On the types of Drosophila picta Zett. and D. spurca Zett. (Drosophilidae, Dipt.) and a new description of the former

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In 1847 Zetterstedt described a yellow species of *Drosophila* under the name *Drosophila picta*. Zetterstedt had only a single specimen at his disposal loaned to him by Stæger. This specimen had been caught by Stæger in Denmark but no locality was given. The type specimen in Stæger's collection, which now belongs to the Zoological Museum of Copenhagen, has been examined by the present author in order to ascertain the meaning of the name *D. picta* Zett. From this examination it is concluded that *D. picta* Zetterstedt 1847 is the correct name for the Drosophila species hitherto known as *Drosophila macularis* Villeneuve 1921.

Duda (1924, 1935) discussed the synonym of *D. picta*. According to this author *D. picta* is either a later synonym of *D. histrio* Meigen 1830 or the correct name for *D. macularis* Villen. Oldenberg in his own collection used the name *D. picta* in the latter sense. Duda, stressing the fact that Zetterstedt knew *D. histrio* Meig. only from Meigen's somewhat inexact description, held on the contrary that *D. picta* is a synonym of this species. In support of his view Duda pointed out that Zetterstedt described the third and fourth longitudinal veins of his *D. picta* as parallel, though they are evidently divergent in *D. macularis*, and that Zetterstedt did not mention the striking longitudinal stripes on the pleura of *D. macularis*. Furthermore Zetterstedt's description of the abdominal markings is a little ambiguous. Though *D. histrio* Meig. differs from *D. picta* as described by Zetterstedt

in having the third and fourth veins clearly convergent, Duda concluded that *D. picta* Zett. is a synonym of *D. histrio* Meig. Being ignorant of Villeneuve's description of 1921 he, in 1924, described *D. pleurofasciata* as new to science. In 1935 he retracted the latter name in favour of Villeneuve's name *D. macularis*.

Examination of the type of *D. picta* Zett. revealed that the dried specimen was in a miserable condition having no head and for most part overgrown with mould. In addition the left wing was broken and was therefore mounted in euparal to prevent further deterioration. The mounted wing is shown in fig. 1. The third and fourth veins are clearly divergent in spite of Zetterstedt's statement. Furthermore the pleura of the type specimen clarly show the brown longitudinal stripes so characteristic of *D. macularis* Villen. The type is also conspicuously smaller than any *D. histrio* Meig. seen by the present author. (The type was compared to specimens of *D. histrio* Meig. made available to the author by courtesy of Mr. F. Finsinger, Zürich). Comparison of the type with the three better preserved dried specimens of *D. macularis* collected by Lundbeck (see below) and with some Dutch specimens of *D. macularis* preserved in alcohol, and borrowed from Prof. J. Lever, Amsterdam, revealed no essential differences. It may thus be regarded as proved that *D. picta* Zetterstedt 1847 is identical with the species now commonly known as *D. macularis* Villeneuve 1921 and consequently the latter name is merely an invalid synonym of *D. picta*. On the other hand the investigation has shown that *D. picta* Zetterstedt 1847 is different from *D. histrio* Meigen 1830. Hence Duda's conclusion that *D. picta* is an invalid synonym of *D. histrio* Meigen can not be upheld.

A description of *D. picta* is given below. Unfortunately it has not been possible to obtain living specimens for dissection so the structure of the internal reproduc-

tive system and of the Malpighian tubes has not been investigated.

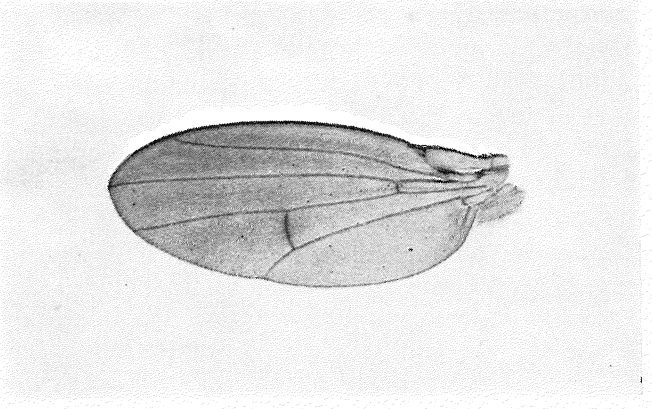
Drosophila picta Zetterstedt 1847.

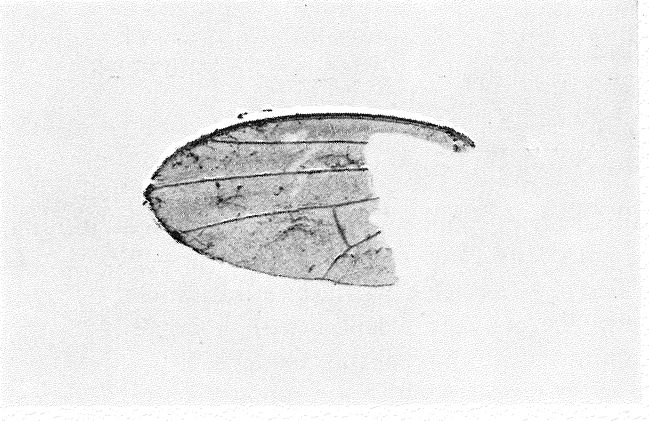
External morphology: ♂: Arista with 10 branches; two in the fork, five above and three below. Second antennal joint yellow, third also yellow though a little darker than the second one. Postfrons about one-half width of head, wider above, yellow. The anterior part of the yellowish orbits leaves the border of the eyes. Middle orbital bristle long, about one-half to three-fourths lower orbital. Prefrons, proboscis, and carina yellow. Carina broad and nose-like, with a median groove. Second oral bristle one-half first oral but conspicuously weaker. Greatest diameter of cheeks about one-fifth greatest diameter of eyes. Eyes with a short dense pale pile.

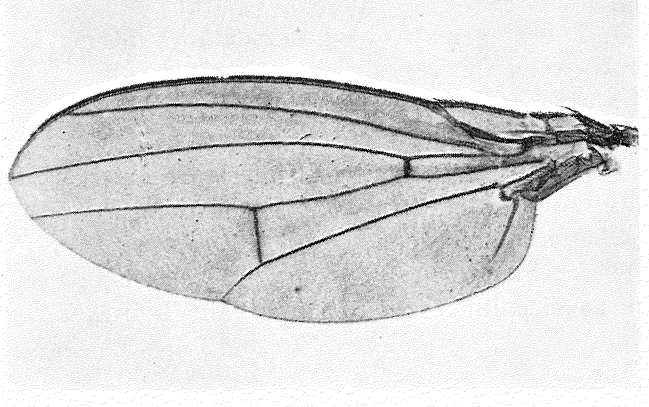
Mesonotum and scutellum yellow. Six rows of acrostichal hairs. Anterior scutellar bristles longer than the posteriors, reaching back to the ends of the posteriors. Anterior scutellars convergent. Pleura yellow with three brown longitudinal stripes. The most dorsal stripe passes from the limit between propleuron and humerus across mesopleuron just below the notopleural suture to the anterior end of base of wing. The middle stripe originates on the front of pteropleuron just below the end of the dorsal stripe, it crosses pteropleuron and closes around the base of haltere. The most ventral longitudinal stripe runs across the sternopleuron including the bases of the three sternopleural bristles.*)

*) The dorsal and the middle stripes may be regarded as a single somewhat broken stripe as was done by Villeneuve and Duda; from this point of view the pleura possess but two longitudinal stripes.

Fig. 1. Photograph showing the difference between the wings of *D. picta* and *D. histrio*. Above: Wing of one of Lundbeck's Danish *D. maculatis* specimens. Middle: The broken wing of Zetterstedt's *D. picta* type specimen. Below: Wing of a swiss *D. histrio* specimen. (A. Øye fot.)







Sterno-index: 0.8—0.9. The legs yellow. Apical bristles on front and second tibiæ; preapicals on all three tibiæ.

Wings colourless to slightly yellowish. A pair of strong bristles at second costal breakage. Third and forth longitudinal veins (radius $_{4+5}$ and media) strongly divergent. Costal-index: 2.9; 4th-vein-index: 1.3; 4-c-index: 0.7; 5-x-index: 0.9.

Abdomen yellow with a faintly brown median longitudinal stripe which may be more or less interrupted and with four rows of brown spots (see fig. 2).

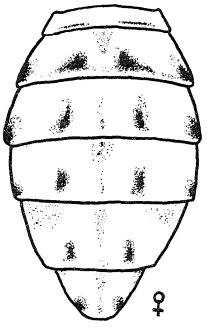


Fig. 2. Drawing of the abdomen of a female *D. picta* showing the position and extension of the abdominal markings. (After a Dutch specimen borrowed from Prof. J. Lever, Amsterdam).

Male genital apparatus (terminology from Hsu 1949): The primary claspers with a single row of 9—10 primary teeth, the ventral tooth a little weaker than the more dorsal ones. No secondary teeth. Close to the outer margin of the clasper a semicircle of about 10 marginal bristles, the inner ones strongest.

♀: There seems to be no essential difference in colour between the sexes. The ovipositor plate is yellow and rather pointed, with a row of small black spines on the border and a short weak bristle below.

Puparium: According to the figure given by Duda (1935) the horn-index is about one-fifth and the posterior spiracles are divergent.

Distribution: Villeneuve (1921) records this species from two localities in France: Blain (Loire inferieure)

and Ramboillet. According to Duda three specimens were caught by Oldenberg in the environs of Berlin, Germany. Duda (1935) mentions several specimens collected by him in Silesia (now Slask, Poland) and records three specimens from Hungaria and Austria. Zetterstedt's type specimen is from Denmark, no details of locality are given neither by Zetterstedt nor by Stæger in his collection. Examination of Lundbeck's collection in the Zoological Museum of Copenhagen showed that in August 1923 he reared three specimens from bur-reeds (Sparganium) gathered on Bjørnø, a small Danish island south of Funen. Finally Sobels et al. (1954) record it from four localities in the Netherlands. In spite of their intense collectings Burla (1951), Hadorn et al. (1952), Basden (1954), and Herting (personal communication) have not caught the species. Among 16.000 Drosophila specimens collected all over Denmark by the present author not a single *D. picta* appeared. It can be concluded that though *D. picta* is widely distributed over northern continental Europe, it always occurs in extremely small numbers and seems to be restricted to few localities.

Biological Notes: Duda and the three Dutch authors stress the fact that *D. picta* has been found by them in close association with reeds (Phragmites communis). Attention should be called to the equally striking fact that *D. picta* has been reared twice from bur-reeds (Sparganium; Reichert in Duda (1935) and Lundbeck).

Synonyms: *D. pleurofasciata* Duda 1924. *D. macularis* Villeneuve 1921. As far as known to the present author the former synonym has been used only by Duda (1924). The species is mentioned under the latter synonym by Duda (1935), Lever and Sobels (1951), and Sobels, Vlijm and Lever (1954).

In the same volume in which the description of *D. picta* was given Zetterstedt described a brown *Drosophila* species as *D. spurca*. The type of this species was also borrowed from Stæger, who had determined it as *D. tristis* Fallén 1823. The only difference between Stæger's specimen and *D. tristis* Fallén was that the former was darker than the latter. Zetterstedt nevertheless described it under the name *D. spurca* as new to science. The type specimen was returned to Stæger and is now in the possession of the Zoological Museum of Copenhagen. Duda already in 1924 had expressed the opinion that *D. spurca* was nothing but a synonym of *D. tristis* Fallén. He regarded *D. tristis* as a variety of *D. obscura* Fallén, but Pomini (1940) has since reestablished it as a species.

Duda based his statement on the literature only, as he had never seen the type of *D. spurca*. It was therefore considered worth while to examine the type. It was found to be in the same poor condition as that of *D. picta*, having also lost its head. Though this was not of great importance in the former case, it was very unfortunate here since it was impossible to check the presence of the two equally strong bristles on the palps which is the best distinguishing mark of *D. tristis*. The type being a male, it was nevertheless possible to verify Duda's statement. The wings were shaded over an area anterior to a line running from the middlepoint of the second costal segment to the tip of the third longitudinal vein which is so characteristic for *D. tristis*. Two fifths of the third costal segment were covered by the stronger costal fringe. The greyish brown mesonotum showed two unclear but unquestionable longitudinal stripes. In addition the tarsal combs were in accordance with those of *D. tristis*. There is therefore no question about Duda's statement that *Drosophila spurca* Zetterstedt 1847 is a synonym of *Drosophila tristis* Fallén. One may wonder

why Zetterstedt described *D. tristis* twice in the same volume. This may be due to the fact that his *tristis* specimen was immature and therefore unusually pale. Cain, Collin and Demerec (1952) have recorded such an immature *D. tristis* from Zetterstedt's collection and they regard this specimen as the type. This may also be the reason why Zetterstedt in his key has placed *D. tristis* among the lighter species whereas *D. obscura* and *D. spurca* are placed among the darker ones.

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Professor J. Lever, Amsterdam, has kindly lent me some of his *"D. macularis"* specimens. Professor C. H. Lindroth, Lund, has informed me that no specimens of the disputed species are present in Zetterstedt's collection in Lund. Dr. S. L. Tuxen, Copenhagen, has given much valuable advice on various nomenclatoral problems and has permitted me to study the types belonging to the Zoological Museum of Copenhagen. Mr. R. H. Pritchard has kindly corrected the English of the manuscript.

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Anmeldelse.

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Denne tyske Oversættelse af Sommerfugleafsnittet i den store Sovjet-Encyclopaedi er sendt til Anmeldelse. Det er mig en Gaade, hvorfor det er oversat. Det er en almindelig Lexikon-Gennemgang af Sommerfuglene uden ukendt Stof, men med mange Fejl, der nok væsentligst skyldes Oversætteren, der ikke er Entomolog (Holzmotte for Tineola biselliella; galt stavede Forfatternavne p. G. a. den russiske Transkribering af vesteuropæiske Navne; hvad er Anilinhaar?), men vel ogsaa skyldes Forfatteren (om Høreorganerne f. Ex.). Oversætteren er navngiven, Forfatteren anonym. Den synes mig uden politisk Tendens!

S. L. Tuxen.
