

On synonymy and morphology of some *Culicoides* species
(*Diptera*, *Ceratopogonidae*)

Uwagi o synonimii i morfologii niektórych gatunków z rodzaju *Culicoides*
(*Diptera*, *Ceratopogonidae*)

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ABSTRACT. New synonymy is proposed for *Culicoides pumilus* (WINN., 1852) (= *C. tugaicus* DZHAFAROV, 1960), *C. albihalteratus* GOETCH., 1935 (= *C. pseudoheliophilus* CALLOT et KREMER, 1961), *C. griseescens* EDW., 1939 (= *C. remmi* DAMIAN-GEORGESCU, 1972), *C. manchuriensis* TOK., 1941 (= *C. goetghebueri* ARNAUD, 1956; = *C. vistulensis* SKIERSKA, 1973). The species name *neglectus* WINN., 1852, should be excluded from the genus *Culicoides* LATR. and placed in the genus *Dasyhelea* KIEFF. For *C. pumilus* and *C. albihalteratus* diagnostic descriptions are given.

I wish to express my very deepest thanks to Dr. P. Grootaert (Institut Royal des Sciences Naturelles de Belgique, Bruxelles) for the loan of the types of *C. albihalteratus* and *C. setiger*.

1. *Culicoides (Oecacta) pumilus* (Winn., 1852)

(Fig. 1)

Ceratopogon pumilus WINNERTZ, 1852: 46.

Culicoides pumilus: EDWARDS, 1939: 142 (= *minutissimus*, *nanulus*).

C. pumilus: ZILAHY-SEBESS, 1940: 63 (= *minutissimus*, *nanulus*).

C. pumilus: CALLOT and KREMER, 1961: 683 (nec s. EDW., 1939).

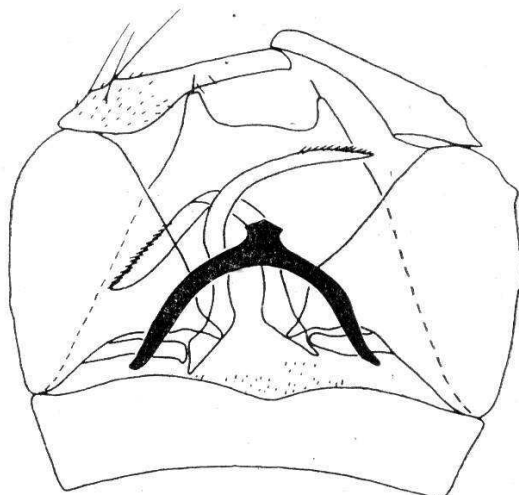
C. pumilus: HAVELKA, 1978: 451 (= *minutissimus*, *nanulus*, *saltans*).

Ceratopogon minutissimus ZETTERSTEDT, 1855: 4860.

- Culicoides minutissimus*: EDWARDS, 1926: 405 (= *pumilus*, ? *saltans*).
C. minutissimus: GOETGHEBUER, 1934: 44 (= *pumilus*).
C. minutissimus: CAMPBELL et al., 1960: 226 (= *pumilus* s. EDW., *nanulus*).
C. minutissimus: KREMER, 1965: 102 (= *pumilus* s. EDW., ? *nanulus*).
C. albihalter KIEFFER, 1919: 37.
C. albihalter: GOETGHEBUER, 1934: 40 (= ? *nanulus*).
C. nanulus KIEFFER, 1919: 38.
C. tugaicus DZHAFAROV, 1960: 1183, n. syn.
C. tugaicus: GUCEVIČ, 1973: 188 (= ♀ *C. bychowskyi*).
 ?*C. bychowskyi* DZHAFAROV, 1964: 344 (female).

DIAGNOSIS

Very small species. Wing without markings, 0.8–1.0 mm long. Eye of female wide apart, antennal ratio 1.1–1.3, sensilla coeloconica present on flagellomeres I–VIII. Third palp segment strongly swollen with a deep sensory pit. Male genitalia small (fig. 1). Sternum IX with shallow caudo-



1. Male genitalia of *Culicoides pumilus* (WINN.)

median excavation, ventral root of gonocoxite long, parallel to caudal margin of sternum IX, aedeagus as in other species of the *pumilus* group. Parameres long, tape-shaped with short hairs at apical portion. Tergum IX with short and relatively wide apicolateral processes.

MATERIAL EXAMINED

Kętrzyn, 22.VII.1981, 1 ♂; Brzyno at Żarnowieckie Lake, distr. Gdańsk, 8.VII.1980, 1 ♀.

DISTRIBUTION

The species known from Central and West Europe, Caucasus, Middle Asia, Cyprus and Morocco.

DISCUSSION

The argument on the differences between *C. pumilus* and *minutissimus* was caused by different descriptions of *C. pumilus* by EDWARDS (1939) and by REMM (1956). The type of *C. pumilus* had been lost. CAMPBELL et al. (1960) accepted after REMM (1956) that EDWARDS' identification of *C. pumilus* had been a mistake, and that the original description agreed with that of females from Estonia. These differed from *C. pumilus* s. EDWARDS (= *minutissimus*) in having the eyes touching, and flagellomeres I–VIII elongated.

Although CALLOT and KREMER (1961) accepted synonymy of CAMPBELL et al. (l. c.), i.e., *C. minutissimus* (= *pumilus* s. EDWARDS, 1939) and *C. pumilus* s. REMM, 1956, they described a third *C. pumilus* in their own sense. It is clear now that all of these descriptions and figures refer to one species — *C. pumilus*, except for *C. pumilus* s. REMM (l. c.) which should be regarded as a synonym of *C. albihalteratus* GOETGH. (see below).

A comparison of the male genitalia of *C. tugaicus* (DŽAFAROV, 1960, 1964; GUCEVIČ, 1973) with those of *C. pumilus* from Poland (fig. 1) justifies the synonymization with the latter species. This is in accord with the other authors (KREMER, 1965; REMM et al., 1968; GUCEVIČ, 1973) who see no difference between *C. tugaicus* and *C. minutissimus*.

The species name *saltans* WINNERTZ, 1852, originally placed in the genus *Ceratopogon* MEIG., treated sometimes as a synonym of *C. pumilus*, has been correctly placed in the genus *Forcipomyia* MEIG. since GOETCHEBUER (1934).

2. *Culicoides (Oecacta) albihalteratus* Goetgh., 1935, n. comb.

(Figs 2–7)

Culicoides neglectus var. *albihalteratus* GOETCHEBUER, 1935: 414.

C. neglectus?: EDWARDS, 1939: 141, nec WINNERTZ, 1852: 44.

C. pumilus: REMM, 1956: 181, nec WINNERTZ, 1852: 46.

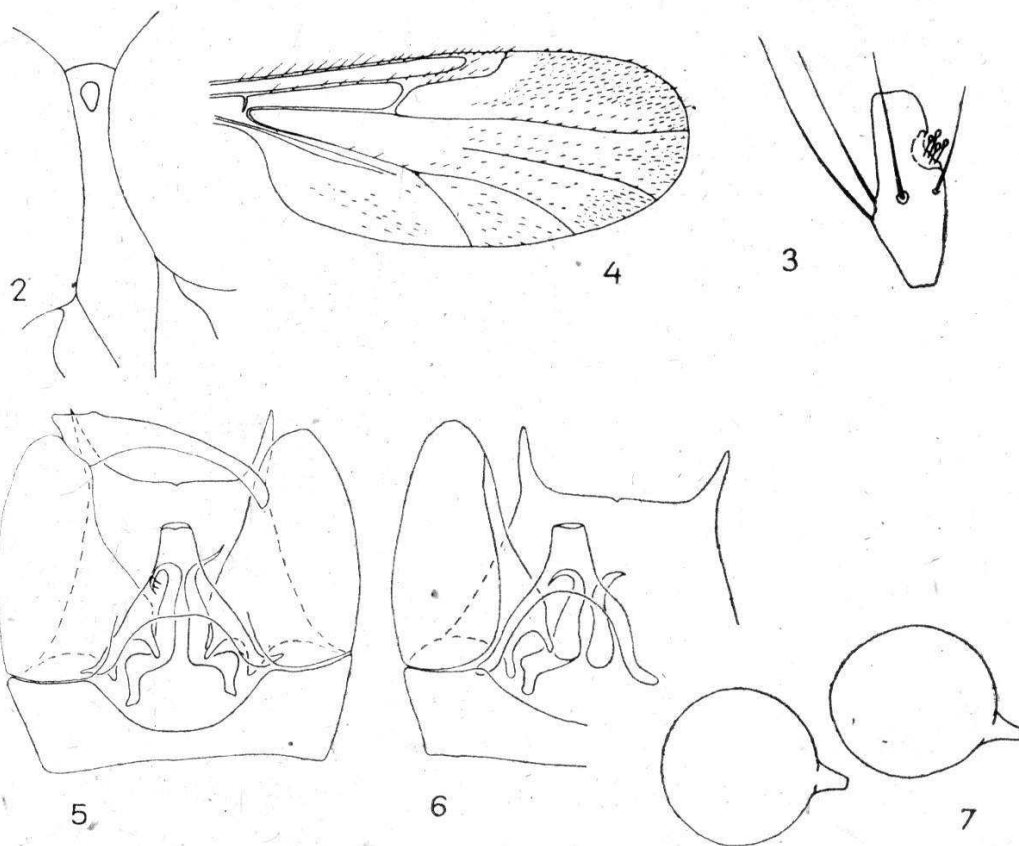
C. pumilus: GUCEVIČ, 1973: 196.

C. pseudoheliophilus CALLOT et KREMER, 1961: 677, n. syn.

DIAGNOSIS

Female eyes separated (fig. 2). Small sensilla coeloconica present on flagellomeres I, IX, XI–XIII, antennal ratio 1.01–1.15. Maxilla without teeth, mandibula with 6 teeth. Third palp segment weakly swollen, with small sensory pit (fig. 3). Wing 1.0–1.1 mm long, pale in both sexes, its macrotrichia-covered surface darker (fig. 4), basal cell without macrotrichia. Male genitalia (figs 5, 6) with long apicolateral processes of tergum

IX. Distal margin of tergum IX almost straight, with a very small incision. Sternum IX with deep caudomedian excavation, membrane bare. Gonocoxite enlarged at base. Spermathecae with short necks (fig. 7).



2-7. *Culicoides albihalteratus* GOETGH. 2-4, 7 — female, 2 — eye separation, 3 — third palp segment, 4 — wing, 5, 6 — male genitalia, 7 — spermathecae

MATERIAL EXAMINED

Belgium: 2 ♂, 1 ♀, Melle, 20.5.35, coll. et det. M. Goetghebuer, *C. neglectus* WINN. in the collection of Institut Royal des Sciences Naturelles de Belgique. One male with genitalia mounted in Canada balsam has been labelled as lectotype, other male and female as paralectotypes.

Poland: Silec, distr. Kętrzyn, 8.VI.1980, 1 ♂; 5.VII.1981, 1 ♂, 1 ♀; Ustrzyki Górne, Bieszczady Mts, 23.VII.1980, 1 ♂, 1 ♀.

DISTRIBUTION

Forest species recorded from Belgium, North France, West Germany, Czechoslovakia, Poland and USSR (Estonian and Ukrainian SSR).

DISCUSSION

GOETGHEBUER's (1935) description of *Culicoides neglectus* WINN. var. *albihalteratus* is as follows: "Ne diffère pas du type que par la coloration

des balanciers qui sont blancs à l'extrémité au lieu d'être gris. Bois de Melle (Belgique), le 20 Mai 1935". Later EDWARDS (1939) figured male genitalia *C. neglectus* WINN.? = *C. neglectus* var. *albohalteratus* (sic!) lent from Goetghebuer (Melle). I have received for comparison these specimens from Institut Royal des Sciences Naturelles de Belgique, Bruxelles.

The correct name of this species is *C. albihalteratus*, not *C. neglectus*, since these two are different species. Name *neglectus* proposed by WINNERTZ (1852: 46) was originally placed in the genus *Ceratopogon*, and later erroneously transferred to the genus *Culicoides*. Type material is lost. According to the original description: "Schwinger schwarzbraun, mit heller, fast grauer Spitze des Knopfes" it should be classified with the genus *Dasyhelea* — *D. neglecta* (WINN., 1852), n.comb., since in the European *Culicoides* species halteres are always pale.

The well described and illustrated *C. pseudoheliophilus* CALLOT et KREMER, 1961, is a junior synonym of *C. albihalteratus*, and REMM's (1956) description of *C. pumilus* female later completed by GUCEVIČ (1973) refers to the species mentioned.

3. *Culicoides* (s. str.) *grisescens* Edwards, 1939

Culicoides grisescens EDWARDS, 1939: 146.

C. remmi DAMIAN-GEORGESCU, 1972: 16, n. syn.

Culicoides remmi described and illustrated by DAMIAN-GEORGESCU from Romania with characteristic apicomedian process on tergum IX of male genitalia is a junior synonym of *C. grisescens*.

4. *Culicoides* (*Beltranmyia*) *manchuriensis* Tokunaga, 1941

(Figs 8–14)

Culicoides manchuriensis TOKUNAGA, 1941: 98.

C. manchuriensis: GUCEVIČ, 1973: 213 (= *C. machardy*).

C. setiger GOETGHEBUER, 1938: 379, junior homonym.

C. goetghebueri ARNAUD, 1956: 94 (n. n. for *C. setiger* GOETGH. preoccupied by *C. setiger* KIEFFER, 1910),

C. machardy CAMPBELL et PELHAM-CLINTON, 1960: 235.

C. vistulensis SKIERSKA, 1973a: 289,

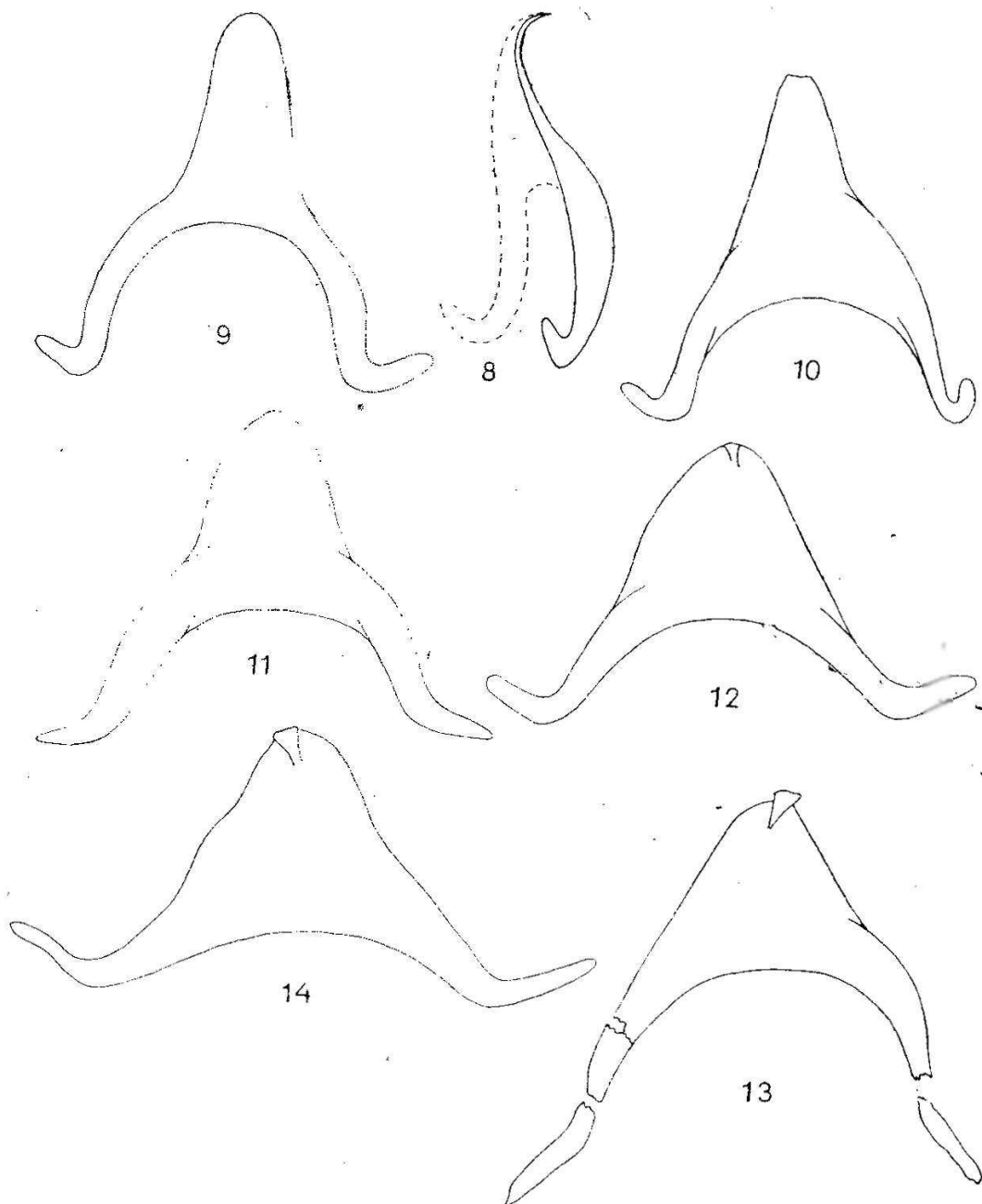
C. vistulensis SKIERSKA, 1973b: 19.

DISCUSSION

Culicoides setiger was described by GOETGHEBUER (1938) from Belgium. Later, because of the homonymy, ARNAUD (1956) proposed new name for the species — *C. goetghebueri*. An examination of the holotype — male, labelled: type, Dr De Wulp, 4.7.38, Hamme, *Culicoides setiger* GOETGH.,

R.I.Sc.N.B., 18.073, deposited in the Institut Royal des Sciences Naturelles de Belgique, suggests that this species is synonymous with *C. manchuriensis*. The type specimen has thorax as on fig. 115 and wing as on fig. 117, with additional pale spots at apex of cells M_1 and M_2 given by CAMPBELL et al. (1960: 236) for female of *C. machardy*.

In the subgenus *Beltranmyia* VARGAS male genitalia are of less diagnostic value. Despite this SKIERSKA (1973a, b) described *Culicoides vistulensis*



8-14. Aedeagus of *Culicoides manchuriensis* TOK. 8 — lateral view, 9-14 — ventral view, 9, 10 — Owczary near Busko Zdrój, 4.VI.1975, Szadziwski leg., 11 — Gdańsk-Górki Wschodnie, ex coll. B. Skierska as *C. machardy*, 12-14 — flattened aedeagus, Wolin island, Drożkowe Łąki, ex coll. B. Skierska as *C. vistulensis*

from Poland basing on the "characteristic" shape of the aedeagus: basal arch low, apical part wide, with a funnel-shaped process. Two species belonging to the subgenus: *C. manchuriensis* and *C. salinarius* KIEFF. were found in the type material. Holotype of *C. vistulensis*, labelled: 14.VI.1968, Gdańsk-Górki Wschodnie, reared from soil sampled 23.V.1968 belongs to *C. manchuriensis*.

"Specific" shape of the aedeagus resulted from the flattening of male genitalia on slides (mounted in rhodoviol 30/20 M produced by Rhône-Poulenc). Explanations are given on figs 8-14.

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