Species of the genus *Chrysomalla* Förster from Kazakhstan and Middle Asia, with description of two new species (Hymenoptera, Chalcidoidea: Pteromalidae)

K.A. Dzhanokmen

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Chrysomalla huberi sp. n. and *Ch. rara* sp. n. are described from Kazakhstan and Middle Asia. A key to females and males of five species of the genus from the region examined is presented.

K.A. Dzhanokmen, Institute of Zoology, 93 Al-Farabi Ave., Almaty 050060, Kazakhstan.

The genus *Chrysomalla* was described by Förster (1859). The type species of the genus (by monotypy), *Ch. roseri* Förster, is rather rare, but widely distributed in W Palaearctic. Graham (1969) published information on this genus with one included species, *Ch. roseri*. Other species were described from SE Europe (Zerova, 1973), SW Asia and N Africa (Bouèek, 1972), Middle Asia (Dzhanokmen, 1981) and N America (Darling, 1986). Some species of *Chrysomalla* can be distinguished from each other by the size and shape of apical spurs on hind tibia. For the first time, this feature is used for identification of *Chrysomalla* species.

The holotypes of both new species will be deposited at the Zoological Institute in St. Petersburg; other examined specimens, including the paratypes of new species, are deposited at this institute and the Institute of Zoology in Almaty.

Chrysomalla huberi sp. n.
(Figs 1-5)

Holotype. ♀, **W Kazakhstan**, Atyrau Prov., 20 km E of Karabatan, 21.V.2003, V. Kazenas.

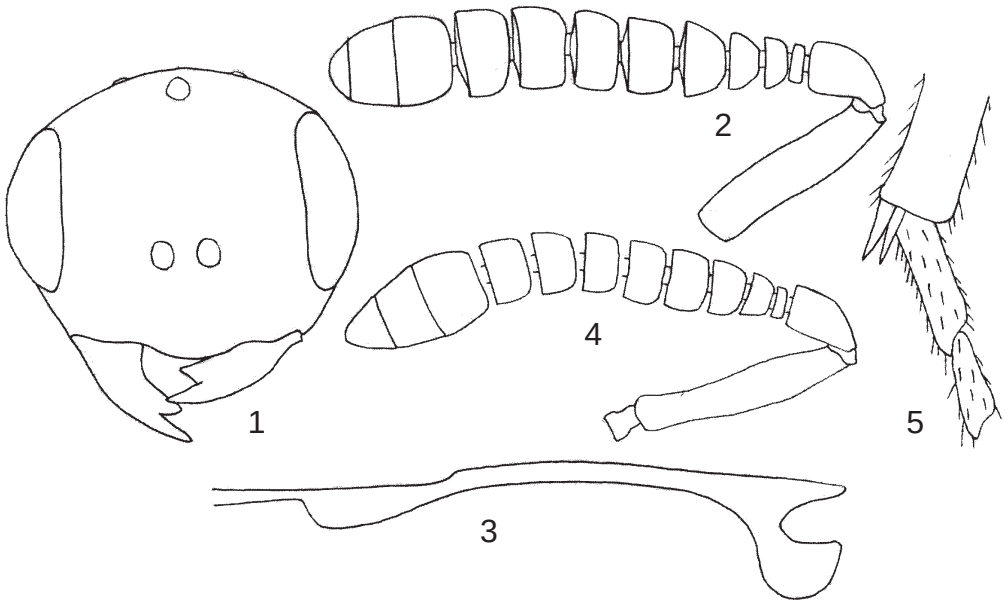
Paratypes. **W Kazakhstan**: 3 ♀, same data as holotype; 1 ♀, 16-30 km SE of Karabatan, 22.V.2003, V. Kazenas; **SE Kazakhstan**: 5 ♀, Almaty Prov., 75 km NW of Almaty, 17.V.2000, K. Dzhanokmen; **Uzbekistan**: 2 ♀, near Dzhar-Kurgan, sands, 10.IV.1964, V. Tobias; **Turkmenistan**: 2 ♀, 1 ♂, Tedzhen River, Puli-Khatum, on herbaceous plants, 30.IV.1990, S. Belokobylskij; 1 ♀, 40 km SE of Puli-Khatum, Zulfagar Range, on herbaceous plants, 5.V.1990, S. Belokobylskij.

Description. Female. Head about 2.2 times as broad as long. POL = 1.3 OOL. Major diameter of eye 1.3 times the minor diameter and 3.3 times the height of gena. Gena short. Antennae inserted slightly above the level of ventral edge of eyes. Anterior margin of clypeus produced and strongly curved. Both mandibles 2-toothed (Fig. 1). Maxillary palpi 4-segmented; labial palpi 2-segmented. Antenna 13-segmented. Antennal flagellum strongly clavate. All anelli and funicular segments strongly transverse (Fig. 2). Anterior surface of head clearly reticulate, with distinct piliferous punctures.

Pronotum much narrower than mesoscutum, its anterior edge slightly margined. Pronotal collar reticulate, with a few piliferous punctures amongst reticulation. Mesoscutum finely transversely aciculate, or alutaceus, with piliferous punctures along the notauli. Notauli complete and deep throughout. Scutellum 2.5 times as long as propodeum, with frenal furrow, almost smooth, with 4 to 5 piliferous punctures at sides. Propodeum without median carina; its median area with very weak alutaceous sculpture and with traces of fine longitudinal wrinkles. Spiracles separated from metanotum by about their major diameter. Fore wing: basal cell and basal vein bare; costal cell sparsely hairy in distal half; parastigma notably thickened; postmarginal vein short, slightly shorter than stigmal vein; stigma large (Fig. 3). Hind tibia with 2 short, more or less equal and not widened spurs (Fig. 4).

Metasoma as long as or slightly shorter than mesosoma. Hypopygium extending about half or somewhat more than half way along metasoma.

Body wholly brightly metallic emerald-green; head and thorax sometimes with golden reflections in places. Antennal scape concolorous with body; flagellum fuscous; tegulae light; wings



Figs 1-5. *Chrysomalla huberi* sp. n. **1**, head, female; **2**, antenna, female; **3**, fore wing venation, female; **4**, hind leg (tip of tibia and first and second tarsal segments), female; **5**, antenna, male.

hyaline or whitish hyaline; venation light; wing pilosity light and less conspicuous; coxae and proximal parts of all femora concolorous with thorax; distal parts of all femora, tibiae and 1 to 3 segments of tarsi slightly yellowish. Length 2-2.3 mm.

Male. Similar to female, but antennae less clavate (Fig. 5).

Comparison. The new species resembles *Ch. pallidivena* Zerova, but differs in having the antennae more clavate, tegulae light, postmarginal vein shorter, and stigmal vein more widened.

Etymology. The species is named after John Huber, eminent Canadian chalcidologist who made valuable contribution to the study of Chalcidoidea.

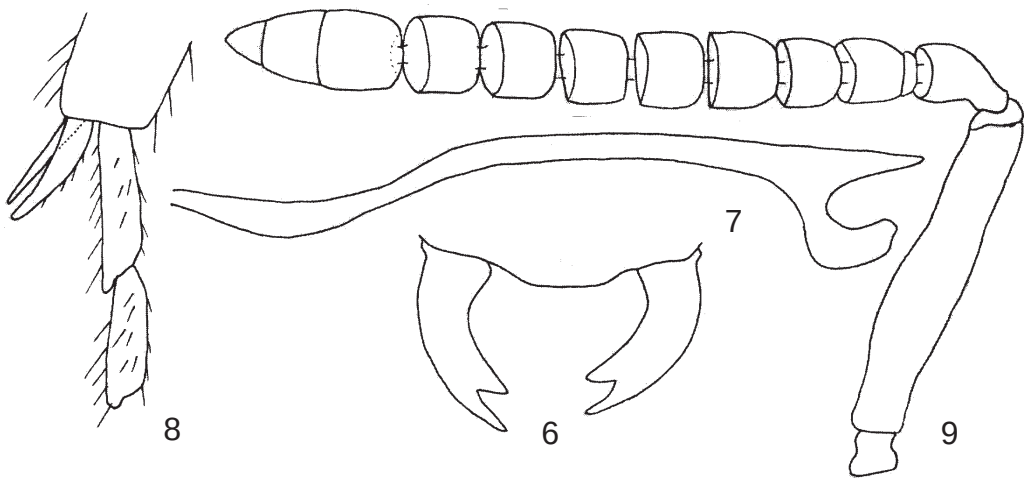
Chrysomalla rara sp. n.
(Figs 6-9)

Holotype. ♀, **SE Kazakhstan**, Almaty Prov., 75 km NW of Almaty, 17.V.2000, K. Dzhanokmen.

Paratypes. **SE Kazakhstan**: 1 ♀, same data as holotype; **Turkmenistan**: 2 ♀, 1 ♂, Gezgyadyk Range, 28 km SE of Puli-Khatum, steppe, 3.V.1990, S. Belokobylskij; 2 ♀, Akarcheshme, Badkhyz Nature Reserve, on herbaceous plants, 2.V.1990, S. Belokobylskij; 1 ♀, Kizyldzhar, Badkhyz Nature Reserve, steppe, 6.V.1990, S. Belokobylskij.

Description. Female. Head about 2.1 times as broad as long. POL subequal to OOL. Major diameter of eye 1.4 times the minor diameter and 2.8 times the height of gena. Antennae inserted at the level of ventral edge of eyes. Anterior margin of clypeus slightly produced, truncated medially. Both mandibles 2-toothed (Fig. 6). Maxillary palpi 4-segmented; labial palpi 2-segmented. Antenna 13-segmented. Funicle filiform or nearly so. Anellus strongly transverse; funicular segments 1-5 quadrate, segments 6 and 7 slightly transverse. Anterior surface of head clearly reticulate, with distinct piliferous punctures amongst reticulation.

Pronotum clearly narrower than mesoscutum, its anterior edge slightly margined; pronotal collar reticulate, with a few piliferous punctures amongst reticulation. Mesoscutum finelly transversely aciculate, with a few piliferous punctures along the notauli. Scutellum 1.8 times as long as propodeum, with weak frenal furrow. Scutellum, except for its base and frenum, with traces of hardly visible aciculate-reticulate sculpture; base of this sclerite and frenum almost smooth, with 4 piliferous punctures at sides. Propodeum with very fine reticulate sculpture and virtually obsolete median carina. Spiracles separated by about their major diameter from hind margin of metanotum. Fore wing: basal cell and basal vein bare; lower surface of costal cell with scattered hairs in distal third; parastigma slightly thickened; postmarginal vein slightly shorter than stigmal



Figs 6-9. *Chrysomalla rara* sp. n. **6**, lower part of head (anterior margin of clypeus and mandibles), female; **7**, fore wing venation, female; **8**, hind leg (tip of tibia and first and second tarsal segments), female; **9**, antenna, male.

vein; stigma moderate-sized (Fig. 7); speculum on upper surface of wing extending below marginal vein almost to base of stigmal vein; lower surface of wing below marginal vein pilose; apical margin of wing ciliate. Hind tibiae with two spurs of unequal length and width (Fig. 8).

Metasoma shorter than mesosoma. Tip of hypopygium situated at the level of about two-thirds of the metasoma length.

Body purplish green to bright green, strongly metallic, with some golden-green reflections; antennal scape concolorous with body; flagellum fuscous; tegulae brown, sometimes with a slight metallic tinge; upper surface of wing moderately thickly haired, pilosity conspicuous; venation more or less light; all coxae concolorous with body; trochanters fuscous; femora, tibiae and tarsi yellowish; hind femora very slightly darkened basally. Length 1.5-2.3 mm.

Male very similar to female. Antenna as in Fig. 9.

Comparison. This species is close to *Ch. roseri* Förster, but differs especially in having more strongly developed spurs of the hind tibiae (particularly one of them), light legs, fore wings immaculate and median carina of propodeum very weak.

Etymology. The species name is formed from the Latin 'rarus, -a, -um' (rare, unusual).

Chrysomalla pallidivena Zerova, 1973
(Figs 10-13)

Material examined (new records). **E Kazakhstan**: 1 ♀, East Kazakhstan Prov., Irtysh valley near Semenovka village, pine forest, on herbaceous plants, 5.VII.1978, K. Dzhanokmen; 2 ♀, 23 km NW of Semenovka village, pine forest, on herbaceous plants, 6.VII.1978, K. Dzhanokmen. **SE Kazakhstan**: 5 ♀, Almaty Prov., 75 km NW of Almaty, 17.V.2000, K. Dzhanokmen; **Uzbekistan**: 1 ♀, Dzhar-Kurgan, sands, 10.IV.1964, V. Tobias; **Turkmenistan**: 1 ♂, Tedzhen River, Puli-Khatum, on herbaceous plants, 30.IV.1990, S. Belokobylskij; 1 ♂, same locality, steppe, 29.IV.1990, S. Belokobylskij.

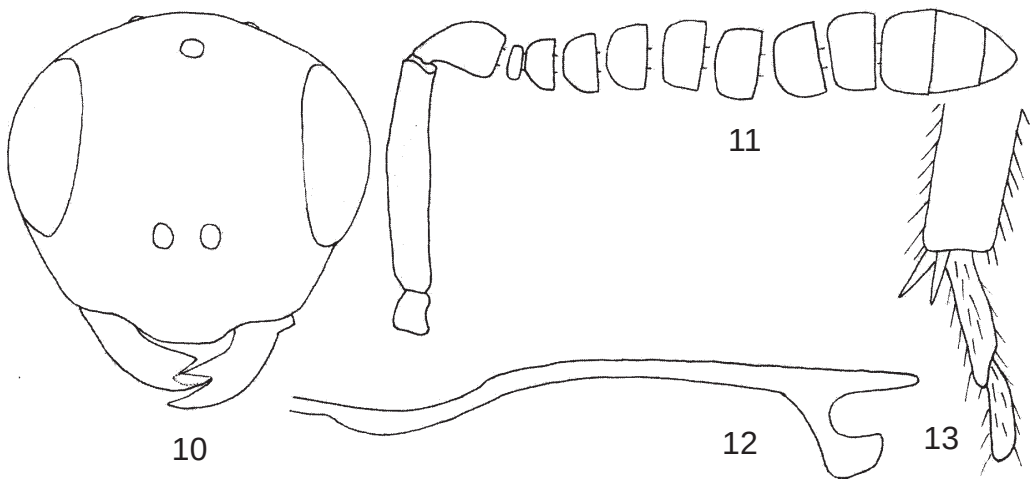
Note. Specimens from SE Kazakhstan, Turkmenistan and Uzbekistan differ from the typical ones in the light distal halves of femora.

Distribution: Ukraine, Kazakhstan, Uzbekistan, Turkmenistan.

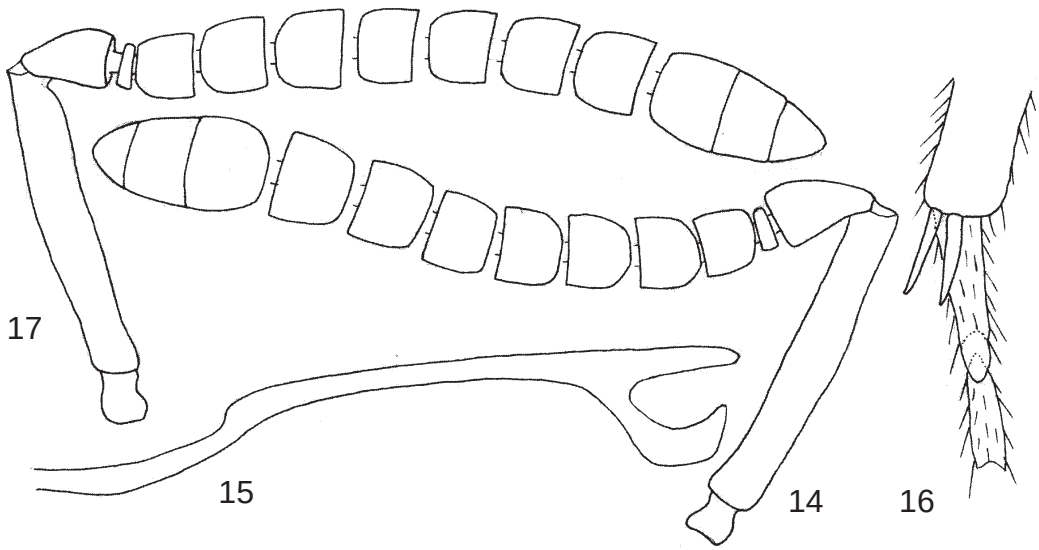
Chrysomalla roseri Förster, 1859
(Figs 14-17)

Material examined. **W Kazakhstan**: 33 ♀, 19 ♂, Mangystau Prov., Shevchenko (now Aktau), botanic garden, on herbaceous plants, 6-29.VI.1989, K. Dzhanokmen; 1 ♀, Atyrau Prov., 50 km NE of Atyrau (16-30 km SE of Karabatan), 22.V.2003, V. Kazenas; **N Kazakhstan**: 3 ♀, Akmolinsk Prov., Shchuchinsk, on herbaceous plants, 27.VII-24.VIII.1976, K. Dzhanokmen; 1 ♀, Zerenda village, on blooming *Berteroa incana* (L.) DC., 15.VII.1976, K. Dzhanokmen; **E Kazakhstan**: 1 ♀, East Kazakhstan Prov., Irtysh valley near Semenovka village, outskirts of pine forest, on herbaceous plants, 5.VII.1978, K. Dzhanokmen; 3 ♀, 2 ♂, 23 km NW of Semenovka village, on *B. incana*, 6.VII.1978, K. Dzhanokmen; 1 ♀, 2 ♂, near Semipalatinsk, Staraya krepost', flood land of Irtysh River, 30.VI.1978, K. Dzhanokmen.

Distribution: Kazakhstan, Tajikistan, Germany, former Czechoslovakia, Austria, Hungary, former Yugoslavia, Moldavia, Ukraine, Azerbaijan. The species was recorded from W Kazakhstan by Nikolskaya & Kyao (1954). It was reared



Figs 10-13. *Chrysomalla pallidivena* Zerova, female. **10**, head; **11**, antenna; **12**, fore wing venation; **13**, hind leg (tip of tibia and first and second tarsal segments).



Figs 14-17. *Chrysomalla roseri* Förster. **14**, antenna, female; **15**, fore wing venation, female; **16**, hind leg (tip of tibia and first and second tarsal segments), female; **17**, antenna, male.

from cocoons of *Tychius flavus* Beck. (Curculionidae) in the Ukraine.

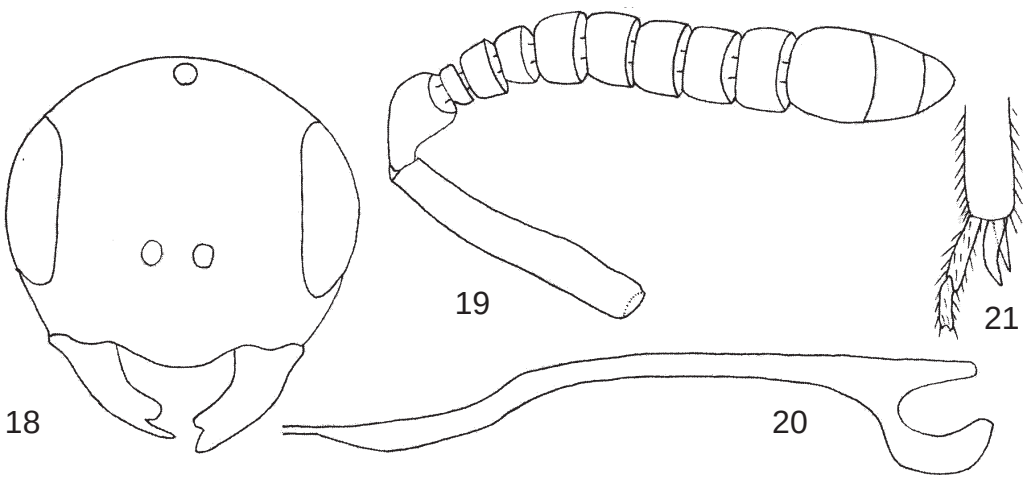
Chrysomalla tobiasi Dzhanokmen, 1981
(Figs 18-21)

Material examined. **S Kazakhstan**: 1 ♀, Kzyl-Orda Prov., near Kzyl-Orda, flood land of Syr-Darya River, 29.IV.1968, collector unknown; 1 ♂, South Kazakhstan Prov., 50 km NW of Bairkum village, on herbaceous plants, 14.V.1992, K. Dzhanokmen; **Uzbekistan**: Dzhar-Kurgan, sands, 10.IV.1964, V. Tobias (Dzhanokmen, 1981).

Distribution: Kazakhstan, Uzbekistan.

Key to Kazakhstan species of *Chrysomalla* (females and males)

1(6). Spurs of hind tibia weaker, relatively shorter and narrower (Figs 4, 13, 16), their length subequal to or slightly greater than half the length of first tarsal seg-



Figs 18-21. *Chrysomalla tobiasi* Dzhanokmen, female. **18**, head; **19**, antenna; **20**, fore wing venation; **21**, hind leg (tip of tibia and first and second tarsal segments).

ment and their maximum breadth less than half maximum breadth of first tarsal segment. Hind femora and tips of hind tibiae not expanded. All femora partly to entirely fuscous, with metallic tinge.

2(3). Antennal flagellum hardly clavate, almost filiform (Figs 14, 17). Fore wing usually with more or less fuscous cloud below marginal and stigmal veins; stigma strongly elongated (Fig. 15); pilosity of fore wing conspicuous . . . . . **Ch. roseri** Förster

3(2). Antennal flagellum strongly clavate (Figs 2, 5, 11). Fore wing immaculate; stigma not elongated (Figs 3, 12); pilosity of fore wing less distinct.

4(5). Postmarginal vein of fore wing slightly longer than stigmal vein; stigma less thickened (Fig. 12). Antennal flagellum less strongly clavate (Fig. 11). Hind femora not expanded; all femora dark, metallic. Head in front view more rounded (Fig. 10) . . . . . **Ch. pallidivena** Zerova

5(4). Postmarginal vein of fore wing slightly shorter than stigmal vein; stigma more thickened (Fig. 3). Antennal flagellum more strongly clavate (Figs 2, 5). Hind femora rather conspicuously expanded. All femora dark with a metallic tinge in about proximal half and light in distal half. Head in front view more transverse (Fig. 1) . . . . . **Ch. huberi** sp. n.

6(1). Spurs of hind tibia stronger, relatively longer and wider, their length subequal to or greater than three quarters the length of first tarsal segment and the maximum breadth of the strongest spur only hardly less than maximum breadth of first tarsal segment (Figs 8, 21). Hind femora and tips of hind tibiae conspicuously expanded. All femora, tibiae and tarsi entirely light, more or less yellowish testaceous.

7(8). Antennal flagellum distinctly clavate (Fig. 19). Postmarginal vein of fore wing shorter than stigmal vein (Fig. 20); tegulae light, without metallic tinge. Antennal scape of female light, without metallic tinge; antennal scape of male dark, with a strong metallic tinge . . . . . **Ch. tobiasi** Dzhanokmen

8(7). Antennal flagellum slightly clavate, almost filiform (Fig. 9). Postmarginal vein of fore wing longer than stigmal vein (Fig. 7); tegulae dark with a metallic tinge. Antennal scape of female and male dark with a metallic tinge . . . . . **Ch. rara** sp. n.

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