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Additions and Comments to the Catalogue of Palearctic Diptera (Tabanidae)[1]

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Abstract

A check-list of species of Tabanidae established since publication of the Catalogue of Palaearctic Diptera (CHVALA, 1988) is compiled and recent data related to the taxonomic status of the genera *Heptatoma* MEIGEN, 1803, and *Olsufjeviella* DOLIN & ANDREEVA, 1985, as well as the subgenera *Hybomitra (Sipala)* ENDERLEIN,1923, and *Hybomitra (Mouchaemyia)* OLSUFJEV, 1972, is discussed. Notes on *Tabanus autumnalis brunnescens* SZILADY, 1914, (stat. rev.) are also given. New combinations are *Olsufjeviella caucasica caucasica* (KROBER, 1921) and *Olsufjeviella caucasica graeca* CHVALA, LYNABORG & MOUCHA, 1972.

Zusammenfassung

Eine Checkliste der seit der Publikation vom Catalogue of Palaearctic Diptera (CHVALA, 1988) beschriebenen Arten wird erstellt. Neuere Daten zum taxonomischen Status der Gattungen *Heptatoma* MEIGEN, 1803, und *Olsufjeviella* DOLIN & ANDREEVA, 1985, sowie der Untergattungen *Hybomitra (Sipala)* ENDERLEIN,1923, und *Hybomitra (Mouchaemyia)* OLSUFJEV, 1972, werden diskutiert. Bemerkungen zu *Tabanus autumnalis brunnescens* SZILADY, 1914, (stat. rev.) werden gemacht. Neue Kombinationen sind *Olsufjeviella caucasica caucasica* (KROBER, 1921) und *Olsufjeviella caucasica graeca* CHVALA, LYNABORG & MOUCHA, 1972.

Introduction

Almost twenty years have passed since the publication of the chapter on horse flies in the Catalogue of Palearctic Diptera (CHVALA, 1988). The present paper contains a check-list of species group taxa of tabanids established in the meantime and also comments on some aspects of horse fly taxonomy not reflected in the Catalogue, along with the resurrection of certain taxa sunk into synonymy as a result of the lack of relevant argumentation.

Insect systematics and taxonomy, including that of Diptera, have long ago outgrown the childhood age. Successes in the development of these branches of biology are directly connected to the adherence to generally accepted principles of classification and weight assessment of taxonomic characters used. As the function of a morphological structure ultimately determines its evolutionary differentiation, an appraisal of its functionality is essential for

[1] This paper is dedicated to the memory of my beloved husband, Prof. Vladimir Dolin, whose constant encouragement and assistance has made it possible.

assessing the taxonomic value of the characters expressed. These principles are contained in the classical works of MATVEEV (1947), VAN EMDEN (1957) and HENNIG (1968), but are even today often misunderstood or ignored. Unfortunately, some systematic publications do not reflect these premises, possibly under the pressure of subconscious opinions and prejudices.

A rich potential for the solution of taxonomic problems lies in the use of larval characters. This is especially true for representatives of relatively abundant brachicerous dipteran families with a long larval development.

Materials and methods

More than three decades of experience in research on larval morphology, ecology and taxonomy of the infraorder Tabanomorpha, undertaken parallel to studies on the adult insects, suggest that larval taxonomic characters in this infraorder are more diverse and reliable than those of adult stage. This seems quite logical, as habitat conditions of the larvae are highly diverse, and the duration of premature development significantly exceeds the life-span of the adults. This suggests that there is a higher evolutionary pressure on larval rather than adult morphology. Due to a lack of the data on larval forms the classification of larval characters is still poorly understood.

Nevertheless, if the larval characters of a taxon are known, it would be irresponsible to neglect them in favour of adult characters, both of them being equivalent (V?N EMDEN, 1957). As a result of personal studies on 127 horse fly species of the European part of the former USSR, the Caucasus and Middle Asia, and of an analysis of numerous publications on larval forms, the following classification criteria for larval morphological characters are established. The most reliable generic and subgeneric characters, alone and especially in their various possible combinations, are body shape, number of "pseudopodia", antennal structure, shape of mandible, configuration of the pubescent area on thoracic and abdominal segments, presence of perianal protrusions or appendages, and the character stage of the separation of the perianal *Olsufjeviella caucasica caucasica* (KROBER, 1921) and *Olsufjeviella caucasica graeca* CHVALA, LYNABORG & MOUCHA, 1972.ridge folds.

Taking these significant taxonomic characters of larval morphology into consideration has resulted in changes in status at specific, generic and tribal levels and in the description of four new species from the Caucasus and Central Asia (ANDREEVA, 1990).

Larvae were identified by rearing them to maturity.

CHECK - LIST

Tabanidae

Chrysopsinae

Crysopsini

Silvius MEIGEN, 1820

anchoricallus CHEN, 1982: Acta Zootaxonomica Sinica, 7(2), 193-195. Type locality: China, Liaoning Province, Kuandian County.

oshimaensis HAYAKAWA, TAKAHASI & SUZUKI, 1982: Jap. J. sanit. Zool. 33(3), 227-231. Type locality: Japan, Amami-oshima Island.

Olsufjeviella DOLIN & ANDREEVA, 1985

Zool. Zh., 64(6): 944-949. Type-species: *Silvius latifrons* OLSUFJEV, 1937: Fauna USSR, Dipt., 7(2): 116 and 371 (*Silvius*). Type-locality: "Kaukasus" (Chotchal-dag), Dagestan, USSR. Distr.: Georgia, Azerbaijan, Turkey.

caucasica caucasica (KROBER, 1921) **[new combination]**

caucasica graeca CHVALA, LYNEBORG & MOUCHA, 1972 **[new combination]**

Nemorius RONDANI, 1856

oenderi JEZEK, 1990: Acta ent. Muz. Nat. Pragae, 43. 119-123. Type locality: Turkey, Menemen, Yabanyol.

Chrysops MEIGEN, 1803

violovitshi ZACHAROV, 1990: Rare (uncommon) helminths, ticks and insects, 110-112; Novosibirsk. Type locality: Burjatskaja ASSR, river Chikoj, vil. Dureny.

Tabaninae

Tabanini

Tabanus LINNAEUS, 1758

amamiensis HAYAKAWA, SUZUKI & NAGASHIMA,1981: Jap. J. sanit. Zool. 32(4). 309-313. Type locality: Japan, Amami-oshima Island.

arctus WANG, 1982: Zhongguo Kexueyuan Qingzang Gaoyuan Zonghe Kexue Kaocha Dui. (The series of the Comprehensive Scientific Expedition to the Qinghai-Xizang Plateau). Xizang Kunchong (Insects of Xizang). Vol. 2. Science Press, Peking: 173-194. Type locality: China, Tibet, Qinghai-Xizang Plateau.

atamuradovi DOLIN ET ANDREEVA, 1986: Zool. Zh. 65(6): 940-944. Type locality: Turkmenistan, Tahta-Bazar reg., riv. Murghab. Distr. South-East Turkmenistan.

auratus WANG, 1982: Zhongguo Kexueyuan Qingzang Gaoyuan Zonghe Kexue Kaocha Dui. (The series of the Comprehensive Scientific Expedition to the Qinghai-Xizang Plateau). Xizang Kunchong (Insects of Xizang). Vol. 2. Science Press, Peking: 173-194. Type locality: China, Tibet, Qinghai-Xizang Plateau.

autumnalis brunnescens SZILADY, 1914: Annals hist.-nat. Mus. Nat. Hung., 12: 671. (*Tabanus*) Type locality: "Cyprus, Biskra; Brussa; Amasia; Curvi, Spanien; Constantine". Distr.: Mediterranean – Asiatic desert-steppe subspecies; South Europa, North Africa, Iran, Afghanistan, Middle Asia. **[Stat. rev.]**

axiridis WANG, 1982: Zhongguo Kexueyuan Qingzang Gaoyuan Zonghe Kexue Kaocha Dui. (The series of the Comprehensive Scientific Expedition to the Qinghai-Xizang Plateau). Xizang Kunchong (Insects of Xizang). Vol.2. Science Press, Peking: 173-194. Type locality: China, Tibet, Qinghai-Xizang Plateau.

beneficus WANG, 1982:. Zhongguo Kexueyuan Qingzang Gaoyuan Zonghe Kexue Kaocha Dui. (The series of the Comprehensive Scientific Expedition to the Qinghai-Xizang Plateau). Xizang Kunchong (Insects of Xizang). Vol.2. Science Press, Peking: 173-194. Type locality: China, Tibet, Qinghai-Xizang Plateau.

beshkenticus BARATOV, 1980: Dokl. Acad. Nauk Tadzhik. SSR, 33(10): 609-610 (*Tabanus sabuletorum beshkentica*). Andreeva, 1990: Opredelitel' lichnok slepnei. [Key to the horse fly larvae]: 121-122 (*Tabanus* bona sp.). Distr.: Between South-East Turkmenistan and South-West Tadzhikistan.

bromius flavofemoratus STROBL, 1909: Verh.zool.-bot. Ges. Wien, 8:593 (*Tabanus as var. of bromius*). Type locality:"Escorial (Spain)" .-Distr.: Mediterranean – Asiatic desert-steppe subspecies; South Europe, North Africa, Turkey, Transcaucasus, Middle Asia, Iran, Afghanistan.

dolini IVANISTCHUK, 1986: Parasitologija, 20(4): 310-312. Type locality: Azerbaijan, Bojan, riv. Koshkarchaj.

fulvilineus HAYAKAWA & TAKAHASI, 1983: Jap. J. sanit. Zool. 34(1): 25-31. Distr.: Japan.

gedrosiae ABBASSIAN-LINTZEN, 1961, (*Tabanus ansarii gedrosiae*). Jezek J., 1980: Acta Univ. Carolinae Biol., 1977(5-6), 1980: 317-323.(*Tabanus* bona sp.). Distr.: Iran.

Type-locality [missing?]

karaosus TIMMER, 1984: Ent. Ber., 44(1): 74-79. Type locality: North-Eastern Turkey, locality Trabzon.

khalafi LECLERCQ, 1986: Bull. Ann. Soc. R. Belge Ent., 122: 219-224. Type locality: West-Turkey.

matsuzawai HAYAKAWA & TAKAHASI, 1983: Jap. J. sanit. Zool. 34(1): 25-31. Distr.: Japan.

nigrabdominis WANG, 1982: Zhongguo Kexueyuan Qingzang Gaoyuan Zonghe Kexue Kaocha Dui. (The series of the Comprehensive Scientific Expedition to the Qinghai-Xizang Plateau). Xizang Kunchong (Insects of Xizang). Vol.2. Science Press, Peking: 173-194. Type locality: China, Tibet, Qinghai-Xizang Plateau.

orphnos WANG, 1982: Zhongguo Kexueyuan Qingzang Gaoyuan Zonghe Kexue Kaocha Dui. (The series of the Comprehensive Scientific Expedition to the Qinghai-Xizang Plateau). Xizang Kunchong (Insects of Xizang). Vol.2. Science Press, Peking: 173-194. Type locality: China, Tibet, Qinghai-Xizang Plateau

pazukii JEZEK, 1990: Acta ent. Muz. Nat. Pragae, 43: 119-127. Type locality: "N.E. Iran, Khorassan, Hares-abad"

persimilis DOLIN & ANDREEVA, 1986: Zool. Zh., 65(6): 940-944. Type locality: Georgia, district Bacuriani, 1950 m under sea level. Distr.: Transcaucasus mountians

riyadhae AMOUDI & LECLERCQ, 1988: Journ. Med. Parasitol., 25(5): 399-401. Type locality: "Saudi Arabia"

russatus Wang, 1982: Zhongguo Kexueyuan Qingzang Gaoyuan Zonghe Kexue Kaocha Dui.(The series of the Comprehensive Scientific Expedition to the Qinghai-Xizang Plateau). Xizang Kunchong (Insects of Xizang). V. 2. Science Press, Peking: 173-194. Type locality: China, Tibet, Qinghai-Xizang Plateau.

sarbazensis JEZEK, 1990: Acta ent. Mus. Nat. Pragae, 43: 119-127. Type locality: S.E. Iran, Baluchesstan, Sarbaz river valley.

sordes BOGATCHEV & SAMEDOV, 1949: Izv.Akad.Nauk Azerb. SSR, 5: 66-75. Olsufjev, 1969: Acta ent. Bohemoslov., 66(2): 115-121 (*Tabanus, as ssp. of laetetinctus*). Andreeva,

1990: Opredelitel' lichnok slepnei. [Key to the horse fly larvae.]: 97, (*Tabanus*, bona sp.). Distrib.: Azerbaijan, Nakhichevan Autonomous Republic, Armenia, Georgia.

stabilis WANG, 1982: Zhongguo Kexueyuan Qingzang Gaoyuan Zonghe Kexue Kaocha Dui. (The series of the Comprehensive Scientific Expedition to the Qinghai-Xizang Plateau). Xizang Kunchong (Insects of Xizang). V. 2. Science Press, Peking: 173-194. Type locality: China, Tibet, Qinghai-Xizang Plateau.

subrusscetus WANG, 1982: Zhongguo Kexueyuan Qingzang Gaoyuan Zonghe Kexue Kaocha Dui. (The series of the Comprehensive Scientific Expedition to the Qinghai-Xizang Plateau). Xizang Kunchong (Insects of Xizang). V. 2. Science Press, Peking: 173-194. Type locality: China, Tibet, Qinghai-Xizang Plateau.

taiwanus HAYAKAWA & TAKAHASI, 1983: Jap. J. sanit. Zool. 34(1): 25-31. Distr.: Japan [Not Taiwan?]

terterjani ANDREEVA & DOLIN, 1982: Zool. Zh., 61(1):152-156 (*Tabanus as ssp. of canipalpis*) . Type locality: Armenia, Garni region, Chosrov State Reserve. ANDREEVA, ZEYNALOVA, 2002: Vestn. Zool., 36, 1: 25-27 (Tabanus, bona sp.).-Distr.: Armenia, Nahitchevan Autonomous Republic, Azerbaijan, West Kopet-Dag..

tokaraensis HAYAKAWA & SUZUKI, 1984: Jap. J. sanit. Zool., 35(3): 277-281. Type locality: Japan, Tokara Islands.

tokunoshimaensis HAYAKAWA & SUZUKI, 1984: Jap. J. sanit. Zool., 35(1): 71-75. Type locality: Japan, Tokuno-shima and Amami-oshima Islands.

xanthos WANG, 1982: Zhongguo Kexueyuan Qingzang Gaoyuan Zonghe Kexue Kaocha Dui. (The series of the Comprehensive Scientific Expedition to the Qinghai-Xizang Plateau). Xizang Kunchong (Insects of Xizang). V. 2. Science Press, Peking: 173-194. Type locality: China, Tibet, Qinghai-Xizang Plateau.

yaeyamaensis HAYAKAWA & HASEGAWA, 1981: Jap. J. sanit. Zool., 32(3): 239-242. Type locality: Japan, Yaeyama Islands.

yanbaruensis HAYAKAWA & YONEYAMA, 1983: Jap. J. sanit. Zool., 34(2): 73-75. Type locality: Japan, Okinawa Islands.

yoneyamai HAYAKAWA, 1984: Jap. J. sanit. Zool., 35(4): 357-359. Type locality: Japan, Honshu Island.

zayuensis WANG, 1982: Zhongguo Kexueyuan Qingzang Gaoyuan Zonghe Kexue Kaocha Dui. (The series of the Comprehensive Scientific Expedition to the Qinghai-Xizang Plateau). Xizang Kunchong (Insects of Xizang). V. 2. Science Press, Peking: 173-194. Type locality: China, Tibet, Qinghai-Xizang Plateau.

Atylotys Osten-Sacken, 1876

kakeromaensis HAYAKAWA, TAKAHASI & SUZUKI, 1982: Jap. J. sanit. Zool., 33(4): 345-347. Type locality: Japan, Amami-oshima Islands.

ozensis HAYAKAWA, 1983: Jap. J. sanit. Zool., 34(3): 235-239. Type locality: Japan, Honshu Island.

suzukii HAYAKAWA, 1981: Jap. J. sanit. Zool., 32(2): 105-110. Type locality: Japan, Kyushu, Shikoku and Tsushima Islands.

talyschensis ANDREEVA & ZEYNALOVA, 2002: Vestn. Zool., 36(1): 25-27. Type locality: Azerbaijan, Bilyasuvar region, near village Samedabad.

Hybomitra Enderlein, 1922

branta WANG, 1982: Zhongguo *Kexueyuan* Qingzang Gaoyuan Zonghe Kexue Kaocha Dui. (The series of the Comprehensive Scientific Expedition to the Qinghai-Xizang Plateau). Xizang Kunchong (Insects of Xizang). V. 2. Science Press, Peking: 173-194. Type locality: China, Tibet, Qinghai-Xizang Plateau.

echusa WANG, 1982: Zhongguo *Kexueyuan* Qingzang Gaoyuan Zonghe Kexue Kaocha Dui. (The series of the Comprehensive Scientific Expedition to the Qinghai-Xizang Plateau). Xizang Kunchong (Insects of Xizang). V. 2. Science Press, Peking: 173-194. Type locality: China, Tibet, Qinghai-Xizang Plateau.

fulvotaenia WANG, 1982: Zhongguo *Kexueyuan* Qingzang Gaoyuan Zonghe Kexue Kaocha Dui. (The series of the Comprehensive Scientific Expedition to the Qinghai-Xizang Plateau). Xizang Kunchong (Insects of Xizang). V. 2. Science Press, Peking: 173-194. Type locality: China, Tibet, Qinghai-Xizang Plateau.

lhasaensis WANG, 1982: Zhongguo *Kexueyuan* Qingzang Gaoyuan Zonghe Kexue Kaocha Dui. (The series of the Comprehensive Scientific Expedition to the Qinghai-Xizang Plateau). Xizang Kunchong (Insects of Xizang). V. 2. Science Press, Peking: 173-194. Type locality: China, Tibet, Qinghai-Xizang Plateau.

robiginosa WANG, 1982: Zhongguo *Kexueyuan* Qingzang Gaoyuan Zonghe Kexue Kaocha Dui. (The series of the Comprehensive Scientific Expedition to the Qinghai-Xizang Plateau). Xizang Kunchong (Insects of Xizang). V. 2. Science Press, Peking: 173-194. Type locality: China, Tibet, Qinghai-Xizang Plateau.

rotundabdominis WANG, 1982: Zhongguo *Kexueyuan* Qingzang Gaoyuan Zonghe Kexue Kaocha Dui. (The series of the Comprehensive Scientific Expedition to the Qinghai-Xizang Plateau). Xizang Kunchong (Insects of Xizang). V. 2. Science Press, Peking: 173-194. Type locality: China, Tibet, Qinghai-Xizang Plateau.

takahasii INAOKA & HAYAKAWA, 1982: Jap. J. sanit. Zool., 33(4): 349-353. Type locality: Japan, Hokkaido.

tsushimaensis HAYAKAWA, YONEYAMA & INAOKA, 1980: Jap. J. sanit. Zool., 31(4): 243-247. Type locality: Japan, Tsushima Islands.

tuerkmendagensis KILIC & SCHACHT, 1995: Entomofauna, 16(10): 245-252. Type locality: Turkey, Turkmen Dagi, SW Eskisehir, 1700 m.

zaballosi PORTILLO, 1988: Nouv. Revue Ent., N.S., 5(4): 383-387. Type locality: Peninsula Iberica.

subgenus ***Sipala*** ENDERLEIN, 1923

Dt. ent. Z., 1923: 545. (as genus). Type specius *Tabanus acuminatus* Loew, 1858.

seguyi TROJAN, 1990: Annls. Soc. ent. Fr. (N.S.), 26(3): 427-430. Type locality:Bulgarie, reservation Ropotamo.

subgenus ***Mouchaemyia*** OLSUFJEV, 1972

Ent. Obozr., 51: 450 (as subgenus of *Hybomitra*). Type species: *Tabanus (Terioplectes) caucasi* Szilady, 1923.

Glaucops Szilady, 1923

hakkariensis SCHACHT, 1983: Entomofauna, 4(27): 483-492. Type locality: Turkey, Hakkari Province.

Haematopotini

Haematopota Meigen, 1803

eugeniae PORTILLO & SCHACHT, 1984: Doriana, 6(251): 1-7. Type locality: Peninsula Iberica, Valverde de Leganes, Calzadilla.

mangkamensis WANG, 1982: Zhongguo Kexueyuan Qingzang Gaoyuan Zonghe Kexue Kaocha Dui. (The series of the Comprehensive Scientific Expedition to the Qinghai-Xizang Plateau). Xizang Kunchong (Insects of Xizang). V. 2. Science Press, Peking: 173-194. Type locality: China, Tibet, Qinghai-Xizang Plateau.

nigriantenna WANG, 1982: Zhongguo Kexueyuan Qingzang Gaoyuan Zonghe Kexue Kaocha Dui. (The series of the Comprehensive Scientific Expedition to the Qinghai-Xizang Plateau). Xizang Kunchong (Insects of Xizang). V. 2. Science Press, Peking: 173-194. Type locality: China, Tibet, Qinghai-Xizang Plateau.

pontica OLSUFJEV, 1964: Bull. Mosk, Obshch. Ispyt. Prir., otd. biol., 69(3): 73-76 (*Chrysosona, as ssp. of scutellata*). Type locality: "dolina r. Tchvezhipse (= valley of the river Tchvezhipse, W. Great Caucasus. Andreeva, 1990: Opredelitel' lichnok slepnei. [Key to the horse fly larvae] 161-163 (*Haematopota*, bona sp.). Distr.: Georgia, Armenia, montane part of Transcaucasus.

sumelae TIMMER, 1984: Ent. Ber., 44(1): 74-79. Type locality: "North-Eastern Turkey, locality Trabzon".

Heptatomini TERTERIAN, 1980

Dokl. Acad. Nauk Armjansk. SSR, 71(4): 234-247. Type genus: *Heptatoma* MEIGEN, 1803: Mag. Insectenk., 2: 266. Distr.: from Atlantic coast of northwest France to West Siberia between 44° and 65° North latitude.

Taxonomic comments

Tribe Heptatomini TERTERIAN, 1980

The single species of this tribe, common within its relatively wide Palaearctic range, and also its premature stages have been known for a long time. In spite of essential differences to other species in the tribe, the previous position of this species in the tribe Haematopotini was widely considered so 'obvious' that the erection of the new tribe Heptatomini caused a certain puzzlement and irony in some specialists. This was a classical case in which the similarity of main characters for assigning genera to higher taxonomic taxa, such as the

form of the basicosta, the antennal segmentation and the ocellar tubercle, proved not to be reliable in determining the correct position of *Heptatoma* MEIGEN, 1803.

This monotypic genus was placed in a new tribe by TERTERIAN (1980), based on differences in the structure of the thoracal plates. Later, this nomenclatural change was supported by examination of the larva (ANDREEVA, 1990) and other characters of the adult (TROJAN, 1994). The primitive characters of explicitly plesiomorphic nature in premature forms of *H. pellucens* are in sharp contrast with morphologically uniform larvae and pupae in the representatives of the genus *Haematopota* (table 1).

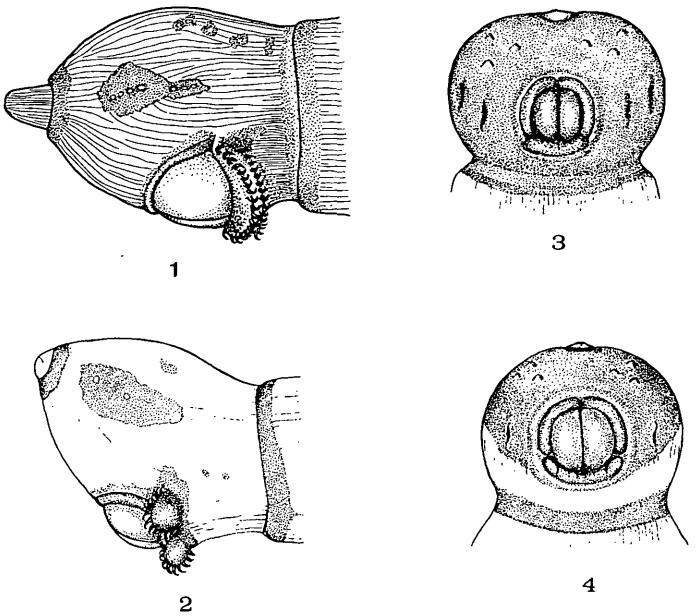
Table1: Main differences in characters of the larval forms of *Heptatoma* and *Haematopota* species.

Characters	***Haematopota***	***Heptatoma***
Body shape	cylindrical	dorso-ventrally flattened
Correlation of the length of the II and III antennal segment	from 2.2 to 3.2 (for 10 species)	1.1
Sclerotized duct of the II antennal segment	divided into two parts	entire
Mandible shape	sabre-like, serrated	thickened, with grooves
Submentum	sclerotized, well-shaped	Flattened, hyaline, not well-shaped
Anal ridges	preanal ridge without appendages, covered with a fine pubescence	preanal ridge bearing a pair of protrusions, all preanal structures with strong bristles
Aster of pupa	All tubercles more or less of equal length, distance between tops of all tubercles of aster more or less equal	the lateral tubercles are nearly three time longer, the tops of dorsal and lateral pairs are directed opposite to the tops of ventral pair (JEZEK, 1971)

Among all representatives of the Tabaninae *H. pellucens* stands alone in having a unique character – the totally bare subcostal vein (J. F. BURGER, 1988,, TROJAN, 1994). All of these characters clearly demonstrate the profound difference between the two genera and thus confirm the very necessary separation of the genus *Heptatoma* in a separate tribe.

Genus *Olsufjeviella* DOLIN & ANDREEVA, 1985

A comparative study of the larval and adult morphological characters of the species *Silvius* (*S.*) *alpinus* SCOPOLI, 1763, *S.* (*Heterosilvius*) *zaitzevi* OLSUFJEV, 1941, *Nemorius caucasicus* OLSUFJEV, 1937, *N. vitripennis* MEIGEN, 1820 and *Olsufjeviella caucasica caucasica* (KRÖBER, 1921) revealed that because of numerous essential differences the last species cannot be included in either *Silvius* (s. str.) MEIGEN, 1820, nor *Nemorius* RONDANI, 1856 (DOLIN & ANDREEVA, 1985).



Figs. 1 – 4: Posterior body segment of tabanid larvae: 1 – *O. c. caucasica* KROBER; 2 – *N. vitripennis* MEIGEN; 3 – *S. (s. str.) alpinus* SCOPOLI; 4 – *S. (H.) zaitzevi* OLSUFJEV

Because of their way of life and, accordingly, their morphological peculiarities, the larvae of the above-mentioned species may be divided into two classes - rheophyls (*N. caucasicus, N.vitripennis, O. caucasica*) and cespitobionts (*S. alpinus, S. (H.) zaitzevi*) (ANDREEVA, 1989). Much more important, however, are the differences in morphological characters. In the species of the first group, the length of the third antennal segment is half or more than half that of the second, and *?. ?. ?aucasica*, in addition, is distinct because of the unusually long second antennal segment, only one pair of ventral pseudopodia, caudal segment elongated, glossy, with small lateral spots of pubescence and conspicuous postanal ridge (Fig.1) or pair of protrusions with large sclerotized hooks (Fig. 2). The length of the third antennal segment in the species of the second group is one-third or less the length of the second antennal segment. Other characters are two pairs of ventral pseudopodia; caudal segment flattened along the longitudinal body axis and more than half of its ventral surface covered with dark pubescence, and the ridge around the anal tubercles clearly divided into three parts, which is an important generic character (Figs. 3, 4).

The separation of the above-mentioned species into two groups according to the larval characters complex completely coincides with differences in adult characters. In the horse flies of the first group the width of the frontal stria exceeds its height and the first antennal segment is elongated (*N. caucasicus, N. vitripennis, N. irritans, O. c. caucasica*). The second group is characterized by a narrow longitudinal frons and short first antennal segment (*S. alpinus, S. (H.) zaitzevi*).

These differences in basic characters, which have supraspecific value, confirm the distinctness of the taxa *Nemorius* and *Olsufjeviella* from *Silvius*. Taking into account the disputed taxonomic status (generic or subgeneric in *Silvius*) of *Nemorius* in preceding years and also the system proposed by OLSUFJEV (1977) and LECKLERC & OLSUFJEV (1981), we transferred *S. latifrons* (synonym of *O. c. caucasica* – see below) to the newly established subgenus *Olsufjeviella* (DOLIN & ANDREEVA, 1985). However, because of the above-mentioned characters and also larval biology, *O. c. caucasica* is closer to the representatives of the genus *Nemorius* than to *Silvius* species. Therefore this species is placed in a separate genus.

Syntype examination (BURGER & PECHUMAN, 1989) of *Corisoneura (=Stonemyia) caucasica* KROBER, 1921, from eastern Turkey revealed it to be conspecific with *Silvius (Silvius) latifrons* OLSUFJEV, 1937, which was at that time referred to the subgenus *Olsufjeviella* (DOLIN & ANDREEVA, 1985). As a result, *Silvius (Silvius) latifrons* OLSUFJEV, 1937, becomes a junior subjective synonym of *Olsufjeviella caucasica* (KRÖBER, 1921).

Subgenus *Sipala* ENDERLEIN 1923

A study of the larvae (including their pubescence structure by SEM) of 26 representatives of the genus *Hybomitra* ENDERLEIN,1922, from different groups revealed that, apart from certain other differences, chaetoid shape in *H.* (*S.*) *acuminata* (LOEW, 1858) is completely different from that in the other species studied. The chaetoids of larval pubescence in most of the common species of the genera *Hybomitra, Tabanus, Atylotus* are single setae, differing somewhat in thickness, size and inclination in the different species. Chaetoids of *H. (S.) acuminate*, however, have a flattened extended base from which three to four tipped spurs emerge.

The chaetoid shape itself is not a systematic character to determine taxonomic position, although study of these structures in a considerable number of representatives of the infraorder Tabanomorpha and of certain other lower brachyceran families reveals that their shape characterizes their relative evolutionary age. The flattened chaetoid shape is peculiar to representatives of some genera of the family Rhagionidae and to species of the genera *Pangonius, Eschenbeckia, Goniops, Scaptia*, all considered relatively ancient among Tabanidae. It seems reasonable to suppose that ancestral forms of the subgenus *Sipala* were formed under the increasing influence of semiarid and arid conditions in the Turan lowland. Their appearance in the east and south coasts of the Thetys Sea is presumed for as early as the Paleogene. The limited number of species in the group, restricted range and specific morphological characters (chaetoid shape and presence of a long spine at the end of the respiratory siphon characteristic to the dwellers of slow, lotic, silted water bodies) suggest its early separation from other groups within the genus and provide evidence in favour of separation of the group in a separate taxon.

The assertion of some authors (CHVALA, LYNEBORG & MOUCHA 1972: CHVALA, 1985), that characters on which representatives of the subgenus *Sipala* were separated, are invalid (in comparison to the *H. vittata* group (FABRICIUS, 1794)) cannot be considered justified. The so-called *H. vittata* 'group' - two species known only from single specimens – is still too poorly known and, taking into account the peculiar morphology of the *H. vittata* frons, there is also the possibility that after more careful study this species might represent a distinct genus-group taxon.

Subgenus *Mouchaemyia* OLSUFJEV, 1972

Similar arguments can be proposed for the distinctiveness of this subgenus. Of the species of the subgenus established to date, the larva of *?*. (*?*.) *caucasi* SZILADY, 1923, is the only one known. It is found in dense sod of the subalpine and alpine zones of northeastern Caucasus Mts. and Transcaucasia. Apart from specific characters, the larva differs from all other *Hybomitra* species by its strong conic chaetoids, and the adults by some characters separating them fairly well from other species-groups of the genus (CHVALA, LYNEBORG, MOUCHA, 1972; OLSUFJEV, 1977). The species are mostly distributed locally in the mountainous areas of West Asia, the Caucasus and the Mediterranean, which suggests an isolated evolution of the ancestral form of the subgenus taking place parallel to orogenic processes.

Tabanus autumnalis brunnescens SZILADY, 1914

The extensive geographic range and bionomic peculiarities are responsible for thelong duration of flight of both the nominotypical subspecies and ssp. *brunnescens* (ANDREEVA, 1999). They undoubtedly play an important role in the variability of these taxa. Nevertheless, the validity of the subspecies is testified by the following facts. There is an exact ecological confinement of the larval habitats of both taxa, established by perennial observations in Europe and different habitats in the Caucasus and Middle Asia. In the southern part of the range, larvae of the nominotypical subspecies usually live in forest biotopes, especially in mountainous areas at an elevation up to 2000 m above sea level, whereas *T. a. brunnescens* develops mostly in the plains of steppe, semi-desert and desert zones. There are also differences in larval morphology of both taxa: the shape of the apical teeth of the labrum and the size and position of the lateral longitudinal furrows of pubescence on the caudal segment (ANDREEVA, 1990). A karyotype study of the two taxa (from Central Russia and Georgia) revealed that they are distinctly recognizable by the Y-chromosome structure (IVANISTCHUK, 1984). Therefore, the synonymization with *T. autumnalis* (CHVALA, LYNEBORG & MOUCHA, 1972; CHVALA, 1988) must be considered incorrect at the present state of knowledge, especially as relationships within the group of closely related species, including *T. polygonus* WALKER, 1854, have not yet been resolved.

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LITERATURE

ABBASSIAN-LINTZEN, R. 1961: Tabanidae (Diptera) of Iran. VI. Records of horseflies from southeast Iran (Iranian Baluchistan and the Jiroft area). Description of *Tabanus kermani* n. sp. and *Tabanus leclercqi* n. sp. Bull. Soc. Path. exot., 54: 128-147.

AMOUDI, M. A. & LECLERCQ, M. 1988: *Tabanus riyadhae* (Diptera, Tabanidae), a new species from Saudi Arabia. Journ. Med. Parasitol., 25(5): 399-401.

ANDREEVA, R. V. 1998: Ecology and bionomic peculiarities of the prospering horseflies species on Palearctic (Diptera, Tabanidae). Vestn. Zool. 9, supplement: 9-12 (in Russian).

ANDREEVA, R. V. 1990: Opredelitel' lichnok slepnei Evropejskaya chast' SSSR, Kavkaz, Srednja Asija [Key to the horse fly larvae. European part of the USSR, Caucasus, Middle Asia]. Kiev, Naukova dumka, 171 pp. (in Russian).

ANDREEVA, R. V. & DOLIN V. G. 1982: A species of the genus *Tabanus* (Diptera, Tabanidae) new for the fauna of the USSR. Zool. Zh., 61(1): 152-156 (in Russian).

ANDREEVA, R. V. & ZEYNALOVA, Z. A. 2002: On taxonomic position of some horsefly species (Diptera, Tabanidae) from Talysch province. Vestnyk zoologii, 36: 25-27.

BARATOV, SH. B. 1980: A new subspecies of *Tabanus subuletorum* Ols. (Diptera, Tabanidae) from Tadzhikistan. Dokl. Acad. Nauk Tadzhik. SSR, 23(10): 609-610 (in Russian).

BOGATCHEV, A. V. & SAMEDOV, N. G. 1949: Materialy k izuchhheniju parazitofauny Nakhichevanskaya ASSR (Tabanidae Nakhichevanskaya ASSR). Izv. Akad. Nauk Azerb. SSR, 5: 66-75 (in Russian).

BURGER, J. F. 1988: New or little-known taxonomic characters for the identifications of Middle-European horse flies (Tabanidae). XII Intern. Symposium über Entomofaunistik Mitteleuropas, Verhandlungen, Kiev (1991): 353-356 (in Russian).

BURGER, J. F. & PECHUMAN, L. L. 1989: The identity of *Corizoneura caucasica* KROBER and consequent change of name for some Palearctic species of *Silvius* (Diptera, Tabanidae). Entomofauna, 10(28): 445-452.

CHEN, J. 1982: A new species of *Silvius* from Liaoning, China (Diptera, Tabanidae). Acta Zootaxonomica Sinica, 7(2), 193-195.

CHVALA, M. 1985: Redescription of *Hybomitra plauta* STONE and comments on the subgeneric classification of Palearctic *Hybomitra* (Diptera, Tabanidae). Myia 3: 237-249.

CHVALA, M. 1988: Family Tabanidae. Catalogue of Palaearctic Diptera, 5: 97-171.

CHVALA, M., LYNEBORG, L. & MOUCHA, J. 1972: The Horse Flies of Europe (Diptera, Tabanidae). Copenhagen, Ent. Soc. Copenhagen: 499 pp.

DOLIN, V. G. & ANDREEVA, R.V. 1985: To the taxonomy of genus *Silvius* (Diptera, Tabanidae) on the base of larval and imaginal characters. Zool. Zh., 64(6): 944-949 (in Russian).

DOLIN, V. G. & ANDREEVA, R.V. 1986: New species of horse flies (Diptera, Tabanidae) from Caucasus and Middle Asia. Zool. Zh., 65(6): 940-944 (in Russian).

ENDERLEIN, G. 1923: Vorläufige Diagnosen neuer Tabanidengenera (Dipt.). Deutsche Entom. Zeitschr., 5: 544-545.

HAYAKAWA, H. 1981: Description of *Atylotus suzukii* n. sp. from Kyshu, Shikoku and Tsushima Islands, Japan (Diptera, Tabanidae). Jap. J. sanit. Zool., 32(2): 105-110.

HAYAKAWA, H. 1983: Description of *Atylotus ozensis* n. sp. from Honshu Island, Japan (Diptera, Tabanidae). Jap. J. sanit. Zool., 34(3): 235-239.

HAYAKAWA, H. 1984: Description of *Tabanus yoneyamai* n. sp. from Honshu Island, Japan (Diptera, Tabanidae). Jap. J. sanit. Zool., 35(4): 357-359.

HAYAKAWA, H. & HASEGAWA, T. 1981: Description of *Tabanus yaeyamaensis* n. sp. from Yaeyama Islands, Japan (Diptera, Tabanidae). Jap. J. sanit. Zool., 32(3): 239-242.

HAYAKAWA, H. & SUZUKI, H. 1984: Description of *Tabanus tokunoshimaensis* n. sp. from Tokunoshima and Amami-oshima Islands, Japan (Diptera, Tabanidae). Jap. J. sanit. Zool., 35(1):71-75.

HAYAKAWA, H. & SUZUKI, H. 1984: Description of *Tabanus tokaraensis* n. sp. from Tokara Islands, Japan and a key to the Japanese species belonging to *rufidens* group of the genus *Tabanus* (Diptera, Tabanidae). Jap. J. sanit. Zool., 35(3): 277-281.

HAYAKAWA, H., SUZUKI, H. & NAGASHIMA, Y. 1981: Description of *Tabanus amamiensis* n. sp. from Amami Island, Japan (Diptera, Tabanidae). Jap. J. sanit. Zool. 32(4): 309-313.

HAYAKAWA, H. & TAKAHASI, H. 1983: Description of three tabanid species belonging to the genus *Tabanus* from Japan (Diptera, Tabanidae). Jap. J. sanit. Zool., 34(1): 25-31.

HAYAKAWA, H, TAKAHASI, H & SUZUKI, H. 1982: Description of *Silvius oshimaensis* n.sp. from Amami-oshima Islands, Japan (Diptera, Tabanidae). Jap. J. sanit. Zool., 33(3): 227-231.

HAYAKAWA, H, TAKAHASI, H & SUZUKI, H. 1982: Description of *Atylotus kakeromaensis* n.sp. from Amami-oshima Islands, Japan (Diptera, Tabanidae). Jap. J. sanit. Zool., 33(4): 345-347.

HAYAKAWA, H. & YONEYAMA, Y. 1983: Description of *Tabanus yanbaryensis* n. sp. from Okinawa Islands, Japan (Diptera, Tabanidae). Jap. J. sanit. Zool., 34(2): 73-75.

HAYAKAWA, H., YONEYAMA, Y. & INAOKA, T. 1980: Description of *Hybomitra tsushimaensis* n. sp. from Tsushima Islands, Japan (Diptera, Tabanidae). Jap. J. sanit. Zool., 31(4): 243-247.

HENNIG, W. 1958: Die Larvenformen der Dipteren. 3.- Berlin, Akademie-Verlag, 628 s.

INAOKA, T. & HAYAKAWA, H. 1982: Description of *Hybomitra takahasii* n. sp. from Hokkaido, Japan (Diptera, Tabanidae). Jap. J. sanit. Zool., 33(4): 349-353.

IVANISHCHUK, P. P. 1984: On the role of karyotype in the diagnosis of the subspecies of *Tabanus autumnalis* (Tabanidae). Parasitologiya (Leningrad), 18(6): 464-468.

IVANISHCHUK, P. P. 1986: A new species of tabanid flies *Tabanus dolini* sp. n. (Tabanidae). Parasitologiya (Leningrad), 20(4): 310-312.

JEZEK, J. 1971: Larven und Puppen der Art *Heptatoma pellucens* (FABR.) und vier europäischer Arten der Gattung *Haematopota* MEIG. (Diptera, Tabanidae). Acta ent. Bohemoslov., 68: 341-351.

JEZEK, J. 1980: Zoogeography of some Iranian species of horseflies (Diptera, Tabanidae). Acta Univ. Carol.-Biol., 12 (1977): 317-323.

JEZEK, J. 1990: Results of the Chechoslovak-Iranian Entomological expedition to Iran, 1970, 1973 and 1977. Three new species of horse flies (Diptera, Tabanidae) from the Palaearctic region. Acta ent. Mus. Nat. Pragae, 43: 119- 127.

KILIC, A. YA. & SCHACHT, W. 1995: Eine neue Bremsenart aus der West-Turkei (Diptera, Tabanidae). Entomofauna, 16(10): 245-252.

KROBER, O. 1921: Die paläarktischen Arten der Gattung Pangonia Latr. Versuch einer Auseinandersetzung. Arch. Naturg. (A), 87: 1-67.

LECLERCQ, M. 1985: Recent additions and synonymy in Palearctic Tabanidae (Diptera). Myia, 3: 341-345.

LECLERCQ, M. 1986: *Tabanus khalafi* nouvelle espece (Diptera, Tabanidae) d'Irak. Importance taxonomique de la coloration des yeux des Tabanidae femelles. Bull. Ann. Soc. R. Belge Ent., 122: 219-224

LECLERCQ, M. & OLSUFJEV, N. G. 1981: Nouveau catalogue des Tabanidae Palearctiques (Diptera). Notes Faun.Gembloux, 6: 1-51.

MEIGEN, J. W. 1803: Versuch einer neuen Gattungseintheilung der europäischen zweiflügeligen Insekten. Mag. Insectenk., 2: 259-281

MATVEEV, B. S. 1947: The role of the embryology on the studying of the evolutionary rules. Zool. Zh., 26(5): 389-402.

OLSUFJEV, N. G. 1964: On the study of the fauna of Tabanidae in the West part of Great Caucasian Mountains, with description of new genus. Bull. Mosk. Obshch. ispyt. prirody ser. biol., 69: 73-76 (in Russian).

OLSUFJEV, N. G. 1972: New or little-known Tabanidae (Diptera) from the fauna of the USSR and adjacent countries. Report II. Ent. Obozr., 51: 446-453 (in Russian).

OLSUFJEV, N. G. 1977: Slepni. Sem. Tabanidae. Nasekomye dvukrylye. In Fauna of USSR, 7(2): 434 pp. (in Russian).

PORTILLO, M. 1988: Descripcion de *Hybomitra zabalossi* n. sp. (Diptera, Tabanidae). Nouv. Revue Ent., N. S., 5(4): 383-387.

PORTILLO, M. & SCHACHT, W. 1984: Descripcion de *Haematopota eugeniae* n. sp. (Diptera, Tabanidae). Doriana, 6(251): 1-7.

SCHACHT, W. 1983: Eine neue Bremsenart aus der Turkei (Diptera, Tabanidae). Entomofauna, 4(27): 483-493.

STROBL, P. G. 1909: Nachtrage. Verh. zool.-bot. Ges. Wien, 59: 290-294.

SZILADY, Z. 1914: Neue oder wenig bekannte palaarktische Tabaniden. Annls hist.-nat. Mus. Natn. Hung., 12: 661-673.

TERTERIAN, A. YE. 1980: New tribe and new genus in the family Tabanidae (Diptera). Dokl. Acad. Nauk Armjansk. SSR, 71(4): 234-247 (in Russian).

TIMMER, J. 1984: Two new horse flies from Turkey (Diptera, Tabanidae). Ent. Berichten, 44: 74-79.

TROJAN, P. 1990: *Hybomitra (Sipala) seguyi*, une nouvelle espece endemique de la region Mediterraneenne (Diptera, Tabanidae). Ann. Soc. Ent. Fr. (N.S.), 26(3): 427-430.

TROJAN, P. 1994: Supraspecific taxa of Tabaninae (Diptera, Tabanidae). I. The definition of the subfamily and its tribes. Annals Upper Silesian Mus., Entomol., 5: 53-67.

VAN EMDEN, F.I.1957: The taxonomic significance of the characters of immature insects. Ann. Rew. Entomol., 2: 91-105.

ZACHAROV, B. P. 1990: A new species of horsefly of the *Chrysops* MG. genus (Diptera, Tabanidae) from Transbajkal.- Rare (uncommon) helminths, ticks and insects. Novosibirsk,

pp. 110-112 (in Russian).

WANG, Z. 1982: Zhongguo Kexueyuan Qingzang Gaoyuan Zonghe Kexue Kaocha Dui. (The series of the Comprehensive Scientific Expedition to the Qinghai-Xizang Plateau). Xizang Kunchong (Insects of Xizang). V. 2. Science Press, Peking, 173-194.

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