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Artikel: Tipula (Acutipula) nevada sp.n. and Tipula (Savtshenkia) invenusta microinvenusta ssp.n. from the heights of Sierra Nevada in Spain (Diptera : Tipulidae)

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Tipula (Acutipula) nevada sp. n. and *Tipula (Savtshenkia) invenusta microinvenusta* ssp. n. from the heights of Sierra Nevada in Spain (Diptera: Tipulidae).

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A description is given of the male of *Tipula (Acutipula) nevada* sp. n. This species is closely related to *T. (A.) fulvipennis* DE GEER, *T. (A.) niethammeri* MANNHEIMS and *T. (A.) nigroantennata* SAVTSHENKO. *Tipula (Savtshenkia) invenusta microinvenusta* ssp. n. is described after a large series of males and females. A population of *T. (S.) gimmerthali* LACKSCHEWITZ with hemipterous females is recorded.

INTRODUCTION

While examining the Tipulid collection of the Musée cantonal de zoologie in Lausanne, my attention was drawn to 2 males of *Acutipula* and 1 male of *Savtshenkia* collected by F. SCHMID in August and September 1950 labeled "Laguna de Yeguas" which belonged to undescribed taxa. In 1989, a short journey to Andalucia (25.9.–2.10.) with Jean-Paul HAENNI enabled us to visit the heights of Sierra Nevada. In spite of intense research, no other specimen of *Acutipula* could be collected in the locality mentioned by SCHMID, now mostly drowned by an artificial lake and destroyed by the ski installations of Solynieve, nor in other favorable habitats, probably because of the late season. Contrary to this the still undescribed *Savtshenkia* ssp. was found to be common along streams and little lakes at altitudes ranging from 2500 to 3040 m. *Tipula (Savtshenkia) gimmerthali* was the only other Tipulid species flying in late September in these localities.

DESCRIPTION OF NEW TAXA

Tipula (Acutipula) nevada sp. n. (fig. 1)

Type material. Holotype ♂: Sierra Nevada; Laguna de Yeguas; 8.8.1950; F. SCHMID leg. (Musée cantonal de zoologie, Lausanne). Paratype: 1 ♂, idem (Musée d'histoire naturelle de Neuchâtel).

Description

♂: as a small grey *fulvipennis*

Head: uniformly grey, lighter only on sides of rostrum. Eyes separated below by 3× width of scape. Antennae entirely grey (scape and pedicel not lighter than flagellum).

Thorax: grey except yellowish membranous region near anterior spiracle; stripes on praescutum distinct and uniformly dark grey; coxae and trochanters grey; legs entirely brownish grey; claws with secondary tooth; wings (length 16–17.5 mm) with few small bristles on neala; greyish ground colour with distinct

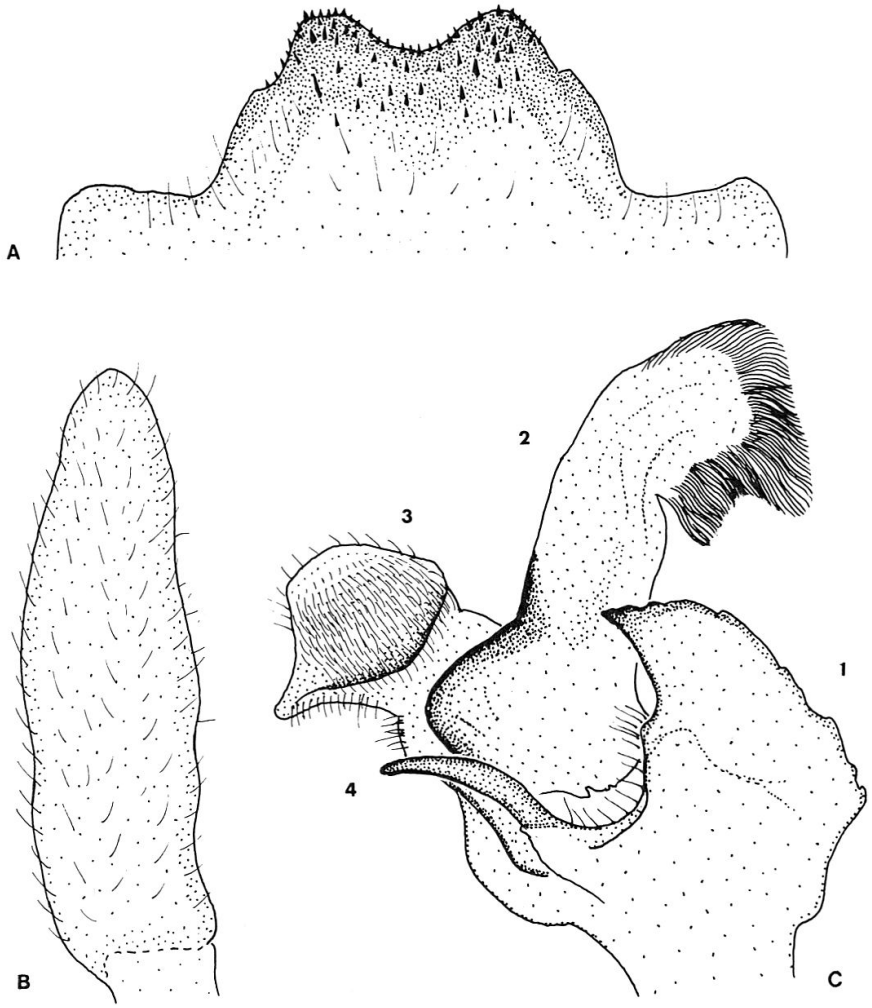

Fig. 1. *Tipula (Acutipula) nevada* sp.n.; A, posterior extension of tergite 9; B, left outer dististyle, outside; C, left inner dististyle, outside, pars 1–4.

dark spot in posterior cubital cell (Cup) and extended milky marking between pterostigma and cubital vein (cu), running over discal cell.

Abdomen: grey with darker brownish grey lateral stripes; genitalia (fig. 1): tergite 9 with distinctly separated posterior projections; od elongated, not widened at base; id with 4 processes (p1–p4): process 1 irregular saw-like on outer margin; process 3 ended by a bill shaped projection; terminal brush of process 2 as in fig. 1c.

♀: unkown

Systematical remarks

Tipula (A.) fulvipennis De Geer which was described in 1776 is a most common and widespread Tipulid known from the Faeroes Islands to Mongolia and reaching southern Spain (we have collected it on the northern slopes of Sierra Nevada up to 1500 m). In the South of its distribution two very closely related taxa have been described that we shall consider as species following Mannheims (1969): *T. (A.) niethammeri* Mannheims 1969 from the Sierra de Gredos (Spain) and the Serra da Estrela (Portugal) and *Tipula (A.) nigroantennata* Savtshenko

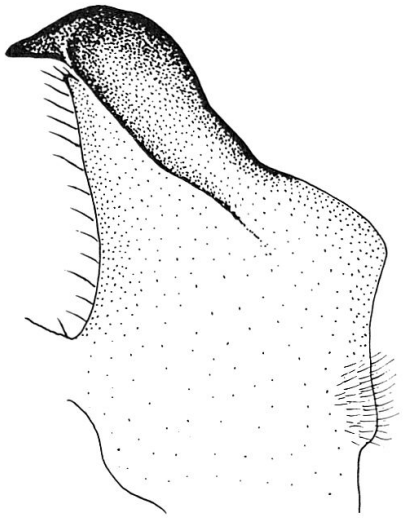

Fig. 2. *Tipula (Acutipula) fulvipennis* DE GEER, from the French Pyrenees; pars 1 of left inner dististyle, outside.

1961 from the mountains of southern USSR (Georgia, Armenia), North-east Turkey and North-east Iran, the females of which have reduced wings.

We have examined 1 ♂ and 1 ♀ of *T. (A.) niethammeri* from Serra da Estrela (paratypes deposited in Bonn), 1 ♂ and 1 ♀ of *T. (A.) nigroantennata* from Georgia, Adzharo Imeretinski Mts (deposited in Bonn, ♂ with incomplete genitalia), and numerous specimens of *T. (A.) fulvipennis* from the French Pyrenees, Switzerland, Corsica and Bulgaria.

T. (A.) nigroantennata and *T. (A.) nevada* are very similar in colour pattern: scape and pedicel dark, uniformly dark central praescutal stripes, grey coxae and trochanters, grey abdomen with sternites no lighter than tergites. They share rather small eyes (as widely separated below as above in *nevada,* more widely separated below than above in *nigroantennata)* and a posterior extension of 9th tergite of male with a medium sized incision. They are separated by shape of id, inner dististyle (illustrated by MANNHEIMS, 1969 and SAVTSHENKO, 1961) of which pars 3 bears a distinct, anteriorly directed beak in *nevada,* whereas it is rounded anteriorly in *nigroantennata.*

T. (A.) fulvipennis and *T. (A.) niethammeri* are similar by the following characters: scape and pedicel lighter than flagellum; praescutal stripes with dark margin and lighter central part, coxae and trochanters partly yellowish; abdomen with sternites lighter than tergites; eyes narrowly separated below (1.5−2× as wide as scape); they are separated by tergite 9 with wide incision in *T. (A.) niethammeri* (illustrated by MANNHEIMS, 1969), incision small in *fulvipennis.*

T. (A.) fulvipennis and *T. (A.) nevada* are separated by the colouration characters listed above and by space between eyes below (3× as wide as scape in *nevada,* 1,5−2× in *fulvipennis.* The genitalia of males of *fulvipennis* show the following discriminating characters: od wide at base and small incision of tergite 9 (illustrated by MANNHEIMS, 1952). Furthermore a very good character is provided by the shape of pars 1 of id (inner dististyle), which is irregular and saw-like in *nevada* (fig. 1c) whereas it bears a thickened, sclerotized crest in all specimens examined of *fulvipennis* (fig. 2).

Slight modifications can be recognized in each species on id, especially pars 1, 2, 3 and on od (outer dististyle), but no clear groupings may be proposed and we are unable to state the detailed relationships between these 4 very similar species.

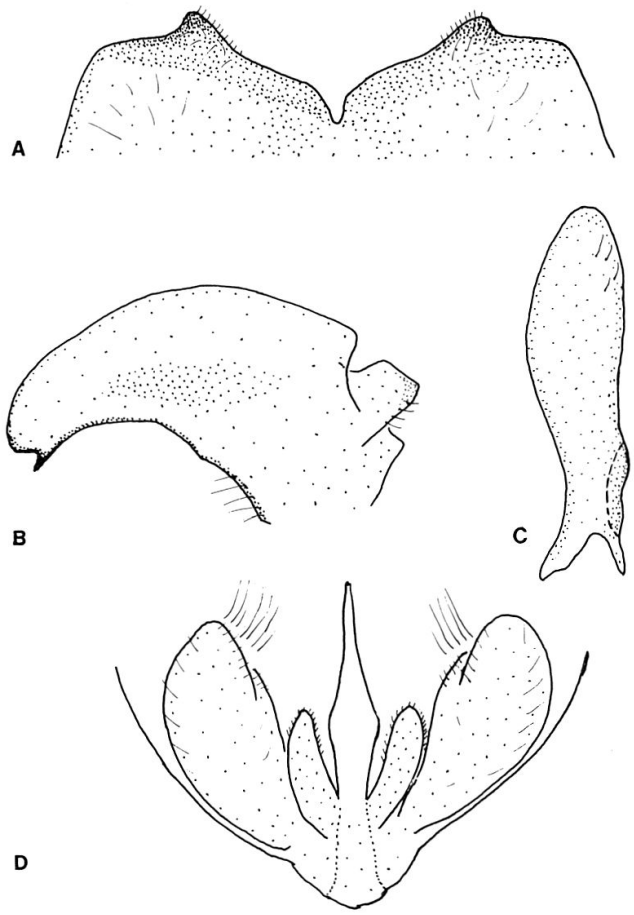

Fig. 3. *Tipula (Savtshenkia) invenusta microinvenusta* ssp.n.; A, posterior extension of tergite 9; B, left inner dististyle, outside; C, left outer dististyle, outside; D, appendages of adminiculum.

Tipula (Savtshenkia) invenusta microinvenusta ssp. n. (fig. 3–4)

Type material. Holotype ♂: Espagne-Granada, Sierra Nevada, C. DUFOUR & J.-P. HAENNI leg./4 km N Picacho de Veleta, B. de San Juan, 2600 m, mousses bord ruisseau, 27.IX.1989, St 8a (Musée d'histoire naturelle de Neuchâtel, MHNN, dry); paratypes: 19 ♂, idem holotype; 20 ♂, idem, 2550 m, ruisseau, cascade, 27.IX.1989, St 8b (MHNN, dry); 2 ♂ 1 ♀, idem, 2500 m, pâturage, petit lac moussu, 27.IX.1989, St 8c (MHNN, dry); 9 ♂ 6 ♂, idem/2 km ESE Picacho de Veleta, Refugio Felix Méndez, 3040 m, bord du lac marécageux, 27.IX.1989, St 9a (MHNN, dry); 3 ♂ 3 ♀, idem (Zoological Museum Amsterdam, ZMA, dry); 1 ♂ 1 ♀, idem (MHNN, alcohol); 9 ♂ 2♀, idem/1,5 km W Picacho de Veleta (ex "Laguna de las Yeguas"), 2800 m, ruisseau moussu en aval de digue, 28.IX.1989, St 13 (MHNN, dry); 1 ♂, Sierra Nevada, Laguna de Yeguas, 10.IX.1950, F. SCHMID leg (Musée cantonal de zoologie, Lausanne, dry).

Description

♂: differs from *T. (S.) i. invenusta* RIEDEL and *T. (S.) invenusta subinvenusta* SLIPKA mainly by smaller size and darker body colour.

Head grey, nasus distinct, palpi and rostrum dark; 13 antennal segments, scape dark, pedicel brownish and lighter than dark flagellum; eyes narrowly separated below (space 1,5–2 times wider than scape).

Thorax grey, bearing 4 brown praescutal stripes, the medium not reaching front of preascutum and distinctly separated; wings rather short 9–12 mm

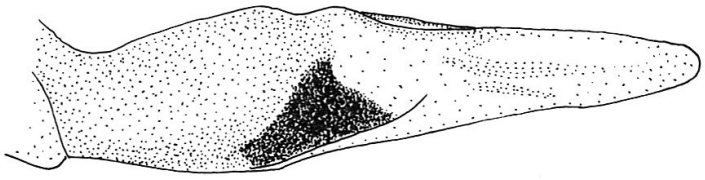

Fig. 4. *Tipula (Savtshenkia) invenusta microinvenusta* ssp. n.; hypovalvae.

(13–15 mm in alpine specimens of *subinvenusta),* wing colour light grey with numerous hyaline marks; neala (squama) without bristles; no hairs on sternopleurites, legs stronger and shorter than in other subspecies; coxae grey, trochanter dark brown, femora brownish conspicuously darkened in the distal fourth, tibiae and tarsi dark brown; tibial spurs 1, 2, 2; claws with a much reduced secondary tooth.

Abdomen dark grey, except brown tergites 2–5, and brownish median marking on sternites 2–5.

Hypopygium providing slight discriminating characters when compared to *T. (S.) i. invenusta* and *T. (S.) i. subinvenusta;* tergite 9 with rather deep V-shaped incision bears rounded projections which are neither strongly sclerotized nor armed with spines (fig. 3a), od not enlarged proximally (fig. 3c); id with overhanging crest over anterior beak and deep incision separating posterior extension (fig. 3b); outer appendages of the adminiculum shorter than in the other subspecies (fig. 3d).

♀: similar to male in colour pattern but median praescutal stripes nearly reaching front of praescutum; wings rather short (length 9–12.5 mm) reaching little further than tip of cerci when along abdomen (in *T. (S.) i. subinvenusta* wing length is between 14–16.5 mm in alpine specimens and about 15 mm in *i. invenusta* according to THEOWALD, 1973); legs short and strong; a conspicuous black mark on base of hypovalvae (fig. 4).

Biotope: T. (S.) i. microinvenusta was collected at altitudes ranging from 2500 to 3040 m in very damp moss and grasses along fast running streams, in the splash of cascades, and by the side of the little lake close to the Refugio Felix Méndez, where copula and egg laying were observed. This last habitat is extremely favorable as the density of adults was locally over 100 per square meter.

Ethology: Some recently emerged females were covered by 5 to 10 males trying to copulate. Females were only seen walking though they are able to fly quite well when disturbed, if not too heavy with eggs. Their walking behaviour must be put in relation with their short and strong legs and their rather short wing length.

Systematical remarks

T. (S.) i. invenusta RIEDEL distributed from Northern Europe to Mongolia and *T. (S.) i. subinvenusta* known from the Alps, Pyrenees, Tatra, Carpathians and the West European territories of USSR (OOSTERBROEK & THEOWALD, in print) resemble each other very much in general appearence, apart from width between eyes below and colour of scape. On the contrary, *T. (S.) i. microinvenusta* appears as a small, somewhat melanic subspecies. Genitalia of all 3 taxa are very similar. *T. (S.) i. invenusta* shares with *microinvenusta* the lack of spines on tergite 9, a nar-

row base of od, and a well developped hind part of id. However, these characters are too slight to establish any clear relationship between the subspecies.

When compared to both northern widely distributed subspecies, *T. (S.) i. microinvenusta,* located on the tops of Sierra Nevada only, must be considered as a relict.

A POPULATION OF *TIPULA (SAVTSHENKIA) GIMMERTHALI* LACKSCHEWITZ WITH HEMIPTEROUS FEMALES.

It is worth recording that very similar habitats as those described above and located on the eastern side of the Sierra Nevada (2 km SE of Cerro de Mulhacén along Rio Culo de Perro) were totally devoid of *T. (S.) i. microinvenusta* but held a population of *T. (S.) gimmerthali* LACKSCHEWITZ not found on the western slopes. In this population females were hemipterous, having a very uniform wing length ranging between 7.5 and 8.5 mm. These females were totally unable to fly. Only one hemipterous female was known until now from Valais in Switzerland (DUFOUR & BRUNHES, 1984).

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RESUME

Le mâle de *Tipula (Acutipula) nevada* sp. n. est décrit. Cette espèce est étroitement apparentée à *T. (A.) fulvipennis* DE GEER, *T. (A.) niethammeri* MANNHEIMS et *T. (A.) nigroantennata* SAVTSHENKO. *Tipula (Savtshenkia) invenusta microinvenusta* ssp. n. est décrite sur la base d'une grande série de mâles et de femelles. Une population de *T. (S.) gimmerthali* LACKSCHEWITZ à femelles hémiptères est signalée.

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