

***Tipula (Pterelachisus) padana* sp. n. from southern Switzerland (Ticino, Valais) and northern Italy (Diptera: Tipulidae)**

by

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ABSTRACT. — *Tipula (Pterelachisus) padana* sp.n. is described from southern Switzerland (Ticino, Valais) and northern Italy. *T. padana* sp.n. is very similar to *T. (Pt.) austriaca* Pokorny, 1887 (♂ and ♀ illustrated) with which it was confused until now. However, both species show distinct morphological features, distributions and ecological requirements. Their probably separate glacial refugia are discussed.

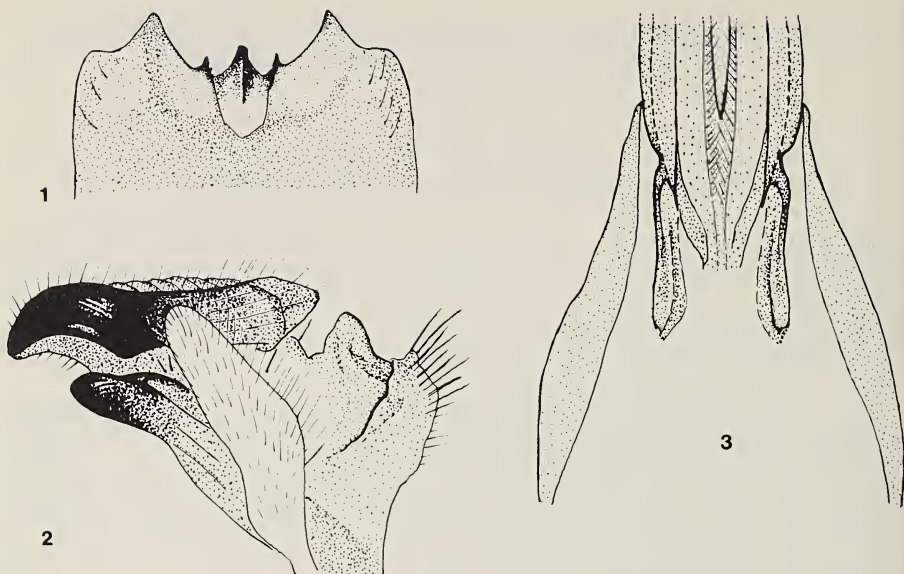
While collecting tipulids in order to prepare a Swiss Tipulidae fauna (doctorate work), my attention was drawn by the heterogeneous biotopes and colour patterns of specimens identified as *Tipula (Pterelachisus) austriaca* Pokorny which occurred in Ticino (Italian speaking part of Switzerland) and in the Rhaetian Alps (eastern Switzerland). Close studies of the genital structures revealed distinct differences between two forms which permit us to describe a new species viz. *Tipula (Pterelachisus) padana* sp.n. named after the river Po around which basin the type-series was collected.

Theowald (1980) recorded *T. austriaca* among others from northern Italy. A new study of all Italian specimens known until now showed that they all belong to the new species and not to *austriaca*. The material studied is deposited in the following institutions: Museum Alexander Koenig, Bonn (MAK); Naturhistorisches Museum Basel (NMB); Musée Zoologique de Lausanne (MZL); Musée d'Histoire Naturelle de la Ville de Neuchâtel (MHNVN) and Zoologisch Museum Amsterdam (ZMA). I am most grateful to Dr. H. Ulrich (Bonn) and Dr. C. Baroni Urbani (Basel) who made loan material available. I am pleased to thank Dr. Theowald van Leeuwen (Amsterdam) for his precious advice and my friends W. Geiger and P. Galland for their help with the collecting and the botanical descriptions.

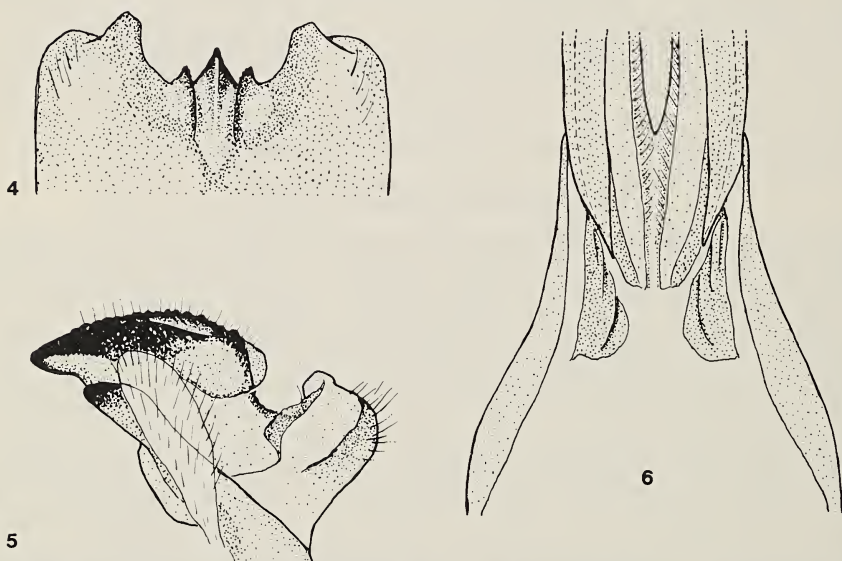
Tipula (Pterelachisus) padana sp.n. figs: 1-3

Type-material. Holotype ♂: Bodio, Bidre (CH-Ticino), 1000 m, Swiss coordinates 714/138, 20.V.1980, C. Dufour leg. (MZL). Paratypes: 1 ♂, same data as holotype but: 16.V.1980, C. Dufour (ZMA); 1 ♂, Bodio, Bidre, Tenciareu (CH-TI), 1000-1500 m, 17.V.1980, C. Dufour (MHNVN); 2 ♂♂, Monte Carasso, San Bernardo (CH-TI), 550 m, 26.V.1979, C. Dufour (MHNVN); 1 ♂, Preonzo (CH-TI), 270 m, 25.V.1979, C. Dufour (MZL); 1 ♂, Dongio (CH-TI), 600 m, 24.VI.1979, W. Geiger (MHNVN); 1 ♀, Mairengo (CH-TI), 900 m, 28.V-3.VI.1979, "Malaise" light trap, C. Dufour/W. Geiger (MHNVN); 1 ♀, do., 18-24.VI.1979, (ZMA); 1 ♂, San Salvatore (CH-TI), 19.V.1955, F. Keiser (NMB); 1 ♂ Binn (CH-Valais), 1900-2000 m, 5.VIII.1980, C. Ruedi (MHNVN); 1 ♂, Simplon-Dorf (CH-VS), 1600 m, 16.VII.1978, C. Dufour (MHNVN); 1 ♂, Foppiano, Tosatal (Italy), 900 m, 16.VII.1953, Gross; 7 ♂♂, 1 ♀, Abetone (Italy), 1450-1900 m, 17.VI.1960, J. Niethammer; 1 ♂, 1 ♀, do., 1700 m, 23.VI.1960; 2 ♂♂, Cimone (Italy), 1600 m, 18.VI.1960, J. Niethammer; 5 ♂♂, 1 ♀, do., 19.VI.1960; 4 ♂♂, Alpe tre Potenze (Italy), 1800 m, 22.VI.1960, J. Niethammer (all MAK).

Description. Body length ♂: 13 mm, ♀: 17 mm; wing length: 15-16 mm. Male: head grey; nasus distinct; palpi and rostrum dark grey; 13 antennal segments; scape and flagellum dark grey, pedicel lighter and brownish; flagellar segments with small basal nodes; eyes small, widely separated below (space 3-4 times wider than scape). Thorax grey bearing 3 brown praescutal stripes; the central one is lightened anteriorly except for a thin medium line (trifurca); wings light brown with few hyaline marks and dark stigma; neala (squama) without bris-



Figs. 1-3. *Tipula (Pterelachisus) padana* sp.n., 1, posterior extension of tergite 9; 2, id, outside; 3, hypovalvae dorsal view.



Figs. 4-6. *Tipula (Pterelachisus) austriaca* Pokorny, 4, posterior extension of tergite 9; 5, id, outside; 6, hypovalvae dorsal view.

tles. Femora light brown, darkened apically; tibiae and tarsi dark brown; tibial spurs 1,2,2; claws with a small secondary tooth. Abdomen grey with a row of lateral brown marks on tergites 2-5; side margin of tergites light grey. Hypopygium: posterior extension of 9th tergite as in fig. 1; posterior part of the 8th sternite with long thin hairs; top part of id (fig. 2) flat or con-

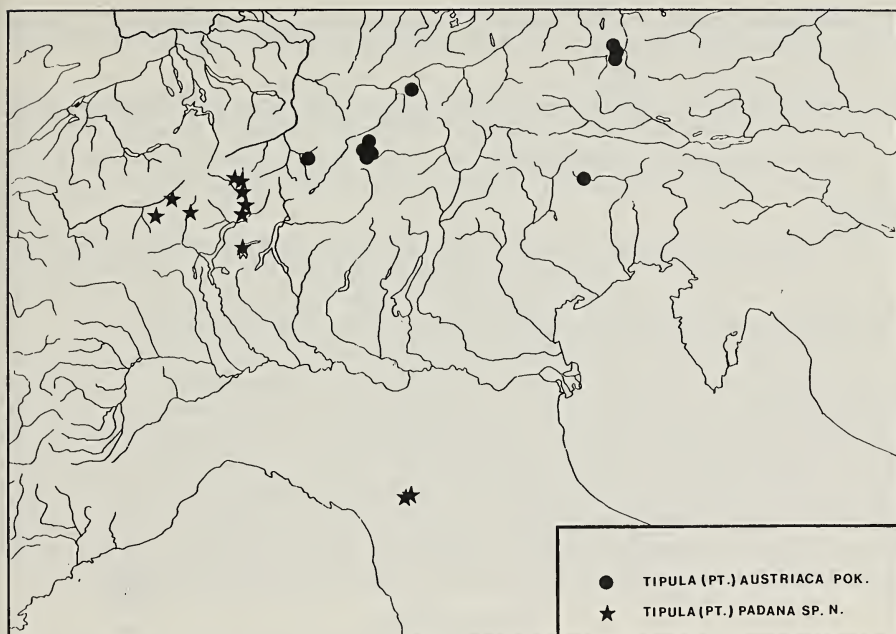


Fig. 7. Distributions of *Tipula padana* sp.n. and *Tipula austriaca* Pokorny.

cave, posterior part with distinctive crests and projections; inner side of id smooth or striate, without a honeycomb structure. The female is similar to the male in general appearance; inner ridges of basal part of hypovalvae as in fig. 3; claws lacking a secondary tooth.

Biotope. Mainly deciduous forests (*Fagus*, *Castanea*) in mountainous regions under mild and wet climatic conditions; subalpine in Valais.

Discussion. *Tipula padana* sp.n. is very similar to *T. austriaca*. Mannheims identified the specimens in his collection (MAK) from the northern Apennines as *austriaca* (Theowald, 1980). They all belong to *padana* and are included in the type series. The following criteria permit to discriminate both species:

1. *T. austriaca* ♂ has 14, rarely 15 antennal segments, ♀ ♀ have 13 or 14. *T. padana* ♂ and ♀ all have 13 antennal segments. The pedicel is black in *austriaca*, brownish, and lighter than scape and flagellum, in *padana*.

2. General colour of *austriaca* is blue-grey, and the abdomen is uniformly grey on the lateral parts of the tergites. *T. padana* is a brownish-grey species and its abdomen bears a distinct row of lateral brown marks on the tergites 2-5, separated from the side margin by a light-grey border.

3. The hypopygium shows discriminating structures on the top, inner and hind parts of the id (*padana*: fig. 2; *austriaca*: fig. 5). Slight differences can also be found in the structure of the inner ridge of the basal part of the hypovalvae as seen from above (*padana*: fig. 3; *austriaca*: fig. 6).

The biotopes of both species are quite different in Switzerland. *T. austriaca* is strictly bound to *Pinus* forests: *Pinus sylvestris* L. in the Erico-Pinion (*Ericeto-Pinetum sylvestris*, Br.-Bl. 39) near Filisur, or *Pinus mugo* Turra in the *Mugeto-Ericetum* (Br.-Bl. 39) and the *Mugeto-Rhodoretum hirsuti* (Br.-Bl. 39) near the Swiss National Park in Engadine; see Br.-Bl., 1949. *T. austriaca* was found at elevations ranging from 1100 m (near Filisur) to 2300 m on the slopes of the Munt Buffalora near the Ofenpass (Engadine) in a *Mugeto-Rhodoretum hir-*

suti with the procumbent form of *Pinus mugo* (grex *prostrata*). These *Pinus* forests are bound to a continental climate with large diurnal and seasonal temperature variation, and little rainfall (50-120 cm per year at 2000 m).

T. padana was found in Ticino on the southern slopes of the Alps at low altitudes (270-1000 m) in deciduous forests of *Castanea* and *Fagus*. The climate of this region named "insubrian" is characterized by heavy rainfall (180-200 cm at the lowest altitudes), warm summers and mild winters. In Valais, both subalpine localities reflect extreme ecological and geographical conditions.

The distributions of both species (fig. 7) show no overlap. *T. padana* inhabits mainly the drainage-basin of the Po: Ticino and the cisalpine part of Valais (Switzerland), Piemonte and Appennino Tosco-Emiliano (Italy). It has entered the drainage-basin of the Rhône (Binn, Valais), but apparently without spreading further down in this continental valley.

T. austriaca has a more eastern distribution: Rhaetian Alps (Switzerland), Nord Tirol, Kärnten and Steiermark (Austria). Theowald (1980) records the species from the south and north Carpathians. *T. austriaca* is not yet known from Italy, though it can be expected in the Dolomites and the Carnic Alps. The present distributions can be interpreted historically by separate glacial refugia. *T. padana* apparently spent the (last?) glacial period in the Italian peninsula, whereas *austriaca* could have found refuge in the mountains surrounding the Hungarian plain. In a more ecological view both distributions can be interpreted as due to different biotope requirements (deciduous forest in "insubrian" climate for *padana*, continental pine forests in mountainous regions for *austriaca*). However, these two views are not contradictory.

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Tot nu toe was het enige werk waarin de gehele Afrikaanse dagvlinderfauna behandeld werd, deel 13 van Seitz' Gross-Schmetterlinge, geschreven door dr. C. Aurivillius en verschenen van 1908-1925. Sindsdien is ook over deze fauna veel gepubliceerd en is ook de taxonomie niet onveranderd gebleven, zodat een modern overzicht wel op zijn plaats is.

In dit nieuwe werk beperkt de auteur zich tot tropisch Afrika, het gebied ten zuiden van de Sahara, maar met inbegrip van Zuid-Arabië, de Seychellen, de Comoren, Mauritius, Madagascar en de eilanden in de Golf van Guinee. De ruggegraat van het boek wordt gevormd door de illustraties, honderden schitterende kleurenfoto's van de hele vlinder op natuurlijke grootte, waarbij vaak ook de onderkant wordt afgebeeld. Alle foto's zijn vervaardigd naar exemplaren uit de collecties van het British Museum (Nat. Hist.), in de regel naar materiaal waarnaar het taxon beschreven werd. Echte typen zijn als zodanig aangegeven bij de foto ervan.

De tekst is zeer beperkt en bevat in de regel alleen een opgave van de bekende verspreiding van het betreffende taxon. Gegevens over de biologie ontbreken geheel, dit om de omvang van het boek binnen de perken te houden. Specialisten zullen dan ook waarschijnlijk wel enkele bedenkingen over de opzet van het werk hebben. Maar daar staat tegenover, dat ook voor hen de foto's van zoveel authentiek materiaal van onschatbare waarde moeten zijn.

De uitvoering van het boek is voortreffelijk. De prijs is hoog, maar er wordt dan ook wel iets voor geboden! — B. J. Lempke.