Epuraea ambigua Mannerheim, 1843 (Coleoptera: Nitidulidae) in Mexico and its relationship with the Palaearctic *E. marseuli* Reitter, 1972

Epuraea ambigua Mannerheim, 1843 (Coleoptera: Nitidulidae) в Мексике и его связь с палеарктическим *E. marseuli* Reitter, 1972

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Ключевые слова: Coleoptera, Nitidulidae, подрод *Epuraea* s. str., Неарктическая область, викарирование видов, диагностика, распространение.

Abstract. *Epuraea* (*Epuraea*) *ambigua* Mannerheim, 1843 was recently recorded in North East and South Mexico (Coahuila and Chiapas). Examination of the freshly collected specimens of this species gave a possibility to re-consider the structural variabily and distribution of this species. Elaboration of an amended diagnosis for it allowed to establish that this species is related and vicariant to the trans-Palaearctic *Epuraea* (*Epuraea*) *marseuli* Reitter, 1972.

Резюме. *Epuraea* (*Epuraea*) *ambigua* Mannerheim, 1843 недавно найден в Северо-Восточной и Южной Мексике (Коауила и Чиапас). Исследование свежесобранных экземпляров этого вида дало возможность пересмотреть структурную изменчивость и распространение этого вида. Разработка диагноза для него позволила установить его родство и викарирование с транспалеарктическим *Epuraea* (*Epuraea*) *marseuli* Reitter, 1972.

Introduction

The subfamily Epuraeinae is one of 10 subfamilies of the family Nitidulidae and it includes two tribes, Epuraeini Kirejtshuk, 1986 and Taenioncini Kirejtshuk, 1998 [Kirejtshuk, 2008]. The tribe Epuraeini is an extensive group, currently with twelve genera and approximately 400 species that are known from all zoogeographical regions, except Antarctic one. The genus *Epuraea* Erichson, 1843 is the largest genus in the subfamily, including 16 subgenera and about 300 species. Some *Epuraea* species have been initially described from Mexico, such as *Epuraea* (*Epuraea*) *alternans* Reitter, 1873, *E.* (*E.*) *cetera* Kirejtshuk et Pakaluk, 1996, *E.* (*E.*) *flavicans* Reitter, 1873, *E.* (*E.*) *gulstafsoni* Kirejtshuk et Pakaluk, 1996, *E.* (*E.*) *interposita* Kirejtshuk et Pakaluk, 1996, *E.* (*E.*) *labilis* Erichson, 1843, *E.* (*E.*) *mexicana* Sharp, 1890, *E.* (*E.*) *papagona* Casey, 1884 and *E.* (*Amedanyraea*) *latebrosa* Kirejtshuk et Pakaluk, 1996. *Epuraea scaphoidea* Horn, 1879 was described from Colorado and later found in Mexico and for this species a separate subgenus *Horniraea* Kirejtshuk et Pakaluk, 1996 was erected. *Orthopleplus quadricollis* Horn, 1879 was described from Arizona, Colorado and New Mexico. Later the last-mentioned species was transferred into the genus *Epuraea* as the type species of the subgenus *Orthopleplus* Horn, 1879 and its range was increased thanks to adding some new data from Mexico [Kirejtshuk, Pakaluk, 1996]. Besides, *Epuraea* (*Orthopleplus*) *quadricollis* was recently splitted by Cline and Carlton [2004] into three species (*E.* (*O.*) *quadricollis*, *E.* (*O.*) *plenasulca* Cline, 2004 from South Mexico and *E.* (*O.*) *setosa* Cline, 2004 from Central Mexico), although the distinctness of them needs to be supported by further re-examination of the type series and study of additional specimens. *Epuraea* (*Haptoncus*) *luteola* Erichson, 1843 distributed in many territories with tropical and subtropical climate was also recorded in Mexico [Horn, 1879; Sharp, 1890; Parsons, 1943; Kirejtshuk, Pakaluk, 1996, etc.]. In the latter paper *Epuraea* (*Epuraea*) *ambigua* Mannerheim, 1843 was synonymized with *E.* (*E.*) *integra* Horn, 1890 and it was supposed that *E.* (*E.*) *mexicana* could be added to these two synonyms. Finally, *Epuraea* (*Epuraea*) *prolixa* Sharp, 1890 was described from Guatemala and recently found in Mexico (Kirejtshuk, in litt.).

This paper is devoted to a further study of *Epuraea* (*Epuraea*) *ambigua* (= *integra* and ? = *mexicana*), one of

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common Nearctic species of the subgenus *Epuraea* s. str. recently collected in the North East and South Mexico (Coahuila and Chiapas).

Material and methods

Some specimens were recently collected and mounted by the first author, then they were examined and named by the second author. After study these specimens were deposited in collections of the Antonio Narro Agrarian Autonomous University (Saltillo, Mexico) and Zoological Institute of the Russian Academy of Sciences (St. Petersburg, Russia). The comparison and other comments were made by the second author who had many possibilities to study specimens of most species of the subgenus *Epuraea* deposited in different collections of the world. The study of the specimens was carried out with the stereomicroscopes MBS 10 and the photographs were taken with a Canon EOS 11 40D digital camera with a Canon MP-E 65 mm objective and were combined using Zerene Stacker 1.04 software.

Family Nitidulidae Latreille, 1802
Subfamily Epuraeinae Kirejtshuk, 1986
Tribe Epuraeini Kirejtshuk, 1986
Genus *Epuraea* Erichson, 1843
Subgenus *Epuraea* Erichson, 1843

Type species: *Nitidula silacea* Herbst, 1784, recent.

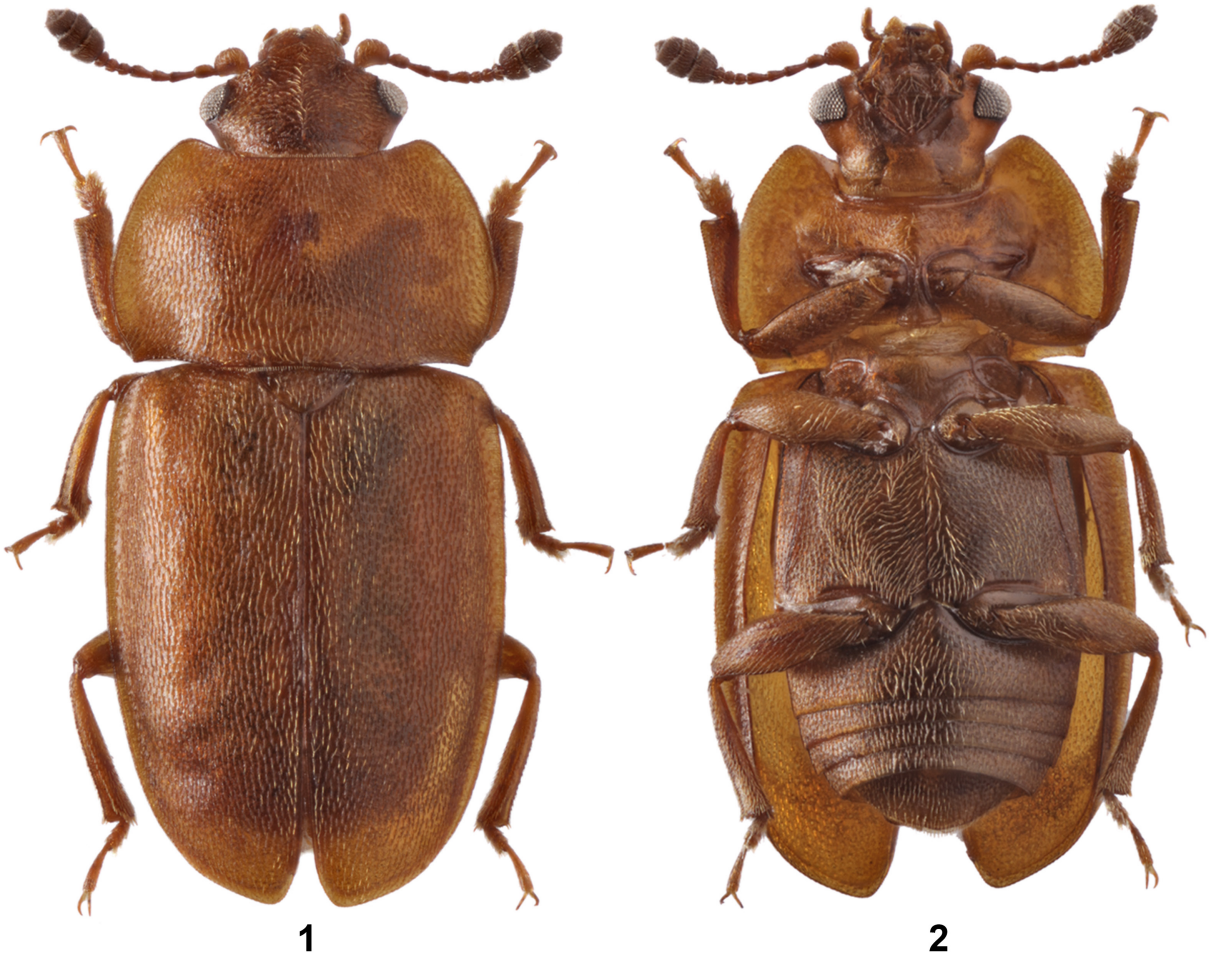
Epuraea (*Epuraea*) *ambigua* Mannerheim, 1843
(Figs 1–6)

= *Epuraea* (*Epuraea*) *integra* Horn, 1879. México, Guatemala, U. S. A. (synonymized by Kirejtshuk, Pakaluk, 1996).

? = *Epuraea mexicana* Sharp, 1890. México (preliminary synonymization by Kirejtshuk, Pakaluk, 1996).

Material. Mexico: 14 ex., Saltillo Coahuila, Bajio UAAAN, 25°25′23″N / 101°00′19″E, 1592 m, dried orange, apple and banana under Juniperus tree, 15.05, 1–5.06.2015 (H. Hernandez); 4 ex., Chiapas, Angel Albino Corzo, 15°52′N / 92°43′E, 640 m, dried orange, apple and banana, 24.12.2016 (H. Hernandez).

Addition to description. This species is characterized by the oblong, subunicolorous pale (straw reddish) to rufous body (with length 2.8–4.3 mm). Head about twice as wide as long. Eyes medium-sized and consisting of usual sized facets. Labral lobes longest at middle and with short median excision. Antennomere 2



Figs 1–2. *Epuraea* (*Epuraea*) *ambigua*, male (Saltillo Coahuila, Bajio UAAAN, length of body 3.1 mm).
1 – dorsal view; 2 – ventral view.
Рис. 1–2. *Epuraea* (*Epuraea*) *ambigua*, самец (Saltillo Coahuila, Bajio UAAAN, длина тела 3.1 мм).
1 – сверху; 2 – снизу.

Figs 3–6. *Epuraea* (*Epuraea*) *ambigua*, male genitalia (Saltillo Coahuila, Bajio UAAAN).
3 – tegmen, lateral view; 4 – idem, ventral view; 5 – penis, lateral view; 6 – idem, dorsal view. Scale bar 1 mm.
Рис. 3–6. *Epuraea* (*Epuraea*) *ambigua*, гениталии самца (Saltillo Coahuila, Bajio UAAAN).
3 – тегмен, сбоку; 4 – то же, снизу; 5 – пенис, сбоку; 6 – то же, сверху. Масштабная линейка 1 мм.

somewhat suboval and wider than following subconical ones; antennomere 3 longer than each of antennomeres 2 and 4; antennal club elongate oval, almost symmetrical, about twice as long as wide and comprising nearly 2/7 of total antennal length. Ultimate labial palpomere transverse and slightly widened apically; ultimate maxillary palpomere subcylindrical slightly narrowed apically and about two and half as long as wide. Mentum subhexagonal and strongly transverse, about five times as wide as long. Prosternal process slightly curved along procoxae and strongly widened before nearly transverse apex. Distance between the mesocoxae slightly greater, and distance between metacoxae about twice greater than that between procoxae. Male midtibiae more or less dilatated along inner edge before apex (almost simple in smallest specimens). Aedeagus: tegmen with heavily sclerotized sides, penis trunk slightly sclerotized and inner sac of penis with three weakly sclerotized spicules.

Diagnosis. Due to the slender body with pronotal lateral edges sinuated at base, moderately widely explanate pronotal and elytral sides, more or less acuminated elytral apices *E.* (*E.*) *ambigua* is rather distinct among the Nearctic members of the subgenus. The Central American species *Epuraea* (*Epuraea*) *prolixa*, in contrast to the species under consideration, has the rather narrow body (narrower than in *E.* (*E.*) *ambigua*) with oblique elytral apices (frequently nearly conjointly rounded) and it is distinct from *E.* (*E.*) *ambigua* in the much darker body coloration, narrowly explanate and subrectilinear pronotal and elytral sides, extremely dense and very fine puncturation on dorsal integument and peculiar aedeagal structure. Some other Nearctic species (*E.* (*E.*) *boreades* Parsons, 1967, *E.* (*E.*) *eximia* Parson, 1969, *E.* (*E.*) *gulstafsoni*, *E.* (*E.*) *lengi* Parsons, 1969) have more or less (sub) acuminated elytral apices, but their body is markedly wider and with different outline of pronotum, different sculpture of integument and characteristic structure of aedeagus. *Epuraea* (*Epuraea*) *ambigua* is rather similar to and seems to be closely related to the modern trans-Palaearctic *E.* (*E.*) *marseuli* Reitter, 1872 and differs from the latter in the somewhat darker and usually larger body, markedly longer antennal club, a more or less expressed lateral sinuation at each posterior angle of pronotum, and also in the much longer aedeagus (both tegmen and penis trunk) and particularly in rather or at least comparatively narrower apex of the penis trunk.

Distribution. Before this study this species was known from Alaska, British Columbia, Washington, Oregon, Idaho, Nevada, Arizona, New Mexico, Colorado, California, North Sonora, Guanajuato, Mexico City, Guatemala (Quiche Mountains) [Sharp, 1890; Parsons, 1943; Kirejtshuk, Pakaluk, 1996].

Notes on synonymy. The type series of "*Epuraea ambigua*" originated from Alaska [Mannerheim, 1843: Sitka] and was examined with the lectotype designation by Kirejtshuk and Pakaluk [1996]. The types of *Epuraea* "*integra*" [Horn, 1879: Arizona, Colorado] and *E.* "*mexicana*" [Sharp, 1890: North Sonora, Guanajuato,

Mexico City] remain without examination, but the variability of this species in many characters is rather great (including the characters used by every describer for distinguishing of "*ambigua*", "*integra*" and "*mexicana*"). The species represented by these type series demonstrates a sexual dimorphism in the midtibiae. The subapical dilatation more or less expressed in male ones is rather variable, although sometimes it seems to be not visible at all. On the other hand, the level of projection of elytral apices and shape of pronotum is also rather variable, but the lateral sinuation at each posterior angle is always more or less visible. These features gave reasons to Mannerheim [1843], Horn [1879] and Sharp [1890] to propose a separate species. Kirejtshuk and Pakaluk [1996] established the synonymy of "*ambigua*" and "*integra*" and supposed that "*mexicana*" can be also synonymized. Sharp [1890] did not mention any character in the description of "*mexicana*" which could raise a question in a gradual variability of characters in the specimens examined by the second author. Sharp [1890: 307] included in the type series of the "*mexicana*" only five specimens from "Mexico, Northern Sonora (Morrison), Guanajuato (Sallé), Mexico city (Forrer)." It is thought that these specimens could present only a certain variability. The current study of freshly collected specimens from north-east and south parts of Mexico confirms this previous supposition.

Notes on relationship between *Epuraea* (*Epuraea*) *ambigua* and *E.* (*E.*) *marseuli*. The trans-Palaearctic *Epuraea* (*Epuraea*) *marseuli* spreads through Europe (including Great Britain and Scandinavian peninsula), the Caucasus, Transcaucasia (including Turkey), Iran, Kazakhstan, Siberia, Altai Mountains, Russian Far East, Mongolia, Japan [Kirejtshuk, 1992; Hisamatsu, 2016, etc.] with more frequent occurrence in boreal and mountain coniferous forests. Adults and larvae of this species feed on fungal hyphae (including those in galleries of scolytines). Adults occur also on flowers (particularly in spring), fermenting tree juice, decaying and dry fruits, and sometimes at light. Hisamatsu [2016: 56] mentioned that the "elytra (authors' comments: of *E.* (*E.*) *marseuli* are) more widely rounded in Japanese specimens than that of European specimens". Indeed this feature shows a variable expression in different areas (like that in *E.* (*E.*) *ambigua*), although according to the museum collections in some Caucasian and Far East populations the number of specimens with elytral apices almost separately rounded seems to be more or less great [Kirejtshuk, 1992].

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