with row of mediomarginal bristles. Cerci, gonites and aedeagus are typical for subgenus *Moschusa*.

Female unknown. Length 8.5 mm.

Etymology. This species is named in honor of collector, famous Russian entomologist, Professor Vera A. Richter (Zoological Institute, St. Petersburg).

Macronychia* (*Moschusa*) *utahensis (Smith, 1916) (fig. 2, *2*, *5*; 3, *3*; 4, *3*)

utahensis Smith, 1916: 95 (*Amobia*); Downes, 1965: 936; Pape, 1996: 96.
townsendi Verves, 1983: 353.

Material. Holotype ♂ of *M. townsendi*: USA, Washington State, Mt Rainer, White River, 19.07.1924, on *Heracleum* sp. (coll. A. L. Melander). Paratypes of *M. townsendi*: ♂, 20.07.1924 (coll. A. L. Melander); ♂, Yakima Park, 22.07.1924 (coll. A. L. Melander) (USNM).

Distribution. Nearctic Region: Canada (British Columbia, Yukon Territory); USA (Utah, Washington).

Macronychia* (*Moschusa*) *xuei Verves et Khrokalo, **sp. n.** (fig. 7, *3*)

alpestris[3]: Pape, 1996: 94, in part; Verves, 1990: 520, pro parte (misidentification, not Rondani, 1865).
dumosum: Verves, 1982 a: 547; 1982 b: 242; 1984: 528; 1986: 59, pro parte (misidentification, not Pandellé, 1895).

Type material. Holotype ♂, Russia, Buryatia, left bank of Vitim River near Nakholonda, 14.07.1961 (Chernova) (SIZK). Paratypes: Russia: 2 ♂, Chita Region, Borzya District, environs of Soktuy station, 17 and 19.08.1958; ♂, environs of Sharasun, 12.08.1958 (Grunin) (ZISP); Mongolia: ♂, Bayan-Ulegey Aimak, bank of Ikh-Dzhargalantyn-gol River, 20 km NW of Bulgan, 4—6.07.1980 (Kerzhner) (ZISP); ♂, Central Aimak, Ulaan chodag, 16 km S von Somon Öngorschireet, 1500 m a. s. l., 24.07.1966 (Kaszab) (PCV); ♀, Dzavhan Aimak, Choit chunch, 26 km ONO von See Telmen Nuur, 2150 m a. s. l., 13.07.1968 (Kaszab

[3] This species was partly confused with *alpestirs* occuring in Western Palaearctic.

(HNM); ♀, East Aimak, bank of Numergin-gol River, 32 km SE of Mt Salkhit, 6.08.1976, coll. M. Kozlov; ♀, Selenga Aimak, banks of Ero-gol River, environs of somon Dulan-Khan, 4.07.1975, steppe, (Sugonyaev) (ZISP); ♀, Uvs Nuur Aimak, 2 km O von Pass Ulaan davaa, zw. See Örog nuur und Ulaangom, 1950 m a. s. l., 6.07.1968; ♀, am Fluss Changilcagijn-gol, 6 km SW von Somon Baruunturuun, 1350 m a. s. l., 4.06.1968 (Kaszab) (HNM).

Distribution. Palaearctic Region: Mongolia (Bayan-Ulegey, Central, Dzavhan, East, Selenga and Uvs Nuur aimaks); Russia (East Siberia: Buryatia and Chita Region).

Diagnosis. Similar to *Macronychia* (*Moschusa*) *alpestris* Rondani, 1865 in very broad parafacial covered with 4—6 irregular rows of moderately long setae, differing by mediomarginal bristles on 2nd abdominal tergite absent or indistinct.

Description. Male. Head: Frons at level of posterior ocelli 0.33—0.36 times, at level of antennal base 0.40—0.45 times as wide as head. Fronto-orbital plate and parafacial densely greyish white microtrichose, frontal vitta entirely black, almost non-pollinose, at level of anterior ocellus 1.2—1.8 times as wide as fronto-orbital plate, at posterior margin 1.0—1.2 times as wide as at anterior margin. Flagellomere 1.3—1.5 times as long as pedicel, arista almost bare, microscopically pubescent, thickened in basal 0.3—0.4, antenna entirely greyish black; palpus slightly widened at apex, brownish black. Proboscis about 3—4 times as long as high. Parafacial at level of antennal base 0.35—0.38 times as wide as, gena 0.36—0.40 times as wide as eye height. 1—2 regular rows of postocular setae present; outer vertical bristle strong, about 0.5 times as long as inner vertical bristle; ocellar bristle strong and long, directed latero-anteriorly; 2—3 pairs of fine postocellar bristles present; orbital bristles strong, 1 + 2—4; 11—15 pairs of moderately long frontal bristles present; fronto-orbital plate covered with moderately long erect black setae. Parafacial with 4—6 irregular rows of fine black setae along facial ridge. Face and lunula grey microtrichose, genal groove and facial ridge reddish, slightly white pubescent. Vibrissa well-developed; subvibrissal setae black, moderately long and relatively strong. Gena grey microtrichose, covered with black setae, postgena and occiput grey pollinose, covered with black hairs.

Thorax: black, densely grey microtrichose, covered with black hairs; mesonotum with a median broad and two lateral stripes, median stripe subdivided into three narrower ones near transverse suture; all these stripes transiting from black at anterior margin to light-brown in posterior half). Scutellum grey microtrichose, with black lateral margins. Lateral parts of thorax densely grey microtrichose. acr 3—4 + 2, dc 2—3 + 3—4, strong; ial 0—1 + 3; prs 1; spal 3—4; h 4—6; ph 1—3; proanepisternum bare; npl 2, in addition to those bristles the notopleural area covered with numerous erect hairs; anepisternum in hind half covered with moderately long and dense hairs and row of 6—8 more long and strong posterior bristles; katepisternum with long anterior and posterior bristles (1 + 1), patch of long erect hairs between them; scutellum with long and strong paired crossed preapical, lateral and basal bristles, apicals absent, one pair of discals well-developed, much longer than discal hairs. Fore and hind metathoracic spiracles brownish black.

Wing: hyaline, distinctly obscured in antero-apical part; veins blackish brown; basicosta and tegula black. Costal spine very short, indistinct; cell r_{4+5} open; vein R_1 bare, node of vein R_{4+5} with 1—2 black setae above and below; vein dm-cu slightly curved, almost straight; M rectangular; 3rd : 5th costal sections ratio: 1 : 1.0—1.2; 2nd and 3rd M section length ratio: 1: 0.2—0.4. Thoracic squama yellowish white, bare on upper surface. Halter light brown except whitish knob.

Legs: claws elongate, slightly curved, as long as 5th tarsomere; fore tibia with 2 p and 2—3 very short spine-like ad on basal half; mid tibia with 2—3 ad, 2—3 p and 1 v; hind tibia with rows of several fine and 2—3 strong ad and pd, and 1 av.

Abdomen: narrow, elongate conic, black, densely light grey microtrichose, with three elongate triangle black spots on 2—5th tergites; 2rd tergite without, or with very fine and short, mediomarginal bristles; 3rd, 4th and 5th tergites with rows of marginal bristles. Each of 2—4th sternites covered with long erect hairs.

Genitalia: small, not prominent, 6th tergite, 7+8th syntergosternite and epandrium black, distinctly grey microtrichose, with row of mediomarginal bristles. Cerci, gonites and aedeagus typical for subgenus *Moschusa*.

Female. Very similar to male, but dark spots on abdomen less distinct. Frontal vitta brownish, distinctly grey pollinose, at level of anterior ocellus as wide as one of the fronto-orbital plates.

Length: Male 9.0—10.5 mm, female 6.0—11.5 mm.

Etymology. This species is named in honor of eminent Chinese dipterist, Dr. Wan-qui Xue (Hsue), Institute of Entomology, University of Shenyang.

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