

The adults and preimaginal stages of continental populations of *Cricotopus (Cricotopus) beckeri* Hirvenoja (Diptera, Chironomidae)

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The adults and preimaginal stages of *Cricotopus (C.) beckeri* Hirv. from northwestern Africa and south west of France are described. Some comments about the systematic position, ecology and distribution are given.

Les adultes et les stades preimaginaux des populations continentales de *Cricotopus (Cricotopus) beckeri* Hirvenoja (Diptera, Chironomidae).

Mots clés : *Cricotopus beckeri*, description, position systématique, distribution.

Les adultes, l'exuvie nymphale et la larve de *Cricotopus beckeri* Hirv. de l'ouest de l'Afrique du Nord et du S-O. de la France sont décrits. Quelques commentaires sur la position systématique, l'écologie et la répartition de l'espèce sont donnés.

Cricotopus (C.) beckeri Hirv.

IMAGO

Cricotopus (C.) beckeri Hirv. was originally described from one pinned adult male and one female collected by Th. Becker from Madeira Island (Hirvenoja 1973 : 206-208).

From the Aissi River in northern Algeria specimens have been found which in many respects are similar to *C. beckeri*. The gonocoxite lobes, however, resemble more closely those of *C. (C.) curtus* Hirv. than those of *C. beckeri* from Madeira or *C. (C.) triannulatus* Macq. In both the latter species the antero-dorsal part of the gonocoxite lobes typically narrows towards the apex.

In addition the legs of the specimens from Madeira are unicolorated and in the male specimen are seen only 5 sensillae chaeticae in the metatarsus of the hind leg. In the specimens of the Aissi River population the coloration of the scutum and that of the legs is paler than in the holotype of *C. beckeri* and furthermore the number of sensillae chaeticae is higher, 12-18.

Some specimens recently found in southwestern France (Massane river, eastern Pyrenees) agree well with the population from Algeria described below.

To check the original description the second male specimen (paratype) from the Zoological Museum of the Humboldt University, Berlin, DDR, kindly sent by Dr. H. Schumann, was prepared and studied. Only 10 sensilla chaeticae were with certainty counted in the metatarsus of the hind leg, but in other respects the paratype agrees very well with the holotype. Palpal segments (2-5) were 65, 100, 115 and 205 μm and those of legs (in μm) as follows :

	Fe	Ti	Ta ₁	Ta ₂	Ta ₃	Ta ₄	Ta ₅
P _I	760	955	610	325	240	175	115
P _{II}	825	805	380	215	150	90	90
P _{III}	760	890	510	250	205	110	100

The continental form may even be a new species or a subspecies. Unfortunately the immature stages from the type locality (Madeira) are unknown, and we cannot on the basis of these adult specimens evaluate the taxonomical significance of the differences between the island and continental populations.

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Several species of the genus *Cricotopus* show similar morphological variability (cfr. figs. 86, 89, 92, 94 in Hirvenoja 1973). The relationships between the populations of *C. beckeri* can be seen as a phenomenon parallel to the population differences (?) in *Halocladus (H.) variabilis* Staeg. (cf. Hirvenoja 1973 : 119).

Results of the measurements of the Aissi River population from Arbâa des Ouacifs, alt. 310 m and Oued Djemâa, alt. 190 m follow :

σ : (n = 5) AR 1.17-1.32. Chaetotaxy of head and thorax about as Fig. 118 in Hirvenoja (1973 : 199). Palpal segments (2-5) 50-60, 100-115, 115-150, 210-225 μ m. Scutum not darkened. Wing 1.9-2.1 mm long. Sensilla chaeticae on Ta_1 , of P_{III} 12-18. LR of P_I 0.64-0.66, P_{II} 0.47-0.49 and P_{III} 0.57-0.59. BR in all legs not more than 2.8. Ti with broad, unclearly pale rings. Legs in μ m :

	Fe	Ti	Ta ₁	Ta ₂	Ta ₃	Ta ₄	Ta ₅
P_I	695-760	955-1000	610-650	325-350	240-260	175-185	115-125
P_{II}	805-825	805-880	380-415	210-220	150-175	90-110	90-130
P_{III}	740-770	870-945	510-545	245-280	205-220	110-120	100-115

The coloration and type of chaetotaxy of the abdomen as is described from the holotype of *C. beckeri*. Hypopygium as in (Fig. 1).

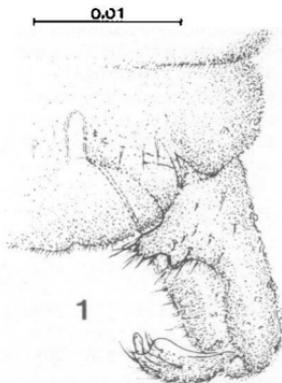


Fig. 1. — *Cricotopus (C.) beckeri* Hirv. - Hypopygium of a male from northwestern Africa. Scale 100 μ m.

φ : (n = 4) Coloration as in the male. Segments of the palps (2-5) 50-60, 80-105, 100-135 and 170-240 μ m long. Wing length 1.7-1.9 mm. More than 20 sensilla chaeticae on P_{II} and more than 26 on P_{III} .

LR of P_I 0.56-0.63, P_{II} 0.44-0.49 and P_{III} 0.52-0.59. BR in all legs not more than 1.8. Legs in μ m :

	Fe	Ti	Ta ₁	Ta ₂	Ta ₃	Ta ₄	Ta ₅
P_I	620-780	770-935	435-575	250-315	215-230	160-175	110-120
P_{II}	585-805	650-850	315-370	165-200	135-150	90-110	85-100
P_{III}	588-515	730-900	380-510	205-255	175-195	90-120	85-110

Seminal capsule with a short neck, about 105-125 μ m long.

Pupa

Length of the exuviae : σ , 4.3-4.5 mm ; φ , 4.0-4.1 mm. Cephalothorax and abdominal tergites, except the median parts of the last three segments somewhat darkened. Frontal apotome with 50-60 μ m long cephalic tubercles (fig. 2), frontal setae absent. Thorax along the median suture crumpled and granulated. Thoracic horn (Fig. 3) spinulated, about 130 μ m long, and < 30 μ m broad. The chaetotaxy of the thorax and abdomen normal ; number of lateral setae on segments I-VII 1, 3, 3, 3, 3, 3, 4, 4. Lateral dorsal seta (d_1) of segment VIII usually but not constantly situating at the lateral border of this segment (seemingly 5 lateral setae !). Pedes spurii B on segments II and III. Segment I without shagreen, otherwise as in Fig. 4. Lobes of the anal segment (Figs. 5 and 6) somewhat pointed apically. Anal setae clearly shorter than a half length of the anal segment. The sheaths of the gonopods in the male as well as those of the cerci ending before tip of anal segment.

Larva

One larval skin with the head capsule was attached to the abdomen of a pupa. The details wholly agree with those of the larva of *C. triannulatus* described in Hirvenoja (1973 : 185, 210-211). The details of the larve of *C. beckeri* have therefore not been illustrated here. The key on page 185 of the paper cited must be revised as follows ;

6 (4) Mandibelrücken gerunzelt . . . *triannulatus* (Macq.) and *beckeri* Hirv.

Systematic position

In Hirvenoja (1973) the adult of *C. beckeri* was considered a member of the *C. tremulus* group because of the chaetotaxy of the abdomen and the structure of the hypopygium which are similar to the features in *C. (C.) triannulatus* (Macq.).

The characters of the pupa show some of the same relationships. In the exuviae the shagreen and chae-

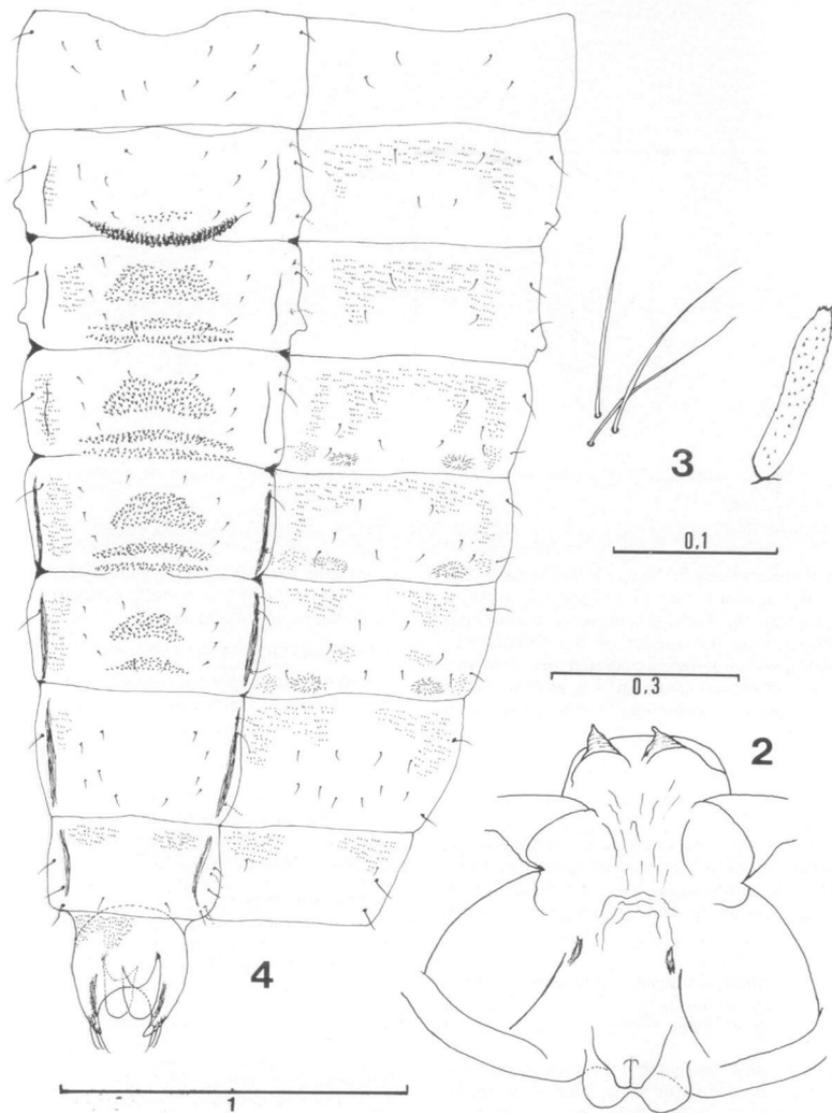


Fig. 2-4. — *Cricotopus (C.) beckeri* Hirv. - Pupa : head with cephalic tubercles (2), thoracic horn and necorneal setae (3) abdomen (4) showing the shagreen and chaetotaxy. Scales in mm.

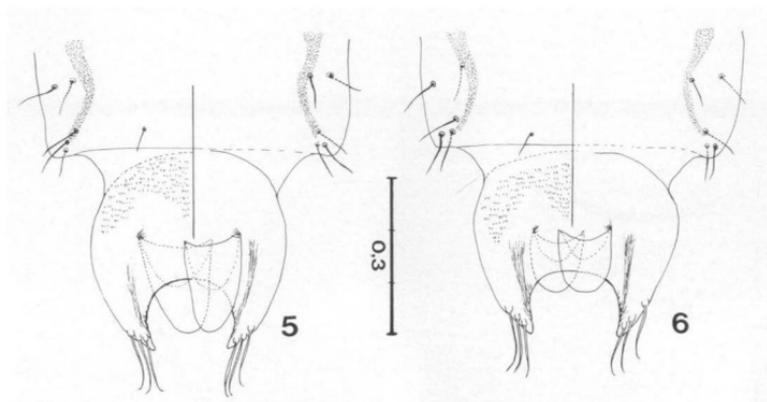


Fig. 5-6. — *Cricotopus (C.) beckeri* Hirv. - Pupa: anal segment of male (5) and female (6). Scale in mm.

totaxy represent those in the *C. tremulus* group. The fourth lateral seta of the VIII segment is weak as in *C. triannulatus*. There are, however, features not common among the species of the *Cricotopus*: cephalic tubercles, somewhat pointed tips of the anal lobes, and shortened anal bristles as in *Halocladius* or *Cricotopus (C.) levantinus* Moubayed & Hirvenoja (1986).

The couplets in the generic key for the pupae in Hirvenoja (1973 : 81) should be revised as follows :

3(4) *fr*-Borsten meist vorhanden, wenn sie fehlen, fehlt auch die starke Chagrinierung auf den Tergiten VII-VIII, auf Segment VIII sind d_7 und l_4 nicht gleich lang oder die Analflossenzipfel sind etwas verjüngt 5

5 (6) Frontalhöcker meist und *fr*-Borsten immer fehlend. Wenn Frontalhöcker vorhanden, so sind die Analflossenzipfel etwas verjüngt 7

The pupa differs clearly from the known species of the *C. tremulus* group (or of the genus *Cricotopus*) in having quite large cephalic tubercles on the frontal apotome and anal lobes pointed apically.

Because the larva is very similar to the larva of *C. triannulatus* the systematic position of *C. beckeri* can remain unchanged.

DISTRIBUTION AND ECOLOGY

Cricotopus beckeri is known from the western Mediterranean region : Madeira Island, southwestern France and northern Algeria. It represents one of the Tyrrhenian faunal elements essentially confined to the western subregion of the western Mediterranean. *C. beckeri* inhabits principally the rhithral of low mountain streams between 400 and 140 m altitude ; emergence occurs in May - June and in October - November.

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References

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