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Autor(en): **Konowska-Olejnik, Magorzata**

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Complementary description of *Rhithrogena podhalensis* SOWA & SOLDÁN, 1986 (Ephemeroptera, Heptageniidae)

MAŁGORZATA KŁONOWSKA-OLEJNIK

Department of Hydrobiology, Institute of Environmental Biology, Jagiellonian University, Oleandry 2a, 30-063 Kraków, Poland.

The adult female of *Rhithrogena podhalensis* SOWA & SOLDÁN, 1986 is described from the Tatra Mountains, Southern Poland. Data on the zoogeographical distribution of this species is also given.

Keywords: Ephemeroptera, Heptageniidae, *Rhithrogena*, taxonomy.

INTRODUCTION

SOWA & SOLDÁN (1986) described three new species of the *Rhithrogena hybrida* group from Poland and Czechoslovakia: *R. circumtatrica*, *R. corcontica*, *R. podhalensis*. They also gave a redescription of *R. hercynia* LANDA, 1969, based on material from the type locality (SOWA & SOLDÁN, 1986). Taking into account morphological differences between species of the *Rhithrogena hybrida* group, BELFIORE (1987) distinguished a new *insularis* group, whereas SARTORI & OSWALD (1988) divided the remaining species into two groups: *hercynia* and *hybrida*. Thus, the species with a distinct dark spot on the upper face of the femora (larvae and adults) originally belonging to the *hybrida* group now represent *hercynia*. The *hybrida* group is now constituted by the species without the dark spot on the femora. According to this systematisation *R. podhalensis* belong to the *hercynia* group. Female *R. podhalensis* imagines have recently been recorded from the lower part of Chochołowski Stream, Tatra Mountains (not far from the type locality).

FEMALE IMAGO

Size: body length 11.0–12.0 mm; forewing 13.0–14.0 mm; cerci 18.0 mm. General body coloration yellow-brown. Face of head yellow, antennae light brown. Eyes dark grey. General thorax coloration brown: prothorax yellow-brown, mesothorax light brown, metathorax brown; dorsal side of thorax darker than ventral side. Forewings transparent, longitudinal veins yellow-brown, darker in basal part. Costa, subcosta and radius light brown. Cross veins yellow-brown, great cross vein translucent. Pterostigmatic area milky with simple and well visible cross veins. Forelegs light brown, middle and hind legs yellow-brown. All femora with a dark brown elongated spot. Abdomen light yellow-brown. Nervous ganglia poorly visible, pale, whitish. Posterior abdominal segments in ventral view as in Fig. 1. Subgenital plate with posterior margin slightly rounded. Subanal plate rather short, with a slight incision. Cerci light brown, darker in basal part.

The egg was partly described by SOWA & SOLDÁN (1986). Complementary, detailed description of egg chorionic structure can be found in KŁONOWSKA-OLEJNIK (1997).

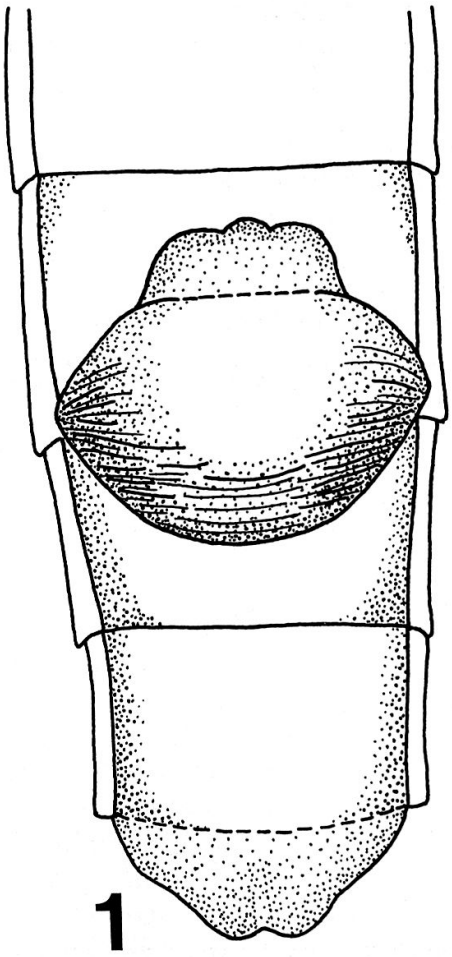

Fig. 1. *Rhithrogena podhalensis*, female imago: posterior part of abdomen, ventral view.

AFFINITIES

R. podhalensis females differ from all remaining species of the *hercynia* group by the shape of the subgenital and subanal plate. However, egg morphology provides the most discriminating characters to identify females in the genus *Rhithrogena* (SOWA & DEGRANGE, 1987; GAINO & MAZZINI, 1988; GAINO *et al.*, 1989; MAZZINI & GAINO, 1990). In *R. podhalensis*, both the egg pole with large KCT attachment structures and the chorionic surface look very different from those of all remaining species of the *hercynia* group. At one pole there is a concentration of large KCT attachment structures with numerous peglike macrogranules between them (SOWA & SOLDÁN, 1986; KŁONOWSKA-OLEJNIK, 1997). This concentration is larger than in the other species of the *hercynia* group: *R. hercynia*, *R. corcontica* (SOWA & SOLDÁN, 1986), *R. gratianopolitana* (SOWA *et al.*, 1986) and *R. grischuna* (SARTORI & OSWALD, 1988). The whole chorionic surface is covered with groups of peglike macrogranules. In each group there are 1–3 KCT attachment structures located on the peglike macrogranules that support them. The chorionic surfaces in *R. gratianopolitana* and *R. grischuna* look completely different from each other. The macrogranules in *R. corcontica* and *R. hercynia* are more like those of *R. podhalensis*. However, they are not concentrated and are smaller, with separate adhesive elements on the chorionic surface (SOWA & SOLDÁN, 1986). Thus the eggs of *R. podhalensis* are very characteristic and useful for species identification.

DISTRIBUTION AND BIOLOGY

R. podhalensis was described from mountain rivers in the Podhale region (Białka Tatrzańska and Biały Dunajec, not far from the Tatra Mountains), at altitude approximately 600 m a.s.l. (SOWA & SOLDÁN, 1986). Older stations mentioned by SOWA (1975) include other localities from the Podhale region – Białka Tatrzańska (750–550 m a.s.l.), Biały Dunajec (640–595 m a.s.l.), Czarny Dunajec (850 m a.s.l.) – and one locality in the Tatra Mountains (Strążyski Stream, 920 m a.s.l.). Female imagines of *R. podhalensis* (and some male imagines) have recently been collected from Chochołowski Stream. Thus, the distribution area of *R. podhalensis* seems to be larger, including bigger streams of the Tatra Mountains (lower part). At these stations the adults fly somewhat later (June) than they do in the Podhale region (April). WEICHSELBAUMER & SOWA (1990) also found *R. podhalensis* in Austria, where it occurs at 410–830 m a.s.l.

MATERIAL EXAMINED

14 female imagines (collected during the swarming flight), Southern Poland, Tatra Mountains, Chochołowska Valley, Chochołowski Stream, 910–1000 m a.s.l., 11.06.1987, leg. M. KŁONOWSKA. Imagines preserved in 75% alcohol are in the collection of M. KŁONOWSKA-OLEJNIK.

REFERENCES

BELFIORE, C. 1987. Heptageniidae from Corsica and Sardinia. *Rhithrogena nuragica* n. sp., *R. eatoni* ESBEN-PETERSEN, 1912, and *R. insularis* ESBEN-PETERSEN, 1913 (Ephemeroptera). *Annls Limnol. 23(2)*: 87–94.

GAINO, E. & MAZZINI, M. 1988. Fine structure of the chorionic projections of the egg of *Rhithrogena kimminsi* THOMAS (Ephemeroptera: Heptageniidae) and their role in egg adhesion. *Int. J. Insect Morphol. Embryol. 17(2)*: 113–120.

GAINO, E., MAZZINI, M., DEGRANGE, C. & SOWA, R. 1989. Etude en microscopie à balayage des oeufs de quelques espèces de *Rhithrogena* EATON groupe *alpestris* (Ephemeroptera, Heptageniidae). *Vie Milieu 39*: 219–229.

KŁONOWSKA-OLEJNIK, M. 1997. The use of egg morphology in the taxonomy of some species of the genus *Rhithrogena* (Ephemeroptera, Heptageniidae). *In*: LANDOLT, P. & SARTORI, M. (eds), *Ephemeroptera & Plecoptera: Biology – ecology – systematics*, pp. 372–381. MTL, Fribourg.

MAZZINI, M. & GAINO, E. 1990. Oogenesis and involvement of chorionic structures in Ephemeroptera taxonomy. *In*: CAMPBELL, I.C. (ed.): *Mayflies and Stoneflies*, pp. 95–104. Kluwer Academic Publishers, 361 pp. Dordrecht.

SARTORI, M. & OSWALD, R. 1988. *Rhithrogena grischuna* nov. sp., a new mayfly species from eastern Switzerland related to *Rh. hercynia* LANDA, 1969 (Ephemeroptera; Heptageniidae). *Annls Limnol. 24(3)*: 261–268.

SOWA, R. 1975. Ecology and biogeography of mayflies of running waters in the Polish part of the Carpathians. 1: Distribution and quantitative analysis. *Acta Hydrobiol. 17(3)*: 223–297.

SOWA, R. & DEGRANGE, C. 1987. *Rhithrogena* du groupe *hybrida* (Ephemeroptera, Heptageniidae) des Alpes françaises. *Acta Hydrobiol. 29(1)*: 71–87.

SOWA, R. & SOLDÁN, T. 1986. Three new species of the *Rhithrogena hybrida* group from Poland and Czechoslovakia with a supplementary description of *R. hercynia* LANDA, 1969 (Ephemeroptera, Heptageniidae). *Pol. Pismo Entomol. 56*: 557–572.

SOWA, R., DEGRANGE, C. & SARTORI, M. 1986. *Rhithrogena gratianopolitana* sp. n. du groupe *hybrida* (Ephemeroptera, Heptageniidae) des Alpes françaises et helvétiques. *Bull. Soc. Vaud. Sci. Nat. 78*: 215–223.

WEICHSELBAUMER, P. & SOWA, R. 1990. Beitrag zur Kenntnis der Eintagsfliegenfauna Österreichs (Insecta: Ephemeroptera). *Ber. nat.-med. Verein Innsbruck 77*: 113–122.

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