

# BULLETIN ZOOLOGISCH MUSEUM



Vol. 4 No. 7 10-I-1975

## *TIPULA (TIPULA) PLUMBEA* FABRICIUS, 1781: DESIGNATION OF A NEOTYPE

J.den Hollander

### ABSTRACT

*Tipula (Tipula) plumbea* Fabricius, 1781, is re-described and a neotype is designated. The position of this species in the subgenus *Tipula* is discussed.

### INTRODUCTION

*T. plumbea* has been described by Fabricius (1781): "Corpus medium totum cinereo fuscus f. plumbeum. Antennae nigrae. Alae albae costa exteriori nervisque nigris. Pedis nigri femoribus basi testaceis". This species is mentioned by Meigen (1818), but at that time the type specimen of Fabricius was already heavily mutilated. Meigen gives the following description of the remainings "...bei-nähe so gross wie *Tip. oleracea*. Fühler schwarz-

braun mit ziegelfarbigem Wurzel. Schnauze braun. Rückenschild lichtbraun, in den Seiten mit weiss-gelbem Striche. Schwinger ziegelroth, an der Wurzel rötlichgelb, an der Spitze bräunlich. Hinter-leib an der Basis bloss rötlichgelb und ein gleichfarbiger Strich an der Seiten. Flügel grau-lich, braunnervig, am Vorderrande ziegelbraun".

On the basis of this description, Mannheims (1950) concludes that *T. plumbea* belongs to the *T. oleracea* group of the genus *Tipula* Linnaeus, 1758. At that time, the type of *T. plumbea* in the collection of Fabricius was completely lost. Zimsen (1964) supposes "that the Diptera collec-tion of Fabricius was spoiled even at the begin-ning of the last century, since many authors at that time mention its miserable condition". Con-cerning *T. plumbea* she states "*Tipula plumbea*

Spec. Ins. II p. 403. 15 in Italia D. Allioni (Syst. Ent. 1805 p. 28 . 23) - Kiel only the name-label". Furthermore, she states that the collection of Carlo Allioni was placed in the Zoological Museum of the University in Turin; this collection, however, was destroyed by fire.

So, at this moment, the species cannot be studied anymore and, therefore, no certainty can be obtained concerning its status.

#### OBSERVATIONS

While studying material of the subgenus *Tipula*, present in the Institute of Taxonomic Zoology (Zoological Museum), department of Entomology, University of Amsterdam, several specimens of this subgenus were noted which could not be arranged under the species given by Mannheims (1950). These specimens showed some similarity to *T. oleracea* Linnaeus, 1758, *T. kleinschmidti* Mannheims, 1950, and *T. czizeki* De Jong, 1925, as regards their size, general colouration, the colour of the antennae and the wing colouration. In these characters the specimens came most close to *T. czizeki*, especially on the basis of the colour of the first flagellar segment. In the specimens mentioned above as well as in *T. czizeki* this segment is black, whereas it is yellowish in *T. oleracea* and dark yellow to black in *T. kleinschmidti*. However, the male hypopygium appeared to be very different from that of the species mentioned above. In this character the specimens were more similar to *T. mediterranea* Lackschewitz, 1930 (fig. 1). In addition, the aberrant specimens could be distinguished from the other species of the subgenus *Tipula* by the distance between the eyes beneath the head and, to some extent, by the absolute wing length (expressed in the length of the cubitus) (table I). These data show that the specimens under study belong to a different species.

The descriptions of Fabricius (1781) and Meigen (1818) of *T. plumbea* are not in contradiction with the characteristics of the specimens concerned. Furthermore, the description of Meigen (1818) seems to refer to the aberrant specimens under study rather than to *T. czizeki*, because of the colour of the basal segment of the antennae which is more greyish in *T. czizeki* than in both *T. plumbea* and the aberrant specimens.

Fabricius got his *T. plumbea* from Carlo Allioni (Turin, Italy). Now, *T. czizeki* has been found in Italy only in Bolzano (Tirol). The aberrant specimens under study, however, have been found amongst others in Grimaud (France, Var) which is much closer to Turin than to Bolzano.

Although the possibility continues to exist that *T. plumbea* described by Fabricius (1781) and Meigen (1818) is a synonym of *T. czizeki*, I prefer to use the name *T. plumbea* for the present specimens rather than to erect a new species. Because of great nomenclatorial confusion with regard to the species of the subgenus *Tipula* (De Jong, 1925; Mannheims, 1950; Hemmingsen, 1960), caused by the large similarity between the species concerned, it may be more convenient to revalidate a hitherto obscure species name rather than to create a new species name.

Therefore the aberrant specimens studied are referred to *T. plumbea*, of which species now a neotype is designated.

#### MATERIAL EXAMINED

Neotype : 1 ♂, Sardegna merid., Musei, 120 m, 20-X-1972, leg. F. Hartig. (Coll. Hartig, Instituto di Entomologia, Bolzano).

#### Paraneotypes:

In the collection of the Zoologisch Museum, Amsterdam.-- southern Sardinia, Musei, 120 m, 1972, leg. F. Hartig: 1 ♂ (27-IX), 2 ♂, 1 ♀ (11-X), 7 ♂ (20-X), 1 ♂, 3 ♀ (3-XI), 1 ♂ (9-XI); Sardinia, Siniscola, 1972, leg. R. Prota: 1 ♂ (12-X), 1 ♂ (13-X); Sardinia, Tempio (Sassari), 1966, leg. R. Prota: 1 ♀ (10-X); Sardinia, Aritze Su Pranu, 1967, leg. R. Prota: 2 ♂ (1-X); France (Var), Grimaud, 1971, leg. B.J. Lempke & K. Straatman: 2 ♂ (13-15-X); Greece (Kiklades), Dilos, 1974, leg. A.C. & W.N. Ellis: 1 ♂ (11-12-IV).

In the collection of Dr. F. Hartig, Bolzano.-- southern Sardinia, Musei, 120 m, 1972, leg. F. Hartig: 1 ♂, 1 ♀ (20-X).

In the collection of Dr. R. Prota, Sardinia.-- Sardinia, Siniscola, 1972, leg. R. Prota: 1 ♀ (10-XI), 1 ♂ (14-XI).

#### DESCRIPTION

*T. plumbea* is very similar, in general appearance, to *T. mediterranea*, *T. oleracea*, *T. kleinschmidti* and *T. czizeki*. It is coloured somewhat darker than *T. mediterranea*, which is more yellowish, whereas *T. plumbea* is more greyish, like the other species mentioned. *T. plumbea* shows similar body sizes as *T. oleracea*, *T. kleinschmidti* and

*T. czizeki*, being somewhat smaller than *T. mediterranea*. The first segment of the antenna (total 13 segments) is greyish yellow coloured, like in *T. czizeki*. In the other species this segment is more yellowish coloured. The second segment of the antenna is yellow, similar to the other species of the subgenus *Tipula*. In both males and females, the antennal flagellum is entirely black. A similar colouration of the antennal flagellum only occurs in two other species of the subgenus *Tipula*, i.e. in both males and females of *T. czizeki* as well as in males of *T. paludosa* Meigen, 1830.

The distance between the eyes, measured beneath the head, amounts to about 0.24 mm, which is larger than in *T. oleracea*, *T. kleinschmidti* and *T. mediterranea*, but smaller than in *T. czizeki* (table I).

The inner dististyle (id) of the male hypopygium is rather similar to that of *T. mediterranea*. It differs from that of *T. oleracea* in the presence of hairs upon the pars 3 of the id (id-3) and from that of both *T. czizeki* and *T. kleinschmidti* in the shape of the id-2 which is rectangular in both latter species, but horn-shaped to claviform in *T. plumbea*. Although the id-2 of *T. mediterranea* is rather similar to that of *T. plumbea*, a very striking difference exists between these two species as regards this character. Whereas the id-2 is globular in *T. mediterranea*, it is laterally flattened in *T. plumbea* (fig. 1).

*T. plumbea* probably has two generations a year (1 ♂ caught in April 1974 in Greece; the other fly period being October). Up till now this species is known from southern France, Sardinia and Greece.

Summarizing, *T. plumbea* can be distinguished from its relatives by the colour of the first flagellar segment, the distance between the eyes beneath the head as well as the shape of the inner dististyle of the male hypopygium.

#### DISCUSSION

With regard to their geographical distribution the European species of the subgenus *Tipula* may be divided into three groups. Three species (*T. kleinschmidti*, *T. atlantica*<sup>1)</sup> and *T. hungarica* Lackschewitz) occur in limited areas of Europe.

Three other species occur throughout northern and western Europe (*T. oleracea*, *T. paludosa* and *T. czizeki*). The remaining species of the subgenus *Tipula* (*T. mediterranea*, *T. italica* Lackschewitz, *T. plumbea*, *T. orientalis* Lackschewitz) occur around the Mediterranean (Lackschewitz, 1930; Mannheims, 1950, 1962).

By the shape of the id-2 one can also distinguish three groups, which are, however, different from those mentioned above. The first group shows a clearly horn-shaped id-2 as can be found in *T. oleracea*, *T. hungarica*, *T. orientalis*, and *T. italica*. A second group may be distinguished in which the id-2 is more or less claviform (*T. mediterranea*, *T. paludosa*, and *T. plumbea*). Finally, *T. czizeki* as well as *T. kleinschmidti* show a rather small rectangular-shaped id-2. Each of these groups contains wide-spread European species, as well as Mediterranean ones, and species with a limited geographical distribution.

The first flagellar segment of the species of the subgenus *Tipula* is coloured either yellowish or black. Again three groups can be distinguished. In both *T. plumbea* and *T. czizeki* the antennal flagellum is entirely coloured black in both male and female. In *T. paludosa* as well as in *T. kleinschmidti* this is the case only in the males. The females of these species show yellow first flagellar segments. The remaining species show yellow first flagellar segments in both sexes. Comparing this division with that based on the shape of the id-2 shows that the species with a horn-shaped id-2 have yellow first flagellar segments. In the "claviform" group all three "colour" groups occur whereas the species with a rectangular shaped id-2 mainly show black coloured first flagellar segments.

The distance between the eyes, measured beneath the head, continually ranges from 0.10 to about 0.50 mm throughout the species of the subgenus *Tipula*. Nevertheless, as to this character again three groups may be distinguished. In *T. oleracea*, *T. orientalis*, *T. mediterranea*, *T. hungarica* as well as *T. kleinschmidti* the distance between the eyes ranges from 0.10 up to about

<sup>1)</sup> After examining the type of *T. atlantica* Mannheims I am of the opinion that this species is not related to the European species of the subgenus *Tipula* but to the African ones.

0.25 mm. In *T. plumbea*, *T. czizeki* and *T. italia* these values range from 0.20 up to about 0.35 mm. The largest values (> 0.30 mm) occur in *T. paludosa*. These groups neither seem to be correlated with the shape of the id-2 or the colour of the first flagellar segment, nor with the geographical distribution of the species.

The above subdivisions of the subgenus *Tipula*, being not correlated, cannot be used to distinguish distinct species groups. They rather show permutations of forms with independantly varying characters. Only when the plesiomorph state of the characters concerned as well as their sequence of changing will be known, the evolutionary relationship between the species of the subgenus *Tipula* can be established.

So, the affinities of *T. plumbea* to the other species of the subgenus *Tipula* cannot be ascertained as yet. Based on the shape of the hypopygium *T. plumbea* looks very close to *T. mediterranea*; however, in general appearance it is closer to *T. czizeki*.

## REFERENCES

- FABRICIUS, I.C., 1781. Species Insectorum II, I-VIII, 1 - 552 (Bohnii, Hamburgi et Kilonii).  
 HEMMINGSEN, A.M., 1960. Proposal to use the plenary powers to stabilize the names of the north European species belonging to the *Tipula oleracea* group within the subgenus *Tipula* Linnaeus, 1758 (Class Insecta, Order Diptera). -- Bull. zool. Nomencl. 17: 209 - 213.  
 LACKSCHEWITZ, P., 1930. Die Oleracea-Gruppe des Genus *Tipula* (Dipt., Nematoc. polyn.). -- Konowia 9 (4): 257 - 278, Tafel I, II.  
 MANNHEIMS, B., 1950. Die *Tipula oleracea*-Gruppe in Europa, ein Beispiel für FormenkreisParallelismus (Dipt., Tipulidae). -- Syll. biol. Fest-schr. Kleinschmidt: 231 - 247.  
 -----, 1962. Die Tipuliden Madeiras (Dipt. Tipulidae). -- Notulae Ent. 42: 130 - 136.  
 MEIGEN, J.W., 1818. Systematische Beschreibung der bekannten Europäischen zweiflügeligen Insekten I: I - XXXVI, 1 - 258, Tab. I, II (Forstmann, Aachen).  
 ZIMSEN, E., 1964. The type material of I.C. Fabricius, 1 - 638 (Munksgaard, Copenhagen).

Received: 1 December 1974.

Dr. J. DEN HOLLANDER  
 Institute of Taxonomic Zoology (Zoölogisch Museum)  
 Department of Entomology  
 University of Amsterdam  
 Plantage Middenlaan 64  
 Amsterdam-C. -- The Netherlands.

Table I. Comparison of some characters in 5 *Tipula* species.

Species	number examined	eye distance (mm) (range, mean)	body length (without head) (mm)	cubitus length (mm) (range, mean)	colour of the first flagellar segment	shape of id-2
<i>T. oleracea</i>	♀	0.13-0.25 (0.18)	20	8.8-11.5 (10.0)	yellow/dark	
	♂	0.13-0.24 (0.18)	15	7.0- 9.8 ( 8.3)	yellow/dark	horn-shaped
<i>T. plumbea</i>	♀	0.23-0.26 (0.25)	18	7.3- 9.5 ( 8.5)	black	
	♂	0.20-0.26 (0.24)	15	7.5- 9.0 ( 8.4)	black	horn-shaped/claviform
<i>T. mediterranea</i>	♀	0.15-0.25 (0.20)	21	8.3-10.0 ( 9.7)	yellow	
	♂	0.13-0.25 (0.20)	18	8.0-10.3 ( 9.1)	yellow	globular claviform
<i>T. esizeki</i>	♀	0.26-0.36 (0.33)	19	8.0- 9.3 ( 8.7)	black	
	♂	0.26-0.34 (0.28)	15	8.0- 9.5 ( 8.6)	black	rectangular
<i>T. kleinschmidti</i>	♀	0.11-0.20 (0.15)	20	8.5-11.5 (10.1)	dark yellow	
	♂	0.15-0.19 (0.18)	15	7.8- 9.0 ( 8.4)	dark yellow/black	rectangular

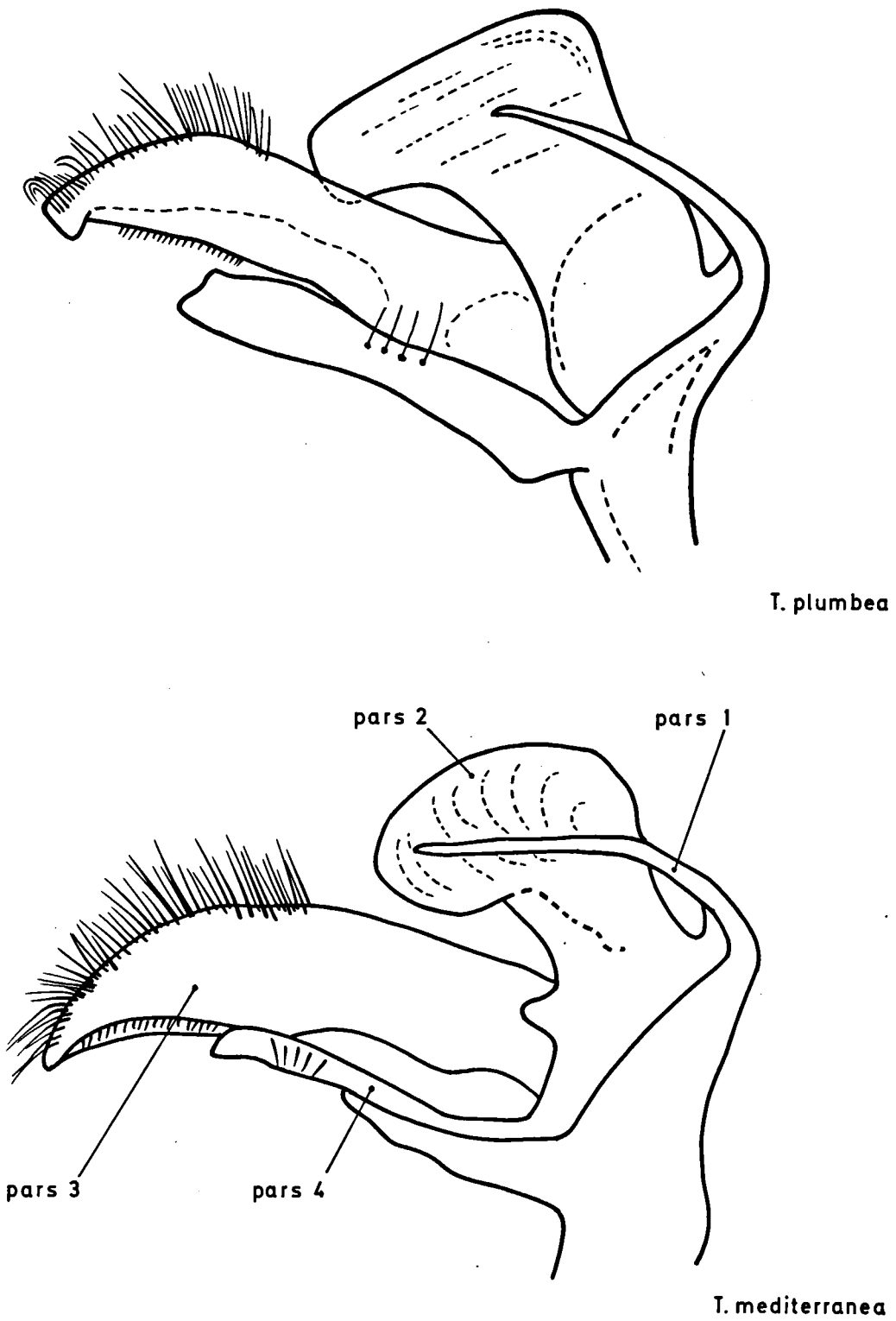


Fig. 1. The inner dististyle of *Tipula plumbea* and *T. mediterranea*.