

Far Eastern Entomologist

Дальневосточный энтомолог

Journal published by Far East Branch
of the Russian Entomological Society
and Laboratory of Entomology,
Institute of Biology and Soil Science,
Vladivostok

Number 64: 1-5

ISSN 1026-051X

October 1998

A REDESCRIPTION OF THE *ANABOLIA APPENDIX* (ULMER, 1905) (TRICHOPTERA: LIMNEPHILIDAE)

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The male of *Anabolia appendix* is redescribed, the description of hitherto unknown female of this species is given.

KEY WORDS. Insecta, Trichoptera, Limnephilidae, *Anabolia*, Sakhalin

Т. И. Арефина. Переописание *Anabolia appendix* (Ulmer, 1905) (Trichoptera: Limnephilidae) // Дальневосточный энтомолог. 1998. N 64. С. 1-5.

Приводится переписание самца *Anabolia appendix* и описание ранее неизвестной самки этого вида.

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INTRODUCTION

In 1905 *Anabolia appendix* was described by G. Ulmer as *Limnephilus appendix* upon a single male from China. In 1909 A.V. Martynov established the new genus *Anabolioides* for the species based on the characteristics of male wings and genitalia appendages. In 1955 F. Schmid placed this species in the genus *Anabolia* Stephens, 1837.

G. Ulmer (1905) and A.V. Martynov (1909) each published drawings of the male genitalia which were not comprehensive, but female of the species remained unknown. During a recent survey of the caddisflies inhabiting Tyoplyi Stream (Naiba River Basin, southern part of Sakhalin Island), a hitherto unknown female was found, in copula, with a male of *Anabolia appendix*. This opportune chance enabled me to examine a mating couple of *A. appendix* and provide a redescription of the male and the first published description of the female using the basic genitalic structure terminology of Schmid (1980).

***Anabolia appendix* (Ulmer, 1905)**

Figs 1-7

Limnephilus appendix Ulmer, 1905: 9-10, pl. 1, figs. 6, 7.

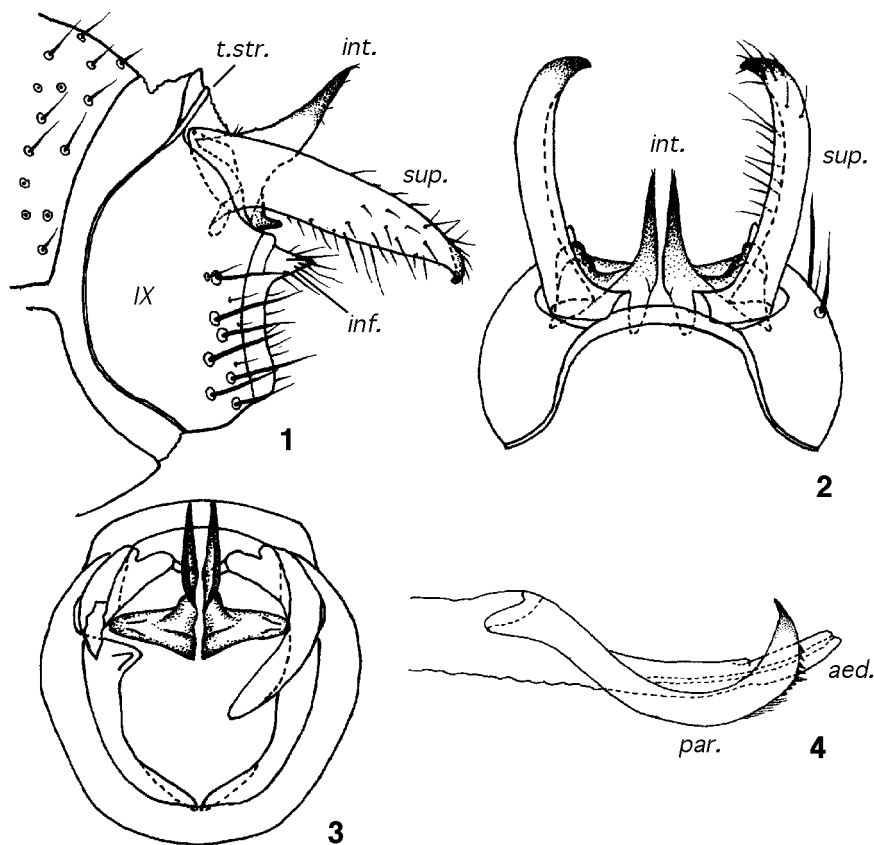
Anabolioides appendix: Martynov, 1909: 262-265, pl. 5, figs. 4, 5.

Anabolia appendix: Schmid, 1955: 151.

MATERIAL: ♂ and ♀, Russia, Sakhalin Island, Tyoplyi Stream (Naiba River Basin), 26.IX 1997 (S. Frolov). Specimens are deposited in the collection of the Institute of Biology and Pedology, Far Eastern Branch of the Russian Academy of Sciences, Vladivostok, Russia.

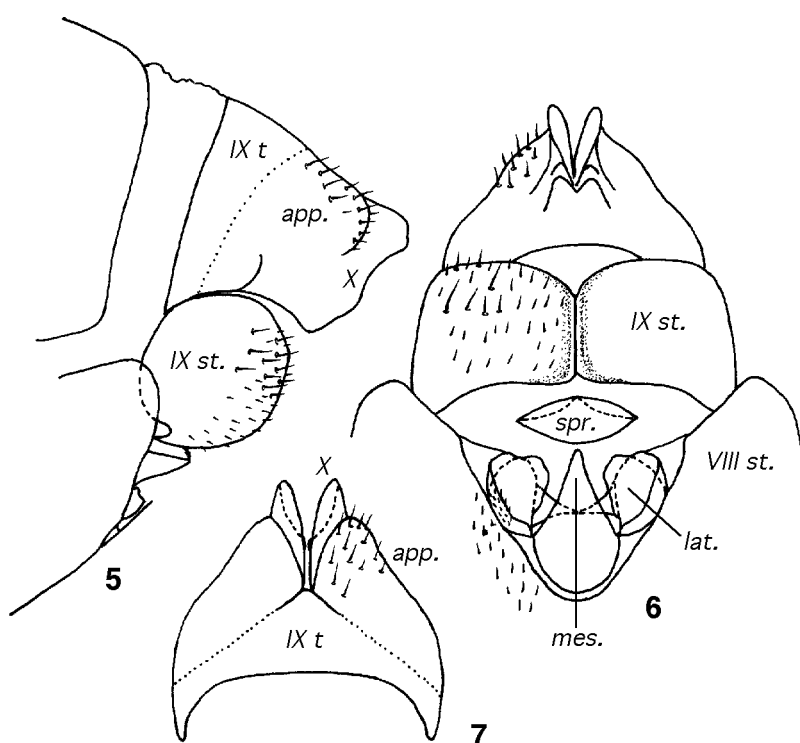
DESCRIPTION. Both male and female: Antennae with the narrow antero-mesal and lateral faces setaless; midline suture of the head appears complete; head with rather small ocelli; lateral ocelli located approximately midway from eye to midline suture and from anterior margin of the head to the anterior margin of the occipital warts. Membrane of the fore wing clothed with setae mostly recumbent, slightly shorter than the setae on the wing veins, and intermixed with a number of stronger and erected setae; wings irregularly irrorate on the pale background. Spur count 1-3-4, spur yellowish orange; spines black.

MALE. Antennae dark brown; scapes with nearly glabrous antero-mesal faces; palpi pale yellowish; vertex dark brown; warts slightly paler; antennal warts oblong, larger than the lateral ocelli and with two pale macrosetae; two strong macrosetae with a basal wart behind the lateral ocelli located posteriorly to a line connecting the posterior margins of the lateral ocelli, but nearer the ocelli than to the medial suture; a rather strong and dark seta located behind the lateral ocelli, very close to its posterior margin; a few weak, pale and very short setae located between the lateral ocelli; general colour of the thorax dark brown to black; warts paler; fore wing length 11.2 mm; background of the fore wings pale brown; posterior half darker, with light spots; a distinctly pale area located at the distal portion between the discoidal and thyridial cells and then running in the shape of oblique stripe through the distal portion of the thyridial cell; hind wings uniformly pale brown; stigmas of both wings slightly darker; coxae and femora dark brown; tibiae and tarsi yellowish brown; fore femur slightly inflated with the ventral margin having a line of black short and dense setae along the basal half of the femur.



Figs. 1-4. Male genitalia of *Anobolia appendix*: 1) lateral view; 2) dorsal view; 3) caudal view; 4) phallus, lateral view. *IX* - segment IX; *aed* - aedeagus; *inf* - inferior appendages; *int* - interior appendages; *par* - parameres; *sup* - superior appendages; *t. str* - tergal strap of segment IX.

Genitalia. Segment IX relatively broad in the lateral view (Fig. 1); tergal strap of segment IX narrow, tall and with dorsal ridge; superior appendages very long, at least four times as long as tall, flattened and bladeliike; apices of the superior appendages acute, hooked inwards in the dorsal view (Fig. 2) and downwards in the lateral view; superior appendages located laterally, widely separated and extended caudally far beyond the intermediate appendages; intermediate appendages long, thin and nearly parallel in the dorsal view; each with a wide base, which tapered evenly to the acuminate apex, located relatively high within segment IX (Fig. 3); inferior appendages short and tapering to a triangular apex; aedeagus with the basal portion striated (Fig. 4); apical segment of the aedeagus directed dorsad; parameres rather thick, sinuate, entirely sclerotized, slightly shorter than the aedeagus and



Figs. 5-7. Female genitalia of *Anabolia appendix*: 5) lateral view; 6) ventral view; 7) dorsal view. *VIII st* - sternite VIII; *IX t* - tergite IX; *IX st* - sternite IX; *X* - segment X; *app* - appendages of segment X; *lat* - lateral lobes; *mes* - mesal lobe; *spr* - supragenital plate.

unforked at the distal portion; apex of parameres with a heavily sclerotized tip; ventrodistal edge of the parameres with a row of flattened teeth; inner surface of the distal portion of the parameres covered with yellowish, rather long setae and with a portion situated along the ventral margin before the row of teeth.

FEMALE. Antennae yellowish brown and covered with dark brown setae; scapes dark brown with the antero-mesal faces lighter and nearly glabrous; vertex brown to dark brown with yellowish brown narrow areas adjacent to the eyes and occipital warts; warts paler; antennal warts oblong, larger than those on a male, with two macrosetae; small warts behind the lateral ocelli located posteriorly to a line connecting the posterior margin of the lateral ocelli, and nearer the ocelli than the medial suture, and possess a single strong macroseta; a pale seta, weaker than that on the male, located behind the lateral ocelli, very close to its posterior margin; a few pale and weak setae located between the lateral ocelli; thorax yellowish with some darker areas; lateral portions of mesonotum dorsally brown to dark brown; fore wing length 12.2 mm; background of the fore wings yellowish brown, with vague

brown spots spreaded mostly along the anal veins; hind wings lighter; stigmas of both wings indistinct; legs yellowish, with the middle and hind coxae and femora having some darker areas; sternite VI without a medial sclerotized spur.

Genitalia. Segment IX separated laterally into distinct tergite and sternite (Fig. 5); tergite IX indistinctly separated from segment X; sternite IX rounded in the lateral view, with a narrow separation mesally (Fig. 6); appendages of segment X appressed to segment X, nearly indistinguishable from it, appear as rounded lobes that cover the segment; segment X cleft to the base in the dorsal view (Fig. 7), somewhat sclerotized internally; supragenital plate rather short and relatively broad; lateral lobes of the subgenital plate completely sclerotized at the lateral margin, separated from sternite VIII and with slightly concave central portion; mesal lobe of the subgenital plate approximately equal in length to the lateral lobes and tapers evenly to a relatively acute apex; lateral lobes with concave distal margins.

DIAGNOSIS. The male of *A. appendix* is easily distinguishable from other representatives of the genus by the extremely long superior appendages, which approximately four times as long as they tall; by the presence a dorsal ridge on the tall tergal strap of segment IX; by the unforked distal portion of the parameres and by the row of flattened teeth along the ventrodiscal edge of the parameres. The female of this species is distinguishable from other *Anabolia* species by segment X indistinctly separated from tergite IX; by the appendages of segment X appearing to be fused with segment X and by the nearly round sternite IX in the lateral view.

DISTRIBUTION: Russia: southern part of Sakhalin Island. China.

ACKNOWLEDGEMENTS

I am grateful to Dr. Sergei Frolov (Institute of Marine Biology, Far Eastern Branch of the Russian Academy of Sciences, Vladivostok, Russia) for collecting the specimens on Sakhalin, to Mr. Takao Nozaki (Kanagawa Environmental Research Centre, Hiratsuka, Kanagawa, Japan) for his kind help in obtaining the old literature and to Mr. Walter Neff (Drexel Hill, Pennsylvania, USA) for critical reading and editing of manuscript. The work presented here was supported by the Russian Fund of Fundamental Investigations, grant N 96-04-50388.

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