

Pseudosmittia fabioi Boggero, Zaupa & Rossaro, 2014 (Diptera: Chironomidae: Orthoclaadiinae) a new junior synonym of *Prosmittia verae* Krasheninnikov & Makarchenko, 2008

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Abstract

Pseudosmittia fabioi Boggero, Zaupa & Rossaro, 2014 was found to be conspecific with *Prosmittia verae* Krasheninnikov & Makarchenko, 2008 after examination of original description and illustrations. Accordingly, *Ps. fabioi* is placed in junior synonymy with *Pr. verae*, new synonymy. The transfer of *Ps. fabioi* to the genus *Prosmittia* allows to state that the female of *Ps. fabioi* (Boggero *et al.*, 2014) is the first description of the female of the genus *Prosmittia*.

Introduction

Recently Eugenji Makarchenko sent to the senior author a paper in Cyrillic, with English diagnosis, describing a new species belonging to the genus *Prosmittia* Brundin, 1956: *Prosmittia verae* Krasheninnikov & Makarchenko, 2008. From an examination of the drawings it was

immediately apparent that the described species is identical with *Pseudosmittia fabioi*, Boggero, Zaupa & Rossaro, 2014. The apparent synonymy was confirmed after an accurate examination of the original description given in Cyrillic and kindly translated by Martin Spies.

The genus *Prosmittia* was established by Brundin (1956) for *Pseudosmittia jemtlandica* Brundin, 1947; Cranston & Oliver (1988) synonymized *Prosmittia* with *Pseudosmittia* Goetghebuer, 1933, but Sæther & Ferrington (1993) reestablished the *Prosmittia* genus because of a unique combination of characters, separating it from *Pseudosmittia*, that is the lack of acrostichals, a moderate costal extension, R₄₊₅ ending near to the wing apex, distal to M₃₊₄. The genus includes 15 Palearctic species (Ashe & O'Connor, 2012), three of these, *Pr. jemtlandica* Brundin, 1947, *Pr. rectangularis* Tuiskunen, 1985, *Pr. valentinae*, Baranov, 2011, have been known from Europe (Sæther *et al.*, 2000), one, *Pr. verae* Krasheninnikov & Makarchenko, 2008 from Caucasus, nine, *Pr. furudoseptima* (Sasa & Arakawa, 1994), *Pr. hibaraudecima* (Sasa & Suzuki, 1998), *Pr. itachituberculata* (Sasa & Kawai, 1987), *Pr. itachini-diocura* (Sasa & Kawai, 1987), *Pr. kaniquarta* (Sasa & Hirabayashi, 1991), *P. kibaprima* (Sasa & Sumita, 2001) *Pr. taishodeea* (Sasa & Tanaka, 2001), *Pr. togacurva* (Sasa & Okazawa, 1992) and *Pr. yakitaira* (Sasa & Suzuki, 2000) from Japan, two, *Pr. tauiensis* Makarchenko & Makarchenko, 2007 and *Pr. anyuica* Makarchenko & Makarchenko, 2009, are known from Russian Far East.

Females, pupae and larvae of all the known species were until now unknown. On the basis of the present synonymy it appears that the female of *Prosmittia* is described in Boggero *et al.* (2014).

The present paper formally establishes the synonymy between *Pr. verae* and *Ps. fabioi* allowing to extend the distribution of the *Pr. verae* to the Mediterranean area.

The terminology and abbreviations used in the description follow Sæther (1980).

Prosmittia verae Krasheninnikov & Makarchenko, 2008

Prosmittia verae Krasheninnikov & Makarchenko, 2008: 359 (original description).

Pseudosmittia fabioi Boggero, Zaupa & Rossaro, 2014: 1 (original description). Syn. nov.

Description

A complete description of the species is in Krasheninnikov & Makarchenko (2008) and in Boggero *et al.* (2014). Comparisons of measurements on *Pr. verae* and *Ps. fabioi* are given in Table 1 (head, body, wings) and Table 2 (legs).

Here are summarized the characters supporting the inclusion of the species in *Prosmittia* and the synonymy of the two species.

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Wing costal vein extending beyond tip of R_{4+5} by less than 50 μm ; all veins without setae. R_{4+5} distal with respect to M_{3+4} , vein Cu_1 curved, sinusoidal, anal lobe reduced, alula and squama bare.

Hypopygium. Tergite IX with 12-14 setae, with narrow, rounded-triangular and microtrichia-covered anal point 35-46 μm long. Laterosternite IX with 2-3 setae. Gonocoxite 165-176 μm long, dorsal part of inferior volsella bare, fingerlike, ventral part long, rounded, covered with short setae. Gonostylus 57-66 μm long, covered with setae, subapically narrowed, distally on outer edge with angular projection about 7-8 μm long; macroseta 10-11 μm long. Transverse sternapodeme 94-16 μm long, lateral projections reduced. Virga small, forming one spine 17-24 μm in length. Hypopygium ratio: ratio of length of gonocoxite to length of gonostylus 2.67-2.96.

Distribution

Pr. verae was known only from the type locality on the Agura river at the foot of Little Akhun (North Caucasus), now its distribution is extended to the Mediterranean area in Sardinia (Boggero *et al.*, 2014).

Discussion and conclusions

The inclusion of the genus *Prosmittia* in *Pseudosmittia* (Cranston & Oliver, 1988) had the effect that in the holarctic key of genera (Cranston *et al.*, 1989) *Prosmittia* was not included, so Boggero *et al.* (2014), ignoring Sæther & Ferrington (1993), Sæther *et al.* (2000) and

Table 1. Range of lengths (in mm or μm) and proportions of segments in *Prosmittia verae* and *Pseudosmittia fabioi*.

	<i>Pr. verae</i> (n=3)	<i>Ps. fabioi</i> (n=10)
Body color	Brown	Brownish-black
Body length	2.3-2.4 mm	2.3-2.6 mm
Wing length	1.7-2.0 mm	1.5-1.7 mm
Body length/wing length	1.5	1.53
Vertical setae	3-5	3-6
Postorbital setae	2-5	4-5
Clypeals	6	6
Length of terminal flagellomere	346-468 μm	364-368 μm
AR	0.76-0.94	0.80-0.86
Palpomere lengths	22-24; 33-47; 83-110; 70-94; 94-138	22-24; 44-45; 91-93; 78-80; 92-94
Head wide	380-413 μm	420-428 μm
Dorsocentrals	7-9	5-7
Acrostichals	0	0
Prealars	3	3
Scutellars	4	4-8
VR	1.43	1.38

Table 2. Range of lengths (in μm) and proportions of segments in *Prosmittia verae* and *Pseudosmittia fabioi* (male, n=3).

<i>P. verae</i>	fe	ti	ta ₁	ta ₂	ta ₃
P1	517-605	605-748	292-363	204-264	116-127
P2	545-671	578-677	259-325	171-209	110-127
P3	589-660	616-776	314-418	176-242	160-198
	ta ₄	ta ₅	LR	BV	SV
P1	55-66	50-61	0.45-0.49	3.26-3.39	3.73-3.98
P2	50-55	49-55	0.45-0.48	3.64-3.75	4.15-4.35
P3	61-72	55-61	0.51-0.54	3.24-3.36	3.43-3.84
<i>P. fabioi</i>	fe	ti	ta ₁	ta ₂	ta ₃
P1	530-564	636-664	294-318	212-226	122-128
P2	572-598	577-603	265-277	175-179	109-121
P3	586-604	649-683	335-361	204-210	167-179
	ta ₄	ta ₅	LR	BV	SV
P1	59-63	60-62	0.46-0.48	3.22-3.23	3.97-3.86
P2	43-49	56-58	0.46-0.46	3.69-3.63	4.34-4.34
P3	54-64	52-54	0.52-0.53	3.29-3.25	3.69-3.57

fe, femur; ti, tibia; ta₁₋₅, tarsomeres 1-5; LR, leg ratio, ratio of metatarsus to tibia; BV, *Beinverhältnisse*, combined length of femur, tibia, and basitarsus (ta₁) divided by combined length of tarsomeres 2-5; SV, *Schenkel-Scheine-verhältnis*, ratio of femur plus tibia to metatarsus (ta₁).

overlooking the presence of a wing costal extension, were erroneously induced to include *Ps. fabioi* in the genus *Pseudosmittia*. The discovering of *Pr. verae* description (Krashennikov & Makarchenko, 2008) and a careful subsequent reexamination of *Ps. fabioi* allowed to conclude that *Ps. fabioi*, with a moderate costal extension, R_{4+5} ending distal to M_{3+4} and absence of acrostichals, can be included beyond any doubt in the genus *Prosmittia*; the shape of hypopygium emphasized the strict similarity with the one of *Pr. verae*. The small differences observed in morphometric characters can be reasonably interpreted as differences between populations of the same species in different areas. The lack of acrostichals resolves also the question about the presence or absence of acrostichals in *Pseudosmittia* (Boggero *et al.*, 2014): the present results allow confirming that acrostichals are present in all *Pseudosmittia* (Ferrington & Sæther, 2000 or 2011) and absent in all *Prosmittia*. Another consequence of the transfer of *Ps. fabioi* from *Pseudosmittia* to *Prosmittia* is that the description of female of *Ps. fabioi* is the first description of female belonging to the genus *Prosmittia*; in *Prosmittia* the female antenna is characterized by six antennal flagellomeres, adding an additional character in a generic separation of *Prosmittia* from *Pseudosmittia*, because all the species of *Pseudosmittia* of which females are described possess only five antennal flagellomeres.

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