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On the Species of the Genus *Diplocheila* Brullé (Coleoptera: Carabidae) of the Far East of Russia, with a Brief Review of the East Asian Species

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Abstract—A taxonomic review of seven species of *Diplocheila* of the Far East of Russia and adjacent lands is given. Three species are known from the Russian Far East, two of which, *D. zeelandica* Redt. and *D. minima* Jedl., are recorded from Russia for the first time. A key to the East Asian species is presented. Composition and diagnoses of subgenera are discussed. The subgenus *Submera* Habu is restored.

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Diplocheila Brullé is a genus of the subtribe Dicaelina of the tribe Licinini distributed mainly in the tropical and subtropical zones of all continents except for Australia and South America. The genus includes 28 species (Lorenz, 2005), with 10 species in the south of the Palaearctic (Baehr, 2003), predominantly (7 species) in East Asia: China, Korea, and Japan. Only one species of the genus *Diplocheila* was known from the south of the Russian Far East which was cited in the earlier literature under different names: *Diplocheila opaca* Chaudoir (Jacobson, 1906), *Submera* (*Submera*) *latifrons* (Dejean) (Lafer, 1973, 1989), *D*. (*Submera*) *latifrons* (Dejean) (Kryzhanovskij, 1983; Kryzhanovskij et al., 1995), and *D*. (*Neorembus*) *latifrons* (Dejean) (Baehr, 2003). Recently two other species of *Diplocheila* were found in the south of the Russian Far East: the Chinese *D*. (*Isorembus*) *minima* Jedlička and the widely distributed in East Asia and the Oriental Region *D*. (*Submera*) *zeelandica* Redtenbacher. The purpose of this paper is a taxonomic review of three species of *Diplocheila* from the Russian Far East and four other East Asian species known from the adjacent lands. The species of the Russian fauna are provided with morphological descriptions as opposed to the species from the adjacent lands for which only their main distinctive characters are given.

It should be noted that many authors working with *Diplocheila* used the configuration of elytral striae in the scutellar area as one of the important characters in the taxonomy of this genus but interpreted this character differently (Jeannel, 1941; Ball, 1959). According to our opinion, the scutellar stria is an additional elytral stria located in the second elytral interval which originated together with the second stria from the scutellar pore. In *Diplocheila*, the distal end of the scutellar stria is usually connected with the proximal end of the isolated distal portion of the first (sutural) stria; in this case the shorter isolated proximal portion of the first stria forms so-called false scutellar stria in the first interval.

This study is based on the examination of more than 260 specimens of *Diplocheila* belonging to 13 species from the Old World and 7 species from North America. In the text, an asterisk following the name of the species indicates that specimens of this species were examined by the authors.

The following abbreviations were used for the depositories of the examined material: IBP, Institute of Biology and Pedology, Far East Branch of the Russian Academy of Sciences, Vladivostok; MPU, Moscow Pedagogical University, Moscow; SU, Sunchon National University, Sunchon, Korea; ZIN, Zoological Institute, Russian Academy of Sciences, St. Petersburg; cS, coll. Yu.N. Sundukov (Lazo, Primorskii Terr.); cSh, coll. V.G. Shilenkov (Irkutsk).

The other abbreviations used in the paper are as follows: HW, width of head across eyes; PW, width of pronotum; PA, width of anterior margin of pronotum; PP, width of posterior margin of pronotum; PLmax, maximum length of pronotum (from anterior angles to posterior margin); PLmin, minimum length (along median line); EW, width of elytra; EL, length of elytra from basal border to sutural angle; and m, mean.

Genus ***DIPLOCHEILA*** Brullé, 1834

Species of *Diplocheila* are characterized by dark, usually black, coloration and a rather large body (9–28 mm). They can be distinguished from members of the other genera of Licinini by the combination of the following characters: right and left mandibles without incisure on dorsal surface, more or less triangular; 7th stria of elytra strongly deepened before apex forming the so-called preapical furrow separated from 8th stria by a narrow carina; 8th and 9th striae of elytra very close to each other, and metepisterna elongate, longer than wide. Classification of *Diplocheila* needs further elaboration. In the last decades the major contributions to this topic were made by Habu (1956) who worked mainly with the species of the Japanese fauna and particularly by Ball (1959, 1966, 1992) who proposed a classification of *Diplocheila* on the world wide basis. The classification proposed by Ball (1959) with division of the genus into three subgenera (*Diplocheila* s. str., *Neorembus* Ball, 1959 and *Isorembus* Jeannel, 1949) was accepted by most subsequent authors, but there was no agreement among them regarding the composition of these subgenera as, for example, it is clear from comparison of two modern editions of the systematic list of extant ground beetles of the world (Lorenz, 1998, 2005) and the recent catalogue of Palaearctic Coleoptera (Baehr, 2003). Unfortunately, the reasons of the changes in composition of the subgenera are unknown since in most cases they are not accompanied by any diagnoses of the subgenera or the author's comments. In the present paper we mainly follow Ball's classification as the most justified but propose to reinstate the subgenus *Submera* Habu, 1956 which was treated by Ball (1959) as a synonym of *Isorembus*.

A Key to Species of Diplocheila of East Asia

1. Head with 1 supraorbital setiferous pore on each side (as in Fig. 7). Anterior margin of clypeus straight or weakly emarginate ..... 2.

—Head with 2 supraorbital setiferous pores on each side (as in Fig. 8). Anterior margin deeply emarginate ..... 3.

2. Body length above 20 mm. Labrum with 4 setae. Anterior margin of clypeus straight, covering membranous labral base (Fig. 1) .... *D*. (*Diplocheila*) *elongata* (Bates).

—Body length below 20 mm. Labrum with 6 setae. Anterior margin of clypeus weakly emarginate and membranous labral base slightly exposed ....*D*. (*Diplocheila*) *laevigata* (Bates).

3. Elytra with 1–3 (usually 2) discal setiferous pores on 3rd interval; sutural stria complete, not interrupted in scutellar area; scutellar stria in 2nd interval (originated from basal scutellar pore) entirely reduced (Fig. 9). Intercoxal process of prothorax distinctly bordered laterally and apically ....*D*. (*Isorembus*) *minima* Jedl.

—Elytra without discal setiferous pores on 3rd interval; sutural stria interrupted anteriorly and its distal portion connected with distal end of scutellar stria (originated from basal scutellar pore); proximal portion of sutural stria forming a false scutellar stria in 1st interval (not connected with basal scutellar pore) (Fig. 10). Intercoxal process of prothorax not bordered ..... 4.

4. Mandibles comparatively long and narrow; right mandible similar in shape to left one, only slightly shorter and stouter, without a large denticle on inner margin (Fig. 2). Labrum symmetrical, its anterior margin deeply, arcuately emarginate and with 6 dorsal setae; lateral lobes narrow, similar in shape ..... *D*. (*Neorembus*) *latifrons* (Dej.).

—Mandibles clearly asymmetrical, right mandible wider than left one, with a large denticle on inner margin. Anterior margin of labrum with a triangular emargination and with 4 dorsal setae; lateral lobes usually dissimilar in shape, left lobe wider than right one ..... 5.

5. Anal sternite with 2 setae in male and 4 setae in female. Elytra with very fine, superficial striae and absolutely flat intervals .... *D*. (*Submera*) *laevis* (Lesne).

—Anal sternite with 4 setae in male and 6–8 setae in female. Elytra with distinctly deepened striae and convex intervals ..... 6.

6. Larger, above 21 mm. Tarsomere 5 with stout setae along each side ventrally. Inner margin of right mandible emarginate and with a large denticle (Fig. 3) ..... *D*. (*Submera*) *zeelandica* (Redt.).

—Smaller, below 20 mm. Tarsomere 5 without setae ventrally. Right mandible sharply bent and with almost straight inner margin (Fig. 4) ..... *D*. (*Submera*) *macromandibularis* (Habu et Tanaka).

Subgenus ***DIPLOCHEILA*** Brullé, 1834

Diplocheila Brullé, 1834 : 407 (substitute name for *Rembus* MacLeay, 1825). Type species *Carabus politus* Fabricius, 1792.

= *Rembus* MacLeay, 1825 : 16 (non Germar, 1824). Type species *Carabus politus* Fabricius, 1792, by monotypy.

= *Rhembus* auct. (unjustified emendation).

= *Eccoptogenius* Chaudoir, 1852 : 72. Type species *Eccoptogenius moestus* Chaudoir, 1852 (= *Rembus distinguendus* LaFerté-Sénectère, 1851), by monotypy.

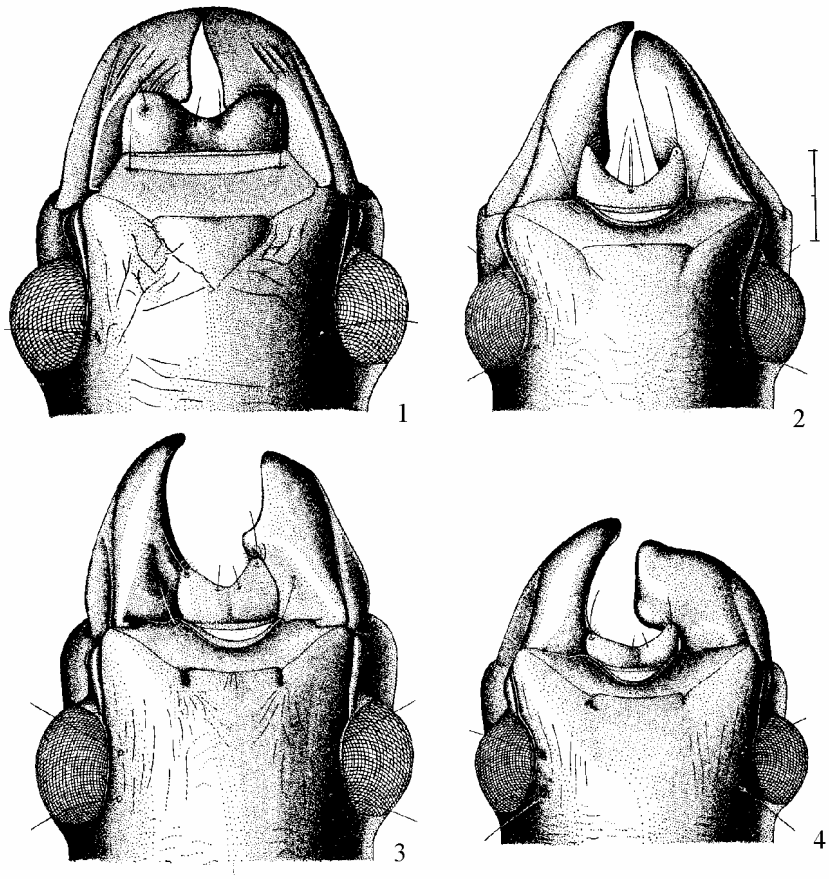
= *Symphyus* Nietner, 1858 : 180. Type species *Symphyus unicolor* Nietner, 1858 (= *Carabus politus* Fabricius, 1792), by monotypy.

Diagnosis. Frons and clypeus convex or flat, not impressed medially. Head with 1 or 2 pairs of supraorbital setiferous pores (posterior pair always present); pores of posterior pairs located very close to supraorbital furrows and in contact with them. Labrum with 4–6 setae, more or less symmetrically emarginate, with rather wide lateral lobes usually rounded at apices. Mandibles more or less symmetrical, rather stout and not too long, with one or several tubercles on inner margin. Elytra without discal pores on 3rd interval, with or without scutellar stria in 2nd interval; 1st stria complete or interrupted in scutellar area forming so-call false scutellar stria (not connected with scutellar pore) in 1st interval (in this case distal portion of 1st stria connected with real scutellar stria originated from scutellar pore). Intercoxal process of prothorax usually not bordered, more rarely with shallow marginal border. Anal sternite with 2 setae in male and 4 setae in female. Metafemur with 2 setiferous pores along posterior margin. Tarsomere 5 without setae ventrally.

Composition and distribution. The nominotypical subgenus is distributed mainly in the Oriental Region and, according to Ball (1959), comprises two species groups: the *politus* group and the *daldorfi* group. The former is more diverse, includes seven species: **D. polita* (F.), *D. quadricollis* (LaFerte, 1851), **D. distinguenda* (LaFerte, 1851), **D. elongata* (Bates, 1873), *D. percissa* Andrewes, 1921, **D. laevigata* (Bates, 1892) and **D. laevigatoides* Jedlička, 1936; the latter, the *daldorfi* group, consists of three species: *D. daldorfi* (Crotch, 1871), **D. colossa* (Bates, 1892) and *D. exotica* Andrewes, 1931. The fauna of East Asia includes only two species of the *polita* group (*D. elongata* and *D. laevigata*), both outside Russia.

Taxonomic remarks. According to our data, members of the nominotypical subgenus can be easily distinguished from other *Diplocheila* already by the position of the posterior supraorbital setiferous pore which is in contact with the supraorbital furrow (Fig. 7). In species of other subgenera the posterior supraorbital pore is separated from the supraorbital furrow by a distance of at least half the diameter of the pore (Fig. 8). We call attention to this character because it was probably not used before for definition of natural groups within *Diplocheila*. However, the very characteristic position of the posterior supraorbital pore in the species of the nominotypical subgenus favors the monophyly of this group which was originally defined by Ball (1959) without considering this character (based mainly on the shape of the head and the structure of mandibles). We also consider the *polita* and the *daldorfi* groups as natural which distinctly differ from each other in the number of supraorbital setiferous pores and configurations of the 1st (sutural) and the scutellar striae of elytra. The species of the *polita* group have one pair of the supraorbital pores and a scutellar stria which is connected with the distal portion of 1st stria; the shorter proximal portion of the 1st stria is not connected with its distal portion, forming the so-called false scutellar stria in the 1st interval (as in Fig. 10). Contrary to the real scutellar stria, the false scutellar stria is not connected with the scutellar (basal) pore and is located immediately near the scutellum. The species of the *daldorfi* group possess two pairs of the supraorbital pores and the elytra without a scutellar stria and with a complete 1st interval (as in Fig. 9). There are also differences between groups in the shape of the stylus: in the *polita* group the stylus is short and wide, rounded at apex and in the *daldorfi* group the stylus is triangular, acute at apex. As the differences between the *polita* and the *daldorfe* groups are rather essential, it is possible that in future they will be treated as separate subgenera.

It should be remarked that until recently, the name *Rembus* was ascribed to Dejean (1829) (see, for example, Habu, 1956; Ball, 1959; Kryzhanovskij et al, 1995; Lorenz, 1998) and the type species of *Rembus* (and hence of *Diplocheila*) was thought to be *Carabus impressus* Fabricius, 1798 (= *Rembus daldorfi* Crotch, 1870), but as Bousquet (2002) showed, the real author of *Rembus* was MacLeay, 1825, and the type species



Figs. 1–4. *Diplocheila* Brullé, head (after Habu, 1956): (1) *D. elongata* (Bates), (2) *D. latifrons* (Dej.), (3) *D. zeelandica* (Redtenb.), (4) *D. macromandibularis* (Habu et Tanaka). Scale = 1.0 mm.

of both *Rembus* and *Diplocheila* should be *Carabus politus* Fabricius, 1792.

Diplocheila* (*Diplocheila*) *elongata (Bates)
(Figs. 1, 11–13)

Rembus elongatus Bates, 1873 : 256. Type locality: Hiogo, Japan.

D. elongata differs from other East Asian species of the nominotypical subgenus in the following characters: the body rather large, the head with one pair of supraorbital setiferous pores, the anterior margin of labrum rather weakly, arcuately emarginate and with four dorsal setae (Fig. 1), and the first antennomere weakly widened apically, moderately long, approximately as long as 2nd and 3rd antennomeres together. In size, *D. elongata* is similar to *D.* (*Submera*) *zeelandica* and *D.* (*Submera*) *laevis,* but easily distinguished by the subgeneric characters listed above, the straight anterior margin of clypeus and one pair of supraorbital setae. Penis as in Figs. 11–13. Body length 20.5–24.0 mm, width of elytra 9.0 mm.

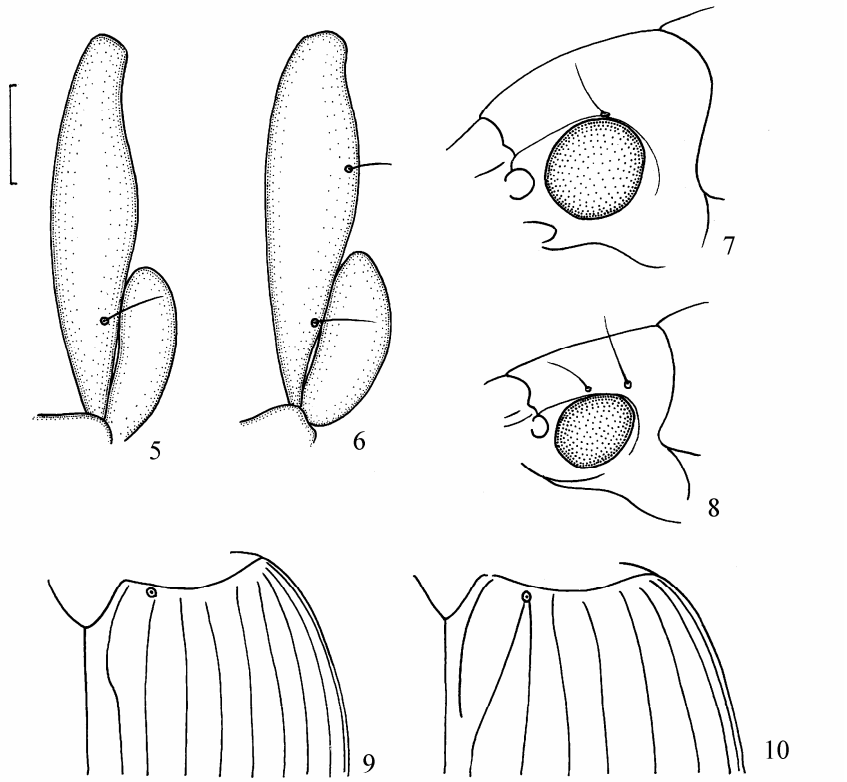
Distribution. China (Jiangxi, Taiwan), Korea, Japan (Honshu, Shikoku, Kyushu). The species seems to be very rare in Korea and Japan.

Material examined. CHINA. 1 ♂, Jiangxi, "Kiukiang [= Jiujiang], June 1887, A. E. Pratt" (ZIN); 1 ♂, "China borealis/ coll. Solsky" (ZIN). KOREA. 1 ♂, "Sugion [= Suwon], VIII 3 1926, Yugato/ 98" (SU). JAPAN. 1 ♂, "Misaki, Kiu Shiu. Japan," 9.VIII.1917 (Roshkovskij) (ZIN).

Diplocheila* (*Diplocheila*) *laevigata (Bates)
(Figs. 14–16)

Rhembus [!] *laevigatus* Bates, 1892 : 326. Type locality: "Kawkareet in Tenasserim," Myanma [Burma].

Within the nominotypical subgenus *D. laevigata* can be recognized by one pair of supraorbital setiferous pores, the labrum with six dorsal setae, the clypeus rather weakly emarginate and the pronotum comparatively narrow. It is distinguished from the closely related *D. laevigatoides* by the narrow pronotum and the



Figs. 5–10. *Diplocheila* Brullé, right metafemur and trochanter (5, 6), head from the left side (7, 8), base of right elytron (9, 10): (5) *D. aegyptiaca* (Dej.) (Egypt); (6, 7) *D. polita* (F.) (India); (8, 9) *D. minima* (Jedl.) (China, holotype); (10) *D. latifrons* (Dej.) (Vietnam). Scale = 1.0 mm.

penis with longer and narrower terminal lamella (Fig. 14–16). Body length 13.2–17.0 mm, width of elytra 5.2–6.4 mm.

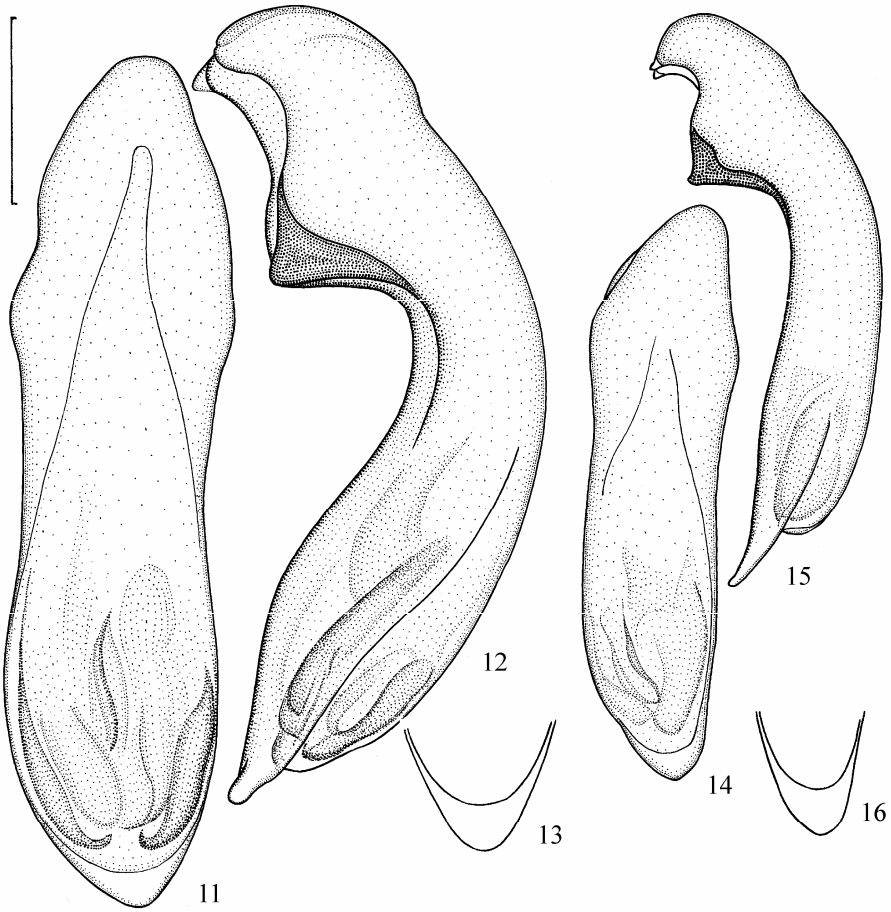
Distribution. Known from Myanma [Burma], Vietnam, Laos, Thailand and southern China (Yunnan). The occurrence of this species in Japan (Habu, 1956) is questionable because, according to Ball (1959), Habu' s illustrations based on the single specimen collected probably in Japan (a male labeled "Japan" in British Museum) suggest that the specimen which Habu regarded as *D. laevigata* actually belongs to *D. laevigatoides*. The latter species is distributed in Indonesia and the Philippines, and according to Ball (1959), all the former records of *D. laevigata* from Java, Sumatra, Kalimantan and Philippines should also be attributed to *D. laevigatoides*. Our data corroborate this opinion since at least all the material from Java examined by us in the collection of ZIN formerly determined as *D. laevigata* appeared to belong to *D. laevigatoides*.

Material examined. VIETNAM. 21 ♂, 24 ♀ (partly teneral specimens), North Vietnam, Kat Island near Khaifon, dry river-bed near road, 23.I.1989 (V.V. Yanushev) (IBP); 1 ♂, Noth Vietnam, Changcheng, in dry river-bed, 7.I.1989 (Gudkov) (IBP); 5 ♂, 3 ♀ (partly teneral specimens): same locality, 16.I.1989 (Gudkov) (IBP); 1 ♀, same locality, near lake, 22.I.1989 (Gudkov) (IBP); 1 ♂, Hanoi, at light, 5.X.1961 (O.N. Kabakov) (ZIN); 1 ♀, same locality, 15.II.1962 (O.N. Kabakov) (ZIN); 1 ♂, same locality, 21.XII.1979 (V.V. Yanushev) (ZIN); 1 ♀, N of Hon-Gai, 100 m, 10.IV.1962 (O.N. Kabakov) (ZIN). LAOS. 1 ♀, Vientiane, 19.X.1984 (O.N. Kabakov) (ZIN); 1 ♀, same locality, 22.I.1986 (O.N. Kabakov) (ZIN); 1 ♀, same locality, 2.II.1986 (O.N. Kabakov) (ZIN).

Subgenus ***Neorembus*** Ball, 1959

Neorembus Ball, 1959 : 40. Type species *Rembus latifrons* Dejean, 1831, by original designation.

Diagnosis. Frons and clypeus rather flat, usually not impressed medially. Head with 2 pairs of supraorbital setiferous pores; pores of posterior pair not in contact with supraorbital furrows and separated from them by distance of at least half diameter of pore. Labrum with



Figs. 11–16. *Diplocheila* Brullé, penis: (13, 16) terminal lamella [(11–13) *D. elongata* (Bates) (Japan); (14–16) *D. laevigata* (Bates) (Vietnam); (11, 13, 14, 16) dorsal view; (12, 15) lateral view. Scale = 1.0 mm.

6 setae, deeply and rather symmetrically emarginate; lateral lobes narrow, with acute apices. Mandibles more or less symmetrical, rather long and narrow, without distinct denticles on inner margin. Elytra without discal pores on 3rd interval; scutellar stria located in 2nd interval, originated from scutellar (basal) pore and connected with distal portion of 1st stria; shorter proximal portion of 1st stria not connected with its separate distal portion and forming so-called false scutellar stria in 1st interval. Intercoxal process of prothorax not bordered. Anal sternite of male with 2 setae in male and 4 setae in female. Metafemur wit 2 setiferous pores along posterior margin. Tarsomere 5 without setae ventrally.

Composition and distribution. The subgenus includes only one species, **D. latifrons*, widely distributed in the Oriental Region, China, Korea, Japan and the south of the Russian Far East.

Taxonomic remarks. This subgenus was originally described and always treated as monotypic. The single representative is easily recognized by the mandibles more or less symmetrical, rather long and narrow and a very characteristic, symmetrical labrum with very deep, arcuate emargination on the anterior margin and with very narrow, acute at apices lateral lobes (Fig. 2).

Diplocheila* (*Neorembus*) *latifrons (Dejean)
(Figs. 2, 10, 17–19)

Rembus latifrons Dejean, 1831: 679. Type locality: "Indes orientales."

= *Rembus opacus* Chaudoir, 1852 : 67. Type locality: "Chusan" (= Zhoushan, Zhejiang), China.

Description. Body length 15.5–16.0 mm, width of elytra 5.8–6.0 mm.

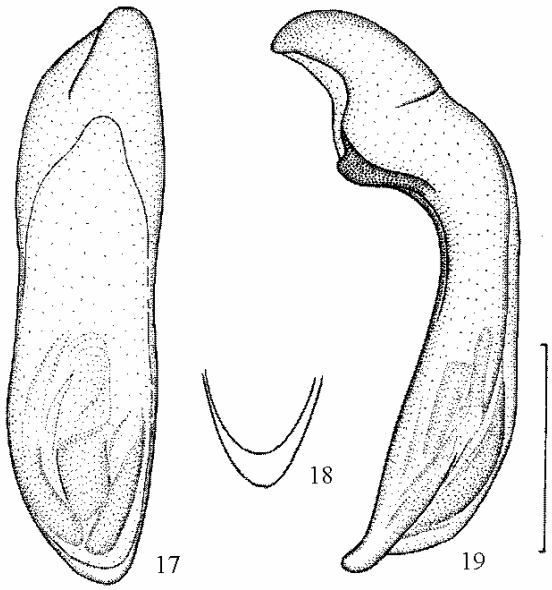
Black; head slightly shiny, pronotum and elytra mat, ventral surface slightly shiny medially and mat laterally; antennae beginning from 5th antennomere on and palpi usually paler.

Microsculpture more or less isodiametric, on head dorsally fine, on pronotum and elytra more coarse. Head and pronotum also with very fine punctures.

Head (Fig. 2) moderately convex in posterior half, rather flat in anterior half, with nearly hemispherical eyes and almost without temples. Frontal furrow wide and rather shallow. Clypeus very wide, distinctly separated from frons by transverse suture, with arcuately emarginate and bordered anterior margin. Labrum transverse, its anterior margin deeply (to one-half length of labrum), arcuately emarginate, with almost triangular anterior angles and with 6 setae (1 in each anterior angle and 4 medially). Membranous base of labrum visible in emargination of clypeus. Mandibles almost symmetrical and rather long; apical half of left mandible slightly bent inside, narrowly rounded at apex, with inner margin emarginate; right mandible slightly shorter and stouter than left one, more widely rounded at apex and with straight inner margin. Mentum with 2 long setae near posterior margin, with very deep emargination (to 0.75 length of mentum); emargination arcuate medially, without median tooth. Apical palpomeres more or less cylindrical, truncate at apex. Ventral surface of head with transverse wrinkles.

Pronotum transverse (PW/PLmax = 1.35–1.36, m = 1.35; PW/PLmin = 1.39–1.44, m = 1.41), widest at middle, narrowed apicad more strongly than posteriad (PW/PA = 1.55–1.59, m = 1.58; PW/PP = 1.12–1.17, m = 1.14); with thin groove along evenly rounded and finely bordered sides. Anterior margin notably narrower than posterior margin (PP/PA = 1.36–1.41, m = 1.38), slightly emarginate. Anterior angles very obtuse, rounded at apices, weakly protruding. Posterior margin straight medially, slightly oblique laterally, not bordered. Posterior angles rather distinct, obtuse. Disc weakly convex, either smooth or (in one examined female) with transverse wrinkles, with two foveae basally. Basal foveae small and rather shallow, remote from posterior margin, each with a short longitudinal stroke inside (inner fovea), at bottom of fovea. Median line very fine. Anterior and posterior transverse impressions very weak, sometimes highly reduced. Discal convexity reaching lateral border, very sloping along sides, sometimes slightly more abrupt just before margin. Anterior lateral seta located before middle, posterior one in posterior angle.

Elytra more or less oval, almost parallel-sided (EL/EW = 1.52–1.57, m = 1.54; EL/PLmax = 2.68–2.76, m = 2.73; EW/PW = 1.30–1.31, m = 1.30),



Figs. 17–19. *Diplocheila latifrons* (Dej.) (Korea), penis; (18) terminal lamella; (17, 18) dorsal view; (19) lateral view. Scale = 1.0 mm.

rounded together at apex, without preapical sinuation. Elytral base equal to pronotal base, with complete basal border forming with lateral border an obtuse angle. Elytral disc sometimes slightly impressed near basal border. Striae complete, fine, impunctate, not reaching slightly elytral apex; bases of external striae slightly remote from basal border. Inner intervals flat, external intervals weakly convex; 9th interval very narrow in basal half and slightly widened in apical half. Each elytron laterally near apex with rather deep groove forming so-called radial area reaching sutural angle and separated from rest elytral disc by a costal convexity parallel to apical margin. Series umbilicate not interrupted or indistinctly interrupted medially consisting of more than 30 pores on each side; pores in anterior half very small, hardly recognizable, in posterior half larger, distinct; two apical pores separated from other pores by thin costa. Epipleural plica not crossing elytral margin. Wings developed.

Ventral surface of body smooth. Metepisterna notably (approximately 1.4 times) as long as wide, rather strongly narrowed posteriad.

Protarsomeres 1–3 of male strongly widened and with adhesive vestiture ventrally; adhesive scales occupied all ventral surface of tarsomeres; 1st protarsomere asymmetrical, more or less triangular; 2nd protarsomere transverse, narrowed anteriad; 3rd protarsomere irregular in shape.

Stylus somewhat flat, elongate, more or less triangularly shaped, with 1 spine on inner margin and 3 spines on external margin.

Penis (Figs. 17–19) with apex slightly bent ventrad; terminal lamella rather short and narrow, narrowly rounded at apex.

Distribution. The species is widely distributed across India, Myanma [Burma], China, the south of the Far East of Russia, Korea, Japan (Honshu), Vietnam, Laos, Thailand, Indonesia (Java) and Philippines. It is very rare in Russia. In the Russian Far East *D. latifrons* occurs near marshes and in marshy meadows on plains of western and southern portions of Primorskii Territory; according to O.N. Kabakov (personal communication), one specimen of this species was collected by him at light in the south of Khabarovsk Territory in the Amur River valley near Khabarovsk in 1974, July–August.

Material examined. RUSSIA. Primorskii Terr.: 1 ♀, Kirov Distr., Krylovka River near Krylovka Vill., broad-leaved forest, marsh with sedge, in leave litter, in brush, near water, 16.VI.1978 (G.Sh. Lafer) (IBP); 1 ♀, Spassk Distr., Lake Khanka, Santakheza, Novoselskoe, 26.V.1971 (Yu.M. Orlov) (IBP); 1 spm., same district, mouth of Santakheza River, Spasovka, meadow with sedge, 14.VIII.1972 (V. N. Kuznetzov) (IBP); 1 ♀, Ussurisk Distr., Ussurisk, at light, VI.1969 (Truskov) (cSH); 1 ♂, Khasan Distr., Khasan, mane in meadow near Golubinyj Utes Mountain, 28.V.1972 (G.Sh. Lafer) (IBP). КОРЕЯ. 1 ♂, 3 ♀ "Korea" (ZIN). CHINA. 1 ♂, Shanghai, 10.VII.1920 (E. Suenson leg.) (ZIN); 1 ♂, Zhejiang, Hangchow [= Hangzhou], 24.IV.1921 (E. Suenson leg.) (ZIN); 3 ♀, "Mongolia" [? Inner Mongolia] (ZIN); 1 ♀, Taiwan, "Formosa, 1912 (Moltrecht)" (ZIN). VIETNAM. 2 ♂, 1 ♀, Hanoi, at light, 3–18.X.1961 (O.N. Kabakov) (ZIN); 1 ♀, same locality, at light, 2.VI.1962 (O.N. Kabakov) (ZIN); 2 ♀, same locality, at light, 5–10.IV.1962 (O.N. Kabakov) (ZIN); 1 ♂, same locality, at light, 7.XI.1962 (O.N. Kabakov) (ZIN); 4 ♀, same locality, 21.XII.1979 (V.V. Yanushev) (ZIN); 1 ♀, same locality, 22.VII.1969 (V.P. Solyanikov) (ZIN); 1 ♂, mountains to SW of Dong-hoi, 19.III.1963 (O.N. Kabakov) (ZIN); 1 ♂, 1 ♀, Tin-Tuk, 13.IV.1969 (V.P. Solyanikov) (IBP); 1 ♂, same locality, 16.IV.1969 (V.P. Solyanikov) (IBP); 1 ♀, "Vietnam, 1980 (A.S. Eroshenko)" (IBP). LAOS. 1 ♂, Vientiane, 2.II.1986 (O. Kabakov leg.) (ZIN); 1 ♂, same locality, 12.I.1986 (O.N. Kabakov leg.) (ZIN). INDONESIA. 5 ♂, 3 ♀, "Java" (ZIN).

Taxonomic remarks. The species forms two subspecies: the nominotypical one occupies most part of the species range including the south of the Russian Far East, and *D. latifrons darlingtoni* Ball, 1959 endemic to Philippines and differing from the nominotypical subspecies mainly in, on average, a smaller body and relatively longer mandibles.

D. latifrons was fist recorded by Jakobson (1906) from " The Ussuri Territory" as *D. opaca*. More recently, Lafer (1973) recorded it from the Primorskii Territory as *Submera latifrons*. Synonymy of the names *latifrons* and *opaca* was stated by Andrewes (1922) based on the comparison of the type specimens of both taxa.

This species was known to Habu (1956) only from the single specimen from Thailand. The beetle was probably in a bad condition since Habu mistakenly included *D. latifrons* together with *S. zeelandica* in the nominotypical subgenus of the genus *Submera* described by him. Habu has indicated that the members of this subgenus have the 5th tarsomere with ventral setae but actually in *D. latifrons*, the 5th tarsomere is without setae.

Subgenus ***Submera*** Habu, 1956, stat. rest.

Submera Habu, 1956 : 50, 58. Type species *Rembus zeelandicus* Redtenbacher, 1867, by original designation.

= *Shirahataia* Habu, 1956 : 50, 63 (as a subgenus of the genus *Submera* Habu, 1956). Type species *Submera macromandibularis* Habu & Tanaka, 1956, by original designation.

Diagnosis. Frons and clypeus impressed medially. Head with 2 pairs of supraorbital setiferous pores; pores of posterior pair not in contact with supraorbital furrows, separated from them by distance of at least half diameter of pore. Labrum with 4 setae, rather deep and asymmetrically emarginate anteriorly; lateral lobes rather sharp, only slightly blunt at apices, differing in shape, left lobe wider than right. Mandibles asymmetrical; left mandible narrower, without denticles on inner margin, right mandible notably wider and with more or less large medial denticle on inner margin. Each elytron without discal pores on 3rd interval, with a scutellar stria in 2nd interval originated from scutellar (basal) pore and connected with distal portion of 1st stria; shorter proximal portion of 1st stria not connected with its distal portion and forming so-called

false scutellar stria in 1st interval. Intercoxal process of prothorax not bordered. Anal sternite with 2–4 setae in male and 4–8 setae in female. Metafemur with 2 setiferous pores along posterior margin. Tarsomere 5 with or without setae ventrally.

Composition and distribution. The subgenus includes 4 species from the Oriental and East Asian regions. We divide them in two groups: the *zeelandica* group with 3 species [**D. zeelandica* (Redtenbacher, 1867), *D. pinodes* Andrewes, 1922 and *D. macromandibularis* (Habu et Tanaka, 1956)] and the *laevis* group with one species, **D. laevis* (Lesne, 1896). Only one species, *D. zeelandica*, is known from the south of Primorskii Territory.

Taxonomic remarks. The subgenus *Submera* as defined here, corresponds to the *zeelandica* species group sensu Ball (1959), which was created by him within the subgenus *Isorembus*. We treat *Submera* as a separate subgenus, distinct from *Isorembus*, because the morphological differences between them are essential and similar to those between other subgenera of *Diplocheila*. Although *Submera* and *Isorembus* are evidently closely related taxa (similar to each other in depression on frons and clypeus and in asymmetrical mandibles), they distinctly differ in several essential characters, first of all in the presence or absence of discal pores on the 3rd interval of the elytra and in the configuration of the scutellar and 1st (sutural) striae (see diagnoses of both subgenera). The study of the female reproductive tract in Licinini (Will, 1998) also revealed differences, significant in this respect, between *Submera* and *Isorembus*, particularly in the shape of spermatheca. In contrast to the members of *Isorembus,* in the type species of *Submera* the apical portion of spermatheca is very short in comparison with its basal portion and similar in this character to the species of the nominotypical subgenus.

It should be pointed out that Habu (1956) treated *Submera* as a separate genus and included *D. zeelandica* and *D. macromandibularis* within it into two different subgenera: the former in the nominotypical subgenus *Submera* s. str. (where he in addition to *D. zeelandica* erroneously included also into *D. latifrons*) and the latter, *D. macromandibularis*, in the monotypic subgenus *Shirahataia,* differing from *Submera* mainly in the shape of the right mandible and in the absence of setae on the ventral surface of the 5th tarsomere. In other characters *D. macromandibularis* is very similar to *D. zeelandica*, and we agree with Ball (1959) who included these two species into one species group within the genus *Diplocheila*.

Within the subgenus *Submera* the species of the *zeelandica* group is distinguished from the single representative of the *laevis* group mainly by the number of setiferous pores at apex of anal sternite: the species of the *zeelandica* group have 4 such pores in males and 6–8 pores in females, and *D. laevis* has 2 pores in males and 4 pores in females.

Diplocheila* (*Submera*) *zeelandica (Redtenbacher) (Figs. 3, 20, 21–23)

Rembus zeelandicus Redtenbacher, 1867 : 5. Type locality: "eastern China," designated by Ball (1959 : 50).

= *Rembus gigas* Bates, 1873 : 256. Type locality: "Nagasaki," Japan; designated by Ball (1959 : 51).

Distinctly differing from other East Asian species in large body with mat dorsum, asymmetrical mandibles, two pairs of supraorbital setiferous pores on head and presence of setae on fifth tarsomere ventrally. It is distinguished from very similar *D. pinodes* described from Vietnam (Annam) by impunctate elytral striae.

Description. Body length 21.0–28.0 mm, width of elytra 8.0–10.4 mm.

Body black, mat on dorsum, slightly shiny (in places mat) on venter, antennomeres 5–11 dark brown.

Dorsum throughout with distinct isodiametric microsculpture, head also with micropunctation.

Habitus as in Fig. 20.

Head (Fig. 3) wide (PW/HW = 1.57 in specimen from Primorskii Terr.), with wrinkles on dorsum. Frontal foveae wide but rather shallow. Clypeus transverse, its anterior margin deeply arcuately emarginate (membranous base of labrum visible in this emargination) and bordered. Eyes moderately convex. Mandibles rather short, asymmetrical; right mandible with obtuse denticle on inner margin at middle. Mentum deeply emarginate (to one-half length of clypeus), without median tooth. Apical palpomere slightly flattened; maxillary apical palpomere almost cylindrical, blunt at apex; labial apical palpomere slightly widened apicad.

Pronotum transverse, nearly cordate, widest before middle, narrowed apicad more strongly than basad (in specimen from Primorskii Terr. PW/PLmax = 1.26;

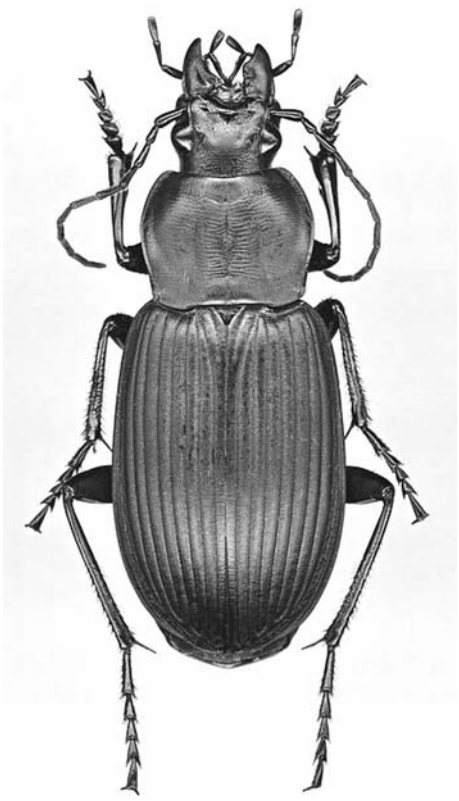


Fig. 20. *Diplocheila zeelandica* (Redtenb.) (Primorskii Terr., Merkushevka), general view.

PW/PLmin = 1.36; PW/PA = 1.55; PW/PP = 1.33; PP/PA = 1.36), weakly convex. Sides anteriorly and medially rounded, posteriorly almost straight or hardly sinuate; lateral border and lateral groove very narrow. Anterior margin slightly emarginate, not bordered. Anterior angles obtuse, rounded at apices, weakly protruding. Posterior margin not bordered, weakly concave or almost straight medially, oblique laterally; oblique portions slightly protruding posteriad. Posterior angles obtuse, blunt at apices. Disc almost throughout with wrinkles: more or less transverse, slightly winding in central area and along sides and longitudinal near anterior and basal margins, with 1 short stroke-like, inner basal fovea on each side remote from posterior margin. Median line thin, slightly not reaching anterior and posterior margins. Anterior and posterior transverse impressions distinct. Anterior lateral seta located at maximum width of pronotum, posterior lateral seta in posterior angle.

Elytra weakly convex, rather wide (in specimen from Primorskii Terr., EL/EW = 1.52; EL/PLmax = 2.61; EW/PW = 1.37), widest just after middle, widely rounded together at apex, without preapical sinuation. Basal border complete, arcuate, forming an obtuse angle with lateral border; humeral denticle absent. Striae complete, impunctate, connected in pairs at apex just near radial area. 7th stria not interrupted, reaching radial area; pores of 7th stria indistinct. Elytral intervals slightly convex. Radial area wide at elytral apex, granulate. Pores of series umbilicate very small, indistinct.

Ventral surface with fine wrinkles in places. Metepisterna comparatively wide, but longer than wide, narrowed posteriad. Apex of anal sternite in male with 4 setae divided into 2 pairs.

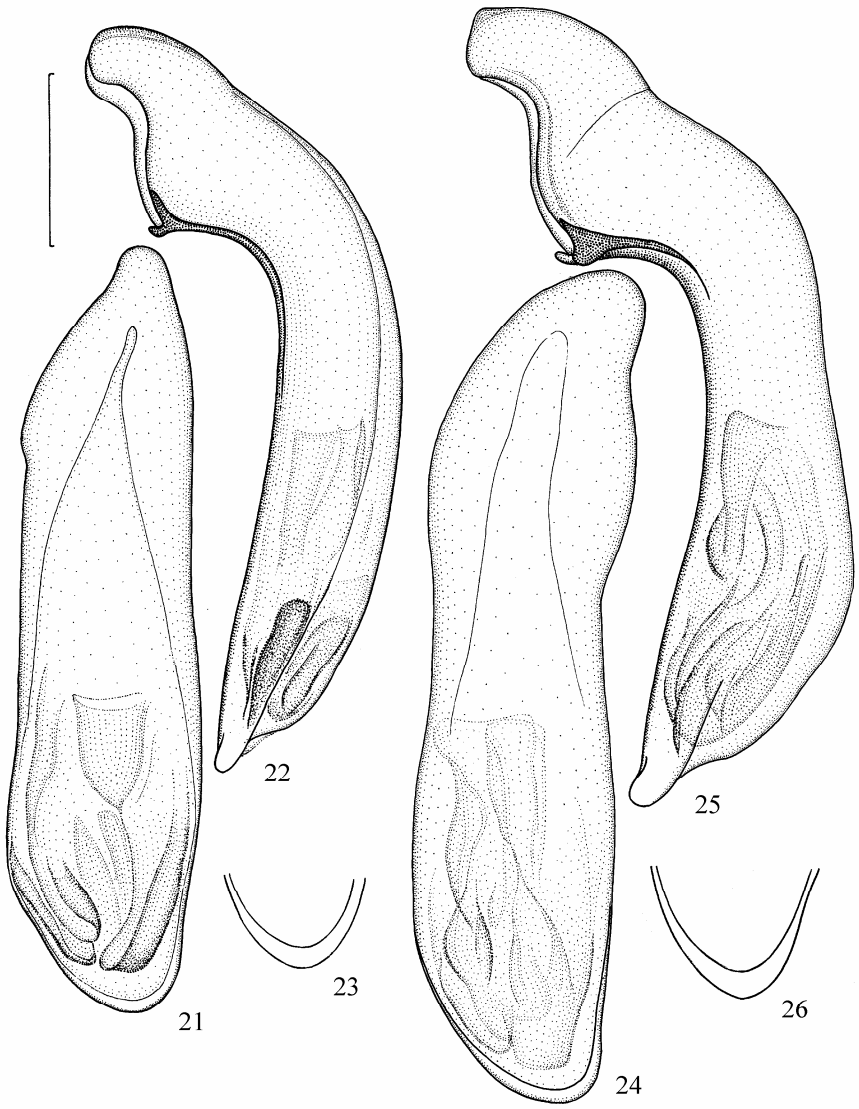
Legs moderately long. Tarsomere 5 with setae ventrally. Protarsi 1–3 in male dilated and with spongy adhesive vestiture ventrally.

Stylus elongate, curved, blunt at apex, with 1 spine on inner margin and 2 spines remote from each other on external margin.

Penis (Figs. 21–22) with almost straight apical half, with apex not bent ventrad. Terminal lamella (Fig. 23) very short and wide, widely rounded at apex.

Distribution. The species is widely ranged over East Asia. It is known from Russia (the south of the Primorskii Territory), central and eastern China, Korea, Japan (Hokkaido, Honshu, Shikoku, Kyushu) and the northern part of Vietnam. It is reported here from Russia for the first time.

Material examined. RUSSIA. 1 ♂, Primorskii Terr., Chernigovka Distr., Merkushovka env., broad-leaved forest, 9.VII.2006 (S. N. Ivanov) (IBP). KOREA. 1 ♀, "Korea, Herz" (ZIN); 1 spm., Andong, 2.X.1988 (SU); 1 ♀, Sunchon, 13.IV.1994 (Y.H. Kim leg.) (SU); 1 ♀, Naro-do Is., 4.VI.1988 (J.H. Jung leg.) (IBP); 1 ♂, Nae Naro-do Island, 21.V.1994 (S.M. Kwon leg.) (SU); 1 ♀, Naro-do-inner Island, 10.V.1989 (C. S. Moon leg.) (SU); 1 ♀, Jeju-do Island, 29.VI.1989 (J.H. Jung leg.) (SU); 1 ♀, Mt. Chuweol-san, 13.VIII.1987 (J.C. Paik leg.) (SU); 1 ♂, Chan-Ju, 28.VI.1990 (J.K. Paik leg.) (SU); 1 ♂, Mt. Wol chal, 1.VIII 1990 (H.U. Nam leg.) (SU). JAPAN. 2 ♀, Sado Island, 24.XI.1966 (K. Tamanuki leg.) (IBP); 1 ♂, Fukuoka, Kônosuyama, Fukuoka-shi, 5.VII.1992 (V. Makarkin) (IBP); 1 ♂, Iwata Co. (Shizuoka), Toyookamura, env. Futamata, 8.III.1964 (R. Ishikawa leg.) (ZIN); 2 ♀, Chibar Pref., Kimitsu Co., Toyooka, 2.II.1964 (R. Ishikawa leg.) (ZIN). CHINA. 1 ♂, "China/ coll. Chicherin" (ZIN); 1 ♂, "Changhai/ coll. Chicherin" (ZIN); 1 ♀, Sichuan, Beibei near Chongqing, 1957 (Huan Tian Zhun)



Figs. 21–26. *Diplocheila* Brullé, penis; (23, 26) terminal lamella: (21–23) *D. zeelandica* (Redt.) (Japan); (24–26) *D. laevis* (Lesne) (Vietnam); (21, 23, 24, 26) dorsal view; (22, 25) lateral view. Scale = 1.0 mm.

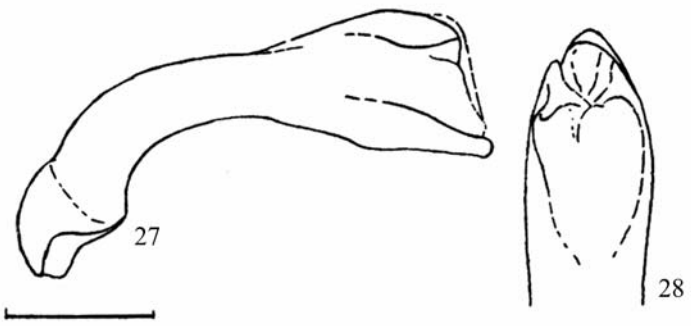
(ZIN). VIETNAM. 1 ♂, 1 ♀, Tin-Tuk, 13.IV.1969 (V.P. Solyanikov) (IBP); 1 ♂, same locality, 16.IV.1969 (V.P. Solyanikov) (IBP); 1 ♀, mountains to north of Ha-Zang, 800 m, 5.VII.1963 (O.N. Kabakov) (ZIN); 1 ♀, mountains 50 km north-east of Thai Nguen, 300 m, 25.V.1963 (O.N. Kabakov) (ZIN); 1 ♀, mountains to north-east of Bai-Tuong near Lang-Tian, 21.IV.1963 (O.N. Kabakov) (ZIN); 1 ♀, Shonla Prov., Shongma env., 3.V.1986 (A.V. Gorokhov) (ZIN).

Taxonomic remarks. This species was described as *zeelandicus* because Redtenbacher (1867) believed that the type of this species had been taken in Auckland (New Zealand). However, according to Andrewes (1923, 1924), the type was probably taken in China and is identical to *Rembus gigas* which was described more recently by Bates (1873) from the series from "Nagasaki; Chusan [= Zhoushan, Zhejiang] and Yang-tsze-Kiang, China; I. Formosa [= Taiwan]." Ball (1959) proposed to consider eastern China as the type locality of *Rembus zeelandicus* and Nagasaki (Japan) as the type locality of *Rembus gigas*.

The specimens known from Japan are smaller than those collected on the mainland, particularly small specimens occur in Hokkaido.

Diplocheila* (*Submera*) *macromandibularis
(Habu et Tanaka) (Figs. 4, 27–28)

Submera (*Shirahataia*) *macromandibularis* Habu et Tanaka, in Habu, 1956 : 50, 63. Type locality: "Tobi-shima, Yamagata Prefecture," Honshu, Japan.



Figs. 27, 28. *D. macromandibularis* (Habu et Tanaka), penis: (27) lateral view; (28) dorsal view (after Habu, 1956). Scale = 1.0 mm.

Differing from other East Asian species of the genus in a very stout and strongly bent right mandible (Fig. 4). The species is also distinguished from the closely related *D. zeelandica* and *D. pinodes*, which are both similar to it in a great number of setae on the apex of the anal sternite (4 in male and 6 in female), by a smaller body and a glabrous ventrally fifth tarsomere. Penis as in Figs. 27, 28. Body length 16.2–17.0 mm, width of elytra 6.3–6.5 mm.

Distribution. Known only from Japan: Honshu (Yamagata, Chiba and Niigata prefectures).

Diplocheila* (*Submera*) *laevis (Lesne)
(Figs. 24–26)

Rhembus [!] *laevis* Lesne, 1896 : 243. Type locality: "Bangkok (Le P. Larnaudie); Chantaboun à Battambang (Siam cambodgien); Meuwen Bay (Java)."

This species is characterized by a large body and very fine, superficial elytral striae. It also differs from the related *D. zeelandicus* and *D. pinodes*, which are both similar to this species in body size, in the fifth tarsomere without setae ventrally and the anal sternite with fewer setae along posterior margin (2 in male and 4 in female). Penis as in Figs. 24–26. Body length 20.5–26.0 mm, width of elytra 7.8–10.0 mm.

Distribution. South-East Asia, north to South-West China (Yunnan), Indonesia and Philippines.

Material examined. INDIA. 2 ♂, 1 ♀, "Andaman" (ZIN). VIETNAM. 2 ♂, Hanoi, at light, 14–19.X.1961 (O.N. Kabakov) (ZIN); 1 ♀, same locality, at light, 20.XII.1961 (O.N. Kabakov) (ZIN); 2 ♀, same locality, at light, 20.I. and 15.III.1962 (O.N. Kabakov) (ZIN); 1 ♂, same locality, 20.VII.1963 (O.N. Kabakov) (ZIN); 1 ♀, to north of Hanoi, 20.VIII.1963 (O.N. Kabakov) (ZIN). INDONESIA. 1 ♀, "Java" (ZIN).

Subgenus ***Isorembus*** Jeannel, 1949

Isorembus Jeannel, 1949 : 771. Type species *Rembus aegyptiacus* Dejean, 1831, by original designation.

Diagnosis. Frons and clypeus impressed medially. Head with 1 or 2 pairs of supraorbital setiferous pores (posterior pair of supraorbital pores always present); pores of posterior pairs not in contact with supraorbital furrows and separated from them by distance of at least half diameter of pores. Labrum with triangular emargination anteriorly and 4 setae along anterior margin; its lateral lobes usually differing from each other in shape: left lobe much wider than right lobe; anterior angles of both lobes rather sharp, only slightly blunt at apices. Mandibles asymmetric, right mandible wider than left one and with more or less prominent medial denticle on inner margin. Each elytron with 1–3 discal pores on 3rd interval and with complete, not interrupted 1st stria; scutellar stria (originated from scutellar pore) absent. Intercoxal process of prothorax bordered or not bordered. Anal sternite with 2 setae in male and 4 setae in female. Metafemur with 2 setiferous pores along posterior margin. Tarsomere 5 with or without setae ventrally.

Composition and distribution. The subgenus consists of two species groups which were originally defined by Ball (1959, 1966) : 1) the *aegyptiaca* group with 4 species [**D. aegyptiaca* (Dejean, 1831), **D. transcaspica* (Semenov, 1890), *D. capensis* (Peringuey, 1896) and **D. cordicollis* (LaFerte, 1851)] from the south of the western Palaearctic, the Afrotropical Region and India, and 2) the *striatopunctata* group which includes all the 9 North American species of the genus *Diplocheila* and 1 East Asian species, **D. minima* Jedlička, 1931, found recently in the south of the Russian Far East. The *zeelandica* group, originally defined by Ball (1959) also within the subgenus

Isorembus, is treated here as a separate subgenus *Submera* (see above).

Taxonomic remarks. The members of the subgenus *Isorembus* are easily recognizable by the presence of 1–3 discal pores on each 3rd elytral interval. In addition, all the known species of this subgenus are characterized by the elytra without a scutellar stria in the 2nd interval and with an unbroken, not interrupted in the scutellar area, 1st (sutural) stria (Fig. 9). Similar configuration of elytral striae is also observed in the species of the *daldorfi* group of the nominotypical subgenus, but in contrast to the members of *Isorembus* their mandibles are more or less symmetrical and the posterior supraorbital pore is in contact with the supraorbital furrow (Fig. 7).

The *striatopunctata* group distinctly differs from the *aegyptiaca* group in the head with two pairs of supraorbital setiferous pores, the intercoxal process of the prothorax with a distinct marginal border and the metafemur with two pairs of setiferous pores at posterior margin (as in Fig. 6). In the members of the *aegyptiaca* group, the head is with only one (posterior) pair of supraorbital pores, the intercoxal process of the prothorax is not bordered and the metafemur is with only one (proximal) setiferous pore (Fig. 5). By the last character, the *aegyptiaca* group is also distinguished from all other *Diplocheila*. Considering the sharp differences between the *aegyptiaca* and *striatopunctata* groups, it is possible that these taxa should be more correctly treated as separate, even if related, subgenera.

Diplocheila* (*Isorembus*) *minima Jedlička
(Figs. 8, 9, 29–40)

Diplocheila minima Jedlička, 1931 : 103. Type locality: "Kiating [= Leshan], Szetschuan," Sichuan, China.

As a single representative of the American group *striatopunctata* in Asia, *D. minima* is readily distinguished from other East Asian and Oriental species of the genus by the main diagnostic characters of this group: the 3rd elytral interval with 1–3 discal setiferous pores, the head with two pairs of setiferous pores (Fig. 8), the scutellar stria in the 2nd elytral interval absent (Fig. 9) and the intercoxal process of the prothorax distinctly bordered at margins. In habitus, *D. minima* resembles *D. latifrons* but is slightly smaller, with a wider pronotum having a wider base and with a wider and shorter elytra rounded at sides. The mandibles are notably shorter and wider, the right mandible has an obtuse denticle on the inner margin, the labrum has triangular emargination on the anterior margin and only 4 setae. Emargination of mentum is wide at base, not too deep (reaching only one-half mental length).

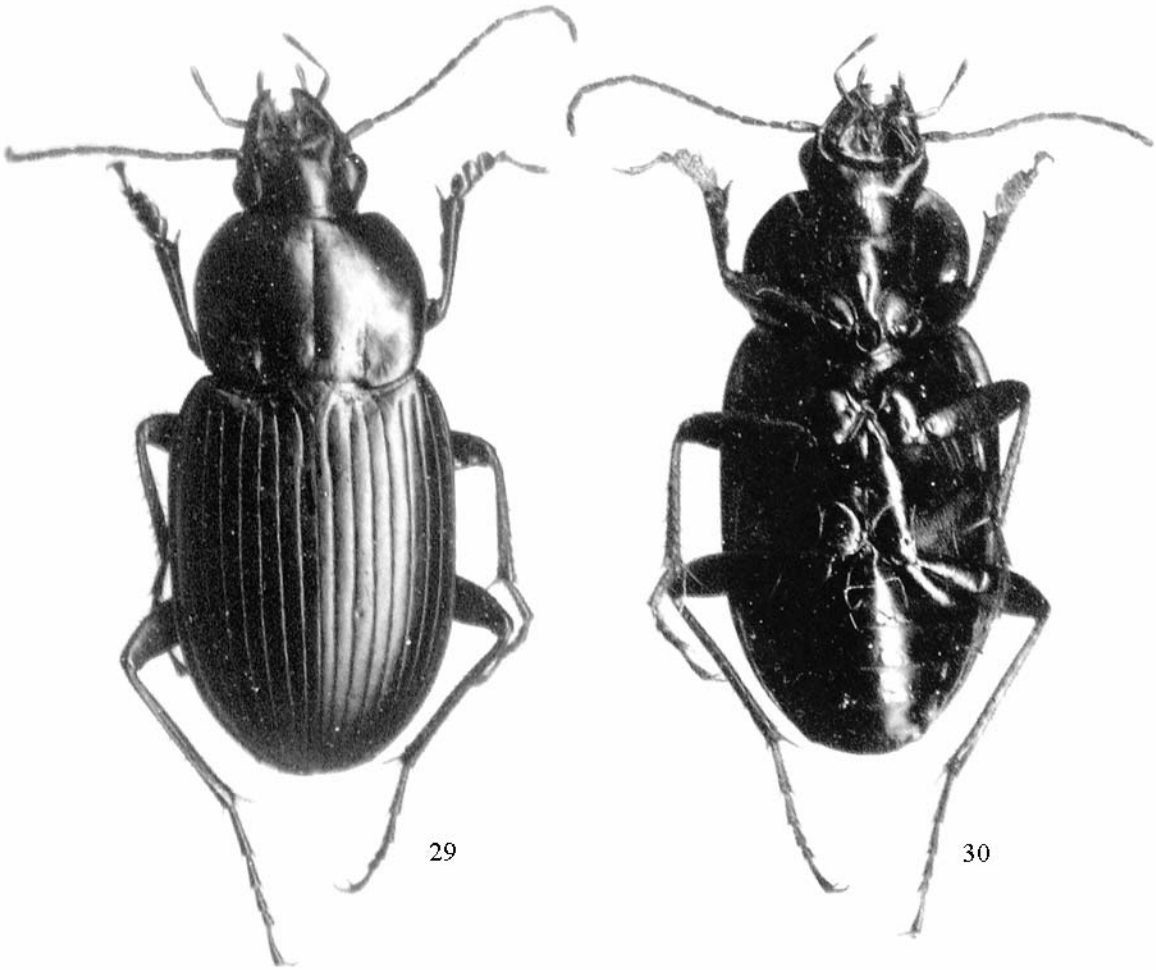
Description. Body length 11.3–12.5 mm, width of elytra 5.0–5.3 mm.

Black, slightly shiny (nearly mat) on dorsum; palpi dark brown or almost piceous black.

Microsculpture on head fine, consisting of weakly transverse meshes; in pronotum and elytra meshes almost isodiametric, finer and smaller on pronotum than on elytra.

Habitus as in Figs. 29–30.

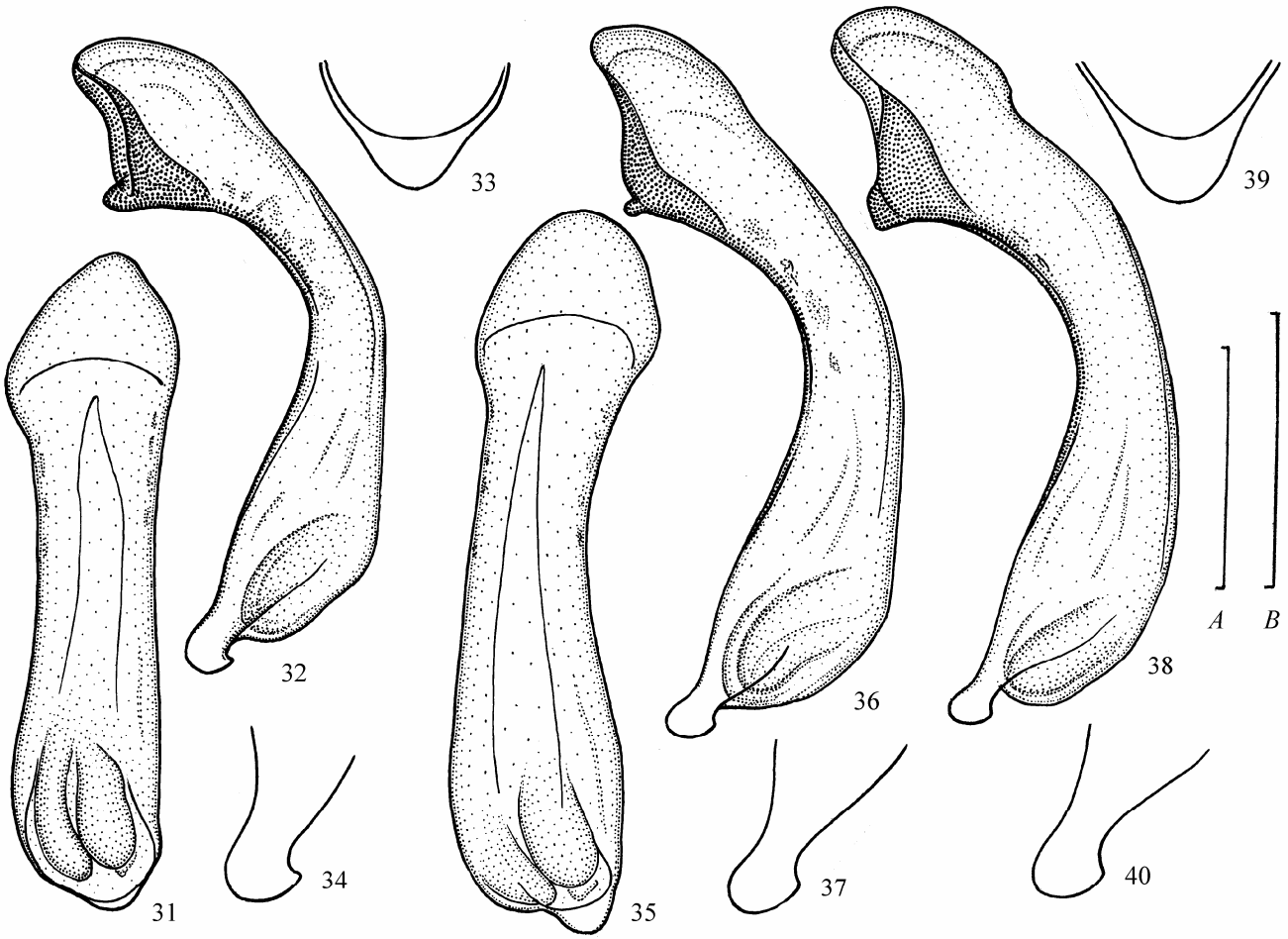
Head much narrower than pronotum (PW/HW = 1.75–1.77, m = 1.76), smooth on dorsum, with strongly prominent, hemispherical eyes. Frontal furrows very short, almost puncture-like, located near posterior angles of clypeus, usually at bottom of more or less oval depressions. Clypeus transverse, separated from frons by a transverse suture; lateral margins of clypeus converging anteriad; anterior margin widely, arcuately emarginate and bordered; membranous base of labrum visible in this emargination. Labrum weakly transverse, with deep (to 0.4 length of labrum), triangular emargination anteriorly and with 4 setae (1 in each anterior angle and 2, close to each other, medially). Mandibles notably shorter than in *D. latifrons*, acute at apices, asymmetrical; apical portion of inner margin of left mandible evenly emarginate up to level of anterior margin of labrum; inner margin of right mandible also weakly emarginate up to obtuse medial denticle located just before anterior margin of labrum, approximately one quarter from apex. Apical article of maxillary palpi spindle-shaped, blunt at apex and approximately as long as penultimate article; apical article of labral palpi more or less cylindrical in apical half, blunt at apex. Mentum with deep (but shallower than in *D. latifrons*) emargination (approximately to one-half mental length), with very small and very obtuse median tooth and with 2 long setae just at emargination and rather far from posterior margin of mentum; lateral lobes of mentum obtuse-angled at apices; epilobes very narrow; medial portion of mentum with longitudinal costal convexity, lateral portions with deep fovea on each side. Mentum and submentum separated by distinct transverse suture. Head without wrinkles ventro-laterally.



Figs. 29, 30. *Diplocheila minima* Jedl. (Primorskii Terr., Ryazanovka), general view: (29) dorsal view, (30) ventral view.

Pronotum weakly convex, transverse (PW/PLmax = 1.26–1.39, m = 1.31; PW/PLmin = 1.43–1.48, m = 1.45), widest before middle, more strongly narrowed anteriad than posteriad. Sides rounded, completely bordered; lateral groove very narrow, furrow-like. Anterior margin deeply emarginate. Anterior angles obtuse, rounded at apices, rather prominent. Posterior margin much wider than anterior margin (PP/PA = 1.39–1.57, m = 1.51), emarginate or almost straight medially, slightly oblique laterally. Posterior angles hardly marked, widely rounded. Disc smooth, with 1 narrow and shallow basal fovea on each side often reaching posterior margin; discal convexity reaching lateral border but usually very weak depression recognizable along lateral margin. Anterior lateral seta located at maximal width of pronotum, posterior lateral seta in posterior angle.

Elytra moderately convex, rather weakly and more or less evenly rounded at sides, widest approximately at middle (EL/EW = 1.44–1.50, m = 1.47; EL/PLmax = 2.28–2.55, m = 2.36; EW/PW = 1.20–1.24, m = 1.22), widely rounded together at apex, without preapical sinuation. Base approximately as wide as base of pronotum. Humeral angle distinct, obtuse, with a small denticle at apex. Radial area reaching suture. Basal border complete, arcuate. Striae distinct but shallow, impunctate, almost complete (3rd–7th striae slightly not reaching basal border). Basal pore umbilicate. Elytral intervals flat, sutural intervals roof-shaped risen. Third interval usually with 2 (sometimes 1 or 3) discal setiferous pores at 2nd stria; anterior pore located at middle of elytra, posterior pore located closer to apex. Ninth interval almost entirely reduced in anterior half, distinct posteriorly and clearly widened to apex. Lateral series of setiferous pores divided into 2 groups (anterior group consisting usually of 8 pores and posterior group consisting of 9, sometimes 10, pores), in addition 2 pores



Figs. 31–40. *Diplocheila minima* Jedl., penis; (33, 34, 37, 39, 40) terminal lamella; (31–34) China, Sichuan (holotype); (35–37) Amur Prov., Kundur; (38–40) Primorskii Terr., Ryazanovka; (31, 33, 35, 39) dorsal view; (32, 34, 36, 37, 38, 40) lateral view. Scale: *A* = 0.5 mm (Figs. 33, 34, 37, 39, 40), *B* = 1.0 mm (Figs. 31, 32, 35, 36, 38).

present between anterior and posterior groups; all pores umbilical although anterior pores very small. Seventh stria, separated partly from radial area by thin carina, with 2 setiferous pores apically. Elytral plica reaching lateral margin at a distance from epipleural apex and not forming a groove. Wings developed.

Ventral surface smooth, impunctate. Intercoxal process of prothorax rounded at apex and distinctly bordered laterally and apically. Metepisterna slightly (about 1.2 times) as long as wide along anterior margin, strongly narrowed posteriad. Legs very long, slender. Tarsomere 5 without setae ventrally. Protarsomeres 1–3 in male rather strongly dilated and with complete spongy vestiture ventrally consisting of dense adhesive scales rounded at apices; 1st tarsomere almost triangular, approximately as long as wide; 2nd tarsomere transverse; and 3rd tarsomere irregular in shape, more or less oval, approximately as long as wide.

Stylus nearly triangular, acute at apex, with 1 rather large spine on inner margin and 2 slightly smaller spines on external margin.

Penis (Figs. 31–40) arcuate, rather strongly widened in apical third before apex; terminal lamella small, triangular, rounded at apex; apical capitulum distinct, projecting dorsally and ventrally.

Variation. Compared with the holotype (Figs. 31–34), all the examined males from the Far East of Russia possess a penis with the terminal lamella longer and with the apical capitulum more strongly projecting dorsally (Figs. 35–40)

Distribution. Up to the present time, *D. minima* was known only from Sichuan, China (Ball, 1966; Baehr, 2003). According to our data, the species is also distributed in north-eastern China and the Russian Far East (the south of Amur Province and the south of the Primorskii Territory). It is most likely that *D. mi-*

nima will be also found in Korea, at least in the northern part of the peninsula.

The discovery of this species in the Far East of Russia in two districts far removed from each other (the south-easternmost part of Amur Province and the south of the Primorskii Territory) was rather expected. It is known that the fauna of the south-easternmost part of Amur Province (the south-western slopes of the Malyi Khingan Mt. Range and the adjacent plains along the Amur River) includes many southern elements and in this respect is very similar to that of the south of the Primorskii Territory though located almost 700 km to the North (Lafer and Morozinskij, 1992). In addition to *D. minima*, some other species of carabids demonstrate a similar distribution in the Russian Far East, for example *Trichotichnus coruscus* (Tschitschérine, 1895) and *Pentagonica angulosa* Bates, 1883. It should be also noted that such species, widely distributed in China, as *Harpalus tangutorum* Kataev, 1993 and *Pentagonica daimiella* Bates, 1892 are known in Russia only from the western slopes of Malyi Khinhan (Kataev, 2007).

Type material. Holotype. ♂, labeled: "China—Kiating, Szetschuan, Coll. Dr. Breuning," "Type," "*Diplocheila* sp. nov., H.E. Andrewes det.," "*Diplocheila minima* mihi sp. n., det. Ing. Jedlička" (ZIN).

Additional material examined. RUSSIA. Amur Prov.: 1 ♂, Khingan Nature Reserve, Kundur Station, 23–27.VII.1983 (Yu. Tretjakov) (ZIN). Primorskii Terr.: 1 ♂, Lazo Distr., Lazo Nature Reserve, Petrova Bay, 10 km SW Preobrazhenie, wet meadow, 9.VI.1995 (Yu.N. Sundukov) (cS); 1 ♀, Shkotovo Distr., Petrovka Vill. env., marsh, under logs, 15.VIII.1988 (I. Melnik) (MPU); 1 ♂, 1 ♀, Khasan Distr., Ryazanovka Vill., Boismana Bay, marshy meadow, 0.5 km from seashore, 23.VII.1985 (G.Sh. Lafer) (IBP); 1 ♂, same area, Ryazanovka River valley, 0.5 km from seashore, 21.VII.1985 (G.Sh. Lafer) (IBP); 1 ♀, same are, Boismana Bay, margin of marsh, 150 m from seashore, 23.VII.1985 (G.Sh. Lafer) (IBP); 1 ♀, Khasan Vill. env. near Golubinyi Utes Mountain, 30.VII.1974 (O.I. Kalinina) (IBP); 1 ♂, Khasan Distr., Lebedinoe Vill. env., 21.VI.1988 (D.V. Obydov) (MPU). CHINA. 1 ♂, Heilongjiang, Harbin, 3.VIII.1941 (Nikitin) (ZIN).

Taxonomic remarks. According to the original description, the holotype of *D. minima* has three discal setiferous pores on the each elytron. Actually, the holotype has three discal pores only on the left elytron, the right elytron possessing only two.

Because *D. minima* has been described from a single specimen, the specimens used by Ball (1966) for re-description of this species are not paratypes although they belong to the same species.

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