

Revision of the genus *Rohdendorfia* Smirnov, 1924 (Diptera, Syrphidae)

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The Palaearctic genus *Rohdendorfia* is revised. Three species names are valid: *R. alpina* Sack, 1938, *R. dimorpha* Smirnov, 1924 and *R. montivaga* Violovitsh, 1984. *R. bactriana* Violovitsh, 1984 is a junior synonym of *dimorpha*, **syn. nov.** New material gives a better understanding of the distribution of this high alpine genus.

Key words: *Rohdendorfia*, revision, key, Syrphidae.

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Introduction

Genus *Rohdendorfia* Smirnov, 1924 comprises a small group of species confined to the Old World. The species have great similarity to species of the genera *Platycheirus* Le Peletier & Serville, 1828 and *Melanostoma* Schiner, 1860. They differ, however, in a coarsely punctured frons, scutum and scutellum, the central part of occiput is very broad, and the ocellar triangle more removed from the occiput. The profile of face is rather “nosy”, and the face widening downwards in the male. Abdomen is rather short, broad and flat, with large yellowish markings.

At present three species are known; *R. alpina* Sack, 1938, *R. dimorpha* Smirnov, 1924 and *R. montivaga* Violovitsh, 1984, see key below. *R. hedickei* Reinig, 1935 is a junior synonym of *Spazigaster ambulans* (Fabricius, 1798), see Claussen 1988.

The interest in this genus may be caused by the small number of specimens in collections and museums, due to difficulties in achieving material of these high alpine species. However, a special study program of the high mountain

fauna of northern Asia, started by Zoological Museum, Novosibirsk (ZMN), helped us to collect a rich material and made it possible to compare specimens from different parts of Asia and northern Caucasus.

As mentioned *Rohdendorfia* species have great similarity to *Platycheirus*, and Thompson and Rotheray (1998) regard *Rohdendorfia* as a subgenus of *Platycheirus*. In a recent paper by Mengual et al. (2008) two representatives of *Rohdendorfia* were included in a recent molecular phylogeny of Syrphinae. This study placed *Rohdendorfia* as sister to *Spazigaster* + *Syrphocheilosia*, and *Pyrophaena* as sister to all these.

Material and methods

It appears from previous studies on *Rohdendorfia* (Stackelberg 1965, Violovitsh 1984 and Claussen 1988) that the species are rare in nature. This impression was also in our minds before ZMN began its special study of high mountain biocoenosis in Altai and Middle Asia. It appeared,

however, that representatives of this genus were rather common above 2500 m above sea level.

In our study we used materials from Zoological Museum, Institute of Animal Systematics and Ecology Siberian Branch of RAS, Novosibirsk; Zoological Museum, Moscow University, Moscow, Zoological Institute of RAS, St. Petersburg and Naturhistorisches Museum, Basel.

The *Rohdendorfia* species have a very unusual behavior when compared with other syrphids. Males practically do not visit flowers, and females are seen there only sometimes. The species were observed sitting on stones most of the time, or flying from one place to another. They were difficult to discover when sitting on dark stones.

Only in one place, at the high altitude Plateau Ukok, SE Altai, *R. alpina* was very common and

seen everywhere in large numbers. The species was sitting on stones in slopes at the extreme mountain top, under shelter of the wind. They very often merged in the colours of lichens and could be visible only when they flew up. The ecology of *R. alpina* was well described by Claussen (op cit.).

***Rohdendorfia alpina* Sack, 1938**
(FIGS 2A–J)

Rohdendorfia alpina Sack, 1938: 222

Chilosia reinigi alpina Lindner, 1954

Type localities. “Val Cluozza: Murtérgrat, Scarlital: Piz Vallatscha, SO-Grat; Munt Tablasot” (Switzerland). Types deposited in Naturhistorisches Museum, Basel.

Type material studied. Male and female syntypes. Male labelled “Typus” (red label), “F. M. Tablasot, D. 19.7.32, H. 25–2760 m, B. fliegend, F. Keiser” (white label), “Nationalpark Engadin W.N.P.K.” (white label), “*Rhodendorfia alpina* sp. n. ♂ det. Sack” (white label) and “594” (orange label). The male has lost its antennae. Female labelled “Typus” (red label), “F. Murtergrat, D. 21.7.29, H. 2550–2650 m”, “F. Keiser” (white label), “Nationalpark Engadin W.N.P.K.” (white label), “*Rohdendorfia alpina* sp. n. ♀ det. Sack” (white label) and “3363” (white label). We have selected the male as lectotype and the female as paralectotype and labelled them accordingly.

Additional material. **Russia**, northern Caucasus, Kabardino-Balkarian Republic, Baksan gorge, foothill of El’brus Mountain, at 2500–3000 m 24.VII.1999 2♀♀ (A. Barkalov). **Republic Altai**, Katunskij range, 15 km S of Katanda village, at 2300–2400 m 14.VII.1983 2♂♂3♀♀ (A. Barkalov); Kosh-Agachskij district: watershed of rivers Usaj and Kalguty 27.VI.2001 10♀♀ (V. Zinchenko); 25 km E of Kokorya settlement, Sajlyugem Mountain 22.VI.2001 1♀ (V. Zinchenko); Zerlyukol’-Nur lake, 49,6°N, 88,2°E 2300–2400 m 23.VI.2005 45♂♂25♀♀ (A. Barkalov, V. Zinchenko); Rodon source, Ghumaly river 49,46°N, 88,5°E at 2300 m 24.VI.2005 1♀ (V. Sorokina); Pass Teply Klyuch



FIGURE 1. Plateau Ukok, Altai and a collecting site of *Rohdendorfia alpina* (bottom). Photos: A.V. Barkalov.

49,4°N, 88°E at 2900 m 24.VI.2005 7♂♂4♀♀ (A. Barkalov); Plato Ukok, environs of lake Muzdy-Bulak 49,3°N, 87,7°E at 2420m 24.VI.2005 66♂♂79♀♀ (A. Barkalov); Plato Ukok, 8 km NE of Majtobe Mountain, inflow of Il'degem river 49°34'N, 87°43'E at 2500 m 10.VII.2006 5♀♀ (V. Sorokina and T. Novgorodova); Plato Ukok, lake Kal'dgin-Kul'-Bas 49°19'N, 87°26'E at 2400–2450 m 21.VII.2006 1♀ (V. Sorokina); Severo-Chujnsrij Range, upper stream of Akturu river 50,1° N, 87,74° E at 2500–2800 m 4.–6. VII.2006 2♀♀ (A. Barkalov); **Republic Tuva**, Tzagan-Shibetu range, 89 km NE of Mugur-Aksy settlement, at 2700–3100 m 22.–23.VII.1993 6♂♂1♀♀ (A. Barkalov); 35 km SE of Mugur-Aksy settlement, Mongun-Tajga Mountain, at 3100 m 23.VII.1993 1♂1♀ (A. Barkalov). **Republic Georgia**, Kazbegi, Gletscherfuss 6 km W Kazbegi, 2800–3000 m (42°39,61'N, 044°33,39'E), 02.VIII.2001, 6♂♂ (J.-H. Stuke), Kazbegi, Schotterflächen 3 km SSE Kobi (42°31,21'N, 044°30,92'E), 6♀♀ (J.-H. Stuke), in coll. Stuke and Nielsen.

Literature with further information on the species. Stackelberg 1965: 907; Violovitsh 1984: 89; Peck 1988: 76; Claussen 1988: 113

***Rohdendorfia dimorpha* Smirnov, 1924**
(FIGS 3A–F)

Rohdendorfia dimorpha Smirnov, 1924: 94

Platychirus nigripes Enderlein, 1933

Cheilosia reinigi Lindner, 1954.

Rohdendorfia bactriana Violovitsh, 1984 syn. nov.

Type locality. “Turkestan: Dzhizak, Samarkand-Geb.” (now Uzbekistan). Type deposited in Zoological Museum, Moscow University.

Type material studied. Smirnov described *dimorpha* on base of 7 specimens (male and six females), collected during the A. P. Fedtchenro expedition to Middle Asia in 1870–1871. The male was collected in the Samarkand Region, and labelled «Type», but this designation was never published. We have designated this specimen as lectotype with label «Lectotypus *Rohdendorfia dimorpha* Smirnov, 1924». We have also examined

the male holotype of *bactriana* Violovitsh from Tadjikistan, Gissar mountain range. It is kept at the Zoological Institute, St. Petersburg.

Additional material. **Tadjikistan** East Pamir, Chechecty settlement, at 4300 m 29.VI.1971 2♀♀ (N. Novikova); range of Petra Pervogo, valley of Kara-Shura river, lake Yashil'-Kul' 7.VIII.1911 1♀ (A. Gol'bek); same locality, Gursy-Tash river 29.VII.1911 5♀♀ (A. Gol'bek); gorge Kondara, at 1100 m, Varzoba willage 22.VII.1938 1♂ (Gussakovskij); Gissar range, Anzob pass 2.–15.VII.1956 1♂4♀♀ (Grunin), male in coll. T.R. Nielsen; Pamir, Alichupskij range, Khorgush range, 40 km northern of Rachiv, at 4200–4500 m 4.VIII.1964 1♀ (V. Zaitsev). **Kirghizia**, Alajskij range, environs of Taldyk 20.VII.1928 1♀ (V. Kusnetsov); Alajskij range, environs of Taldyk Pass at 3620–3750 m 16.VII.2003 7♂♂12♀♀ (V. Zinchenko); S-W Alaj, 10 km N of Daraut-Kurgan, road between passes Shiman-Bel', Shiman and Tengizbai 24.VII.2003 2♀♀ (V. Zinchenko); Alaj Mountains, prope Taldyk Pass 39°45'N, 72°12'E at 3400 m 16.VII.1998 3♂♂8♀♀ (D. Milko, V. Zinchenko); same locality, Gulcha Ravine, 50 km S Gulcha village, 39°52'N, 73°21'E at 2500 m 29.VII.2004 1♀ (D. Milko); Terskej-Alatoo Mountain Range, South-West of Chon-Asuu Pass 42°23'N, 79°04'E at 3720 m 15.VIII.2003 2♀♀ (D. Milko); Transalaj Mountain Range, Berk-Suu Ravine, 39°29'N, 72°02'E 2600 m 19.VII.1988 3♀♀ (D. Milko); same locality, Ters-Agar Pass, 39°14'N, 72°15'E at 3550 m 9.VII.2004 1♂1♀ (D. Milko) + female leg. Peck. (data?) in coll. T.R. Nielsen

Discussion. A comparison of lectotype *Rohdendorfia dimorpha* and holotype *Rohdendorfia bactriana* Violovitsh, 1984 shows that they are conspecific and giving *R. bactriana* as a junior synonym (syn. nov.).

Stackelberg (1965) noted that *R. dimorpha* was collected in Altai. We have studied all Russian collections, but did not find any specimens of this species from Altai. All specimens from this region belong to *R. alpina*. On this base we think that note of *R. dimorpha* from Altai was a mistake.

Bankowska (1968) published *R. dimorpha* from Afghanistan. She found one female in NE

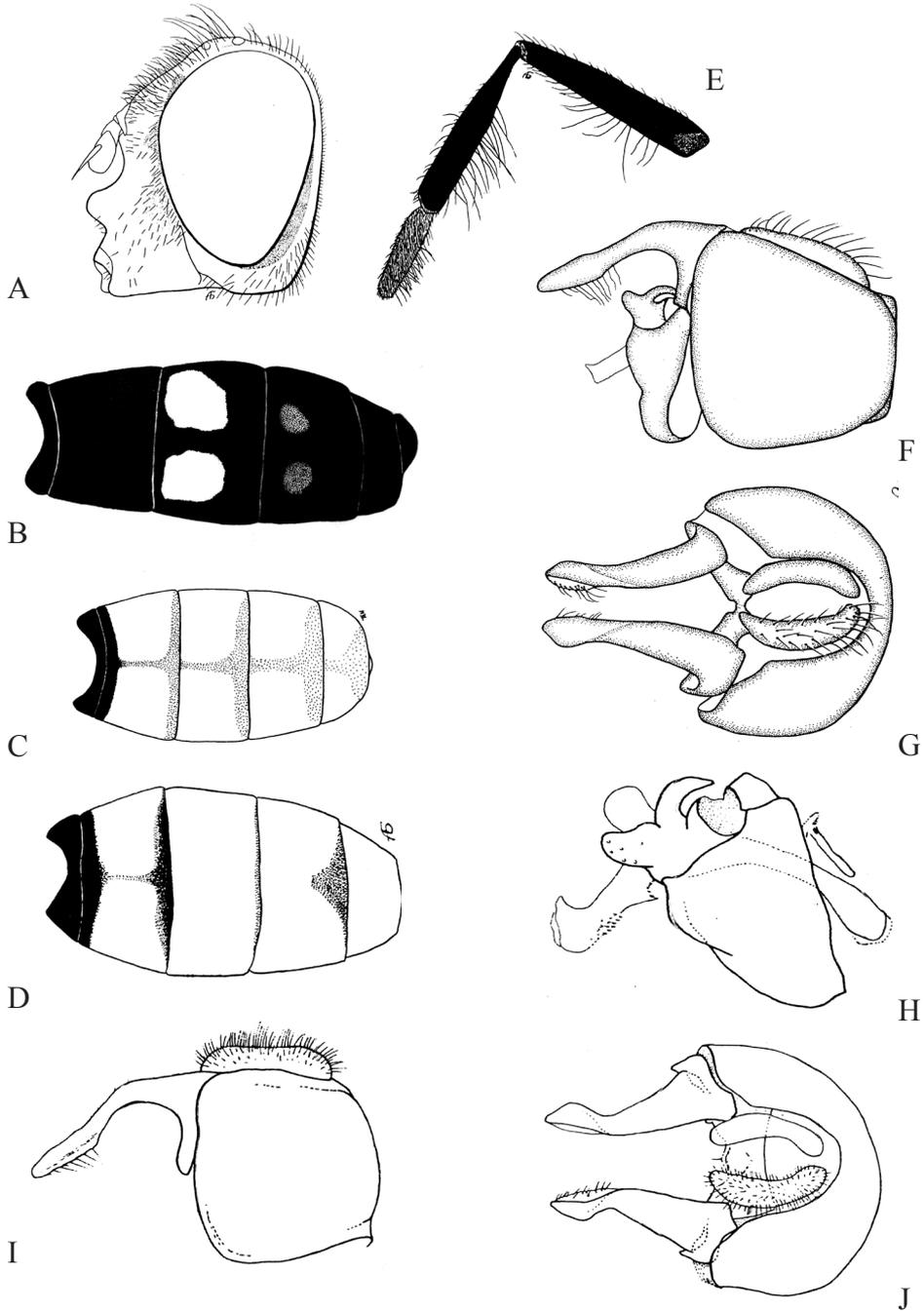


FIGURE 1. *Rohdendorfia alpina* Sack. **A.** Female head in lateral view. **B.** Abdomen, male lectotype. **C.** Abdomen, female paralectotype. **D.** Abdomen, female Siberia. **E.** Male anterior leg. **F.** Male, epandrium and surstylus, lateral view. **G.** Male, epandrium and surstylus, dorsal view. **H.** Hypandrium, lateral view (after Claussen 1988). **I.** Epandrium, lateral view (Claussen, 1988). **J.** epandrium, dorsal view (Claussen, 1988).

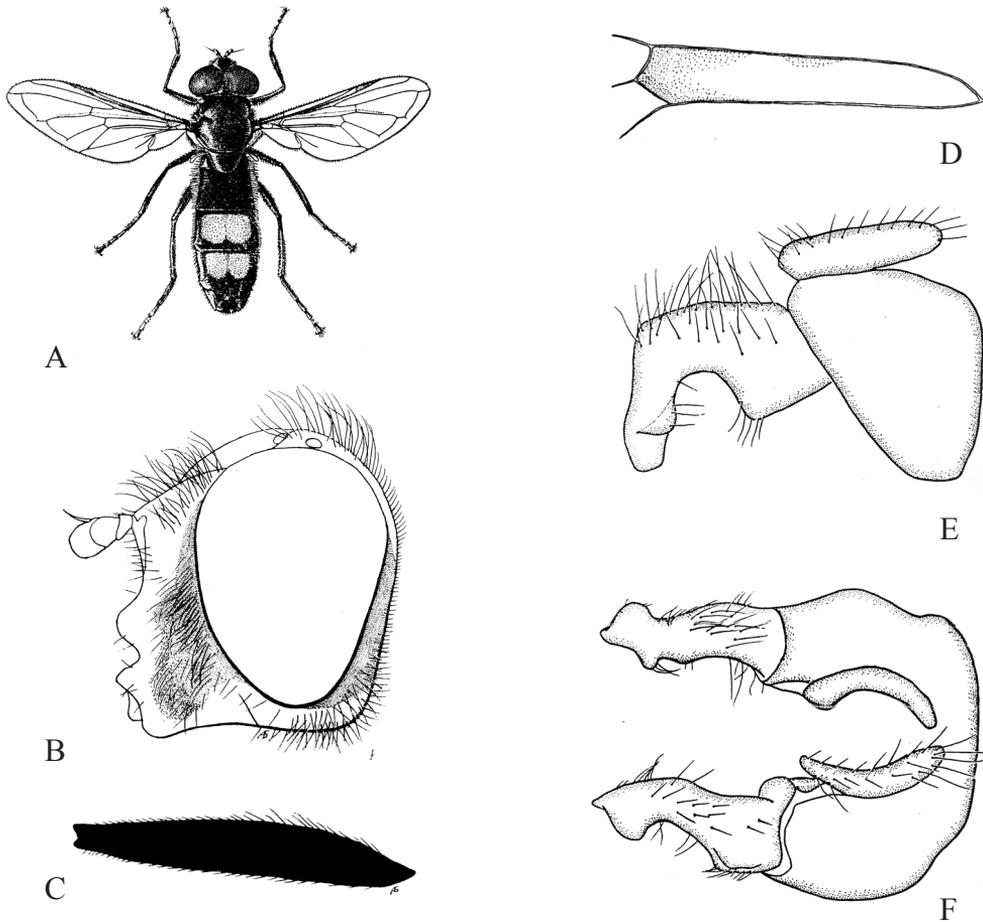


FIGURE 2. *Rohdendorfia dimorpha* Smirnov. **A.** Male (after Stackelberg, 1965). **B.** Male head in lateral view. **C.** Male hind femur. **D.** Basal cell bm of wing. **E.** Epandrium with surstylus, lateral view. **F.** Epandrium, dorsal view;

Afghanistan at level 4200 m, and another two females in East Afghanistan, in a pass near Kabul (1740 m). It is necessary to note that the female of *R. dimorpha* is very similar the *R. montivaga* female and sometimes indistinguishable. It will not be possible to confirm the occurrence of *R. dimorpha* in Afghanistan without male specimens from this territory.

Literature with further information on the species. Sack 1932: 139; Stackelberg 1965: 907; Dušek & Láška 1967: 361; Bañkowska 1968: 201; Violovitsh 1984: 90; Peck 1988: 76 and Claussen 1988: 116.

***Rohdendorfia montivaga* Violovitsh, 1984**
(FIGS 4A–H)

Rohdendorfia montivaga Violovitsh, 1984: 92

Type-locality. “Kirgizia, Tien-Shan, Kaindy, 30 km East of Naryn town” (Киргизия, Тянь-Шань, урочище Каинды, 30км восточней города Нарын).

Type material studied. Male holotype labelled Kirgizia, Tien-Shan, Kaindy, 30 km East of Naryn town, subalpine meadow, 3600 m a.s.l. 8.08.1969 (Gorodkov), in coll. Zoological Institute RAS, St. Petersburg.

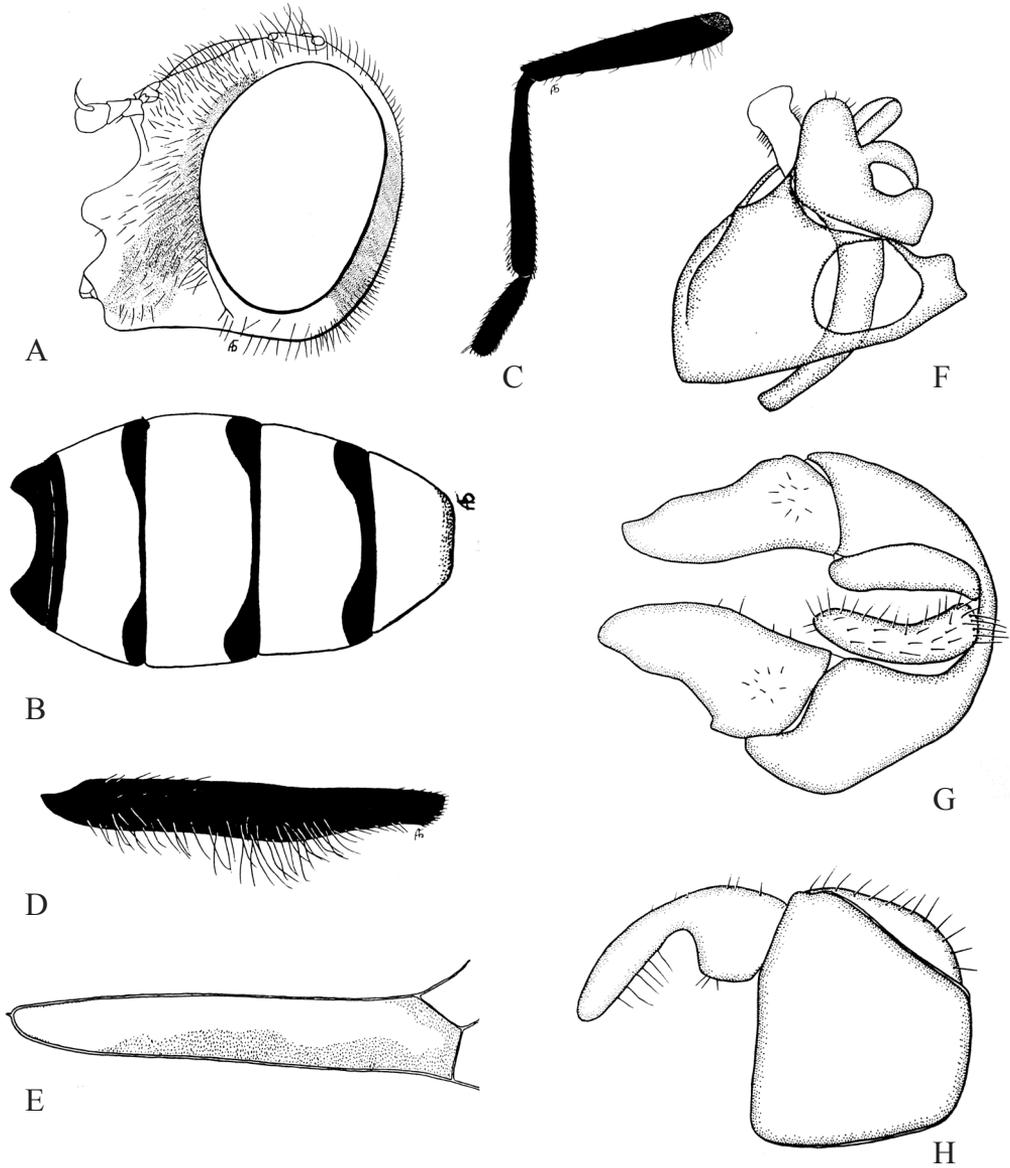


FIGURE 4. *Rohdendorfia montivaga* Violovitsh. **A.** Female, head in lateral view. **B.** Female abdomen. **C.** Male anterior leg. **D.** Male hind femur. **E.** Wing membrane of cell bm. **F.** Male, hypandrium. **G.** Epandrium, dorsal view. **H.** Epandrium with surstylus, lateral view.

Additional material. **Tadzhikistan**, East Pamir, environs of Chechekma settlement, valley of Mukor river, Murgab district, upper 4000 m a.s.l. 14.VI.1958 1♂ (Gorodkov); **Kirghizia**, Tien-Shan, upper reaches of Big Naryn river 22.VI.1965 and 1.VII.1965 1♂1♀ (R. Zlotin); upper reaches of Naryn river 20.VIII.1962 1♂ (R.

Zlotin); mid reaches of Kajlyu river 11.VII.1962 1♀ (R. Zlotin); 60 km East Osha town 7.VIII.1958 1♀ (A. Tzvetaev); Tien-Shan, Akshijrak range, Pokrovskie Syrty 16.VII.1964 2♀♀ (R. Zlotin); Tien-Shan, San-Kul' lake 16.VII.1962 4♀♀ (L. Peck); Zaalajskij range, 30 km West Irkeshtama, at 3350 m 24.VI.1969 5♂♂8♀♀ (L. Peck); Tien-

TABLE 1. Key to Palaearctic species of the genus *Rohdendorfia*.

1. Eyes meeting on frons: males	2
– Eyes widely separated on frons: females	4
2. Anterior tibia and tarsi with long hairs ventrally (Fig. 2E). European Alps, northern Caucasus, Altai, Sayan	<i>R. alpina</i>
– Anterior tibia and tarsi without long hairs ventrally (Fig. 4C)	3
3. Hind femur with long erect hairs antero-ventrally (Fig. 4D). Tien-Shan, Kirghizien Kashgaria, Dzhungarskij Alatau	<i>R. montivaga</i>
– Hind femur without long erect hairs antero-ventrally (Fig. 3C). Pamir, Alaj	<i>R. dimorpha</i>
4. Face with two longitudinal stripes of grey dusting, from frons to mouth edge (Fig. 2A); black spots or stripes on hind margins of abdominal terga broadened towards the side margins (Fig. 4B).....	5
– Face without such stripes of grey dusting, from frons to mouth edge (Fig. 2A), or as maximum triangular spots of grey dusting can be on upper part of face; black stripes on hind margins of abdominal terga III–IV decrease and sometimes completely peter out towards the side margins (Figs 2C–D)	<i>R. alpina</i>
5. Distribution: Tien-Shan, Kirghizien Kashgaria, Dzhungarskij Alatau.	<i>R. montivaga</i>
– Distribution: Pamir, Alaj	<i>R. dimorpha</i>

Shan, Suusamyр-Too, Alabel' pass at 3200–3400 m 11.VII.2003 1♂1♀ (V. Zinchenko); Tien-Shan, East of Terskej Ala-Too, source of river Ottuk, near Kara-Kyr pass 11.VIII.2003 1♀ (V. Zinchenko); Internal Tien-Shan, 13 km NNW Karasaj village, 41°41'N, 77°50'E at 3310 m 3.VII.1999 1♂1♀ (D. Milko); Tien-Shan, 13 km NNW Karsaj village at 3310 m 3.VII.1999 1♂1♀ (D. Milko); **Kirghizien Kashgaria**, upper reaches of the of Mal'tabar stream 18.VII.2003 4♂♂5♀♀ (V. Zinchenko); West Kashgaria, valley of Sulu-Sakal, 25 km from Irkeshtama at 2700 m 26.VII.1913 1♀ (Gol'bek); **Kazakhstan**, Dzhungarskij Alatau, 45–50 km NE of Tekeli town, upper reaches of Kora river at 2600m 18.VI.1993 1♂1♀ (V. Zinchenko); Dzhungarskij Alatau, 20 km SE Kapal village at 2000 m 22.VII.1993 1♀ (V. Zinchenko).

Discussion. Females of this species are very similar and sometimes indistinguishable from females of *R. dimorpha*. In that case they can be identified by presented males. Practically all characters used by Violovitsh (1982) are very variable. For example in one female of this species (from Pokrovskie Syrty) the abdomen is completely light brown, hyaline and with the facial black stripe that does not reach the mouth edge. In an other specimen the abdomen is black with two indistinct orange spots in the middle of terga 3–4.

R. dimorpha females from the middle reaches of Kajlyu river are practically without silver dust on face, and the colour of abdomen is similar that of *R. alpina*. For confirmation that *R. alpina* lives in the territory of Kirghizia it is necessary with additional males from places where the females were collected.

Literature with further information on the species. Claussen 1988: 113

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