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A new subspecies of *Rhyacophila fasciata* HAGEN from northern Turkey with a description of the unknown female of *Rhyacophila fasciata mysica* MALICKY & SIPAHILER (Trichoptera, Rhyacophilidae)

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Abstract. A new subspecies, *Rhyacophila fasciata ilgazica* ssp. n., and the unknown female of *Rhyacophila fasciata mysica* MALICKY & SIPAHILER, 1993 are described and figured. A brief description of *Rhyacophila fasciata aliena* MARTYNOV, 1916 is also given. A map of the distributions of the subspecies and its close relatives in Turkey is provided.

Key Words. New subspecies, *Rhyacophila*, distribution, Trichoptera, Turkey.

Rhyacophila fasciata fasciata HAGEN, 1859, largely distributed in Europe and northwestern Turkey (MALICKY & SIPAHILER, 1993), is represented in Turkey by three subspecies. The second subspecies, *R. f. mysica* MALICKY & SIPAHILER, 1993, also occurs in northwestern Turkey, having a smaller range in the west (Figure 1). The third subspecies, *R. f. aliena* MARTYNOV, 1916, is distributed in northeastern Turkey, the Caucasus, and Iran. The closely related species Rhyacophila isparta SIPAHILER, 1996; and Rhyacophila ivrizica SIPAHILER, 2006 (SIPAHILER, 1996; 2006) are found on the northern slopes of the Taurus Mountains in the south. A new subspecies, *R. f. ilgazica* ssp. n., was discovered in northwestern Turkey, and it is closely related to *R. f. aliena*.

Rhyacophila fasciata aliena MARTYNOV, 1916

Antennae, maxillary palps, and legs brown, forewing brown, paler spotted; the length of the anterior wing of males 11-11.5 mm, of females 12-12.5 mm.

Male genitalia (Figures 2-6). Dorsal lobe of segment IX is variable; it can be broad, narrowly oval, or dilated on the sides. The harpago of the inferior appendages with a short dorsal edge, which ends as a rounded lobe, the ventral edge is long and narrow. The parameres of the phallic apparatus are very broad in the middle, narrowing towards the tips; the ventral lobe of the aedeagus is rather narrow, the apex is rounded. In lateral view, the lobe between the aedeagus and the ventral lobe of the aedeagus is narrow and rounded.

Female genitalia (Figures 7-11). In dorsal view, the median cavity of segment VIII is large, located in the middle, the posterior edge of the cavity with a right angle on each side. The ventral sclerites are narrow and long.

Remarks. This subspecies was first described as *R. aliena* based on specimens from the northern slopes of the Caucasus, characterized by the shape of the harpago, which is long and with a small lobe on the dorsal portion, the dorsal lobe of segment IX, which is almost quadrangular, and larger parameres (MARTYNOV, 1916). SCHMID (1959) recorded this species from central Iran along with remarks on the variations. The figures of *R. aliena* given are based on specimens from central Iran (SCHMID, 1970) and somewhat different from the Caucasian specimens reported by MARTYNOV, having narrower parameres and a broad dorsal lobe of segment IX. It was considered a subspecies of *R. fasciata* (MALICKY & SIPAHILER, 1993). *Rhyacophila fasciata aliena* was recorded from northeastern Turkey (SIPAHILER,

2005) and it is more similar to the Caucasian specimens than to the specimens from Iran.

Material examined. Turkey, Artvin, Borcka, Camili (Macahel), Didrele, (light), 1950 m, 41°27'N, 42°04'E, 5.8.1995, 1 male, 2 females; Maral Stream, 500 m, (light), 41°28'N, 41°55'E, 27.10.1995, 7 females; Efeler Stream, (light), 500 m, 41°27'N, 41°54'E, 27.10.1995, 5 males, 16 females; 700 m, 27.10.1995, 1 male; Camili, 500 m, 41°28'N, 41°53'E, 8.8.1995, 2 males, 3 females; 26.9.1994, 1 male; 11.7.1997, 450 m, 2 females; 17.9.1999, (light), 1 male, 3 females; Çermik, Lekoban direction, 1500 m, 41°20'N, 42°04'E, 9.8.2000, 3 males, 7 females; Aralık Village, Klaskur Stream, 350 m, 41°23'N, 41°44'E, 20.8.1983, 2 males; Şavşat, Meydancık, İmerhev Vadisi, Mısırlı Village, 1400 m, 41°26'N, 42°12'E, 5.8.1996, 10 males, 6 females; Yusufeli, Barhal Çayı, (light), 700 m, 21.7.2004, 1 male; Yusufeli, İspir direction, 690 m, Dokumacılar Village, 40°44'N, 41°28'E, 20.7.2004, 1 male (pupa); Rize, Çamlıhemşin, Çat, 1250 m, 40°51'N, 40°56'E, (light), 13.7.1984, 6 males; 15.7.1984, (light), 8 males, 2 females; Ayder, Yukarı Kavron, 2600 m, 40°50'N, 41°07'E, 10.10.2006, 1 male; Ayder, 1000 m, 40°54'N, 41°03'E, 5.9.1988, 1 female; Hisarcık Village, Çiçekliyayla, 2000 m, 40°47'N, 40°57'E, 24.8.1983, 7 males, 7 females; Zilkale, Tozkapan, 850 m, 40°52'N, 40°55'E, 17.8.1992, 1 male; Trabzon, Uzungöl, 1750 m, (light), 40°44'N, 39°38'E, 18.8.2005, 2 males, 3 females; Macka, Sümela, Coşandere, 1050 m, (light), 40°45'N, 39°36'E, 13.10.2007, 11 females; same place, 660 m, (light), 18.8.2008, 5 males, 10 females; 1000 m, Beşikdüzü, Sis Mountain direction, 700 m, 11.7.2008, 1 male (pupa); Of, Cumapazari, 500 m, 40°50'N, 40°15'E, 12.5.1997, 1 male, 2 females; Giresun, Tamdere, 1600 m, spring, 40°31'N, 38°21'E, 1.10.2008, 1 male; Kümbet Yaylası, stream, 1600 m, 40°33'N, 38°23'E, 2.10.2008, 1 female; Karagöl Yaylası direction, 1825 m, 40°33'N, 38°12'E, 1.10.2008, 1 male; Kümbet, Uzundere, (light), 1.10.2008, 1510 m, 40°33'N, 38°23'E, 2 males; Erzurum, Tortum, 16.6.1981, 5 males (pupae); Sivas, Koyulhisar, Eğriçimen Yaylası, 1600 m, 40°21'N, 37°47'E, 11.10.2007, 1 male, 2 male pupae; same place, 4.10.2008, 1 male, 2 females; leg. and coll. Sipahiler.

Rhyacophila fasciata ilgazica ssp. n.

Material. Holotype male. Turkey, Kastamonu, Ilgaz Mountains, Hacet, 41°05'N, 33°49'E, 1670 m, 13.11.2014; paratypes: Çankırı, Ilgaz, Ilgaz Mountains, Kırkpınar Yaylası, 1762 m, 41°00'N, 33°34'E, 8.11.2017, 2 males 1 female, leg. and coll. Sipahiler.

Antennae, maxillary palps, wings are pale brown, forewing with paler spots, head and thorax dorsally brown, legs are yellowish, the length of the anterior wings of male is 11-12 mm, of female 13 mm.

Male genitalia (Figures 12-16). The dorsal lobe of segment IX is moderately broad, nearly oval, the apical margin is broad and smooth; segment X beneath it is developed towards the sides and forms rounded lobes on the sides of the apical margin, the median part with two smaller lobes medially. The harpago of the inferior appendage is long, the dorsal part laterally as a prominent rounded lobe directed somewhat dorsally, the ventral part is narrow and long. The paramere of the phallic apparatus is laterally narrow at the base, dilated in the middle; the median portion is narrower towards the tip, without small spines; in ventral view, the basal and the median part are broad, narrowing subdistally,

the subdistal parts are straight, directing posteriorly; the ventral lobe of the aedeagus is broad at the base, rounded on the sides, narrowing towards the rounded apex; the lateroapical lobes of the dorsal lobe of the aedeagus are visible as rounded lobes in ventral view; laterally, between the aedeagus and the ventral lobe of the aedeagus protrudes a triangular projection with a pointed apex, of which the base is very large, beginning from the basal lobe and the aedeagus.

Female genitalia (Figures 17-21). The sclerotized part of segment VIII dorsally with a rounded median cavity on each side, which develops towards the sides and the anterior edge is longer than its width; in ventral view, the rounded sclerites are found on a darker area and close to each other.

Remarks. Rhyacophila fasciata ilgazica ssp. n., discovered in the Ilgaz Mountains in northwestern Turkey, is closely related to Rhyacophila fasciata aliena Martynov, 1916, which occurs in northeastern Turkey (Fig. 1), the Caucasus, and Iran (KORNOUHOVA, 1986; MIRMOAYEDI & MALICKY, 2002; MALICKY & SIPAHILER, 1993); the following differences are seen in the male genitalia: in R. f. aliena the harpago of the inferior appendage is laterally shorter and broader on the ventral lobe and the dorsal lobe is also short and broader, whereas they are long and narrow in the new subspecies; in R f aliena the paramere of the phallic apparatus is very broad, possessing short spines, laterally, and the distal portion is also shorter than in the new subspecies; in the related subspecies the distal parts of the parameres are slightly curved inside in ventral view, while in R. f. ilgazica ssp. n. they are straight; in R. f. aliena the ventral lobe of the aedeagus is short and narrower at the base and the dorsal lobe of the aedeagus is not visible in ventral view, while in the new subspecies the ventral lobe of the aedeagus is broader and longer; in R. f. aliena the projection between the aedeagus and the ventral lobe laterally is located in the middle of the apical edge and this projection is variable in shape; it can be a rounded lobe, an only dorsal or ventral edge rounded lobe, or a small triangular lobe, but the basal edge of all these lobes is narrow and not arising from the base of the aedeagus and the ventral lobe of the aedeagus. In addition, the apical lobes of the dorsal lobe of the aedeagus are not seen in ventral view. Rhyacophila fasciata ilgazica ssp. n. is also closely related to R. ivrizica SIPAHILER, 2006 (Sipahiler, 2006), found on the northern slopes of the Taurus Mountains, but differs from this species by the shape of the dorsal lobe of segment IX, which is pointed on the apical part, the narrow parameres, and the area between the aedeagus and the ventral lobe of the aedeagus has a small rounded lobe located somewhat dorsally. All these features are constant for this species.

The differences in the female genitalia are as follows: the median cavity of the new subspecies is rather narrow, while it is very large in R. f. mysica (Figures 1-5) and moderately broad in R. f. aliena (Figures 1-5); the ventral sclerites of R. f. ilgazica are nearly rounded, close to each other, and found on a darker area, while in R. f. mysica they are small, separate, and oval, and in R. f. aliena they are long and rather broad (Figures 1-5).

Rhyacophila fasciata mysica MALICKY & SIPAHILER, 1993

Antennae, maxillary palps, legs, and wings are pale brown, forewings are slightly spotted on the apical portions; the length of the anterior wings of females is 11-11.5 mm.

Female genitalia (Figures 22-26). In dorsal view the median cavity of the sclerotized part of segment VIII is large,

the subdistal parts are straight, directing posteriorly; the rounded, and located on the posterior margin. The ventral ventral lobe of the aedeagus is broad at the base, rounded on sclerites are small and narrow.

Material examined. Balıkesir, Bandırma, Manyas, 4 km south of Mürüvetler Village, 40°06'N, 23°03'E, 24.5.1996, 13 males, 3 females; 20 km northeast of Edremit, 600 m, 39°42'N, 27°14'E, 2.6.1992, 12 males, 1 female; Güre, Zeytinli direction, 25 km east of Güre, Kazdağları, Ayı Stream, (light), 400 m, 39°40'N, 26°49'E, 7.8.1994, 2 males, 6 females; Kazdağı Milli Parkı, Ayazma, 500 m, 39°45'N, 26°59'E, (light), 6.8.1994, 1 male, 1 female; 25.9.2014, 1 male (pupa); Altınoluk, Darıdere, 624 m, 39°39'N, 26°41'E, 24.9.2014, 1 female.

References

KORNOUHOVA, 1., 1986, The fauna of caddis flies of the Caucasus. - Latvijas Entomologs 29:60-84.

MALICKY, H. & SIPAHILER, F., 1993, Köcherfliegen (Trichoptera) aus der Türkei mit Bemerkungen zu weiteren Mediterranen Köcherfliegen. - Mitteilungen der Schweizerischen Entomologischen Gesellschaft 66: 457-478.

MARTYNOV, A.B., 1916, Notes sur quelques nouveaux Trichoptères du Musée du Caucase. - Bull. Mus. Cauc. Vol. 9: 186-202.

MIRMOAYEDI, A. & MALICKY, H., 2002, An updated checklist of caddisflies (Insecta, Trichoptera) from Iran, with new records. - Zoology in the Middle East 26:163-168.

SCHMID F., 1959, Trichoptères d'Iran. - Beiträge zur Entomologie 9: 200-219, 376-412, 683-698, 760-799.

SCHMID, F., 1970, Le genre *Rhyacophila* et la famille des Rhyacophilidae (Trichoptera). Mémoires de la Société Entomologique du Canada 66:1-329.

SIPAHILER, F., 1996, Studies on the Trichoptera fauna of southern Anatolia. - Entomofauna (Ansfelden) 17, 16:293-309.

SIPAHILER, F., 2005, A checklist of Trichoptera of Turkey. pp: 393-405 in K. Tanida and A. Rossiter (eds), 11th International Symposium on Trichoptera, (2003, Osaka), Tokai University Press, Kanagawa.

SIPAHILER, F., 2006, New species of Trichoptera from Turkey and the description of the unknown female of *Drusus ingridae* SIPAHILER, 1993 (Rhyacophilidae, Polycentropodidae, Hydropsychidae, Limnephilidae). -Braueria, 33:20-22.

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Figure 1: Distribution of *Rhyacophila fasciata fasciata* subspecies and its close relatives in Turkey.



Figures 2-6: *Rhyacophila fasciata aliena*, male genitalia, 2, leteral; 3, dorsal; 4, phallic apparatus, lateral; 5, ventral lobe of the aedeagus, ventral; 6, right paramere, ventral.

Figures 7-11: *Rhyacophila fasciata aliena*, female genitalia, 7, latera; 8, dorsal; 9, ventral; 10, bursa copulatrix, lateral; 11, bursa copulatrix, dorsal.



Figures 12-16: *Rhyacophila fasciata ilgazica* ssp. n. male genitalia, 12, latera; 13. dorsal; 14, phallic apparatus, lateral; 15, ventral lobe of the aedeagus, ventral; 16, right paramere, ventral.



Figures 17-21: *Rhyacophila fasciata ilgazica* ssp.n. female genitalia, 17, lateral; 18, dorsal; 19, ventral; 20. bursa copulatrix, lateral; 21, bursa copulatrix, dorsal.

Figures 22-26: *Rhyacophila fasciata mysica* female genitalia, 22, lateral; 23, dorsal; 24, ventral; 25, bursa copulatrix, lateral; 26, bursa copulatrix, dorsal.

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