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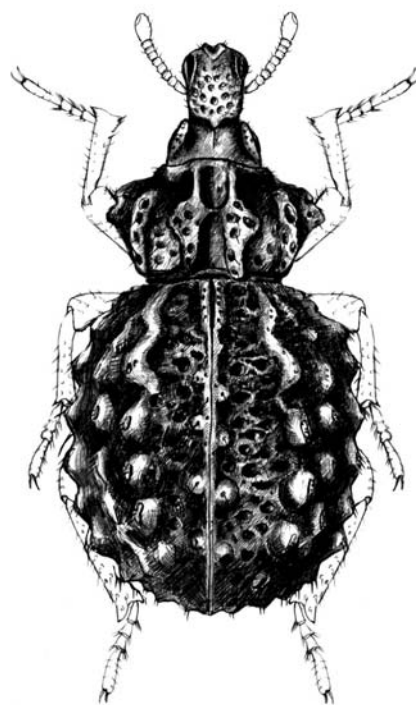


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A review of the genus *Nalassus* Mulsant, 1854 (Coleoptera: Tenebrionidae: Helopini) of China with new concept of the distribution of the genus

Обзор рода *Nalassus* Mulsant, 1854 (Coleoptera: Tenebrionidae: Helopini) Китая с новой концепцией распространения рода

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Key words: Coleoptera, Tenebrionidae, Helopini, *Nalassus*, China, recent distribution, paleodistribution.

Ключевые слова: Coleoptera, Tenebrionidae, Helopini, *Nalassus*, Китай, современное распространение, палеораспространение.

Abstract. Two species of the genus *Nalassus* Mulsant, 1854: *Nalassus* (s. str.) *pekinensis* (Fairmaire, 1888), **comb. n.** (from *Cylindrinotus*) from Beijing and *Nalassus* (*Helopocerodes*) *melchiades* (Reitter, 1922) from Tarbagatai ridge (Xinjiang) are recorded for China for the first time. Types of these species are studied; lectotype of *Nalassus pekinensis* is designated. Paleodistribution, associated with wide distribution of Turgayan flora in Middle–Late Oligocene is analyzed.

Резюме. Впервые для Китая указываются 2 вида рода *Nalassus* Mulsant, 1854: *Nalassus* (s. str.) *pekinensis* (Fairmaire, 1888), **comb. n.** (из *Cylindrinotus*) из Пекина и *Nalassus* (*Helopocerodes*) *melchiades* (Reitter, 1922) из Тарбагатай (Синьдзянь). Изучены типы указанных видов, обозначен лектотип *Nalassus pekinensis*. Анализируется палеоареал рода *Nalassus*, связанный с широким распространением тургайской флоры в среднем–позднем олигоцене.

The tribe Helopini of Chinese fauna includes 6 genera. Two species of the genus *Tarpela* Bates, 1870 described from Fujian province [Kaszab, 1954]. Species of 2 monotypic genera *Erulipus* Fairmaire, 1903 and *Apterotarpela* Kaszab, 1954 are known from the same place. Two species of the genus *Catomus* Allard, 1876, subgenus *Sinocatomus* Nabozhenko, 2006 described from Sichuan province [Nabozhenko, 2006b; Liu, Ren, 2010]. All of these genera are formally included in the subtribe Helopina. The other two species (*Eustenomacidius wagnae* (Ren in Ren, Yozhi, 1999) and *Cylindrinotus pekinensis* (Fairmaire, 1888)) belong to the subtribe Cylindrinotini.

Cylindrinotus pekinensis was unclear species to the present time. Gebien [1943] transferred it in the genus *Cylindrinotus* Faldermann, 1837 from *Helops* Fabricius, 1775, but did not include the species in any subgenus. Study the holotype of *C. pekinensis* showed that this species should be included in the nominative subgenus of the genus

Nalassus. This fact absolutely changes the notion about distribution of the genus in the Palaearctic.

The genus *Nalassus* is widely distributed in Mediterranean and Europe (including the British Isles), in Anatolia, in the Caucasus and Iran [Nabozhenko, 2001, 2006a, 2008, 2010; Nabozhenko, Abdurakhmanov, 2007; Nabozhenko, Löbl, 2008; Keskin, Nabozhenko, 2010]. Isolated generic enclave is located in the South-Eastern Kazakhstan [Medvedev, 1987]. Eastern border of generic range in Middle Asia lies on Tarbagatai ridge (*Nalassus melchiades* (Reitter, 1922)).

Thus, disjunctive range of the genus *Nalassus* includes Western Palaearctic, South-Eastern Kazakhstan, Western (Xinjiang) and Eastern China. Central Asian centre of diversity of the genus is separated from Western and Eastern Palaearctic parts of range by vast desert landscapes of Middle (from west) and Central (from east) Asia.

Subgenera of the genus *Nalassus* are formed as a result of long isolation in arid and mountainous landscapes of Palaearctic. Representatives of the subgenus *Helopocerodes* Reitter, 1922 are typical for xerophytic landscapes of Anatolia, the Caucasus, Iran, Middle Asia. Species of the subgenus *Caucasonotus* Nabozhenko, 2000 inhabit alpine and forest zones of the Caucasus. Species of less specialized nominative subgenus are widely distributed in forest and partly alpine landscapes of Europe (to the east to South Ural) and East China (Beijing). Subgenus *Helopondrus* Reitter, 1922 is distributed from Western Europe to North Iran and Turkmenistan (Kopetdag). Disjunctive distribution of *Nalassus* in Palaearctic gives evidence of considerably wide distribution of this genus in Paleogene. Biotopical preferences of species of *Nalassus* to wood landscapes or other mesophytic landscapes (but not very wet) gives reason to suppose that the group reached its highest peak during the Middle–Late Oligocene, when the warm subtropical savannah changed to more humid and cool climate. The Turgayan flora (*Qercus*, *Ulmus*, *Fagus*,

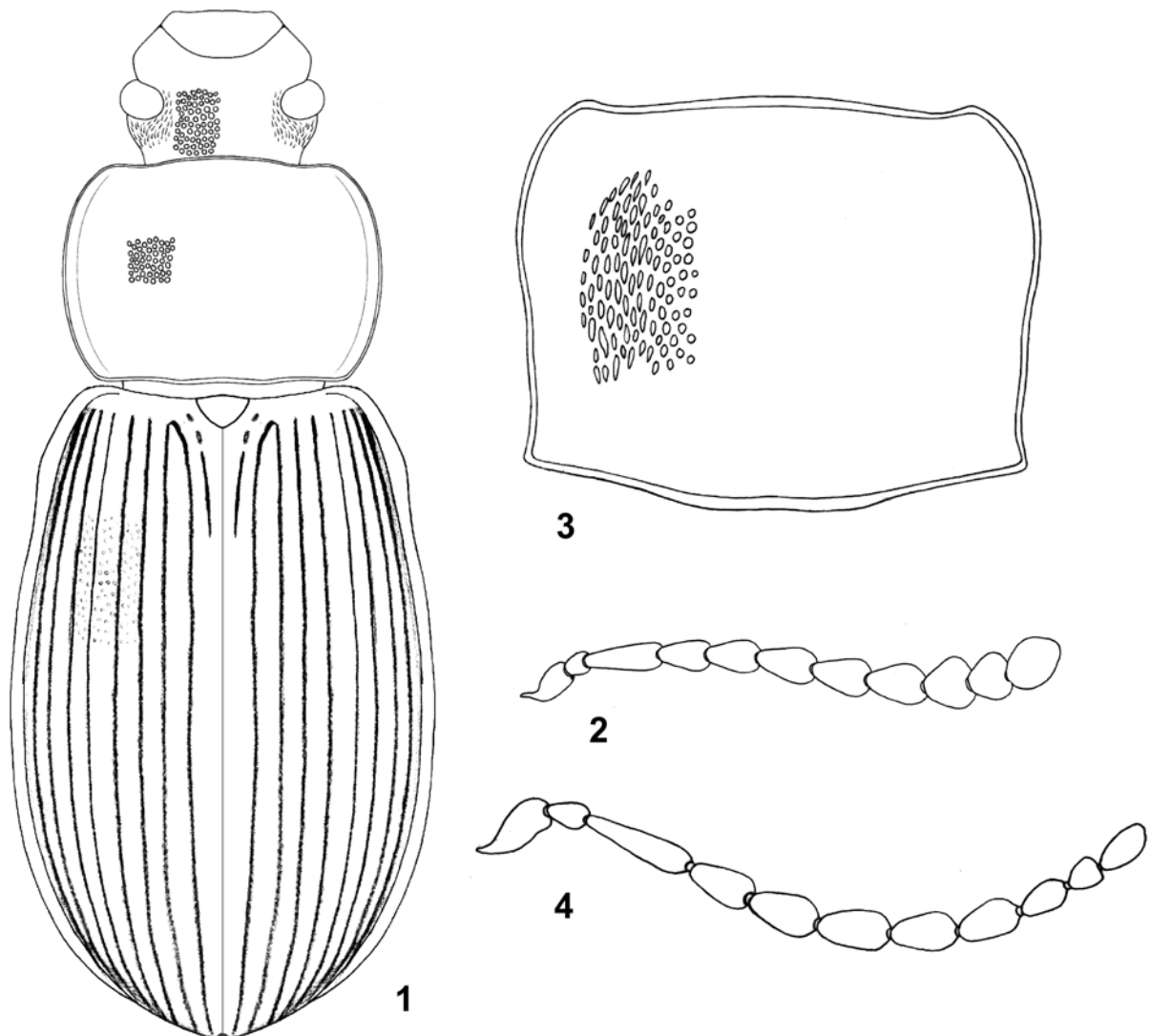


Fig. 1-4 *Nalassus* Mulsant, 1854.

1-2. *Nalassus* (s. str.) *pekinensis* (Fairmaire, 1888), lectotype, female; 3-4. *Nalassus* (*Helopocerodes*) *melchiades* (Reitter, 1922), holotype, female.
1 – habitus; 2 – antenna; 3 – pronotum; 2, 4 – antenna.

Рис. 1-4. *Nalassus* Mulsant, 1854.

1-2. *Nalassus* (s. str.) *pekinensis* (Fairmaire, 1888), лектотип, самка; 3-4. *Nalassus* (*Helopocerodes*) *melchiades* (Reitter, 1922), голотип, самка.
1 – габитус; 2, 4 – усик; 3 – переднеспинка; 2, 4 – усик.

Pinophita, etc.) was most widely distributed throughout the Northern Hemisphere in that period. Drevlyanian ("Poltavian flora" sensu Krishtofovich) Eocene flora had secondary importance [Krishtofovich, 1957; Zhilin, 2001; Perezhogin, 2006]. Wide distribution of the genus *Nalassus* in Oligocene (from Atlantic to Pacific Ocean) is associated with development of Turgayan flora. The beginning of continental regime in Middle and Central Asia is dated from Late Oligocene [Sinitsyn, 1962; Kryzhanovsky, 1965]. Turgayan flora disappeared in Middle Asia as a result of powerful orogenesis and subsequent aridization of climate, that separated continuous range of *Nalassus* with subsequent differentiation of the genus (division on subgenera). It should be noted that the other nalassoid genera evolved on vast areas of Middle Asia and Transcaucasia (excluding *Nalassus*) as a result of adaptation

of nalassoid ancestral forms (protaxa) to global climatic changes: *Zophohelops* (Tien Shan, Hissar, Transcaucasia), *Eustenomacidius* (Tien Shan, Mongolia, China (Inner Mongolia), Kopetdag, Transcaucasia), *Xanthohelops* (Karakum desert), *Turcmehelops* (West Turcmenistan: Big Balchan).

Material

The study is based on the examination of material from the following institutes and museums:

MNHP – Muséum National d'Histoire Naturelle, Paris (France);

DEI – Deutsches Entomologisches Institut, Müncheberg (Germany).

Nalassus (s. str.) *pekinensis* (Fairmaire, 1888), **comb. n.**
(Fig. 1, 2)

Helops pekinensis Fairmaire, 1888: 130; Gebien, 1911: 549;
Cylindronotus pekinensis (insertae sedis): Gebien, 1943: 427
(806);
Cylindrinotus pekinensis Nabozhenko, Löbl, 2008: 241.

Type material (MNHP). Lectotype, ♀, designated here, with labels: «Pekin», «*Helops pekinensis* Fairm. Pekin», «Muséum Paris Coll. L. Fairmaire», «Syntype» (curator's label).

Other material. Unknown.

Redescription of holotype. Female. Body red-brown, moderately slender, dull. Anterior margin of clypeus straight. Lateral margin of head between gena and clypeus without emargination. Genae strongly rounded, angle-shaped. Head widest at level of eyes. Eyes large, convex. Ratio of head width at eyes to distance between eyes: 1.75. Punctuation of head coarse and dense (diameter of punctures 2–3 times as wide as distance between punctures), punctures rounded. Antennae short, not reaching to base of pronotum, antennomeres not thickened. Antennomeres 9–10 transverse; ratio of width/length of 9–10 antennal segments: 1.1, 1.2. Antennomere 11 weakly elongated (1.3 times as long as wide), ovoid. Temple grooves well visible.

Pronotum transverse, widest at middle (1.33 times as long as wide). Lateral margins of pronotum regularly weakly rounded; anterior margin and base almost straight. Anterior and posterior angles obtuse, widely rounded on apex. All margins of pronotum narrowly rimmed. Disc of pronotum weakly convex, narrowly flattened laterally. Punctuation of disc the same as on head. Propleura with longitudinal wrinkles and elongated tubercles, which are formed by wrinkles. Lateral margins of propleura flattened. Prosternal process convex, forms obtuse tooth.

Elytra strongly elongated (1.6 times as long as wide), almost parallel, 3 times as long and 1.35 times as wide as pronotum. Strial punctures round, merged in entire deep furrows. Elytral intervals slightly convex, distinctly punctured; punctures large, transverse distance of interval includes 3 punctures. Eighth interval convex, merged with elytral margin. Epipleuron not reaching sutural angle of elytra; epipleura visibly depressed in base.

Abdominal ventrites finely and densely punctated: diameter of punctures subequal or 1.5 times as wide as distance between punctures. Punctuation on sides of ventrites more dense, punctures merged in wrinkles. Anal ventrite not rimmed apically.

Tibiae narrow, straight, densely pubescence with light hairs.
Body length – 11.7 mm, width – 4.6 mm.

Nalassus (*Helopocerodes*) *melchiades* (Reitter, 1922)
(Fig. 3, 4)

Cylindronotus (*Helopocerodes*) *melchiades* Reitter, 1922: 147;
Winkler, 1929: 1019; Gebien, 1943: 430 (809); Medvedev, 1987:
100, 103;

Nalassus (*Helopocerodes*) *melchiades*: Nabozhenko, Löbl,
2008: 242.

Type material (DEI). Holotype, ♀ with labels: «Tarbagt.» (handwritten), «*Melchiades* m. type» (handwritten by E. Reitter), «Coll. Kraatz», «Holotypus» (curator's label).

Other material. Unknown.

Redescription of holotype. Female. Body bare, dark-brown, weakly shining. Anterior margin of clypeus straight, angles of clypeus visibly projected. Head widest on level of the eyes. Eyes large, convex, strongly transverse. Lateral margin of head with obtuse emargination between gena and clypeus. Surface of head between frons and clypeus slightly depressed. Labrum with dense and coarse punctuation. Punctuation of head very coarse and dense: diameter of punctures about twice as wide as distance between punctures. Temples weakly rounded. Antennae moderately long,

with 2 apical antennomeres extending beyond base of pronotum; antennomeres 2–8 visibly thickened. Temple grooves deep.

Pronotum strongly transverse, widest at middle. Lateral margins strongly S-shaped rounded, straight from widest part of pronotum to base, sinuate near posterior angles. Anterior margin and base of pronotum widely emarginated. Anterior angles of pronotum obtuse, moderately rounded on apex; posterior angles straight, distinct on apex. All margins of pronotum distinctly rimmed. Disc of pronotum regularly convex. Punctuation of pronotum coarse and dense (diameter of punctures 2 times as wide as distance between punctures), coarsely than on head; punctures elongated, sometimes merged on sides of disc. Propleura with fine and dense wrinkles, flattened laterally only near anterior and posterior angles. Prothorax bare. Prosternal process regularly weakly convex.

Elytra visibly convex. Strial punctures merged in entire, often interrupted furrows. Elytral intervals flat, coarsely punctuated, with transverse small wrinkles. Eighth interval connected apically with second interval, separated from elytral margin by furrow. Epipleura strongly impressed, not reaching sutural angle of elytra.

Mesothorax before mesocoxae almost vertical, deeply V-shaped depressed. Abdominal ventrites with coarse and dense punctuation; punctures longitudinally elongated on lateral sides. Anal ventrite completely rimmed apically.

Inner side of femora with transverse smooth wrinkles. Tibiae straight. Tarsi with dense hair brush on sole.

Body length – 11 mm.

Comments. Reitter [1922] incorrectly determined gender of the beetle and wrote male in description. Thickened antennae of female (unique character only for this species) is reason for this error. Medvedev [1987] also wrote “♂” for holotype of *N. melchiades*, but he mentioned that he did not study the type material. Reitter also wrote in his description that this species has been interrupted rim of lateral margins, but all margins of pronotum have distinct rim.

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