

## Second find of *Rhyacophila joosti* Mey, 1979 (Trichoptera: Rhyacophilidae) with a description of the unknown female

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*Rhyacophila joosti* was described by MEY (1979) after a pair of males which had been captured in a torrent, left confluent with the Stryama River in its upper stream (the southern slopes of the Central Stara Planina Mts, above the town of Sopot). No more information about this interesting caddisfly has been published until now. During the investigations on the biodiversity of the Central Balkan National Park in 1996-1997, included in the GEF Project for conservation of the biodiversity of Bulgaria, and financed by the American Agency for International Development, a new locality of this species with specimens of both sexes was established. Since the female has never been found, its description is given below.

### *Rhyacophila joosti*, female

Habitually it is similar to the male. Forewing length: 15 mm (that of male, 15-16 mm).

**Genitalia.** Sternite 6th with a small distomedial tooth set at the distal border of a conspicuous setose field. Both 7<sup>th</sup> and 8<sup>th</sup> segments well sclerotized with short and fine pubescence. 8<sup>th</sup> segment with a characteristic shape from all points of view; viewed laterally (Fig. 1), it appears nearly triangular, its distal edge straight and strongly bent, so that the dorsal edge more than twice as long as the ventral one. Viewed from above (Fig. 2), 8<sup>th</sup> segment's distal half slightly bulbous, the distomedial margin - a short, broad and rounded convexity; its ventral aspect appears to be a broad semicircled incision, surrounded by a darker wreath (Fig. 3). Last two segments telescopic, membranose, relatively short, the 9<sup>th</sup> one similar to that of *Rh. fasciata* Hag., *Rh. loxias* Schmid, *Rh. aliena* Mart., etc., with a pair of dark spots around the middle. *Processus spermathecae* - Fig. 1 and 4.

**Material.** Central Stara Planina Mts (northern slopes), the upper stream of the Bely Osum River at the Haydoushka Pesen Chalet, 850 m a.s.l., 09.08.1997, 2 ♂♂, 1 ♀ (leg. Kumanski, at light).



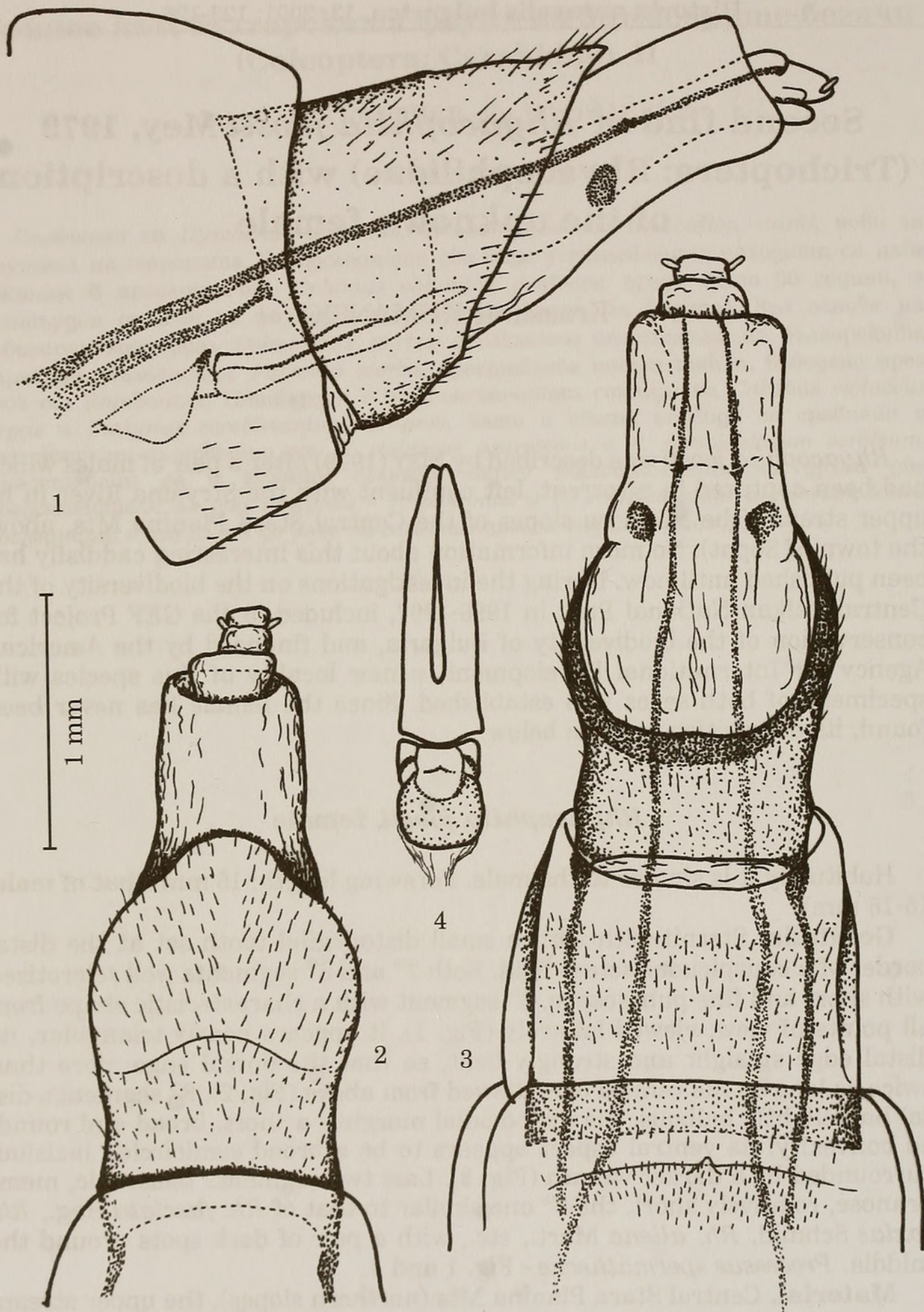


Fig. 1-4. *Rhyacophila joosti* Mey, female, genitalia: lateral view (1); dorsal view (2); ventral view (3); *processus spermathecae*, ventral view (4)



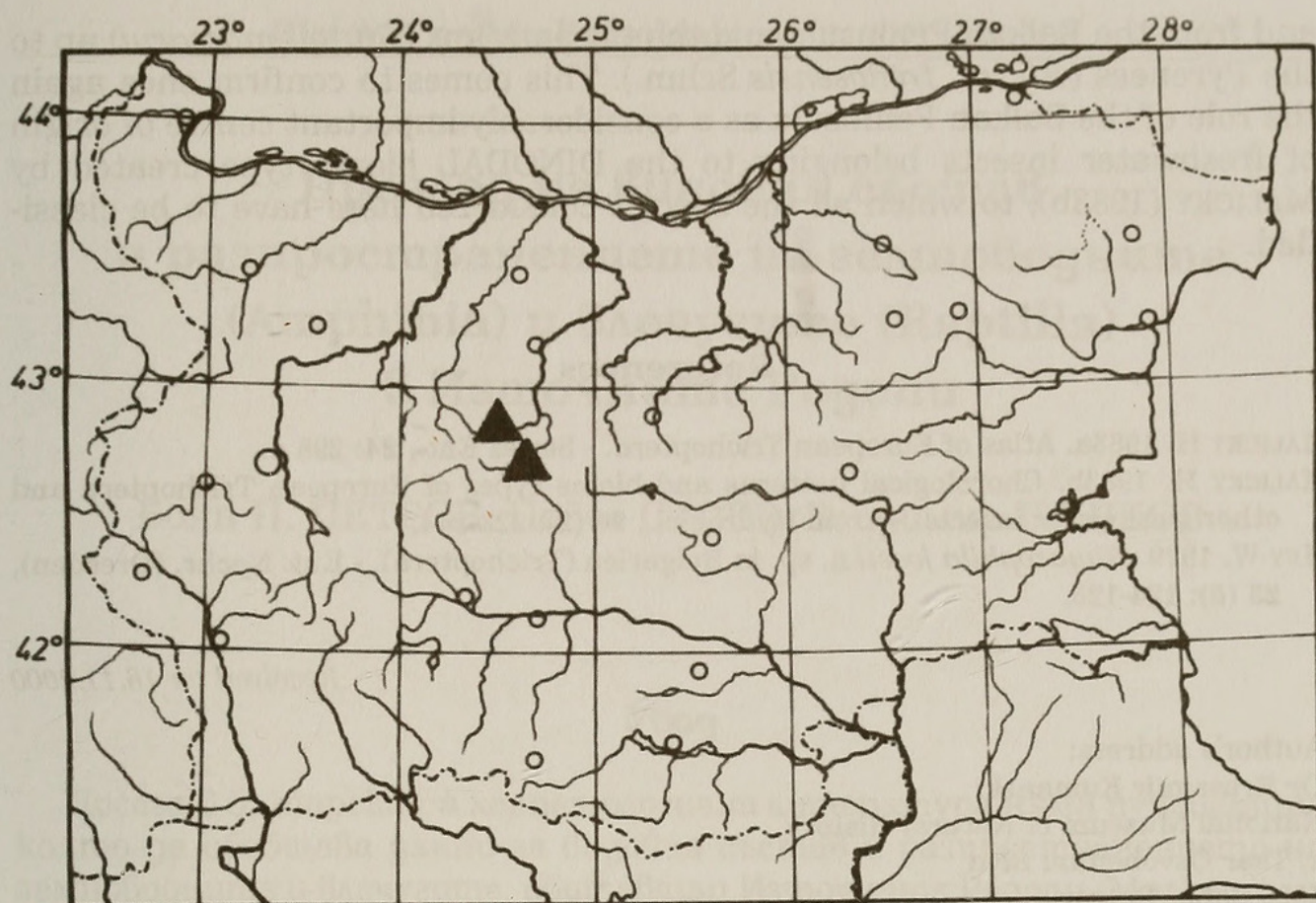


Fig. 5. Distribution of *Rhyacophila joosti* Mey

## Discussion

Describing the male, MEY (1979) concluded *Rhyacophila joosti* belongs to the group of *vulgaris* with no other closely related species of this group. Especially striking in this respect are some elements of the male genitalia, e.g. the bulbous caudal half of the parameres, bearing several short and strong terminal spines and, above all, the very peculiar form of the *edeagus*, represented by a long, straight and oblique basodorsal process and a rough distoventral hook, the latter additionally armed with four pairs of strong lateral thorns. Correspondingly, the female genital segments are also quite peculiarly shaped, the 8<sup>th</sup> one distoventrally broadly open (cf. Fig. 3). However, the *processus spermathecae* resembles those of several other representatives of this group, e.g. *Rh. loxias* Schm., *Rh. armeniaca* Guer., *Rh. mocsaryi* Klap., and not that of *Rh. fasciata* Hag., which MEY (1979) considers mostly resembling *Rh. joosti*. The above-said is confirmed also by the male genitalia of *fasciata* and *joosti*, which like their females have few things in common between them. *Rh. joosti* occupies a rather isolated position within this otherwise European group and quite probably is a local endemic from the Central Stara Planina Mts in Bulgaria (Fig. 5). It also seems to be one of the rarest caddisflies in the Bulgarian fauna. Moreover it has not been included in the famous Atlas of European Trichoptera (MALICKY, 1983a).

The abovementioned three more or less related species occur in the Balkan Peninsula (*loxias*), from the Balkan Peninsula to the Caucasus (*armeniaca*),



and from the Balkan Peninsula and the Carpathians (*Rh. m. mocsaryi*) up to the Pyrenees (*Rh. m. tredosensis* Schm.). This comes to confirm once again the role of the Balkan Peninsula as a considerably important centre of origin of freshwater insects belonging to the DINODAL biome type created by MALICKY (1983b), to which all the species considered here have to be classified.

## References

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## Второ находище на *Rhyacophila joosti* Mey, 1979 (Trichoptera: Rhyacophilidae) с описание на неизвестната женска

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(Резюме)

*Rhyacophila joosti* Mey е ендемит от Централна Стара планина и е сред най-редките видове ручейници в България. Описан е бил от едно находище (Стара планина над Сопот) по 2 мъжки екземпляра. През 1997 г. авторът го открива във второ находище, недалеч от типовото - хижа Хайдушка песен в Троянската планина. Материалът включва индивиди от двата пола, което разрешава описанието на неизвестните досега женски. Обсъдени са изолираната позиция на *Rh. joosti* във видовата група *vulgaris* и евентуалните близкородствени видове *Rh. loxias*, *Rh. armeniaca* и *Rh. mocsaryi*. Всички те са разпространени в Балканския полуостров, като някои от тях достигат до Карпатите и Кавказ. Изтъкната е ролята на полуострова като видообразователен център за насекомите от неотдавна дефинирания сладководен биом DINODAL.



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