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**Abstract.** Fifteen species of *Urophora* that have two pairs of subapical steps on the aculeus or mostly yellow notopleura are revised and divided into four groups. *Urophora tsoii* sp. n. (host plants: *Serratula coronata* and *Saussurea* sp.) from the Russian Far East, *Urophora arctii* sp. n. from southern Ukraine (host plant: *Arctium tomentosum*), and three unnamed new species are described. The following new synonymy is established (junior synonyms in parentheses): *U. variabilis* Lw. (= *Euribia kinishenkoi* Zaïtsev), *U. terebrans* (Lw.) (= *E. satunini* Zaïtsev); *U. egestata* (Hering) (= *U. ensata* Richter); *U. stalker* Korneyev (= *U. beikoi* Komeyev).

Key words: Diptera; Tephritidae; *Urophora*; systematics (new species; synonymy).

5. Species of *Variabilis* Group

**Diagnosis of the group.** Head. 1st flagellomere black; palpi yellow at base, black at apex, and slightly widened; labellum 1.2-1.5 times as long as 1st flagellomere. Thorax. Scutum densely black-pollinose masking cuticle, postpronotal lobes partly yellow, notopleura and lateral sides of scutum black. Femora, except apices, black; ex1 with setae, but without spines in both sexes. Wing with yellow base and 4 broad black crossbands. Terminalia. Tip of aculeus with smoothed-out primary and secondary steps.

**Composition.** The group includes one species.

12. *Urophora variabilis* Loew (Fig. 1).


**Redescription.** Head. Height of checks 0.4 height of eye. Wing. Crossbands: subbasai band extending from C to A1, rarely beyond A1, fused with discal band as far as R4-5, hyaline interval between discal and preapical bands 0.2-0.7 width of preapical band at level of R4-5, or bands connected with bridge at

level from R_{2+3} to M (80% of ♀s and 90% of ♂s from Ukraine and Moldova and 25% of ♂s from Caucasus); preapical and apical bands fused to R_{4+5} or beyond. **Terminalia.** Apex of aculeus as in Fig. 1. \( WL \♀ = 4.6\pm0.39 (4.2-5.3), AL = 2.3\pm0.44(1.7-3.1), ALWL = 0.49\pm0.06 (0.41-0.51 (-0.63)). \)

**Biology.** Larvae form galls in flower base of *Cirsium serrulatum* (Bieb.) Bieb. (Basov, 1987) and *Cirsium ukrainicum* Bess. (Korneyev, 1987); the second species is possibly a local form of the first (Kharadze, 1963).

**Discussion.** The species was described by Loew from one ♂; the subsequent redescription by Hendel (1927), in which the lengui of the ovipositor was reported as 2/3 length of abdomen, was based not on the type material but most likely on an erroneously identified ♀ of another species. Individuals from Caucasus are slightly larger and with a longer ovipositor as compared with specimens from Moldova, the Ukraine, and European Russia, but the length of wings of ♀s, ovipositors, and ratio of length of ovipositor to length of wing overlap within a range from \( M \pm 2\sigma \) to \( M \pm \sigma \), which permit discussion of local variation only, or possibly the subspecific status of *U. kiritshenkoi*. Host plants of this
species known at present are *Cirsium* spp. of the section Ciliata distributed from Transylvania to north-western Iran; die finding of *U. variabilis* in Turkmenistan possibly indicates a wider range of food plants.

Materials examined. 1. Type spms. *U. variabilis*: holotype ♂, with labels: "coll. Loew." "Variabilis Lw.," "Types" (on red paper) [in the original description: "Russia Meridionalis"]). ♂. *kiritschenkoi*: lectotype ♀ (designated here): "Tiflis [Tbilisi], [I]902" (Satunin) (ZIS); paralectotypes: GEORGIA: Borzhomi, [18]67, ♂, ♀ (Brand); RUSSIAN FEDERATION: N Ossetia, vicinity of Vladikavkaz; Kakadur, 25. VII. 1925, ♂, ♀, Dargavs, 24, 27. VII. 1925, ♂, ♀ (Kirichenko) (ZIS). 2. Other materials. MOLDOVA: Kishinev, sweeping in *Cirsium ukrainicum*, 27.VI, 12.VII. 1987, 7 ♂s and 8 ♀s (Koraeyev and Kameneva) (IZU, IBM); UKRAINE: 18, 20, 22.VI.1877, 2 ♂s, 2 ♀s (Yaroshievskiy) (ZIS) ("Urophora congrua Loew" — misidentification by Yaroshenko); Nikolayev Prov., Pervomaysk, vicinity of Migiya, on *C. ukrainicum*, 27.VII. 1985, ♂, ♀ (Komeyev); Zaporozhye Prov., Melitopol', Altagir, shore of harbor near Yefremovka, 27. VI. 1978, ♂ (Dzhafarov) (IZU); Donets Prov., "Kamennye Mogily," from flowers of *C. ukrainicum*, 5.V-12.VI.1984, ♂ (Volovnik) (IZU); Lugansk Prov., Proval', 21.VI.1908 (collector not known) (ZMSU); RUSSIAN FEDERATION: Tatarstan, vicinity of Tetyush, of flowers of *C. serrulatum*, 5.V-12.VI.1984, ♂ (Basov) (IZU); Stavropol' Terr!, Karaechaevo-Cherkess, Teberda, Malaya Khatipara Mt., 21.V. 1940, 2 ♂s (Stepanov); Kislovodsk, 29.VI. 1947, 4 ♂s, 3 ♀s (Kumakov) (ZIS); GEORGIA: Bakurani, on road to Tkshra-Tskharo pass, 2000 m, 30.VII.1951, ♂ (Vinogradov), 11, 27.VII.1953, ♂, ♀ (Zhil'tsova) (ZIS); AZERBAIJAN (?): "Dshelalogly," ♂, ♀ (collector not known) (IZU); TURKMENISTAN: "Murgabskoye Gosudarevo imeniye," 2.1X1916 (Ryabov) (IZU).

6. Species of *Solstitialis* Group

**Diagnosis of group.** **Head.** 1st flagellomere yellow; palpi yellow, apex darkened to orange, labellum 1.3-1.5 times as long as 1st flagellomere. **Thorax.** Scutum mostly densely pollinose masking cuticle; sides of scutum black; postpronotal lobes yellow, notopleura in most species completely or mostly black. Legs: *cx* in both sexes with setae, but without spines; femora yellow or partly darkened, rarely predominantly black; wing with yellow base and 4 bands; subbasal band isolated and partly shortened, but always developed. **Terminalia.** Apex of aculeus with distinctly developed primary and secondary steps (in *U. aprica* slightly smoothed out).

**Composition.** The group includes 5 species, discussion of which follows.

**Biology.** Species of this group are associated with various genera of the tribe Cardueae; larvae live in multichambered woody galls in flowers.

**Discussion.** The group includes several morphologically poorly distinguishable populations associated with different host plants; among them *U. aprica* Lw. and *U. sirunaseva* Hering, associated with *Centaurea*, are most differentiated. The remaining 3 species have small differences in structure of the ovipositor and can be reliably differentiated only by their host plants. The status of *U. sonderupi* (Hering) requires further study. The species discussed differ well from species of the spoliata group in the well-developed basal band.

13. *Urophora solstitialis* (Linnaeus, 1758) (Fig. 2).


**Description.** **Head.** Height of gena 0.3-0.5 height of eye. **Thorax.** Bases of *h scut* at border of yellow, medial and lateral black areas of scutellum, only in some montane spms. on black background.
Femora yellow, with black stripes or spots, except some montane spms. with almost entirely black femora; in most spms. only femora with black stripe and often without it. **Wing.** Bands: subbasal band distinct, black, extending from anterior margin of wing to A, slightly posterior to it; from discal band isolated at C by yellow interval; hyaline interval between discal and preapical bands approximately twice as wide as preapical band at level of R4+5; preapical and apical bands fused to Rj+i or isolated. **Terminalia.** Apex of aculeus as in Fig. 2. Distance between primary and secondary processes of blade considerably greater than 1/14 (1/8-1/12) total length of blade and greater than width of apex of blade distal of primary steps or isolated.

**Biology.** The species is associated almost exclusively with *Carduus* spp. (population associated with *Cirsium vulgare* from Denmark was described as a valid species, *Euribia sonderupi* Hering).

**Discussion.** *U. solstitialis* differs from all other species of the group in greater length of interval between the primary and secondary steps of aculeus. Close species like *U. terebrans* Lw. and *U. arctii* sp. n. are not actually distinguishable from it in other characters. All species are sympatric in considerable part of their ranges and are associated with different host plants; this provides the basis for considering them as valid distinct species. In montane specimens (as in *U. terebrans*) the midfemora and hindfemora are often completely or partly darkened. A large species from the affinis group, *U. cuspidata*, which develops on *Centaurea* spp., also differs reliably in the shape of the aculeus.


14. *Urophora terebrans* (Loew, 1850) (Figs. 3,4).

Redescription. Head. Height of gena 0.25-0.30 height of eye. Thorax. Base of anterior *ntpl* on black or yellow background; posterior *ntpl* on black background; in some spms. notopleural triangle and sides of mesonotal shield yellow as far as *prst*; *b scut* on yellow or black background. Femora yellow, forefemora with black stripe or without dorsal stripe, midfemora and hindfemora entirely yellow or (in montane spms.) mostly (from 1/4 to 4/5 length) black. 

**Wing.** Crossbands: subbasal band extending from C to *A*₁, in 7% of spms. rudimentary, in form of darkening on basal transverse veins; discal band isolated; stigma brown in apical 1/2-1/3 and yellow in remaining part; discal band usually posterior to apex of *rt* or from *ta* interrupted; hyaline interval between discal and preapical bands 1.8-2.6 times as wide as preapical band at level of *R₄+₅*; preapical and apical bands fused or isolated.

**Terminalia.** Apex of aculeus as in Figs. 3 and 4. Distance between primary and secondary steps of blade less than 1/4(1/15-1/21) length of total blade and not greater than width of apex of blae distal of steps or (rarely) as wide as it. *WL ♀ = 4.5±0.36 (4.0-5.3), AL = 3.7±0.48 (3.2-4.7), ALIW*L = 0.82±0.07 (0.68-0.92) (n = 28).

**Biology.** In Moldova and in S Ukraine larvae develop in woody, multichambered galls in inflorescence of *Onopordum acanthium* L. and *Cirsium ukrainicum* Bess. (= *C. serrulatum* (Bieb.) Bieb. s.lat.) (the Section Ciliata). It was found exclusively in habitats of where bom host plants occur; according to preliminary observations, ♀s of the spring-summer generation developing in *Onopordum* lay their eggs in *Cirsium* and in late-blooming flowers of *Onopordum* as well.

**Discussion.** The holotype of *E. satunini* was not examined; however, we managed to examine a toptotypic specimen which completely fits the original description. Zaytsev (1945) pointed out the proximity of this species to *"E. eriolepidis"* (= *terebrans*) and cited the narrow crossbands of the wing as the most important difference. As had been shown earlier, within the range of *U. terebrans* this character is variable. The shape of the apex of the aculeus in the specimen from Turkey is typical of *U. terebrans* (Fig. 4). The remaining specimens cited below have predominantly yellow femora, often with a black stripe on *j* and rarely with dark spots on *f₂* and *f₃* as in *U. solstitialis*. They have the peculiar shape of apex and length of ovipositor typical of Western European specimens, and also very similar biology (partial or complete transition from one food plant to another, similar to species of *Cirsium* and *Onopordum* in Western and Eastern Europe). This fact forces us to consider these specimens as a pale form (associated with plains) of *U. terebrans*, previously known only from montane specimens. The range of the species, to all appearances, is restricted by me distribution of biocoenoses including both *Onopordum* and suitable species of *Cirsium*. It differs from *U. solstitialis* in me shorter distance between the primary and secondary steps of the blade (less than width of blade distally of primary steps or, rarely, equal to it) and longer ovipositor. The distance between the primary and secondary steps is always less than 1/15 of the total length of the blade. This, together with the food plants, is die only reliable character distinguishing *U. terebrans* from closely related species.

**Materials examined** (additional to published materials): MOLDOVA: Kishinev, from flowers of *Cirsium ukrainicum*, collected 28.IV.1986, emerged 25.V.1986, ♀ (Korneyev); same locality, on *Onopordum acanthium*, 24.V.1987; ♂, same locality, from flowers of *O. acanthium*, collected 1.VIII.1987, 10 ♀s, 3 ♀s (Korneyev and Kameneva) (IZU, IBM); Trebuzheny, near Orkney [Orgeyeva], on *Cirsium ukrainicum*, 26.VI. 1988, 7 ♀s, 1♀ (Korneyev); lower part and mouth of Reut River, near Dubossary, from flowers of *O. acanthium*, collected 28.IV., emerged 20.V.1986, 2 ♀s, 1 ♀ (Korneyev) (IZU and IBM); UKRAINE: Nikolayev Prov.: vicinity of Pervomaysk, Migiya,
abandoned field, on *Cirsium ukrainicum* and reared from flowers, collected 15.VIII, emerged X. 1985, 2 ♂s, 2 ♀s (Korneyev) (IZU); Kherson Prov., vicinity of Kalanchak, Novovaleksandrovka, from flowers of *O. acanthium*, collected 16.VI. 1985, ♂; collected 2.V, emerged 11.VI-13.VIII. 1987, 9 ♂s, 10 ♀s; collected 23.VIII, emerged 15.VIII-3.IX. 1987, 4 ♂s (Kameneva and Korneyev) (IZU); Donetsk Prov., Proval'ye, 21.VI.1908, ♀ (Troitskiy) (ZMSU); RUSSIAN FEDERATION: N Ossetia: Mozdok, 30 km SW of Sukhotskoye, 2.VIII.1988, 3 ♂s (Ozerov) (ZMSU); ARMENIA: "Tajtsharuch, d. Novo-Bajazet, g. Erivan," 8.VII. 1924, ♀ (S. Paramonov) (IZU); Khachik, VI. 1885, 3 ♂s ("Kov-rays.") (ZIN); AZERBAIJAN: st. [not clear.], on Araks River, 4-5.VI. 1933, ♀ (Luk'yanoichi) (ZIS). TURKEY: "pr. Kars, lac. Čaldyr," 5.VI. 1913, ♀ [Satunin] ("Euribia enolepidis Loew" [Ph. Zaitzev det.]) (ZIS).

**Data on holotype.** Holotype (?) of *E. saturant* TURKEY: Kars Prov., Lake Childyr, 31.VI. 1913 (Satunin) (locality not determined, probably preserved in the Institute of Zoology, Georgia, Tbilisi).

15. *Urophora arctii* sp. n. (Fig. 18).

**Description.** Head. Height of gena 0.2-0.3 height of eye. Thorax. Bases of both *ntpl* on black background; bases of *b scut* on yellow background. Femora yellow, forefemora dorsally with black stripe, midfemora with black spot on ventral side near base, and bindfemora black near base on ventral side, or also dorsally with black spots. Wing. Crossbands: subbasal band extending from *C* to *A1*; discal band isolated from subbasal band, stigma brown in apical 1/2-1/3, in remaining part yellow, rarely posteriorly from *ta* band interrupted or absent; hyaline interval between it and preapical and apical bands 1.9-2.4 times as wide as preapical band at level of ^4+5; preapical and apical bands fused to ^4+5 or isolated.

Terminalia. Apex of aculeus as in Fig. 5. WL ♀ = 3.7±0.24 (3.4-3.9), AL = 2.8±0.20 (2.6-3.0), AL/WL = 0.71-0.77 (n = 3).

**Biology.** Larvae develop in multichambered woody galls in flowers of *Arctium tomentosum* Mill.

**Discussion.** *U. arctii* sp. n. differs from the two preceding species: from *U. solstitialis* in the shape of the apex of the blade, and from *U. terebrans* in shorter wings and ovipositor.


16. *Urophora aprica* (Fallen, 1820) (Fig. 6).


**Discussion.** This species, as well as the following one, is associated with *Centaurea* spp. and differs from all species of the group in very broad discal and subapical bands of the wing, and also in always black femora; *U. lopholomae* White & Korneyev, similar to *U. aprica* in appearance, differs in presence of 1 pair of preapical steps, instead of 2 steps.

**Materials examined** (additional to those published). UKRAINE: Zhitomir ("Schitomir"), ♀ (Proshina) (IZU); vicinity of Kiev: Khodosovka, 16.VII. 1985, 2 ♀s (Korneyev) (IZU); RUSSIAN FEDERATION: Pskov Prov.: "Dubets Lake, Novorzh.," 22.V.1905, ♀ (N. N. Kuznetsov); Krasnodar Terr.: Maykop Distr., 11.VII. 1932, ♀ (Aksinin) (ZIS); Tatarstan: Tetyushi, from flowers of *Centaura cyanus*, collected 23.VII, emerged 24-30.VIII. 1985, ♂; Mamadysh Distr., Cherkosovo, from flowers of *C. cyanus*, collected 14. VII, emerged 16-20. VIII. 1990,2 ♂s, 4 ♀s (Basov) (IZU).
17. *Urophora sirunaseva* (Hering, 1938b) (Fig. 7).


**Discussion.** This species differs from other species of the group only in entirely yellow, without black spots, femora and short interval between primary and secondary steps on the apex of the aculeus, approximately 1.5 times its width between secondary steps.

**Material examined** (additional material to that published). MOLDOVA: Troitskoye, on *C. solstitialis*, 14.VII. 1989, ♀ (Korneyev) (IZU); UKRAINE: Odessa Prov.: Dnestrovskiy lirnan (harbor), 7 km W of Zatoka, Karoline-Bugaz, from *C. solstitialis*, collected 22.IX. 1984, emergence III. 1985, 4 ♂♂, 3 ♀♀ (Korneyev) (IZU, IBM); Crimea: Karadag, from *Centaurea* sp. collected 29.IV.1987, emerged VII. 1987,8 ♂♂, 8 ♀♀ (Berest) (IZU). AZERBAIJAN (?): "Margushevan near Terter," 23.V.1935, 2 ♀♀ Veltishchev) (ZIS).

7. Species of *Spoliata* Group

**Diagnosis of the group.** Flies similar to species of solstitialis group, but subbasal band of wings completely reduced (basal transverse veins are darkened at most), and discal and preapical bands often shortened or interrupted (in *U. tenuis* crossbands completely reduced). **Terminalia** as in *U. solstitialis*. Notopleura entirely black.

**Composition.** This group includes 7 species, among which *U. spoliata* Haliday is known only from W Europe.

**Biology.** These flies are associated with species of *Saussurea, Serratula*, and some subgenera of *Centaurea (Centaurea* and *Calcitrapa*).

**Discussion.** Strictly speaking all species should be placed in die preceding group, but for convenience we distinguish diem as a smaller complex. Further investigations may force us to revise our point of view regarding the volume of some of species included and lower their rank to the level of subspecies.

**[Urophora spoliata (Haliday)]**


**Comments.** Through the kindness of Dr. B. Merz we were able to use unpublished materials that he collected in Hungary. Earlier the species was known only from southeastern England. This species differs from the very closely related *U. tenuis* Becker in darkened midfemora and hindfemora and shorter aculeus (in specimens from England *AL* = 1.7-2.0, *AL/WL* - 0.50-0.65, in specimens from Hungary *AL* = 1.5-1.6, *AL/WL* = 0.54).

**Materials** (additional to published). HUNGARY: Velenze Lake, SW of Budapest, h = 150 m, 1 IX. 1990, 23.VI.1991, ♀♀, 2 ♀♂s (Merz) (IZU).

18. *Urophora christophi* Loew (Fig. 21).

Loew, 1869: 19.

**First description. Head.** Height of gena 0.3 height of eye. Bases of *scut* at border of black and
yellow areas. **Femora** yellow; forefemora with dorsal yellow stripe. **Wing.** Subbasal and discal cross-bands reduced and stigma yellow; transverse veins brown to dark brown, only \( t_p \) margined with brown. Apex of wing with broad apical band extending above \( t_p \) as far as middle of cell \( R_3 \) or even to \( R_4+5 \). **Terminalia.** Apex of aculeus as in Fig. 8. \( WL \, \varphi = 3.7-5.0, \, AL = 2.2-2.5, \, AL/WL = 0.46-0.54. \)

Biology not investigated.

**Remarks.** This species differs from the closest E Palearctic species, *U. egestata* Hering, which has a similar, although less reduced, wing pattern, and in considerably shorter ovipositor. It differs from *U. spoliata* Haiday from England in the predominantly yellow and shorter ovipositor. From *U. volkovae* Korneyev it differs in sharp, not diffused, and shorter ovipositor.

**Materials.** 1. **Type spms.** Lectotype (designated here) \( \varphi \): RUSSIAN FEDERATION: European part, lower part of Volga River region, vicinity of Volgograd, Sarepta, date not shown (Becker), with labels: "christophi Lw," "typus" (ink on red paper) and "Coll. H. Loew" (ZMHB) (dissected):

paralectotype (ZMHB) (examined, but not dissected). 2. Other spms. RUSSIAN FEDERATION: same locality, with labels: "Sarepta," "Sarepta, Becker," No. 39, No. 24, No. 13901, No. 13902, and No. 586 from coll. of Kowarz, 2 ♂s, 3 ♀s (ZIS) (examined); several topotypic spms. in other museums (TMB, NHML, and UMO).

19. *Urophora egestata* (Hering) (Fig. 9).


Redescription. Head. Height of gena 0.3 height of eye. Thorax. Bases of *b scut* on yellow background of scutellum. Femora yellow. Wing. Subbasal band completely reduced; stigma usually yellow, but in holotypes of *U. ensata* and *U. egestata* brown in apical half or third; *t* with or without brown edging, darkened areas between *t* and apical *R*; preapical band developed in form of narrow, brown longitudinal marginal stripe sometimes connecting with apical band; apical band brown and distinct, above *tp* extending as far as middle of cells *R* or *R*. Terminalia: apex of aculeus as in Fig. 9. *WL* ♀ = 3.9-5.3, *AL* = 3.5-3.9

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Biology. Adults were reared from heads of *Serratula nishimurana* Kitagawa and *Saussurea amara* (L.) DC (= *S. japonica* (Poir.) DC) (Hering, 1953).

Remarks. The similarity of *U. egestata* and *U. ensata* was noticed by Steyskal (1979) and the latter species was considered as possible junior synonym; we examined holotypes of both species and did not find any significant differences. *U. egestata* differs from other species of the group in the considerably longer ovipositor.


*Urophora* sp. 1 (Fig. 10).

Diagnosis. Species close to *U. egestata* Hering in pattern of wing and size, differing in dorsally darkened femora, if with longitudinal stripe, f1 and f3 with spots on ventral side). Apex of ovipositor blade as in Fig. 10.

Remarks. The single specimen of this species most likely represents a subspecies or form of *U. egestata* with darkened femora. It is necessary to examine additional materials.


20. *Urophora tsoii* sp. n. (Figs. 11, 21).


Description. Head. Height of gena 0.25-0.30 height of eye. Thorax. Bases of b scut on border of black and yellow background or on yellow background of scutellum. Femora entirely yellow. Whig. Subbasal band completely reduced, only in several ♀s on apex of basal transverse veins nonhyaline-brownish spot present, stigma mostly black-brown; discal band extending without interruptions to middle of discal cell, further shortened, interrupted, or (in 40% of spms., predominantly in ♀s) reaching as far as posterior margin; width of hyaline interval separating discal from preapical band less or as long as width of preapical band at level of R4+5; cited bauds often appearing connected with bridges (more often in ♀s): on anterior and posterior margins of wing and along R4+5, M and Cu [Fig. 21; see also Komeyev (1987): Fig. 21]. Terminalia. Apex of aculeus as in Fig. 11. WL ♀ = 3.8-4.8, WL ♂ (from *Serratula*) = 3.4-3.9, WL ♂ (from *Saussurea*) = 2.9-3.4, AL - 2.3-2.5, AL/WL = 0.51-0.80.

Biology. Larvae in flowers of *Serratula coronata* L. and *Saussurea* sp.; the latter was determined as *U. sachalinensis* (Korneyev, 1987). The latter species has similar variable pattern of wing as in *U. tsoii*, and yellow femora, but it belongs to the group of species related to *U. stylata* and differs in the S-shaped curved vein closing CuP, the rather distinct subbasal band, and apex of aculeus with one primary pair of steps. The extraordinary similarity of the host plants of *U. egestata* and *U. tsoii* allow the
supposition that these species may be extreme geographic or seasonal forms of one species; however, they differ well in length of the ovipositor and development of discal band. Additional laboratory-reared materials should be studied.


21. Urophora tenuis Becker (Fig. 12).


Redescription.  Head. Height of gena 0.3 height of eye. Thorax. Mesonotal scutum densely Pollinose in middle, rarely on margins; bases of b scut on border of yellow and black or on yellow background of scutellurum; femora yellow, rarely f1 with black stripe on dorsal side. Wings entirely hyaline, stigma pale yellow; veins yellow. Terminalia. Apex of aculeus as in Fig. 12. WL ♀ = 3.0-3.5, AL = 2.0-2.4, AL/WL = 0.66-0.70.

Biology. This species was reared from flowers of Serratula cardunculus (Pall.) Schischkin, S. spp., Saussurea sp. nr. alpina and caught on Centaurea iberica Trev. (♀ aberrant food plant).

Discussion. Among type materials in the collection of ZIS the holotype was not found; ♀ from the collection of Becker (ZMUB) with labels "Turkestan," "tenuis Beck. 1908," and later-dated red label with printed "Typus" very similar to other specimens of U. tenuis, but differs distinctly in greater size (WL ♀ = 4.3, AL = 2.6, AL/WL = 0.6) and dark femora (forefemora with black stripe on dorsal side, hindfemur and midfemur darkened ventrally at base) from the original description, which was based only on the holotype; this specimen is not the type and apparently had been determined after the publication of the original description. The late notes of Hering (1940) concerning the shiny sides of the mesonotum and darkened femora in "Eurybia tenuis" were based on the same specimen. This specimen is very close in size to U. christophi and most likely is an aberrant specimen without wing pattern of this species. At the same time, the first description is complete enough to ascertain that it belongs to moderate-sized species from heads of small plants of Serratula and Saussurea widespread in plains and middle montane steppes of Central Asia.

The Far Eastern U. mandschurica (Hering) differs in greater size and one (primary) pair of steps on apex of aculeus, and the European species U. maura (Lw.) differs in opaque, slightly tomentose katepisterna near shiny part in the middle. U. tenuis differs from other species of the christophi group and species of the genus in general in the complete reduction of wing pattern in combination with black notopleura.

Materials examined.  2. Other materials. RUSSIAN FEDERATION: European part: Volgograd Prov.: "Sarepta, [1895]," ♀ (Becker) (ZIS); Peschanka, 22.VI. 1952, ♀ (Peredel'skiy) (ZMSU); Orenburg Prov.: Verkhnyaya Dneprovska, left bank of Ural River, upstream from Orenburg, 10.VII. 1935, ♂ (L.)

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Zimin) (ZIS); KAZAKHSTAN: Aktyubinsk Prov.: Koylibay (Kara-Chokat), Malyye Barsuki, 23.VI.1930, 13.VIII.1931, ♂, ♀ (Bianchi; Luppova); Tselinograd Prov.: Kokshetau, from flowers of Serratula sp., collected 26.IX. 1986, emerged I-III. 1987, 10 ♂s, 3 ♀s (Kameneva and Korneyev), vicinity of Alma-Ata, out of flowers of Serratula sp., collected 27.IX. 1986, emerged II-III. 1987, 10 ♂s, 3 ♀s (Kameneva and Korneyev) (IZU, NHML): Taldy-Kurgan Prov., Lake Balkhash region, sand desert N of Ushtobe, 2.VIII. 1976, 3 ♂s (Ivannikov) (IZU, IZK); KRYGYZSTAN: Bishkek, Lebedinovka, on Centaurea iberica, 31.VII. 1986, ♂ (Korneyev); Przhevaisk Prov., Kayngdy-Katta Mountains, 7 km upstream from mouth of Kayyangdy River, on Saussurea sp. cf. alpina, collected 17.VII. 1986, ♂ and ♀ (Korneyev) (IZU); Osh Prov.: Mikhailovka, Kugart River valley, 15.V.1925, ♂ (Dobrzhanskiy); Gul'cha, 19.Vn.[18]95, ♂s (Korzhin) (ZIS); TURKMENISTAN: Krasnovodsk Prov.: Mollakara near Dzhebel, 7.VI.1934, ♂ (V. Popov); Bol'shiye Balkhany, Koshagoy, 1800 m, 25.VI. 1934, ♀ (V. Popov) (ZIS); Ashkhabad Prov.: Geok-Tepe, 6.V. 1977, ♀ (Shatalink) (ZMSU); UZBEKISTAN: Samarkand Prov.: Kattakurgan, vicinity of Kumak, 25.IV.1929, ♂ (L. Zimin) (ZIS); MONGOLIA: Khentey aymak, 12 km N of Gal-Shir, 30.VII.1971, ♂, ♀ (Kerzhner); Vostochnyy aymak, 30 km SW of Salkhit Mountain, 24.VII.1971, ♂ (M. Kozlov); Kobdos aymak, Nariyn-Bulak spring, Dth-Khavtgiyn-Nuru Mountains, 24.VII. 1970 (Yemelyanov), Yelkhon, 20 km SE of Altai, 27. VII. 1970, 2 ♂s (Narchuk); Vostochno-Gobi aymak, 55 km SE of Khara-Ayag, 12.VI.1971, ♂ (Kerzhner) (ZIS); CHINA: "Kina, Kansu, Swen Hedhns Exp. Ctr. Asien," ♂ (without head) (Hummel) (NRMS).
4.VII.1975, ♀ (Ivannikov) (IZU, IZK); vicinity of Alma-Ata, from Centaurea turkestanica, collected 1.IX.1986, emerged 17.III-10.VIII.1987, 6 ♂s, ♀ (Kameneva and Korneyev) (IZU).

8. Species of Xanthippe Group

**Diagnosis.** Head. 1st flagellomere yellow; palpi yellow, on apex darkened to orange, straight or slightly widened on apex; labellum 1-1.5 times as long as 1st flagellomere. **Thorax.** Scutum dense, grayish Pollinose; notopleura and parts of scutum adjacent to lobes of postnotum always yellow; cx₁ in both sexes without spines. **Femora** yellow, often with black spots and stripes. **Wing** with yellow base and 3-4 crossbands, or without them. **Terminalia.** Aculeus at apex with smoothed-out steps, 1 pair of primary steps at most.

**Biology.** These flies are associated with plants of the genera Cousinsia and Acroptilon.

**Discussion.** This is a polyphyletic group, but because the majority of species included in it are poorly known, we unite them in one group on the grounds only of broadly yellow sides of the scutum.

**Composition.** The group includes 5 species, 4 of which are distributed in the study area and are discussed below. U. hermonis Freidberg occurs only in the Middle East (White and Korneyev, 1989).

23. Urophora xanthippe (Munro) (Fig. 14).

Munro, 1934: 236; Richter, 1965: 142 (Euribia); Kameneva and Korneyev, 1984: 71; Foote, 1984: 145.

**Redescription.** Height of gena 0.3 height of eye. Bases of b scut on yellow background of scutellum. **Femora** yellow, forefemora sometimes with yellow dorsal stripe, most often without. **Wing** hyaline, with yellow stigma, yellowish microtrichia, and with brown longitudinal veins in apical 1/3-1/4. Apex of aculeus as in Fig. 1 WL ♂ = 3.1±0.21 (2.6-3.6) (n = 39), WL ♀ = 3.5±0.18 (3.1-3.8), AL = 2.1±0.26 (1.5-2.5), AL/WL = 0.59±0.07 (0.43-0.75) (n = 33).

**Biology.** This species develops in flowers of Acroptilon repens (L.) D. C. and possibly in some other plants. The record of Centaurea squarrosa as a food plant is likely, but Erygium microcalyx and Sisymbrium brassiciforme are apparently a result of mislabeling.

**Comments.** U. xanthippe differs from other species with hyaline wings, U. impicta and U. hermonis, in lesser size.

**Materials examined. 1. Typespms.** Holotype ♂ (without head): TURKMENISTAN: "Ashkhabad Transcaspien," "coll. Oldenberg," "Holotypus" on red paper, printed, and writing with ball point pen on opposite side: "1927," and red photolabel: 'Type. Euribia Xanthippe Mro. det. H K Munro 1934" (DEI). 2. Other spms. UKRAINE: Novoaleksandrovka, 80 km SE of Kherson, 20.V.1985, ♂ (Korneyev); same locality, from flowers of Acroptilon repens, collected 25.IV. 1983, emerged 10-26.V.1983, 2 ♂s, ♀ (D'yakonchuk) (IZU); KAZAKHSTAN: Aktyubinsk Prov.: Kara-Chokay, 20. VI. 1930, ♂ (Bianki) (ZIS); Chimkent Prov.: U'ken-Karatau plateau, S Turkestan near Kilip-Tibe, "from Sisymbrium brassiciforme" 31.IV-18.V.1983, 3 ♂s (Fedotova) (IZU), Karatau Mountains, Kuyuk pass, "from flowers of Centaurea squarrosa Wild.," collected 10.IV.1982, emerged 19.IV-12.V. 1982, 2 ♂s, 2 ♀s (Fedotova); Dzhambul Prov.: Chu River, 15. VII. 1960, 10 ♂s, 2 ♀s (Kerzhner) (ZIS); 28 km S of Akkol, 10.V.1977, ♂, mountain foothills of Kirgizian Alatau, near Dzhambul, 22.V.1977, 4 ♂s (Ivannikov); Alma-Ata Prov.: 20 km NW of Bakanas, from flowers of Acroptilon repens, collected 24.IV.1983, emerged V-VIII.1983, 5 ♂s, 5 ♀s (Fedotova), Ili River valley, Kerbulak,
8.IV. 1977, 2 ♂ s; sand desert N of Kerbulak, 14.IV. 1977, 4 ♂ s (Ivannikov) (IZU, IZK); vicinity of Alma-Ata, from flowers of *A. repens*, collected 21.DC.1986, emerged 2.III.1987, 4 ♂ s, 6 ♀ s (Korneyev and Kameneva) (IZU, IBM, NHML); UZBEKISTAN: Tashkent Prov., Chatkal Reserve, Bashkyzylsay, *Eryngium macrocaiyx* collected 21X1981, emerged 3.V.1982, 2 ♂ s, 3 ♀ s (L. Volkova) (IZU, ZMSU); Samarkand Prov.: Kumak near Kattakurgan, 6.V, 24 and 29.VI. 1929, 3 ♂ s, ♀ (L. Zimin); TAJIKISTAN: vicinity of Dushanbe, 30.V-3.VI.1934, ♂, 3 ♀ s (Gussakovskiy); same locality, 13, 29.V. 1939, 3 ♂ s (L. Zimin); TURKMENISTAN: Krasnovodsk Prov.: Akhcha-Kuym, 5.VII. 1934, 2 ♀ s (V. Popov); Kara-Kala, Chandyr River valley, tributary of Sumbar River, 26-29.IV, 22.V.1933, VI. 1952, 12-27.VI. 1955, 13 ♂ s, 6 ♀ s (Ushinskiy and Tobias) (ZIS), 10 km S of Ashkhabad, 23-27.IV.1987, ♀ (Antropov) (ZMSU); AFGHANISTAN: Umgeb. u. Kabul, 1740 m, 14.V.1952, ♀ (Klapperich) (NHML).

24. *Urophora impicta* (Hering) (Figs. 15, 20).


**Redescription.** Height of gena 0.24-0.28 height of eye. Bases of *b scut* on yellow background of scutellum. Femora yellow, only forefemora with black stripe on dorsal side. Wing hyaline, with
yellow stigma, with yellowish microtrichiae, in apical 1/3-1/4 with brownish longitudinal veins, including costal vein. Apex of aculeus as in Fig. 15. \( WL \, \text{♂} = 3.7\pm0.15 \) (3.6-3.9), \( WL \, \text{♀} = 4.6\pm0.23 \) (4.3-4.7), \( AL = 3.6\pm0.15 \) (3.5-3.8), \( AL/WL = 0.80\pm0.03 \) (0.77-0.81) \( (n = 3) \).

**Biology.** In Turkmenistan this species was reared from flowers of *Cousinia eryngioides* Boiss. together with *U. sciadocousinia* Komeyev & White. The food plant in the type area is not known, but probably this is the only species occurring there of the genus *Cousinia astrakanica* (Spreng.) Tamamsh.

**Remarks.** *U. impicta* differs from *U. xanthippe*, which is similar in die color of body and wings, in larger size and also in the shape of the apex of the aculeus. It differs from *U. hermonis*, which is of similar size and shape of aculeus, in completely yellow forecoxae and also undarkened forefemora and midfemora.

**Materials examined.** 1. **Type spms.** Lectotype \( \text{♀} \) (designated here) and paralectotype \( \text{♂} \) : RUSSIAN FEDERATION: European part, vicinity of Vologograd ("Khad near Sarepta") with labels: "Ha\( \text{♂} \) (ink on old yellowed paper), "coll. H. Loew," "impicta Lw." (ink on old yellowed paper, handwriting of H. Loew), "Typus" (printed on red rectangle of old paper), "Euribia impicta \( \text{♀} \) Type det. M. Hering 1941" and "... \( \text{♂} \) Type ....," respectively, and "Zool. Mus. Berlin" on yellow radier old rectangle (ZMHB). 2. **Other spms.** RUSSIAN FEDERATION: European part, vicinity of Vologograd ("Had," label as on type spms., 'collection] of Porchinsky"), \( \text{♂} \) (ZIS); ARMENIA: Vedi, Khosrov Reserve, 25.VI.1981, 9 (Ermolenko) (IZU); TURKMENISTAN: C Kopetdag, Chuli, from flowers of *Cousinia eryngioides*, 25.IV. 1975 (date of emergence not shown), 2 \( \text{♂} \)s, 2 \( \text{♀} \)s (1 \( \text{♀} \) was dissected) (D'yakonchuk) (IZU).

25. **Urophora kasachstamca** (V. Richter) (Fig. 16).

Redescription. Height of cheek 0.25-0.35 height of eye. Bases of \textit{h scut} on yellow background of scutellum. \textbf{Femora} yellow, without dark stripes and spots. \textbf{Wing} with 3 crossbands: subbasal band not developed; stigma yellow or brownish at very apex; discal band continuous or broken into spots; hyaline interval separating discal and preapical bands 1.5-2.0 times as wide as preapical band at level of R4+5; preapical and apical bands always widely separated. Apex of aculeus as in Fig. 16. \( WL \varphi = 3.08 \pm 0.30 (2.5-3.8), AL = 1.88 \pm 0.29 (1.5-2.9), AL/WL = 0.61 \pm 0.09 (0.43-0.81) (n = 22) \).

\textbf{Biology.} Larvae develop in flowers of \textit{Acroptilon repens} (L.) D. C. forming single lignified galls.

\textbf{Comments.} \textit{U. kasachstanica} differs from \textit{U. stalker}, in addition to shape of apex of ovipositor, in complete absence of dark spots and stripes on femora and subbasal band and also in lesser length of wing.


26. \textit{Urophora stalker} Korneyev (Fig. 17).


\textbf{Redescription.} Height of gena 0.25-0.40 height of eye. Bases of \textit{h scut} on yellow background. \textbf{Femora} yellow, \( f_1 \) with black dorsal stripe, \( f_2 \) and \( f_3 \) with ventral black spots in approximately 40% of individuals. \textbf{Wing} with 4 crossbands, subbasal band from C reaching A; stigma brown or yellow; discal band widely separated from subbasal band, continuous or (in some paratypes of \textit{U. beikoi}) widely interrupted at discal cell; hyaline interval dividing discal and preapical bands 1.0-2.5 times as wide as preapical band at level of \( R4+5 \); apical and preapical bands separated or fused to \( R4+5 \). Apex of aculeus as in Fig. 17. \( WL \varphi = 4.6 \pm 0.25 (4.1-5.2), AL = 3.5 \pm 0.42 (2.7-4.1), AL/WL = 0.75 \pm 0.08 (0.57-0.85) (n = 13) \).

\textbf{Biology.} Imagines were collected from \textit{Cousinia vicaria} Kult, and \textit{C. severtzovi} Regl., but food plants of the larvae have never been determined positively.

\textbf{Discussion.} Wing patterns of type specimens of \textit{U. stalker} and \textit{U. beikoi} represent extreme variants linked in series (for example, from Kyrgyzian Alatau) by transitions without differences in other characters. Therefore, we consider \textit{U. beikoi} as a junior synonym.

25.V.1911, ♀ (Hohlbek) (ZIS); TURKMENISTAN: 10 km S of Ashkhabad, 23-28.IV. 1987, ♀ (Antropov) (ZMSU); TAJIKISTAN: Hissar Mountains: Quak, 35 km N of Dushanbe, 1500 m, 10.VI.1937, ♀ (Gussakovskiy), Kzyl-Tam NW of Hissar Mountains, 2080 m, 24.VII.1933, ♀s (Vel'tishchev), Peter I Mountains, Gardan-i-Kaftar Pass, 11.VII.1911, ♀ (Hohlbek); Khorog, Gunt-Shakhdara, Shugnan, 11.VIII.1897, 2♂, ♂ (Kaznakov) (ZIS).

Urophora sp. 2.

Diagnosis. In shape (Fig. 18) and length of aculeus close to *U. stalker*, differing in completely reduced pattern of wing (Fig. 22). \( WL_\varnothing = 3.6-4.1, WL_\varphi = 4.0-5.0, AL = 3.2, AL/WL = 0.8. \)

Comments. Possibly this is a new species or a form of the preceding species with poorly developed wing pattern. Examination of additional material is necessary.


Urophora sp. 3.

Diagnosis. Similar to *U. xanthippe* in completely hyaline wings, differing distinctly in shape of apex of aculeus (Fig. 19). \( WL = 3.7, AL = 2.7, AL/WL = 0.73. \)

Comments. The only specimen is so badly damaged it does not allow us to determine its status as new species or an aberrant specimen of *U. xanthippe*.