

# ANNOTATIONES ZOOLOGICAE

et

# BOTANICAE

185

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# ANNOTATIONES ZOOLOGICAE et BOTANICAE

Slovenské národné múzeum — Prírodovedný ústav

January 29, 1988

No. 185

## DROSOPHILIDAE (DIPTERA) OF SOVIET MIDDLE ASIA

Jan M á c a

### Summary

Records of 14 species of Drosophilidae are given from Soviet Middle Asia, mostly based on the collection of the late Mrs. Valentina I. Sychevskaya. *Gitona valentinae* sp. n. and *Drosophila* (s. str.) *avicennai* sp. n. are described. *Cacoxenus* (*Gitonides*) *vasovi* Duda from Turkmen and Uzbek SSR is attributed to the nominal subspecies while *C. (G.) vasovi pterodactylus* ssp. n. is erected for the material from Mongolia. Keys of *Gitona* spp. with patterned wings, *Drosophila* (*Scaptodrosophila*) spp. of the *victoria* group and *D. (s. str.)* spp. with supernumerary dorsocentrals are provided.

The knowledge of Drosophilidae of Soviet Middle Asia (SMA) is quite fragmentary and uneven. In some cases species have been published from this large territory without giving any concrete locality; on the other hand, in the intensively studied species — e. g. *Drosophila melanogaster* Meig. — localities are given in numerous primarily genetic papers, some of which are repeating the localities already published previously. Therefore a list of previous records of each species from SMA is given, but only papers giving original information on faunistics are quoted. Interesting material of Drosophilidae has been collected in SMA by the late Mrs. Valentina I. Sychevskaya (further abbreviated VIS) during her study of synanthropic flies acting as vectors of diseases. Her collection (now deposited in the Zoological Museum of the University, Moscow) has been recently determined by the author and the results are presented here. Some additional specimens were taken over from other collections.

Most of the material studied is in bad condition, probably due to damage of specimens by particles of sand during sweeping. This partly restricts possibilities of giving full data on the chaetotaxy of some species, and the fact that both new species described are females is also limiting. In spite of these facts, available characters make possible clear separation

of taxa. Among others, the wing indices (abbreviations according to M á c a, 1980) proved to be useful for the identification of species.

In the paragraphs "Material studied" and "Previous records" only the data from SMA are given; distribution of the species in question outside SMA is summarized by Wheeler (1981). Geographic situation of the localities is given in Fig. 1, which also enables to confront various English spellings.

#### Acknowledgements

I am much grateful to Mrs. V. I. Sychevskaya for her kindly offering me the material from SMA for study. I dedicate this paper to her honour. Sincere thanks are due to A. Shatalkin of the Zoological Museum of the University, Moscow (ZMM), to Dr. L. Papp of the Dpt. of Zoology, Hungarian Natural History Museum, Budapest (NMB) and to Dr. H. Schumann, Zool. Museum. Humboldt University, Berlin (ZMB) for their allowing me access to the collections

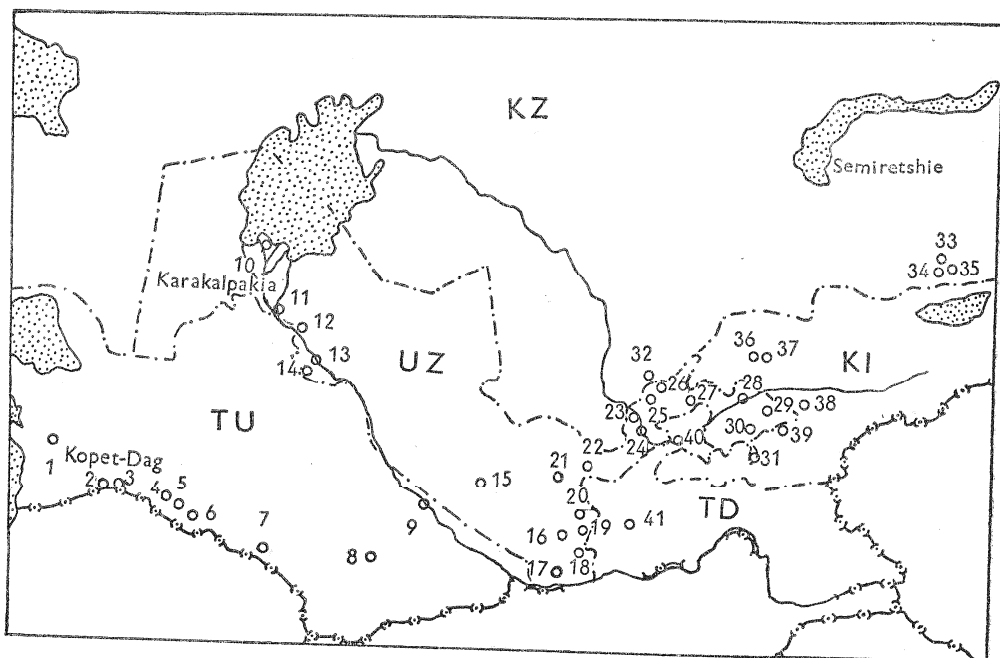


Fig. 1. Localities. Turkmen SSR (TU): 1 — Nebit-Dag, 2 — Karakala, 3 — Sumbar valley, 4 — Geok-tepe, 5 — Bezmein, 6 — Ashkhabad, 7 — Chaaga, 8 — Marv, 9 — Chardzhou. Uzbek SSR (UZ): 10 — Muinak, 11 — Nukus, 12 — Mangit, 13 — Urgench, 14 — Khiva, 15 — Bukhara, 16 — Baisun, 17 — Termez, 18 — Denau, 19 — Surkhandaryinsk, 20 — Dzhar-Kurgan, 21 — Samarkand, 22 — Aktash, 23 — Syrdaryinski, 24 — Iangier, 25 — Tashkent, 26 — Chirchik, 27 — Angren, 28 — Namangan, 29 — Andizhan, 30 — Fergana, 31 — Shakhimardan. Kazakh SSR (KZ): 32 — Aksu-Dzhabagly, 33 — Alma-Ata, 34 — Alma-Arasan, 35 — Talgar. Kirghiz SSR (KI): 36 — Arkit, 37 — Sary-Chilek, 38 — Dzhalalabad, 39 — Osh. Tajik SSR (TD): 40 — Leninabad, 41 — Dushanbe

of pertinent museums, and to Mr. Jindřich Novotný, Ústí nad Labem, for his presenting me specimens of his collection, which later appeared to be a new species.

#### Genus *Leucophenga* Mik, 1886

##### ✓ *Leucophenga maculata* (Dufour, 1839)

Material studied: Turkmen SSR: Kopet-Dag Mts., 1 ♀, other data unknown, Coll. ZMM.

Previous records: None.

#### Genus *Gitona* Meigen, 1830

Note to the generic characters: Posterior crossvein (*tp*) is upright or slightly obtuse to the middle part of  $m_{3+4}$ , so that *ta* (anterior crossvein) is subparallel to convergent caudally to *tp* (not checked in *G. darwendalei* Duda, *G. gossypii* Séguy and some species with unspotted wings). In *Cacoxenus* and many other Steganinae, *tp* is situated very obliquely to  $m_{3+4}$ .

##### ✓ *Gitona beckeri* Duda, 1924

Material studied: Uzbek SSR: Nukus, 23. XI. 1956 — 1 ♂. Samarkand, 21. X. 1980 — 3 ♀. All VIS leg., Coll. ZMM.

Previous records: None.

Note: The male specimen was compared by the author with the ♂ Lectotype from "Chinese Turkestan" (Sin-Tiang), which had been considered female by Bächli (1982). Study of the terminalia (Figs. 2 — 3) confirmed the conspecificity of both specimens. Apex of  $r_{2+3}$  with rudiment of crossvein, which was neglected by Duda (1924, 1935). Presumption of Bock (1982), that *G. beckeri* and *G. incohata* Bock are closely related, is thus confirmed. Superficially, *G. beckeri* is quite similar to *G. valentinae*; main distinguishing characters of *G. beckeri* are darkened bases of orbital bristles, lower  $4v-i$  (less than 3.0), wing spot at apex of  $r_{2+3}$  with rudimental vein, dark ocellar triangle and abdominal pattern similar to *G. distigma*.

##### ✓ *Gitona valentinae* sp. n.

Most characters of *G. valentinae* are the same as in *G. distigma*, as redescribed by Duda (1935); therefore, mainly different or previously not mentioned characters are stressed below.

Frons as wide as long, light yellowish-brown, somewhat darkened posteriorly but eye margins and ocellar triangle pale (in the holotype, whole upper part of front, including ocellar triangle, somewhat darkened). Without dark spots at bases of orbital bristles. Face pale yellow, carina distinct, slightly lowered at ventral end. Cheek widest about middle (more posteriorly in *G. distigma*); its width equals the length of the 3rd antennal segment (Fig. 4).

Mesonotum silvery pruinose, in the holotype darker tan, with a pale strip each side in the dorsocentral line and light tannish humerus, in other specimens pale yellow; dark dots about bases of bristles not developed. Pleurae brown or yellowish. Scutellum pale or slightly darkened basally. Two sternopleurals, another prominent bristle in front of the 2nd coxa. Wing length about 3.2 mm (4.0 in *G. distigma*). Veins yellow, transverse veins sometimes very slightly darkened. Wing spot at apex of  $r_{2+3}$  posteriorly almost pointed, elongate (upright to the wing length — similar as in *G. beckeri* but without rudiment of crossvein). The other wing spot represented by faint narrow darkening along the apex of  $r_{4+5}$ . Wing indices virtually the same as in *G. distigma*:  $C-i$  2.8,  $4v-i$  4.6,  $4C-i$  1.8,  $5x-i$  3.0,  $Ac-i$  1.8,  $Cx-i$  1.4,  $M-i$  2.4;  $c_3$  bristles range 0.5. Legs yellow. Coxal bristles as long as the width of femora. Fore coxa with 2 — 3 bristles (additional anterolateral bristle, occurring in *G. distigma*, perhaps broken?), middle coxa with three bristles, the hind with one bristle. Metatarsus as long as the remaining tarsal segments altogether (on the 1st and 2nd tarsi; the 3rd tarsi not preserved in any specimen). Middle metatarsus not widened and without cuneiform bristles except of two somewhat shortened ventral rows.

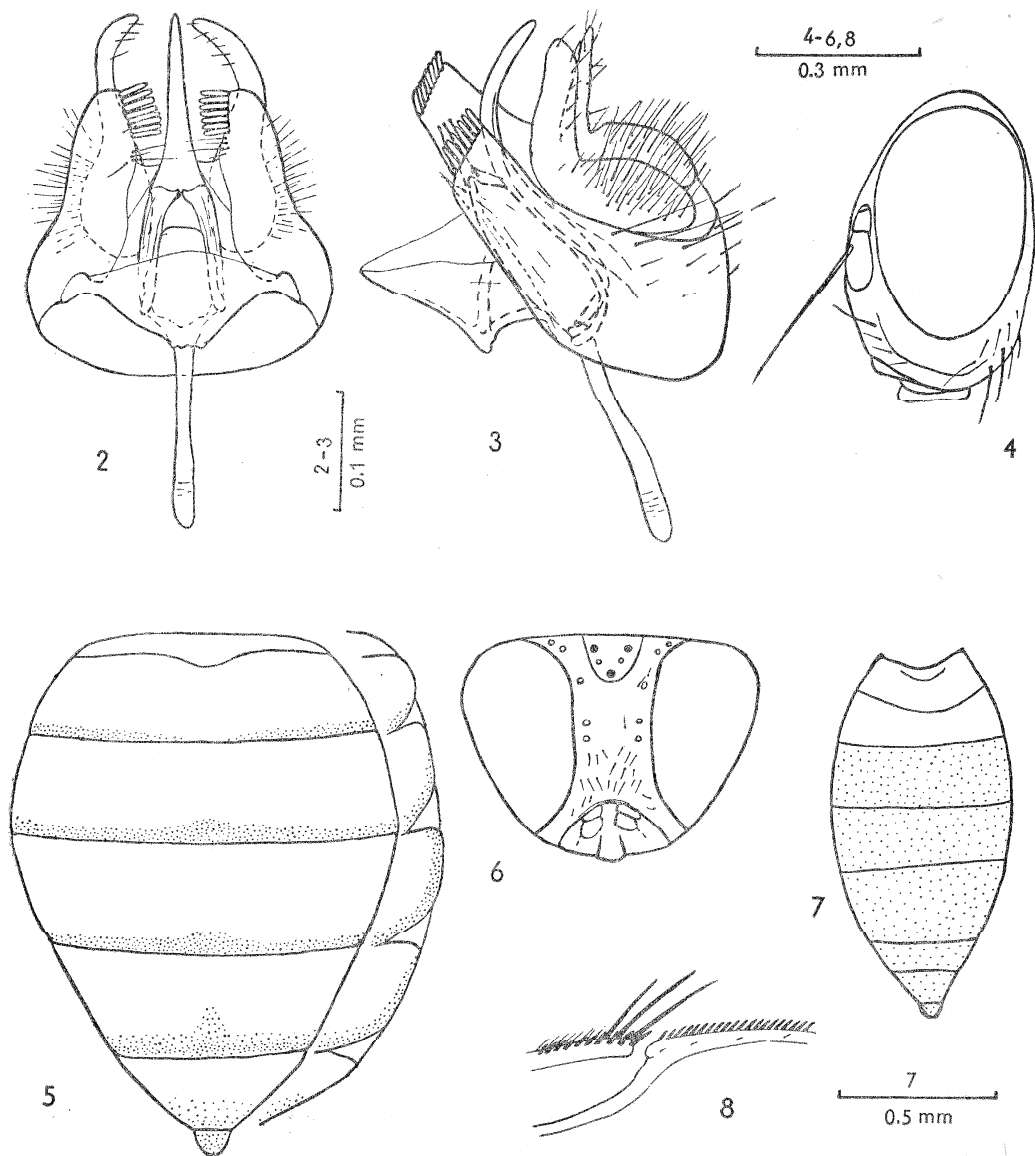
Abdomen yellow, with brown pattern (Fig. 5). The 2nd tergite with medially interrupted or narrowed posterior dark band. The 3rd to 5th tergites each with uninterrupted, medially at most slightly dilated posterior band each (in *G. distigma*, median dilation is more conspicuous). Abdominal end yellow or pale tan, cerci sometimes darker.

**Holotype** ♀: **Uzbek SSR**: Nukus, 13. XI. 1956, VIS leg., Coll. ZMM. **Paratypes**: 2 ♀, same data, and 1 ♀, Nukus, 5. XI. 1956, leg. VIS, Coll. ZMM and (specimen collected 5. XI.) Coll. Máca.

Key to the *Gitona* species with patterned wings is combined below, partly from original descriptions:

- |      |   |                          |
|------|---|--------------------------|
| 1    | Ocellar triangle darkened. ♂ without elongate appendix of anal plate . . . . .  | 2                        |
| —    | Ocellar triangle at most slightly darkened, not darker than the upper part of front. ♂ (if known) without elongate appendix of anal plate . . . . . | 4                        |
| 2(1) | Wing spot at apex of $r_{2+3}$ rounded, without rudiment of crossvein. Mosambique . . . . .   | <i>G. gossypii</i> Séguy |
| —    | Wing spot at apex of $r_{2+3}$ vertically elongated, enclosing rudiment of crossvein . . . . .  | 3                        |
| 3(2) | Palpi yellow. Each tibia with subbasal darkening on the inner side (wholly yellow in teneral specimens). China: Sin-Tiang; SMA; Cyprus?* . . . . .  | <i>G. beckeri</i> Duda   |

\* According to Gheorgiou (1977).



Figs. 2 — 3. *Gitona beckeri* (Nukus): 2 — Male terminalia, ventral aspect. 3 — Male terminalia, lateral aspect. Figs. 4 — 5. *Gitona valentinae* (Holotype): 4 — Head, lateral aspect (some bristles omitted). 5 — Abdomen, dorsal aspect, shown also the right side. Figs. 6 — 7. *Cacozenus vlasovi vlasovi* (Muinak): 6 — Head, frontal aspect. 7 — Abdomen, dorsal aspect. Fig. 8. *Cacozenus vlasovi pterodactylus* (Holotype), bristles of the distal costal break

- Palpi tan. Mid and hind tibiae with apical darkening. Australia . . . . . *G. incohata* Bock
- 4(1) Both transverse veins darkened, palpi darkened at margin. Mesonotum patterned, femora with distinct black rings.  $C-i$  2.3. Zimbabwe . . . . . *G. darwendalei* Duda
- At most  $ta$  darkened, palpi pale. Base and apex of fore femora darkened at most . . . . . 5
- 5(4) Mesonotum with conspicuous pattern of dark spots and strips.  $4v-i$  less than 1.5,  $5x-i$  1.5. Cyprus, Pakistan . . . . . *G. distans* Bezzi
- Mesonotum without pattern except of darkened dots at bases of bristles and hairs.  $4v-i$  more than 4,  $5x-i$  about 3 . . . . . 6
- 6(5) Cheek widest about its middle (below the lowest point of eye margin). Dark spot at tip of  $r_5$  faint and narrow, the spot at the tip of  $r_{2+3}$  elongate (upright to the wing length). Abdominal dark bands at most slightly dilated medially. Smaller (3 mm), paler species. Uzbek SSR . . . . . *G. valentinae* sp. n.
- Cheek widest in its posterior part. Dark spot at tip of  $r_{2+3}$  rounded, that at tip of  $r_5$  well developed. Medial dilation of abdominal dark bands reaching anterior margins on tergites 3 — 5. Larger (about 4 mm) and darker species. Southern and Middle Europe; Mongolia;\*\* China: Tian-Shan Mts.; Western Siberia: Altai Mts.; Eastern Siberia and Far East — new records.\*\*\* . . . . . *G. distigma* Meigen

Genus *Cacoxenus* Loew, 1858

✓ *Cacoxenus (Gitonides) vlasovi* (Duda, 1935)

Material studied: **Uzbek SSR:** Muinak, 25. VI. 1957 — 1 ♀, VIS leg., Coll. ZMM. **Turkmen SSR:** Ashkhabad, 23. VIII. 1931 — 1 ♂, leg. J. P. Vlasov, Coll. ZMB (Paralectotype, designated by Bächli, 1982).

Previous records: **Turkmen SSR:** Ashkhabad (Duda, 1935).

Notes: The specimen from Muinak is badly damaged — of antennae, only the first two segments preserved, one wing, all left-side legs and

\*\* *G. distigma* Meig. from Mongolia (Okada, 1973) is, in my opinion based on the revision of the male specimen in question, not a separate species (compare Tsacas & Desmier de Chenon, 1976). The male genitalia are figured by Okada (1973) quite correctly but the epandrium has been deformed in preparation. The sensillae of anterior parameres are, in reality, inconspicuous and may be obscured in preparations.

\*\*\* River Dichun in Maly Khingan Mts., 8. VIII. 1980 — ♀, A. Ozerov leg., Coll. ZMM; Ussuriysk, GTS (= ?) eastwards, 27. IX. 1980 — 2 ♂, ♀, A. Shatalkin leg., Coll. ZMM. — Giljarov & Lukjanovich (1938) report *G. distigma* feeding on seeds in the inflorescences of *Taraxacum koksaghyz* Rodin, *Crepis* sp. and *Hieracium* sp. in USSR, without mentioning localities (perhaps Crimea?). No description of adult flies is given, but with respect to the length of puparia (4 — 5 or 5.5 mm) the determination seems to be correct.



most of bristles missing. However, strong prescutellars, developed discoidal crossvein and well developed middle orbital bristle indicate subfamily Steganinae; posteroventral cuneiform bristlets of middle metatarsus absent (eliminates *Stegana*, *Leucophenga* and *Amiota*), *tp* very oblique (eliminates *Gitona* and *Acletoxenus*), position of orbital bristles and abdominal pattern are different from those of *Soederbomia* — thus the combination of characters conforms only *Cacoxenus*. Within the genus, all discernible characters, mainly the colour pattern of abdominal tergites, agree with *C. (Gitonides) vlasovi*. Anterior dorsocentrals (or their basal pits) are indiscernible in this specimen, which reminds *Soederbomia*; these bristles are short and fine in *C. (Gitonides)* species, so that this fact is not too surprising. Some additional characters: Head as in Fig. 6. Scutellum very large. Wing: Bristlets of the 1st costal section gradually longer in apical direction, the terminal one slightly longer than the width of costa. Wing indices: *C*—*i* 2.55, *4C*—*i* 0.95, *4v*—*i* 1.9, *5x*—*i* 1.0, *Ac*—*i* 2.3, *Cx*—*i* 0.85, *M*—*i* 0.5; *c*<sub>3</sub> range 0.7. Angle between *tp* and middle section of *m*<sub>3+4</sub> ca. 55° in male, 45° in female. Abdominal pattern: Fig. 7.

The variability of *C. vlasovi* is poorly known; for that reason, the paralectotype has been compared by author with the material from Mongolia (Coll. NMB), attributed by Okada (1973) to the same species, which was later questioned by Tsacas & Desmier de Chenon (1976). No substantial differences could be found in the construction of male genitalia except of the different number of clasper teeth. Another difference has been found in the size of *c*<sub>1</sub> bristles before costal break. Three (sometimes two) of them are conspicuously elongated in the Mongolian specimens (Fig. 8), in contrast to the paralectotype. For the time being, it seems to me that the best solution would be to consider specimens from SMA nominal subspecies, while the specimens from Mongolia are hereby named *Cacoxenus (Gitonides) vlasovi pterodactylus* ssp. n. (Holotype ♂: Mongolia: Tschilga-ul., between Zogt-Ovoo and Dalanzadgad, 1550 m, No. 792, 12. VI. 1967, Exp. Kaszab leg., NMB. Remaining specimens of *C. vlasovi*, mentioned by Okada, 1973, are paratypes of *C. v. pterodactylus*).

The species *Sinophthalmus creberii* A. Singh, 1976, belongs to *Cacoxenus*, subg. *Gitonides*; according to the original description, it seems to be close to, or identic with, *C. (G.) perspicax* (K n a b).

#### Genus *Scaptomyza* J. Hardy, 1849

##### ✓ *Scaptomyza (Parascaptomyza) pallida* (Zetterstedt, 1847)

Material studied: Turkmen SSR: Nebit-Dag, 8. V. 1977 — 1 ♂, 3 ♀, 11. V. 1977 — 1 ♂, 3 ♀, 1 ex. (sex indetermined). Chaaga, 5. V. 1977 — ♀. Geok-tepe, 6. V. 1977 — 6 ♂, 4 ♀. All A. Shatalkin leg. Uzbek SSR: Dzhaz-Kurgan, 28. II. 1958 — ♂, ♀. Termez, 22. VII. 1957 — 3 ♀, 22. VII. 1958 — 2 ♂, 2 ♀ (sweeping over cereals). All VIS leg. Kirghiz SSR: Arkit,

Chaikalski khrebet (1300 m), 27. V. 1952 — 2 ♂, 4 ♀. Sary-Chilek, Chaikalski khrebet (2000 m), 29. V. 1952 — 2 ♂, 4 ♀. All Zhelokhovtsev & Zimina leg. **Kazakh SSR**: Aksu-Dzhabagly (nature reserve, 1860 m), 15. VI. 1966 — ♀, L. Zimina leg. All Coll. ZMM.

Previous records: Shtakelberg (1970) — SMA, concrete localities not given.

✓ *Scaptomyza* (s. str.) *graminum* (Fallén, 1823)

Material studied: **Uzbek SSR**: Aktash (1500 m), 30. IV. — 3. V. 1977 — 1 ♀, J. Novotný leg., Coll. Máca.

Previous records: Shtakelberg (1970): **Turkmen SSR**, locality not specified.

✓ *Scaptomyza* (*Hemiscaptomyza*) *unipunctum* (Zetterstedt, 1847)

Material studied: None.

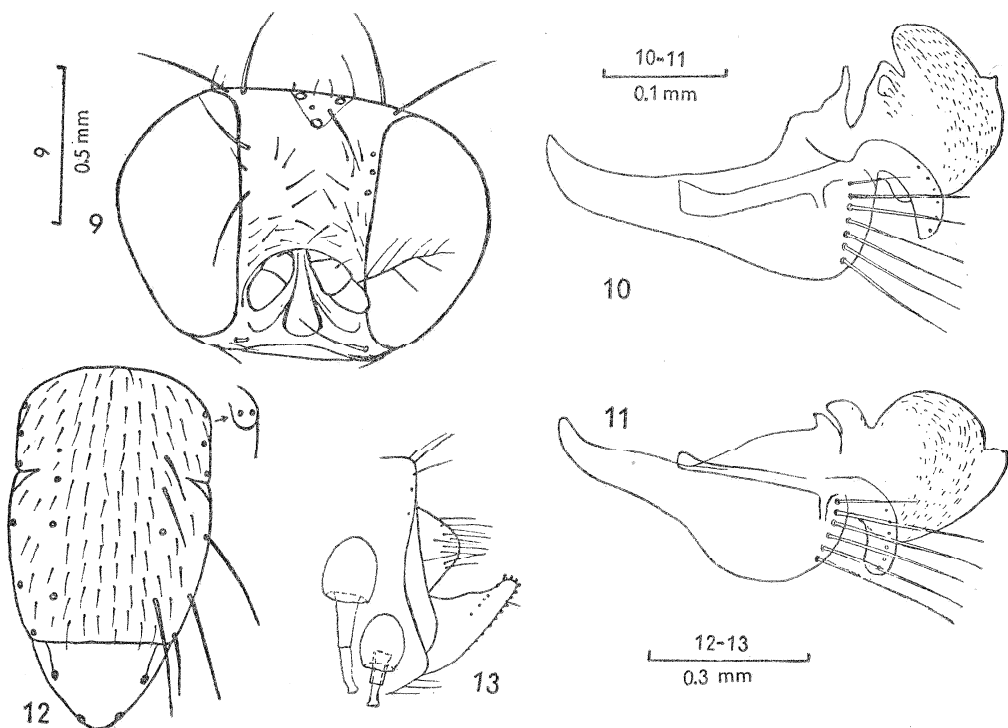
Previous records: Duda (1935): **Kazakh SSR** — Semirechie region (Semiretshie, Heptapotamia). Hackman (1959): **Tajik SSR**: Dushanbe (Stalinabad) — type material of *S. u. bocharensis* Hackman, 1959.

### Genus *Drosophila* Fallén, 1823

#### Subgenus *Scaptodrosophila* Duda, 1923

✓ *Drosophila pattersoni* Pipkin, 1956

Main characters of specimens from SMA: Brownish-yellow species. Ocellar triangle and periorbits sometimes darkened. Mesonotum with medium brown trident pattern, like *D. melanogaster* Meigen. Scutellum brown, medial line sometimes paler, each side with basal yellow spot. Abdomen with undivided darker strips. — Arista with 2 — 4 upper rays, 2 lower rays, in addition to terminal fork. Frontal hairs strong and numerous, as in Fig. 9. Eyes very faintly pilose (in *D. rufifrons* Loew, pilosity is somewhat heavier). Cheek narrow, 1/8 to 1/10 eye width. Vibrissa at least thrice longer than the 2nd oral bristle. Two short, subequal humerals. 8 irregular rows of acrostichals. Wing yellowish, veins yellow; wing length 2.2 mm. *C*—*i* 2.6, *4v*—*i* 2.3, *4C*—*i* 1.2, *5x*—*i* 2.1, *Ac*—*i* 2.2, *Cx*—*i* 1.2, *M*—*i* 0.9 (wing indices not substantially different from *D. rufifrons*); *c*<sub>3</sub> range 0.5 (somewhat more in *D. rufifrons*). Propleural bristle longer than diameter of fore femur. Male fore femur not very swollen. Middle sternopleural about 3/4 hind sternopleural to equally long. Male genitalia (Fig. 10): Periphallic organs as in Pipkin (1956, Fig. 2). Phallic organs as in *D. rufifrons*, but aedeagal apodeme thicker and more dilated at apex, hypandrium (lateral aspect) in medial



Figs. 9 — 10. *Drosophila pattersoni* (Surkhandaryinsk): 9 — Head, frontal aspect. 10 — Phallic organs, lateral aspect. Fig. 11. *D. rufifrons* (Val, Czechoslovakia), phallic organs, lateral aspect. Figs. 12 — 13; *D. avicennai* (Paratype): 12 — Mesonotum, with oblique aspect of humerus (macrochaetae, if preserved, shown only on the right side). 13 — Spermathecae and egg-guide

line almost straight (sinuate in *D. rufifrons* — compare Fig. 11). Egg-guide yellow, almost pointed, with elongated dentiform bristles, at least 10 of them on lower margin.

Material studied: **Uzbek SSR**: Surkhandaryinsk, 10. — 16. IV. 1957 — 3 ♂, 4 ♀, 16. VIII. 1957 — ♀. All VIS leg., Coll. ZMM and Coll. Máca.

Previous records: None.

*D. pattersoni* belongs to the *victoria* group. A key to the species of this group is combined below; some females still cannot be determined with certainty.

- 1 Width of frons at vertex distinctly greater than its median length. Middle orbital bristle closer to eye margin than are both other orbitals. Hypandrium with two bristles each side. Europe . . . . . *D. deflexa* Duda

- Frons about as wide as its median length. All the orbitals arising approximately in one line. Hypandrium with at least four bristles each side . . . . . 2
- 2(1) Hypandrium with four bristles each side (exceptionally, small fifth bristle present). North American species . . . . . 3
- Hypandrium with more than four long bristles each side. ♀: Egg-guide mostly broader. Palaearctic species, except *D. lebanonensis casteeli* Pipkin . . . . . 4
- 3(2) Male anal lamellae with a tuft of hairs. Dark-coloured species . . . . . *D. victoria* Sturtevant
- Male anal lamellae without hair tuft. Colour-polymorphic species with very narrow egg-guide . . . . . *D. brooksae* Pipkin
- 4(2) Hypandrium with 8 — 10 bristles each side. Colour-polymorphic species. Periorbits not silvery striped. Nominal subspecies Mediterranean (from Spain to Lebanon and Israel), subspecies *D. l. casteeli* Pipkin in the southwestern USA . . . . . *D. lebanonensis* Wheeler
- Hypandrium with 5 — 7 bristles each side. No colour-polymorphism. . . . . 5
- 5(4) Periorbits with silvery-white stripes. Palpi apically darkened, halter basally darkened. ♂: Aedeagus little longer than anterior paramere, anal lamellae without hair tuft . . . . . 6
- Periorbits without silvery stripes. Palpi and halteres unicolorous, pale.  $4v-i$  2.0 — 2.4. ♂: Aedeagus much longer than anterior paramere, anal lamellae with hair tuft . . . . . 7
- 6(5) Silvery stripes of periorbits interrupted.  $4v-i$  2.7. Lebanon . . . . . *D. stonei* Pipkin
- Silvery stripes on periorbits undivided.  $4v-i$  2.2. Aedeagal apodeme apically dilated. Japan . . . . . *D. throckmortoni* Okada
- 7(5) Mesonotum pale, with trident pattern; legs pale brownish-yellow. Frontal hairs numerous. Aedeagal apodeme thick, much dilated apically. Lebanon, SMA . . . . . *D. pattersoni* Pipkin
- Mesonotum and legs dark brown. Frontal hairs less numerous, more distinctly V-arranged. Aedeagal apodeme thin, slightly dilated apically. Europe . . . . . *D. rufifrons* Loew

Subgenus *Sophophora* Sturtevant, 1939

✓ *Drosophila bifasciata* Pomini, 1940

Material studied: None.

Previous records: Dubinin et al. (1937b): **Uzbek SSR: Samarkand. Kazakh SSR: Alma-Ata.**

Note: In fact, Dubinin et al. (1937b) noted from abovementioned localities *D. obscura* Meigen, as the cluster of species similar to *D. obscura* was not yet discovered at that time. Buzzatti-Traverso

& Scossirolli (1955) apply their statement to *D. bifasciata* on the basis of given data on the configuration of chromosomes.

✓ *Drosophila ambigua* Pomini, 1940

Material studied: **Uzbek SSR**: Chirchik, 18. IV. 1958 — ♂, 15. I. 1959 (wall of lavatory) — 3 ♂, ♀, 25. III. 1959 — ♂, 2. IV. 1959 — ♂. Syrdaryinski, 10. — 16. IV. 1957 — ♂, 20. V. 1957 — ♂, ♀, VII. 1957 — 2 ♂, 26. VII. 1958 — ♂, 2 ♀. All VIS leg., Coll. ZMM.

Previous records: None.

✓ *Drosophila melanogaster* Meigen, 1830

Material studied: **Uzbek SSR**: Nukus, 5. XI. 1956 — ♀. Chirchik, 16. IX. 1959 — 5 ♂, 5 ♀, 22. IX. 1959 (in barrel of wine) — 9 ♂, 4 ♀, 22. X. 1959 (on cabbage) — 4 ♂, 10 ♀. Denau, 29. VI. 1957 — ♀, 10. VI. 1958 — ♂, 3 ♀. Termez, 7. X. 1958 — ♀. Syrdaryinsk, 11. VIII. 1957 — ♀, 10. VII. 1958 — ♀. Tashkent, 30. IX. 1957 (cow dung) — ♂, ♀. Namangan, 28. VIII. 1957 — 2 ♀. Andizhan, 11. XI. 1955 — ♂. All VIS leg., Coll. ZMM.

Previous records: Dubinin et al. (1937a): **Uzbek SSR**: Tashkent. Dubinin et al. (1937b): **Turkmen SSR**: Ashkhabad. **Uzbek SSR**: Samarkand, Fergana, Termez, Bukhara. **Tajik SSR**: Leninabad, Dushanbe (Stalinabad). **Kirghiz SSR**: Dzhalalabad, Osh (Osc). **Kazakh SSR**: Alma-Ata, Talgar. Dubinin (1946): **Turkmen SSR**: Marv (Merv). Grossman et al. (1970): **Turkmen SSR**: Sumbar, Karakala, Bezmein, Chardzhou (except of some localities quoted by Dubinin et al., 1937a).

Subgenus *Drosophila*, s. str.

✓ *Drosophila funebris* (Fabricius, 1787)

Material studied: **Uzbek SSR**: Muinak, 7. V. 1956 — ♀, 23. VIII. 1956 — ♂, ♀, 22. III. 1957 — ♀, 9. V. 1957 — 3 ♀, 20. V. 1957 — 3 ♂, 3 ♀, 2. VI. 1957 — ♂, 2 ♀, 17. — 20. VI. 1957 — 7 ♀, 21. VI. 1957 — 2 ♂, 30. VI. 1957 — ♀, VII. 1957 — ♂, ♀, 14. IX. 1957 — 3 ♂, 2 ♀, 19. IX. 1957 — 2 ♀, 26. IX. 1957 — ♀, 3. X. 1957 — ♂, 23. X. 1957 — ♂, ♀, 26. X. 1957 — ♂. Nukus, VII. 1956 — ♂, 2 ♀, 29. X. 1956 — ♂, 5. XI. 1956 — ♂, 3 ♀, 9. XI. 1956 — ♂, 13. XI. 1956 — 3 ♀. Mangit, 9. VIII. 1956 — ♂, 21. X. 1957 — ♂, ♀. Urgench, 3. IX. 1956 — 2 ♀, Khiva, 3. IX. 1956 — ♀, Samarkand, 9. VI. 1961 — ♂ (lavatory). Surkhandaryinsk, 20. IV. 1957 — ♂, 25. IV. 1957 — ♂, ♀, 8. — 10. VI. 1957 (flour bran) — 3 ♀, 11. — 15. VI. 1957 (flour bran) — 3 ♂, 6 ♀, 28. — 30. VI. 1957 — 3 ♀, 1. — 8. VIII. 1957 — 4 ♀. Denau, 29. IV. 1957 — ♀, 16. V. 1957 — 6 ♂, 5 ♀, 9. VI. 1958 — ♀. Dzhar-Kurgan, 30. III. 1957 — ♂, ♀, 12. IV. 1957 — 2 ♀, 24. IV. 1957 — ♀, 25. VI. 1957 — 8 ♂, 13 ♀, 27. VI. 1957 — ♂, 5. X. 1957 — 2 ♀, 20. X. 1957 — 2 ♂, 2 ♀, 21. X. 1957 — 3 ♀, 24. X. 1957 — ♂, ♀, 30. X.

1957 — 3 ♂, 4. XI. 1957 — 2 ♂, 4 ♀, 10. — 14. XI. 1957 — 4 ♂, 4 ♀, 4. XII. 1957 — ♀, 7. XII. 1957 — 2 ♂, 4 ♀, 28. II. 1958 — 3 ♂, 4. V. 1958 — 3 ♀. Baisun, 29. VI. 1957 — ♂, 4 ♀, 17. VII. 1957 — ♀, 2. VIII. 1957 — ♀, 17. XII. 1957 — ♂, 8. X. 1958 — 2 ♂. Termez, 26. IV. 1957 — ♂, ♀, 6. V. 1957 — ♀, 7. V. 1957 — 2 ♀, 19. VI. 1957 — ♀, 18. II. 1958 (on tree trunks) — ♂, ♀, 7. X. 1958 — ♀. Syrdaryinski, 10. — 16. IV. 1957 — 2 ♂, 20. V. 1957 — ♀, 21. V. 1957 — ♂, ♀, 5. VI. 1957 — ♀, 16. VI. 1957 — 2 ♂, 5 ♀, 19. VI. 1957 — 2 ♂, ♀, 1. — 19. VII. 1957 — 4 ♀, VII. 1957 — 2 ♀, 5. VIII. 1957 — 2 ♀, 11. VIII. 1957 — ♂, 2 ♀, 12. VIII. 1957 — 5 ♂, 3 ♀, 16. VIII. 1957 — ♂, 7 ♀, 2. — 6. IX. 1957 — ♀, 10. VII. 1950 — ♂, 25. VII. 1958 — 6 ♂, 3 ♀. Iangier, 10. IX. 1960 — ♀, 5. V. 1978 — ♀. Tashkent, 1. VII. 1956 — 3 ♀, 30. IX. 1957 (cow dung) — 13 ♂, ♀. Chirchik, 18. IV. 1957 — ♂, 18. IV. 1958 — 6 ♂, 3 ♀, 10. VI. 1958 (pig farm) — 8 ♂, 10 ♀, 16. VI. 1958 (on cabbage) — 6 ♂, 2 ♀, 9. VIII. 1958 — 2 ♀, 10. I. 1959 (in wine barrel) — ♂, 15. I. 1959 (wall of lavatory) — ♂, 25. III. 1959 — 2 ♀. Angren (slaughterhouse), 13. IX. 1956 — ♂, 3 ♀, 12. V. 1960 — ♀. Fergana, 1955 (from a strain) — ♀. Shakhimardan, 24. VI. 1955 — 2 ♀. Andizhan, 22. IV. 1956 — 2 ♀, 25. VI. 1956 — ♀. All VIS leg., Coll. ZMM.

Previous records: Dubinin & Romashof (1932): **Uzbek SSR**: Tashkent. Timoféeff-Ressovsky (1935): **Turkmen SSR**, locality not specified. **Kazakh SSR**: Semirechie region (Heptapotamia). Dubinin et al. (1937b): **Uzbek SSR**: Fergana. **Tajik SSR**: Dushanbe (Stalinabad). **Kirghiz SSR**: Dzhahalabad. **Kazakh SSR**: Alma-Ata. Sychevskaya (1956): **Uzbek SSR**: Karakalpakia region. Sychevskaya (1962): **Uzbek SSR**: Samarkand.

Note: All studied specimens are pale and relatively small in comparison to specimens from Central Europe, whereas specimens from arctic or subarctic regions (material from Labytnangi nr. Salekhard and from Yakutsk was studied) are very large and dark coloured, which indicates clinal variability of colour and size (compare Timoféeff-Ressovsky, 1935). Many studied specimens are in bad condition and perhaps will not be kept by museum; for that reason, collecting data are given here as detailed as possible.

✓ *Drosophila transversa* Fallén, 1823

Material studied: **Uzbek SSR**: Samarkand (breeding from fungi), 5. V. 1972 — 1 ♂, 1 ex. (damaged) of unknown sex.

Previous records: None.

✓ *Drosophila avicennai* sp. n.

*polychaet sp.?*  
Frons orange-brown, paler anteriorly, ocellar triangle and periorbits dark brown. Posterior width of frons almost twice its medial length. Postverticals as long as lower orbital bristle. Upper orbital bristle longer than the lower; middle orbital not preserved, its base outside and little below the upper orbital. The 3rd antennal joint small, 1.5 times longer

than wide. Arista with 4 — 5 upper and 2 lower branches, in addition to terminal fork. Carina well developed, with flattened ridge. Cheek 1/3 vertical diameter of eye, lower part of cheek separated by a longitudinal suture, buccal angle almost rectangular. Vibrissa one, strong. Prelabrum dark. Palpus yellow, with several subapical to apical hairs and one bristle.

Mesonotum (Fig. 12) subshining, dark grayish, each dorsocentral line with light brown stripe, other brown stripe reaching from the mesonotal suture along bases of supraalar bristles. Two humeral bristles. Acrostichals in six rows. Four pairs of dorsocentral macrochaetae, one of them presutural. Prescutellars not developed. Scutellum with paler margin. Pleura dark brown. Wing clear, length 3.1 mm.  $C-i$  3.0,  $4v-i$  1.35,  $4C-i$  0.7,  $5x-i$  1.0,  $Ac-i$  2.5,  $Cx-i$  0.8,  $M-i$  0.35;  $c_1$  bristles two,  $c_3$  range 0.5. Legs yellowish, preapicals on all tibiae, apicals on middle.

Abdomen brownish black. Egg-guide apically narrowed (Fig. 13). Spermatheca as in Fig. 13.

**Holotype** ♀: **Kazakh SSR**: Alma-Arasan (nr. Alma-Ata, 1450 m), 22. — 24. IV. 1977, J. Novotný leg., Coll. Máca. **Paratype**: ♀, same data, head missing.

As the key of *Drosophila* (s. str.) spp. with supernumerary dorsocentrals by Lin & Tseng (1971) became obsolete (it contains only four species), *D. avicennai* may be distinguished from other *Drosophila* (s. str.) spp. possessing this character by the following key:

- |      |  |    |
|------|--|----|
| 1    | One bristle basally to costal break. Six rows of acrostichal hairs. $5x-i$ 1.5 at most. Yellow species with striped mesonotum. Japan   |    |
|      | . . . . . <i>D. grandis</i> Kikkawa & Peng   |    |
| —    | Two subequal bristles basally to costal break . . . . .  | 2  |
| 2(1) | Fore femur with a comb of cuneiform bristles ventrally. Mesonotum pale, with 4 black stripes on the dorsum and one on each pleura. A cluster of taxonomically not elucidated species (Wilson et al., 1969; Bock, 1976). Distinguishing characters not reliable | 3  |
| —    | Fore femur without comb, mesonotum not so distinctly striped   | 5  |
| 3(2) | Lower orbital bristle longer than the uppermost. $C-i$ more than 2.0. Southeastern Asia . . . . .  |    |
|      | . . . . . <i>D. quadrilineata</i> Meijere  |    |
| —    | Lower orbital bristle shorter than the upper. $C-i$ 2.0 at most . . . . .  | 4  |
| 4(3) | The 3rd oral bristle subequal to the vibrissa. One medial row of enlarged acrostichals. Preapicals of tibiae absent. New Guinea, Kalimantan . . . . .  |    |
|      | . . . . . <i>D. tetrachaeta</i> Angus  |    |
| —    | The 3rd oral bristle not enlarged. Two rows of enlarged acrostichals. Preapicals on 1st and 2nd tibia. New Guinea, Australia . . . . .   |    |
|      | . . . . . <i>D. pseudotetrachaeta</i> Angus  |    |
| 5(2) | $4v-i$ more than 2.0, $C-i$ 2.5 at most. Three dorsocentrals . . . . .   | 6  |
| —    | $4v-i$ less than 2.0, $C-i$ more than 2.5 . . . . .  | 10 |
| 6(5) | Mesonotum grayish brown, fuscous at sides. Vibrissa prominent.   |    |

- 4*v*—*i* 2.7. Clasper with about ten teeth. Ovipositor rounded. Nepal . . . . . *D. trichaeta* Angus 7
- Mesonotum rufous, or brownish black. Vibrissa prominent or not. *C*—*i* 2.0 — 2.5, 4*v*—*i* 2.0 — 2.7 . . . . . 7
- 7(6) Mesonotum rufous, 4*v*—*i* 2.2, clasper with 5 — 6 teeth. Neotropics, Micronesia, occasionally in USA and Europe . . . . . 8
- Mesonotum brownish black . . . . . 8
- 8(7) Clasper with four teeth, lower margin of epandrium without teeth. Ovipositor (egg-guide) elongate, ± pointed, with long dentiform bristles . . . . . 9
- Clasper with numerous teeth, lower margin of epandrium toothed. Ovipositor rounded, with very numerous small dentiform bristles. Japan . . . . . "*Drosophila* sp. 5" of Beppu et al. (1977)
- 9(8) Scutellum, halteres and legs pale. Clasper confluent with anal plate. India to Japan . . . . . *D. daruma* Okada
- Scutellum, halteres and legs dark. Clasper separated from anal plate. Taiwan . . . . . *D. asper* Lin & Tseng
- 10(5) Eight rows of acrostichal hairs. Three postsutural dorsocentrals. Neotropic (West Indies) . . . . . *D. illota* Williston
- Six rows of acrostichal hairs. One presutural and three postsutural dorsocentrals . . . . . 11
- 11(10) Arista with 5 branches (including terminal fork). *C*—*i* 3.6, 4*v*—*i* 1.7. Mesonotum dull brown with two incomplete blackish stripes. Ovipositor rounded, with about six long teeth and numerous minute spines. Japan . . . . . *D. quadrisetata* Takada, Beppu & Toda
- Arista with 8 — 9 branches including fork. *C*—*i* 3.0, 4*v*—*i* 1.35. Mesonotum grey, with pale brown stripe in each dorsocentral line. Ovipositor apically narrowed. SMA: Kazakh SSR . . . . . *D. avicennai* sp. n.

## Discussion

In spite of the shortage of moisture being strongly limiting factor for the occurrence of Drosophilidae, substantial increase of the present number of 14 known species of Drosophilidae of SMA is to be awaited if more large collections would be made. Almost all known material originates from the area southward to the 44th parallel; the larger northern part of SMA, including almost whole Kazakh SSR, is practically untouched by collecting work (however, it must be noted that the southern parts of SMA are more interesting because of more diversified natural conditions). For that reason, it should be premature to make complex evaluation of the fauna of SMA. However, presence of some endemic, or nearly endemic, species (*Gitona* and *Cacoxenus* spp., *Drosophila avicennai*) shows that in SMA autochthonous fauna of Drosophili-



dae has been developed, in spite of unsuitable climatic conditions of present time. Suitable microhabitats make possible also the occurrence of more widely distributed but food-specialized outdoor species (*Leuco-phenga maculata*, *Drosophila transversa*, *Scaptomyza* spp., obviously also *Drosophila pattersoni* and *D. bifasciata*). The remaining species — *D. ambigua*, *D. melanogaster* and *D. funebris* — are depending on human activities and may be considered with certainty or great probability immigrants of last hundreds of years (or less). The last group probably plays most important role in the transfer of pathogens.

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ANNOTATIONES  
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