

**Four new species of caddisflies from  
northern Turkey  
(Trichoptera, Rhyacophilidae, Philopotamidae)**

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**Abstract.** Two new species of the genus *Rhyacophila* are described and illustrated: *R. giresunica* sp. n., belonging to the *vulgaris* species group with brachypterous females, and *R. trabzonica* sp. n., belonging to the *tristis* species group. Both are found in northeastern Anatolia. Two other new species, *Wormaldia catalzeytin* sp. n., found in northwestern Turkey, and *W. ditia* sp. n., found in northeastern Turkey, are also described and figured.

**Key words.** New species, caddisflies, *Rhyacophila*, *vulgaris*-group, *tristis*-group, *Wormaldia*, Turkey.

**Introduction.** In the present paper three species from northeastern Turkey and a species from northwestern Turkey are described. A new *Rhyacophila* species with brachypterous females was discovered in Giresun province in northeastern Anatolia. This is the second species with brachypterous females found in Turkey. Both species inhabit the larger, rapid flowing springs in high mountains.

**Descriptions**

***Rhyacophila giresunica* sp. n. (Figures 1-7)**

**Material.** Holotype male and paratypes (1 male, 1 female): Turkey, Giresun, Tamdere, İkisu, Karagöl Yaylası direction, 1825 m, 40°32'N, 38°12'E, 1.10.2008; other paratypes: Giresun, Karagöl Yaylası, 1825 m, 1.10.2008, 2 males, 1 female; Gümüşhane, Camiboğazı Yaylası, 2077 m, 40°38'N, 39°41'E, 3.10.2008, 1 male; Giresun, Şebinkarahisar, Eğribel Pass, 2110 m, 40°28'N, 38°23'E, 1.10.2008, 1 female, leg. and coll. Sipahiler.

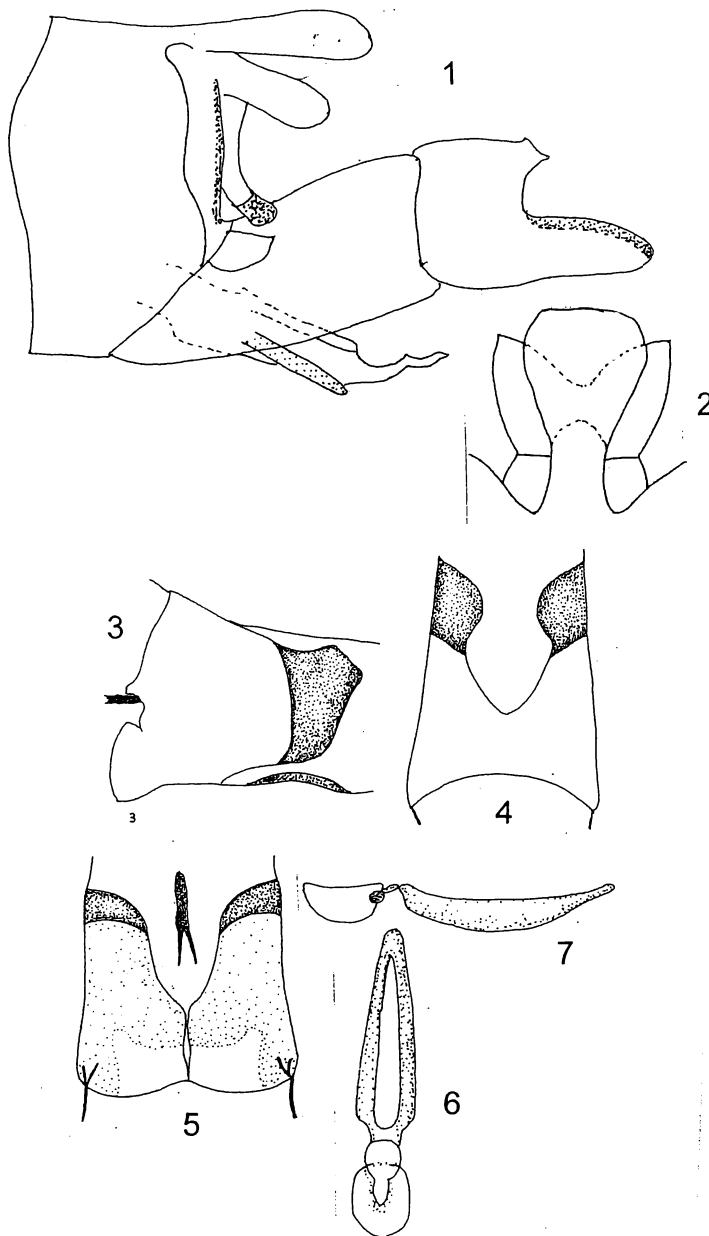
Antennae and maxillary palps pale yellowish, forewings are brown, pale brown-yellowish spotted, legs yellowish, tarsal segments yellowish, distal parts brown; the length of the anterior wings of males 10-10.5 mm, of females 8.5-8.7 mm, the females are brachypterous, the antennae of females are shorter than the short anterior wings.

**Male genitalia** (Figures 1, 2). The base of the dorsoapical lobe of segment IX narrow and rather long, the preanal appendages beneath it rather large and long but shorter than the dorsoapical lobe. The dorsal lobe of the harpago of the inferior appendage laterally with two short and pointed projections, the ventral lobe is long and the apex is rounded. The paramere of the phallic apparatus is narrow, the ventral and the dorsal edges are nearly parallel to each other, slightly narrowing towards the apex.

**Female genitalia** (Figures 3-7). Segment VIII is dark brown blackish; in lateral view, the posterior edge strongly sclerotized, the dorsal portion is broad, in dorsal view the apical edge shortly excised medially, in ventral view, the apical edge is shortly excised in the middle, a narrow sclerotized band is located in the excision.

**Remarks.** *Rhyacophila giresunica* sp. n. is closely related to *R. kumanskii turcica* SİPAHİLER, 2007 (SİPAHİLER 2007); females of both species are brachypterous but in *R. giresunica* sp. n. the forewings of the females are rather long,

reaching segment VIII, whereas in *R. k. turcica* the forewings are much shorter, reaching half of the length of segment V; the sclerotized band of *R. giresunica* sp. n. is thin, the ventral excision is short, the sides are almost rounded, while in *R. k. turcica* it is really broad, located in the V-shaped excision ventrally.



*Rhyacophila trabzonica* sp. n. (Figures 8-14)

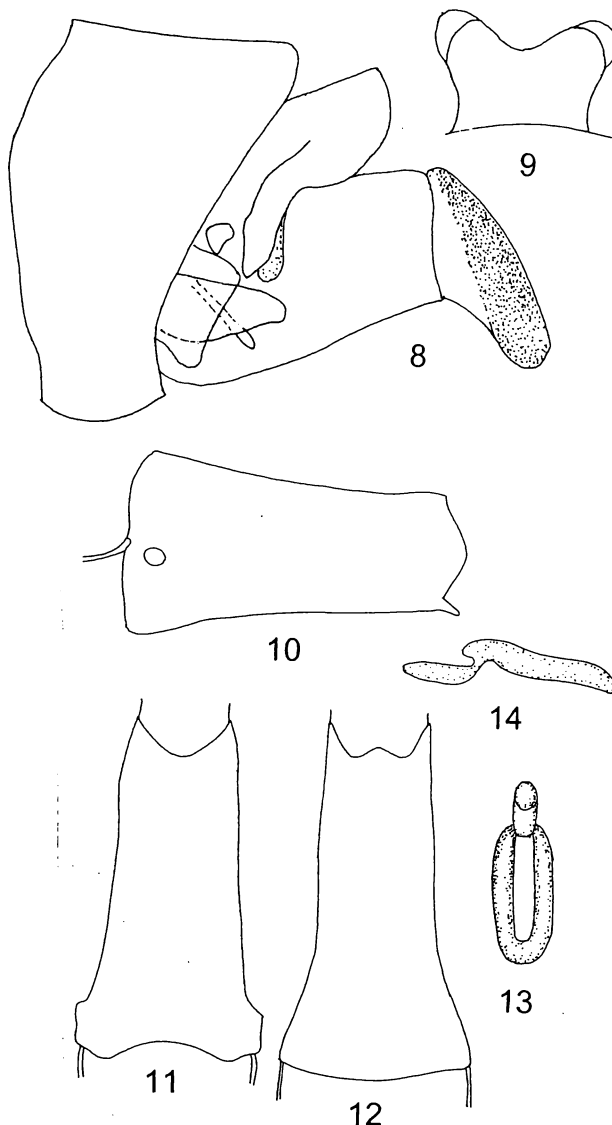
**Material.** Holotype male: Trabzon, Maçka, Sumela, 1000 m, 40°45'N, 39°36'E, 13.10.2007, 1 male (Holotype); paratypes: Gümüşhane, Zigana Pass, 40°41'N, 39°26'E, 13.10.2007, 1 male, 1 female; Torul, Özkürtün, Örümcek Ormanı, 1550 m, 40°40'N, 39°05'E, 13.9.1999, 1 male; Ordu, Mesudiye, 10 km south of Gök köy, near Harçbeli Pass, 1260 m, 40°37'N, 37°37'E, 11.10.2007, 1 male; Giresun, Kümbet, Çıkrıkçı, 1786 m, 40°32'N, 38°30'E, 2.10.2008, 1 male; Bektaş Yaylası, spring, 1516 m, 40°41'N, 38°21'E, 1.10.2008, 2 males; Yavuzkema, 1530 m, 40°41'N, 38°21'E, 12.10.2007, 3 males, leg. and coll. Sipahiler.

Antennae, maxillary palps and wings brown, legs pale brown-yellowish, tarsal segments are dark brown; the length of the anterior wings of males 9-11 mm, of females 10-11 mm.

**Male genitalia** (Figures 8, 9). Segment X broad on the dorsal part, in dorsal view the apical edge broadly excised in the middle, the sides are rounded, developing towards ventral. The harpago of the inferior appendages is long, the dorsal edge nearly straight, covering with small black tubercles. The phallic apparatus is small, the parameres are broad at the base, nearly triangular, rounded on the dorsoapical corner.

**Female genitalia** (Figures 10-14). Segment VIII is long, rather narrow. In dorsal view the posterior edge slightly and roundly excised in the middle, in lateral view the sides of the posterior edge nearly triangular. The bursa copulatrix is narrow on the anterior part and broad on the long posterior part.

**Remarks.** *Rhyacophila trabzonica* sp. n. belongs to the *tristis* species group and closely resembles *R. borcka* SİPAHİLER, 1996 (SİPAHİLER 1996), which occurs in Artvin province in northernmost Turkey. The differences are seen in the male genitalia, especially in the shape of segment X, which is rather deeply excised in the middle, the dorsal edge of the harpago is nearly straight, and the parameres are broadly triangular in the new species, whereas in *R. borcka* the dorsal edge of the harpago is broadly excised on the dorsal edge and the parameres are narrow on the dorsal portion. The differences in the female genitalia are as follows: in the new species the posterior edge of segment VIII is roundly excised in dorsal view and totally sclerotized, while in *R. borcka* the median part of segment VIII is not sclerotized.

*Wormaldia catalzeytin* sp. n. (Figures 15-18)

**Material:** Holotype male and paratypes (2 males): Turkey, Kastamonu, Çatalzeytin, Pınargözü, 1020 m, 41°45'N, 34°00'E, 24.10.2019, leg. and coll. Sipahiler.

Antennae dark brown blackish, yellowish annulated; maxillary palpus dark brown blackish, head and thorax dorsally brown, wings dark brown grayish, legs yellowish, the spurs brown; the length of the anterior wings of males 6-6.5 mm.

**Male genitalia** (Figures 15-18). The anterior margin of tergite VIII deeply and roundly excised in the middle, forming two rounded and broad lobes on each side; segment IX broad on each side; in lateral view the apical part of segment X is rather long, nearly quadrangular, with a pointed projection on the dorsal margin located subdistally; the preanal appendages as broad as the apical part of segment X, the posterior margin is nearly straight; the coxopodite of the inferior appendages rather slender, the harpago is long, its ventral edge is slightly dilated towards dorsal. The spines of

the phallic apparatus are as follows: 1- in dorsal view, a long and rather thin spine is found at the base, numerous spinules are located on each side and two short and thick spines are on the base, 2- a long rather thick and curved spine is located in the middle, 3- distal part of the phallic apparatus with a long and thin spine is located in the middle, both sides with shorter and thicker spines, which are directed on the sides, 4- a short and thin spine is located between the medium and distal spines.

**Remarks.** *Wormaldia catalzeytin* sp. n. closely resembles *W. balcanica* KUMANSKI, 1979, (KUMANSKI 1979) but differences are seen in several parts of the genitalia, and especially the spines of the new species separate these species. In the new species there are five long spines and any spinules, whereas in *W. balcanica* three shorter spines and spinules are found; the anterior margin of tergite VIII of *W. balcanica* is nearly straight, while in the new species it is deeply excised; in addition, the shape of the harpago, which is longer in the new species and the shape of the apical part of segment X, which is long in *Wormaldia catalzeytin* sp. n., are the important differences.

*Wormaldia ditta* sp. n. (Figures 19-22)

**Material:** Holotype male: Turkey, Artvin, Borcka, Camili, Karagöl, Sanat Yaylası, Ditta Yaylası direction, 2300 m, 41°22'N, 41°58'E, 3.8.1998, source, leg. and coll. Sipahiler.

Antennae, maxillary palps, and legs yellowish, wings pale brown, length of the anterior wing of male 6 mm.

**Male genitalia (Figures 19-22).** The anterior margin of tergite VIII deeply and roundly excised in the middle, forming two rounded lobes on each side; segment IX in lateral view, rather narrow, the posterior edge of the preanal appendage nearly straight, the apical lobe of segment X rounded. The harpago of the inferior appendage slightly excised on the ventral margin. The phallic apparatus has a broad spine located on the subdistal part and numerous fine spinules that are curved on both sides, forming a rounded cluster; three straight long and thin spines are located at the base of this cluster.

**Remarks.** *Wormaldia ditta* sp. n. resembles *W. khourmai* SCHMID, 1959 characterized by three spines and a row of spinules located at the base of the phallic apparatus (SCHMID 1959). In *Wormaldia ditta* sp. n. there is only one large spine and a cluster of fine spinules at the base of the phallic apparatus with three thinner straight spines located at the base of the cluster. In addition, the apical lobe of segment X of *W. khourmai* has a small pointed projection on the dorsal edge, whereas in *W. ditta* sp. n. the dorsal edge is rounded.

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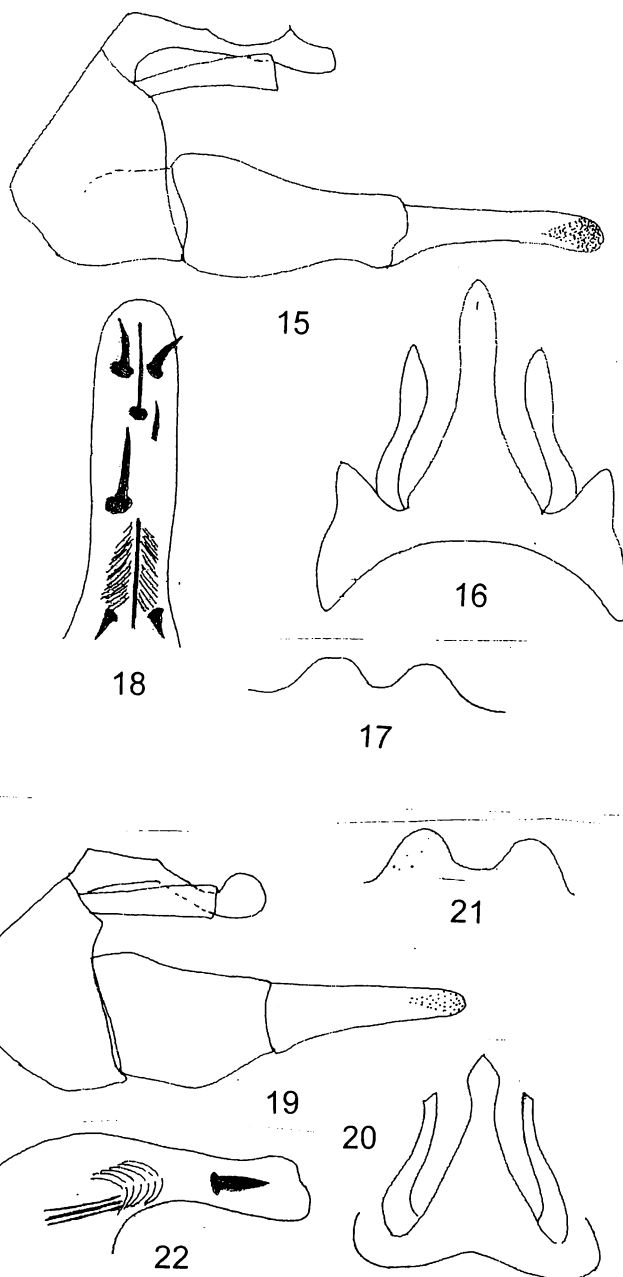
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## Erratum and Addition

The following explanations must be added to both descriptions of the new species, *Diplectrona polovit* sp. n. and *Diplectrona macahel* sp. n., which were published in Braueria 46 (2019) on the pages 15 and 16:

leg. and coll. Sipahiler.



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