

A REVISION OF THE GENUS "NEOTANYGASTRELLA" DUDA (Diptera, Drosophilidae)¹

O. FROTA-PESSOA

and

MARSHALL R. WHEELER

Centro de Pesquisas Genéticas, Faculdade
Nacional de Filosofia, Rio de Janeiro, Brasil

Department of Zoology, University
of Texas, U.S.A.

(With 3 text-figures)

INTRODUCTION

This little known genus of flies, here considered to contain five species from North and South America and the Caribbean region, was established by DUDA (1925) for a new species from Costa Rica. Although he did not at this time present a description of the genus, he indicated in his key of *Drosophila* of Costa Rica that it was new and included in it the single species *N. tricoloripes* Duda which must, therefore, be designated as the type of the genus.

In his revision of South American *Drosophilidae*, DUDA (1927) defined the genus in the determination keys, discussed its relationships and described *N. chymomyzoides* from Peru and Bolivia and *N. tricoloripes* var. *boliviensis* from Bolivia.

Within the past few years each of the writers has described a new species in a genus other than the present one (*Bunostoma brasiliensis* Frota-Pessoa, 1946 from Rio, *Chymomyza leucopoda* Wheeler, 1949 from Mexico), but we are now convinced that the species concerned should be transferred to *Neotanygastrella*. In addition to accomplishing this, we wish to redefine the genus in more modern terms, consider its relationships, designate its genotype, present a key for the separation of the species, describe the male of *N. brasiliensis*, elevate *N. tricoloripes* var. *boliviensis* to specific rank and discuss the remaining species.

THE GENUS *NEOTANYGASTRELLA* DUDA

Neotanygastrella Duda, 1925, *Ann. hist.-nat. Mus. hung.*, 22 : 201, 203.

Neotanygastrella Duda, 1927, *Arch. Naturg.*, 1925, 91 A 11-12 : 17, 65, 70, 142.

¹ Received for publication February 22, 1951.

Black to yellow species of moderate size (about 2.0 to 2.5 mm). Arista with long rays both above and below the main axis. Front broader than long; occiput on either side of ocelli silvery pruinose when viewed from in front and above. Postvertical bristles convergent, well-developed; anterior reclinate orbital small, placed to the side of and sometimes in front of the proclinate. Posterior reclinate orbital equidistant between inner vertical and proclinate orbital or nearer the latter. Carina exceptionally low between antennae, widely expanding at the level of the vibrissae into a bulbous, mound-like protuberance whose lower edge recedes into the oral margin. Acrostichal hairs in 8 rows; no prescutellars; two pairs of dorsocentrals. Fore legs colored as in *Chymomyza*, the fore femora, tibiae and metatarsi quite dark and contrasting with the pale yellow to whitish remaining fore tarsal joints; middle and hind legs uniformly yellow to tannish brown. Wings hyaline; 2nd basal and discal cells confluent. Costal index less than 2.0. Abdomen narrower than the thorax.

Genotype — We designate as the genotype *N. tricoloripes* Duda, 1925, of Costa Rica, the first species described in the genus.

Relationships — In spite of its name, *Neotanygastrella* bears no direct relationship to the oriental genus *Tanygastrella* Duda, 1924, although both genera, according to DUDA, have an exceptionally slender abdomen. In addition, *Tanygastrella* has a well-developed, nose-like carina rather than the mound-like protuberance of the lower face, the fore legs are uniformly colored, and the deep costal incision of the wings is like that found in *Mycodrosophila* Oldenberg, 1914.

Neotanygastrella is much more like *Chymomyza* in having strikingly dark fore femora, tibiae and metatarsi, strongly contrasting with the pale yellowish or white distal fore tarsal joints, but differs from that genus in having the anterior reclinate orbital smaller and closer to the proclinate one and in possessing well-developed postverticals. The same characteristic coloration of the fore legs is present in *Zygodrosophila* Hendel, 1917 but the postverticals are said to be absent.

The genus *Bunostoma* Malloch, 1932 has, according to the description of its only species, *B. flavifacies* Malloch, 1932, several characters in agreement with those of *Neotanygastrella*, e.g. the position and proportions of the frontal bristles, arrangement of thoracic bristles, and the enlarged, bulbous appearance of the lower face (see FROTA-PESSOA, 1946). It is decidedly different, however, in having but two rows of acrostichal hairs, black legs with yellow tarsi and yellowish areas on femora and tibiae, the costal index only a little less than 3.0 and, finally, in its remarkably different distribution (Marquesas Islands).

Drosophila bicoloripes Malloch, 1926, from Costa Rica, possesses the unique coloration of the fore legs found in *Neotanygastrella* and in most *Chymomyza* but differs from both genera in having the posterior crossvein with a conspicuous dark brown cloud over it. No reference is made in the description concerning the presence of the mound-like prominence of the lower face.

Drosophila nigricosta Malloch, 1926, also from Costa Rica, is said to be similar to the former and is described as having "face with a slight carina just below bases of antennae; . . . one vibrissa only, which is situated above mouth margin, the latter rounded", but has "legs normal". MALLOCH declares: "This species resembles some of those in *Chymomyza*, but despite the position of the lower reclinate bristles, is a true *Drosophila*". Since both of these species apparently possess large postverticals, it is quite possible that they belong to *Neotanygstrella* but it does not seem wise to transfer them until more information becomes available.

KEY TO THE SPECIES OF "NEOTANYGASTRELLA" DUDA

1. Mesonotum, scutellum, pleurae and front pale tan without darker markings (Peru, Bolivia, Panama) *N. chymomyzoides* Duda
 - Mesonotum either uniformly dark, or pale tan with darker median stripe; scutellum velvety black with small apical yellow area 2
2. Front, face, mesonotum and pleurae uniformly dark brown to black 3
 - Front tan anteriorly; face white and mesonotum tan, each with a brown median stripe; pleurae tan with a broad vertical dark stripe from sternopleura to transverse suture 4
3. Entire front black, velvety except on ocellar and orbital areas; anterior reclinate orbital slightly less than half the length of the proclinate one; palpi black (Mexico) *N. leucopoda* (Wheeler)
 - Anterior half of front dark brown, posterior half on each side of the extended ocellar area, dull black; anterior reclinate orbital about 1/4 the length of the proclinate one; palpi tannish brown (Bolivia) *N. boliviensis* (Duda)
4. Checks white; proboscis black; 6th vein strong (Costa Rica) *N. tricoloripes* Duda
 - Checks pale in front, distinctly brown along posterior angle below eyes; proboscis largely tannish yellow, the labella brownish; 6th vein weak (Brazil) *N. brasiliensis* (Frota-Pessoa)

THE SPECIES OF *NEOTANYGASTRELLA* DUDA

1. *Neotanygstrella tricoloripes* Duda

N. tricoloripes Duda, 1925, *Ann. hist.-nat. Mus. hung.*, 22: 224.

N. tricoloripes Duda, 1927, *Arch. Naturg.*, 1925, 91 A 11-12: 71, 73.

This species as the first included species of the genus, is hereby designated as the type species. It is known only from the 2 males, 1 female from Costa Rica from which it was described. DUDA (1927) reported this species from Bolivia as *var. boliviensis*, but in view of the fact that the Bolivian specimen differed from the present species in a number of unique respects, we are elevating it to specific rank (see below).

2. *Neotanygastrella chymomyzoides* Duda

N. chymomyzoides Duda, 1927, *Arch. Naturg.*, 1925, 91 A 11-12 : 71, fig. 21.

DUDA described this species from 16 males, 3 females from Peru and Bolivia. Dr. A.H. STURTEVANT has specimens from Panama, one of which he has given to the Texas collection.

3. *Neotanygastrella boliviensis* (Duda) n. comb.

N. tricoloripes var. *boliviensis* Duda, 1927, *Arch. Naturg.*, 1925, 91 A 11-12 : 71, 73.

DUDA stated that he had found one female from Bolivia in the Dresden Museum that was identical morphologically with *tricoloripes* from Costa Rica but which differed in coloration of the face, front, cheeks and thorax, and stated further that he had placed a label on this specimen as "*tricoloripes* var. *boliviensis*". From his brief descriptive summary it is apparent that the two forms were "identical" only in the generic characteristics; comparing the two descriptions we found the following differences:

<i>N. tricoloripes</i>	<i>N. boliviensis</i>
Front yellowish brown anteriorly.	Front dark brown anteriorly.
Anterior reclinate orbital little less than half length proclinate.	Anterior reclinate orbital about 1/4 length proclinate.
Face white, with a black central stripe.	Face wholly black, shining on the sides.
Cheeks white.	Cheeks reddish-brown.
Mesonotum yellowish-brown with a black median stripe.	Mesonotum brownish-black without median stripe.

As this was the first use of the name *boliviensis* in the genus, and since it was accompanied with an indication of the differences of this form from other forms, and finally, since in the opinion of the writers it is sufficiently distinct to be entitled to specific recognition, its name should be combined as given above.

4. *Neotanygastrella leucopoda* (Wheeler) n. comb.

Chymomyza leucopoda Wheeler, 1949, *Univ. Texas Pub.*, 4920 : 161.

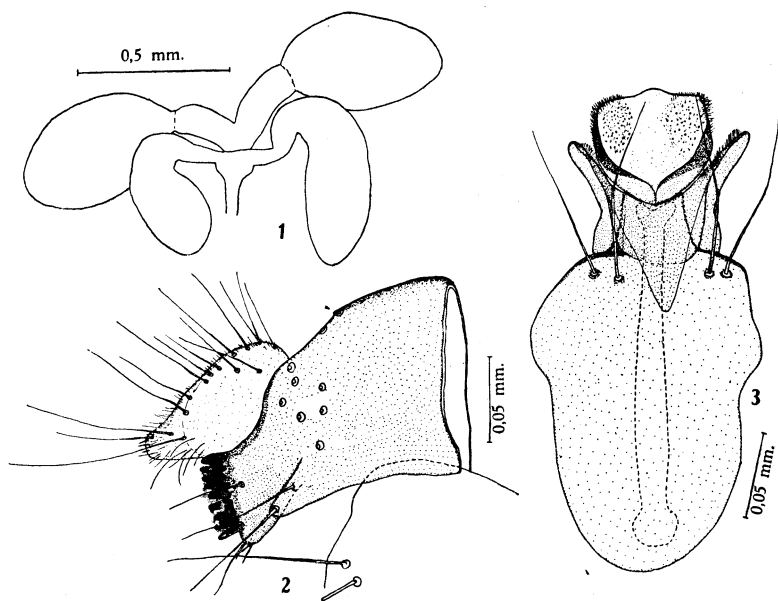
This species was taken in Michoacan, Mexico by the describer, and on the basis of the characteristic color of the forelegs was placed in *Chymomyza*. It was noted, however, that the species possessed several characters at variance with those of that genus. A comparison of the type, which is in the Texas collection, with *N. chymomyzoides* and *N. brasiliensis*, clearly established its position in the present genus.

There is considerable probability that this species is the same as *N. boliviensis*. The Mexican form agrees with all the characters of the latter given in DUDA's incomplete description except for the coloration of the front and palpi and the length of the anterior reclinate orbital (see key). Until further information becomes available it seems best to consider them distinct.

5. *Neotanygastrella brasiliensis* (Frota-Pessoa) n. comb.

Bunostoma brasiliensis Frota-Pessoa, 1946, *Summa Brasil. Biol.*, 1 (11):175, figs. 1-4.

This species was described from two females collected in the Botanical Garden of Rio de Janeiro in February 1945. Its characters agreed very well with the description of *Bunostoma* Malloch from the Marquesas Islands except in having eight rather than two rows of acrostichal hairs. Because of this difference it was included in *Bunostoma* only tentatively.



Neotanygastrella brasiliensis (Frota-Pessoa) — Fig. 1: Testes and paragonia; fig. 2: anal plate, genital arch, forcipes and part of hypandrium; fig. 3: hypandrium, penis and its apodem.

In May 1950 new material of this species was obtained in the same place and one of us (WHEELER) verified that the species actually belonged to *Neotanygastrella* Duda. Consequently, we wish now to transfer the species to this genus. *N. brasiliensis* is very similar to *N. tricoloripes*, and they are possibly the same species. A comparison of our material and Duda's description revealed the differences used in the key — differences that seem to us to be significant. Thus, until further information is available we will maintain *brasiliensis* as a distinct species.

The describer wishes now to present some additional information concerning the female and to describe the male allotype.

Female — Ventral receptacle linear, tube-like, but little longer than the stalk of the spermatheca although thicker than the latter. Two anterior Malpighian tubes free, the two posterior ones fused.

Male — General appearance as described for the female.

Abdomen black, with the following areas yellowish white: 1st. tergite, a median longitudinal stripe on 2nd, the anterior margin or the para-median regions on the 5th, and the posterior borders (behind the apical bristles) on all tergites. The four visible sternites and the conjunctivae whitish. A pair of small oval chitinous plates between the 6th tergite and the genital arch, representing the 7th tergite. Testes (fig. 1) not coiled, brownish yellow; paragonia white.

Genitalia — Genital arch (fig. 2) without anterior processes; posterior processes acute, with two bristles, anterior to the forcipes and not covering them. Anal plates (fig. 2) not fused with the genital arch, their inferior poles prominent and free with about 3 long bristles and several hairs on the outer face and several hairs on the inner face. Forceps (fig. 2) with marginal row of 9 teeth, one bristle at the center of the outer face, 3 on its margin and about 5 on the inner face (inwards of the row of teeth). Bridge well chitinized, thin at the sides and concave when viewed from the under side. Hypandrium (fig. 3) longer than wide, convex, with a trapezoidal posterior process and, posterior to this, a pair of paramedian processes with hairs on the inner portion; two pairs of long bristles near the posterior margin of the hypandrium. Penis (fig. 3) rounded, with yellow pilosity on the lateral lobes. Apodeme of the penis (fig. 3) forming a stalk articulated to the penis.

Types — Allotype male deposited in the Museu Nacional (Rio de Janeiro), 4 males, paratypes and 4 females metatypes in the collection of Centro de Pesquisas Genéticas (Rio); 3 males, paratypes and 2 females, metatypes in the Drosophila Type and Reference Collection of the University of Texas. All the above specimens were collected (Frota-Pessoa) with a net in a decaying *jaca* (fruit of *Artocarpus integrifolia*, Moraceae) in Jardim Botânico do Rio de Janeiro in May 1950. In that *jaca* we found larvae that developed into imagi.

RESUMO

O gênero *Neotanygastrella* Duda, 1925 é redescrito; *N. tricoloripes* Duda, 1925, de Costa Rica é designada como seu genótipo; são discutidas as relações do gênero e apresentada uma chave para as espécies. *N. tricoloripes* var. *boliviensis* Duda, 1927 é elevada à categoria de espécie (*N. boliviensis*). *Chymomyza leucopoda* Wheeler, 1949 e *Bunostoma brasiliensis* Frota-Pessoa, 1946 são transferidas para o gênero *Neotanygastrella*. É descrito o alótipo macho de *N. brasiliensis* Frota-Pessoa e acrescentam-se notas sobre as 5 espécies.

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