

Contribution to the knowledge of the Iranian Orthopteroid insects II.

Description of three new species of Iranian Platycleidini and one of Drymadusini (Plates 1-8)

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Abstract

This paper contains a description of three new species of Platycleidini (*Montana zanjanica* spec. nov., *Montana gaskoi* spec. nov., *Platycleis sabinegaali* spec. nov.) and one of Drymadusini (*Bergiola gorokhovi* spec. nov.), all from Iran.

Keywords: Orthopteroid insects, Iran, new species

Introduction

The first part of this series (Esperiana 15) dealt with the faunistical data of the Orthopteroid insects collected during 19 recent zoological expeditions in Iran, and included a short zoogeographical analysis of the Orthoptera fauna. In that publication, two of the species were mentioned as *Platycleis* spec. Subsequent exhaustive studies showed that both of them represent undescribed species and that one of them belongs to the closely allied genus *Montana* ZEUNER, 1941. In addition, during our expedition in July 2010, when a vast number of Orthoptera was collected, two further species proved to be undescribed, representing the genera *Montana* ZEUNER, 1941 and *Bergiola* STSHELKANOVITZEV, 1910.

The majority of the short winged Central Asian species of these genera either occur sporadically, or they are not rare but mainly nocturnal, or known only in one of the sexes (mostly ♀♀). For this reason, many of the descriptions are based upon a single ♀, but a precise separation of the species needs careful study of both external and genital features.

***Montana zanjanica* spec. nov.** (pl. 1-6, figs. 3, 5, 10, 12, 16, 19, 20, 23, 25, 26, 30, 31, 33, 34, 35)

Holotype. ♀, IRAN, Prov. Zanjan, 2350 m., Alborz range (Sendan Mts.), Tarom v., 20 km NE of Zanjan, 15 - 16. 07. 2010., Leg.: P. GYULAI & A. GARAI, coll. A. GARAI (Miskolc, Hungary)

Paratypes. 1 ♂, 3 ♀♀, with the same data, coll. A. GARAI

Diagnosis. The Orthoptera Species File Online by Eades, D.C., D. Otte, M.M. Cigliano & H. Braun (Version 2.0/4.0.) includes 21 species in the genus *Montana* ZEUNER, 1941: 1. *armeniaca* (ZEUNER, 1930); 2. *barrettii* (BURR, 1912); 3. *carpetana* (BOLIVAR, 1887); 4. *daghestanica* (UVAROV, 1917); 5. *decticiformis* (STSHELKA-NOVITZEV, 1914); 6. *elegans* (UVAROV, 1934); 7. *eversmanni* (KITTARY, 1849); 8. *heinrichi* (RAMME, 1929); 9. *helleri* (ÇIPLAK et TAYLAN, 2006); 10. *kure* (ÜNAL, 2006); 11. *macedonica* (BERLAND et CHOPARD, 1922); 12. *medvedevi* (MIRAM, 1927); 13. *montana* (KOLLAR, 1833); 14. *richteri* (BEI-BIENKO, 1958); 15. *scheneri* (WERNER, 1905); 16. *striata* (THUNBERG, 1815); 17. *stricta* (ZELLER, 1849); 18. *taurica* (BOLIVAR, 1899); 19. *tianshanica* (UVAROV, 1933); 20.

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tomini (Pyl'nov, 1916); 21. *uvarovi* Karabag, 1950.), all of which are similar externally, but which have clearly recognisable diagnostic features.

Superficially, the ♀ of *M. zanjanica* spec. nov. resembles *M. richteri* (pl. 1-6, figs. 2, 9, 15, 24, 29; described from Iran, Scharoud i. Tasch, 2500-3000 m), from which it can be distinguished by the considerably larger size, the unmarbled, yellowish frons, the lack of the longitudinal blackish medial field on the pronotum, the posteriorly V-shaped, deeply incised subgenital plate and by the significantly shorter, strongly upcurved ovipositor. The ♂ of *M. richteri* is still unknown, so a comparison of the ♂♂ is impossible.

The ♀ of the new species also resembles that of *M. heinrichi* (pl. 1-6, figs. 1, 6, 7, 8, 13, 14, 18, 21; described from Elburs, Kiasar [Kiassar]), while the ♂♂ can be distinguished more easily. The ♀ of *M. zanjanica* differs in the smaller body, longer elytra, shorter ovipositor, the lack of the blackish stripe on the pleura and other features, while the ♂ has a larger medial incision of last abdominal tergite, and basally shorter and distally longer, dentated titillator.

M. uvarovi (pl. 4, fig. 22; type locality: Erzurum, Turkey) is also rather similar. The original coloration of the type ♀ is not recognisable, but the new species can be easily separated from it by the shorter tegmen, the much deeper posterior incision of the subgenital plate and by the much shorter and upcurved ovipositor.

The ♂ (type) of *M. uvarovi* is also damaged, but the lateral tooth of the cercus of *M. zanjanica* is positioned subterminally, while that of *M. uvarovi* is subbasal; the basal arm of the titillator of the new species is much shorter; the incision of the last abdominal tergite is half-lemon-shaped, in contrast, it is much narrower and smaller in *M. uvarovi*.

Less closely related is the newly described *M. gaskoi* spec. nov. (see below), from which *M. zanjanica* differs in structure of body, colouration and form of the head and vertex and ovipositor. The ♀♀ are somewhat similar in the structure of the subgenital plate, but the posterior depression is broadly U-shaped in *M. zanjanica* and not V-shaped as in *M. gaskoi*.

Description. Medium-sized, short winged species. ♀: body moderately stout. Vertex of head slightly rounded, fastigium projecting forward, with rounded margin; antennae filiform; pronotum almost flat, distally dilated. Abdominal sternite VII with a medial tubercle; last abdominal tergite narrow, with hairy V-shaped medial incision, the two small posterior extensions obtuse, triangular; subgenital plate shield-like, posteriorly incised, medial and lateral keels visible, slightly hairy; cerci moderately long, the distal third tapering to the apex; tegmina shorter than pronotum, tapering terminally. Ovipositor moderately wide, curved upward, the apical third of lower valve serrated.

♂. Similar to ♀, but with slightly smaller body and somewhat longer elytra. Last abdominal tergite with a broad medial cavity, covered with long dense hairs; cerci moderately long, rather straight, tapering to the apex, the lateral tooth, positioned subterminally, with a tiny acute apical spine; titillator with short spiny basal arms, denticulated on outer margin, smooth and slightly outcurved distally.

Colouration. Greyish-brown; frons not marbled, concolorous yellowish, with two small, dark markings in the middle; vertex more or less emarginated laterally and from the occiput with brownish suffusion; pronotum marked only with some black, scattered elongated dots; marginal field of the paranotum a whitish-ochreous stripe. Ground colour of tegmen light hazel brown, the main veins distally blackish, the wing pattern spots in the inter cells are the same.

Measurements (in mm). ♀: body 22-24; pronotum 7; tegmen 5-6; post femur 21-22; post tibia 19-20, ovipositor 11-12; ♂: body 22; pronotum 6.5; tegmen 5.5; post femur 20; post-tibia 18.

Etymology. The name of the new species refers to the collecting site.

***Montana gaskoi* spec. nov.** (pl.1-6, figs. 4, 11, 17, 27, 28, 32)

Holotype. ♀, IRAN, Prov. Kordestan, Zagros Mts., Zageje Bala (Zagheh-ye Bala), 16 -17. 6. 2000., Leg.: K. GASKÓ, coll. A. GARAI (Miskolc, Hungary)

Diagnosis. *M. gaskoi* spec. nov. differs from the Iranian *M. heinrichi* (pl. 1-6, figs. 1, 6, 7, 8, 13, 14, 18, 21; described from Elburs, Kiasar [Kiassar]) and *M. richteri* (pl. 1-6, figs. 2, 9, 15, 24, 29; described from Iran, Scharoud i. Tasch, 2500-3000 m) in the shorter, less rounded vertex, the lack of a dark brownish-blackish streak above the eyes, the concolorous pronotum and in the significantly different subgenital plate, which is

shallowed shield-like in *M. gaskoi* with a deep, broadly U-shaped depression posteriorly, while in the two allied species the subgenital plate broadens anteriorly, and is slightly depressed posteriorly.

Description. ♀: medium sized, short winged species; body dainty. Vertex rather short and flat; eyes relatively small, semiglobular; antennae filiform. Pronotum almost flat and quadrangular from dorsal view; sulcus slightly visible, anterior and posterior margins slightly rounded; ratio of lengths of paranotum : pronotum = 4:8. Last abdominal tergite narrow, with hairy, evenly shallow medial longitudinal incision; cerci hairy, conical, apices pointed. VIIth abdominal sternum with a medial tubercle; subgenital plate shield-like, swollen, wider than long, surface flat, with a deep depression posteriorly; lateral sclerite well defined, positioned premedially. Ovipositor narrow, moderately long, apically slightly curved upwards, the ventral margin of lower valve terminally serrated. Tegmina shorter than pronotum, with rounded apices; elytra shorter than tegmina.

Colouration. Head light brown without a dark streak behind the eyes. Body light brownish, with small darker spots. Pronotum and paranotum hazel brown, on the paranotum darker irregular pattern with the exception of the marginal field. Abdomen light brown; dorsal and lateral surfaces of abdominal tergites with brown irregular dots. Ground colour of tegmen light brown, with darker longitudinal and transverse veins and wing pattern. Hind femur with darker broad medial longitudinal field on both sides. Ovipositor light hazel brown in the base, with dark brown apex and dorsal part.

Measurements (in mm). ♀: body 20; pronotum 8; tegmen 4.5; post femur 21.5; post tibia 21; ovipositor 14.

Comparison of the main body measurements of the four relative species:

parts of body	<i>Montana zanjanica</i> spec. nov.		<i>Montana heinrichi</i> RAMME, 1929	<i>Montana richteri</i> BEY-BIENKO, 1958	<i>Montana gaskoi</i> spec. nov.
	♂	♀	♂	♀	♀
body	22	23	25	17.5	20
pronotum	6.5	7	8.2	5.9	8
elytra	5.5	5.6	5.3	4.5	4.5
post femur	20	21.3	23.4	16	21.5
post tibia	18	19.7	22.8	?	21
ovipositor	-	11.5	-	13	14

♂. Unknown.

Etymology. The new species is dedicated to the late Mr. Kálmán GASKÓ, the collector of the new species, specialist of the Cerambycidae of the World.

***Platycleis sabinegaali* spec. nov.** (pl. 1-6, figs. 36, 37, 38, 39, 40, 41)

Holotype. ♀, IRAN, Prov. Mazandaran, C. Alborz Mts., 2400 m., Mazandaran valley, 5 km E of Minac to Balade, 23 - 24. 8. 2000., leg.: P. GYULAI & A. GARAI, coll. A. GARAI, Hungary

Diagnosis. The Orthoptera Species File Online by EADES, D.C., D. OTTE, M.M. CIGLIANO & H. BRAUN (Version 2.0/4.0.) includes 34 species in the genus *Platycleis* FIEBER, 1853: 1. *affinis* FIEBER, 1853; 2. *albopunctata* (GOEZE, 1778); 3. *alexandra* (UVAROV, 1927); 4. *burri* UVAROV, 1921; 5. *buzzettii* MASSA et FONTANA, 2011; 6. *concii* GALVAGNI, 1959; 7. *curvicauda* PODGORNAYA, 1988; 8. *deminuta* FRUHSTORFER, 1921; 9. *elytris* UVAROV, 1910; 10. *escalerai* BOLIVAR, 1899; 11. *falx* (FABRICIUS, 1775); 12. *fatima* UVAROV, 1912; 13. *grisea* (FABRICIUS, 1781); 14. *iberica* ZEUNER, 1941; 15. *iljinskii* UVAROV, 1917; 16. *intermedia* (SERVILLE, 1838); 17. *irinae* SERGEEV et POKIVAJLOV, 1992; 18. *kabulica* BEI-BIENKO, 1967; 19. *kashmira* (UVAROV, 1930); 20. *latitabunda* STOLYAROV, 1968; 21. *longicauda* (TARBINSKY, 1930); 22. *longis* UVAROV, 1910; 23. *meridiana* STOLYAROV, 1969; 24. *pamirica* (ZEUNER, 1930); 25. *pathana* ZEUNER, 1941; 26. *ragusai* RAMME, 1927; 27. *romana* RAMME, 1927; 28. *sabulosa* AZAM, 1901; 29. *sogdiana* MISHCHENKO, 1954; 30. *speciosat* HEER, 1865; 31. *trivittata* BEI-BIENKO, 1951; 32. *turanica* ZEUNER, 1930; 33. *umbilicata* COSTA, 1886, 34. *waltheri* HARZ, 1966.

The descriptions of the three closely allied congeners, including *Platycleis sabinegaali* spec. nov., in this species group, are based only on single ♀♀. The type of *P. trivittata* has probably been lost (pers. com. A.V. GOROKHOV) and additional material of this species was unavailable, so the differential diagnosis was possible

only by reference to the original description. Superficially, *P. sabinegaali* resembles both *P. trivittata* (type locality: W-Iran, Asadabad) and the recently described *P. buzzettii* (plts. 5-6, figs. 42, 43; type locality: N Iran, Mazandaran, Rudbarak). It differs from *P. trivittata* in the remarkably longer tegmina, shorter ovipositor, the shape of the medial depression of anal tergite, which is hole-like in the new species, with medially a slight longitudinal incision, and not subquadrangular as in *P. trivittata*; there are two protuberances on abdominal sternite VII, in contrast to the single one on *P. trivittata*. Compared to *P. buzzettii*, the main key features of *P. sabinegaali* are as follows: it is smaller, the vertex is less rounded, more projected, the paranotum is much shorter dorsally, asymmetrically rounded ventrally, the tegmen and femur shorter, the ovipositor slightly smaller. The anal tergite is slender, shield-like, antero-medially with slight obtuse extension, laterally more elongated. In *P. sabinegaali*, the shape of the medial depression of anal tergite is semiglobular hole-like with only a tiny split in the middle, and lacks the small subtriangular posterior processes and short depression with concave incision in the middle, as in *P. buzzettii*. Abdominal sternite VII in *P. sabinegaali* is slightly quadrangular, the first protuberance joined symmetrically with the two smaller lateral ones, and is larger, positioned more anteriorly and not medially, while the posterior one, slightly transversely keel-like, is more projected medially. The subgenital plate, too, is strikingly different, the two lateral lobes are not rounded, subtriangular, but more divided, medially constricted, apically rounded, rather lanceolate, and the medial incision is conspicuously much broadened.

Description. Medium-sized, short winged species. ♀: head moderately wide; eyes relatively small, semiglobular; vertex broad, rounded; antennae filiform. Pronotum slightly depressed, diverging posteriorly, medial carina distinct from the metazona, sulcus evident, widely V-shaped; anterior margin of pronotum straight, posterior margin rounded; lateral lobes of pronotum (paranotum) moderately deep; ratio of lengths of paranotum : pronotum = 4:7. Last abdominal tergite rather narrow, shield-like with hairy, deep hole-like depression and cavity-like incision medially; VIIth abdominal sternum with two tubercles, the anterior one developed transversally in whole surface, the posterior one shorter, placed in the middle. Subgenital plate is described above in the diagnosis. Cerci hairy, broader basally, distally tapered, with pointed apices with a tiny spine at the tips; tegmina longer than pronotum, more than half length of 6th abdominal tergite, tapering to the apex; elytra shorter than tegmina. Ovipositor moderately long, distally upcurved, finely serrated on the posterior part of the lower valve. **Colouration.** Head marbled, brown with darker patterns above the eyes. Body brownish with dark brown pattern; pronotum and paranotum marked with irregular, dark brown patterns, posterior margin of paranotum light brown. Abdomen brown, dorsal and lateral surfaces of abdominal sternum with darker irregular spots. Ground colour of tegmen light hazel-brown, with dark longitudinal and transverse veins. Outer and inner surface of hind femur with transverse dark brown stripes. Ovipositor dark brown, basal part near gonangulum ochreous. **Measurements** (in mm). ♀: body 22; pronotum 6.5; tegmen 10; postfemur 19.5; post-tibia 18; ovipositor 10. ♂: Unknown

The main diagnostic measurements of the ♀♀ of these three species are as follows:

parts of body	<i>Platycleis trivittata</i> Bey-Bienko, 1951	<i>Platycleis buzzettii</i> MASSA & FONTANA, 2011	<i>Platycleis sabinegaali</i> spec. nov.
body	♀ 23	♀ 25.3	♀ 22
pronotum	6.5	10.88	6.5
elytra	4.5	13.6	10
post femur	25	25.6	19.5
post tibia	?	6.56	18
ovipositor	13	11.52	10

Habitat: Iranian mountain steppe vegetation at medium altitude, with Caspian influences.

Etymology. The new species is dedicated to Ms. Sabine GAAL-HASZLER, the scientific employee at the Lepidoptera Collection of Naturhistorisches Museum, Wien.

***Bergiola gorokhovi* spec. nov.** (pl. 6, figs. 48, 49, 52, 53, 54)

Holotype. ♂, IRAN, Prov. Khorasan, Kuh-e Binaloud, 2000 m., 40 km S of Mashad, near Moghan, 08-09. 07. 2010., Leg.: P. GYULAI & A. GARAI, coll. A. GARAI

Diagnosis. The Orthoptera Species File Online by EADES, D.C., D. OTTE, M.M. CIGLIANO & H. BRAUN (Version 2.0/4.0.) includes the following seven species in the genus *Bergiola* STSHELKANOVITZEV, 1910 (= *Bergiella* STSHELKANOVITZEV, 1907):

1. *balchaschica* (STSHELKANOVITZEV, 1907) (Middle Asia: Kazakhstan, Turkmenistan and Uzbekistan); 2. *grandis* TARBINSKY, 1930 (Russian Turkestan); 3. *hissarica* BEI-BIENKO, 1951 (Tajikistan, Hissar Mts.); 4. *mongolica* UVAROV, 1928 (Mongolia: Gobi Altai); 5. *montana* BEI-BIENKO, 1951 (Middle Asia: Turkmenistan); 6. *persica* UVAROV, 1928 (N-Persia: Shakabar); 7. *popovi* BEI-BIENKO, 1951 (Middle Asia: Turkmenistan).

B. gorokhovi spec. nov. is most closely related to *B. persica* (pl. 6, figs. 44, 45, 50), 1928 and *B. montana* (pl. 6, figs. 46, 47, 51). The type of *B. persica* is also ♂, but in worn condition and almost legless, although the main diagnostic features in the caudal abdominal segment are clearly recognizable. The best features for differentiating the three species are in the last abdominal tergite and cercus. From the dorsal view, the last abdominal tergite of *B. gorokhovi* is significantly different, the tergite rather subquadrangular, almost straight anteriorly and without deep depression posteriorly, which instead is rather shallowly and widely U-shaped, with two small triangular extensions postero-medially, whereas in *B. persica* it is asymmetrically tapered antero-medially, then broadly rounded to the lateral side and broadly double depressed posteriorly. The last abdominal tergite of *B. montana* (fortunately the type is also ♂) more like that of the new species, but the tergite of *B. gorokhovi* is narrower. The medial incision of the tergite is strongly reduced, rather a small a depression, while in *B. montana* it is obviously broader and deeper, and in *B. persica* is much slender, fissa-like, elongated medial triangle.

The cercus of the new species is much similar to those of *B. montana* but shorter and broader, stout, the inner sub-medial tooth is downcurved. The cercus of *B. persica* it is of a strikingly different shape, the tooth positioned subbasally and much larger.

Although the Turkmenian *B. popovi* is externally somewhat similar, it can easily be distinguished by the basally much more slender cercus, which is evenly narrower throughout with the tooth borne apically. Zoogeographically, the southernmost limit of the range of *B. balchaschica* is nearest that of *B. gorokhovi*, but a check of the last tergite of the ♂, the subgenital plate and cerci indicate a closer relationship to the Turkestanian *B. grandis*.

Description. ♂ (holotype): body the same average size of those of the congener species. Head very similar to those of the two allied species, but the fastigium is slightly less projecting. Pronotum slightly gibbous, without lateral and medial keels, posteriorly almost straight; paranotum subtriangular, the lateral keels slightly arched; tegmina short, overlapping, less than half length of pronotum.

Hind femur relatively long, three times longer than pronotum, swollen in basal half; ventrally with three spines on the outer and two on the inner side. The last abdominal tergite wide, with two small, pointed triangular processes posteriorly, and a shallow semi-elliptical depression in the middle; cerci robust, with an elongated process apically and an internal tooth sub-medially, with a tiny spine apically, slightly downcurved; subgenital plate relatively long, with a small triangular incision in the middle; styli short, conical, slightly tapering terminally, the apex rounded.

Colouration. Body and legs light brown with scattered dark brown dots on both sides of the hind femur. Pronotum with two lateral longitudinal dark brown wedges; most parts of the paranotum darker marbled, with a pale creamy irregular marginal field, which is semilunar latero-medially; ground colour of tegmen blackish brown, the veins and marginal fields ochreous. Tarsi bicoloured.

Measurements. ♂: total length of body 16 mm, length of pronotum 4.2 mm, height of pronotum 3.5 mm; length of hind femur 13 mm, length of hind tibia 12 mm.

Etymology. The new species is dedicated to Mr. Andrey Vasil'evich GOROKHOV, specialist on the Orthopteroid insects and their taxonomy, leading research scientist of the Zoological Institute of the Russian Academy of Sciences, St. Petersburg.

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