

THREE NEW SPECIES OF
PALAEARCTIC *PHORA* LATREILLE (DIPT., PHORIDAE)
WITH NOTES ON OTHER SPECIES AND NEW SYNONYMS

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The genus *Phora* comprises more than 50 species from the Holarctic, Afrotropical, and Oriental regions, being mainly temperate in distribution. However, the vast territory of the former Soviet Union is still poorly investigated (Colyer & Elberg, 1966, 1969; Michailovskaya, 1999). Careful study of the largest collections in the Zoological Museum, Moscow, and Zoological Institute, St Petersburg, resulted in the recognition of three species new to science.

Male hypopygia and hind legs of type specimens were detached and left in cold 10% solution of KOH for several days, then rinsed in water and in alcohol and transferred to a drop of glycerol for further study. This technique differs from that proposed earlier (Disney, 1983), but is more suitable for the larger phorids with bulky terminalia. It allows study of them, gently cleared, and without distortion of complex structures. In the present paper I follow the terminology proposed by Gotô (1984), with the following exception. It has been hypothesised elsewhere (Mostovski & Disney, in press) that the right surstylus in *Phora* males consists of both surstyli and the subepandrial sclerite fused together. Consequently, the lower lobe of the left side of the epandrium (in species with a divided epandrium) is not considered to be the left surstylus.

The material studied is housed in the following Museums and Institutions: Zoological Institute (St Petersburg) (ZIN); Zoological Museum of Moscow University (ZMUM); University Museum of Zoology, Cambridge (UMZC).

***Phora ozerovi* sp. n.**

Male. Head. Frons somewhat narrowed a little above mid-point. Antennae and palpi dark. Legs totally brown except for fore tibia which is brownish yellow on dorsal and inner surface. Mid tibia with 2 anterior bristles apart from 6–7 dorsal ones, hind tibia with 1 anterior bristle. Basal projection of hind femur weakly developed, trapezoidal (fig. 1). Base of hind femur with several short and longer ventral hairs, and 3 short bristle-like hairs and a patch of very delicate hairs on inner surface. Wings pale yellowish to clear, area above Sc and Rs more heavily pigmented. Wing length 2.16–2.88mm long. Costal index 0.54–0.57. Costal ratio 0.77–0.83 : 1. Veins brown. Five bristles on axillary ridge. Left side of epandrium deeply cleft to give 2 distinct lobes (fig. 2). Upper lobe large, broad, with rounded posterior margin. Lower lobe nearly hidden below upper lobe, with somewhat concave ventral margin and rounded posterior margin, bears a subvertical, well sclerotised, ridge along anterior margin. Lower lobe with posterodorsal brush of bristles. Right epandrial lobe clearly three-dimensional, tapered posteriorly (fig. 3). Right surstylus with straight posterior margin and wrinkles along dorsal face. Left process of right hypandrial lobe bent at a right angle. Right process with distinct ventral expansion.

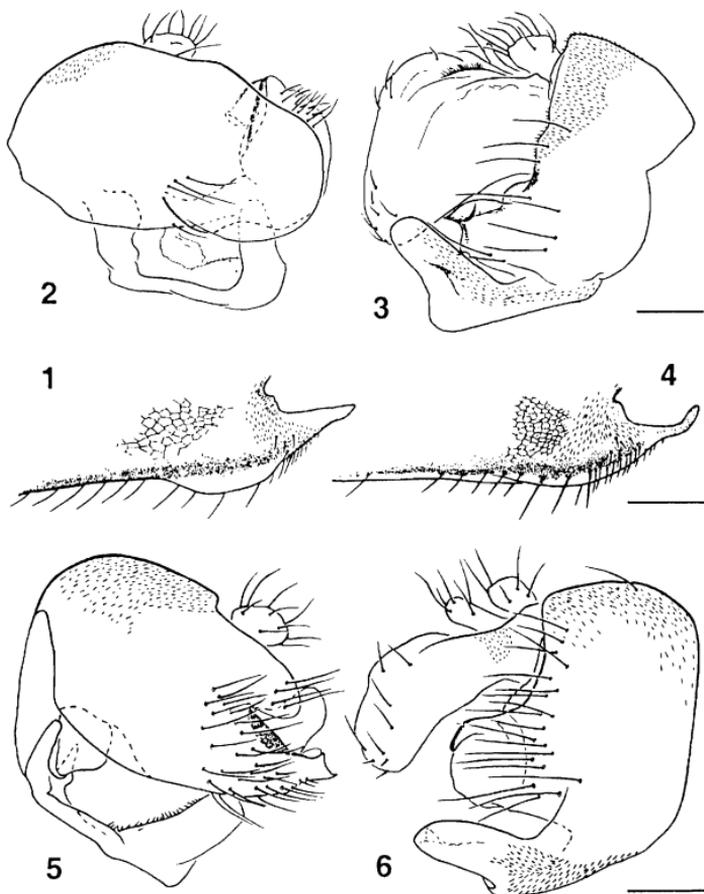
Holotype ♂, RUSSIA: Caucasus, North Osetiya, near Buron settlement, Tseiskoe Gorge, 6.vi.1989 (*A.L. Ozerov*) (ZMUM).

Paratypes. 4♂♂, same data as holotype (ZMUM); ♂, same data as holotype (ZIN).

In the key to British *Phora* (Disney, 1983) the new species runs to either *dubia* (Zetterstedt), *edentata* Schmitz, or *tincta* Schmitz. However, it differs from them at once in the upper lobe of the left side of the epandrium being remarkably larger and broader, in the right surstylus having a nearly straight posterior margin, and in the left process of the right hypandrial lobe being bent at a right angle. In the key to Japanese *Phora* (Gotô, 1986) this species runs to *convergens* Schmitz from which it obviously differs in the general appearance of the hypopygium.

Phora zherikhini sp. n.

Male. Frons parallel-sided. Antennae and palpi dark. Mid tibia with 1 anterior bristle apart from 4 dorsal ones. Hind tibia with 1 anterior bristle. Basal projection of hind femur very weak. Base of hind femur with ventral brush of short bristle-like hairs, longer hairs



Figs. 1-6. — 1-3, *Phora ozerovi* sp. n. male: 1, base of hind femur; 2-3, hypopygium: 2, left face; 3, right face; 4-6, *Phora zherikhini* sp. n. male: 4, base of hind femur; 5-6, hypopygium: 5, left face; 6, right face. (Scale bars = 0.1mm.)

along ventral face, and with roughly triangular patch of fine hairs besides 3 short bristle-like hairs on inner surface (fig. 4). Wings clear, 2.2mm long. Costal index 0.46. Costal ratio 0.82 : 1. Veins brown. Five bristles on axillary ridge. Left side of epandrium not deeply cleft, with numerous short and longer bristles (fig. 5). Upper lobe small and narrow, lower lobe clearly longer, somewhat drawn out posteriorly, with elaboration orientated inwardly. Right epandrial lobe rounded, with a hook-like elaboration along posterodorsal margin (fig. 6). Right surstylus somewhat narrowed. Right process of right hypandrial lobe relatively short, with even upper margin.

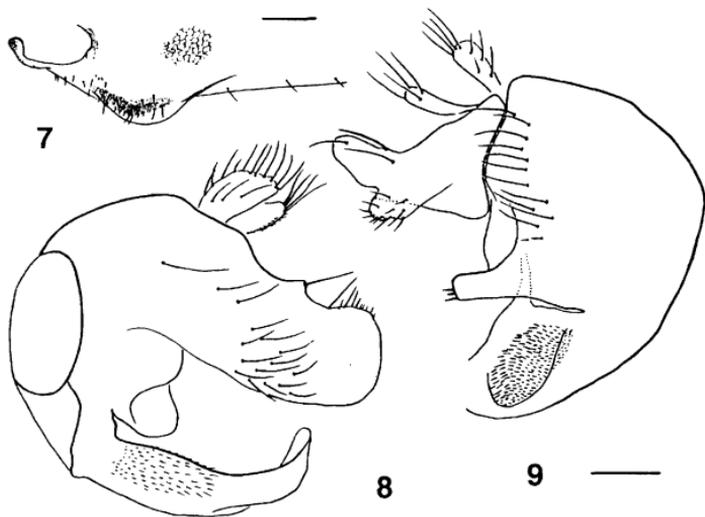
Holotype ♂, RUSSIA: Southern Sakhalin, Starodubskoe, 24.vii.1973 (*Kuporosov*) (ZMUM).

Paratypes. ♂, RUSSIA: Maritime Territory, Malinovo, 23.viii.1978 (*V. Zherikhin*) (ZMUM); ♂, Southern Maritime Territory, Kamenushka, 25.vii.1983 (*Z. Shatalkin*) (ZMUM).

In the key to British *Phora* (Disney, 1983) the new species runs to *bullata* Schmitz, from which it differs in the upper margin of the right process of the right hypandrial lobe not being crenellate, the modified lower lobe of the left side of the epandrium, and rounded right epandrial lobe. In the key to Japanese *Phora* (Gotô, 1986) this species runs to couplet 15, but disagrees with both entries leading to *bullata*, *incisurata* Gotô, *holosericea* Schmitz, and *edentata* Schmitz.

Phora gorodkovi sp. n.

Male. Frons just slightly narrowed in upper part. Mid tibia with 2 anterior bristles apart from 5–6 dorsal ones. Hind tibia with 2 anterior bristles. Basal projection of hind femur fairly well developed, rounded (fig. 7). Base of hind femur with short stout ventral spinules. Left side of epandrium not divided (fig. 8), with distinct posterodorsal eminence bearing a stout bristle, membranous area elongated triangular. Right epandrial lobe very narrow, nearly rectangular, with 3 stout spinules at posterior margin (fig. 9). Right surstylus roughly triangular, with posterolateral lobe bearing several short bristle-like hairs. Right process of right hypandrial lobe is much shortened and densely haired.



Figs 7–9. — *Phora gorodkovi* sp. n. male: 7, base of hind femur; 8–9, hypopygium: 8, left face; 9, right face. (Scale bars = 0.1mm.)

Holotype ♂, RUSSIA: Kamchatka, Avacha volcano, 1000m above sea level, 27.vii.1985 (*Kasparyan*) (ZIN).

Paratypes. ♂, same data as holotype (ZMUM); ♂, Magadan Reg., Arma R. Basin, Mukul'chak R., tributary of the Iganzha R., 105km of the settlement of Palatka, Larchwood, 2.vii.1971 (*Gorodkov*) (ZIN).

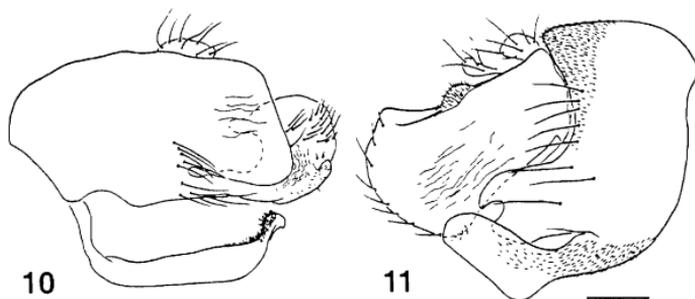
The new species clearly differs from all other species in the right process of the right hypandrial lobe being notably reduced, the presence of the well developed posterolateral lobe in the right surstylus, and some other features of the hypopygium.

Phora speighti Disney

Phora speighti Disney, 1982: 424.

This species was described from Ireland and later found in England (Disney, 1983). It was noted in the original description that the left side of the epandrium is not divided. Re-examination of the holotype revealed that the lower lobe was turned into the epandrium and is poorly observed in transmitted light. However, it has proved to be a valid species. I found two additional specimens from Azerbaijan and provide here a corrected description of the male genitalia.

Male. Left side of epandrium deeply cleft (fig. 10). Upper lobe with nearly straight and even posterior margin. Surface of upper lobe with fine wrinkles. Lower lobe rounded, with slightly concave ventral margin, wrinkled, with very short and fine to stout and long hairs and bristles. Right epandrial lobe rounded, with rather deep incision of its posterior margin (fig. 11). Right surstylus somewhat broadened distally, with evenly rounded posterior margin, small haired dorsal tubercle, and finely wrinkled surface. Left process of right hypandrial lobe nearly straight, hooked posteriorly, with characteristic tuft of fine hairs in apical portion. Right process quite simple, parallel sided.



Figs 10–11. — *Phora speighti* Disney male hypopygium: 10, left face; 11, right face. (Scale bar = 0.1mm.)

Holotype ♂. IRELAND: near Dublin, 12–18.vii.1981 (*M.C.D. Speight*) (UMZC).

2♂♂, AZERBAIJAN: near Dustair, 12.vii.1962 (*Zagulyaev, Tsyganenko*) (ZIN).

The hypopygium of this species is most similar to those of *atra* (Meigen), *limpida* Schmitz, and *holosericea* Schmitz. From the first it

differs in the straight posterior margin of the upper lobe of the left side of the epandrium and, what is more valuable, in the less concave ventral margin of the lower lobe together with the simple right process of the right hypandrial lobe. The latter feature and the distinctive apical tuft of hairs on the left process of the right hypandrial lobe separate *speighti* from *limpida*. From *holosericea* it differs in lacking the crenellate posterior margin of the upper lobe of left side of the epandrium.

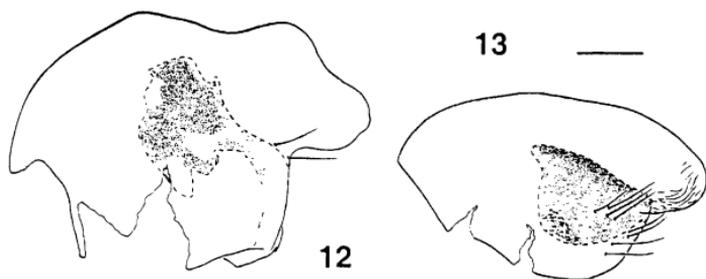
Phora atra (Meigen)

Trineura atra Meigen, 1804: 313.

Phora greenwoodi Disney, 1989: 81. **Syn. n.**

Ph. greenwoodi was described from France based only on the holotype. Being mounted on a slide the hypopygium was somewhat compressed, and the lower lobe of the left side of the epandrium is bent inwards and is poorly visible in transmitted light (fig. 12). Scrutiny of the holotype has revealed all essential characters of *Ph. atra*, including the slightly concave posterior margin of the upper lobe of the left side of the epandrium, deeply excavated ventral margin of the lower lobe, and the heavily sclerotised tapered right process of the right hypandrial lobe. I therefore propose the new synonymy.

Ph. atra is one of the commonest species. However, its distribution seems to be restricted to Europe and Mediterranean countries. The only record of this species in New York State, USA (Borgmeier, 1963) may be explained by transportation by man. I looked through vast collections from the whole territory of the former Soviet Union and noted that its distribution is bordered by the Urals.



Figs 12–13. — 12, holotype of *Phora greenwoodi* Disney, left face of epandrium; 13, holotype of *Phora michali* Disney, left face of epandrium. (Scale bar = 0.1mm.)

Phora tincta Schmitz

Phora tincta Schmitz, 1920: 124.

Phora michali Disney in Disney & Durska, 1998: 447. **Syn. n.**

Ph. michali was described from Poland based only on the holotype

male. Being slide mounted, the lower lobe of the left side of the epandrium is bent into the epandrium and folded; this led to misidentification of the specimen. The posterior portion of the upper lobe is distinctively wrinkled (fig. 13), which is very characteristic of *Ph. tincta*. My proposed new synonymy is supported by the general shape of the left face of the epandrium and the right surstylus.

Ph. tincta is not rare in Europe and European Russia, but there are only two records of this species in Asia. Two males were captured near Turukhansk, Western Siberia, on 5–6.vii.1982 (*I. Sukacheva*), and a single male is known from Pamir, Pyandzh R., collected on 5.ix.1965 at 2600m above sea level (*Tanasijchuk*).

ACKNOWLEDGEMENTS

I am grateful to Dr R.H.L. Disney (Cambridge University) for the opportunity to study the types and comparative material, and for reading the manuscript and to Dr E. Durska (Museum and Institute of Zoology, Warsaw) for sending the holotype of *P. michali*. I express my sincere thanks to M. Ovechkina (Palaeontological Institute) for translating from German. My work on Phoridae is currently funded by the Royal Society/NATO Postdoctoral Fellowship Programme.

REFERENCES

- Borgmeier, Th.**, 1963, Revision of the North American phorid flies. Part I. The Phorinae, Aenigmatiinae and Metopininae, except *Megaselia* (Diptera, Phoridae), *Studia Ent.*, **6**(1–4): 1–256. **Colyer, C.N. & Elberg, K.**, 1966, Some new data on Phoridae (Diptera) in Estonia, *Eesti NSV Tead. Akad. Toim., Biol. Ser.*, **15**(2): 211–215; 1969, New data on Phoridae (Diptera), *ibid.*, **18**(2): 154–169. **Disney, R.H.L.**, 1982, A new species of *Phora* (Diptera: Phoridae) from Ireland, *Ir. Nat. J.*, **20**: 424–425; 1983, Scuttle flies – Diptera Phoridae (except *Megaselia*), *Handbk Ident. Br. Insects*, **10**(6): 1–8; 1989, A new species of *Phora* (Diptera: Phoridae) from France, *Entomologist's mon. Mag.*, **125**: 81–82. **Disney, R.H.L. & Durska, E.**, 1998, A new genus and new species of Phoridae (Diptera) from Poland, *Eur. J. Ent.*, **95**: 437–453. **Gotô, T.**, 1984, Systematic study of the genus *Phora* Latreille from Japan (Diptera, Phoridae) I. Description of a new species, with discussion of the terminology of the male genitalia, *Kontyû*, **52**(1): 159–171; 1986, Systematic study of the genus *Phora* Latreille from Japan (Diptera, Phoridae) V, *ibid.*, **54**(1): 128–142. **Meigen, J.W.**, 1804, *Klassifikation und Beschreibung der europäischen zweiflügeligen Insekten* (Diptera Linn.), **1**(1): XXVIII+1–152, **1**(2): VI+153–314, Braunschweig. **Michailovskaya, M.V.**, 1999, A review of the genera *Triphleba* Rondani, *Phora* Latreille and *Anevrina* Lioy (Diptera, Phoridae) from Russian Far East, *Far Eastern Entomologist*, **70**: 1–6. **Mostovski, M.B. & Disney, R.H.L.**, in press, A new species of *Phora* Latreille (Diptera: Phoridae) from Kamchatka, with comments on the groundplan of the family, *Entomological Problems*. **Schmitz, H.**, 1920, Die Phoriden von Holländisch Limburg mit Bestimmungstabellen aller bisher Kenntlich beschriebenen europäischen Phoriden, *Jaarb. natuurh. Genoot. Limburg*, **1919**: 91–154.