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Description of the female imago and subimago of *Ecdyonurus rizuni* GODUNKO, KŁONOWSKA-OLEJNIK & SOLDÁN, 2004 (Ephemeroptera: Heptageniidae)

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ABSTRACT. Previously unknown female imago and subimago of *Ecdyonurus rizuni* GODUNKO, KŁONOWSKA-OLEJNIK & SOLDÁN, 2004 is described from the type locality on the basis of specimens reared from larvae.

Key words: entomology, morphology, Ephemeroptera, Heptageniidae, *Ecdyonurus helveticus* species-group, Ukrainian Carpathians.

INTRODUCTION

A considerable progress has been recently reached in study of mayfly species from Central and Eastern Europe, attributed to the *Ecdyonurus helveticus* species-group. In 2004 two more taxa have been added to the already known 12 species of this group (HEFTI et al. 1989). GODUNKO & KŁONOWSKA-OLEJNIK (2004) have published a description of the adults of both sexes, nymphs and eggs of *E. austriacus nataliae* GODUNKO & KŁONOWSKA-OLEJNIK, 2004 from the Gorgany Mountains in the Ukrainian Carpathians. In the same year GODUNKO, KŁONOWSKA-OLEJNIK & SOLDÁN (2004) have described male imago and subimago, larvae and eggs of the species *E. rizuni* from the Rakhiv Mountains and the Chornohora Range of the Ukrainian Carpathians. Females of this species have been hitherto unknown. SOLDÁN & GODUNKO (2006) gave a detailed description of the species *E. silvaegabretae* SOLDÁN & GODUNKO, 2006 known for a long time from the Šumava Mountains in the Czech Republic and earlier confused with *E. austriacus austriacus* KIMMINS, 1958 and *E. picteti* (MEYER-DÜR, 1864).

The study of the *E. helveticus* species-group was not restricted only to description of new taxa. GODUNKO & SOLDÁN (2003) fixed, described and illustrated the lectotype and paralectotype of *E. subalpinus* (KLAPÁLEK, 1907) and defined the type locality. Additionally, these authors presented complete description of this species basing on the material from Eastern and Central Europe, and defined critical distinguishing characters of adult male and larvae.

However, it should be noted that taxonomic problems of the *E. helveticus* species-group are far from being settled. Special attention in the nearest future should be paid to study of taxonomic status of the species indicated previously in the regional and local references as "*E. helveticus*", "*E. cf. helveticus*", "*E. cf. austriacus*", "*E. picteti*", "*E. cf. picteti*", "*E. parahelveticus*" and "*E. cf. zelleri*" from the Ukraine and Slovakia (e. g. Klapálek 1907: 34, DZIĘDZIELEWICZ & Klapálek 1908a: 255, 1908b: 24, DZIĘDZIELEWICZ 1919: 16-18, MIKULSKI 1935: 65, 1936: 86-87, PAWŁOWSKI 1959: 67, GODUNKO 1997: 388, GÁLDEAN 1999: 424, CSER & ANDRIKOVICS 2001: 347, DERKA 2003: 25).

In this paper the first description of female imago and subimago of *E. rizuni* from small unnamed stream on the eastern slope of the Lisina Mountain in the Rakhiv Mountains (type locality) is given on the basis of specimens reared from larvae.

***Ecdyonurus rizuni* GODUNKO, KLONOWSKA-OLEJNIK & SOLDÁN, 2004**

Ecdyonurus rizuni GODUNKO, KLONOWSKA-OLEJNIK & SOLDÁN, 2004, Annales Zoologici, 54 (3): 519, Figs. 1-20 (male imago and subimago, mature larva, egg)

DESCRIPTION

Female imago

Size: body length: 7.5-9.8 mm; fore wings length: 9.0-11.0 mm; cerci length: 13.6-14.5 mm.

General colour of body pale, yellow to yellowish-brown. Head yellowish-brown with yellow facial keel. Antennae yellow to yellowish-brown. Eyes unicolorous grey. Ocelli white at the tip with black basis.

Thorax yellow to yellowish-brown, occasionally yellowish-grey. Pronotum with unclear greyish smudges laterally. Mesonotum with light brown longitudinal bands around lateroparapsidal sutures (morphological terminology and nomenclature of thoracic structures used here follows KLUGE 1994, 2004). Metanotum darker than pro- and mesonotum, unicolorous brown. Lateral and ventral sides of the thorax generally unicolorous yellowish-brown; sterna have the structure typical of the genus *Ecdyonurus* (KLUGE 2004). Fore legs dark, yellowish-brown to brown. Coxae and trochanters brown to dark brown. Femora brown with small dark spots distally, tibiae and tarsi distinctly paler than tarsi, yellowish-brown. Middle and hind legs unicolorous yellowish-brown. Occasionally tibiae and tarsi of middle and hind legs slightly darker than femora. Fore wings translucent, light yellow in color. Proximal part of costal and subcostal fields slightly darker. Venation pale, yellowish to yellowish-brown, paler at the base. Pterostigma opaque with some yellowish reflection. Hind wings hyaline, their venation of the same color as in fore ones.

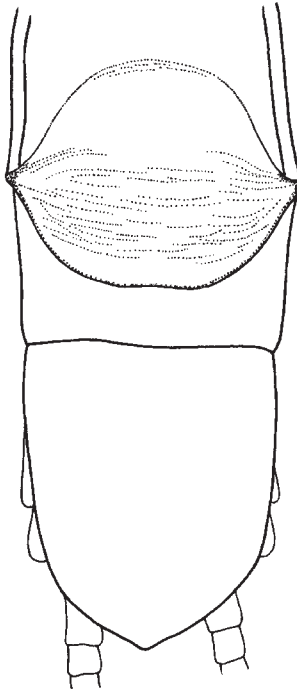
Abdomen yellowish brown to light brown. Terga I-VIII with brownish band on posterior margin of each segment. Terga IX-X without any band and patterns dorsally and laterally. Some unclear reddish reflection is visible on the dorsal and lateral sides of abdomen. Terga latterly with clear *L*-shaped drawing typical of the *E. helveticus* species-group. Sterna yellow, distinctly paler than terga. Nerve ganglia dark, well visible. Subgenital plate wide; posterior margin with smooth rectangular contour, slightly incised medially. Subanal plate bluntly pointed at the tip. Caudal filament darker than abdomen, yellowish-brown to brown.

Female subimago

Size: body length: 7.2-9.5 mm; fore wings length: 8.4-10.3 mm; cerci length: 9.8-10.5 mm.

General colour of body yellow to yellowish-brown with clear greyish reflections. Head yellow to yellowish-grey. Antennae unicolorous yellowish-brown. Eyes greyish-white, Ocelli white at the tip and black basally.

Thorax pale, yellowish-brown with greyish reflections. Longitudinal bands of thorax distinctly light brown. Lateral and ventral sides yellow to yellowish-brown; prosternum, basisternum and furcasternal protuberances light brown. Fore legs slightly darker than middle and hind ones: coxae and trochanters unicolorous brown; femora



1. *Ecdyonurus rizuni* GODUNKO, KLONOWSKA-OLEJNIK & SOLDÁN, 2004, female imago, the tip of abdomen (ventral view)

yellowish-brown, slightly darker distally; tibiae and tarsi yellowish-grey to yellowish-brown. Fore wings relatively translucent, unicolorous light yellow, with yellowish-grey pterostigma. Hind wings the same colour as fore ones. Venation whitish-yellow to yellowish-grey.

General colour of abdomen the same as in female imago. Lateral sides with brownish spots around L-shaped drawing. Sterna paler, yellow to yellowish-grey with unclear whitish-grey small spots laterally. Characteristics of the subgenital and subanal plate similar to those in female imago. Caudal filaments yellowish-brown, slightly paler distally.

MATERIAL EXAMINED

3 female imago, 2 female subimago, Ukraine, Zakarpattia Region, Rakhiv town, Rakhiv Mountains, small unnamed forest stream on the eastern slope of the Lisina Mountain (right-bank tributary of the Tysa river) (type locality), 09.VIII.2006, leg. Roman J. Godunko.

All the females reared from mature larvae ready to emerge. The specimens were preserved in 75% alcohol and deposited in the collection of the State Museum of Natural History, National Academy of Sciences of Ukraine, Lviv, Ukraine.

REMARKS

The contour of posterior margin of subgenital and subanal plates of *E. rizuni* is similar to those in *E. austriacus nataliae*. Female imago and subimago of *E. rizuni* can be easily distinguished from other representatives of the *E. helveticus* species-group by the small body size and light coloration of the body and wings.

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