

A new *Drosophila* species from Northern Fennoscandia (Diptera)

Walter Hackman

(Zoological Museum, Helsingfors)

In 1968, Dr. Seppo Lakovaara, Mr. Kari Vepsäläinen and the author embarked on a joint study of the Finnish Drosophilidae. During the warm season of 1968, the team organized Drosophilid trapping in various parts of Finland (details of trapping methods, faunistic and ecological results, and rearing experiments will be published later by the team jointly). Among the material collected by Mr. Vepsäläinen in Kuusamo (Northern Finland) there were more than 160 specimens of an unknown *Drosophila* species described below. The same species was also found in other samples from Northern Finland and is named *D. subarctica* n.sp.

Drosophila (Hirtodrosophila) subarctica n.sp. (Figs. 1—10)

A dark greyish brown species of about the same size as *D. littoralis* Meigen but with a rather distinct pattern of stripes on mesonotum and very faintly shaded external cross-vein (fig. 1). The absence of a distinct dorsal subapical bristle on fore and middle tibia and the rather weak one on hind tibia indicate that the species has nothing to do with *littoralis* and the *virilis* group but has to be inserted in the subgenus *Hirtodrosophila* Duda. BASDEN & HARNDEN (1956) figured the male genitalia and a detail of the fore leg of a new *Drosophila* sp. from Northern Norway but did not name the species because there was only one specimen in bad condition in his material. There is hardly a doubt that this specimen belongs to *subarctica*.

♂ — Body length 3,3—3,7 mm, wing length 3,5—3,8 mm. Frons dark grey, dull, brown in front. Chaetotaxy of frons normal. Anterior reclinate orbital bristle comparatively strong (see fig. 3, drawn from a female). Antennae brown, third joint almost blackish, oval (not prolonged) and with short fine pilosity. Arista with four dorsal and two ventral branches beside the fork. Eyes carmine, rounded as in *quadrivittata* Okada. Cheeks grey brown, about 3/10ths of the vertical diameter of the eye. Face grey brown, carina nose-like, rather broad. Vibrissa strong; other oral bristles small. Palpi with two strong bristles. Mesonotum reddish brown but covered with grey pollinosity and with a pattern of dark grey stripes: one median stripe in the acrostichal area broadening behind in a diffuse grey field, on each side a grey stripe in the dorsocentral line and laterally more diffuse dark areas behind the suture. Acrostichal hairs in six

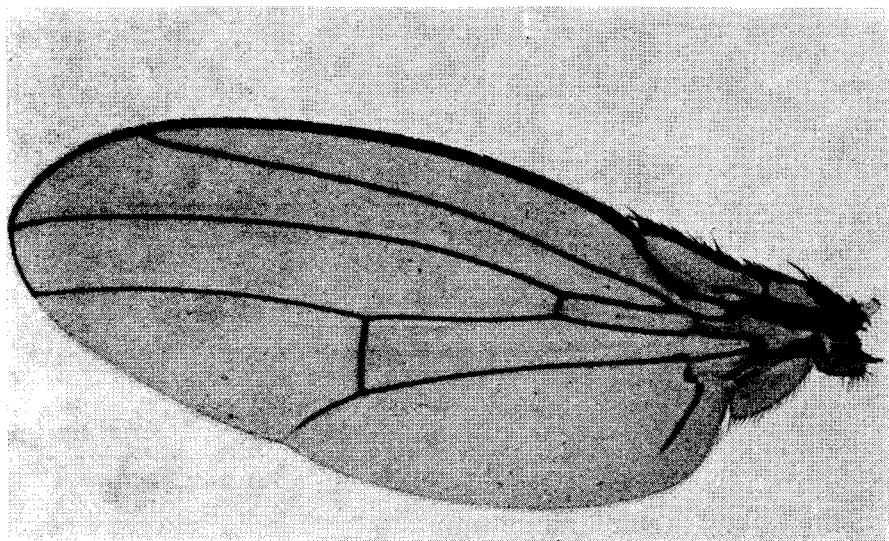


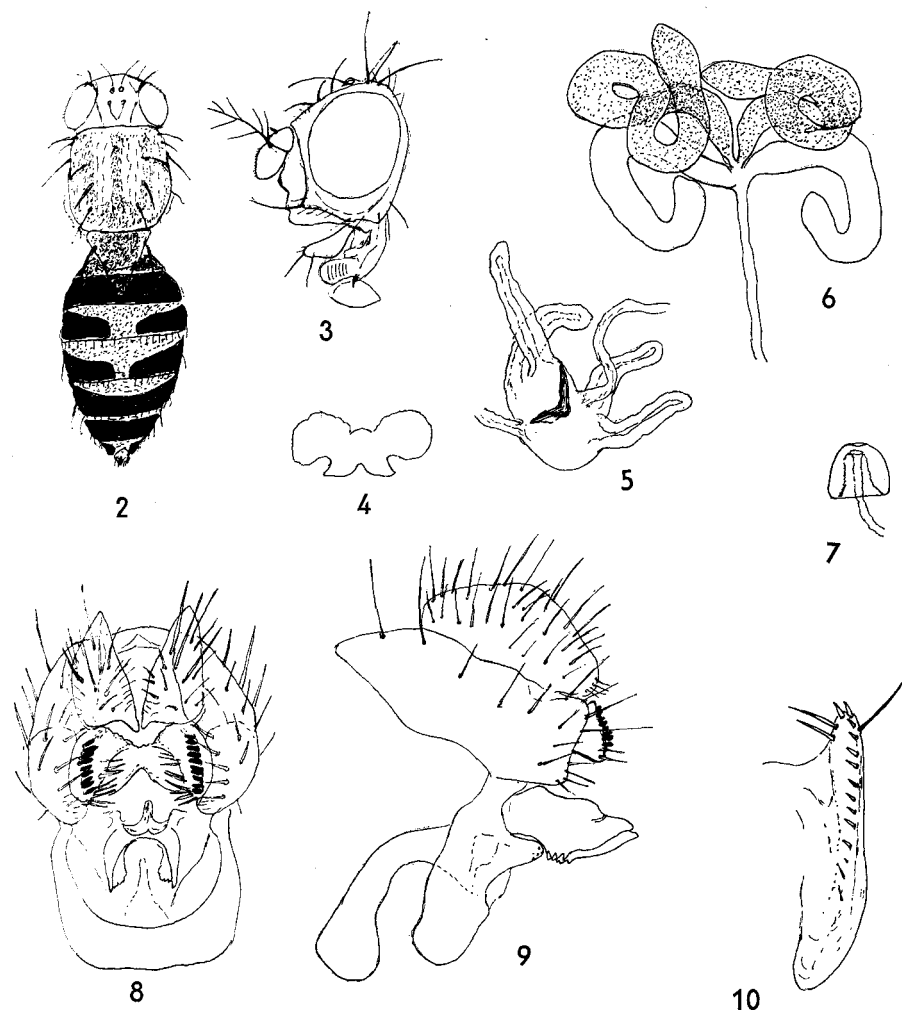
Fig. 1. *Drosophila subarctica*, n.sp. wing of ♀ (Kuusamo).

not very regular rows. Two strong dorsocentral bristles behind the suture. Two humeral bristles. Scutellum dark brown with grey pollinosity. Basal and apical scutellar bristles strong and of almost equal length, the apical ones somewhat coarser. Pleura dark brown, greyish pollinose. Two sternopleural bristles, the anterior one smaller. Wings hyaline, slightly fuscous. Two costal bristles at the second costal break. Costal index 2,8—3,3 ($mg_2:mg_3$). Small black costal bristles of mg_3 reaching $1/3$. Posterior cross-vein with a faint shadow. Halteres pale, knob almost white. Legs greyish yellow, femora darker and end joints of tarsi also dark. First coxa with a characteristic, stout, bluntly ending bristle in apical posteroventral position (figured by BASDEN 1956 fig. 6). Abdomen dark brown, almost blackish, some times with indistinct paler median spot on second, third and fourth tergites. Male genitalia as in figs. 4, 8 and 9 and distinctly different from those of *D.(H.) confusa* Staeger (see FRYDENBERG 1956, figs. 3, 4). Ejaculatory bulb (fig. 5) entirely different from that of *confusa* (THROCKMORTON 1962 fig. 25) and more like that of the species of the *melanica* group. Testes and paragonia (fig. 6) distinctly different from those of the species of the *virilis* and *melanica* groups and also very different from those of *confusa*. The testes are orange-red, obviously containing drosopeterine.

♀ — Body length 3—4 mm, wing length 2,7—4,1 mm. Head and thorax similar to those of the male. There is some variation in the position of the proclinate and anterior reclinate orbital bristles; in some specimens they are at almost the same level on the orbitae. In some specimens the front of frons and ground colour of mesonotum are more yellowish brown. Wings (fig. 1) as in the male, costal index 2,6—3,5. Legs in general as in the male but front coxae have normal bristles (no blunt one). Abdominal tergites dark brown — red brown with yellowish pattern on 3rd—5th segments as in fig. 2. This pattern

is sometimes strongly reduced. Ovipositor (egg guide) of a very aberrant type with two longer bristles dorsally and one ventrally near apex (fig. 10). This character makes the females of this species easily recognizable. Spermathecae (fig. 7) of a type found in other *Hirtodrosophila* species.

Holotype: ♂, Finland: Kuusamo, Oulanka Biological Station, reared from a stock started in July 1968, leg. K. Vepsäläinen. Paratypes: 1♂ 7.VII.68 Oulanka Biological Station, 2♂♂ reared, stock from same locality and numerous ♀♀



Figs 2—10. *Drosophila subarctica* n.sp. Fig. 2 Body of ♀ from above. Fig. 3 head in profile (♀). Fig. 4 Decasternum of male genitalia. Fig. 5 Ejaculatory bulb. Fig. 6 Testes (dotted) and paragonia. Fig. 7 Spermatheca. Fig. 8—9 Male genitalia, ventral and lateral aspect. Fig. 10 Egg guide of ovipositor.

trapped in July 1969 at and near the station, all leg. K. Vepsäläinen, ♀♀ from Ks: Jäkälävuoma and Patoniva (S. Lakovaara); Ob: Rovaniemi: Jaantila, 1♀ (S. Lakovaara); Lkem: Pyhätunturi, 1♀ (S. Lakovaara); Muonio, 3♀♀ (J. A. Palmén and J. Sahlberg leg., old specimens identified by Duda as *D. littoralis*); Li: Kevo 1959, 1♀ (Aloha Alava).

According to OKADA's (1967) key to the Old World species of the subgenus *Hirtodrosophila*, the species runs to the *confusa* subgroup of the *quadrivittata* species group. Like some other *Hirtodrosophila* species with a short third antennal joint and more than one ventral branch of arista, *subarctica* shows affinities with various groups in the *Drosophila* complex. The phallic organ and the ejaculatory bulb show similarities to those of the *melanica* group in *Drosophila* s.str., the testes and paragonia are not far from those of *D. (Hirtodrosophila) duncani* Sturtevant (American species) and very different from those of *confusa* Staeger. The ovipositor of *subarctica* differs from that of all *Hirtodrosophila* species. The egg has four long thin filaments, as in *confusa*, *quadrivittata* and other *Hirtodrosophila* species (figured by OKADA 1968). In his phylogenetic study of the *Drosophila* complex, THROCKMORTON (1962) points out that *confusa* Staeger (*histrioides* Okada & Kurokawa) differs in several important characters from the other *Hirtodrosophila* species studied, and suggests that *Hirtodrosophila* may not be a monophyletic taxon. It seems not improbable that the reduction of the subapical bristle on the tibiae (important key character of *Hirtodrosophila*) might have occurred more than once in the evolution of *Drosophila*.

References

- BASDEN, E. B. & D. G. HARNDEN (1956). *Drosophilidae* (Diptera) within the Arctic Circle II. The Edinburgh University Expedition to Sub-Arctic Norway, 1953i *Trans. R. Ent. Soc. London* 108:147—162.
- FRYDENBERG, O. (1956). The synonymy, relationship, and distribution of *Drosophila confusa* Staeger 1844 (Dipt.). *Ent. Medd.* 27:295—308.
- OKADA, T. (1967). A revision of the subgenus *Hirtodrosophila* of the Old World, with descriptions of some new species and subspecies (Diptera, Drosophilidae, *Drosophila*). *Mushi* 41:1—36.
- (1968). *Systematic study of the early stages of Drosophilidae*. Bunka Zugeisha Co. 1, Ltd. Tokyo. 188 pp.
- THROCKMORTON, L. (1962). The problem of phylogeny in the genus *Drosophila*. *Univ. Texas Publ.* 6205: 207—343.