On the Phytophagous Scarabs of the Subfamilies Dynastinae, Rutelinae, and Melolonthinae from the Schouten Islands (=Kepulauan Biak), Indonesian Papua (Coleoptera: Scarabaeidae)

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Twelve species of rhinoceros beetles and chafer are reported from Biak I. and Yapen I. off the northwest coast of New Guinea; three species of Neoheteronyx are described as new. Xylotrupes clinias Schauffuss, 1885 and Engertia amboinae Brenske, 1897 are reported for the Papuan region for the first time, and the range of Lepidiota reuleauxi Brenske, 1892 is extended to the Indonesian part of New Guinea. A relationship between the scarab faunas of the Schouten and Moluccan Is. is demonstrated for the first time.

Key Words: Phytophagous Scarabaeidae, Papuan region, Biak, Yapen, species composition, faunistics, Neoheteronyx, new species.

Introduction

The scarabaeid diversity of the Papuan region is still very incompletely known, and the species composition on the small islands off the main island of New Guinea remains almost completely unresearched. For instance, the scarabaeid fauna of the islands in Geelvink (=Cenderawasih) Bay has never been the object of a special study, although there have been several species descriptions of dynastine and ruteline beetles from Biak and Yapen Islands (Endrödi 1985; Zorn 2007).

In November 2012 I spent few weeks on Biak I. and had a short excursion on Yapen I., whence a small collection of beetles was obtained. Although this trip generally was not conducive to good sampling as I visited this area during the driest part of the year and the time for entomological investigations was very limited, 12 species of phytophagous scarabs were collected, some of which belong to new species or represent range extensions for known species. Furthermore, some species appeared to be close or identical not to their relatives on the neighbouring main island of New Guinea but to species hitherto known from more westward islands of the Indo-Australian Archipelago. Therefore, I have decided to summarize the data on this collection in the present communication.

The holotypes will be sent to the Museum Zoologi Frater Vianney (Malang, Indonesia), and the paratypes and other specimens are housed in the Institute of Ecology and Evolution, Russian Academy of Sciences, Moscow, Russia (IEE). The type specimens of the species described in this paper bear the following labels: “HOLO-/PARATYPUS Neoheteronyx [species epithet] Prok.” The length of the beetles was measured from the anteriormost point of the clypeus to the hindmost point of the elytra.

Subfamily Dynastinae MacLeay, 1819

Oryctes rhinoceros (Linnaeus, 1758)

Material. 2 males, Indonesia, Papua, Biak I., Biak Kota, Samau village, Nirmala Hotel, 12 and 18.11.2012, A. M. Prokofiev leg.

Remarks. This is a widely distributed species known from the whole Oriental and Papuan regions eastward to Polynesia, and a common pest of coconut palms. However, in the present study it was a rare inhabitant of urban lands only.

Oryctodes latitarsis Boisduval, 1835

Material. 2 males, Indonesia, Papua, Biak I., Biak Kota, Samau village, Nirmala Hotel, 12 and 18.11.2012, A. M. Prokofiev leg.

Remarks. This is a widely distributed species known from the whole Oriental and Papuan regions eastward to Polynesia, and a common pest of coconut palms. However, in the present study it was a rare inhabitant of urban lands only.

Oryctodes latitarsis Boisduval, 1835: 160.

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lected were associated with coconut palms. It was extremely abundant in the coconut groves on the border of a disturbed primary forest.

**Xylotrupes clinias** Schaufuss, 1885

**Material.** 3 males, 4 females, Indonesia, Papua, Biak I., Biak Kota, Samau village, Nirmala Hotel, 08–20.11.2012, A. M. Prokofiev leg.; 2 males, 3 females, Biak Utar, near Napdori village, 2–3 km from right bank of Air Napdori river, black light, 10–11 and 18–19.11.2012, A. M. Prokofiev leg.

**Remarks.** This species has been known hitherto from Sulawesi and the Moluccas eastward to the Kei Islands (Rowland 2011). The populations from the main island of New Guinea and the Aru Islands were separated as *X. carinulus* Rowland, 2011 (*loc.cit.*). Surprisingly, the specimens from Biak possess well-developed pronotal carinae, which is not characteristic for a New Guinean species. A direct comparison of the Schouten specimens with specimens from Ceram and Ambon Is. (*X. clinias*) and Fak-Fak Mts., New Guinea (*X. carinulus*) shows their full identity with the former species. The presence of beetles morphologically identical to the Moluccan form on the Geelvink Bay islands indicates that the distribution of this form extends rather far eastward along the northwestern coast of New Guinea. On the other hand, the differences between *X. clinias* and *X. carinulus* may represent population variability rather than specific differences, inasmuch as both nominal species have the same structure of the raspulae (Rowland 2003, 2011), and populations with developed pronotal carinae may be sparsely distributed among populations that lack such carinae. Arguing against this, however, Rowland (2011) considered the pronotal structure to be a very stable character for *X. carinulus* based on his examination of more than 200 males from the whole assumed range of distribution.

Subfamily Rutelinae MacLeay, 1819

**Anomala anoguttata** Burmeister, 1844

**Material.** 1 male, 3 females, Indonesia, Papua, Biak I., Biak Kota, Samau village, 18–19.11.2012, A. M. Prokofiev leg.; 1 male, 1 female, Biak Utar, near Napdori village, 2–3 km from right bank of Air Napdori river, black light, 10–11.11.2012, A. M. Prokofiev leg.

**Remarks.** This species is widely distributed from the Philippines to the Solomon Islands (judging from the specimens kept in the Ohaus collection, Museum für Naturkunde, Berlin; author’s unpublished data). Four of my specimens were collected in agricultural lands near a town; the two other specimens came to a light in a disturbed secondary forest.

**Anomala pygidialis** Kirsch, 1876

**Material.** 4 females, Indonesia, Papua, Yapen I., northern coast, Rosbori village, at light, 13–14.11.2012, A. M. Prokofiev leg.

**Remarks.** This species was originally described from “Rubi [?]”, in the south of Geelvinkbay” and later was re-described together with specimens from the Vogelkop Peninsula and the adjacent islands (Misoool and Waiego) (Zorn 2007). Although I did not collected any males, my female specimens are closer to *A. pygidialis* than to two other very similar species (*A. biakensis* Zorn, 2007 from Biak I. and *A. bruggei* Zorn, 2007 from Yapen I. and the adjacent coast of New Guinea) in displaying no any trace of a basal tooth on the protibia and in other minor details (see Zorn 2007: 38). *Anomala bruggei* co-occurs with *A. pygidialis* in area near Sorong city (northwestern coast of New Guinea) as well (Zorn 2007).

**Parastasia novoguineensis** Ohaus, 1898

**Material.** 1 female, Indonesia, Papua, Yapen I., northern coast, Rosbori village, at light, 13–14.11.2012, A. M. Prokofiev leg.

**Remarks.** This is an uncommon but widely distributed Papuan species known from New Guinea and nearby islands including the Solomon Islands (Prokofiev 2014).

Subfamily Melolonthinae Samouelle, 1819

**Apogonia** sp.
Engertia amboinae (Brenske, 1897)


Remarks. Five known species of Engertia Dalla Torre, 1912 are distributed in the Philippines, Sri Lanka, southern Moluccas, and New Guinea (Keith 2006). Surprisingly, the Schouten specimens represent not E. papuana (Moser, 1913) known from the main island of New Guinea, but E. amboinae which has been known hitherto only from Ambon I. (Keith 2006). The females of E. amboinae can be distinguished easily from those of E. papuana by the shape and density of the scales on the elytra which are larger, ovate, and more numerous and more closely packed in contrast to the sparse lanceolate scales of E. papuana (Figs 1–2). Both Schouten specimens agree well in this character with the type of E. amboinae (cf. Keith 2006). The third Indo-Australian species of this genus, E. setifera (Moser, 1913), can be easily distinguished by the presence of setae instead of scales on the elytra (Fig. 3). The Yapen I. and Miosindi Islet records greatly extend the known distribution of this species, which is probably widely distributed in eastern Indonesia.

Lepidiota reuleauxi Brenske, 1892

Material. 4 males, 4 females, Indonesia, Papua, Yapen I., northern coast, Rosbori village, black light, 13–14.11.2012, A. M. Prokofiev leg.

Remarks. This species is widely distributed in Papua New Guinea, where it is known as a sugarcane pest (Allsopp 1990). However, it was not hitherto known in Indonesian Papua. Lepidiota reuleauxi was common in the disturbed margins of a primary forest on Yapen I. and seems likely to be widely distributed in the whole New Guinean region. The present specimens show some variability in the outlines of the dorsal processes of the male parameres and have slightly deeper and shorter parameres in lateral view than specimens from Papua New Guinea (Heller 1914; Allsopp 1990). The females have a somewhat longer and stronger transverse subapical crest on the pygidium and a less deep but much narrower impression below it than Allsopp (1990: fig. 3) illustrated. Most probably these differences reflect inter-population variability.

Neoheteronyx calliseta sp. n.

(Figs 4–6)

Material. Holotype (Fig. 4), male, Indonesia, Papua, Biak I., Biak Utar, near Napdori village, 2–3 km from right bank of Air Napdori river, black light, 10–11.11.2012, A. M. Prokofiev leg. Paratypes: 35 males, 26 females, same locality.
as holotype, but 10–11 and 18–19.11.2012.

Differential diagnosis. The new species is sharply different from its congeners in having a few very long, isolated setae on the legs, and extremely long setae on the head and the anterior and lateral pronotal margins. It is much smaller than the other known Papuan species with 8-jointed antennae (4.2–5.5 mm vs. 7.0–7.5 mm in *N. schoutensis* and *N. insulanus*).

Holotype. Male. Length 4.5 mm, greatest width 1.8 mm. Dark reddish-brown above, pale reddish-testaceous-brown below; legs testaceous-brown, with apices of tibiae and tarsi reddish-brown.

Antennae 8-jointed, with 3-jointed club. Frontal face of clypeus deep, with dorsal margin convex in middle, and ventral margin smoothly concave, with sparse long setae in transverse row, latter briefly interrupted in middle. Sides of clypeus strongly convergent anteriad, with anterior margin almost straight in dorsal view, anterior angles broadly rounded. Clypeus coarsely rugopunctate; frons and vertex coarsely punctured, punctures becoming smaller and sparser posteriad; frontoclypeal suture deep, convex; anterior part of frons weakly triangularly impressed in middle; 1 long seta sitting on each side at end of ocular canthus and another along inner margin of eye at mid-length of its anterior third. Eyes large, bulging. Labrum moderately concave. Last joint of maxillary palpus elongate, with its outer edge much more convex than its inner edge. Mentum with pair of long setae centrally and with setose lateral borders.

Pronotum transverse, twice as broad as long; sides nearly parallel in posterior two-thirds but clearly convergent anteriad in anterior third; margins weakly sinuate before posterior angles; anterior angles sharply pointed; posterior angles almost straight; anterior and posterior margins unbordered. Pronotum coarsely and somewhat irregularly punctured, punctures becoming smaller at anterior and lateral borders; long setae sitting at mid-length of each half of anterior margin, at tip of anterior angle, and at end of anterior third of lateral margin; setae at anterior angles shorter than others. Scutellum irregularly double-punctured, with obtuse tip. Elytra coarsely punctured, costae indistinct. Elytral epipleura with row of well-spaced ciliate setae along whole length and with double row of very short setae below it on anterior third of epipleura only. Thorax coarsely and densely punctured, with punctures somewhat larger but sparser on
metasternum; punctures of mesepimeres and metepimeres setose, with setae longer on mesepimeres; each side of metasternal disc with a few short setae posteriorly. Prosternal process well-developed, spine-like, laterally compressed. Pygidium coarsely but not very densely punctured, interspaces between punctures with shagreen-like microgranulation; posterior third and side margins of pygidium and last 2 visible abdominal sternites with dense long, erect, pale hairs. Abdominal sternites and basis of pygidium sharply continuously carinate. Abdominal sternites coarsely punctured, and some punctures setigerous; sternites 2–4 each with transverse row of suberect hairs just behind mid-length; sternites 5 and 6 abbreviated.

Protibia fusiform, with indistinct trace of basal tooth just behind apical point; inner spur long, arising much closer to mid-length than to apical point of protibia; lower surface with medial longitudinal keel. Protibia setose above and beneath with rather short, sparse setae, also bearing two long setae on lower surface anteriorly. Profemora with a few very short setae along ventral keel, and with row of dense adpressed setae medially on inner third of anterior surface. Procoxae with a few short setae apically. Each trochanter with long seta at tip (gradually increasing in length from first to last pair of legs). Middle and hind femora with 3 transverse rows of rather long sparse setae on lower surface, and with one very long seta near mid-length of posterior border. Posterior margin of hind tibia with 5+4 spines. Ventral surface of tarsal joints 1–4 multisetose; these joints considerably expanded on fore legs and weakly expanded on middle legs. Claws symmetrical, simple, with sharp broad lamina at base on concave side; empodium with cluster of numerous long setae.

Aedeagus as in Figs 5–6. Endophallus with weakly sclerotized dorsal part bifurcate anteriorly.

**Female.** Length 5.0 mm, greatest width 2.2 mm. Darker than male. Protibia sharply bidentate, both teeth equidimensional. Tarsal joints 1–4 not dilated, much less setose than in male.

**Variation.** Length 4.2–5.0, usually 4.5 mm (males), 4.7–5.5, usually 5 mm (females); greatest width 1.5–2.0 mm (males), 2.0–2.5 mm (females). Intensity of reddish-brown color varying to some degree, but females always darker than males. Row of short setae sometimes extending between middle and hind legs on each side of metasternal disc. Protibia in some males almost unidentate, with very indistinct trace of basal tooth. Posterior margin of hind tibia with 4–5+4–5 spines. Other structural features very stable.

**Etymology.** The name is formed from Greek "kallos" (beauty) and "seta" (hair, seta), alluding to the characteristic long, isolated setae on the head, pronotum, and legs in this species; noun in apposition.

*Neoheteronyx schoutensis* sp. n.  
(Figs 7–10)

**Material.** Holotype (Fig. 7), male, Indonesia, Papua, Yapen I., northern coast, Rosbori village, black light, 13–14.11.2012, A. M. Prokofiev leg. Paratypes: 1 female, same data as holotype; 3 males, Biak L, Biak Utar, near Napdori village, 2–3 km from right bank of Air Napdori river, black light, 10–11 (2 specimens) and 18–19.11.2012, A. M. Prokofiev leg.

**Differential diagnosis.** The new species is similar to *N. insulanus* (Moser, 1920) from the Aru Is. in possessing eight-jointed antennae, but differs from the latter species in having pale legs and much coarser, denser, and very regular punctuation of the pronotum (punctures are much sparser on the disc than on the sides of the pronotum in *N. insulanus*) and a weakly lamellate fifth joint of the antenna. All the other Indonesian and Papuan species of *Neoheteronyx* except the highly distinctive *N. calliseta* (see above) have nine-jointed antennae.

**Holotype.** Male. Length 7.2 mm, greatest width 3.0 mm. Pitch-black above, with reddish-brown tint on elytra; dark reddish-brown below; legs testaceous-brown, with apices of tibiae more infuscated and tarsi reddish-brown; punctures on dorsal surface and pygidium with pale bottoms.

Antennae eight-jointed, with three-jointed club; fifth joint with short lamellate process (Fig. 8). Frontal face of clypeus deep, with smoothly convex dorsal margin, and smoothly concave ventral margin; minutely punctured, with uninterrupted transverse row of large setigerous punctures bearing moderately long setae. Sides of clypeus strongly convergent anteriad, with anterior margin almost straight in dorsal view, anterior angles broadly rounded. Dorsal surface of head coarsely and densely punctured; punctures larger on clypeus than on frons and vertex; frontoclypeal suture deep, convex; anterior part of frons impressed along middle two-thirds of frontoclypeal suture; 1 moderately short seta sitting on each side at end of ocellus canthus and another along inner margin of eye in middle of its anterior third. Eyes large, with posterior margin weakly concave. Labrum deeply concave. Last joint of maxillary palpus fusiform, with ring of sparse setae across its mid-length. Mentum setose in posterior half, with setae shorter but much denser at base.

Pronotum transverse, twice as broad as long, broadest at middle; sides more convergent anteriad than posteriad; anterior angles sharply pointed; posterior angles obtuse; anterior and posterior margins unbordered. Pronotum coarsely, densely, and regularly punctured, with most punctures slightly stretched longitudinally; no pronotal setae. Scutellum finely and irregularly punctured, with rounded tip. Elytra coarsely punctured, punctures umbilicate, interspaces between punctures somewhat rugose, costae indistinct. Elytral epipleura with row of widely spaced short setae along whole length. Thorax finely but conspicuously punctured. Propleura in anterior half densely punctured, with moderately long setae; in posterior half more sparsely punctured, glabrous. Prosternal process absent. Mesosternum densely punctured, punctures setigerous; metasternum less densely punctured, glabrous, except for a few short setae on each side of metasternal disc. Pygidium coarsely but rather sparsely punctured, punctures larger on disc than on sides, interspaces between punctures smooth and shining; apical third of pygidium and sixth abdominal sternite covered densely with long, erect, pale hairs. Abdominal sternites and
basis of pygidium sharply and continuously carinate. Abdominal sternites coarsely and rather sparsely punctured, glabrous except for fifth sternite with its transverse row of moderately short, very sparse setae; sternites 5 and 6 abbreviated.

Protibia almost parallel-sided, strongly bidentate, with basal tooth 1.5 times as long as apical point; inner spur long and robust, attached well behind basal tooth; lower surface with medial longitudinal keel. Protibia with 4 longitudinal rows of short setae situated along dorsal mid-line and inner margin, underneath apical and basal teeth; in addition, 3 rather long setae (gradually increasing in length toward apicalmost one) on longitudinal keel on ventral surface. PROFOMA with patch of setae at base of anterior surface and complete row of short and sparse setae along ventral margin. PROCOXAE moderately densely pilose in basal half of anterior surface and along lateral margin. Each trochanter with rather short seta at tip (not longer than setae on surface of femora). Middle femora with 3 transverse rows of moderately long, sparse setae on lower surface; middle coxae moderately densely pilose along inner margin; hind femora with 2 widely separated transverse rows of very sparse setae (partially missing) on lower surface and with row of rather dense, soft, moderately long setae along basal half of posterior margin. Posterior margin of hind tibiae with 5+5 spines. Ventral surface of tarsal joints 1–4 multiseteose; these joints are not strongly expanded on fore legs and indistinctly expanded on middle legs. Claws symmetrical, simple, with sharp, broad lamina at base on concave side; empodium with dense patch of long setae.

Aedeagus as in Figs 9–10. Endophallus with strongly sclerotized S-shaped element and patch of short, dense spines.

**Female.** Length 7.5 mm, greatest width 3.5 mm. Fifth joint of antenna with indistinct tubercle. Last joint of maxillary palpus more elongate than in male, glabrous. Apical tooth of protibia slightly curved, somewhat longer than in male (about twice as long as basal tooth). Tarsal joints 1–4 not dilated, much less setose than in male.

**Variation.** Males. Length 7.0–7.5 mm; greatest width 3.0–3.5 mm. Dark reddish-brown to pitch black above, more brightly reddish-brown below; legs always much paler than ventral side. Setose area on basal part of anterior surface of fore femora somewhat variable in size and shape (as either patch or narrow band).

**Etymology.** This species is named for its type locality, the Schouten Islands, which themselves are named for their discoverer, the Dutch seafarer Willem Cornelisz Schouten (around 1567–1625).

**Neoheteronyx tanythrix** sp. n. (Figs 11–12)

**Material.** Holotype (Fig. 11), female, Indonesia, Papua, Biak I., Biak Utar, near Napdori village, 2–3 km from right bank of Air Napdori river, black light, 10–11.11.2012, A. M. Prokofiev leg.

**Differential diagnosis.** The new species can be easily differentiated from its known congeners by the heterogeneous setosity of the elytral epipleura (Fig. 12) and the partly bordered anterior margin of the pronotum.

**Holotype.** Female. Length 7.5 mm, greatest width 3.5 mm. Uniformly dark reddish-brown.

Antennae nine-jointed, with three-jointed club. Frontal face of clypeus deep, with dorsal margin smoothly convex and ventral margin smoothly concave; minutely punctured, with uninterrupted transverse row of large setigerous punctures bearing rather long setae. Sides of clypeus strongly convergent anteriorly, with anterior margin very weakly concave in dorsal view, anterior angles broadly rounded. Clypeus coarsely and densely punctured, punctures somewhat confluent; frons and vertex more finely and sparsely punctured, punctures becoming smaller and sparser posteriad; frontoclypeal suture deep and convex; anterior part of frons weakly impressed along middle two-thirds of frontoclypeal suture; 1 rather short seta sitting on each side at end of ocular canthus and another along inner margin of eye in middle of its anterior third. Eyes large, with posterior margin weakly concave. Labrum deeply concave. Last joint of maxillary palpus elongate-fusiform, glabrous. Mentum covered with sparse long, erect setae, with patch of much denser but shorter setae at its base.

Pronotum transverse, twice as broad as long, broadest in anterior half; sides rather weakly convergent anteriorly in anteriormost quarter only, smoothly convergent posteriad, slightly sinuate before posterior angles; anterior angles acute; posterior angles obtuse, shortly rounded; anterior margin bordered in lateral thirds, posterior margin mostly unbordered, except at posterior angles. Pronotum regularly and moderately-coarsely punctured, punctures as large and dense as on vertex; lateral margin of pronotum with 4 rather long, widely spaced erect setae. Scutellum glabrous, with broadly rounded tip. Elytra slightly more coarsely and densely punctured than pronotum, punctures simple, costae absent. Elytral epipleura setose along whole length, with 2 rows of setae (long in upper row, shorter in lower row) anteriorly; behind level of anterior margin of hind coxae these rows becoming one with long setae alternating with a few short setae (Fig. 12). Thorax finely but conspicuously punctured. Pleuripa densely punctured in anterior half, some punctures setigerous with moderately long setae; more sparsely punctured in posterior half and glabrous. Prosternal process short, inclined, spine-like. Mesosternum densely punctured, punctures setigerous, their setae being short and fine; metasternum less densely punctured, glabrous except for a few short, stout setae around disc. Pygidium coarsely rugopunctate; both pygidium and sixth abdominal sternite completely covered with dense short, adpressed setae alternating with sparser long hairs. Abdominal sternites and basis of pygidium sharply and continuously carinate. Abdominal sternites coarsely, moderately densely and somewhat irregularly punctured; sternites 2–4 with 2–3 very irregular and alternating transverse rows of short curled hairs at mid-length; fifth sternite with single transverse row of somewhat longer hairs; sternites 5 and 6 abbreviated.
basal tooth 1.5 times as long as apical point; inner spur long and robust, attached well behind basal tooth; lower surface with medial longitudinal keel. Protibia bearing longitudinal rows of short thin setae along dorsal mid-line and inner margin, and also below basal tooth; in addition, row of stout setae present beneath apical tooth and row of rather long sparse setae present along longitudinal keel on ventral surface (anteriormost seta much longer than remaining ones). Profemora with patch of setae at base of anterior surface and complete row of short, sparse setae along ventral margin. Procoxae moderately densely pilose on inner half of anterior surface and along lateral margin. Each trochanter with row of a few short setae along ventral margin. Middle femora with 3 transverse rows of rather long, sparse setae on lower surface; hind femora with 2 widely separated transverse rows of similar but sparser setae; posterior border of middle and hind femora completely glabrous. Posterior margin of hind tibiae with 14 stout spines. Tarsal joints 1–4 narrow, with rather densely setose ventral surface. Claws symmetrical, simple, with sharp, broad lamina at base on concave side; emicium with dense patch of long setae.

**Etymology.** The specific epithet (from the Greek for "differently setose") refers to the characteristic setation of the elytral epipleura; noun in apposition.

**Conclusion**

The small aforementioned collection contains two widely distributed Oriental–Papuan species associated with agricultural lands (*O. rhinoceros* and *A. anoguttata*), three widely distributed Papuan species (*O. latitarsis*, *P. novoguineensis*, and *L. reuleauxi*), two species previously known only from the Moluccas (*X. clinias* and *E. amboinae*), one species restricted to the Schouten Is. and the neighbouring coast of New Guinea (*A. pygidialis*), and four putative endemics (*Apogonia* and *Neoheronyx* spp.), which have been found for the first time. In addition, *A. assimilis* Boisdalx, 1835 (a widely distributed Papuan species), *A. biakensis*, and *A. bruggei* have been reported from the area (Zorn 2007, 2011), and few species of Pentodontini have been described from Yalen I. (Endrödi 1985), but these taxa were not collected in the present survey. The main point of interest is the indication of a faunistic relation between the southern Moluccas and Schouten Is. based on the presence on the latter of a few species of Pentodontini have been described from New Guinea (*A. pygidialis*), one species related to a species from the Aru Is. than to others from the main island of New Guinea in the reduced number of antennal joints (it should be noted, however, that this group is very poorly studied and numerous undescribed species exist–Prokofiev, in preparation). This indicates that the origin of the faunas of the small islands off the New Guinean "mainland" may be more complex than supposed, and these faunas are not always closely similar to the faunas of adjoining large land masses. Certainly this phenomenon requires further study.

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**References**


