

TAXONOMIC STUDIES ON WEST INDIAN
STAPHYLINIDAE

by

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of the requirements for the degree

of

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in

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DEDICATION

For my family and friends who have supported me all the way.

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ABSTRACT

Aleomallus yaque Rainey and Ivie, **new genus and species** is described from high-elevation areas in the Dominican Republic and placed in the Aleocharinae tribe Diestotini. This placement is discussed with a review of the history of the tribe and related groups. A description with figures of diagnostic characters is provided. This discovery highlights the extent of undescribed Aleocharinae biodiversity in the mountains of the West Indies.

The West Indian species of *Belonuchus* Nordmann, 1837 are revised to address a knowledge gap in our understanding of the genus. The genus now contains 17 species found in the West Indian biogeographical area, seven of which are described as new species: *Belonuchus blackwelderi*, **new species** (Hispaniola), *Belonuchus crypticus*, **new species** (Hispaniola), *Belonuchus draco*, **new species** (Hispaniola), *Belonuchus franki*, **new species** (Jamaica), *Belonuchus sanchezi*, **new species** (Hispaniola), *Belonuchus dominici*, **new species** (Hispaniola), and *Belonuchus tenebros*, **new species** (Hispaniola). The following new synonymies are proposed: *Belonuchus hispaniolus* Blackwelder, 1943 = *Belonuchus gagates* Erichson, 1840, **new synonymy**, *Belonuchus oakleyi* Blackwelder, 1943 = *Belonuchus gagates* Erichson, 1840, **new synonymy**. A lectotype and paralectotypes are designated for *Belonuchus coeruleus* Cameron, 1922, and *Belonuchus cognatus* Sharp, 1885. A lectotype is designated for *Belonuchus eximius* Bernhauer, 1917. Redescriptions and rediagnoses are provided for previously described species. All species are included in a taxonomic identification key, diagnostic characters are illustrated, distribution maps are presented for each species, and updates on the nomenclature of the group are provided.

Disclaimer: This thesis is not intended to meet the provision of the ICZN (1999) regarding publication of new nomenclatural acts [Art. 8.2]. No name or nomenclatural act proposed herein should be considered available as defined by the ICZN.

INTRODUCTION

Staphylinidae (the rove beetles) are a hyper-diverse family consisting of approximately 67,000 species (Newton 2022). It is the most species rich family in the Animalia, being found in a wide range of habitats, even including the Sub-Antarctic region (Orlov *et al.* 2019).

Staphylinids have the potential to be used as bioindicators and model species in ecological and evolutionary research due to their specialized nature (Brunke *et al.* 2016; Klimaszewski *et al.* 2018). In the last 30 years there has been a resurgence in the study of the Staphylinidae, with approximately 100 active workers currently studying the different aspects of the family.

However, due to the sheer size of the family, people working on this taxon are spread thin, and very little is known about most of the described species. With the rate of new descriptions showing no signs of slowing (Herman 2001; Naverrete-Heredia *et al.* 2022), there is clearly much more work needed.

This problem is reflected in the West Indies staphylinid fauna to an extent. The number of known species of Staphylinidae present on the islands is far less than that of an equivalent area of the mainland due to the nature of an impoverished island fauna (e.g., MacArthur and Wilson 1967; Lomolino 2000; Gao and Perry 2016). Many coleopterists, including Albert Fauvel, Wilhelm G. F. Erichson, Max Bernhauer, Phillip J. Darlington, Jr., Alexander Bierig, Malcolm Cameron, Richard E. Blackwelder, Roberto Pace, and Howard J. Frank, have devoted their time to the taxonomy of the family on the islands. Despite having a fairly well examined staphylinid fauna - perhaps the most well documented in the neotropics - there are still large gaps in our knowledge of the group. Blackwelder's (1943) monograph is the most significant contribution to our knowledge of Staphylinidae in the West Indies and contains keys and descriptions of most

known West Indian Staphylinidae. However, the monograph is out of date and contains no illustrations. Species described since 1943, render many of Blackwelder's keys difficult to use, the species descriptions are often not detailed enough to make distinctions among species, and the largest and most difficult-to-work-with subfamily (Aleocharinae) was not treated beyond a checklist. Blackwelder was aware of these gaps in our knowledge, stating "... the 468 species so far known from the islands probably do not constitute half of the species actually occurring there." His observation is backed up by preliminary work on a checklist of beetles on the Islands of Montserrat and Saba (see Appendix) which reveals many new additions to the Staphylinid fauna of these small islands including an estimated 15 new species and over 35 new island records of previously described species. The discovery of new species in the region has been pushed forward by recent collecting events in difficult to access high elevation areas such as at Pico del Yaque in the Dominican Republic (Rainey and Ivie, 2023).

The following two chapters of this thesis are a contribution to our knowledge of the staphylinid fauna of the West Indies. The next chapter is a description of a new genus (*Aleomallus* Rainey and Ivie, 2023) and species (*Aleomallus yaque* Rainey and Ivie, 2023) of Aleocharinae from high elevation areas in the Dominican Republic. A summary of the state of research on Aleocharinae in the West Indies is provided, with a description and figures of diagnostic characters. *Aleomallus* is placed into the tribe Diestotini and the history of the tribe is reviewed, along with a justification of its placement. The discovery of this distinctive and morphologically unusual beetle highlights how little we know about Aleocharinae in the region.

The next following chapter of the thesis is a revision of the staphylinid genus *Belonuchus* Nordmann 1837: *Philonthina* Kirby 1837, of the West Indies. Much work has been carried out on

mainland neotropical Philonthina in recent years. A phylogeny of the mainland species of the subtribe has been produced, along with new working species concepts, a key to genera, and a checklist of all neotropical species (Chani Posse 2014; Chani Posse *et al.* 2018a, 2018b, 2020; Marquez and Asiain 2022). However, the West Indian *Belonuchus* have been overlooked and this chapter fills the knowledge gaps for the genus in the West Indies. Seven new species are described, and two synonymies proposed, bringing the total number of West Indian *Belonuchus* to 17 species. Lectotype designations are made for two species to help preserve the stability of nomenclature. An updated taxonomic key is provided so specimens can be readily identified, and for the first time, the West Indian *Belonuchus* have been illustrated with drawings of diagnostic characters and habitus photos. Distribution maps have also been provided. This chapter builds on the foundation laid by Blackwelder 81 years ago and allows future work on West Indian *Belonuchus* proceed from a updated starting point.

This thesis is a small but helpful contribution to our knowledge of the largest family of beetles in the West Indies. I hope that this work will feed into the community and make the lives of future generations who study Staphylinidae in the West Indies slightly simpler.

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CHAPTER TWO

NEW GENUS AND SPECIES OF HIGH-ALTITUDE FLIGHTLESS

DIESTOTINI FROM THE WEST INDIES

(COLEOPTERA: STAPHYLINIDAE:

ALEOCHARINAE)

Contribution of Authors and Co-Authors

Manuscript(s) in Chapter(s) [#]

Author: Jordan J. Rainey

Contributions: Identified specimens, reviewed literature, wrote descriptions, prepared figures and wrote the first draft.

Co-Author: Michael A. Ivie

Contributions: Helped conceive the project, collected specimens, provided feedback on early drafts of the manuscript.

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NEW GENUS AND SPECIES OF HIGH-ALTITUDE FLIGHTLESS DIESTOTINI FROM THE WEST INDIES (COLEOPTERA: STAPHYLINIDAE: ALEOCHARINAE)

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ABSTRACT

Aleomallus yaque Rainey and Ivie, new genus and species is described from high-elevation areas in the Dominican Republic and placed in the Aleocharinae tribe Diestotini. This placement is discussed with a review of the history of the tribe and related groups. A description with figures of diagnostic characters is provided. This discovery highlights the extent of undescribed Aleocharinae biodiversity in the mountains of the West Indies.

Keywords: taxonomy, morphology, rove beetle, Staphylinoidea, Greater Antilles

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INTRODUCTION

Relatively little work has been done on West Indian Aleocharinae since Cameron's descriptions (Cameron 1913, 1922, 1923). Work by Bierig (1934, 1937, 1938) added a total of 13 new species and one new genus, plus new records. Blackwelder's monograph of West Indian Staphylinidae (Blackwelder 1943) provided a checklist of the species known from the West Indies, but did not contribute any new descriptions, keys or illustrations, despite Blackwelder referring to the large number of Aleocharinae material he had collected during his time in the West Indies. Frank (1972) added five new species and corrected a taxonomic discrepancy within the genus *Oligota* Mannerheim. More recently, work by Pace (1987, 1991, 2012) included new records and descriptions of 40 new species, two new genera and one new tribe. All told, there are currently approximately 214 species of Aleocharinae from 44 genera described or recorded from these islands.

Over the last 40 years a substantial amount of West Indian Staphylinidae material (40+ drawers) has built up in the West Indian Beetle Fauna Project collection at Montana State University (WIBF). On a two-month visit to the collection in 2019 the first author began the daunting task of sorting this material to species and genus level. While sorting this material we found a series of a highly unusual-looking species of Aleocharinae from the Dominican Republic that initially was even difficult to place to subfamily. Ten years ago, K. Taro Eldredge had

labelled some of these as a likely new genus. In this paper we confirm this and describe a new genus and species of West Indian Diestotini.

MATERIAL AND METHODS

Sixty-five specimens from WIBF were studied (see Type Specimens below).

All the material examined was dry and mounted so rehydration was required for dissections. Dissection procedure was as follows: specimens were placed in 80–90 °C water with a drop of detergent until fully hydrated and pliable (*ca.* 10 min). A mounted, hooked minuten pin and pair of fine forceps were used to cut connective membranes under a Leica Wild M3C stereomicroscope. When necessary, dissections were immersed in a solution of *ca.* 10% KOH at 60 °C for no longer than 5 min. Dissections were removed and briefly immersed in distilled white vinegar (5% acetic acid) to neutralize the KOH. Finally, segments were washed in 70% EtOH and dissected under a microscope and stored in glycerol.

Techniques described by Hanley and Ashe (2003) and Stüben and Linsenmair (2008) were experimented with to view the spermatheca *in situ* through the cuticle without dissection. To view the spermatheca *in situ* the specimen was bleached in 3% hydrogen peroxide for approximately a week until the cuticle reached the desired transparency. The specimen was then soaked in distilled water for 10 minutes before it was transferred to a cold *ca.* 10% KOH solution for a few hours until the appropriate amount

of internal tissue had been cleared. The process was halted by transferring the specimen to distilled white vinegar. Both steps were repeated for varying lengths of time until the desired balance between the transparency of the cuticle and the clearing of the internal tissues was reached. Carrying out the steps in this order meant the specimen's cuticle was already transparent which made monitoring the clearing in KOH easier and allowed the process to be stopped as soon as the spermatheca was visible, thereby reducing the impact of chemical damage. These techniques allowed the spermatheca to be viewed in its original position without damage and provided a morphological map to guide dissections of other specimens that had not undergone this treatment.

Specimens were examined under a Leica Wild M3C stereomicroscope with up to 40× magnification. A 150-W swan-neck fiber optic illuminator and an LED ring light were used as light sources. Dissections were stored on slides in glycerol and examined under an Olympus CH-2 compound microscope with magnifications of 40×, 100× and 400×. Imaging followed Ferreira and Ivie (2018): photos of specimens for illustrations were taken

using a Canon 6D DSLR with an MP-E 65-mm lens. Images were then stacked using Zerene Stacker® version 1.04 and enhancements to digital images were made in Adobe Photoshop® CC 2020. Plates were prepared in Adobe Illustrator® CC 2020. The map (Fig. 6) was produced using SimpleMappr and further edited in Adobe Illustrator® CC 2020 and Adobe Photoshop® CC 2020.

Transcription of label data from specimens follows Ivie (1985): the end of each line on a label is indicated by a semicolon (;) and individual labels are separated by a slash (/). Morphological terminology follows Ashe (1992) and Orlov *et al.* (2020). Descriptions follow the format of Ashe (1992).

TAXONOMY

Aleomallus Rainey and Ivie, new genus

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3C260C1B-2469-4950-AD92-ECE9017F29CF
(Figs. 1–6)

Type Species. *Aleomallus yaque* Rainey and Ivie, new species.

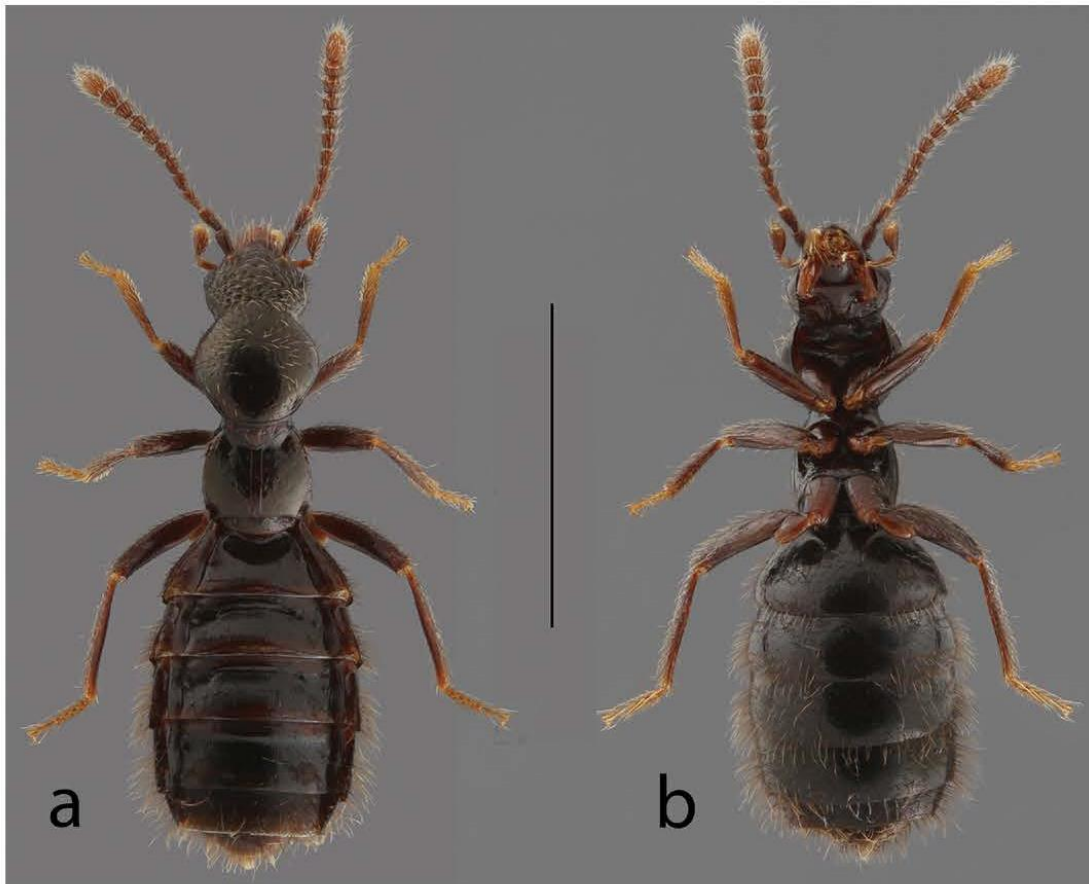


Fig. 1. *Aleomallus yaque*, new genus and species. a) Dorsal aspect, b) Ventral aspect. Scale bar = 1 mm.

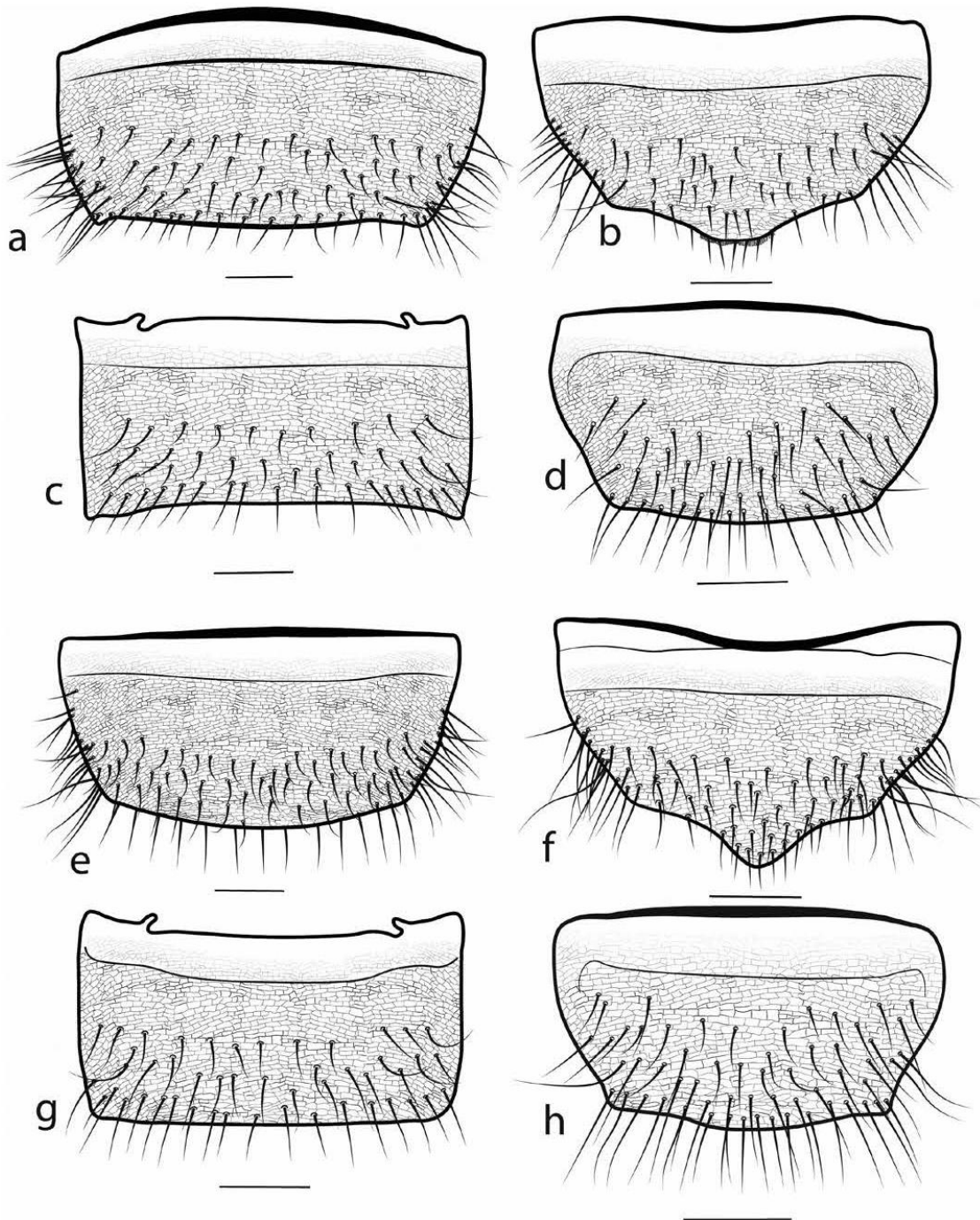


Fig. 2. *Aleomallus yaque*, new genus and species. a) Female, sternite VII, b) Female, sternite VIII, c) Female, tergite VII, d) Female, tergite VIII, e) Male, sternite VII, f) Male, sternite VIII, g) Male, tergite VII, h) Male, tergite VIII. Scale bars = 0.1 mm.

Diagnosis. *Aleomallus* can be distinguished from other genera in the Diestotini (Ashe 2000a, b) by its overall form, specifically its reduced pterothorax, bulbous pronotum, and the dense covering of long setae on the sternites. Members of *Aleomallus*

can be distinguished from other West Indian Staphylinidae by the combination of: a distinct thick covering of setae over the body; eyes small, temples 1.7–1.8× longer than the diameter of the eyes; head narrowed behind eyes into a neck; antennomere

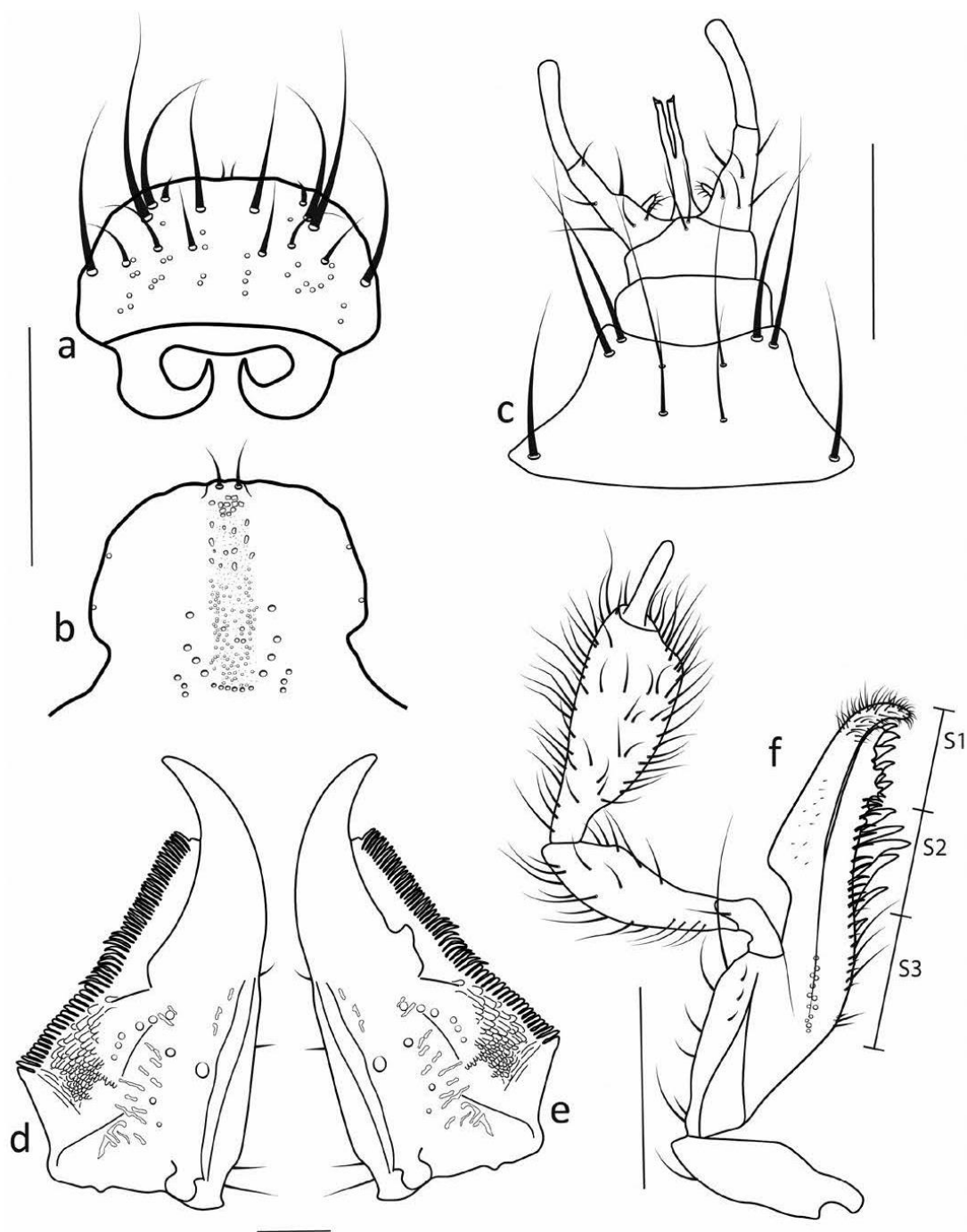


Fig. 3. *Aleomallus yaque*, new genus and species. a) Dorsal aspect of labrum, b) Ventral aspect of labrum (epipharynx), c) Ventral aspect of labium and mentum, d) Ventral aspect of left mandible, e) Ventral aspect of right mandible, f) Ventral aspect of maxilla. Scale bars = 0.1 mm.

5 quadrate, 6–9 progressively shorter until the transverse 10th; pronotum bulbous and rounded, as wide as long, base of pronotum and base of elytra roughly the same width, widest point of pronotum 1.2× wider

than the widest point on the elytra; hypomeron expanded and clearly visible in lateral aspect; mesocoxal cavities broadly separated by intercoxal processes, mesocoxal process broad and then

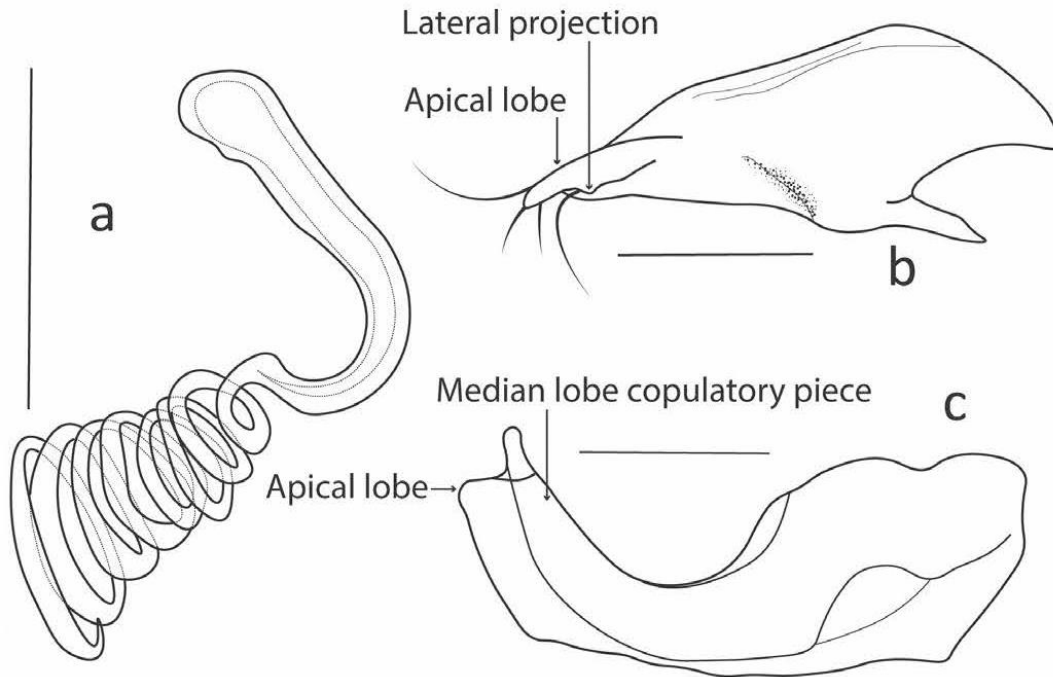


Fig. 4. *Aleomallus yaque*, new genus and species. a) Female, spermatheca basal bulb with long spiraled spermathecal tube, b) Male, paramere lateral external aspect, c) Male, median lobe of aedeagus, lateral aspect. Scale bars = 0.1 mm.



Fig. 5. *Aleomallus yaque*, new genus and species, left elytron, dorsal aspect. Scale bar = 0.1 mm.

narrowing quickly at the apex; metacoxal process as broad and long as the mesocoxal process; tergites III–V with deep transverse basal impressions (Fig. 1); sternites III–V with very faint transverse basal impressions (Fig. 1). male sternite VI without a medial lobate projection on the posterior margin, male sternite VII without a broad band of numerous sensory pores basally and without a concentration of setose pores medially (Fig. 2e), triangular projection of male sternite VIII without asetose posterior margin (Fig. 2f); median lobe of aedeagus strongly curved with short, projecting apical process (Fig. 4c); tarsi 4-4-5.

Description. Length 1.9–2.3 mm ($n=5$), length from tip of frons to apex of elytral suture 0.90–1.1 mm ($n=5$). Body almost “ant-like” in appearance with narrow head, prothorax and mesothorax and wide abdomen (Figs. 1). Body glossy, with reticulated microsculpture, unevenly distributed punctures very coarse and close on head and fine and sparse on remainder of body. Distinctive thick coat of setae covering body. **Head:** Moderately broad, 1.09× longer than wide, gradually narrowed behind eyes into indistinct neck. Head with glossy cuticle covered in reticulated microsculpture, surface closely covered with coarse punctures; long, thick, white setae evenly distributed across dorsal surface. Eye small, temple length 1.7–1.8× length of eye. Infraorbital carina complete. Antenna brown to dark

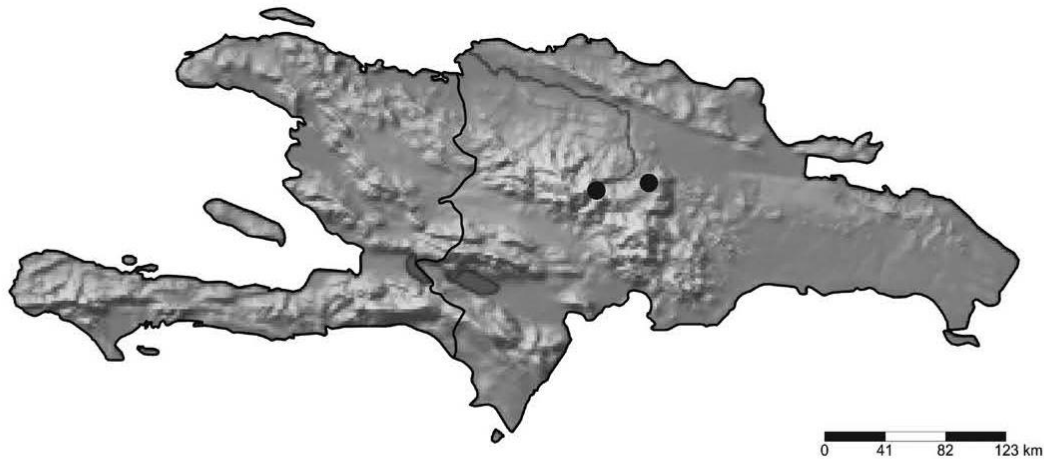


Fig. 6. Map showing known distribution of *Aleomallus yaque*, new genus and species on Hispaniola.

red, antennomeres 1–3 elongate, 4 becoming quadrate and 5–9 becoming increasingly broader, antennomere 10 wider than long. **Mouthparts:** Labrum (Figs. 3a, b) evenly rounded in shape; epipharyngeal area with medial pores small and concentrated along medial longitudinal sensory field. Mandibles asymmetrical (Figs. 3d, e), apically more narrow and angulate-triangular in overall form, right mandible with sub-apical tooth, left mandible lacking tooth; ventral molar area of both with dense patch of moderately sized spinules, one row extended further outwards towards center of mandible; molar patch relatively small, with spinules of varying sizes. Maxilla (Fig. 3f) with expanded ventral surface; two rows of setae on length of lacinia, row on ventrad plane with uniform fine setae separated at the bases; second row with strong, irregular-sized setae, section two with large contiguous teeth, section one with row of similarly sized and spaced small teeth; galeal distal lobe narrow, covered in evenly distributed, short, fine setae. Labium (Fig. 3c) with elongate ligula, approximately three-fourths length of labial palps, apical half divided longitudinally into two lobes. Two medial distal setae present on prementum, insertions close and one directly behind the other. Medial pseudopore field narrow. Labial palps 2-articled, long, stylate. **Thorax:** Pronotum (Fig. 1a) round, bulbous, broad, as wide as long, strongly convex in lateral view, bases of elytra and pronotum approximately same width; all angles rounded, basal margin rounded; discal punctures moderate, sparse, uniformly distributed; setae similar to those of head, directed towards center of pronotal disc; discal microsculpture reticulate. Elytra with posterolateral angles slightly sinuate, punctures and setae similar in size and shape to those of pronotum, but sparser, absent on posterior portion of disc (Fig. 5), microsculpture reticulate, discal setae directed posteriorly. Metathoracic wings

absent, no evidence of wing lobes present. Hypomeron broad, visible along entire length in lateral view, superior line present in posterior half of pronotum, never reaching anterior line, obsolete before reaching anterior half of pronotum. Mesoventral medial carina obsolete; metaventral process extending more than half diameter of mesocoxal cavity, broad, apex acutely rounded; mesoventral process extending less than half diameter, broad and narrowed anteriorly, apex acute. **Abdomen:** Very broad, rounded laterally, segments gradually widening from III until maximum breadth reached at segment V, VI and VII slightly narrower, much narrower after VII. Tergites III–V with deep transverse basal impressions, setose punctures of tergites moderate and sparse, distributed in rows, setae of same size and color as those on thorax and head, directed posteriorly. Sternites III–V with very faint transverse basal impressions, sternites with noticeably dense covering of long, thick setae, directed posteriorly. **Tarsi:** 4-4-5, with first tarsomere of metatarsus slightly longer than second, but not as long as two and three together.

Distribution. Hispaniola.

Etymology. The genus name is derived from the words “aleo” and “mallus”. The first is Greek for “quick-moving”, and is taken from the family-group name Aleocharinae, while the second is a Greek word meaning “wool”, in reference to the dense covering of setae. The gender is masculine.

Aleomallus yaque Rainey and Ivie,
new species

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FC158815-0718-416E-9B12-2CA43FB64D2F
(Figs. 1–6)

Type Specimens. Holotype. 1 Male: DOM.REP: Prov. La Vega; 19.0714°N 70.5826°W; 05SEP1997, P. W. Kovarik; 1040m, bracken fern litter; roadside

forest/ WIBF 091996. From the WIBF, to be deposited in the Field Museum. **Paratypes.** 34 DOM.REP: Prov. La Vega; 19.0714°N 70.5826°W; 05SEP1997, P. W. Kovarik; 1040m, bracken fern litter; roadside forest WIBF 091997 through WIBF 092030. 8 DOM. REP.: Par. Nac. Armando; Bermudez, PicoDuarte Trail; 1900m, 06SEP1988, tree-fern; & hardwood. Litter, M.A. Ivie.; T.K. Phillips & K.A. Johnson/ 19.030274°N 70.906934°W/ WIBF 092031 through WIBF 092038. 16 DOM. REP.: Par. Nac. Armando; Bermudez, PicoDuarte Trail; 1850m, 06SEP1988, mixed; forest litter, M.A. Ivie.; T.K. Phillips & K.A. Johnson/ 19.032238°N 70.906008°W/ WIBF 092039 through WIBF 092054. 6 DOM. REP.: Par. Nac. Armando; Bermudez, Cordillera Cent.; slopes of Pico del Yaque; 06 Sep 1988, 2115m; fern & leaf litter/ M.A. Ivie, T.K. Phillips; & K.A. Johnson colrs./ 19.026673°N 70.912601°W/ WIBF 092055 through WIBF 092060.

Paratypes will be deposited in the following collections in addition to the WIBF: American Museum of Natural History, New York, USA; Field Museum of Natural History, Chicago, USA; Florida State Collection of Arthropods, Gainesville, USA; Museo Nacional de Historia Natural Profesor Eugenio de Jesús Marcano, Santo Domingo, Dominican Republic; National Museum of Natural History, Washington, DC, USA; Natural History Museum, London, UK; Natural History Museum, University of Oslo and Zoological Museum, Oslo, Norway; and Natural History Museum of Denmark, University of Copenhagen, Denmark.

Description. As described for the genus, with the following additions relating to expected species-level characteristics. Body dark brown to reddish brown; apex of tibiae and tarsomeres usually lighter (light brown), antenna usually slightly lighter (reddish brown); antennomere 11 usually lighter than others (Figs. 1). Punctures on head very close and coarse, punctures on thorax and abdomen moderate and sparse, on sternites moderate and close, all punctures setiferous and body covered in thick, long, light brown setae. Moderately developed reticulated microsculpture all over surface of body. **Secondary sexual characteristics:** Males—posterior margin of sternite VIII forming triangular projection, rounded posteriorly (Fig. 2f), glabrous along apex; posterior margin of tergite VII straight (Fig. 2g). Females—posterior margin of sternite VIII bisinuate, median portion truncate with row of very short pubescence (Fig. 2b); posterior margin of tergite VII concave (Fig. 2c). **Aedeagus:** Paramere (Fig. 4b) with apical lobe of paramerite short (*ca.* 0.3× length of paramerite), bearing 4 long setae, 3 setae clustered near apex, 4th on lateral projection on main body of the lobe. Aedeagus (Fig. 4c) median lobe copulatory piece strongly curved, apex extruding, apical lobe truncate. **Spermatheca** (Fig. 4a): Basal bulb elongate with

rounded apex, neck bent at *ca.* 90° angle. Spermathecal tube long and tightly double coiled.

Distribution. Known from moist high elevations 1,035–2,115 m in the Cordillera Central of the Dominican Republic (Fig. 6). Specimens were taken 1.6 km west of Ébano Verde Scientific Reserve, and from three localities in Armando Bermúdez National Park: twice along the Pico Duarte trail and once on the slopes of Pico del Yaque. As far as we know it is endemic to this region.

Biology. *Aleomallus yaque* has been collected from tree fern litter, mixed forest litter and hardwood litter at high elevation areas. Larvae and food associations are unknown. Konstantinov *et al.* (2023) discussed the general aspects of endemism and morphology of beetles found in this area and habitat.

Etymology. This species is named after the Rio Yaque del Norte and Pico del Yaque. Yaque is a Taino word given to the river that drains its known habitat and part of the series was collected from the slopes of Pico del Yaque.

DISCUSSION

Best efforts were made to place this unusual looking species into the correct tribe using the available literature (Ashe 2000a, b; Navarrete-Heredia *et al.* 2002) and by contacting other experts on the group (A. Solodovnikov, I. Orlov, V. Gusarov and K. T. Eldredge), but the groups involved are in flux and lack clear definitions. It seems clear *Aleomallus* belongs in the group of tribes and subtribes near Ashe's (2000a, b; note: 2000a is the North American generic key, and 2000b is the text discussing the classification, both in Newton *et al.* 2000) Homalotini. Ashe (2000a, b) recognized six subtribes in his Homalotini, of which three were candidates for *Aleomallus*. The Bolitocharina, Homalotina and Diestotina were considered, made difficult initially by the undefined difference between short (Bolitocharina, Homalotina) and long (Diestotina) labial palpi.

Bolitocharina was considered, but rejected because Bolitocharina have three-part labial palps (two in *Aleomallus*), and the ligula of *Aleomallus* is bifid from the halfway point instead of from near the apex. We next considered Homalotina due to the two-part labial palpi and the deeply divided ligula. However, the body of *Aleomallus* is bulbous and not moderately to strongly dorsoventrally flattened or more-or-less parallel sided as described in the Homalotina. The form of the ligula and labial palps, as well as other characters, fits best with the then-monogeneric Diestotina (*Diestota* Mulsant and Rey, 1870) in Ashe's (2000a, b) system followed by Navarrete-Heredia *et al.* (2002).

Ashe (1992) had earlier treated *Diestota* as a member of the Silusina, but Newton and Thayer

(1992) treated the *Silusina* as a subtribe of the Homalotini and recognized the Diestotini as its own tribe. The membership of the Diestotini of Newton and Thayer (1992) was not defined, but is presumed to be limited to *Diestota*. Ashe's (2000a, b) treatment was the last time the relevant groups were defined. However, the subtribes recognized by Ashe have been moved, elevated and their memberships modified with no subsequent redefinitions. Pace (2008), Bouchard *et al.* (2011) and Asenjo *et al.* (2019) returned Diestotina to a full tribe. In the most recent work (Asenjo *et al.* 2019), Diestotini were expanded by the addition of six genera, again with no discussion. Orlov *et al.* (2020, 2021) provided further discussion as to the past placement of *Diestota* and how it currently fits into the tree.

After much deliberation and with consultation with K. T. Eldredge (*in litt.*) we are now confident *Aleomallus* belongs in the Diestotini (Diestotina of Ashe 2000a, b). *Diestota*, the type genus of the tribe, can be distinguished by the 4-4-5 tarsi; labial palps with two palpomeres, unusually long and filiform or stylate, sutures between the palpomeres often indistinct; the ligula apically divided into two lobes; mesocoxal cavities separated by broad meso- and metacoxal processes; mesocoxae separated by equal-length parts of both the mesoventrite and metaventrite or metaventrite portion longer (Ashe 2000a, b). *Aleomallus* shares these characters but differs in that the meso- and metacoxal processes are narrower, the ligula is longer and more deeply divided, the teeth on the lacinia are larger, the pterothorax is more reduced, the pronotum is more bulbous and the setae more distinct.

There were two trees produced in Orlov *et al.* (2020). The "MP analysis for the morphology-only dataset" (fig. S2) produced a novel result that places *Diestota* sister to the MPO clade (Myllaenini-Pronomaeini-Oxypodini). A synapomorphy for the MPO clade is the interdigitating setae present on the lacinia. This character was scored as absent for *Diestota*, although Orlov *et al.* (2020) highlighted similar-looking structures on the lacinia that are either analogous or homologous with interdigitating setae. Like *Diestota*, *Aleomallus* does not have interdigitating setae on the lacinia (see Kanao *et al.* 2016), although there are two rows of setae on the inner margin of the lacinia (Fig. 3f)—one of large, stout, contiguous setae (teeth of Kanao *et al.* 2016) and another of uniform, smaller setae. As in *Diestota* (Orlov *et al.* 2020, p. 366), the structures in *Aleomallus* have the potential to be misinterpreted as interdigitating setae. Alternatively, Orlov *et al.*'s (2020: fig. S7) total evidence tree recovered *Diestota* within the HALD clade (Homalotini-Actocharini-Autaliini-Liparocephalini-Diglottini). In neither analysis was *Diestota* found to be close to *Silusa* Erichson, 1837 (the type genus of *Silusina*) and no explicit conclusions regarding the validity of Diestotini as a tribe were drawn.

Aleomallus is likely derived from a fully-winged ancestor. Its body form conforms to the "flightless beetle syndrome" of Thayer (1992) and is convergent with the phylogenetically diverse flightless aleocharine genera *Cajachara* Ashe and Leschen, 1995, *Xenobiota* Bierig, 1938, *Diglotia* Champion, 1887, *Liparocephalus* Mäklin, 1853 and *Falagria* Leach, 1819. From this, we expect that *Aleomallus* will look very different from its sister-group. Given its unique body form, the weak sampling of related groups in the region and the poorly known relationships thereof, the most justifiable approach was to describe this beetle as a new genus.

The underlying problem of trying to place this genus into the correct tribe and/or subtribe continues to be the imprecise limits of the many polyphyletic tribes making up the Aleocharinae. A particular problem is the Homalotini which is apparently polyphyletic and the purported synapomorphies for the tribe and subtribes do not seem to hold true (Kim and Ahn 2016). The tribe has long been used as a dumping ground for species and is in dire need of a detailed revision and accompanying phylogenetic study.

Aleomallus highlights how understudied the Aleocharinae of the West Indies are, and how the WIBF collection at Montana State University will be a vital tool in gaining a greater understanding of the fauna. We hope this paper will be the first in a series focusing on Staphylinidae from this region.

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CHAPTER THREE

REVISION OF THE WEST INDIAN *BELONUCHUS*

NORDMANN, 1837 (COLEOPTERA: STAPHYLINIDAE: STAPHYLININAE)

Contribution of Authors and Co-Authors

Manuscript(s) in Chapter(s) [#]

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REVISION OF THE WEST INDIAN *BELONUCHUS* NORDMANN, 1837 (COLEOPTERA: STAPHYLINIDAE: STAPHYLININAE)

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ABSTRACT

The West Indian species of *Belonuchus* Nordmann, 1837 are revised to address a knowledge gap in our understanding of the genus. The genus now contains 17 species found in the West Indian biogeographical area, seven of which are described as new species: *Belonuchus blackwelderi*, **new species** (Hispaniola), *Belonuchus crypticus*, **new species** (Hispaniola), *Belonuchus draco*, **new species** (Hispaniola), *Belonuchus franki*, **new species** (Jamaica), *Belonuchus sanchezi*, **new species** (Hispaniola), *Belonuchus dominici*, **new species** (Hispaniola), and *Belonuchus tenebros*, **new species** (Hispaniola). The following new synonymies are proposed: *Belonuchus hispaniolus* Blackwelder, 1943 = *Belonuchus gagates* Erichson, 1840, **new synonymy**, *Belonuchus oakleyi* Blackwelder, 1943 = *Belonuchus gagates* Erichson, 1840, **new synonymy**. A lectotype and paralectotypes are designated for *Belonuchus coeruleus* Cameron, 1922, and *Belonuchus cognatus* Sharp, 1885. A lectotype is designated for *Belonuchus eximius* Bernhauer, 1917. Redescriptions and rediagnoses are provided for previously described species. All species are included in a taxonomic identification key, diagnostic characters are illustrated, distribution maps are presented for each species, and updates on the nomenclature of the group are provided.

INTRODUCTION

Belonuchus Nordmann, 1837 are a genus of the megadiverse subtribe Philonthina Kirby, 1837. Members of the genus often possess eye catching colorations that include various combinations of reds, blacks, whites, and yellows. Little is known about the biology of the majority of species in the group, but small pieces of information we do have indicate fascinating life histories. They are predatory and generally specialize in consuming Diptera in and around decaying organic matter (Smetana 1995) and have an important role as predators in ecosystems (Marquez and Asiain 2022). Some species have even been documented diving into pockets of stagnant water inside the floral bracts of *Heliconia* L. plants to predate on mosquito larvae (Frank and Barrera 2010).

Currently there are 182 described species of *Belonuchus* Nordmann, 1837 (Marquez and Asiain 2022) and after recent changes to classification by Chani Posse *et al.* (2018a) the genus is now

restricted to the New World. The genus has a long and interesting taxonomic history, with the last 30 years marking a resurgence of interest in and around the group. In 1801 it was Fabricius who described the first species of *Belonuchus*, *Staphylinus haemorrhoidalis* Fabricius, 1801 from “*America meridionali*” and 36 years later Nordmann established the genus *Belonuchus* Nordmann, 1837 by monotypy for *Staphylinus haemorrhoidalis*. Erichson (1840) was the first to expand the newly established genus, with additions to the generic description, plus 10 new species and new combinations from closely related genera (*Philonthus* Stephens, 1829 and *Staphylinus* Linnaeus, 1758). New additions to the genus were common place over the subsequent years and *Belonuchus* maintained its New World exclusivity, until Fauvel (1877; 1878; 1879) began describing species from Asia and Australia.

Meanwhile in 1860, a new monotypic genus and species, *Trapeziderus bicolor* Motschulsky, 1860 was described. Ten years later Motschulsky (1870) produced a checklist of his species and works, and placed *Trapeziderus bicolor* under the unnecessary replacement generic name *Trapezinotus* Motschulsky, 1870, proposed following the thought at the time that generic names had to differ by more than a gender ending, something not currently correct (see Article 56.2, ICZN). Under Motschulsky’s thinking there was an apparent conflict with *Trapezidera* Motschulsky, 1860 (Helotidae) (see Herman 2001). The names are considered objective synonyms with the same type species. No further species were added to Motschulsky’s genus and 35 years later Fauvel synonymized it with *Belonuchus* (Fauvel 1895) where it has remained.

The genus *Musicoderus* Sharp, 1855 was described by Sharp (1885) with two species, one of which *Musicoderus cephalotes* Sharp, 1885, being later fixed as the type species by subsequent designation by Blackwelder (1943). Scheerpeltz (1933) treated *Musicoderus* as a subgenus of *Belonuchus*, and a decade later it was synonymized with *Belonuchus* in by Blackwelder (1943).

Little changed at the generic level for the following 75 years, until Chani Posse *et al.* (2018a) resurrected *Trapeziderus* from synonymy and transferred all Old World *Belonuchus* into the genus, making *Belonuchus* once again a New World genus. Just a couple of years later Chani Posse and Ramírez-Salamanca (2020) also resurrected *Musicoderus*, after phylogenetic testing suggested it be its own clade. This reinstatement was limited because sampling was restricted to only the two originally described species, *Musicoderus cephalotes* and *Musicoderus gracillis*.

The generic concept of *Belonuchus* has been open to discussion for many years (e.g. Lacordaire 1854; Blackwelder 1943; Smetana 1995; Chani Posse *et al.* 2018a). The limits of the genus were particularly ill defined until Smetana (1995) provided a new working concept, which was further solidified by Chani Posse’s *et al.* work (2018a). This revision uses that definition of *Belonuchus*, in line with all recent works (Chani Posse 2011; Chani Posse *et al.* 2018a; Chani Posse *et al.* 2018b; Chani Posse and Ramírez-Salamanca 2020; Li and Zhou 2010; Marquez and Asiain 2022; Rodríguez and Navarrete-Heredia 2016). Marquez and Asiain (2022) provided detailed summaries of each recent paper.

Blackwelder’s (1943) monograph of Staphylinidae of the West Indies constitutes the most significant work towards understanding the *Belonuchus* of the West Indies and contains a key

and descriptions of the 16 West Indian species known to him at the time. His work differed from this one in including the South American Trinidad and Tobago, which is not part of the West Indian Bioregion (Bond 1993, Hopp and Ivie 2009, Hart and Ivie 2016). Besides Blackwelder's work, checklists, and other small studies (e.g. Chani Posse *et al.* 2018b; Frank 2004; Frank and Barrera 2010; Peck 2010, 2011a, 2011b, 2016; Peck *et al.* 2014) there have been no major contributions to the West Indian *Belonuchus* fauna in over 80 years. This study provides a revision of the West Indian species of *Belonuchus*, a description of seven new species and redescriptions and rediagnoses of previously described species. An updated identification key, distributional maps, and illustrations of diagnostic characters are also provided.

Omission of *Belonuchus rufipennis* (Fabricius 1801) and other species

Between Blackwelder (1943, 1944) and Smetana (1995) a Jamaica record of *Belonuchus rufipennis* entered the literature. This record likely originates from Dejean (1833) in which the *nomen nudum* "Apicalis" was listed twice under *Cafius* Curtis, 1829, once as a junior synonym of the name "Schönherr. Dej. Jamaica.; *Apicalis*, *Schönherr.* id." and then further down the list as "Apicalis Dej. Cayennae." Erichson (1840) treated *Cafius apicalis* Dejean, 1833, as a synonym of *Belonuchus formosus* Gravenhorst, 1806, (later synonymized with *B. rufipennis*). Based on the known distribution of *B. rufipennis* (mainland North America, Central America, South America, also Hawaii and the Galapagos) it seems improbable that there should be records in Jamaica and no other West Indian Islands so this record is dropped from this work as a mistaken record. Note: Images of the syn types of *B. rufipennis* from the Zoological Museum of Kiel University were examined (Appendix: Fig. A10) and specimens match the most current definition of *B. rufipennis* in Smetana (1995).

Belonuchus satyrus Erichson 1840, *Belonuchus trinitatis* Blackwelder 1943, and *Belonuchus cacao* Blackwelder 1943 also appear in Blackwelder (1943). These species have been omitted as they should not be considered West Indian based on the biogeographic area defined in Bond (1993), Hopp and Ivie (2009) and Hart and Ivie (2016).

MATERIAL AND METHODS

This study is based upon examination of 1863 West Indian specimens of *Belonuchus*. Voucher specimens of each described species of West Indian *Belonuchus* were studied, and in almost all cases type material or photos thereof was studied (see Appendix for examined primary type material). Exemplars of extralimital species were also consulted. Photographs of the extralimital *Belonuchus rufipennis* syntype series were studied from the Zoological Museum of Kiel University (Michael Kuhlmann). New material was identified, and new island records are reported (indicated with '*').

The material examined was a mixture of wet and dry preserved specimens. Specimens were examined from the following collections (person responsible in parentheses):

AMNH – American Museum of Natural History, New York, (Lee H. Herman).

BMNH – The Natural History Museum, London, United Kingdom (Maxwell V. L. Barclay, Dmitry Telnov).

CMNH – Carnegie Museum of Natural History, Pittsburg, Pennsylvania (Robert A. Androw).

CNCI – Canadian National Collection of Insects, Arachnids and Nematodes, Ottawa (Adam Brunke).

FMNH – Field Museum of Natural History, Chicago (Jessica Wadleigh, Maureen Turcatel).

FSCA – Florida State Collection of Arthropods, Gainesville, Florida (Paul E. Skelley, Oliver Keller).

IADIZA Instituto Argentino de Investigaciones de las Zonas Áridas, Mendoza, Argentina (Mariana Chani Posse).

IRSNB – Royal Belgian Institute of Natural Sciences, Brussels (Yvonnick Gerard).

MCZC – Museum of Comparative Zoology, Harvard University, Cambridge, Massachusetts (Crystal Maier).

USNM – U.S. National Museum of Natural History, Washington D.C. (Floyd Shockley).

UTCI – University of Tennessee at Chattanooga Insect Collection (Stylianios Chatzimanolis)

WIBF – West Indian Beetle Fauna Project Collection, Montana State University, Bozeman, Montana (Michael A. Ivie). Holotypes designated from WIBF material are deposited in the USNM.

ZMUC – Natural History Museum of Denmark, University of Copenhagen (Alexey Solodovnikov).

MNSD - Museo Nacional de Historia Natural “Prof. Eugenio de Jesús Marcano,” Santo Domingo, Dominican Republic (Gabriel de los Santos).

IIBZ - Instituto de Investigación Botánica y Zoológica, Universidad Autónoma de Santo Domingo, Santo Domingo, Dominican Republic (Ruth Hortensia B. Landrau).

Dry material was rehydrated for dissections. Dissection procedure follows Rainey and Ivie (2023). Specimens were examined under a Leica Wild M3C stereomicroscope with up to 100× magnification. A 150-W swan-neck fiber optic illuminator and an LED ring light were used as light sources. Dissections were stored on slides in glycerol and examined under an Olympus CH-2 compound microscope with magnifications of 40×, 100× and 400×. Images were taken and stacked using a Leica M165 C imaging system that used Leica Application Suite X software. Enhancements to digital images were made in Adobe Photoshop® CC 2022 and plates were

prepared in Adobe Illustrator® CC 2022. Label information was used to georeference specimens in Google Earth. Only records with specimens examined and verified by the first author were included on maps. When not possible to assign a precise location on an Island, a centroid point was assigned. The resulting latitudes and longitudes were used to produce maps using SimpleMappr and further edited in Adobe Illustrator® CC 2022 and Adobe Photoshop® CC 2022.

Holotypes are marked with red labels with the word ‘HOLOTYPE’ on top, the species name in the middle, and ‘Rainey and Ivie 2024’ below. Paratypes are labeled the same, except ‘PARATYPE’ on a blue label. Lectotypes are marked with red labels with the word ‘LECTOTYPE’, following the same format except with the respective author name following the species epithet, and “desg. Rainey & Ivie 2024” at the bottom. Paralectotypes were labeled similarly, except ‘PARALECTOTYPE’ on a blue label.

Transcription of label data from type material follows Ivie (1985): the end of each line on a label is indicated by a semicolon (;) and individual labels are separated by a slash (/). Label data for all other material examined can be found in Supplemental Material. Morphological terminology follows Smetana (1995) and Chani Posse *et al.* (2018a). Descriptions follow the format of Smetana (1995) and Rodriguez and Navarrete-Heredi (2016). Descriptions of punctures follow Duff and Schmidt (2012). The word ‘without’ has been applied in the species descriptions and redescrptions to draw attention to characters relating to spines on the legs that are usually present in *Belonuchus* according to the generic concepts in Chani Posse *et al.* (2018a) and Smetana (1995).

Total body length was measured from the tip of the frons to the apex of the final abdominal segment, unless stated otherwise in the text. Head length was measured from the tip of the frons to the top of the neck, at the first point of constriction. Head width was measured from the widest part of the head (including eyes). Pronotum length was taken at the midline, and width at the widest part of the pronotum. The length of the elytral suture was taken from the apex of the scutellum to the point at which the elytra disconnect at the apex. All measurements were made using a Leica M165 C imaging system that used Leica Application Suite X software.

TAXONOMY

Belonuchus Nordmann, 1837

(Figs. 1–15)

Belonuchus Nordmann, 1837: 129; Erichson, 1840: 419; Lacordaire, 1854: 80; LeConte, 1861: 65; Sharp, 1876: 156; 1885: 428; Fauvel, 1878: 269; LeConte and Horn, 1883: 96; Blatchley, 1910: 37; Casey, 1915: 445; Cameron, 1921: 354, 378; 1932: 170; Bradley, 1930: 79; Blackwelder, 1943: 420; 1944: 136-138; Porta, 1949: 155; Moore, 1958: 311; 1965: 98, 101; Arnett, 1960: 248; Moore and Legner, 1973: 213; 1974: 561; 1979: 16; Coiffait, 1974: 4; Shibata, 1983: 139; Hammond, 1984: 205; Frank, 1986: 369; Smetana 1995: 722; Downie and

Arnett, 1996: 383; Lundgren, 1998: 50; Newton, Thayer, Ashe, and Chandler, 2000: 395; Herman 2001: 2517; Frank and Barrera 2010: 1; Li and Zhou 2010: 2149; Peck 2010: 24; Chani Posse 2011: 213; Peck, 2011a: 21; Peck, 2011b: 12 Chani Posse 2014: 76; Peck *et al.* 2014: 37; Peck 2016: 79; Rodriguez and Navarrete-Heredia 2016: 444; Chani Posse *et al.* 2018a: 32; Chani Posse *et al.* 2018b: 9; Chani Posse and Ramírez-Salamanca: 2019; Chani Posse and Ramírez-Salamanca 2020: 194; Marquez and Asiain 2022: 4; Park and Ahn 2023: 684; Ramírez-Salamanca *et al.* 2024: 1.

Type species. *Staphylinus haemorrhoidalis* Fabricius, 1801, by monotypy.

Diagnosis. The following diagnosis is modified from Chani Posse *et al.* (2018a) and limited to the West Indian fauna. Species of this group can be recognized among other genera of Philonthina by the following characters: head without postmandibular ridge or with very weak postmandibular ridge; gular sutures joined anteriorly before neck with infraorbital ridge reaching postgenal ridge or slightly extending beyond postgenal ridge; mesothorax with sternopleural (anapleural) suture transverse, or nearly transverse (very slightly oblique); profemora with 1 to 2 rows of lateroventral spines, more distinct in males; protarsi not sexually dimorphic, tarsomeres 1–4 more or less cylindrical, not transversely widened and not flattened dorso-ventrally, without modified (pale) adhesive setae; and abdominal tergites 3–5 with posterior basal transverse carina

Description. See Chani Posse *et al.* (2018a) for the most current genus description.

Etymology. Derivation of the name from Βελόνα, transliterated as Belon, Greek for arrowhead, dart or needle. Masculine.

KEY TO THE WEST INDIAN SPECIES OF *BELONUCHUS*

1. Abdomen bicolored; or with final abdominal segments paler (Figs. 10a, b, e, f, g, h, 11b, c, f) 2
- 1'. Abdomen unicolored; final abdominal segments not differing in shade (Figs. 10c, d, i, 11a, d, e, g, h) 10
2. Elytra bicolored (discount iridescence) (Figs. 10h, 11b, f); metafemur without rows of strong lateroventral spines; pronotum with row of 5 dorsal punctures; Hispaniola 3
- 2'. Elytra unicolored (Figs. 10a, b, e, f, g, 11c); metafemur without or up to 2 rows of strong lateroventral spines; pronotum with variable number (including 5) of dorsal punctures; Lesser Antilles, Jamaica, Cuba.....5
3. Head and pronotum with fine, dense, transverse, and oblique microsculpture covering surface, or with at least some evidence of microsculpture; North of Enriquillo Depression, Hispaniola *B. crypticus*, new species

- 3'. Head and pronotum smooth, without evidence of microsculpture (except on neck); north and south of Enriquillo Depression 4
4. Elytra with anterior half-to-one-third orange; borders of orange markings on elytra distinct (Fig. 11b); body black to reddish-black; La Vega province, Hispaniola
.....***B. draco*, new species**
- 4'. Elytra with yellow to orange patch on humeral angles; borders of yellow to orange markings on elytra indistinct (Fig. 11f); body reddish-black to reddish-brown; south of Enriquillo depression, Hispaniola***B. dominici*, new species**
5. Pronotum with dorsal series of punctures with 1 or 2 punctures; metafemur always with 1 or 2 rows of strong lateroventral spines 6
- 5'. Pronotum with dorsal series of punctures with 5 punctures; metafemur with either 2 or no rows of strong lateroventral spines 7
6. Metafemur with 1 row of small strong lateroventral spines; elytra with strong blue sheen; abdomen with apical segments VIII- X white (Fig. 11c); Jamaica...***B. franki*, new species**
- 6'. Metafemur with 2 rows of strong lateroventral spines; elytra black to reddish-black; abdomen with apical segments VII-X orange (Fig. 10g); Montserrat, Dominica, St. Vincent***B. cognatus***
7. Body reddish-brown (Fig. 10b); abdominal segments VIII-X pale brown; St Lucia
.....***B. amplus***
- 7'. Body blue, or black to reddish-black (Figs. 10a, e, f); abdominal segments VII-X or V-X orange.....8
8. Metafemur smooth, without rows of strong lateroventral spines; central Lesser Antilles (Guadeloupe, Dominica, Martinique)***B. bugnioni***
- 8'. Metafemur with 2 rows of strong lateroventral spines; Greater Antilles or southern Lesser Antilles (St. Vincent, Grenada) 9
9. Elytra with strong blue iridescence; total body length ≤ 6 mm; St. Vincent, Grenada ..***B. coelestinus***
- 9'. Elytra black to reddish-black, without blue iridescence; total body length ≥ 9 mm; Greater Antilles (Cuba, Jamaica, Hispaniola).....***B. agilis***
10. Elytra bicolored, with orange or pale patches (Figs. 10d, h, 11e, f) 11
- 10'. Elytra unicolored (Figs. 10c, i, 11a, d, g, h) 14
11. Head and pronotum with fine dense transverse/oblique microsculpture covering surface, or with at least some evidence of microsculpture 12
- 11'. Head and pronotum smooth, without evidence of microsculpture (except on neck) .13

12. Body brown, elytron with indistinct orange patch that reaches humerus (Fig. 10h); male with profemur with row of spines restricted to apical half of anterior edge; Hispaniola north of Enriquillo depression... *B. crypticus*, new species
- 12'. Body black, elytron with large distinct orange patch in center (Fig. 11e); male with profemur with row of spines across entire length of anterior edge; Hispaniola south of Enriquillo depression *B. sanchezi*, new species
13. Neck with deep anterior sulcus, dividing neck and head (Fig. 11f); pronotum widest at middle; smaller, 7.0 - 8.3 mm; antennomeres 4-7 transverse; male with apical anterior edge of profemur with cluster of small spines; Hispaniola *B. dominici*, new species
- 13'. Neck and head not separated by deep sulcus (Fig. 10d); pronotum widest at anterior angles; larger, 9.4 - 11.3 mm; antennomeres 4-7 longer than wide; male with apical anterior edge of profemur with row of large spines; Hispaniola..... *B. blackwelderi*, new species
14. Elytra, head, pronotum and abdomen similar in coloration (Figs. 10c, i, 11a, d, h); northern Lesser Antilles to Dominica or Greater Antilles 15
- 14'. Elytra orange, head, pronotum and abdomen black to reddish-black (Fig. 11g); St. Lucia, St. Vincent, Grenada..... *B. mundus*
15. Frons with impressed fovea (Fig 9); male with sternite VIII with concave apical emargination (Figs. 1i, 4h, 6c, 8g); aedeagus with paramere short, transverse 16
- 15'. Frons smooth and flat; male with sternite VIII with medial apical projection (Fig. 4b); aedeagus with paramere broad, large with pointed apex (Figs. 4d, e); Puerto Rico..... *B. danforthi*
16. Pronotum narrowed posteriorly with slightly concave lateral margins in posterior third; widespread (not known from Dominica) 17
- 16'. Pronotum parallel sided; Dominica *B. dominicus*
17. Frons with an obvious longitudinal impression (Fig. 9a); male metafemur with 2 rows of strong lateroventral spines; aedeagus with median lobe narrowed toward sharp to blunt lancet-shaped apex (Figs. 1k, 6e).....18
- 17'. Frons smooth, without an obvious longitudinal impression (Fig. 9b); male metafemur without rows of strong lateroventral spines; aedeagus with median lobe suddenly narrowed into short lobe-like apical projection (Fig. 8i); Hispaniola *B. tenebros*, new species
18. Color uniform, reddish-brown (Fig. 10c); Antigua..... *B. antiguae*

18'. Color variable, reddish-brown to black (Fig. 11d); Bahamas, Cuba, Cayman Islands, Jamaica, Hispaniola, Puerto Rico, St. Thomas, St. John, Guana, Buck, Saba, Montserrat ...

..... *B. gagates*

***Belonuchus agilis* Erichson, 1840**

(Figs. 1a-e, 10a, 13a)

Belonuchus agilis Erichson, 1840: 423; DuVal 1857: 37; Chevrolat and Fauvel, 1863: 432, 433; Fauvel 1901: 87; Bernhauer and Schubert, 1914: 369; Leng and Mutchler 1914: 406; Bernhauer 1921: 170; Gowdey 1926: 12; Blackwelder 1943: 427; 1944: 137; Frank 2004: 92; Frank and Barrera 2010: 4; Herman 2001: 2518; Chani Posse *et al.* 2018b: 10; Perez-Gelabert 2020: 117.

Belonuchus chevrolati Fauvel, 1863: 432; Fauvel 1869: 489; Bernhauer and Schubert 1914: 369; Leng and Mutchler 1914: 406; Blackwelder 1943: 427; Herman 2001: 2518; Chani Posse *et al.* 2018b: 11. [synonymy by Fauvel 1869: 489].

Type Material.

Belonuchus agilis Erichson: **Syntypes:** 2 in ZMHB, not seen, see Chani Posse *et al.* 2018b: 10.

Type locality: Cuba.

Belonuchus chevrolati Fauvel: **Holotype:** MALE. La Havana / {*agilis* Er.; *chevrolati* Fvl. / R.I.Sc.N.B. 17.479; Coll. et det. A. Fauvel / TYPE ? / WIBF 098273 (IRSB). **Type locality:** Havana, Cuba. (Appendix: Fig. A4).

Non-Type Material Examined (n = 40): AMNH, BMNH, FMNH, FSCA, IRSB, MCZC, USNM, ZMUC. See Supplemental Material.

Diagnosis. *Belonuchus agilis* can be distinguished from other West Indian members of the genus by a combination of the following characters: uniform black to reddish-black coloration with segments VII - X orange; pronotum with dorsal row of 5 punctures; length greater than 9 mm.

Redescription.

Coloration. Head and antennae black to reddish-black, pronotum black; elytra, scutellum and abdominal tergites and sternites III-VI black to reddish-black, tergites and sternites VII- X orange. Head, pronotum and abdominal segments III- VI iridescent bronze; mandibles and palpi reddish-black; legs reddish-black.

Head. Head of obtusely quadrangular shape, as wide as long (HW/HL: 1.0), with obtuse hind angles; eyes small, three times smaller than tempora length when viewed from above. Temporal carinae bearing long and small setae; frons with wide fovea and longitudinal impression; dorsal surface with scattered coarse setae bearing punctures, except large median area impunctate, surface with fine and dense microsculpture of oblique and transverse striae and scattered very fine punctures. Neck with anterior sulcus deep and impressed. Gular sutures entirely fused except for a very short distance anteriorly. Antennomeres 1-3 glossy, bearing only sparse string setae, antennomeres 4-11 with microtrichia and long setae, antennomere 3 slightly longer than 2, 4 as wide as long, 5 wider than long, 6-10 increasingly transverse, 11 longer than wide.

Thorax. Pronotum scarcely longer than wide (PL/PW: 1.04), narrowed posteriad, lateral margins inconspicuously concave in posterior half; dorsal rows with (usually) 5 coarse punctures; surface with microsculpture similar to head. Elytra at suture shorter than pronotum at midline (ratio 1.56), at base wider than pronotum at widest point, widened posteriad; punctuation moderate and close, most interspace between punctures about twice as large as diameters of punctures; pubescence dark brown; surface between punctures without appreciable microsculpture, but usually with some microscopic irregularities. Scutellum very coarsely and closely punctate, with microsculpture similar to head and pronotum. Legs slender, profemur with two rows of spines of irregular size, metafemur with two rows of short strong spines; tibiae with several sizes of spines and setae; tarsi 5-5-5, filiform, first and fifth tarsomeres longer than each one of second to fourth.

Abdomen. Abdomen with tergite VII with whitish apical seam of palisade fringe; punctuation of tergites sparse and moderate, generally sparser towards apex of each tergite; pubescence dark brown, base of each tergite with mix of granular and linear microsculpture, microsculpture linear midway to base; sometimes with very coarse oval shape puncture with very fine granulose microsculpture inside.

Male. Posterior lower edge of front femur with numerous strong, but not long, spine-like setae. Sternite IX (Fig. 1d) with shallow u-shaped apical emargination. Sternite VIII (Fig. 1c) with slight concave apical emargination. Genital segment with tergite X (Fig. 1b) broad, narrowed to a truncate apex, posterior border with microspines. Aedeagus (Fig. 1e) elongate; median lobe narrowed anteriorly a short, blunt apical portion; paramere short, transverse.

Female. Genital segment with tergite X as in Fig. 1a.

Length. 8.7 – 13.0 mm (n = 6), length from tip of frons to apex of elytral suture 4.7 – 6.0 mm (n = 6).

Distribution. Cuba, Jamaica, and Hispaniola (Dominican Republic) (Fig. 13a). Also recorded from Florida and Columbia.

Biology. *Belonuchus agilis* is associated with decaying plant matter. Specimens have been taken from rotting oranges and decaying ponytail palm. A specimen has been collected on a silk cotton tree (see Frank and Barrera 2010 for more details).

Taxonomic Discussion. *Belonuchus agilis* is superficially similar to *Belonuchus cognatus*, sharing a similar overall shape, size and color, however *B. agilis* has a dorsal series of pronotal punctures limited to one or two, and *B. cognatus* has a dorsal series of five punctures.

***Belonuchus amplus* Blackwelder, 1943**

(Figs. 1f, 10b, 14a)

Belonuchus amplus Blackwelder, 1943: 425; 1944: 137; Herman 2001: 2519; Ivie 2009: 64; Peck 2016: 79; Chani Posse *et al.* 2018b: 11.

Type Material.

Belonuchus amplus Blackwelder: **Holotype:** FEMALE. St Lucia; BWI; IV-22-36 / Sta 221.; Blackwelder / Type No.; 52457; U.S.N.M. / *Belonuchus; amplus*; Blackwelder / WIBF 098280 (USNM) (Appendix: Fig. A1). **Paratype:** FEMALE. St Lucia; BWI; IV-22-36 / Sta 221.; Blackwelder / Type No.; 52457; U.S.N.M. / *Belonuchus; amplus*; Blackwelder / WIBF 098281 (USNM). **Type locality:** St Lucia.

Non-Type Material Examined: None.

Diagnosis. *Belonuchus amplus* can be distinguished from other West Indian members of the genus by a combination of the following characters: uniform reddish-brown coloration with segments VIII-X pale; pronotum narrow, with dorsal row of 5 punctures; deep widely spaced punctures on posterior surface of head.

Redescription.

Coloration. Reddish-brown; tergites and sternites VIII- X pale. Head, pronotum and abdominal segments III- X iridescent; mandibles and palpi reddish-brown; legs pale reddish-brown.

Head. Head of feebly quadrangular shape, wider than long (HW/HL: 1.13), narrowed posteriad eyes, with obtuse hind angles; eyes fairly large, 1.5 times smaller than tempora length viewed from above. Temporal carinae bearing long and small setae; frons with wide fovea and longitudinal impression extending nearly to middle; dorsal surface with scattered very coarse setae bearing punctures, except large median area impunctate, surface with fine and dense microsculpture of oblique and transverse striae. Neck with anterior sulcus deep and impressed. Antennomeres 1-3 glossy, bearing only sparse string setae, antennomeres 4-11 with microtrichia and long setae, antennomere 3 as long as 2, 4-6 longer than wide, 7 wide as long, 8 wider than long, 9-10 increasingly transverse, 11 longer than wide.

Thorax. Pronotum longer than wide (PL/PW: 1.29), narrowed posteriad, lateral margins inconspicuously concave in posterior half; dorsal rows with 5 coarse punctures; surface with microsculpture similar to head. Elytra at midline longer than elytral suture (ratio 1.5), at sides longer than pronotum at midline (ratio 1.3), base much wider than pronotum at widest point, somewhat widened posteriad; punctuation moderate and close, most interspace between punctures about twice as large as diameters of punctures; pubescence pale brown; surface between punctures without appreciable microsculpture, but usually with some microscopic irregularities. Scutellum very coarsely and closely punctate, with microsculpture similar to head and pronotum. Legs slender, profemur with small spines of irregular size not arranged in rows, metafemur without two rows of short strong spines; tibiae with several sizes of spines and setae; tarsi 5-5-5, filiform, first and fifth tarsomeres longer than each one of second to fourth.

Abdomen. Abdomen with tergite VII with whitish apical seam of palisade fringe; punctuation of tergites sparse and coarse, generally sparser towards apex of each tergite; pubescence brown, tergites with very fine linear microsculpture.

Male. Unknown. Description based on two female specimens.

Female. Gular sutures fused at halfway point (in females). Genital segment with tergite X as in Fig. 1f.

Length. 8.3 – 9.0 mm (n = 2), length from tip of frons to apex of elytral suture 4.3 – 4.6 mm (n = 2).

Distribution. St Lucia (Fig. 14a).

Biology. Largely unknown. Only 2 specimens have been taken of this species from rotting cocoa pods (Blackwelder 1943).

Taxonomic Discussion. This species is only known from a limited series of female specimens; however the specimens are distinct enough from *B. gagates* - of which this species is superficially similar. *Belonuchus amplus* has a similar coloration to some specimens of *B. gagates*, but a narrower pronotum and segments VIII-X are paler, and it is restricted to St. Lucia. The extensive collecting by the WIBF group and others in St. Lucia (Ivie 2009, Peck 2016) failed to recollect this species.

***Belonuchus antiquae* Blackwelder, 1943**

(Figs. 1g-k, 10c, 14a)

Belonuchus antiquae Blackwelder, 1943: 434; 1944: 137 Herman 2001: 2519; Peck 2016: 79; Chani Posse *et al.* 2018b: 12.

Type Material.

Belonuchus antiquae Blackwelder: **Holotype:** MALE. Antigua; BWI; 30.V.37 / Sta 444Q; Blackwelder / Type No.; 52461; U.S.N.M. / *Belonuchus*; *boxi*; Blackwelder / WIBF 098602 (USNM) (Appendix: Fig. A2). **Paratypes:** 1 - Para;-type / Sta 444Q; Blackwelder / Antigua; BWI; 30.V.37 / Paratype No.; U.S.N.M. / *Belonuchus*; *boxi*; Blkwr. / M. Cameron.; Bequest.; B. M. 1955-147 / NHMUK 014663503 (FEMALE, BMNH). 1 - Para;-type / Antigua; BWI; 30.V.37 / Sta 444Q; Blackwelder / BRIT. MUS.; 1940-164 / Paratype No.; U.S.N.M. / *Belonuchus*; *boxi*; Blkwr. / NHMUK 013584756 (FEMALE, BMNH). 4 - Antigua; BWI; 30.V.37 / Sta 444Q; Blackwelder / Type No.; 52461; U.S.N.M. / WIBF 098603, WIBF 098605- WIBF 098607 (1 MALE, 3 FEMALES, USNM). 1 - Antigua; BWI; 30.V.37 / Sta 444Q; Blackwelder / Type No.; 52461; U.S.N.M. / *Belonu-*; *boxi* / *Belonuchus*; *antiquae*; Bl. / WIBF 098604 (FEMALE, USNM). 1 - Antigua; BWI; 30.V.37 / Sta 444Q; Blackwelder / Type No.; 52461; U.S.N.M. / *Belonuchus*; *antiquae*; Bl. / FMNHINS 4517179 (MALE, FMNH). **Type locality:** St. Mary, Antigua.

Non-Type Material Examined (n = 14): FSCA, MTEC. See Supplemental Material.

Diagnosis. *Belonuchus antiquae* can be distinguished from other West Indian members of the genus by a combination of the following characters: uniform reddish-brown coloration; pronotum with dorsal row of 5 punctures; found only on Antigua.

Redescription.

Coloration. Reddish-brown; head, pronotum and abdominal segments III-VI somewhat iridescent.

Head. Head of obtusely quadrangular shape, feebly (mostly females) to slightly as wide as long (mostly males) (HW/HL: 1.07-1.2), with obtuse hind angles; eyes large, tempora as long as eyes viewed from above. Temporal carinae bearing long and small setae; frons with wide fovea and longitudinal impression; dorsal surface with scattered coarse setae bearing punctures, except large median area impunctate, surface with fine and dense microsculpture of oblique and transverse striae. Neck with anterior sulcus deep and impressed. Antennomeres 1-3 glossy, bearing only sparse string setae, antennomeres 4-11 with microtrichia and long setae, antennomere 3 slightly longer than 2, 4 slightly longer than wide, 5 as long as wide, 6-10 increasingly transverse, 11 longer than wide.

Thorax. Pronotum scarcely longer than wide (PL/PW: 1.07), narrowed posteriad, lateral margins slightly concave in posterior half; dorsal rows with 5 coarse punctures; surface with microsculpture similar to head. Elytra at suture as long as pronotum at midline, at base slightly wider than pronotum at widest point, somewhat widened posteriad; punctuation moderate and close, most interspace between punctures about twice as large as diameters of punctures; pubescence brown; surface between punctures without appreciable microsculpture, but usually with some microscopic irregularities. Scutellum coarsely and closely punctate, with microsculpture similar to head and pronotum. Legs slender; tibiae with several sizes of spines and setae; tarsi 5-5-5, filiform, first and fifth tarsomeres longer than each one of second to fourth.

Abdomen. Abdomen with tergite VII with whitish apical seam of palisade fringe; punctuation of tergites coarse and moderate, generally sparser towards apex of each tergite; pubescence brown, base of each tergite with very fine linear microsculpture.

Male. Head wide; gular sutures fused just above middle of head. Profemur with posterior lower edge with two rows of strong spine-like setae of irregular size. Metafemur with two indistinct rows of short strong spine-like setae. Sternite IX (Fig. 1j) with narrow v-shaped apical emargination. Sternite VIII (Fig. 1i) with moderately wide and deep concave apical emargination. Genital segment with tergite X (Fig. 1h) fairly narrow and elongate, posterior border with microspines. Aedeagus (Fig. 1k) elongate; median lobe narrowed anteriorly fairly short, sharp to blunt lancet-shaped apical portion; paramere short, transverse.

Female. Head usually narrow; gular sutures fused just below middle of head. Profemur with posterior lower edge with two very indistinct rows of fine small spine-like setae. Metafemur without distinct spine-like setae. Genital segment with tergite X as in Fig. 1g.

Length. 5.0 - 6.5 mm (n = 6), length from tip of frons to apex of elytral suture 2.9 – 3.5 mm (n = 6).

Distribution. Antigua (Fig. 14a).

Biology. *Belonuchus antiquae* is endemic to Antigua and was first recorded association with *Heliconia* sp. bracts just below the summit of Boggy Peak (see Blackwelder 1943). Additional specimens have been taken in pitfall traps baited with rotting *Heliconia* inflorescence, rotten calabash and unspecified fruit. Specimens have also been taken in rotting breadfruit.

Taxonomic Discussion. This species is very similar to *B. gagates* (see Taxonomic Discussion under *B. gagates* about barcoding). The only characters that reliably separate it are the consistent red coloration of *B. antiquae*. The distinctive red coloration is found consistently on Antigua. The authors think these reasons are enough to justify maintaining this species separate from *B. gagates*. *Belonuchus antiquae* is also similar to *B. dominicus*, see Taxonomic Discussion under *B. dominicus*.

The manuscript name “*Belonuchus boxi*” was used by Blackwelder for *B. antiquae* before publication. It should be noted that this name appears on the labels of type specimens.

***Belonuchus blackwelderi* Rainey and Ivie, new species**
(Figs. 2a-e, 10d, 12b)

Type Material.

Belonuchus blackwelderi Rainey and Ivie: **Holotype.** Male: DOM. REP: Prov. Pedernales; Las Abejas 1225m; 18°09.032'N, 71°37.475'W; 22 JULY-09 AUG 1999; M.A.Ivie *et al.* Malaise / WIBF 098100 (From WIBF to be deposited in the USNM). **Paratypes.** 7 - DOM.REP: Prov.Pedernales; Las Abejas, 1225m; 18.1505°N,71.6246°W; 28 JULY-03 AUG 1999; G.O.Dominici, FIT / WIBF 092100, WIBF 098423-WIBF 098426, WIBF 098513, WIBF 098514 (WIBF). 1 - La Visite& vic; LaSelle Range; 5-7000 ft.; Sept. 16-23 / Haiti; 1934; Darlington / MCZ-ENT 00727268 (MCZC). **Type locality:** Las Abejas, Pedernales Province, Dominican Republic.

Diagnosis. *Belonuchus blackwelderi* can be distinguished from other West Indian members of the genus by a combination of the following characters: uniform black to reddish-black coloration with patch of orange on humeral angles of elytra; head large and broad with small eyes, neck lacking anterior sulcus; pronotum with dorsal row of five punctures; head and pronotum smooth without microsculpture.

Description.

Coloration. Head, antennae, pronotum black to reddish-black; elytra with small orange patch on humerus, not reaching suture; scutellum black to reddish-black; abdominal segment III-X black to reddish-black. Abdominal segments III- VII slightly iridescent bronze; mandibles and palpi red to reddish-black; legs reddish-black.

Head. Head of obtusely quadrangular shape, wider than long (HW/HL: 1.16), with rounded hind angles; eyes small, tempora 1.5 times as long as eyes viewed from above. Temporal carinae bearing long and small setae; frons with small very shallow fovea; dorsal surface with scattered

coarse setae bearing punctures, except median area largely impunctate, surface smooth without appreciable microsculpture. Neck with anterior sulcus very shallow and almost indistinguishable, surface with fine and dense microsculpture of oblique and transverse striae. Gular sutures fused at top of head. Antennomeres 1-3 glossy, bearing only sparse string setae, antennomeres 4-11 with microtrichia and long setae, antennomere 3 longer than 2, 4-7 longer than wide, 8 as long as wide, 9-10 increasingly transverse, 11 longer than wide.

Thorax. Pronotum scarcely longer than wide (PL/PW: 1.06), lateral margins close to parallel; dorsal rows with 5 moderate punctures; surface smooth without appreciable microsculpture. Elytra at suture shorter than pronotum at midline (ratio 1.45), at base slightly wider than pronotum at widest point, widened posteriad; punctuation moderate and moderate, most interspace between punctures about three times as large as diameters of punctures; pubescence light brown; surface between punctures without appreciable microsculpture, but usually with some microscopic irregularities. Scutellum moderately and closely punctate, with microsculpture similar to neck. Legs slender; tibiae with several sizes of spines and setae; tarsi 5-5-5, filiform, first and fifth tarsomeres longer than each one of second to fourth.

Abdomen. Abdomen with tergite VII with whitish apical seam of palisade fringe; punctuation of tergites moderate and sparse, generally sparser at base of each tergite; pubescence brown, base of each tergite with mix of granular and linear microsculpture, microsculpture fine and linear, except for very fine and close longitudinal punctures on basal carinas.

Male. Profemur with indistinct row of distinct lateroventral spines on entire length of anterior edge, spines none uniform size; posterior edge with indistinct cluster of fine spine-like setae. Metafemur without distinct spine-like setae. Sternite IX (Fig. 2d) with narrow v-shaped apical emargination. Sternite VIII (Fig. 2c) with narrow and fairly deep concave apical emargination. Genital segment with tergite X (Fig. 2b) fairly broad, posterior border truncate with microspines. Aedeagus (Fig. 2e) elongate with broad base; median lobe narrowed anteriorly sharp pointed apex; paramere short, transverse.

Female. Profemur with indistinct row of lateroventral spines on anterior edge, spines weak and of irregular size; posterior edge of profemur with indistinct cluster of fine spine-like setae. Metafemur without distinct spine-like setae. Genital segment with tergite X as in Fig. 2a.

Length. 9.4 – 11.3 mm (n = 5), length from tip of frons to apex of elytral suture 5.2 – 5.6 mm (n = 5).

Distribution. Hispaniola (Haiti and Dominican Republic) (Fig. 12b).

Biology. Unknown. Specimens have either been taken using flight intercept traps or the method of capture was not recorded.

Etymology. This species is named for Richard E. Blackwelder in recognition of his contributions to West Indian Staphylinidology and Neotropical Coleopterology.

Taxonomic Discussion. *Belonuchus blackwelderi* is very similar to *B. draco*, *B. sanchezi*, *B. dominici* and *B. crypticus*. See Taxonomic Discussion under *B. draco* for similarities.

***Belonuchus bugnioni* Fauvel, 1901**

(Figs. 2f-j, 10e, 14a)

Belonuchus bugnioni Fauvel, 1901: 86; Bernhauer and Schubert 1914: 369; Blackwelder 1943: 428; 1944: 137; Herman 2001: 2521; Peck 2014: 37; Peck 2016: 79; Chani Posse *et al.* 2018b: 14.

Belonuchus eximius Bernhauer, 1917: 105; Blackwelder 1943: 428; Herman 2001: 2522; Peck 2014: 37; Peck 2016: 79; Chani Posse *et al.* 2018b: 14.

Type Material.

Belonuchus bugnioni Fauvel: **Holotype:** FEMALE. Martinique; Janvier 1896; E. Bugnion / Bugnioni; Fvl. / TYPE / R.I.Sc.N.B. 17.479; Coll. et det. A. Fauvel / WIBF 098619 (IRSB).

Type Locality: Martinique. (Appendix: Fig. A3).

Belonuchus eximius Bernhauer: **Lectotype, here designated:** MALE. 1 eximius [Illegible]; Guadeoupe BgHs / eximius Bern.; Typus / Chicago NHMus; M. Bernhauer; Collection / FMNHINS 4517190 (FMNH). Lectotype is designated to preserve stability of nomenclature, in accordance with ICZN (1999: Art. 74.7). **Type Locality:** Guadeloupe.

Non-Type Material Examined (n = 10): BMNH, FMNH, IRSB. See Supplemental Material.

Diagnosis. *Belonuchus bugnioni* can be distinguished from other West Indian members of the genus by a combination of the following characters: Head and pronotum uniform black to reddish-black coloration; elytra blue; orange from the apical quarter of segment V through X (strength of orange coloration sometimes variable); pronotum with dorsal row of 5 punctures; length less than 9 mm.

Redescription.

Coloration. Head, antennae and pronotum black to reddish-black; elytra iridescent blue; scutellum and abdominal segments III-V reddish-black, apical quarter of segment V orange, segments VI- X orange. Head, pronotum iridescent bronze; mandibles reddish-black; palpi red; legs reddish-black.

Head. Head of obtusely quadrangular shape (HW/HL: 1.03-1.1), with obtuse hind angles; eyes small, two times smaller than tempora length viewed from above. Temporal carinae bearing long and small setae; frons with wide fovea and longitudinal impression; dorsal surface with scattered very coarse setae bearing punctures, except large median area impunctate, surface with fine and dense microsculpture of oblique and transverse striae. Neck with anterior sulcus deep and impressed. Antennomeres 1-3 glossy, bearing only sparse string setae, antennomeres 4-11 with microtrichia and long setae, antennomere 3 longer than 2, 4 as long as wide, 5-10 increasingly transverse, 11 longer than wide.

Thorax. Pronotum longer than wide (PL/PW: 1.09), widest at midline with narrowed posteriad; dorsal rows with 5 coarse punctures; surface with microsculpture similar to head. Elytra at suture longer than pronotum at midline (ratio 1.36), at base much wider than pronotum at widest point, widened posteriad; punctuation moderate and close, most interspace between punctures about three times as large as diameters of punctures; pubescence light brown; surface between punctures without appreciable microsculpture, but usually with some microscopic irregularities. Scutellum moderately and very closely punctate, with microsculpture similar to head and pronotum. Legs slender; tibiae with several sizes of spines and setae; tarsi 5-5-5, filiform, first and fifth tarsomeres longer than each one of second to fourth. Profemur with posterior and anterior lower edge with clusters of strong spine-like setae of irregular size. Metafemur without two indistinct rows of short strong spine-like setae.

Abdomen. Abdomen with tergite VII with whitish apical seam of palisade fringe; punctuation of tergites moderate and sparse, generally sparser towards apex of each tergite; pubescence brown, tergites with very fine linear microsculpture.

Male. Gular sutures fused at top of head. Sternite IX (Fig. 2i) with wide v-shaped apical emargination. Sternite VIII (Fig. 2h) with indistinct concave apical emargination. Genital segment with tergite X (Fig. 2g) fairly narrow and elongate, posterior border with small U-shaped notch with microspines. Aedeagus (Fig. 2j) elongate; median lobe narrowed anteriad toward short blunt apical portion; paramere short, transverse.

Female. Gular sutures fused just above middle of head. Genital segment with tergite X as in Fig. 2f.

Length. 5.6 – 7.4 mm (n = 6), length from tip of frons to apex of elytral suture 3.2 – 4.3 mm (n = 6).

Distribution. Guadeloupe, Dominica*, and Martinique (Fig. 14a).

Biology. Unknown. The only recorded information is that one specimen was taken from a flight interception trap in mature secondary forest on the Island of Dominica.

Taxonomic Discussion. *Belonuchus bugnioni* is similar in overall color and shape to *B. coelestinus*, but differs in having a smooth metafemur, without rows of strong lateroventral spines, and the apical orange color on the abdomen begins on segment V (not VII as it does in *B. coelestinus*) also *B. bugnioni* is restricted the Central Lesser Antilles.

Chani Posse *et al.* (2018b) lists two syntypes of *B. eximius* in the FMNH. There are indeed two specimens with this identification in the FMNH, and Bernhauer (1917) indicates multiple syntypes by proving a size range. However, only one of the two FMNH specimens was collected by Bang-Haas, the other by Plason. In the interest of taxonomic stability a lectotype is designated for the Bang-Haas male, and the Plason specimen is not designated as a paralectotype.

***Belonuchus coelestinus* Bernhauer, 1908**

(Figs. 3a-e, 10f, 14a)

Belonuchus coelestinus Bernhauer, 1908: 330; Bernhauer and Schubert 1914: 369; Leng and Mutchler 1914: 406; Blackwelder 1943: 426; 1944: 137; Herman 2001: 2522; Peck 2016: 79; Chani Posse *et al.* 2018b: 15.

Belonuchus caeruleus Cameron, 1922: 122; Riley and Tams 1924: 158.

Belonuchus coeruleus (incorrect subsequent spelling); Blackwelder 1943: 426; 1944: 137; Herman 2001: 2522; Peck 2016: 79; Chani Posse *et al.* 2018b: 15. [All uses under this spelling are as synonyms].

Belonuchus smithi, of Cameron, 1922: 122. From St. Vincent. *Nomen nudum*. See Blackwelder (1943) and Chani Posse *et al.* (2018b).

Type Material.

Belonuchus coelestinus Bernhauer: Chani Posse *et al.* (2018b: 15) cite two syntypes, one each in the Naturhistorisches Museum Wien and FMNH. Neither specimen was examined.

Belonuchus coeruleus Cameron: **Lectotype, here designated:** FEMALE. Type; H.T. / Leeward side; St. Vincent, W.I; H. H. Smith.; 91. / W. Indies; 1920-353 / *Belonuchus; caeruleus* Cam / *Belonuchus; smithi* Fv1. / NHMUK 013584754 (BMNH) (Appendix: Fig. A5). **Paralectotype, here designated:** MALE. W. Indies; 1920-353 / Leeward side; St. Vincent, W.I; H. H. Smith.; 87. / *caeruleus* Cam / WIBF 098626 (BMNH). Lectotype and paralectotype are designated to preserve stability of nomenclature, in accordance with ICZN (1999: Art. 74.7), a female lectotype has been designated due to the poor condition of the male paralectotype. **Type locality.** St. Vincent.

Non-Type Material Examined (n = 1): FMNH. See Supplemental Material.

Diagnosis. *Belonuchus coelestinus* can be distinguished from other West Indian members of the genus by a combination of the following characters: Head, pronotum and elytra with strong blue iridescence; segment VII through X orange; pronotum with dorsal row of 5 punctures; length 6 mm or less.

Redescription.

Coloration. Head, antennae, pronotum and elytra and scutellum reddish-black with strong blue iridescence, strongest on elytra; abdominal segments III-VI reddish-black, segments VII- X orange. Mandibles reddish-black; palpi red; legs red to reddish-black.

Head. Head of obtusely quadrangular shape, slightly wider than long (HW/HL: 1.04-1.17), with obtuse hind angles; eyes small, two times smaller than tempora length viewed from above. Temporal carinae bearing long and small setae; frons with wide fovea and longitudinal impression; dorsal surface with scattered very coarse setae bearing punctures, except large median area impunctate, surface with fine and dense microsculpture of oblique and transverse striae. Neck with anterior sulcus deep and impressed. Gular sutures fused at top of head. Antennomeres 1-3 glossy, bearing only sparse string setae, antennomeres 4-11 with microtrichia and long setae, antennomere 3 longer than 2, 4 as long as wide, 5-10 increasingly transverse, 11 longer than wide.

Thorax. Pronotum longer than wide (PL/PW: 1.14), widest at midline with narrowed posteriad; dorsal rows with 5 coarse punctures; surface with microsculpture similar to head. Elytra at suture shorter than pronotum at midline (ratio 1.4), at base wider than pronotum at widest point, widened posteriad; punctuation moderate and close, most interspace between punctures about three times as large as diameters of punctures; pubescence brown; surface between punctures without appreciable microsculpture, but usually with some microscopic irregularities. Scutellum moderately and very closely punctate, with microsculpture similar to head and pronotum. Legs slender; tibiae with several sizes of spines and setae; tarsi 5-5-5, filiform, first and fifth tarsomeres longer than each one of second to fourth. Profemur with posterior lower edge with cluster of strong spine-like setae of irregular size; anterior lower edge with cluster of indistinct spine-like setae of irregular size. Metafemur with two rows of short strong spine-like setae.

Abdomen. Abdomen with tergite VII with whitish apical seam of palisade fringe; punctuation of tergites moderate and sparse, generally sparser towards apex of each tergite; pubescence brown, base of each tergite with mix of granular and linear microsculpture, microsculpture fine and linear midway to base; sometimes with very coarse oval shape puncture with very fine granulose microsculpture inside.

Male. Sternite IX (Fig. 3d) with wide v-shaped apical emargination. Sternite VIII (Fig. 3c) with very indistinct concave apical emargination. Genital segment with tergite X (Fig. 3b) fairly narrow and elongate, posterior border with microspines. Aedeagus (Fig. 3e) elongate; median lobe gradually narrowed anteriorly blunt apex; paramere short, transverse.

Female. Genital segment with tergite X as in Fig. 3a.

Length. 4.9 – 5.9 mm (n = 3), length from tip of frons to apex of elytral suture 2.7 – 3.4 mm (n = 3).

Distribution. St. Vincent and Grenada (Fig. 14a).

Biology. Unknown.

Taxonomic Discussion. The syntype of *B. coelestinus* reported by Chani Posse *et al.* (2018b) to be in the FMNH was not located, and the Vienna syntype was not examined. The identity of this species was determined by reference to the types of *B. coeruleus* Cameron and Blackwelder's synonymy of these two species. Blackwelder (1943: 426) made the assumption that the types of both Bernhauer and Cameron were from the same series based on the agreement of the descriptions, type locality, and collector. In the absence of available types of Bernhauer we are following Blackwelder's treatment, as was done by Chani Posse *et al.* (2018b).

In the case that the Bernhauer types are discovered and are not conspecific with those of Cameron, the misspelling of “*B. coeruleus*” could come into importance. In fact, in the original description, the spelling is *cæruleus*, (=caeruleus) referring to the blue color of this species. This interpretation was used in the only known usage of the name as a valid species subsequent to its original publication by Riley and Tams (1924).

Under Art. 35.5.2, a name published with a ligature such as æ must be corrected (see also Art. 27), so the letters “a” and “e” are separated. Internal evidence of this spelling within Cameron’s paper is that the same ligature is used on page 121 for “Pæderominus.” Further, the type label in Cameron’s hand clearly uses “æ” (Fig. A5). Use of “coeruleus” by Blackwelder (1943) and others is therefore an incorrect subsequent spelling (Article 33.3, 33.5).

See Taxonomic Discussion under *B. bugnioni* for similarities.

***Belonuchus cognatus* Sharp, 1885**

(Figs. 3f-j, 10g, 13b)

Belonuchus cognatus Sharp, 1885: 429; Bernhauer and Schubert, 1914: 369; Scheerpeltz 1933: 1377; Blackwelder 1943: 427; 1944: 137; Frank 1982: 34; Herman 2001: 2522; Newton *et al.* 2005: 42; Peck 2010: 24; Asenjo *et al.* 2013: 309; Peck 2016: 79 Chani Posse *et al.* 2018b: 15.

Type Material.

Belonuchus cognatus Sharp: **Lectotype, here designated:** MALE. Bugaba,; Panama; Champion. / Donated by; Du C. Godman,; 1907. / Am. Mus. Nat. His; Sept. Invert. Zool.; No. 483 / WIBF 098642 (AMNH) (Appendix: Fig A6). **Paralectotypes, here designated:** 3 - Bugaba, Panama.; *Belonuchus; cognatus*. Types D.S.; Champion / Type / Bugaba,; Panama; Champion. / B.C.A. Col. I. 2.; *Belonuchus; cognatus*,; Sharp / Sharp Coll.; 1905.-313. / NHMUK 013584807 (2 MALES, 1 FEMALE on one card, BMNH). 1 - Bugaba.; 800-1,500 ft.; Champion / Coll. et det. A. Fauvel; *Belonuchus; cognatus*; Sharp.; R.I.Sc.N.B. 17.479 / Ex-Typis / WIBF 098636 (MALE, IRSB). 1 - Bugaba,; Panama,; Champion. / *cognatus* / [Illegible]; San Mateo; 250; Costa Rica / San Jose; Costa Rica / v. *cognatus*; Sharp / R.I.Sc.N.B. 17.479; Coll. et det. A. Fauvel / Ex-Typis / WIBF 098637 (MALE, IRSB). 1 - Bugaba,; Panama,; Champion. / Biol. C Amer.; Don; Godman et Salvin / WIBF 098638 (MALE, IRSB). 1 - Bugaba,; Panama,; Champion. / *Belonuchus; cognatus* / Biol. C Amer.; Don; Godman et Salvin / WIBF 098639 (FEMALE, IRSB). 1 - Chontales; Nicaragua / guatemala / Coll. et det. A. Fauvel; *Belonuchus; cognatus* Sharp.; R.I.Sc.N.B. 17.479 / WIBF 098640 (FEMALE, IRSB). 1 - Bugaba,; Panama; Champion. / U.S.N.M.; ParatypeNo.; 49613 / WIBF 098632 (FEMALE, USNM). 1 - Bugaba,; Panama; Champion. / U.S.N.M.; ParatypeNo.; 49613 / *Belonuchus; cognatus* / WIBF 098633 (FEMALE, USNM). 1 - Bugaba,; 800-1,500 ft.; Champion. / U.S.N.M.; ParatypeNo.; 49613 / *Belonuchus; cognatus* / WIBF 098634 (FEMALE, USNM). 1 - Bugaba,; Panama,; Champion. / Donated by; Du C. Godman,; 1907. / Am. Mus. Nat. His; Sept. Invert. Zool.; No. 483 / *Belonuchus; cognatus* / WIBF 098641 (FEMALE, AMNH). Lectotype and paralectotypes are designated to preserve stability of nomenclature, in accordance with ICZN (1999: Art. 74.7).

Type locality. Bugaba, Panama.

Non-Type Material Examined (n = 19): BMNH, FMNH, IRSB, WIBF, USNM. See Supplemental Material.

Diagnosis. *Belonuchus cognatus* can be distinguished from other West Indian members of the genus by a combination of the following characters: uniform black to reddish-black coloration with segments VII - X orange; pronotum with dorsal row of 1-2 punctures; length greater than 9 mm.

Redescription.

Coloration. Head and antennae black to reddish-black, pronotum black; elytra, scutellum and abdominal tergites and sternites III-VI black to reddish-black, tergites and sternites VII- X orange. Head, pronotum and abdominal segments III- VI iridescent bronze; mandibles and palpi reddish-black; legs reddish-black.

Head. Head of obtusely quadrangular shape, wider than long (HW/HL: 1.1), with obtuse hind angles; eyes small, 2.5 times smaller than tempora length viewed from above. Temporal carinae bearing long and small setae; frons with wide fovea and longitudinal impression; dorsal surface with scattered coarse setae bearing punctures, except large median area impunctate, surface with fine and dense microsculpture of oblique and transverse striae. Neck with anterior sulcus deep and impressed. Gular sutures entirely fused except for a very short distance anteriorly. Antennomeres 1-3 glossy, bearing only sparse string setae, antennomeres 4-11 with microtrichia and long setae, antennomere 3 longer than 2, 4 longer than wide, 5 as wide as long, 6 wider than long, 7-10 increasingly transverse, 11 longer than wide.

Thorax. Pronotum longer than wide (PL/PW: 1.14), anterior angles pronounced, narrowed posteriad, lateral margins straight in posterior half; dorsal rows with (usually) 1-2 coarse punctures; surface with microsculpture similar to head. Elytra at suture shorter than pronotum at midline (ratio 1.5), at base wider than pronotum at widest point, widened posteriad; punctuation moderate and close, most interspace between punctures about three times as large as diameters of punctures; pubescence dark brown; surface between punctures without appreciable microsculpture, but usually with some microscopic irregularities. Scutellum very coarsely and moderately punctate, with microsculpture similar to head and pronotum. Legs slender, profemur with posterior lower edge with cluster of strong spine-like setae of irregular size; anterior lower edge with cluster of spine-like setae of irregular size. Metafemur with two rows of short strong spine-like setae; tibiae with several sizes of spines and setae; tarsi 5-5-5, filiform, first and fifth tarsomeres longer than each one of second to fourth.

Abdomen. Abdomen with tergite VII with whitish apical seam of palisade fringe; punctuation of tergites moderate and sparse, generally sparser towards apex of each tergite; pubescence brown, base of each tergite with mix of granular and linear microsculpture, microsculpture fine and linear in apical third.

Male. Sternite IX (Fig. 3i) with wide v-shaped apical emargination. Sternite VIII (Fig. 3h) with slight concave apical emargination. Genital segment with tergite X (Fig. 3g) broad, narrowed to a truncate apex, posterior border with microspines. Aedeagus (Fig. 3j) elongate; median lobe broad, gradually narrowed anteriorly to blunt apex; paramere very long, narrow.

Female. Genital segment with tergite X as in Fig. 3f.

Length. 7.6 – 11.9 mm (n = 6), length from tip of frons to apex of elytral suture 4.37 – 6.9 mm (n = 6).

Distribution. Montserrat*, Dominica*, St Vincent, Nicaragua, and Panama (Fig. 13b). Also recorded from Argentina, Belize, Brazil, Colombia, Costa Rica, Ecuador, Guatemala, Trinidad, and Venezuela.

Biology. *Belonuchus cognatus* seems to be associated with decomposing plant matter. Specimens have been taken from rotting papaya stumps, rotting bread nuts, forest litter, flight interception traps and malaise traps.

Taxonomic Discussion. See Taxonomic Discussion under *B. agilis* for similarities.

***Belonuchus crypticus* Rainey and Ivie, new species**

(Figs. 7f-j, 10h, 12a)

Type Material.

Belonuchus crypticus Rainey and Ivie: **Holotype.** Male: cloudforest; vic. Valle Nuevo; Aug'38, Dom. Rep.; c. 6,000 ft, Darl. / MCZ 00727242 (MCZC). **Paratypes.** 15 - cloudforest; vic. Valle Nuevo; Aug'38, Dom. Rep.; c. 6,000 ft, Darl. / MCZ 00727234- MCZ 00727241, MCZ 00727243-MCZ 00727249 (MCZC). 6 - Constanza; Aug'38, Dom. Rep.; 3-4,000 ft.; Darlington / MCZ 00727250- MCZ 00727255 (MCZC). 1 - Valle Nuevo; SE Constanza; Aug'38, Dom. Rep.; 7,000 ft.; Darl. / MCZ 00727258 (MCZC). 2 - Loma Rucilla & mts.N., Dom.Rep.; June'38, 5-8,000 ft.; Darlington / MCZ 00727256, MCZ 00727257 (MCZC). 1 - DOMINICAN REPUBLIC: Inde-; pencia. Sierra de Neiba; south slope near summit.; 4.0 km N Angel Feliz.; 18-40-21N, 71-46-05W / 1825m. 1-2 Apr 2004, J.; Rawlins, C. Young, R.; Davidson, broadleaf cloud; forest without pine, hand; collected, Sample 34243 / CMNH-351,645 (CMNH). **Type locality.** Valle Nuevo, Dominican Republic.

Diagnosis. *Belonuchus crypticus* can be distinguished from other West Indian members of the genus by a combination of the following characters: uniform reddish-black to reddish-brown coloration with sometimes indistinct patch of yellow to orange coloration on humeral angles of elytra; segment VIII through X yellow to orange coloration; pronotum with dorsal row of 5 punctures; head and pronotum with fine and dense microsculpture of oblique and transverse striae, or at least evidence of linear microsculpture.

Description.

Coloration. Head, antennae, pronotum reddish-black to reddish-brown; elytra with sometimes indistinct yellow to orange patch on humeral angles restricted to anterior third, posterior two thirds reddish-black to reddish-brown; scutellum reddish-black to reddish-brown; abdominal segment III-VII reddish-black to reddish-brown, segments VIII- X yellow to orange. Head, pronotum and abdominal segments III- VII slightly iridescent bronze; mandibles and palpi black to reddish-brown; legs reddish-brown.

Head. Head of obtusely quadrangular shape, wider than long (HW/HL: 1.12), with obtuse hind angles; eyes fairly large, tempora 1.25 times as long as eyes viewed from above. Temporal

carinae bearing long and small setae; frons with small shallow fovea; dorsal surface with scattered coarse setae bearing punctures, except median area largely impunctate, surface with fine and dense microsculpture of oblique and transverse striae or at least evidence of linear microsculpture. Neck with anterior sulcus deep and impressed. Antennomeres 1-3 glossy, bearing only sparse string setae, antennomeres 4-11 with microtrichia and long setae, antennomere 3 slightly longer than 2, 4-5 slightly longer than wide, 6 as long as wide, 7-10 increasingly transverse, 11 longer than wide.

Thorax. Pronotum scarcely longer than wide (PL/PW: 1.07), narrowed posteriad, lateral margins slightly concave in posterior half; dorsal rows with 5 coarse punctures; surface with microsculpture similar to head. Elytra at suture shorter than pronotum at midline (ratio 1.52), at base wider than pronotum at widest point, widened posteriad; punctuation moderate and fairly sparse, most interspace between punctures about two to three times as large as diameters of punctures; pubescence brown; surface between punctures without appreciable microsculpture, but usually with some microscopic irregularities. Scutellum moderately and closely punctate, with microsculpture similar to head and pronotum. Legs slender; tibiae with several sizes of spines and setae; tarsi 5-5-5, filiform, first and fifth tarsomeres longer than each one of second to fourth.

Abdomen. Abdomen with tergite VII with whitish apical seam of palisade fringe; punctuation of tergites moderate and sparse, generally sparser at base of each tergite; pubescence brown, tergites with fine and linear microsculpture, except for very fine and close longitudinal punctures on basal carinas.

Male. Head broader than pronotum; gular sutures fused just above middle of head. Profemur with two rows of distinct lateroventral spines on apical half of anterior edge, spines decreasing in size towards apex of profemur and arranged in clusters rather than rows; posterior edge with indistinct cluster of fine spine-like setae. Metafemur without distinct spine-like setae. Sternite IX, sternite VIII, tergite X and aedeagus are close to identical with *Belonuchus dominici* – see this species for drawings (Figs. 7g-j).

Female. Head about as broad as pronotum; gular sutures fused just below middle of head. Profemur with indistinct row of lateroventral spines on anterior edge, spines of irregular size; posterior edge of profemur with indistinct cluster of fine spine-like setae. Metafemur without distinct spine-like setae. Genital segment with tergite X is close to identical to *Belonuchus dominici* – see this species for drawing (Fig. 7f).

Length. 7.4 – 9.1 mm (n = 6), length from tip of frons to apex of elytral suture 3.8 – 4.7 mm (n = 6).

Distribution. Dominican Republic (Fig. 12a).

Biology. Unknown.

Etymology. This species takes its name from the Greek word crypt- meaning hidden. This is in reference to its cryptic identity- looking very similar to *Belonuchus dominici*.

Taxonomic Discussion. *Belonuchus crypticus* is very similar to *B. dominici* in color, size and shape, however the head, and pronotum of *B. crypticus* is covered in fine, dense, transverse, and oblique microsculpture, or there is at least some evidence of microsculpture (vs. a smooth head and pronotum in *B. dominici*), and *B. crypticus* is found north of the Enriquillo depression on Hispaniola (vs. south of the Enriquillo depression in *B. dominici*). *Belonuchus draco*, *B. blackwelderi*, and *B. sanchezi* are also similar to *B. dominici*, see Taxonomic Discussion under *B. draco* for similarities.

***Belonuchus danforthi* Blackwelder, 1943**

(Figs. 4a-e, 10i, 13a)

Belonuchus danforthi Blackwelder, 1943: 429; 1944: 137; Wolcott 1951: 240; Herman 2001: 2523; Chani Posse *et al.* 2018b: 16.

Type Material.

Belonuchus danforthi Blackwelder: **Holotype:** MALE. Puerto Rico; Maricao; x-3-35 / Sta 47. B; Blackwelder / Type No.; 52459; U.S.N.M. / *Belonuchus; danforthi*; Blackwelder / WIBF 098643 (USNM) (Appendix: Fig. A7). **Type locality.** Maricao, Puerto Rico.

Non-Type Material Examined: None.

Diagnosis. *Belonuchus danforthi* can be distinguished from other West Indian members of the genus by a combination of the following characters: Head with dense patch of long bristle-like setae on basal angles; pronotum with dorsal row of 5 punctures; frons without any depressions; paramere broad and large with pointed apex, found only on Puerto Rico.

Redescription.

Coloration. Head and antennae reddish-black, pronotum, elytra, scutellum and abdominal tergites and sternites reddish-brown. Mandibles and palpi light reddish-brown; legs pale reddish-yellow.

Head. Head of rounded quadrangular shape, slightly longer than wide (HL/HW: 1.02), narrowed posteriad eyes, with rounded hind angles; eyes small, tempora 1.5 times as long as eyes viewed from above. Temporal carinae not visible; frons flat and smooth; dorsal surface with scattered coarse setae bearing punctures, except large median area impunctate, with dense patch of punctures bearing long bristle-like setae on basal angles, surface with very fine and dense microsculpture of oblique and transverse striae. Neck with anterior sulcus deep and impressed. Gular sutures fused just below middle of head. Antennomeres 1-3 glossy, bearing only sparse string setae, antennomeres 4-11 with microtrichia and long setae, antennomere 3 slightly longer than 2, 4- 7 longer than wide, 8-10 as long as wide, 11 longer than wide.

Thorax. Pronotum longer than wide (PL/PW: 1.26), slightly narrowed posteriad, lateral margins slightly concave in posterior half; dorsal rows with 5 coarse punctures; surface with microsculpture similar to head. Elytra at suture as shorter than pronotum at midline (ratio 1.39), at base wider than pronotum at widest point, somewhat widened posteriad; punctuation moderate and close, most interspace between punctures about twice as large as diameters of punctures; pubescence brown; surface between punctures without appreciable microsculpture, but usually with some microscopic irregularities. Scutellum moderately and closely punctate, with microsculpture similar to head and pronotum. Legs slender; profemur with posterior lower edge with two rows of strong spine-like setae of irregular size. Metafemur without distinct spine-like setae; tibiae with several sizes of spines and setae; tarsi 5-5-5, filiform, first and fifth tarsomeres longer than each one of second to fourth.

Abdomen. Abdomen with tergite VII with whitish apical seam of palisade fringe; punctuation of tergites moderate and close, present apically of posterior basal transverse carinae; pubescence brown, tergites with very fine linear microsculpture.

Male. Sternite IX (Fig. 4c) with apex rounded to blunt point. Sternite VIII (Fig. 4b) with apical projection medially. Genital segment with tergite X (Fig. 4a) fairly narrow and elongate, with v-shaped basal emargination, posterior border without setae. Aedeagus (Figs. 4d, e) elongate; median lobe inconsistently narrowed anteriorly sharp lancet-shaped apical portion; paramere long and large, a third of total length of median lobe, with pointed apex.

Female. Unknown.

Length. 5.6 mm (n = 1), length from tip of frons to apex of elytral suture 2.7 mm (n = 1).

Distribution. Puerto Rico (Fig. 13a).

Biology. Largely unknown. This species is presumably endemic to Puerto Rico. The only recorded information is that the specimen was found in rotting guava fruit (Blackwelder 1943).

Taxonomic Discussion. Blackwelder's original description (1943) remarks on how this species is very similar to *Philonthus* and is "near the dividing line for the genera." When tested against the latest definition of the genus (Chani Posse *et al.* 2018a), *B. danforthi* fits the definition with only two exceptions – on the head there is a shallow postmandibular ridge (as opposed to no postmandibular ridge), and the infraorbital ridge is not well developed and does not reach the postgenal ridge (as opposed to the infraorbital ridge reaching or slightly extending beyond the postgenal ridge). There are other interesting apomorphic characters in this species including a long, large paramere (Figs. 4d, e), the temporal carinae not visible, long bristle-like setae on the basal angles of the head, unique antennomere widths and lengths, and a smooth flat frons. The species keys to *Belouchus* in the most recent key to Philonthina genera of the New World (Chani Posse 2014a); it also keys to *Belouchus* in North American keys Newton *et al.* (2000) and Smetana (1995) and in the Mexico key Navarrette-Heredia *et al.* (2002). The only morphological character that supports the "*Philonthus* complex" as called in Chani Posse *et al.*

(2018a) (which includes *Gabronthus* Tottenham, 1955; *Neobisnius* Ganglbauer, 1895; *Rabigus* Mulsant and Rey, 1876; and *Taxiplagus* Bernhauer, 1915) is “gular sutures not joined before neck, extended close to each other at the base of the head capsule.” The gular sutures of *B. danforthi* are clearly united before the neck, presently justifying this species continued placement in *Belonuchus*.

***Belonuchus dominicus* Blackwelder, 1943**

(Figs. 4f-j, 11a, 14a)

Belonuchus dominicus Blackwelder, 1943: 431; 1944: 137; Herman 2001: 2524; Peck 2016: 79; Chani Posse *et al.* 2018b: 17.

Type Material.

Belonuchus dominicus Blackwelder: **Holotype:** MALE. Dominica; BWI; VI-2-36 / Sta 237; Blackwelder / Type No.; 52462; U.S.N.M. / WIBF 098644 (USNM) (Appendix: Fig. A8).

Paratypes: 3 - Dominica; BWI; VI-2-36 / Sta 237; Blackwelder / Type No.; 52462; U.S.N.M. / WIBF 098645- WIBF 098647 (MALES, USNM). 1 - Dominica; BWI; VI-2-36 / Sta 237; Blackwelder / WIBF 098768 (FEMALE, USNM). 1 - Dominica; BWI; VI-2-36 / Sta 237; Blackwelder / Type No.; 52462; U.S.N.M. / *Belonuchus; dominicus*; Bl / FMNHINS 4517189 (FEMALE, FMNH). **Type locality.** Hillsboro Estate, Dominica.

Non-Type Material Examined (n = 6): FMNH, FSCA. See Supplemental Material.

Diagnosis. *Belonuchus dominicus* can be distinguished from other West Indian members of the genus by a combination of the following characters: uniform dark reddish-brown coloration; pronotum with dorsal row of 5 punctures; pronotum parallel sided; found only on Dominica.

Redescription.

Coloration. Dark reddish-brown, abdominal segments VIII-X usually light reddish-brown; head, pronotum and abdominal segments III-VI somewhat iridescent.

Head. Head of obtusely quadrangular shape, wider than long (HW/HL: 1.17), with obtuse hind angles; eyes large, tempora as long as eyes viewed from above. Temporal carinae bearing long and small setae; frons with wide fovea and longitudinal impression; dorsal surface with scattered coarse setae bearing punctures, except large median area impunctate, surface with fine and dense microsculpture of oblique and transverse striae. Neck with anterior sulcus deep and impressed. Antennomeres 1-3 glossy, bearing only sparse string setae, antennomeres 4-11 with microtrichia and long setae, antennomere 3 slightly longer than 2, 4 slightly longer than wide, 5 as long as wide, 6-10 increasingly transverse, 11 longer than wide.

Thorax. Pronotum longer than wide (PL/PW: 1.10), lateral margins close to parallel; dorsal rows with 5 coarse punctures; surface with microsculpture similar to head. Elytra at suture shorter than pronotum at midline (ratio 1.3), at base wider than pronotum at widest point, somewhat widened posteriad; punctuation moderate and close, most interspace between punctures about twice as

large as diameters of punctures; pubescence light brown; surface between punctures without appreciable microsculpture, but usually with some microscopic irregularities. Scutellum coarsely and closely punctate, with microsculpture similar to head and pronotum. Legs slender; tibiae with several sizes of spines and setae; tarsi 5-5-5, filiform, first and fifth tarsomeres longer than each one of second to fourth.

Abdomen. Abdomen with tergite VII with whitish apical seam of palisade fringe; punctuation of tergites coarse and moderate, generally sparser towards apex of each tergite; pubescence brown, base of each tergite with mix of granular and linear microsculpture, microsculpture fine and linear midway to base; sometimes with very coarse oval shape puncture with very fine granulose microsculpture inside.

Male. Head large; gular sutures fused just above middle of head. Profemur with posterior lower edge with two rows of strong spine-like setae of irregular size. Metafemur with two distinct rows of short strong spine-like setae. Sternite IX (Fig. 4i) with long narrow v-shaped apical emargination. Sternite VIII (Fig. 4h) with moderately wide and deep concave apical emargination. Genital segment with tergite X (Fig. 4g) fairly narrow and elongate, posterior border with microspines. Aedeagus (Fig. 4j) elongate; median lobe narrowed anteriorly fairly short, sharp lancet-shaped apical portion; paramere short, transverse.

Female. Head small; gular sutures fused just below middle of head. Profemur with posterior lower edge with two indistinct rows of fine small spine-like setae of irregular size. Metafemur without distinct spine-like setae. Genital segment with tergite X as in Fig. 4f.

Length. 7.3 – 9.9 mm (n = 6), length from tip of frons to apex of elytral suture 3.9 – 4.8 mm (n = 6).

Distribution. Dominica (Fig 14a).

Biology. *Belonuchus dominicus* is endemic to Dominica. This species seems to be associated with decomposing plant matter. Specimens have been taken from rotting cocoa pods and in a flight interception trap in mature secondary forest.

Taxonomic Discussion. *Belonuchus dominicus* is similar to *B. gagates* and *B. antiquae* in size and color, however its pronotum is parallel sided, lacking any concavity.

***Belonuchus draco* Rainey and Ivie, new species**
(Figs. 5a-e, 11b, 12a)

Type Material.

Belonuchus draco Rainey and Ivie: **Holotype.** MALE: DOM. REP: Prov. La Vega; Par.Nac.Armando-Bermudez; 12km W. Manabao, 1219m; 03 AUG 1988, dung trap; Ivie, Philips, Johnson / WIBF 098316 (from WIBF to be deposited in USNM). **Paratypes.** 36 - DOMINICAN REPUBLIC:: Prov. La Vega, La Cienega; de Manabao, Arm.Bermu; -dez,

Nat.Pk.,22-IV-2000,; dung traps, R.E. Woodruff; & T.J.Henry / WIBF 098101- WIBF 098136 (FSCA). 32 - DOMINICAN REPUBLIC;; Prov. La Vega, La Cienega; de Manabao, Arm.Bermudez, Nat.Pk., 19-20-IV-2000,; dung traps, R.E. Woodruff; & T.J.Henry (FSCA) / WIBF 098137- WIBF 098168 (FSCA). 11 - DOMINICAN REPUBLIC;; Pr.La Vega, La Cienega; de Manabao, Park Hdqt.; 3-5-VIII-99 3000 Ft. Elev.; R. Woodruff, human dung / WIBF 098168- WIBF 098179 (FSCA). 30 - DOM. REP.: La Vega; Prov, PN A Bermudez; Cienaga, 19. VII-2. VIII. 95; 1000m S. & J. Peck / tropical; evergreen forest; FIT 95-32 / CNC 1444220- CNC 1444250 (CNCI). 20 - DOMIN. REP: Prov. La Vega; LaCienaga, P.N.A. Bermudez; 19°04'N, 70°52'W, 1100m; 04-09APR1992, dung bait; pitfall, M.A.Ivie&Sikes / WIBF 092062- WIBF 092081 (WIBF). 3 - DOMIN. REP: Prov. LaVega; 8 km S Constanza; 02SEP1997, P.W.Kovarik; Berlese cloud for.lit. / WIBF 092082- WIBF 092084 (WIBF). 36 - DOM. REP: Prov. La Vega; Par.Nac.Armando-Bermudez; 12km W. Manabao, 1219m; 03 AUG 1988, dung trap; Ivie, Philips, Johnson / WIBF 092104, WIBF 098282- WIBF 098315, WIBF 098317 (WIBF). **Type locality.** Armando Bermúdez National Park, La Vega Province, Dominican Republic.

Diagnosis. *Belonuchus draco* can be distinguished from other West Indian members of the genus by a combination of the following characters: uniform black to reddish-black coloration with anterior half of elytra orange; apical fifth of segment VII through X orange; pronotum with dorsal row of 5 punctures; head and pronotum smooth without microsculpture.

Description.

Coloration. Head, antennae, pronotum black to reddish-black; anterior half to third of elytra orange, posterior half to third black to reddish-black; scutellum black to reddish-black; abdominal segment III-VII black to reddish-black, apical fifth of segment VII orange, segments VIII- X orange. Neck and abdominal segments III- VII slightly iridescent bronze; mandibles and palpi black to reddish-black; legs reddish-black.

Head. Head of obtusely quadrangular shape, wider than long (HW/HL: 1.38), with obtuse hind angles; eyes fairly large, tempora 1.25 times as long as eyes viewed from above. Temporal carinae bearing long and small setae; frons with small shallow fovea; dorsal surface with scattered coarse setae bearing punctures, except median area largely impunctate, surface smooth without appreciable microsculpture. Neck with anterior sulcus deep and impressed, surface with fine and dense microsculpture of oblique and transverse striae. Antennomeres 1-3 glossy, bearing only sparse string setae, antennomeres 4-11 with microtrichia and long setae, antennomere 3 slightly longer than 2, 4 slightly longer than wide, 5 as long as wide, 6-10 increasingly transverse, 11 longer than wide.

Thorax. Pronotum scarcely longer than wide (PL/PW: 1.08), narrowed posteriad, lateral margins slightly concave in posterior half; dorsal rows with 5 coarse punctures; surface smooth without appreciable microsculpture. Elytra at suture shorter than pronotum at midline (ratio 1.37), at base wider than pronotum at widest point, widened posteriad; punctuation moderate and fairly sparse, most interspace between punctures about four times as large as diameters of punctures; pubescence brown; surface between punctures without appreciable microsculpture, but usually

with some microscopic irregularities. Scutellum moderately and closely punctate, with microsculpture similar to neck and abdominal segments. Legs slender; tibiae with several sizes of spines and setae; tarsi 5-5-5, filiform, first and fifth tarsomeres longer than each one of second to fourth.

Abdomen. Abdomen with tergite VII with whitish apical seam of palisade fringe; punctuation of tergites moderate and sparse, generally sparser at base of each tergite; pubescence brown, tergites with fine and linear microsculpture, except for very fine and close longitudinal punctures on basal carinas.

Male. Head large; gular sutures fused just above middle of head. Profemur with two rows of distinct lateroventral spines on apical half of anterior edge, spines decreasing in size towards apex of profemur and arranged in clusters rather than rows; posterior edge with indistinct cluster of fine spine-like setae. Metafemur without distinct spine-like setae. Sternite IX (Fig. 5d) with narrow v-shaped apical emargination. Sternite VIII (Fig. 5c) with fairly narrow and deep concave apical emargination. Genital segment with tergite X (Fig. 5b) fairly narrow and elongate, posterior border concave and with microspines. Aedeagus (Fig. 5e) broad; median lobe narrowed anteriorly short, sharp lancet-shaped apical portion; paramere short, transverse.

Female. Head small; gular sutures fused just below middle of head. Profemur with indistinct row of lateroventral spines on anterior edge, spines of irregular size; posterior edge of profemur with indistinct cluster of fine spine-like setae. Metafemur without distinct spine-like setae. Genital segment with tergite X as in Fig. 5a.

Length. 8.2 – 10.7 mm (n = 6), length from tip of frons to apex of elytral suture 4.3 – 5.2 mm (n = 6).

Distribution. Dominican Republic (Fig. 12a).

Biology. *Belonuchus draco* seems to be associated with dung. Specimens have mostly been taken in dung-baited traps; it is unclear as to which kind of dung was used as bait in most instances of capture, though a number of specimens were taken using human dung as bait.

Etymology. This species is named after the dragon. The fire orange coloration resembles the breath of the mythical beast. *Draco* is the Latin Dragon noun in apposition.

Taxonomic Discussion. *Belonuchus draco* is very similar to *B. sanchezi*, *B. blackwelderi*, *B. dominici* and *B. crypticus*. All five species share somewhat similar red-black color patterns and are endemic to Hispaniola. *Belonuchus draco* clearly differs from *B. sanchezi* and *B. blackwelderi* by having the final segments of the abdomen (VII-X) orange (vs. having all abdominal segments reddish-black), and by having a broad and long median lobe (Fig. 5e) with a pointed lancet shaped apical portion (vs. a very broad, short median lobe that has a rounded apex in *B. sanchezi*, see Fig. 7e, and a very narrow and elongate median lobe with a broad base and sharply pointed apex in *B. blackwelderi*, see Fig. 2e). *Belonuchus dominici* and *B. crypticus* also have bicolored abdomens but in some specimens the paler apical abdominal segments are less

noticeable. *Belonuchus blackwelderi* is the only species of West Indian *Belonuchus* that has a neck without an anterior sulcus, distinguishing it from *B. draco* and other West Indian *Belonuchus*. *Belonuchus draco* differs from *B. dominici* and *B. crypticus* by having elytra with the anterior half to third orange (vs. elytra with a yellow to orange patch on the humeral angles) and having the borders of the orange markings on the body distinct (vs. indistinct colored borders in *B. dominici* and *B. crypticus*). *Belonuchus draco* also differs to *B. crypticus* by having a smooth head, *B. crypticus* has a head covered with oblique microsculpture or at least some evidence of microsculpture.

***Belonuchus franki* Rainey and Ivie, new species**

(Figs. 5f-j, 11c, 13a)

Type Material.

Belonuchus franki Rainey and Ivie: **Holotype**. MALE: JAMAICA, 4000'; Hardwar Gap; VII.14.1966; Howden & Becker / Rotten; banana; stalk / CNC 1444368 (CNCI). **Paratypes**. 3 - JAMAICA, 4000'; Hardwar Gap; VII.16.1966; Howden & Becker / CNC 980630- CNC 980632 (CNCI). 1 - JAMAICA, 4000'; Hardwar Gap; VII.18.1966; A.T.Howden / CNC 1444406 (CNCI). 2 - JAMAICA, 4000'; Hardwar Gap; VII.31.1966; Howden & Becker / CNC 980330- CNC 980329 (CNCI). 1 - JAMAICA, 4000'; Hardwar Gap; VII.25.1966; Howden & Becker / CNC 1444401 (CNCI). 1 - JAMAICA, 4000'; Hardwar Gap; VII.14.1966; Howden & Becker / Rotten; banana; stalk / CNC 1444405 (CNCI). 1 - JAMAICA, 4000'; Hardwar Gap; VII.23.1966; Howden & Becker / CNC 980633 (CNCI). **Type locality**. Hardwar Gap, Jamaica.

Diagnosis. *Belonuchus franki* can be distinguished from other West Indian members of the genus by a combination of the following characters: body with strong blue iridescence; segments VIII - X white; pronotum with dorsal row of 1 puncture.

Description.

Coloration. Head, antennae, pronotum and scutellum reddish-black; elytra iridescent blue, abdominal tergites and sternites III-VII reddish-black, tergites and sternites VIII- X white. Head, pronotum and abdominal segments III-VII somewhat iridescent bronze-blue; mandibles and palpi reddish-black; legs reddish-black.

Head. Head of quadrangular shape, wider than long (HW/HL: 1.25), with hind angles close to acute; eyes small, 2.3 times smaller than tempora length viewed from above. Temporal carinae bearing long setae; frons with wide fovea and longitudinal impression; dorsal surface with few scattered coarse setae bearing punctures, with large median area impunctate, surface with fine and dense microsculpture of oblique striae. Neck with anterior sulcus deep and impressed. Gular sutures entirely fused except for a very short distance anteriorly. Antennomeres 1-3 glossy, bearing only sparse string setae, antennomeres 4-11 with microtrichia and long setae, antennomere 3 longer than 2, 4 much wider than long, 5-10 increasingly transverse, 11 longer than wide.

Thorax. Pronotum longer than wide (PL/PW: 1.14), anterior angles pronounced, narrowed posteriad, lateral margins straight in posterior half; dorsal rows with one coarse puncture; surface with microsculpture similar to head. Elytra at suture shorter than pronotum at midline (ratio 1.3), at base wider than pronotum at widest point, widened posteriad; punctuation moderate and close, most interspace between punctures about three times as large as diameters of punctures; pubescence dark brown; surface between punctures without appreciable microsculpture, but usually with some microscopic irregularities. Scutellum coarsely and closely punctate, with microsculpture similar to head and pronotum. Legs slender, profemur with row of distinct lateroventral spines on of anterior edge, spines largest on apical fifth; posterior edge smooth, without spine-like setae. Metafemur with single row of distinct spine-like setae; tibiae with several sizes of spines and setae; tarsi 5-5-5, filiform, first and fifth tarsomeres longer than each one of second to fourth.

Abdomen. Abdomen with tergite VII with whitish apical seam of palisade fringe; punctuation of tergites moderate and sparse, generally sparser towards apex of each tergite; pubescence brown, base of each tergite with mix of granular and linear microsculpture, microsculpture fine and linear in apical third.

Male. Sternite IX (Fig. 5i) with wide U-shaped apical emargination. Sternite VIII (Fig. 5h) with slight concave apical emargination. Genital segment with tergite X (Fig. 5g) fairly broad, narrowed to a truncate apex, posterior border with microspines. Aedeagus (Fig. 5j) elongate; median lobe broad, gradually narrowed anteriorly blunt apex; paramere short, transverse.

Female. Genital segment with tergite X as in Fig. 5f.

Length. 6.5 – 11.1 mm (n = 5), length from tip of frons to apex of elytral suture 3.8 – 4.9 mm (n = 5).

Distribution. Jamaica (Fig. 13a).

Biology. Unknown.

Etymology. This species is named for J. Howard Frank (1942-2023) who first recognized this new species from Jamaica in Frank and Barrera (2010), for his extensive collecting in the West Indies with a special interest in Jamaica, and for his pioneering work on the life history of *Belonuchus*.

Taxonomic Discussion. Frank and Barrera (2010), refers to a single specimen taken from "flower bracts of *Heliconia caribaea* cv. Gold" in Jamaica: Portland Parish, Comfort Castle, 5-V-1985." And describes it as such: "one specimen of an unidentified *Belonuchus* species differing in several respects including having a much reduced pronotal series of punctures, hind angle of head without a ridge, and the apical segments of the abdomen yellow." This specimen was not included in the initial loan sent to the authors by Howard Frank. Efforts have been made to trace this specimen after Howard's passing and the transfer of his collection to FSCA, but the

specimen is yet to found. Based on the short description provided in Frank and Barrera (2010) and the locality of the specimen, the authors believe this is likely an example of *B. franki*.

***Belonuchus gagates* Erichson, 1840**

(Figs. 6a-e, 11d, 14a)

Belonuchus gagates Erichson, 1840: 424; Jacquelin du Val 1857: 38; Chevrolat and Fauvel 1863: 433; Blackwelder 1943: 424; 1944: 137; Wolcott 1951: 240; Smetana 1995: 737; Herman 2001: 2526; Stevens and Waldmann 2001: 38; Ivie *et al.* 2008: 243; Turnbow and Thomas. 2008: 52; Thomas *et al.* 2013: 45; Peck 2016: 79; Chani Posse *et al.* 2018b: 18; Perez-Gelabert 2020: 117. *Belonuchus minax* Erichson, 1840: 424; Bernhauer and Schubert 1914: 37; Blackwelder 1943: 424; Herman 2001: 2526; Chani Posse *et al.* (2018b) [synonymy by Blackwelder 1943: 424, as *B. minar*].

Belonuchus minar (subsequent incorrect spelling); Blackwelder 1943: 424.

Musicoderus nigrocaeruleus Cameron, 1913: 175; Herman 2001: 2526; Chani Posse *et al.* 2018b: 19. [synonymy by Blackwelder 1943: 425, confirmed by Smetana 1995: 739].

Musicoderus nigrocoeruleus (subsequent incorrect spelling); Leng and Mutchler 1917: 198.

Belonuchus gowdeyi Bernhauer, 1935: 91; Gowdey 1928: 2 [*nomen nudum*]; Herman 2001: 2526; Chani Posse *et al.* 2018b: 19. [synonymy by Blackwelder 1943: 45].

Belonuchus hispaniolus Blackwelder 1943: 422; 1944: 137; Herman 2001: 2527; Frank and Barrera 2010: 6; Chani Posse *et al.* 2018b: 19; Perez-Gelabert 2020: 117. [**new synonym**].

Belonuchus oakleyi Blackwelder 1943: 422; 1944: 138; Wolcott 1951: 240; Herman 2001: 2530; Chani Posse *et al.* 2018b: 23. [**new synonym**].

Belonuchus sp. 1. Ivie *et al.* 2008: 243; Peck 2016: 79 [voucher in WIBF].

Belonuchus sp. 2. Ivie *et al.* 2008: 243; Peck 2016: 79 [voucher in WIBF].

Belonuchus sp. 3. Ivie *et al.* 2008: 243; Peck 2016: 79 [voucher in WIBF].

Type Material.

Belonuchus gagates Erichson: Lectotype reported to be in to be in the Museum für Naturkunde Berlin (ZMHB), unexamined. See lectotype designation in Smetana (1995: 738). No types were found in the Oxford University Museum of Natural History (A. Spooner, *in litt.*) despite the suggestion in Blackwelder (1943). **Type locality.** Restricted to Cuba by Smetana (1995).

Belonuchus minax Erichson: 4 syntypes reported to be in to be in the Museum für Naturkunde Berlin (ZMHB), unexamined. See Chani Posse *et al.* (2018b). **Type locality.** Americae insulae St. Thomae et St. Johannis (St. Thomas and St. John, US Virgin Islands).

Musicoderus nigrocaeruleus Cameron: Cameron clearly used the singular “Type in my Collection”; therefore restricting the type series to a single specimen as Holotype. His description of variation between males and females must therefore be based on Paratypes. Smetana (1995) discussed the Holotype and eight Paratypes in the BMNH (see Chani Posse *et al.* 2018b). **Type locality:** Jamaica, Newcastle district, 3000 ft above sea level.

Belonuchus gowdeyi Bernhauer: **Lectotype:** MALE. JAMAICA; 15.IX.1925 / HOPE GARDENS / M.C. GOWDEY / NO. 216 / Brit. Museum / *gowdeyi* Brn; cotyp / *gowdeyi*; Brnh. Typus; *Belonuchus*. / Chicago NHM; M. Bernhauer; Collection / LECTOTYPE; *Belonuchus*; *gowdeyi* Bernhauer; A.Smetana des. 1992 / *Belonuchus*; *gowdeyi*; Bernhauer '35; (=gagates) /

FMNHINS 4517194 (FMNH) (Appendix: Fig. A9). **Type locality.** Hope Gardens, Jamaica. Lectotype designated in Smetana (1995: 739).

Belonuchus hispaniolus Blackwelder: **Holotype:** FEMALE. SFrncscoMts; St.Domingo; 6.9.05 WI / Aug.Busck; Collector / Type No.; 52463; U.S.N.M. / *Belonuchus; hispaniolus*; Blackwelder / WIBF 099202 (USNM). **Paratype:** 1 - FEMALE. SFrncscoMts; St.Domingo; 6.9.05 WI / Aug.Busck; Collector / Paratype No.; 52463; U.S.N.M. / *Belonuchus; hispaniolus* / WIBF 099203 (USNM). **Type locality.** San Francisco Mountains, Dominican Republic (Hispaniola).

Belonuchus oakleyi Blackwelder: **Holotype:** FEMALE. PuertoRico; Mayaguez; X-5-35 / Sta 50. B; Blackwelder / Type No.; 52460; U.S.N.M. / *Belonuchus; oakleyi*; Blackwelder / WIBF 099199 (USNM). **Type locality.** Mayagüez, Puerto Rico.

Non-Type Material Examined (n = 902): AMNH, BMNH, CMNH, CNCI, FSCA, IRSB, MCZC, WIBF, USNM, UICI. See Supplemental Material.

Diagnosis. *Belonuchus gagates* can be distinguished from other West Indian members of the genus by a combination of the following characters: uniform piceous-black to black coloration; wide head and body form; sternite VIII with a wide and deep emargination (male).

Redescription. (Modified from Smetana 1995).

Coloration. Reddish-brown to black; head, pronotum and abdomen somewhat iridescent; maxillary and labial palpi, antennae and legs piceous, last antennal segment occasionally feebly paler.

Head. Head of obtusely quadrangular shape, feebly (mostly females) to slightly wider than long (mostly males) (ratios 1.17 - 1.26), feebly narrowed posteriad eyes, with broadly obtuse posterior angles; eyes fairly large, tempora about as long as eyes seen from above; frons with longitudinal median impression (Fig. 9a); dorsal surface with scattered fairly coarse punctures, except large median area impunctate, and with dense and very fine microsculpture of longitudinal and oblique striae. Antennomeres 1-3 glossy, bearing only sparse string setae, antennomeres 4-11 with microtrichia and long setae, antennomere 3 slightly longer than 2, 4 slightly longer than wide, 5 as long as wide, 6-10 increasingly transverse, 11 longer than wide.

Thorax. Pronotum somewhat longer than wide (ratio 1.13), narrowed posteriad, lateral margins slightly to distinctly concave in posterior half; five or six punctures on each lateral portion; surface with microsculpture similar to that on head. Scutellum densely punctate. Elytra at suture as long as pronotum at midline, at base slightly wider than pronotum at widest point, somewhat widened posteriad; punctation moderate to fine and dense, transverse distance between punctures mostly no larger than diameters of punctures; pubescence fine, piceous; surface between punctures without appreciable microsculpture.

Abdomen. Abdomen with tergite VII with whitish apical seam of palisade fringe; punctation on bases of tergites dense and slightly coarser than that on elytra, gradually becoming finer and distinctly sparser toward apex of abdomen; pubescence piceous; surface between punctures with exceedingly fine and dense microsculpture of rudimentary transverse striae.

Male. Head wide; gular sutures fused just above middle of head. Profemur with posterior lower edge with two rows of strong spine-like setae of irregular size. Metafemur with two indistinct rows of short strong spine-like setae. Sternite IX (Fig. 6d) with deep narrow v-shaped apical emargination. Sternite VIII (Fig. 6c) with moderately wide and deep, obtusely triangular medio-apical emargination. Genital segment with tergite X (Fig. 6b) fairly narrow and elongate, posterior border with microspines. Aedeagus variable (Fig. 6e), elongate; median lobe narrowed anteriorly fairly short, sharp to blunt lancet-shaped apical portion of varying widths; paramere short, transverse, internal sac as in Fig. 1391 (Smetana 1995).

Female. Head usually narrow; gular sutures fused just below middle of head. Profemur with posterior lower edge with two very indistinct rows of fine small spine-like setae. Metafemur without distinct spine-like setae. Genital segment with tergite X as in Fig. 6a.

Length. 5.5 - 8.1 mm (n = 6), length from tip of frons to apex of elytral suture 2.5 - 4.3 mm (n = 6).

Distribution. Great Abaco*, New Providence, Cuba, Cayman Brac*, Jamaica, Hispaniola (Dominican Republic and Haiti), Puerto Rico, Buck*, Guana*, Saba*, St. Kitts*, Nevis*, Montserrat, Guadeloupe* (Fig. 14a), with records in Southern Florida.

Biology. *Belonuchus gagates* is associated with rotting organic matter. This species likely predares on other insects feeding on early stage decaying organic material. Specimens have been recorded from rotten fruit, dung, carrion, black lights, flight interception traps, rotting fruit (see Blackwelder 1943: 425; Frank and Barrera 2010, and Smetana 1995 for further details). Notably Frank and Barrera (2010) records this species in flower bracts of *Heliconia caribaea*.

Taxonomic Discussion. This species is locally common, widely distributed and morphologically variable across its distribution. Overall size and color can be very variable, as can the shape of the median lobe (Fig. 6e). Populations found on the same island can have variable external and internal morphology that does not seem to be island specific. *Belonuchus gagates* is very similar to *Belonuchus antiquae*, the only reliable way to distinguish them is the consistently red-brown color of *B. antiquae*, and *B. gagates* is not known from Antigua. The recording of four Montserratian “species” that are all this species by Ivie *et al.* (2008) is an indication of the degree of morphological variability in a population. Smetana (1995) provides a redescription of this species- the description here is a modified version, to include material not studied by Smetana and new synonyms. *Belonuchus gagates* is also superficially similar to *B. dominicus* and *B. tenebros*, see Taxonomic Discussion under *B. dominicus* and *B. tenebros* for similarities.

***Belonuchus sanchezi* Rainey and Ivie, new species**
(Figs. 7a-e, 11e, 12a)

Type Material.

Belonuchus sanchezi Rainey and Ivie: **Holotype**. MALE: DOM.REP: Prov.Pedernales; ca.35km N.Cabo Rojo,1250m; Las Abejas, 26 AUG 1988; M.Ivie,Phillips,Johnson; dung baited pitfall / WIBF 098366 (from WIBF to be deposited in the USNM). **Paratypes**. 2 - DOMINICAN REP.: Prov.; Barahona, nr. Filipinas; Larimar Mine; 26-VI-7-; VII-1992; R.E. Woodruff; P. Skelley, flight trap / WIBF 098180- WIBF 098181 (FSCA). 1 - DOMINICAN REPUBLIC;; Prov.Pedernales, 21 km; N.of Cabo Rojo, 19-VI-; 1976, cow dung at night; R.E.Woodruff / WIBF 098182 (FSCA). 36 - DOMINICAN REPUBLIC;; Prov.Pedernales, 24,5km; N. Cabo Rojo, 12-IV-2000;; dung traps, R.E.Woodruff; & T.J.Henry / WIBF 098183- WIBF 098218 (FSCA). 1 - DOMINICAN REPUBLIC;; Pr.Pedernales 32kmN. of; Cabo Rojo, 4000 ft. elev; 22-VI-99 R.E. Woodruff; R.Baranowski, Lk. Area / WIBF 098219 (FSCA). 1 - DOMINICAN REPUBLIC;; Pedernales. Sierra de; Baoruco, Aceitillar;; 25.2 km ENE Pedernales; 18-05-29N, 71-31-16W;; 1272m, 14 June 2003 / C. Young, J Rawlins, C.; Nunez, R. Davidson, P.; Acevedo, M. de la Cruz; dense broadleaf forest;; pine, hand collected;; sample 42242 / Carnegie Museum; Specimen Number; CMNH-351,742 / *Belonuchus; mundus* Er; Det. Chatzimanolis 2013 / UICI 000005387 (UICI). 1 - DOMINICAN REPUBLIC;; Pedernales. Sierra de; Baoruco, Aceitillar;; 25.2 km ENE Pedernales; 18-05-29N, 71-31-16W;; 1272m, 14 June 2003 / C. Young, J Rawlins, C.; Nunez, R. Davidson, P.; Acevedo, M. de la Cruz; dense broadleaf forest;; pine, yellow pan trap;; sample 42262 / Carnegie Museum; Specimen Number; CMNH-351,176 / UICI 000005388 (UICI). 1 - DOMINICAN REPUBLIC;; Pedernales. Sierra de; Baoruco, Aceitillar;; 25.2 km ENE Pedernales; 18-05-29N, 71-31-16W;; 1272m, 14 June 2003 / C. Young, J Rawlins, C.; Nunez, R. Davidson, P.; Acevedo, M. de la Cruz; dense broadleaf forest;; pine, yellow pan trap;; sample 42262 / Carnegie Museum; Specimen Number; CMNH-351,205 / UICI 000005389 (UICI). 1 - DOMINICAN REPUBLIC;; Pedernales. Sierra de; Baoruco, Aceitillar;; 25.2 km ENE Pedernales; 18-05-29N, 71-31-16W;; 1272m, 14 June 2003 / C. Young, J Rawlins, C.; Nunez, R. Davidson, P.; Acevedo, M. de la Cruz; dense broadleaf forest;; pine, bait trap;; sample 42252 / Carnegie Museum; Specimen Number; CMNH-351,226 / UICI 000005390 (UICI). 4 - Dominicana: Pedernales Prov.; Sra. Batoruco, 540m; 23.VII.1990, carrion; L. Masner RD90 / CNC 1101498- CNC 1101501 (CNCI). 16 - DOMINICAN REPUBLIC;; Pedernales. 26 km N; Cabo Rojo, 730 m.; 18-06N, 71-38W / 26-27 September 1991; R. Davidson, C. Young ; S. Thompson, J. Rawlins; Wet deciduous forest / *Belonuchus; mundus* Er.; Det. Chatzimanolis 2013 / CMNH-351,405, CMNH-351,444, CMNH-351,524, CMNH-351,560, CMNH-351,562, CMNH-351,567, CMNH-351,633, CMNH-351,636, CMNH-351,643, CMNH-351,644, CMNH-351,668, CMNH-351,675, CMNH-351,681, CMNH-351,684, CMNH-351,718, CMNH-351,966 (CMNH). 12 - DOMINICAN REPUBLIC;; Pedernales. Sierra de; Baoruco, Aceitillar;; 25.2 km ENE Pedernales; 18-05-29N, 71-31-16W;; 1272m, 14 June 2003 / C. Young, J Rawlins, C.; Nunez, R. Davidson, P.; Acevedo, M. de la Cruz; dense broadleaf forest;; pine, hand collected;; sample 42242 / CMNH-350,931, CMNH-351,229, CMNH-351,268, CMNH-351,332, CMNH-351,441, CMNH-351,478, CMNH-351,482, CMNH-351,511, CMNH-351,547, CMNH-351,598, CMNH-351,602, CMNH-351,704 (CMNH). 9 - DOMINICAN REPUBLIC;; Pedernales. Sierra de; Baoruco, Aceitillar;; 25.2 km ENE Pedernales; 18-05-29N, 71-31-16W;; 1272m, 14 June 2003 / C. Young, J Rawlins, C.; Nunez, R. Davidson, P.; Acevedo, M. de la Cruz; dense broadleaf forest;; pine, bait trap;; sample 42252 / CMNH-350,928, CMNH-351,102, CMNH-351,280, CMNH-351,303, CMNH-351,320, CMNH-351,352, CMNH-351,396, CMNH-351,431, CMNH-351,548 (CMNH). 6 - DOMINICAN REPUBLIC;; Pedernales. Sierra de;

Baoruco, Aceitillar;; 25.2 km ENE Pedernales; 18-05-29N, 71-31-16W;; 1272m, 14 June 2003 / C. Young, J Rawlins, C.; Nunez, R. Davidson, P.; Acevedo, M. de la Cruz; dense broadleaf forest;; pine, yellow pan trap;; sample 42262 / CMNH-351,048, CMNH-351,049, CMNH-351,077, CMNH-351,138, CMNH-351,203, CMNH-351,471 (CMNH). 2 - DOMINICAN REPUBLIC;; Pedernales. 9.5 km; N Cabo Rojo.; 18-02N, 71-39W. 35m / 13-19 July 1990; L. Masner, J. Rawlins; C. Young Desert scrub; Intercept trap / WIBF 098220, WIBF 098221 (CMNH). 6 - La Visite& vic; LaSelle Range; 5 - 7000 ft.; Sept. 16 - 23 / Haiti; 1934; Darlington / MCZ-ENT 00727260- MCZ-ENT 00727265 (MCZC). 1 - Furcy, Hayti; Mann coll. / Museum of; Comparative; Zoology / MCZ-ENT 00727291 (MCZC). 3 - DOMINICAN REPUBLIC;; Pedernales. 26 km; N Cabo Rojo.; 18-06N, 71-38W. 730 m / 13-20 July 1990; L. Masner, J. Rawlins; C. Young. Wet deciduous; forest; intercept trap / WIBF 098222-WIBF 098224 (CMNH). 4 - DOMINICAN REPUBLIC;; Pedernales. 23.5 km; N Cabo Rojo.; 18-06N, 71-38W. 540 m / 13-19 July 1990; L. Masner, J. Rawlins; C. Young. Deciduous; forest; intercept trap / WIBF 098225- WIBF 098227, CMNH-351,264 (CMNH). 1 - DOMINICAN REPUBLIC;; Pedernales. La Abeja;; 38 km NNW Cabo Rojo.; (18-09N,71-38W). / 1160m. 14 July 1987; Robert L. Davidson; and John E. Rawlins / WIBF 098228 (CMNH). 3 - DOMINICAN REPUBLIC;; Pedernales. 23.5 km; N Cabo Rojo.; 18-06N, 71-38W. 540 m / 19-21 July 1990; L. Masner, J. Rawlins; C. Young. Deciduous; forest; intercept trap / WIBF 098229, CMNH-352,420, CMNH-352,452 (CMNH).2 DOMINICAN REPUBLIC;; Pedernales. 23.5 km; N Cabo Rojo.; 18-06N, 71-38W. 540 m / 31 July 1990. L. Masner; C. Young, J. Rawlins; Taken in trap baited; with rotting meat / WIBF 098230, WIBF 098231 (CMNH). 3 - DOMINICAN REPUBLIC;; Pedernales. La Abeja;; 38 km NNW Cabo Rojo.; (18-09N,71-38W). / 1160m. 13 July 1987; John E. Rawlins and; Robert L. Davidson / *Belonuchus*; Newton det. 1990 / WIBF 098232- WIBF 098234 (CMNH). 6 - DOMINICAN REPUBLIC;; Pedernales. 26 km; N Cabo Rojo.; 18-06N, 71-38W. 730 m / 19-25 July 1990; L. Masner, J. Rawlins; C. Young. Wet deciduous; forest; intercept trap / CMNH-351,097, CMNH-351,455, CMNH-351,608, CMNH-351,662, CMNH-351,752, WIBF 098235 (CMNH). 2 - DOMINICAN REPUBLIC;; Pedernales. 26 km; N Cabo Rojo.; 18-06N, 71-38W. 730 m / 13-25 July 1990; L. Masner, J. Rawlins; C. Young. Wet deciduous; forest; intercept trap / CMNH-351,751, CMNH-351,382 (CMNH). 1 - DOMINICAN REPUBLIC;; Pedernales. 26 km N Cabo; Rojo. 18-06N, 71-38W; 730 m. 16 July 1992 / C. Young, R. Davidson;; S. Thompson, J. Rawlins; Mesic deciduous forest; with scattered pines / CMNH-351,502 (CMNH). 1 - DOMINICAN REPUBLIC: Pedernales. 3.3 km; NE Los Arroyos.; 18-15N,71-45W 1450m / 16-18 July 1990; L. Masner, J. Rawlins; C. Young. Wet montane; forest; sweep samples / CMNH-351,134 (CMNH). 1 - DOMINICAN REPUBLIC;; Pedernales. 14.5km N Cabo; Rojo. 18-03N,71-39W. 165m; 13 July 1990 J. Rawlins;; C. Young, S. Thompson / WIBF 098236 (CMNH). 13 - DOMINICAN REPUBLIC: Pedernales. La Abeja;; 38 km NNW Cabo Rojo.; (18-09N,71-38W).; 1160m. 13 July 1987; J. Rawlins, R. Davidson / WIBF 098237- WIBF 098249. 2 - DOMINICAN REPUBLIC: Pedernales. La Abeja;; 38 km NNW Cabo Rojo.; 18-09 N,71-38 W.; 1160m. 14 July 1987; R. Davidson, J. Rawlins / CMNH-351,216, CMNH-351,613 (CMNH). 8 - DOMINICAN REPUBLIC: Pedernales. La Abeja;; 38 km NNW Cabo Rojo.; (18-09 N,71-38 W).; 1250m. 15 July 1987; J. Rawlins, R. Davidson / CMNH-351,012, CMNH-351,038, CMNH-351,257, CMNH-351,349, CMNH-351,373, CMNH-351,430, CMNH-351,635, CMNH-351,740 (CMNH). 7 - DOMINICAN REPUBLIC: Peder-; nales. 30 km N Cabo Rojo.; 18-07N,71-37W. 1070m.; 31 July 1990. C.W.Young;; J.E. Rawlins,

S. Thompson / CMNH-351,029, CMNH-351,465, CMNH-351,618, CMNH-351,641, WIBF 098250- WIBF 098252 (CMNH). 7 - DOMINICAN REPUBLIC; Pedernales, 23-24 km. N; Cabo Rojo, 535 m., 11; July 1996, R. Turnbow / *Belonuchus?*; det. Newton '22 / FMNHINS 4517321- FMNHINS 4517327 (FMNH). 1 - DOMIN. REP: Prov. Pedernales; ca. 35km NNW Cabo Rojo; El Aceitillar, 1370m; 09 SEP 1988, M.A.Ivie,; T.K.Phillips & K.A.Johnson / WIBF 092085. 4 DOMIN. REP: Prov. Pedernales; Par. Nac. Sierra de Baoruco; El Aceitillar, 1220-1450m; 09AUG1999, carrion traps; M.A. Ivie & K.A. Guerrero / WIBF 092086- WIBF 092089 (WIBF). 9 - DOM. REP: Prov. Pedernales; 32km N. Cabo Rojo, 1285m; 18°07.36'N, 71°34.66'W; 22-25 JULY 1999; carrion trap, G. Dominici / WIBF 092090-WIBF 092093, WIBF 098077- WIBF 098080, WIBF 098097 (WIBF). 1 - DOM. REP: Prov. Pedernales; P. N. Sierra Baoruco, 656m; 24km N. Cabo Rojo, FIT #4; 22JULY-03AUG1999, Ivie,; Miller, Guerrero; Dominici / WIBF 098081 (WIBF). 1 - DOM. REP: Prov. Pedernales; P. N. Sierra Baoruco; 24km N. Cabo Rojo, 665m; 22 JULY 1999; carion trap G. Dominici / WIBF 098082 (WIBF). 4 - DOM. REP: Prov. Pedernales; Sierra Batoruco; Las Abejas, 1242m; 18.1505°N, 71.6246°W; 22 JULY 1999, R.S.Miller / WIBF 098083- WIBF 098086 (WIBF). 2 - DOM. REP: Prov. Pedernales; 24 km N. Cabo Rojo, 610m; 21 AUG 1988, wet forest; beer-yeast trap, M.A.Ivie; T.K.Phillips & K.Johnson / WIBF 098087, WIBF 098088 (WIBF). 10 - DOM. REP: Prov. Pedernales; 24 km N. Cabo Rojo, 612m; 18°06'N, 71°38'W, 10JULY; 1993, D.S.Sikes & R.P.; Rosenfeld, carrion trap / WIBF 098089- WIBF 098099 (WIBF). 1 - DOM. REP: Prov. Pedernales; 24 km N. Cabo Rojo; 20-25AUG1988, 610m; flight interceptiontrap; M.A.Ivie, T.K.Phillips & K.A.Johnson / WIBF 092103 (WIBF). 1 - DOM.REP: Prov.Pedernales; ca.35km N.Cabo Rojo,1250m; Las Abejas, 26 AUG 1988; M.Ivie,Phillips,Johnson; dung baited pitfall / WIBF 092101 (WIBF). 1 - DOM.REP: Prov.Pedernales; Las Abejas, 1225m; 18.1505°N,71.6246°W; 28 JULY-03 AUG 1999; G.O.Dominici, FIT / WIBF 092102 (WIBF). 73 - DOM.REP: Prov.Pedernales; ca.35km N.Cabo Rojo,1250m; Las Abejas, 26 AUG 1988; M.Ivie,Phillips,Johnson; dung baited pitfall / WIBF 098318- WIBF 098365, WIBF 098367- WIBF 098391 (WIBF). 7 - DOM.REP: Prov.Pedernales; Las Abejas, 1225m; 18.1505°N,71.6246°W; 28 JULY-03 AUG 1999; G.O.Dominici, FIT / WIBF 098392- WIBF 098398 (WIBF). 22 - DOM.REP: Prov.Pedernales; 24km N.Cabo Rojo, 610m; 20 AUG-09 SEP 1988; M.A.Ivie, T.K.Phillips; K.A.Johnson, FIT / WIBF 098399- WIBF 098420 (WIBF). 2 - DOM.REP: Prov.Pedernales; ca.35km N.Cabo Rojo; Las Abejas, 1250m; 26AUG-09SEP1988,M.Ivie; Phillips, Johnson, FIT / WIBF 098421, WIBF 098422 (WIBF). **Type locality.** Las Abejas, Pedernales Province, Dominican Republic.

Diagnosis. *Belonuchus sanchezi* can be distinguished from other West Indian members of the genus by a combination of the following characters: uniform black to reddish-black coloration with band of orange across the center of elytra; pronotum with dorsal row of 5 punctures; head and pronotum with fine linear microsculpture.

Description.

Coloration. Head, antennae, pronotum black to reddish-black; elytra with orange band extending laterally across width, sometimes not reaching suture; scutellum black to reddish-black; abdominal segment III-X black to reddish-black. Abdominal segments III- VII slightly iridescent bronze; mandibles and palpi red to reddish-black; legs reddish-black.

Head. Head of obtusely quadrangular shape, wider than long (HW/HL: 1.25), with obtuse hind angles; eyes large, tempora half as long as eyes viewed from above. Temporal carinae bearing long and small setae; frons with medium shallow fovea; dorsal surface with scattered coarse setae bearing punctures, except median area largely impunctate, surface with very fine and dense microsculpture of oblique and transverse striae. Neck with anterior sulcus deep and impressed, surface with fine and dense microsculpture of oblique and transverse striae. Antennomeres 1-3 glossy, bearing only sparse string setae, antennomeres 4-11 with microtrichia and long setae, antennomere 3 longer than 2, 4 as long as wide, 5-10 increasingly transverse, 11 longer than wide.

Thorax. Pronotum scarcely longer than wide (PL/PW: 1.02), slightly narrowed posteriad, lateral margins mostly straight posterior half; dorsal rows with 5 coarse punctures; surface with microsculpture similar to head. Elytra at suture shorter than pronotum at midline (ratio 1.43), at base wider than pronotum at widest point, widened posteriad; punctuation moderate and fairly sparse, most interspace between punctures about four times as large as diameters of punctures; pubescence brown; surface between punctures without appreciable microsculpture, but usually with some microscopic irregularities. Scutellum moderately and closely punctate, with microsculpture similar to head and pronotum. Legs slender; tibiae with several sizes of spines and setae; tarsi 5-5-5, filiform, first and fifth tarsomeres longer than each one of second to fourth.

Abdomen. Abdomen with tergite VII with whitish apical seam of palisade fringe; punctuation of tergites moderate and sparse, generally sparser at base of each tergite; pubescence brown, tergites with fine and linear microsculpture, except for very fine and close longitudinal punctures on basal carinas.

Male. Head slightly broader than pronotum; gular sutures fused just above middle of head. Profemur with indistinct row of distinct lateroventral spines on entire length of anterior edge, spines none uniform size but generally decreasing in size towards apex of profemur, at apex arranged in cluster rather than rows; posterior edge with indistinct cluster of fine spine-like setae. Metafemur without distinct spine-like setae. Sternite IX (Fig. 7d) with v-shaped apical emargination. Sternite VIII (Fig. 7c) with wide and fairly deep concave apical emargination. Genital segment with tergite X (Fig. 7b) fairly broad, posterior border with microspines. Aedeagus (Fig. 7e) short and broad; median lobe narrowed anteriorly bluntly pointed apex; paramere short, transverse.

Female. Head slightly narrower than pronotum; gular sutures fused just below middle of head. Profemur with indistinct row of lateroventral spines on anterior edge, spines of irregular size; posterior edge of profemur with indistinct cluster of fine spine-like setae. Metafemur without distinct spine-like setae. Genital segment with tergite X as in Fig. 7a.

Length. 7.6 – 10.3 mm (n = 6), length from tip of frons to apex of elytral suture 4.1 – 5.4 mm (n = 6).

Distribution. Dominican Republic (Fig. 12a).

Biology. *Belonuchus sanchezi* seems to be associated with decomposing organic material. Specimens have mostly been taken in dung baited and carrion baited traps; it is unclear as to which kind of dung was used as bait. Some specimens were taken using a beer yeast trap.

Etymology. This species is named in remembrance of Puerto Rican entomologist and friend Jose A. Sanchez-Ruiz (1988-2023), and for his contributions to freshwater ecology and entomology in the Greater Antilles. He is thanked for being a friend to many during his time as a graduate student at Montana State University.

Taxonomic Discussion. *Belonuchus sanchezi* is very similar to *B. draco*, *B. blackwelderi*, *B. dominici* and *B. crypticus*. See Taxonomic Discussion under *B. draco* for similarities.

***Belonuchus dominici* Rainey and Ivie, new species**

(Figs. 7f-j, 11f, 12a)

Type Material.

Belonuchus dominici Rainey and Ivie: **Holotype.** MALE: DOM.REP: Prov.Pedernales; Las Abejas, 1225m; 18.1505°N, 71.6246°W; 28 JULY-03 AUG 1999; G.O.Dominici, FIT / WIBF 098599 (from WIBF to be deposited in the USNM). **Paratypes.** 7 - DOMINICAN REPUBLIC;; Pedernales. La Abeja,; 38 km NNW Cabo Rojo,; (18-09N, 71-38W).; 1160m. 13 July 1987; J. Rawlins, R. Davidson / WIBF 098253- WIBF 098258, WIBF 098263 (CMNH). 2 - DOMINICAN REPUBLIC;; Pedernales. La Abeja,; 38 km NNW Cabo Rojo,; (18-09N, 71-38W).; 1250 m. 15 July 1987; J. Rawlins, R. Davidson / CMNH-351,283, CMNH-351,429 (CMNH). 2 - DOMINICAN REPUBLIC;; Pedernales. La Abeja,; 38 km NNW Cabo Rojo,; (18-09N, 71-38W). / 1250 m. 15 July 1987; John E. Rawlins and; Robert L. Davidson / WIBF 098259, WIBF 098260 (CMNH). 1 - DOMINICAN REPUBLIC;; Independencia. Near; summit of Sierra de; Baoruco, 3.5 km S El; Aguacate. 2210 m. / 18-17N, 71-42W.; 30 September 1991; C.Young, S.Thompson.; R.Davidson, J.Rawlins; Montane meadow / *Belonuchus; satyrus*; Det. Chatzimanolis 2013 / CMNH-351,476 (CMNH). 1 - DOMINICAN REPUBLIC;; Independencia. 3 km; ESE El Aguacate,; north slope Sierra; de Baoruco, 1980m. / 18-18N, 71-42W.; 28-29 September 1991; J.Rawlins, R.Davidson; C.Young, S. Thompson; Pine woodland / / WIBF 098261 (CMNH). 5 - La Visite& vic; LaSelle Range; 5 - 7000 ft.; Sept. 16 - 23 / Haiti; 1934; Darlington / MCZ-ENT 00727266, MCZ-ENT 00727267, MCZ-ENT 00727269- MCZ-ENT 00727271 (MCZC). 1 - Kenskoff; (nr P.au.P.); 4-6000 ft. / Haiti; 1934 IX 23; Darlington / MCZ-ENT 00727282 (MCZC). 145 - DOM.REP: Prov.Pedernales; Las Abejas, 1225m; 18.1505°N, 71.6246°W; 28 JULY-03 AUG 1999; G.O.Dominici, FIT / WIBF 092096, WIBF 092098, WIBF 098445- WIBF 098512, WIBF 098526- WIBF 098598, WIBF 098600, WIBF 098601 (WIBF). 2 - DOM.REP: Prov.Pedernales; ca.35km N.Cabo Rojo, 1250m; Las Abejas, 26 AUG 1988; M.Ivie, Phillips, Johnson; dung baited pitfall / WIBF 092097, WIBF 092099 (WIBF). 1 - DOMINICAN REPUBLIC;; Pedernales. 5 km NE; Los Arroyos, 1680m.; 18-15N, 71-45W / 20 October 1991; J. Rawlins, R. Davidson; C. Young, S. Thompson; Cloud forest / WIBF 098262 (CMNH). 28 - DOM.REP: Prov.Pedernales; ca.35km N.Cabo Rojo, 1250m; Las Abejas, 26 AUG 1988; M.Ivie, Phillips, Johnson; dung baited pitfall / WIBF 098427- WIBF 098444, WIBF 098515- WIBF 098524 (WIBF). 1 - DOM.REP: Prov.Pedernales; ca.35km N.Cabo Rojo;

Las Abejas, 1250m; 26AUG-09SEP1988, M. Ivie; Phillips, Johnson, FIT / WIBF 098525 (WIBF).
Type locality. Las Abejas, Pedernales Province, Dominican Republic.

Diagnosis. *Belonuchus dominici* can be distinguished from other West Indian members of the genus by a combination of the following characters: uniform reddish-black to reddish-brown coloration with sometimes indistinct patch of yellow to orange coloration on humeral angles of elytra; segment VIII through X yellow to orange coloration; pronotum with dorsal row of 5 punctures; head and pronotum smooth without microsculpture.

Description.

Coloration. Head, antennae, pronotum reddish-black to reddish-brown; elytra with sometimes indistinct yellow to orange patch on humeral angles restricted to anterior third, posterior two thirds reddish-black to reddish-brown; scutellum reddish-black to reddish-brown; abdominal segment III-VII reddish-black to reddish-brown, segments VIII- X yellow to orange. Neck and abdominal segments III- VII slightly iridescent bronze; mandibles and palpi black to reddish-brown; legs reddish-brown.

Head. Head of obtusely quadrangular shape, wider than long (HW/HL: 1.30), with obtuse hind angles; eyes fairly large, tempora 1.25 times as long as eyes viewed from above. Temporal carinae bearing long and small setae; frons with small shallow fovea; dorsal surface with scattered coarse setae bearing punctures, except median area largely impunctate, surface smooth without appreciable microsculpture. Neck with anterior sulcus deep and impressed, surface with fine and dense microsculpture of oblique and transverse striae. Antennomeres 1-3 glossy, bearing only sparse string setae, antennomeres 4-11 with microtrichia and long setae, antennomere 3 slightly longer than 2, 4-5 slightly longer than wide, 6 as long as wide, 7-10 increasingly transverse, 11 longer than wide.

Thorax. Pronotum scarcely longer than wide (PL/PW: 1.04), narrowed posteriad, lateral margins slightly concave in posterior half; dorsal rows with 5 coarse punctures; surface smooth without appreciable microsculpture. Elytra at suture shorter than pronotum at midline (ratio 1.32), at base wider than pronotum at widest point, widened posteriad; punctuation moderate and fairly sparse, most interspace between punctures about four times as large as diameters of punctures; pubescence brown; surface between punctures without appreciable microsculpture, but usually with some microscopic irregularities. Scutellum moderately and closely punctate, with microsculpture similar to neck and abdominal segments. Legs slender; tibiae with several sizes of spines and setae; tarsi 5-5-5, filiform, first and fifth tarsomeres longer than each one of second to fourth.

Abdomen. Abdomen with tergite VII with whitish apical seam of palisade fringe; punctuation of tergites moderate and sparse, generally sparser at base of each tergite; pubescence brown, tergites with fine and linear microsculpture, except for very fine and close longitudinal punctures on basal carinas.

Male. Head broader than pronotum; gular sutures fused just above middle of head. Profemur with two rows of distinct lateroventral spines on apical half of anterior edge, spines decreasing in size towards apex of profemur and arranged in clusters rather than rows; posterior edge with indistinct cluster of fine spine-like setae. Metafemur without distinct spine-like setae. Sternite IX (Fig. 7i) with narrow v-shaped apical emargination. Sternite VIII (Fig. 7h) with fairly narrow and deep concave apical emargination. Genital segment with tergite X (Fig. 7g) fairly narrow and elongate, posterior border slightly concave and with microspines. Aedeagus (Fig. 7j) broad; median lobe narrowed anteriorly short, sharp lancet-shaped apical portion; paramere short, transverse.

Female. Head narrower than pronotum; gular sutures fused just below middle of head. Profemur with indistinct row of lateroventral spines on anterior edge, spines of irregular size; posterior edge of profemur with indistinct cluster of fine spine-like setae. Metafemur without distinct spine-like setae. Genital segment with tergite X as in Fig. 7f.

Length. 7.0 – 8.3 mm (n = 6), length from tip of frons to apex of elytral suture 3.7 – 4.2 mm (n = 6).

Distribution. Hispaniola (Haiti and Dominican Republic) (Fig. 12a).

Biology. *Belonuchus dominici* seems to be associated with dung. Specimens have mostly been taken in dung baited traps; it is unclear as to which kind of dung was used.

Etymology. This species is named after the collector of the holotype, Dominican entomologist Germán Osvaldo Dominici Canela who assisted extensively on the 1999 WIBF expedition.

Taxonomic Discussion. *Belonuchus dominici* is very similar to *B. crypticus*, see Taxonomic Discussion under *B. crypticus* for similarities. *Belonuchus draco*, *B. blackwelderi*, and *B. sanchezi* are also similar to *B. dominici*, see Taxonomic Discussion under *B. draco* for similarities.

***Belonuchus mundus* Erichson, 1840**

(Figs. 8a-e, 11g, 15)

Belonuchus mundus Erichson, 1840: 425; Solsky 1870: 263; Bernhauer and Schubert 1914: 371; Blackwelder 1943: 430; 1944: 138; Guérin 1953: 50; Woodruff *et al.* 1998: 42. Herman 2001: 2530; Ivie 2009: 64; Peck 2010: 24; Asenjo *et al.* 2013: 311; Peck 2016: 79; Chani Posse *et al.* 2018b: 23.

Type Material.

Belonuchus mundus Erichson: Not examined. No indication of number of specimens is given by Erichson (1840) and he clearly states a/the specimen is from the Hope Collection, now at Oxford University Museum of Natural History. No types were found in the Oxford University Museum of Natural History (A. Spooner, *in litt.*) (see also Blackwelder 1943). Chani Posse *et al.* (2018b)

also did not find types of this species. If they exist, they may be in the ZMHB. **Type locality.** *Americae meridionalis ins. St. Vincentii* (St. Vincent).

Non-Type Material Examined (n = 119): BMNH, FMNH, FSCA, IRSB, USNM, WIBF. See Supplemental Material.

Diagnosis. *Belonuchus mundus* can be distinguished from other West Indian members of the genus by a combination of the following characters: uniform black to reddish-black coloration with elytra orange; pronotum with dorsal row of 5 punctures.

Redescription.

Coloration. Head and antennae black to reddish-black, with antennomere 11 orange; pronotum black; elytra and scutellum orange; abdominal tergites and sternites black to reddish-black. Head, pronotum and abdominal segments III- VI somewhat iridescent bronze; mandibles reddish-black to orange; palpi orange; legs orange.

Head. Head of obtusely quadrangular shape, wider than long (HW/HL: 1.44), with obtuse hind angles; eyes large, tempora as long as eyes viewed from above. Temporal carinae bearing long and small setae; frons with wide fovea and longitudinal impression; dorsal surface with scattered coarse setae bearing punctures, except large median area impunctate, surface with fine and dense microsculpture of oblique and transverse striae. Neck with anterior sulcus deep and impressed. Antennomeres 1-3 glossy, bearing only sparse string setae, antennomeres 4-11 with microtrichia and long setae, antennomere 3 slightly longer than 2, 4 slightly longer than wide, 5 as long as wide, 6-10 increasingly transverse, 11 longer than wide.

Thorax. Pronotum scarcely longer than wide (PL/PW: 1.03), narrowed posteriad, lateral margins slightly concave in posterior half; dorsal rows with 5 coarse punctures; surface with microsculpture similar to head. Elytra at suture shorter than pronotum at midline (ratio 1.44), at base wider than pronotum at widest point, widened posteriad; punctuation moderate and moderate, most interspace between punctures about three times as large as diameters of punctures; pubescence light brown; surface between punctures without appreciable microsculpture, but usually with some microscopic irregularities. Scutellum moderately and closely punctate, with microsculpture similar to head and pronotum. Legs slender; tibiae with several sizes of spines and setae; tarsi 5-5-5, filiform, first and fifth tarsomeres longer than each one of second to fourth.

Abdomen. Abdomen with tergite VII with whitish apical seam of palisade fringe; punctuation of tergites coarse and moderate, generally sparser towards apex of each tergite; pubescence brown, base of each tergite with mix of granular and linear microsculpture, microsculpture fine and linear.

Male. Head large; gular sutures fused just above middle of head. Profemur with posterior lower edge with two rows of strong spine-like setae of irregular size. Metafemur with two distinct rows of short strong spine-like setae. Sternite IX (Fig. 8d) with long narrow v-shaped apical

emargination. Sternite VIII (Fig. 8c) with moderately wide and deep concave apical emargination. Genital segment with tergite X (Fig. 8b) fairly narrow and elongate, posterior border with microspines. Aedeagus (Fig. 8e) elongate; median lobe narrowed anteriorly fairly short, sharp lancet-shaped apical portion; paramere short, transverse.

Female. Head small; gular sutures fused just below middle of head. Profemur with posterior lower edge with two indistinct rows of fine small spine-like setae of irregular size. Metafemur without distinct spine-like setae. Genital segment with tergite X as in Fig. 8a.

Length. 4.9 – 7.6 mm (n = 6), length from tip of frons to apex of elytral suture 2.9 – 4.1 mm (n = 6).

Distribution. St. Lucia, St. Vincent, Bequia Island*, and Grenada (Fig. 15).

Biology. *Belonuchus mundus* seems to be associated with freshly cut plants and decomposing organic material. Specimens have been taken from freshly cut and rotting cocoa pods (Blackwelder 1943), on a dead manioc (*Didelphis marsupialis* Linnaeus, 1758), on dung, at UV lights, in malaise traps, on rotting bananas and on freshly cut trees.

Taxonomic Discussion. There are unverified records of *B. mundus* from Brazil that the authors believe are erroneous. Bernhauer and Schubert's checklist (1914: 371) is likely the origin of the mistake, listing South America as a locality, with no mention of St. Vincent. Chani Posse *et al.* (2018b) includes Brazil in the species distribution, referring to Asenjo *et al.* (2013). The record can be traced back to Guérin (1953: 50) which gives no specific location for the record, other than "central and southern parts of the country" (as "Centro e sul do país. / Demais esp. bras. *B. mundus* Er.,"). This is likely a repeat of the Bernhauer and Schubert (1914) error. The authors have not seen any specimens from Brazil or any other South American countries in any of the loans received, or whilst searching through South American material at the Smithsonian and the Field Museum. *Belonuchus mundus* seems very locally restricted to the southern Lesser Antilles. This species is morphologically similar to *B. gagates* and *B. antiquae*, however is easily distinguished based on its very different coloration pattern, having distinct red elytra contrasting against a dark reddish-black body.

***Belonuchus tenebros* Rainey and Ivie, new species**
(Figs. 7f-i, 11b, 12b)

Type Material.

Belonuchus tenebros Rainey and Ivie: **Holotype.** Male: DOM.REP: Prov. Pedernales; Las Abejas, 1225m; 18.1505°N, 71.6246°W; 28 JULY-03 AUG 1999; G.O. Dominici, FIT / WIBF 092105 (from WIBF to be deposited in USNM).

Diagnosis. *Belonuchus tenebros* can be distinguished from other West Indian members of the genus by a combination of the following characters: uniform dark reddish-black coloration;

pronotum with dorsal row of 5 punctures; aedeagus with median lobe very short (Fig. 8i); found only in Dominican Republic.

Description.

Coloration. Uniform dark reddish-black; head, pronotum and abdominal segments somewhat iridescent.

Head. Head of obtusely quadrangular shape, wider than long (HW/HL: 1.2), with obtuse hind angles; eyes large, tempora as long as eyes viewed from above. Temporal carinae bearing long and small setae; frons with deep fovea (Fig. 9b); dorsal surface with scattered coarse setae bearing punctures, except large median area impunctate, surface with fine and dense microsculpture of oblique and transverse striae. Neck with anterior sulcus deep and impressed. Antennomeres 1-3 glossy, bearing only sparse string setae, antennomeres 4-11 with microtrichia and long setae, antennomere 3 slightly longer than 2, 4 slightly longer than wide, 5 as long as wide, 6-10 increasingly transverse, 11 longer than wide.

Thorax. Pronotum longer than wide (PL/PW: 1.14), lateral margins slightly concave in posterior half; dorsal rows with 5 coarse punctures; surface with microsculpture similar to head. Elytra at suture shorter than pronotum at midline (ratio 1.34), at base wider than pronotum at widest point, somewhat widened posteriad; punctuation moderate and close, most interspace between punctures about twice as large as diameters of punctures; pubescence light brown; surface between punctures without appreciable microsculpture, but usually with some microscopic irregularities. Scutellum coarsely and closely punctate, with microsculpture similar to head and pronotum. Legs slender; tibiae with several sizes of spines and setae; tarsi 5-5-5, filiform, first and fifth tarsomeres longer than each one of second to fourth.

Abdomen. Abdomen with tergite VII with whitish apical seam of palisade fringe; punctuation of tergites coarse and moderate, generally sparser towards apex of each tergite; pubescence brown, tergites with fine and linear microsculpture, except for fine and close longitudinal punctures below posterior basal carina.

Male. Head broader than pronotum; gular sutures fused just below middle of head. Profemur with row of distinct lateroventral spines on apical fifth of anterior edge; posterior edge with indistinct cluster of fine spine-like setae. Metafemur without distinct spine-like setae. Sternite IX (Fig. 8h) with long wide v-shaped apical emargination. Sternite VIII (Fig. 8g) with moderately wide and deep concave apical emargination. Genital segment with tergite X (Fig. 8f) fairly narrow and elongate, posterior border truncate with microspines. Aedeagus (Fig. 8i) elongate; median lobe wide, mostly parallel sided and suddenly narrowed into short lobe-like apical projection; paramere short, transverse.

Female. Unknown.

Length. 7.6 mm (n = 1), length from tip of frons to apex of elytral suture 3.6 mm (n = 1).

Distribution. Dominican Republic (Fig. 12b).

Type locality. Las Abejas, Pedernales Province, Dominican Republic.

Biology. Unknown. *Belonuchus tenebros* is presumably endemic to the Dominican Republic. It is known from one male specimen collected using a flight interception trap.

Etymology. This species is named after the dark coloration on its body. The Latin word “tenebros” means darkness.

Taxonomic Discussion. *Belonuchus tenebros* is superficially similar to *B. gagates* in size and color. *Belonuchus tenebros* is darker in coloration, the frons has smooth impressed fovea that lacks a longitudinal impression (Fig. 9a) (vs an impressed fovea with a longitudinal impression in *B. gagates*, Fig. 9b), males have a smooth metafemur without rows of strong lateroventral spines (vs. two rows of strong lateroventral spines in *B. gagates*), and the apex of the median lobe is suddenly narrowed into a short lobe-like apical projection (Fig. 8i) (vs. a lancet shaped projection in *B. gagates*, see Fig. 5e). Dotted lines in the tergite and sternite illustrations are predictions of where setae are likely to occur based on other West Indian *Belonuchus*.

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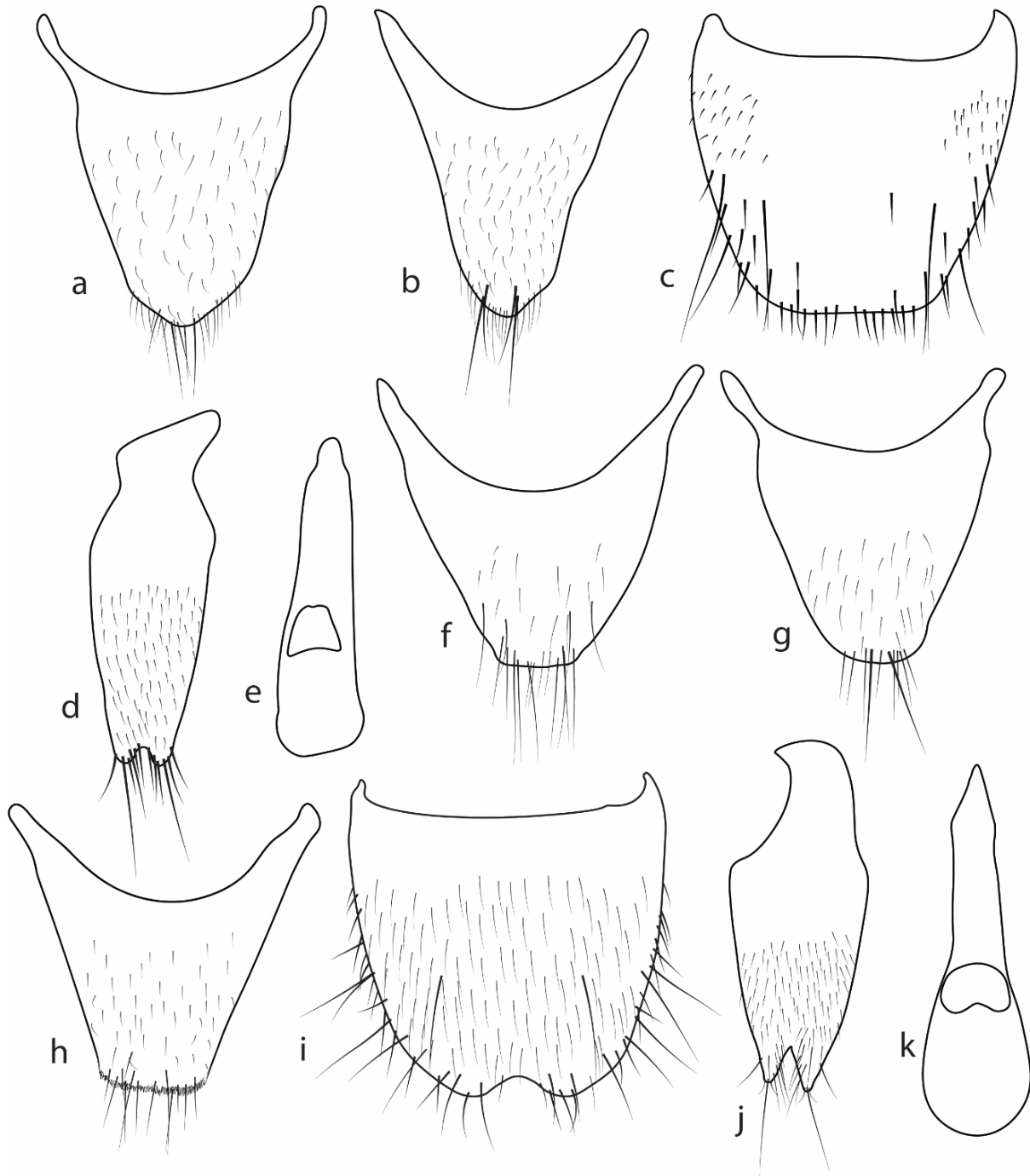


Fig 1. Abdominal segments and genitalia of male and female *Belonuchus*. a) *B. agilis*, female, tergite X, b) *B. agilis*, male, tergite X, c) *B. agilis*, male sternite VIII, d) *B. agilis*, male, sternite IX, e) *B. agilis*, male, median lobe and paramere of aedeagus, f) *B. amplius*, female, tergite X, g) *B. antiquae*, female, tergite X, h) *B. antiquae*, male, tergite X, i) *B. antiquae*, male, sternite VIII, j) *B. antiquae*, male, sternite IX, k) *B. antiquae*, male, median lobe and paramere of aedeagus.

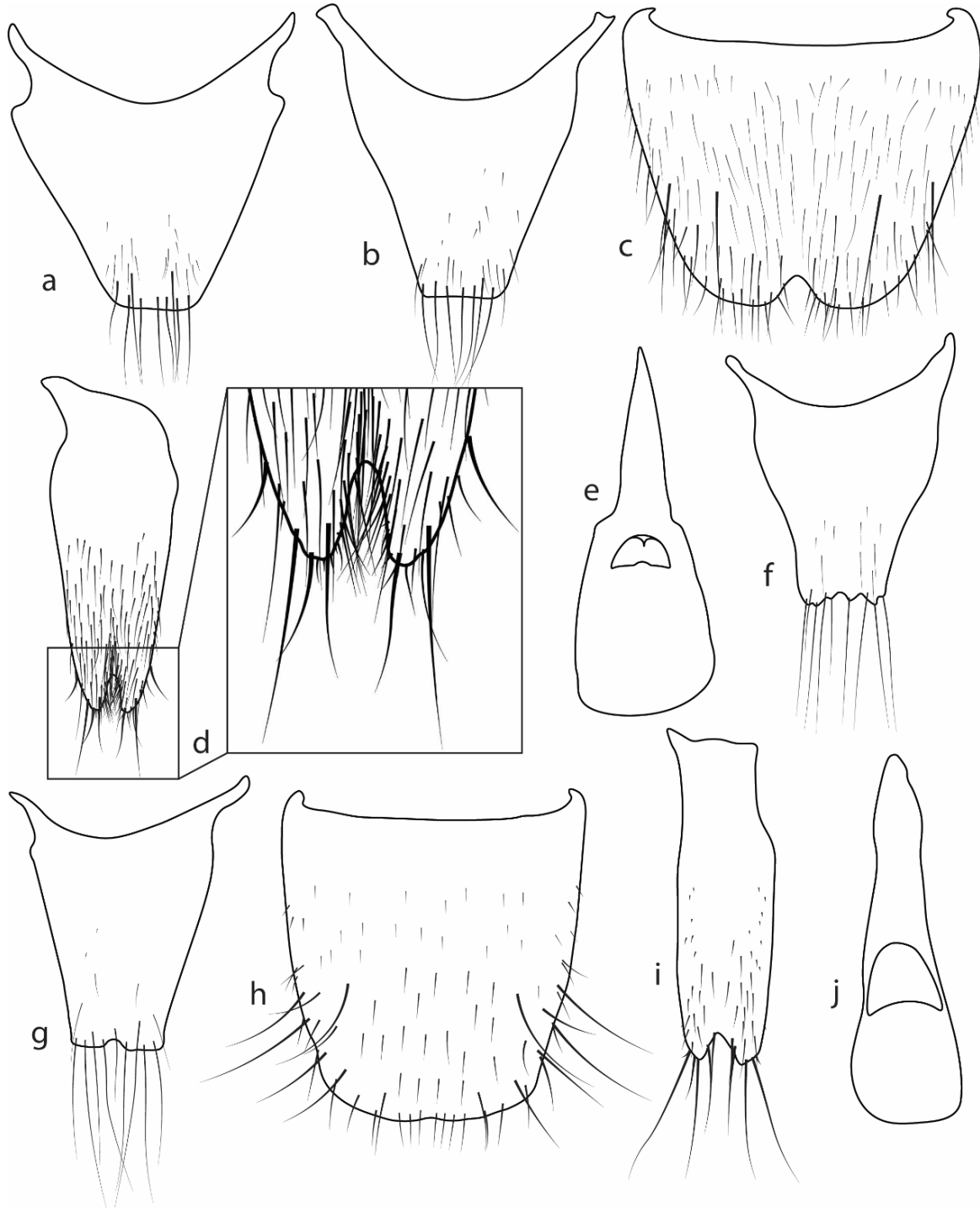


Fig. 2. Abdominal segments and genitalia of male and female *Belonuchus*. a) *B. blackwelderi*, **new species**, female, tergite X, b) *B. blackwelderi*, **new species**, male, tergite X, c) *B. blackwelderi*, **new species**, male, sternite VIII, d) *B. blackwelderi*, **new species**, male, sternite IX, e) *B. blackwelderi*, **new species**, male, median lobe and paramere of aedeagus, f) *B. bugnioni*, female, tergite X, g) *B. bugnioni*, male, tergite X, h) *B. bugnioni*, male, sternite VIII, i) *B. bugnioni*, male, sternite IX, j) *B. bugnioni*, male, median lobe and paramere of aedeagus.

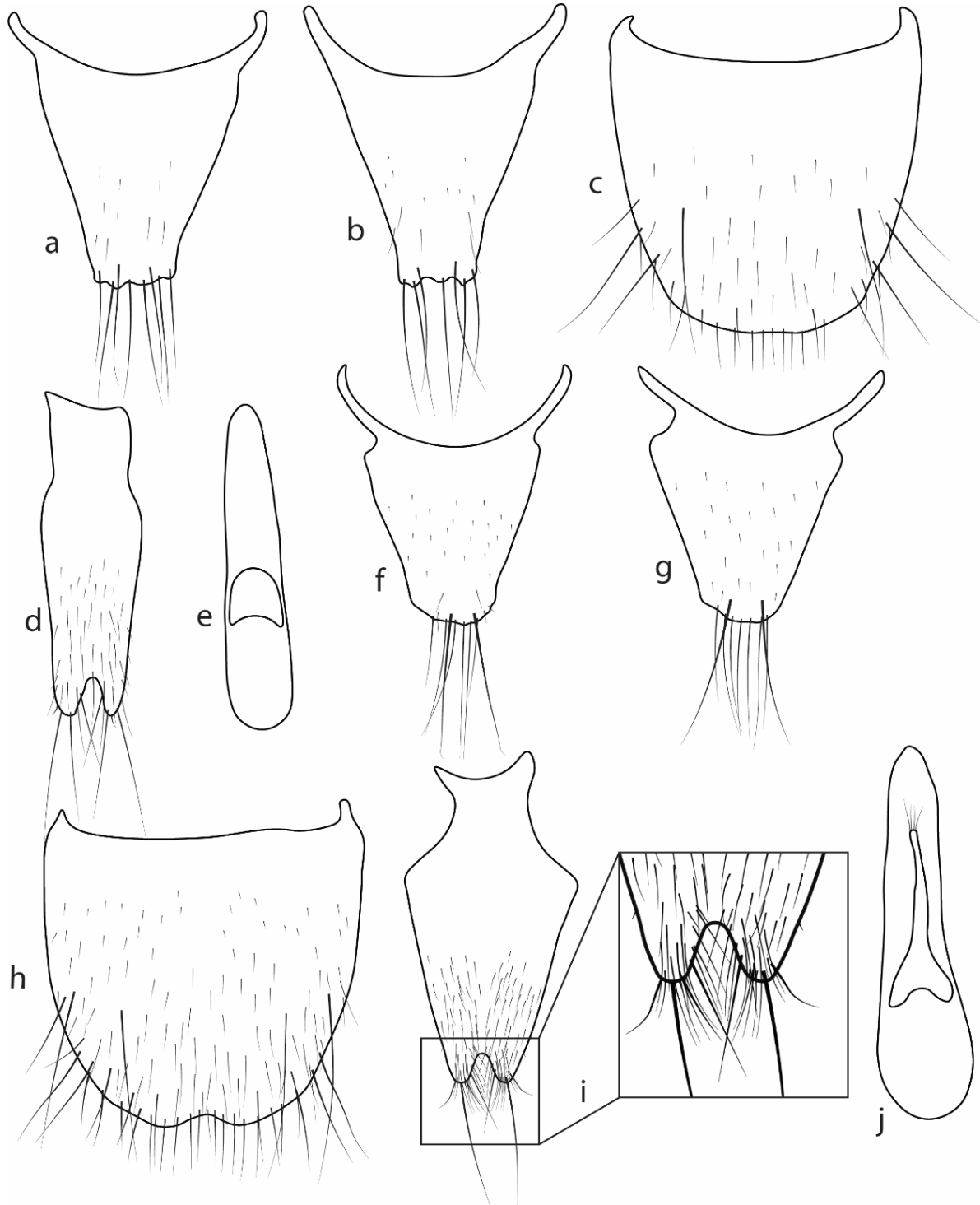


Fig. 3. Abdominal segments and genitalia of male and female *Belonuchus*. a) *B. coelestinus*, female, tergite X, b) *B. coelestinus*, male, tergite X, c) *B. coelestinus*, male sternite VIII, d) *B. coelestinus*, male, sternite IX, e) *B. coelestinus*, male, median lobe and paramere of aedeagus, f) *B. cognatus*, female, tergite X, g) *B. cognatus*, male, tergite X, h) *B. cognatus*, male, sternite VIII, i) *B. cognatus*, male, sternite IX, j) *B. cognatus*, male, median lobe and paramere of aedeagus.

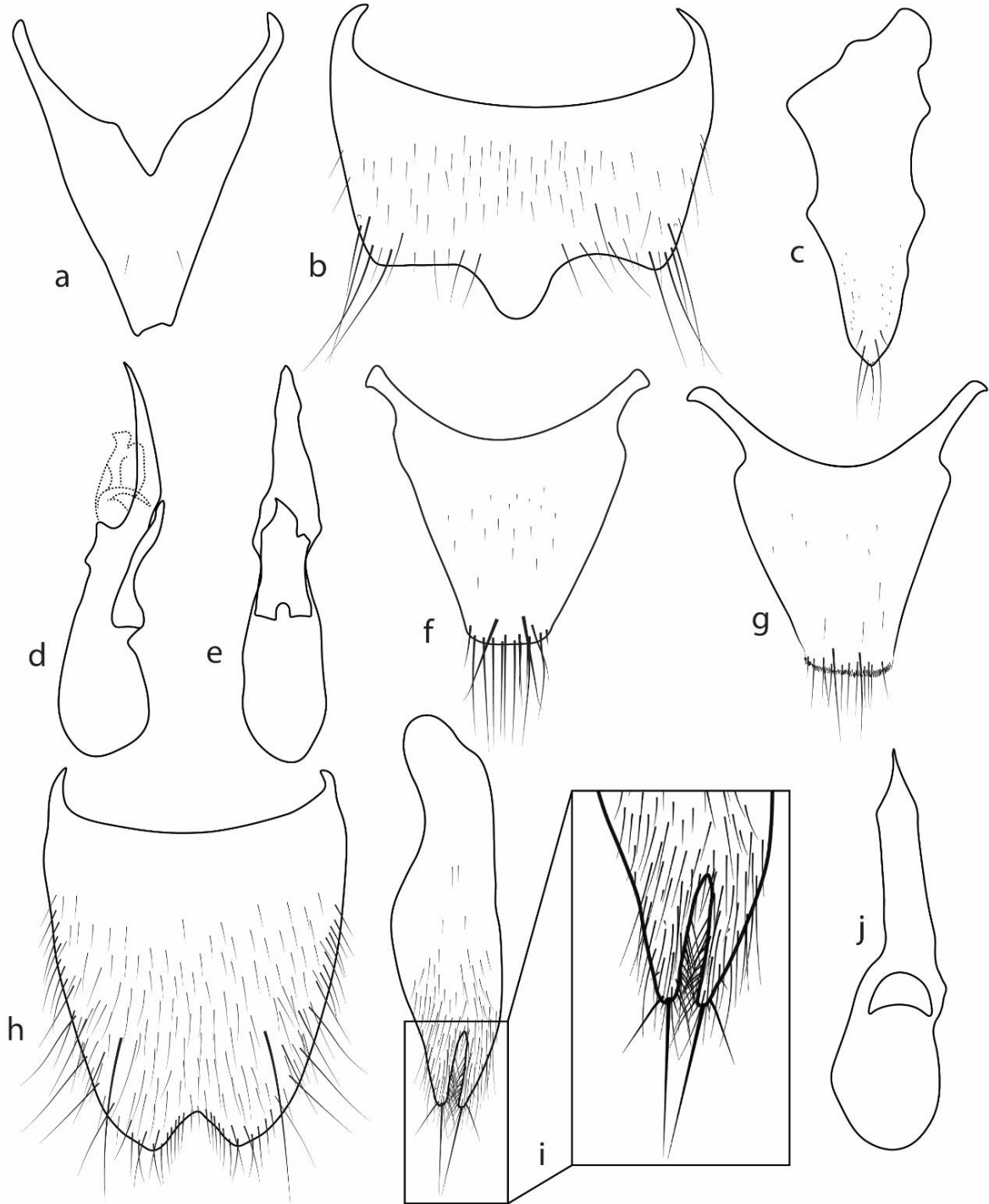


Fig. 4. Abdominal segments and genitalia of male and female *Belonuchus*. a) *B. danforthi*, male, tergite X, b) *B. danforthi*, male sternite VIII, c) *B. danforthi*, male, sternite IX, d) *B. danforthi*, male, median lobe and paramere of aedeagus, lateral view, e) *B. danforthi*, male, median lobe and paramere of aedeagus, ventral view, f) *B. dominicus*, female, tergite X, g) *B. dominicus*, male, tergite X, h) *B. dominicus*, male sternite VIII, i) *B. dominicus*, male, sternite IX, j) *B. dominicus*, male, median lobe and paramere of aedeagus.

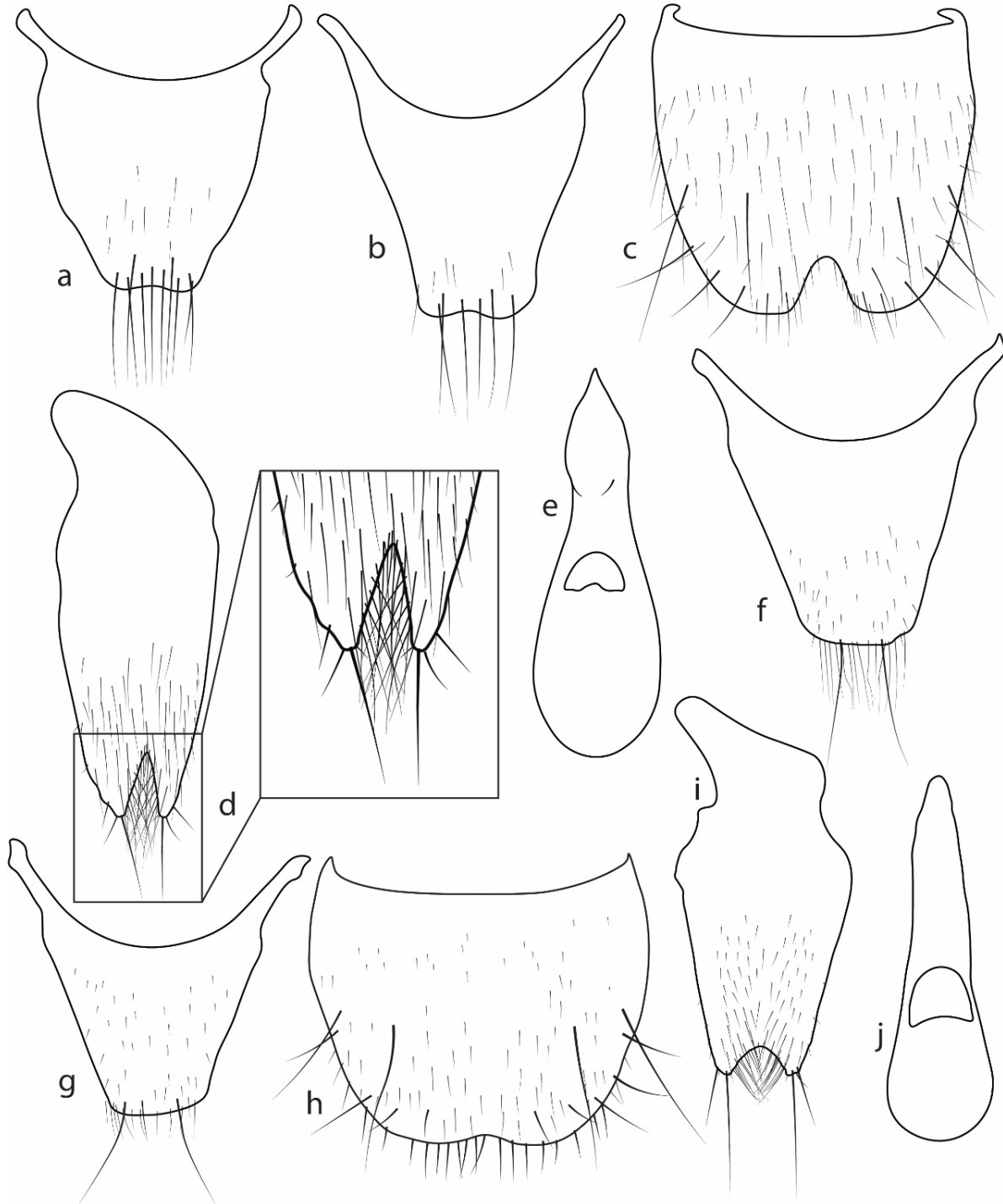


Fig. 5. Abdominal segments and genitalia of male and female *Belonuchus*. a) *B. draco*, **new species**, female, tergite X, b) *B. draco*, **new species** male, tergite X, c) *B. draco*, **new species** male sternite VIII, d) *B. draco*, **new species** male, sternite IX, e) *B. draco*, **new species** male, median lobe and paramere of aedeagus, f) *B. franki*, **new species**, female, tergite X, g) *B. franki*, **new species**, male, tergite X, h) *B. franki*, **new species**, male sternite VIII, i) *B. franki*, **new species**, male, sternite IX, j) *B. franki*, **new species**, male, median lobe and paramere of aedeagus.

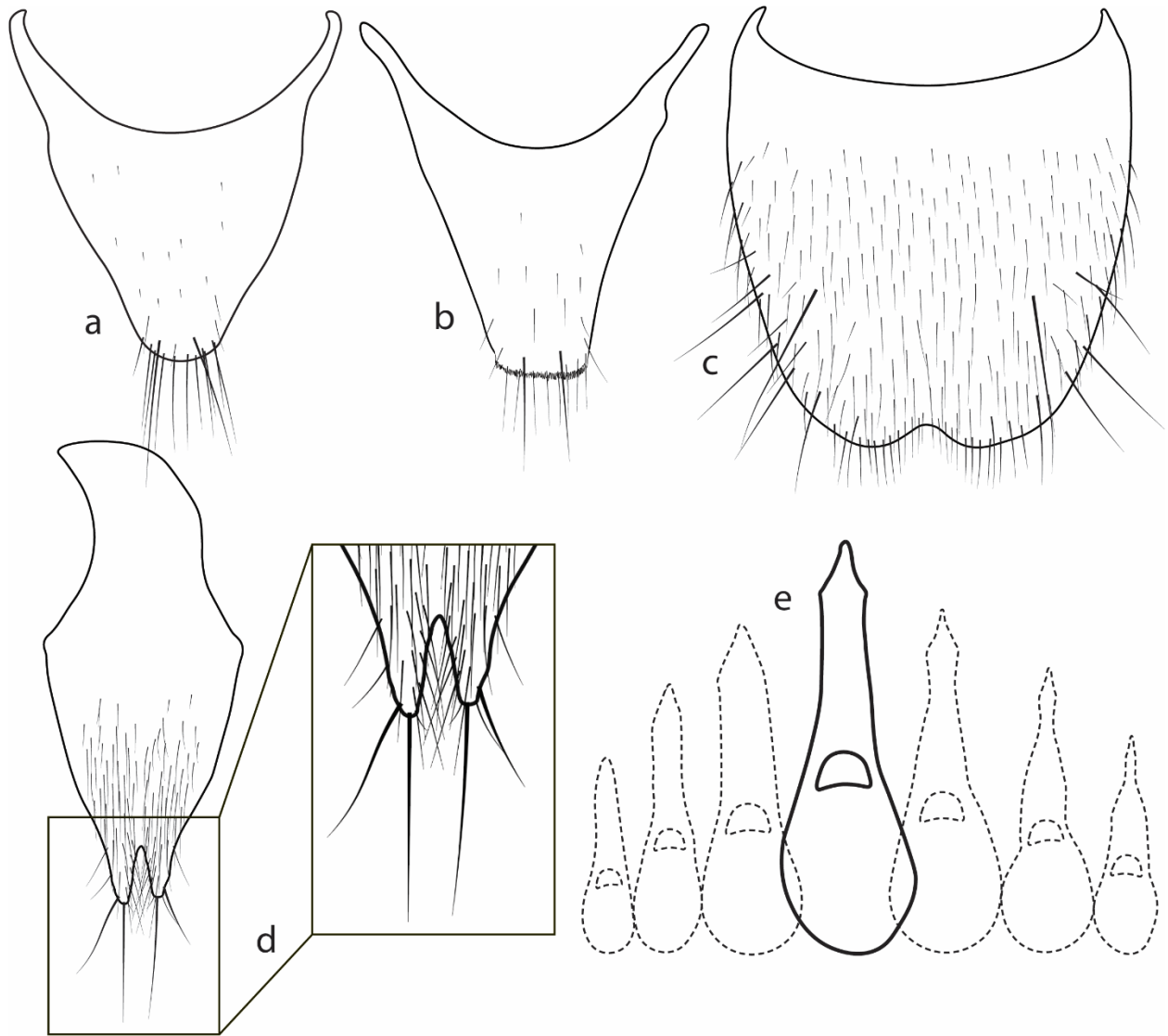


Fig. 6. *Belonuchus gagates* abdominal segments and genitalia. a) Female, tergite X, b) Male, tergite X, c) Male sternite VIII, d) Male, sternite IX, e) Intraspecific variation of the aedeagal structure within male *B. gagates*. The aedeagus with the solid outline illustrates the “average” structure.

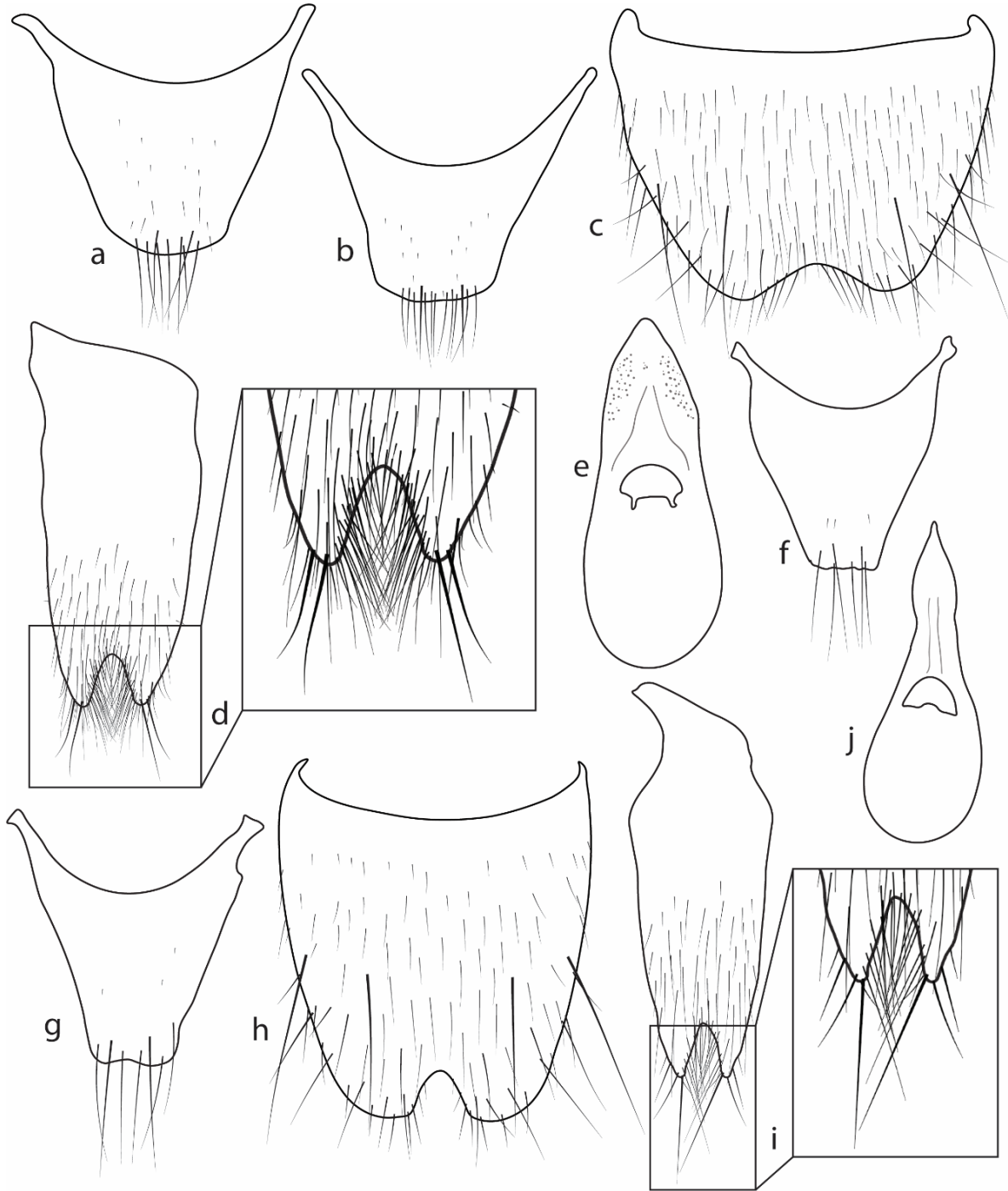


Fig. 7. Abdominal segments and genitalia of male and female *Belonuchus*. *B. sanchezi*, **new species**, a) *B. sanchezi*, **new species**, female, tergite X, b) *B. sanchezi*, **new species**, male, tergite X, c) *B. sanchezi*, **new species**, male, sternite VIII, d) *B. sanchezi*, **new species**, male, sternite IX, e) *B. sanchezi*, **new species**, male, median lobe and paramere of aedeagus, *B. dominici*, **new species**, f) *B. dominici*, **new species**, female, tergite X, g) *B. dominici*, **new species**, male, tergite X, h) *B. dominici*, **new species**, male, sternite VIII, i) *B. dominici*, **new species**, male, sternite IX, j) *B. dominici*, **new species**, male, median lobe and paramere of aedeagus.

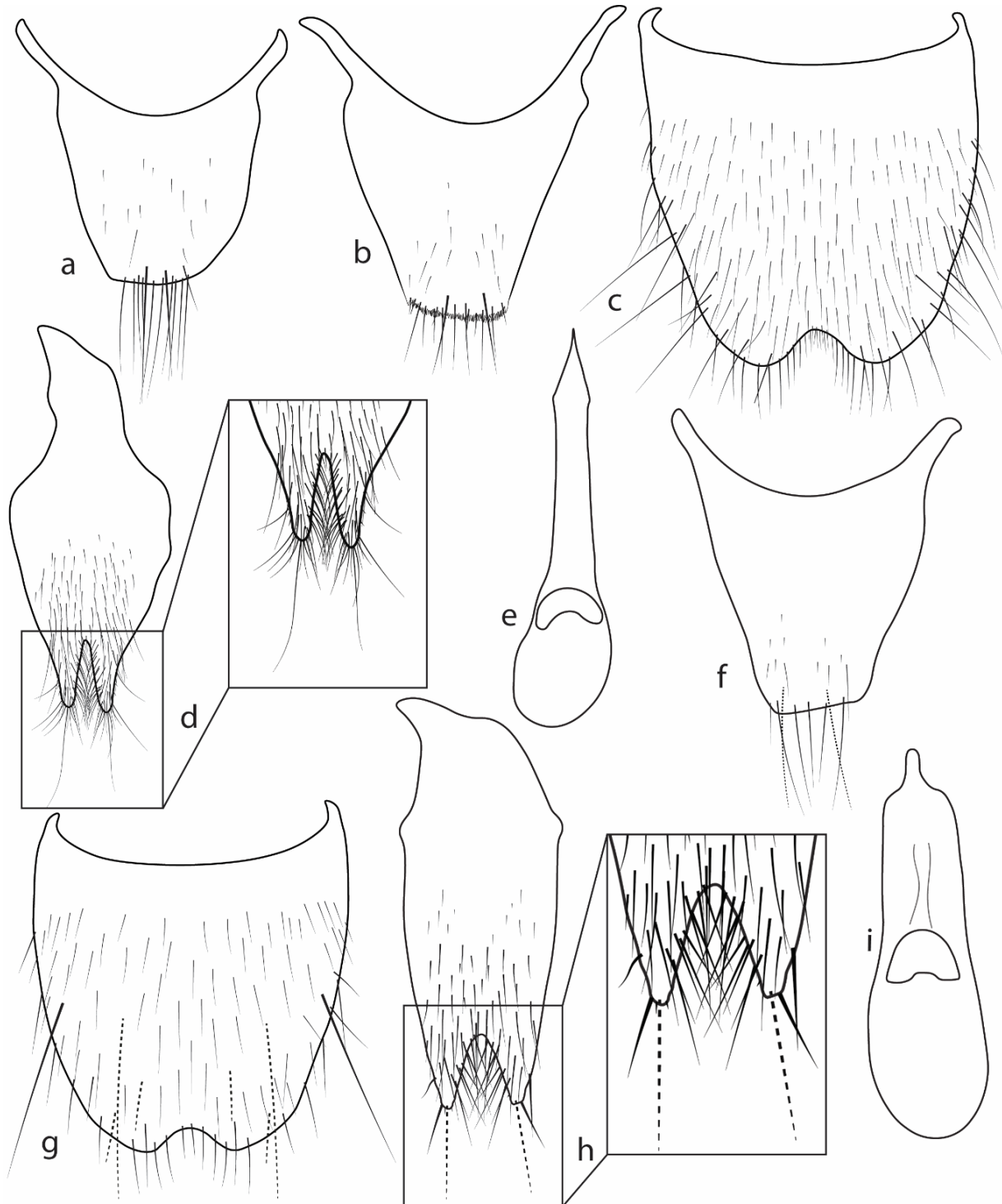


Fig. 8. Abdominal segments and genitalia of male and female *Belonuchus*. a) *B. mundus*, female, tergite X, b) *B. mundus*, male, tergite X, c) *B. mundus*, male sternite VIII, d) *B. mundus*, male, sternite IX, e) *B. mundus*, male, median lobe and paramere of aedeagus, f) *B. tenebros*, **new species**, male, tergite X, g) *B. tenebros*, **new species**, male sternite VIII, h) *B. tenebros*, **new species**, male, sternite IX, i) *B. tenebros*, **new species**, male, median lobe and paramere of aedeagus.

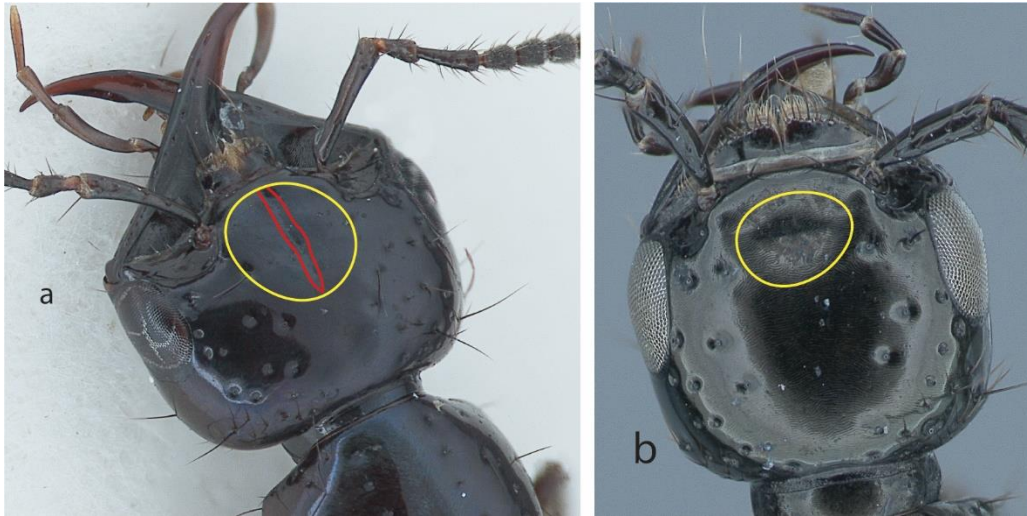


Fig. 9. Dorsal view of *Belonuchus* heads. a) *B. gagates*, showing the impressed fovea (yellow) and the longitudinal impression (red), b) *B. tenebros*, **new species**, showing the impressed fovea (yellow).

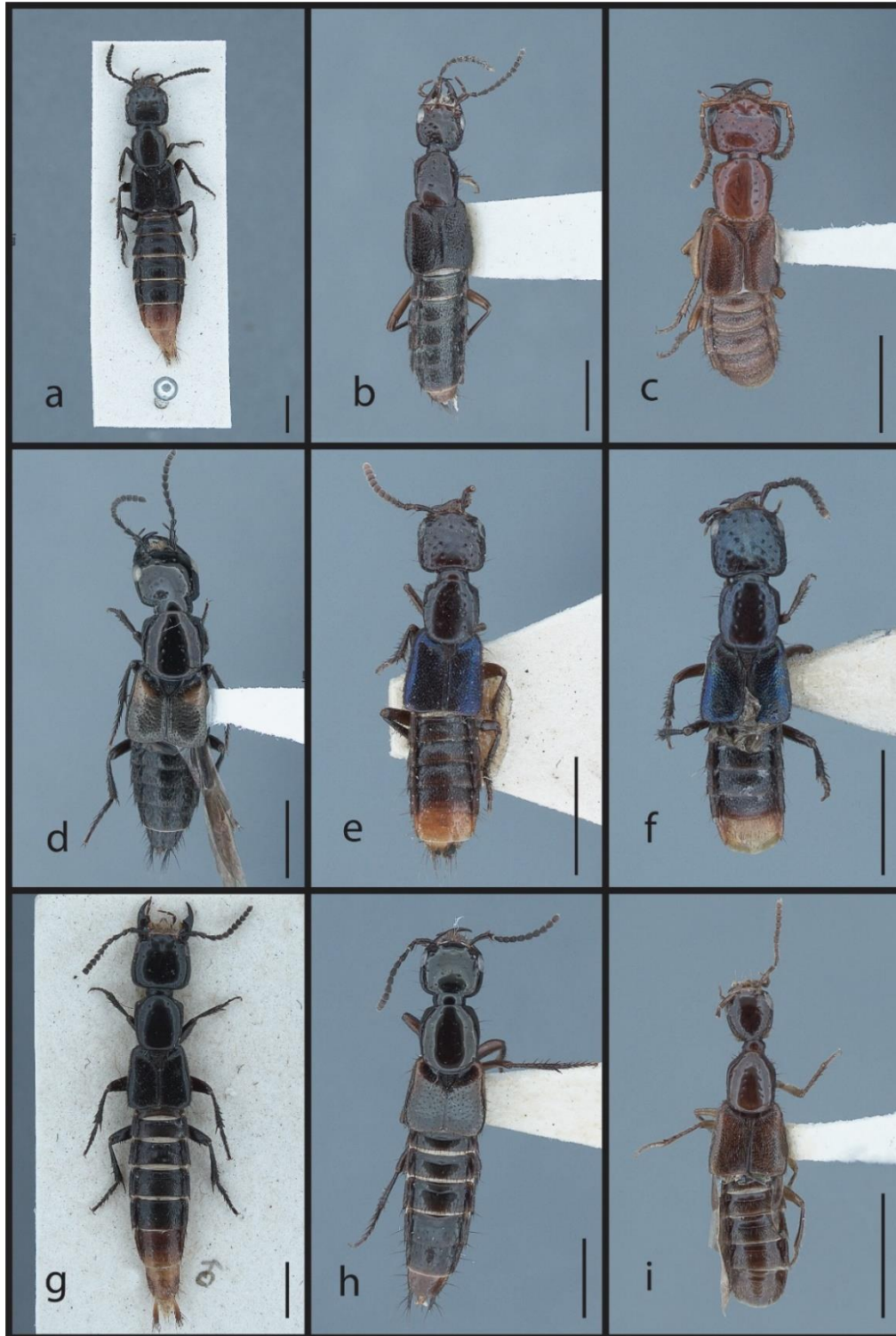


Fig. 10. Habitus of West Indian *Belonuchus* species. a) *B. agilis*, b) *B. amplus*, holotype, c) *B. antiquae*, holotype, d) *B. blackwelderi*, **new species**, e) *B. bugnioni*, holotype, f) *B. coelestinus*, (= *B. coeruleus*, lectotype), g) *B. cognatus*, paralectotype, h) *B. crypticus*, **new species**, i) *B. danforthi*, holotype. Scale bars 2 mm.

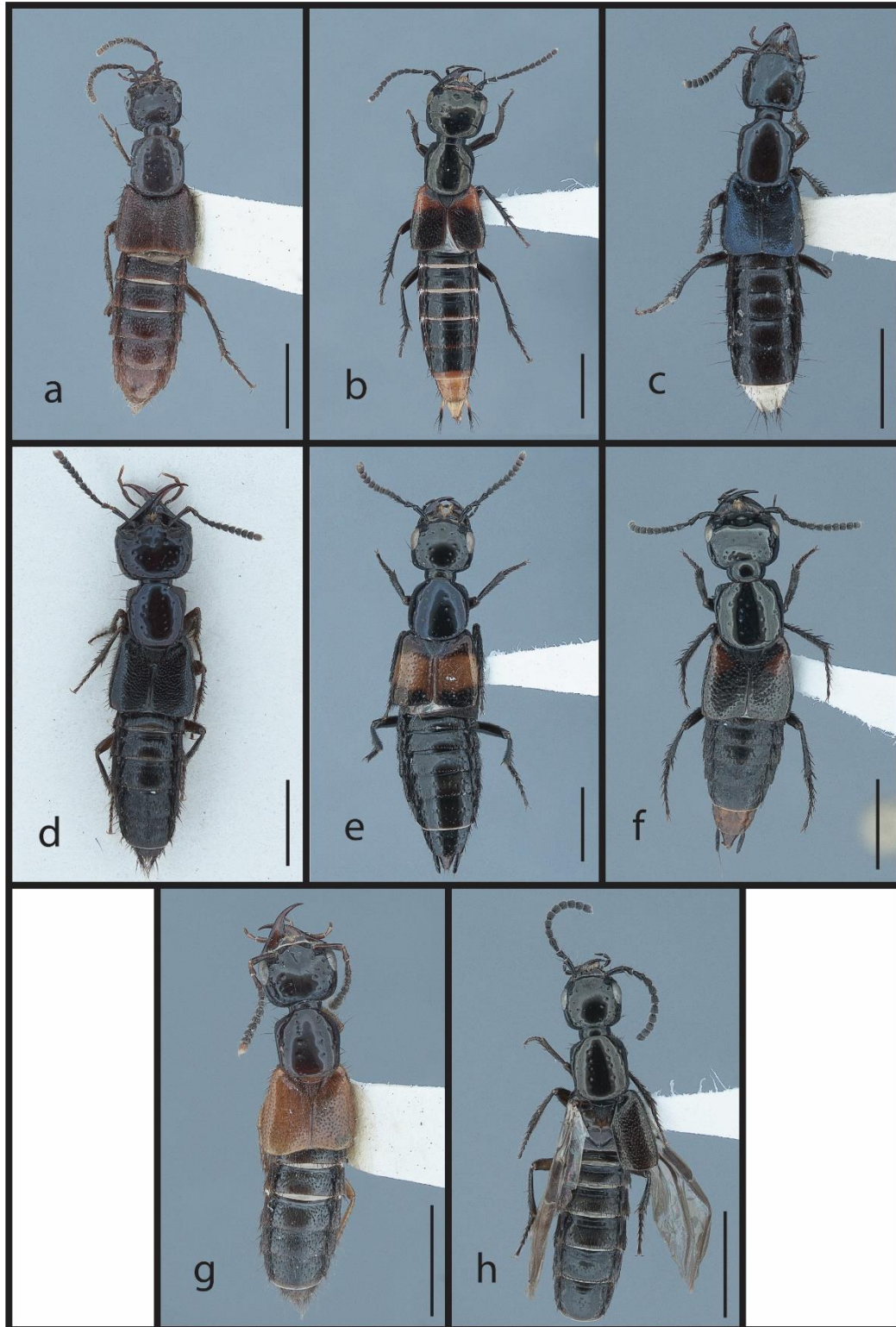


Fig. 11. Habitus of West Indian *Belonuchus* species. a) *B. dominicus*, paratype b) *B. draco*, new species, c) *B. franki*, new species, d) *B. gagates*, e) *B. sanchezi*, new species, f) *B. dominici*, new species, g) *B. mundus*, h) *B. tenebros*, new species. Scale bars 2 mm.

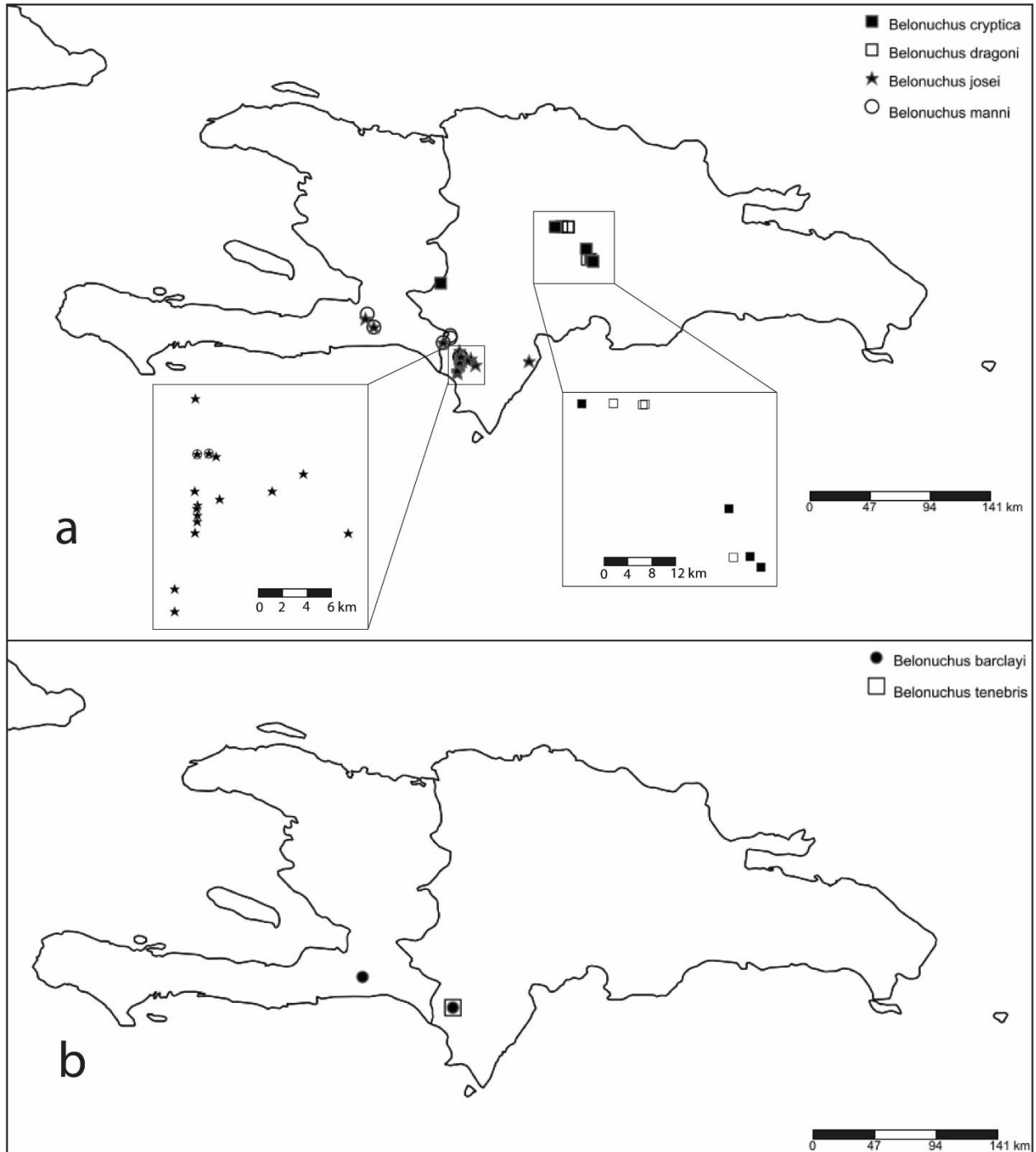


Fig. 12. Distribution of *Belonuchus* species. a) *B. crypticus*, **new species**, *B. draco*, **new species**, *B. sanchezi*, **new species**, and *B. dominici*, **new species** in Hispaniola, b) *B. blackwelderi*, **new species**, and *B. tenebris*, **new species** in Hispaniola.

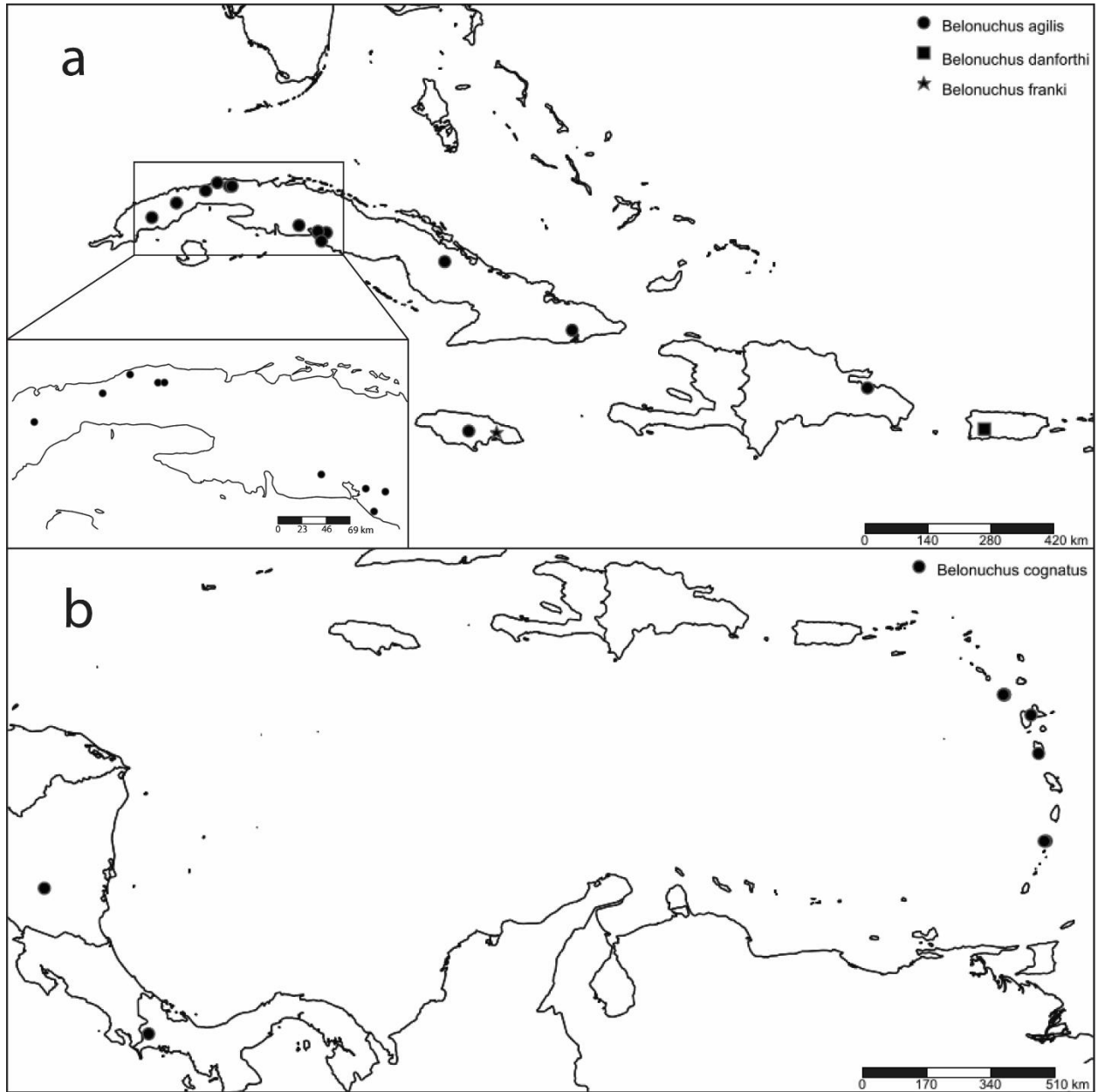


Fig. 13. Distribution of *Belonuchus* species. a) *B. agilis*, *B. danforthi*, and *B. franki*, **new species** in the Greater Antilles, b) *B. cognatus* in the West Indies and Central America.

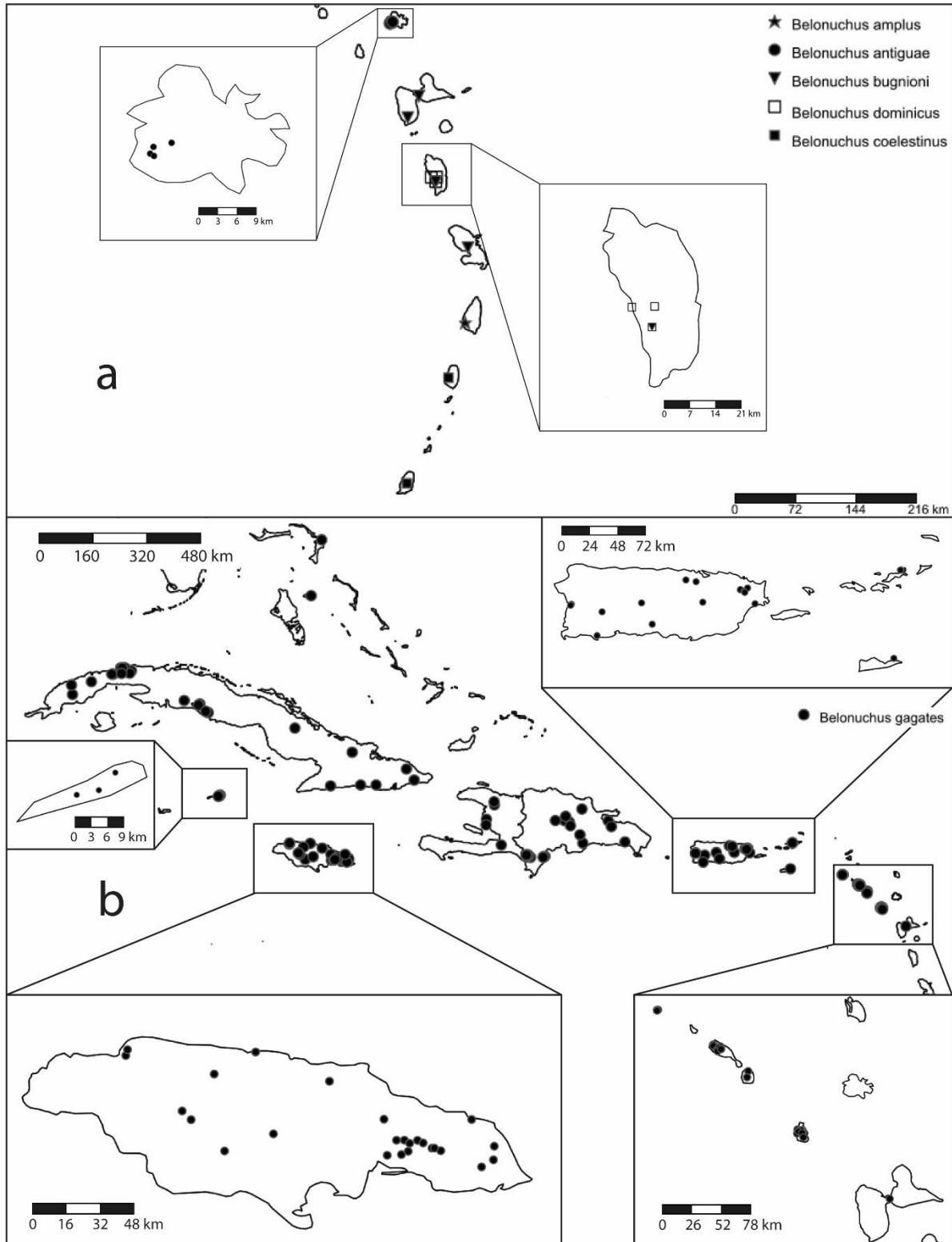


Fig. 14. Distribution of *Belonuchus* species. a) *B. amplus*, *B. antiquae*, *B. bugnioni*, *B. dominicus*, and *B. coelestinus*, in the Lesser Antilles, b) *B. gagates* in the West Indies.

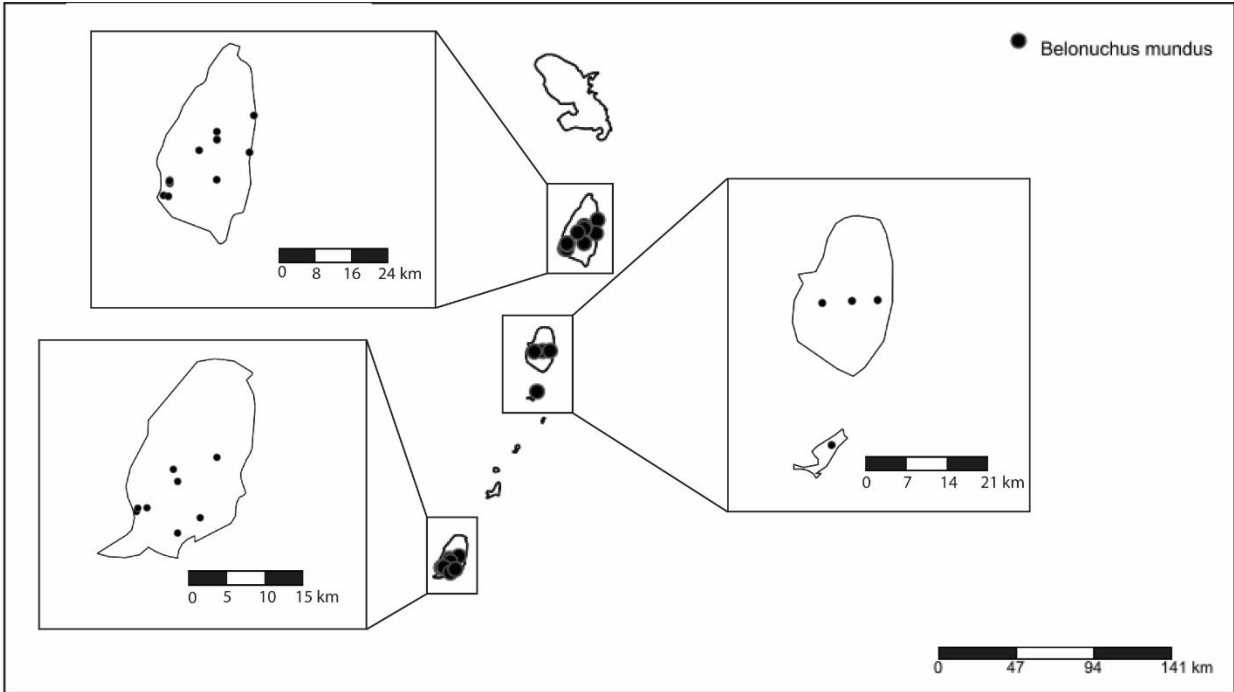


Fig. 15. Distribution of *Belonuchus mundus* in St Lucia, St Vincent, Bequia, and Grenada.

APPENDIX

PHOTOS OF EXAMINED PRIMARY TYPE MATERIAL OF *BELONUCHUS*

Fig. A1. Holotype female of *Belonuchus amplius* deposited in USNM. a) Dorsal habitus, b) Labels attached to specimen. Scale bar 2 mm.



Fig. A2. Holotype male of *Belonuchus antiquae* deposited in USNM. a) Dorsal habitus, b) Labels attached to specimen. Scale bar 2 mm.



Fig. A3. Holotype female of *Belonuchus bugnioni* deposited in IRSB. a) Dorsal habitus, b) Labels attached to specimen. Scale bar 2 mm.



Fig. A4. Holotype male of *Belonuchus chevrolati* deposited in IRSB. a) Dorsal habitus, b) Frons view, c) Lateral view, d) Labels attached to specimen. Scale bar 2 mm.



Fig. A5. Designated lectotype female of *Belonuchus coeruleus* deposited in NHM. a) Dorsal habitus, b) Labels attached to specimen. Scale bar 2 mm.



Fig. A6. Designated lectotype male of *Belonuchus cognatus* deposited in AMNH. a) Dorsal habitus, b) Labels attached to specimen. Scale bar 2 mm.

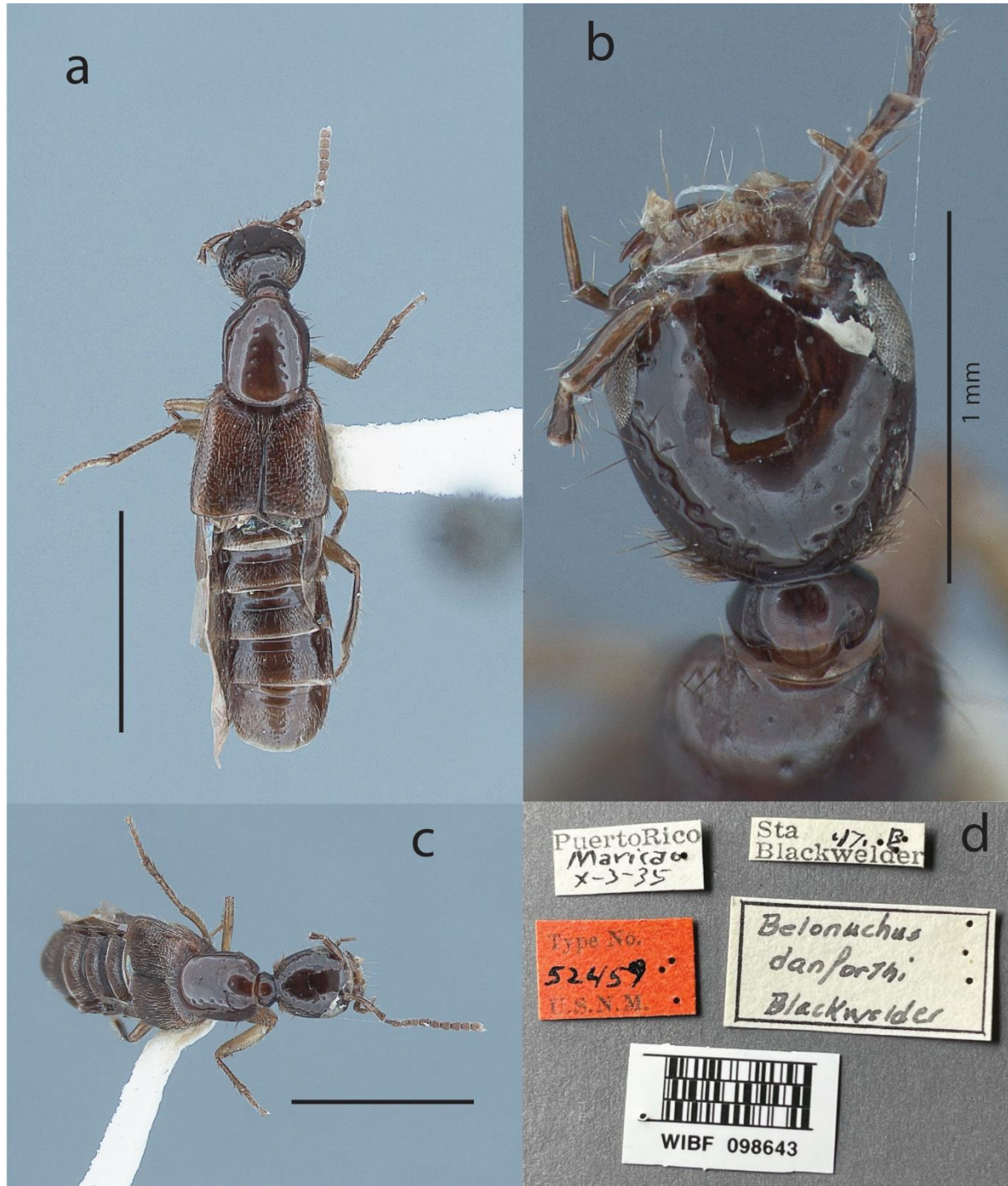


Fig. A7. Holotype male of *Belonuchus danforthi* deposited in USNM. a) Dorsal habitus, b) Dorsal head view, c) Alternative dorsal habitus view, d) Labels attached to specimen. Scale bar 2 mm, except 'b.'.



Fig. A8. Holotype male of *Belonuchus dominicus* deposited in USNM. a) Dorsal habitus, b) Lateral view, c) Labels attached to specimen. Scale bar 2 mm.



Fig. A9. Lectotype male of *Belonuchus gagates* deposited in FMNH. a) Dorsal habitus, b) Labels attached to specimen. Scale bar 2 mm.

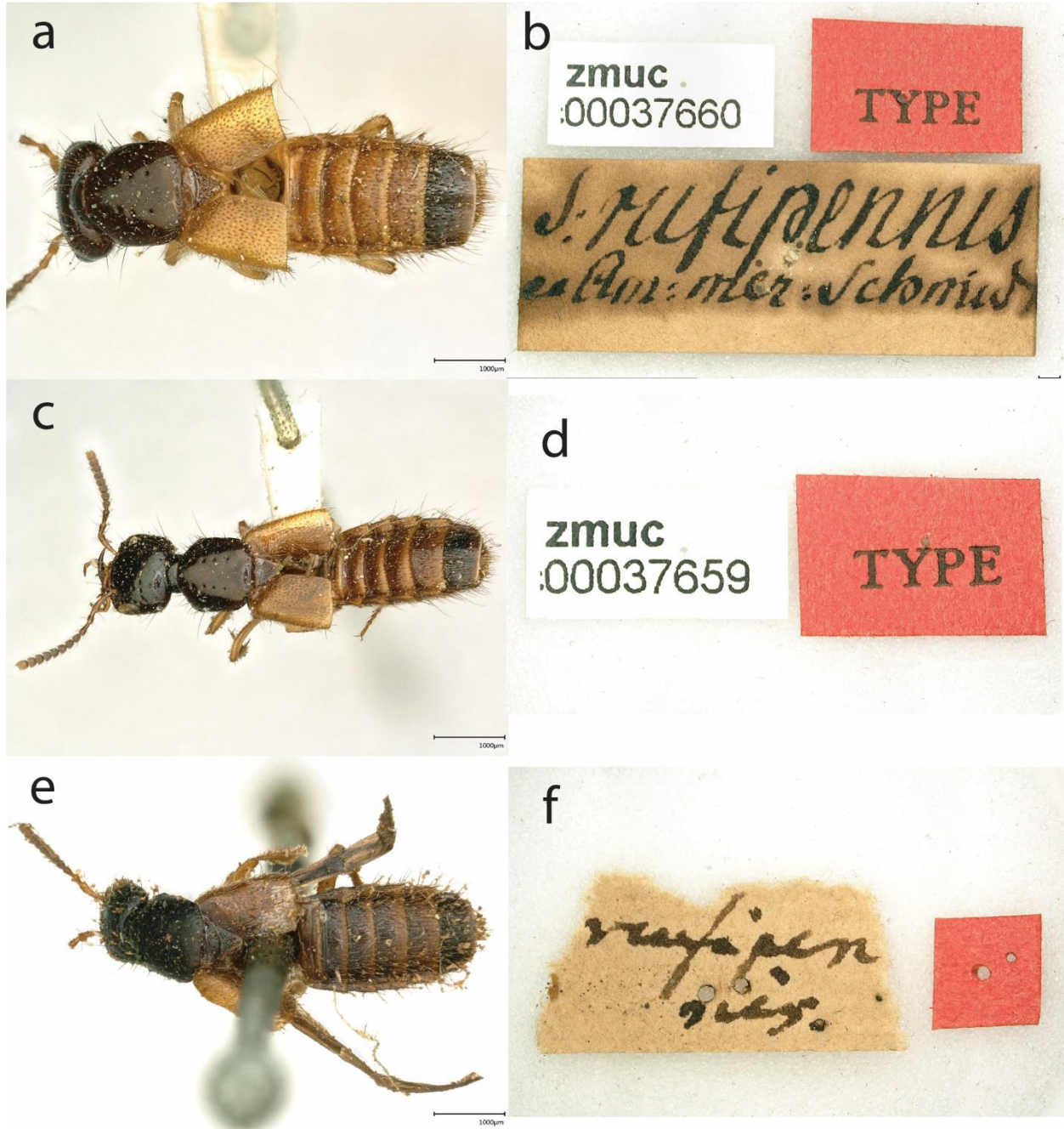


Fig. A10. Syntypes of *Belonuchus rufipennis* deposited in Zoological Museum of Kiel University. a) Dorsal habitus of specimen zmuc00037660, b) Labels attached to specimen zmuc00037660, c) Dorsal habitus of specimen zmuc00037659, d) Labels attached to specimen zmuc00037659, e) Dorsal habitus of third syntype, b) Labels attached to third syntype. Scale bar 1 mm. Photos provided by Michael Kuhlmann.

CHAPTER FOUR

CONCLUSION

This thesis is a contribution of basic research on the systematics of the Staphylinidae in the West Indies Bioregion. It complements existing works such as Blackwelder (1943) and fills in some of the knowledge gaps for the group on a wider level.

The description of *Aleomallus yaque*, a new genus and species of flightless Diestotini from the West Indies is the first contribution towards the knowledge of Aleocharinae in the region since Pace (2012). The beetle has a distinctive and unique morphology which is almost “ant-like” in appearance and has lost all external evidence of metathoracic flight wings. This unusual appearance made it difficult to assign to a tribe, but we are confident *Aleomallus* belongs to Diestotini after comparison against the type genus of the tribe. A detailed discussion of the justification of the placement is provided, and a review of the history of the tribe Diestotini and closely related groups helps clarify the taxonomic history of the group. The detailed description and diagnosis of the genus and the species, along with high quality photos and drawings of the diagnostic characters of *Aleomallus yaque* will ensure that this unique species will be identifiable should more individuals of these species or genus be found in collections or in the wild.

The difficulty in assigning *Aleomallus* to a tribe agrees with observations that the problems of classification in the Aleocharinae stem from the imprecise limits of the many polyphyletic tribes and subtribes that comprise it (e.g. Kim and Ahn 2016). The discovery highlights the need for more detailed revisions and phylogenetic studies at a genus and species level. The detailed description of *Aleomallus* should assist future endeavors and encourage workers to use this species as a sample in such work.

The larger manuscript that forms Chapter 3 is a revision of the genus *Belonuchus* in the West Indies. For the first time in 81 years the genus is revised and species can be readily recognized. The genus has a convoluted taxonomic history, so the manuscript opens with an explanation of all major changes to the genus since this first species of *Belonuchus* was described by Nordmann in 1837. As with Chapter 2, detailed descriptions and diagnosis are presented for each species and diagnostic characters such as the terminal abdominal segments and male genitalia are figured. All available type specimens and material of West Indian *Belonuchus* were examined to inform this work and two species - *B. hispaniolus* and *B. oakleyi* were found to be synonyms with *B. gagates* with the context provided by additional specimens. A significant finding in this work is the discovery of seven new species of *Belonuchus*.

The updated taxonomic key in the manuscript should allow specialists and non-specialists alike to identify each member of the genus to species and promote future work on the group. This key includes the new species, considers alterations to species definitions and provides an easier and more comprehensive alternative to Blackwelder's (1943) key. Synonymical tables provided for each species will make it simpler for future workers to trace the literature for each of the species. A diagnosis for the West Indian *Belonuchus* is also provided, allowing for recognition of new species that may be found the future on these islands.

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APPENDIX

A CHECKLIST OF STAPHYLINIDAE
FROM MONTSERRAT AND SABA

A CHECKLIST OF STAPHYLINIDAE FROM MONTSERRAT AND SABA

FAMILY STAPHYLINIDAE

SUBFAMILY OMALIINAE

TRIBE OMALIINI

Phloeonomus pedicularius (Erichson) 1840: 887. Blackwelder 1943: 52; Herman 2001a: 547; Peck 2016: 58. **Distribution:** Cuba, Grenada, Guadeloupe, Hispaniola, Jamaica, Saba, Puerto Rico, Trinidad; widespread Antilles and South America. **Type locality:** Puerto Rico. **Type depository:** Blackwelder: “Either in the Hope Museum, Oxford, or the Zoologische Museum, Berlin”. **Notes:** New WIBF Saba records.

SUBFAMILY TACHYPORINAE

TRIBE TACHYPORINI

Coproporus rutilus (Erichson) 1839: 253 (*Tachinus*); Blackwelder 1943: 522; Campbell 1975: 195; Woodruff *et al.* 1998: 43; Herman 2001b: 835; Ivie *et al.* 2008: 240; Peck 2016: 61.

Distribution: Cuba, Jamaica, Hispaniola, Puerto Rico, St. Thomas, St. Croix, Saba, Montserrat, Dominica, St. Vincent, Mustique, Grenada, N. America, C. America, S. America. **Type locality:** Puerto Rico and St. Thomas. **Type depository:** ZMHB. **Notes:** New WIBF record from Saba.

Coproporus sharpi Cameron 1922: 123; Blackwelder 1943: 513; Herman 2001b: 836; Ivie *et al.* 2008: 240; Peck 2016: 61. **Distribution:** Antigua, Saba, Montserrat, St. Lucia, St. Vincent. **Type locality:** St. Vincent. **Type depository:** BMNH. **Notes:** New WIBF records from Saba.

Coproporus pulchellus (Erichson) 1839: 247 (*Tachinus*); Blackwelder 1943: 520; Campbell 1975: 185; Herman 2001b: 832; *Coproporus* n. sp of Ivie *et al.* 2008: 240 and *Coproporus*

undescribed species of Peck 2016: 61 belong here. **Distribution:** Cuba, Jamaica, Haiti, Dominican Republic, Puerto Rico, Antigua, Saba, Montserrat, Dominica, St. Lucia, St. Vincent, Grenada, N. America (FL), C. America, S. America, Azores, Canary Islands. **Type locality:** Puerto Rico. **Type depositary:** ZMHB. **Notes:** New WIBF records from Montserrat and Saba.

Sepedophilus interruptus (Erichson) 1839: 225 (*Conurus*); Blackwelder 1943: 525 (*Conosoma*); Herman 2001b: 878; Ivie *et al.* 2008: 240. =*Conosoma vitraci* Bernhauer 1917: 50 of Guadeloupe. **Distribution:** Cuba, Guadeloupe, Hispaniola, Jamaica, Montserrat, Puerto Rico, St. Vincent. Trinidad, Colombia, S. America. **Type locality:** Colombia. **Type depositary:** Blackwelder: “Either in the Hope Museum, Oxford, or the Zoologische Museum, Berlin”. **Notes:** No WIBF Saba or Montserrat specimens. Having studied types in the field museum, it is the author’s [JJR] opinion that Blackwelder’s decision to synonymize the Bierig and Bernhauer species is likely incorrect.

Sepedophilus scriptus group new species; Ivie *et al.* 2008: 240; Peck 2016: 62. **Distribution:** Montserrat. **Notes:** *Sepedophilus* sp. “scriptus group” is reported by Ivie *et al.* (2008: 240) and is also referred to in Peck (2016). Dissections show it to be a new species. The only known 6 specimens are held in the WIBF.

TRIBE MYCETOPORINI

Bryoporus new species #1 ; Ivie *et al.* 2008: 240; Peck 2016: 62. **Distribution:** Montserrat. **Notes:** Species is close to *Bryoporus similis* Blackwelder 1943. 7 specimens held in the WIBF.

Bryoporus new species #2 ; Ivie *et al.* 2008: 240; Peck 2016: 62. **Distribution:** Montserrat. **Notes:** Species is close to *Bryoporus similis* Blackwelder 1943. 1 specimen held in the WIBF.

SUBFAMILY ALEOCHARINAE

The following list of Aleocharinae represents the best efforts of the authors to identify all members of the subfamily held in the WIBF from Montserrat and Saba. This list is an improved version of what was made in Ivie *et al.* (2008: 241) and should be considered its replacement. The original WIBF list was omitted by Peck 2016.

TRIBE GYMNUSINI

Adinopsis sp. # 1. **Distribution:** Montserrat. **Notes:** WIBF record.

Adinopsis sp. # 2. **Distribution:** Montserrat. **Notes:** WIBF record.

TRIBE MESOPORINI

Anacyptus testaceus (LeConte) 1863: 30 (*Hypocyptus*); Blackwelder 1943: 532; Ivie *et al.* (2008: 241). **Distribution:** Cuba, Montserrat. N. America, C. America, S. America. **Type locality:** Athens, Georgia, USA. **Type depository:** MCZ. **Notes:** WIBF record.

TRIBE ALEOCHARINI

Aleochara sp. #1. **Distribution:** Saba, Montserrat. **Notes:** WIBF record.

Aleochara sp. #2. **Distribution:** Montserrat. **Notes:** WIBF record.

Aleochara sp. #3. **Distribution:** Saba. **Notes:** WIBF record.

Aleochara sp. #4. **Distribution:** Saba. **Notes:** WIBF record.

TRIBE OXYPODINI

Oxypodini genus? sp. #1. **Distribution:** Montserrat. **Notes:** WIBF record. Aleocharinae #4 in Ivie *et al.* 2008.

TRIBE HYPOCYPHTINI

Holobus guadeloupae (Frank) 1972: 133; Blackwelder 1943: 537; Ivie *et al.* 2008: 241; Peck 2016: 64. **Distribution.** Montserrat, Guadeloupe. **Type locality:** Guadeloupe. **Type depository:** Field Museum. **Notes:** WIBF record.

Holobus probably new species. *Holobus minuta* of Ivie *et al.* 2008: 241 and Peck 2016: 64 (Montserrat records only) belong here. **Distribution:** Montserrat. **Notes:** Species is close to *Holobus minuta*, but male genitalia differ.

Holobus sp. #1. **Distribution:** Saba. **Notes:** WIBF record.

Oligota sp. #1. **Distribution:** Montserrat. **Notes:** WIBF record.

Hypocyphtini genus? sp. #1. **Distribution:** Montserrat. **Notes:** WIBF record.

Hypocyphtini genus? sp. #2. **Distribution:** Montserrat. **Notes:** WIBF record.

Hypocyphtini genus? sp. #3. **Distribution:** Montserrat. **Notes:** WIBF record.

Hypocyphtini genus? sp. #4. **Distribution:** Montserrat. **Notes:** WIBF record.

Hypocyphtini genus? sp. #5. **Distribution:** Montserrat. **Notes:** WIBF record.

TRIBE AUTALIINI

Autaliini genus? sp. #1. **Distribution:** Montserrat. **Notes:** WIBF record.

TRIBE HOMALOTINI

SUBTRIBE BOLITOCARINA

Silusida sp. #1. **Distribution:** Montserrat. **Notes:** WIBF record.

SUBTRIBE GYROPAENINA

Gyrophaenina c.f. *Agaricomorpha*. **Distribution:** Montserrat. **Notes:** WIBF record. Species is probably in *Agaricomorpha*.

Gyrophaena sp. #1. **Distribution:** Montserrat. **Notes:** WIBF record.

Gyrophaena sp. #2. **Distribution:** Montserrat. **Notes:** WIBF record.

Gyrophaena sp. #3. **Distribution:** Saba. **Notes:** WIBF record.

Gyrophaena sp. #4. **Distribution:** Saba. **Notes:** WIBF record.

Gyrophaena sp. #5. **Distribution:** Saba. **Notes:** WIBF record.

SUBTRIBE HOMALOTINA

Cephaloxynum chapini Blackwelder 1943: 459; Newton 1988: 261; *Holisus* sp. #1 of Ivie *et al.* 2008: 243 and Peck 2016: 81 belongs here. **Distribution:** Jamaica, Montserrat. **Type locality:** Jamaica. **Type depository:** USNM. **Notes:** New WIBF Montserrat records.

SUBTRIBE LEPTUSINA

Euvira sp. #1. **Distribution:** Saba. **Notes:** WIBF record.

SUBTRIBE SILUSINA

Silusa sp. #1. **Distribution:** Saba. **Notes:** WIBF record.

Silusa sp. #2. **Distribution:** Saba. **Notes:** WIBF record.

Silusa sp. #3. **Distribution:** Saba. **Notes:** WIBF record.

Silusina genus? sp. #1. **Distribution:** Montserrat. **Notes:** WIBF record.

ASSORTED HOMALOTINI

Homalotini genus? sp. #1. **Distribution:** Montserrat. **Notes:** WIBF record.

Homalotini genus? sp. #2. **Distribution:** Montserrat. **Notes:** WIBF record.

Homalotini genus? sp. #3. **Distribution:** Montserrat. **Notes:** WIBF record.

Homalotini genus? sp. #4. **Distribution:** Montserrat. **Notes:** WIBF record.

Homalotini genus? sp. #5. **Distribution:** Montserrat. **Notes:** WIBF record.

Homalotini genus? sp. #6. **Distribution:** Montserrat. **Notes:** WIBF record.

Homalotini genus? sp. #7. **Distribution:** Saba. **Notes:** WIBF record.

Homalotini? genus? sp. #8. **Distribution:** Saba. **Notes:** WIBF record.

TRIBE DIESTOTINA

Diestotina genus? sp. #1. **Distribution:** Montserrat. **Notes:** WIBF record.

Diestotina genus? sp. #2. **Distribution:** Montserrat. **Notes:** WIBF record.

Diestotina genus? sp. #3. **Distribution:** Montserrat. **Notes:** WIBF record.

Diestotina genus? sp. #4. **Distribution:** Saba. **Notes:** WIBF record.

TRIBE ATHETINI

SUBTRIBE ACROTONINA

Acrotona sp. #1. **Distribution:** Saba. **Notes:** WIBF record.

Acrotona sp. #2. **Distribution:** Saba. **Notes:** WIBF record.

Acrotinina genus? sp. #1. **Distribution:** Montserrat. **Notes:** WIBF record.

SUBTRIBE ATHETINA

Atheta (subgenus *Alobia*) sp. #1. **Distribution:** Montserrat. **Notes:** WIBF record.

Athetina genus? sp. #1. **Distribution:** Saba, Montserrat. **Notes:** WIBF record.

ASSORTED ATHETINI

Athetini c.f. *Thamiaraea* sp. #1. **Distribution:** Montserrat. **Notes:** WIBF record.

Athetini c.f. *Lypoglossa* sp. #1. **Distribution:** Montserrat. **Notes:** WIBF record.

Athetini genus? sp. #1. **Distribution:** Montserrat. **Notes:** WIBF record.

Athetini genus? sp. #2. **Distribution:** Montserrat. **Notes:** WIBF record.

Athetini genus? sp. #3. **Distribution:** Montserrat, Saba. **Notes:** WIBF record.

Athetini genus? sp. #4. **Distribution:** Montserrat. **Notes:** WIBF record.

Athetini genus? sp. #5. **Distribution:** Montserrat. **Notes:** WIBF record.

Athetini genus? sp. #6. **Distribution:** Montserrat. **Notes:** WIBF record.

Athetini genus? sp. #7. **Distribution:** Montserrat. **Notes:** WIBF record.

Athetini genus? sp. #8. **Distribution:** Montserrat. **Notes:** WIBF record.

Athetini genus? sp. #9. **Distribution:** Saba. **Notes:** WIBF record.

Athetini genus? sp. #10. **Distribution:** Saba. **Notes:** WIBF record.

Athetini genus? sp. #11. **Distribution:** Saba. **Notes:** WIBF record.

Athetini genus? sp. #12. **Distribution:** Saba. **Notes:** WIBF record.

Athetini genus? sp. #13. **Distribution:** Saba. **Notes:** WIBF record.

Athetini genus? sp. #14. **Distribution:** Saba. **Notes:** WIBF record.

TRIBE PRONOMAEINI

Pronomaea sp. #1. **Distribution:** Montserrat. **Notes:** WIBF record. Close to *P. debilis*.

ASSORTED ALEOCHARINAE

Aleocharinae genus? sp. #1. **Distribution:** Saba. **Notes:** WIBF record.

SUBFAMILY SCAPHIDIINAE

TRIBE SCAPHISOMATINI

Baeocera dufai Pic 1920: 3. **Distribution:** Guadeloupe; single island endemic. **Type Locality:**

Guadeloupe. **Type depository:** MNHN. **Notes:** No WIBF Saba or Montserrat specimens.

Examples of species not seen by author.

Baeocera sp. # 1. **Distribution:** Montserrat. **Notes:** New WIBF Montserrat records.

Baeocera sp. # 2. **Distribution:** Montserrat. **Notes:** New WIBF Montserrat records.

Baeocera sp. # 3. **Distribution:** Montserrat. **Notes:** New WIBF Montserrat records.

Baeocera sp. # 4. **Distribution:** Montserrat. **Notes:** New WIBF Montserrat records.

Baeocera sp. # 5. **Distribution:** Saba. **Notes:** New WIBF Saba records.

SUBFAMILY PIESTINAE

Piestus sulcatus Gravenhorst 1806: 224; Blackwelder 1943: 44; Herman 2001c: 1795; Ivie *et al.*

2008: 242 (as *Piestus pygmaeus* Laporte); Caron *et al.* 2011: 534; Peck 2016: 69 (as *P. pygmaeus*). **Distribution:** Cuba, Montserrat, Dominica, St. Lucia, St. Vincent, Grenada, S. America. **Type locality:** Brasilia. **Type depository:** ZMHB. **Notes:** *Piestus pygmaeus* of Ivie *et al.* 2008 and Peck 2016 (Montserrat record only) are misidentifications. New WIBF records from Montserrat.

SUBFAMILY OSORIINAE

TRIBE THORACOPHORINI

Thoracophorus guadalupensis Cameron 1913b: 323; Blackwelder 1943: 151; Herman 2001c: 1303; Ivie *et al.* 2008: 242; Ferro 2015: 1; Peck 2016: 71. **Distribution:** Cuba, Jamaica, Haiti, Puerto Rico, St. Thomas, Montserrat, Dominica, St. Lucia, St. Vincent, Grenada, N. America, S. America, C. America. **Type locality:** Grenada; Haiti. **Type depository:** NHM. **Notes:** WIBF records.

Thoracophorus new species- *Thoracophorus simplex* Wendeler of Ivie *et al.* 2008: 242 and Peck 2016: 71 (Montserrat record only) belong here. **Distribution:** Montserrat. **Notes:** Five specimens in the WIBF are a new species close to *T. simplex*, but with pronotal ridges more distinct.

SUBTRIBE CLAVILISPININA

Clavilispinus exiguus (Erichson) 1840: 830; Blackwelder 1943: 158 (*Paralispinus*); Herman 2001c: 1233; Irmeler 2003: 349; Ivie *et al.* 2008: 242; Irmeler 2015: 154; Peck 2016: 70; *Clavispinus guadeloupensis* Irmeler 1991 of Ivie *et al.* 2008: 242 and Peck 2016: 70 (Montserrat record only) belong here. **Distribution:** Cuba, Jamaica, Hispaniola, Puerto Rico, St. Croix, Saba, Montserrat, Guadeloupe, St. Lucia, Grenada, N. America, C. America, S. America, Hawaii and Pacific Islands, Asia, Africa. **Type locality:** Puerto Rico. **Type depository:** ZMHB? **Notes:**

New WIBF Saba records. One specimen of “*Clavispinus exiguus*” from Montserrat is missing its head and thorax so I am unable to verify its validity. There are two det labels from 2006 - presumably the whole specimen was intact at this time. M. K. Thayer labels it as “*Clavilispinus*” and M. A. Ivie as “*Clavilispinus exiguus*”.

Clavilispinus megacephalus (Fauvel) 1865: 57; Herman 2001c: 1236; Blackwelder 1943: 160 = *Paralispinus crepusculus* of St. Lucia; Ivie *et al.* 2008: 242; Irmeler 2015: 154; Peck 2016: 70. **Distribution:** Cuba, Jamaica, Puerto Rico, Montserrat, Guadeloupe, St. Lucia, C. America, S. America. **Type locality:** Teapa, État de Tabasco). **Type depository:** Blackwelder: “Possibly in the Zoologische Museum, Berlin.” **Notes:** WIBF records.

Clavilispinus politus (Sharp) 1887: 718; Blackwelder 1943: 157; Herman 2001c: 1236; Irmeler 2003: 349; Ivie *et al.* 2008: 242; Irmeler 2015: 155; Peck 2016: 70. **Distribution:** Cuba, Jamaica, Montserrat, Guadeloupe, St. Lucia, St. Vincent, C. America, S. America. **Type locality:** Guatemala, El Tumbador. **Type locality:** Guatemala, El Tumbador **Type depository:** NHM. **Notes:** WIBF records.

SUBTRIBE LISPININA

Lispinus attenuatus Erichson 1840: 828; Blackwelder 1943: 134; Herman 2001c: 1253; *Lispinus* sp.? *attenuatus* of Ivie *et al.* 2008: 242 belong here; Irmeler 2012: 231; Peck 2016: 70. **Distribution:** Puerto Rico, Montserrat, Guadeloupe, Grenada, S. America. **Type locality:** Puerto Rico. **Type depository:** Blackwelder: “Possibly in the Zoologische Museum, Berlin.” **Notes:** WIBF records.

Lispinus insularis Fauvel 1863: 442; Blackwelder 1943: 136; Herman 2001c: 1261; Ivie *et al.* 2008: 242, Irmeler 2015: 155, Peck 2016: 70. **Distribution:** Cuba, Jamaica, Hispaniola, Puerto Rico, Saba, Montserrat, Guadeloupe, Dominica, St. Vincent, Grenada, See Peck 2016: 70 for erroneous records. **Type locality:** Dominican Republic; Cuba. **Type depository:** NHMB (see Irmeler: 1994: 63). **Notes:** New WIBF records from Saba.

Nacaeus new species- *Nacaeus foveolus* (Blackwelder) and *Nacaeus* sp.#1 of Ivie *et al.* 2008: 242 and Peck 2016: 70 (Ivie *et al.* 2008 Montserrat record only) belong here. **Distribution:** Montserrat. **Notes:** Eight specimens held in WIBF.

Nacaeus nigrifrons (Chevrolat and Fauvel) 1863: 443 (*Lispinus*); Blackwelder 1943: 128 (*Pseudolispinodes*); Herman 2001c: 1283; Ivie *et al.* 2008: 242, Irmeler 2015: 157; Peck 2016: 70. **Distribution:** Cuba, Hispaniola, Saba, Montserrat, Guadeloupe, St. Lucia, St. Vincent, Grenada. See Peck 2016: 70 for erroneous records. **Type locality:** Cuba. **Type depository:** NHM. **Notes:** New WIBF Saba records.

Nacaeus guadeloupeae (Blackwelder) 1943: 129; Herman 2001c: 1280; Peck 2016: 70.

Distribution: Saba, Guadeloupe. **Type Locality:** Guadeloupe. **Type depository:** AMNH.

Notes: Correction to Blackwelder 1943- There are two paratypes in the USNM collection, both from Gourbeyre the paratype number of the second specimen is 52479. New WIBF records from Saba.

Tannea tenella (Erichson) 1840: 830 (*Lispinus*); Blackwelder 1943: 126 (*Pseudolispinodes tenellus*), 122 (*Pseudolispinodes impar*); Herman 2001c: 1285 (*Nacaeus tenellus*), 1280 (*Nacaeus impar*); *Nacaeus impar* of Ivie *et al.* 2008: 242 belongs here; Irmeler 2012: 220; Irmeler

2015: 168; Peck 2016: 71. **Distribution:** Cuba, Jamaica, Hispaniola, Puerto Rico, St. John, Montserrat, Guadeloupe, St. Lucia, St. Vincent, Grenada, N. America, C. America, S. America.

Type locality: Columbia; Americae meridionalis ins. St. Johannis and Puerto Rico. **Type**

depository: ZMHB. **Notes:** WIBF records.

SUBTRIBE GLYPTOMINA

Espeson moratus Schaufuss 1882: 168; Blackwelder 1943: 146; Herman 2001c: 1240; Ivie *et al.*

2008: 242; Irmeler 2015: 155; Peck 2016: 71. **Distribution:** Cuba, Jamaica, Hispaniola, Puerto Rico, St. Thomas, Saba, Montserrat, Guadeloupe, Martinique, St. Lucia, St. Vincent, Grenada, S. America. **Type locality:** St. Thomas. **Type depository:** Blackwelder: “presumably in the National Museum in Prague”. **Notes:** New WIBF Saba records.

Pseudespeson crassulus (Fauvel) 1902: 35 (*Espeson*); Blackwelder 1943: 144; Herman 2001c: 1248 (*Pseudespeson*); Ivie *et al.* 2008: 242; Peck 2016: 71. **Distribution:** Saba, Montserrat, Guadeloupe, Martinique, St. Lucia, St. Vincent, Grenada. **Type locality:** Guadeloupe; Saint Vincent. **Type depository:** Blackwelder: “presumably in the collection of Blanche Rancin, Caën, France”. **Notes:** New WIBF Saba records.

TRIBE OSORIINI

Holotrochus minor Fauvel 1863: 437; Blackwelder 1943: 165; Herman 2001c: 1169;

Holotrochus sp. #2 ? *minor* of Ivie *et al.* 2008: 242 belong here; Irmeler 2015: 152; Peck 2016: 72. **Distribution:** Cuba, Caymans, Jamaica, Montserrat, Grenada, S. America. **Type locality:** Columbia (Caracas) and Cuba. **Type depository:** Blackwelder: “presumably in the collection of Blanche Rancin, Caën, France”. WIBF records.

Holotrochus new species #1- *Holotrochus* sp. #1 of Ivie *et al.* 2008: 242 and Peck 2016: 72

(reported as “a second unidentified species in this genus”) belong here. **Distribution:**

Montserrat. **Notes:** 25 specimens held in the WIBF. This new species is near to *Holotrochus irmleri* Herman 2001f: 40 - having similar elevated lateral pronotal margins near the anterior angles.

Osoriellus- s. str.-group new species; see Irmeler 2014: 257 for definition of the group.

Distribution: Saba. **Notes:** Single specimen held in WIBF. New WIBF Saba record.

SUBFAMILY OXYTELINAE

TRIBE THINOBIINI

Apocellus ustulatus Erichson 1840: 813; Blackwelder 1943: 89; Herman 2001c: 1411; Ivie *et al.*

2008: 243; Peck 2016: 72. **Distribution:** Caymans, Jamaica, Hispaniola, Puerto Rico, St. John, St. Croix, Montserrat, Guadeloupe, Dominica, Martinique, Grenada. **Type locality:** St. John.

Type depository: Blackwelder: “Either in the Hope Museum, Oxford, or the Zoologische Museum, Berlin”. **Notes:** No WIBF Saba or Montserrat specimens. Specimens of this species not seen by author.

Bledius punctatissimus (LeConte) 1877: 226; Blackwelder 1943: 114 (*esposus*); Herman 2001c:

1599; Peck 2016:72; *Bledius caribbeanus* Blackwelder of Ivie *et al.* 2008: 243 and Peck 2016:

72 (Montserrat record only) belong here. **Distribution:** Caymans, Jamaica, Puerto Rico, St.

Thomas, St. John, Antigua, Montserrat, N. America, C. America, S. America (including

Galapagos). **Type locality:** California. **Type depository:** MCZ. **Notes:** New WIBF Montserrat record. There is a single specimen in the WIBF- its pronotum, head and one elytron are missing.

After comparison with Blackwelder types at the Smithsonian (USNM) the author [JJR] is confident the specimen is *B. punctatissimus*.

Carpelimus aridus (Jacquelin Du Val) 1856: 43 (*Trogophloeus*); Blackwelder 1943: 73; Herman 2001c: 1640; Peck 2016: 72; *Carpelimus* sp. #4 of Ivie *et al.* 2008: 243 and Peck 2016: 72 (Montserrat record only) belong here. **Distribution:** Cuba, Caymans, Jamaica, Hispaniola, Puerto Rico, St. Croix, Montserrat, St. Vincent, Grenada Barbados, C. America, S. America. **Type locality:** Cuba. **Type depository:** Blackwelder: "Type should be in Sharp collection in the British Museum, but I did not find it" **Notes:** New WIBF Montserrat record.

Carpelimus aequalis (Jacquelin Du Val) 1857: 44; Blackwelder 1943: 82; Herman 2001c: 1637; *Carpelimus* sp. #3 of Ivie *et al.* 2008: 243 (Montserrat record only) belong here. **Distribution:** Bahamas, Cuba, Jamaica, Montserrat, Bermuda, S. America (Galapagos only). **Type locality:** Cuba. **Type depository:** Blackwelder: "Presumably in the collection of Blanche Rancin, Caën, France". **Notes:** New WIBF Montserrat records.

Carpelimus sp. #1- Ivie *et al.* 2008: 243. **Distribution:** Montserrat. **Notes:** Species is close to *Carpelimus subtilior* (Cameron). WIBF records.

Carpelimus sp. #2 - Ivie *et al.* 2008: 243 (as sp. #5). **Distribution:** Montserrat. **Notes:** Species is close to *Carpelimus discipennis* (Bierig). WIBF records.

Carpelimus sp. #3- Ivie *et al.* 2008: 243 (as sp. #6). **Distribution:** Montserrat. WIBF records.

Carpelimus correctus Blackwelder 1943: 64; Herman 2001c: 1648; Ivie *et al.* 2008: 243; Peck 2016: 72. *Carpelimus* sp. #2 prob. *correctus* Blackwelder of Ivie *et al.* 2008: 243 and Peck 2016: 72 (Montserrat record only) belong here. **Distribution:** Caymans, Jamaica, Hispaniola, Puerto

Rico, St. Croix, Montserrat, Guadeloupe, St. Lucia, St. Vincent, Grenada, Barbados, S. America.

Type Locality: St. Lucia. **Type depository:** USNM. **Notes:** WIBF specimens compared against type.

Thinobius exasperatus Blackwelder 1943: 108; Herman 2001c: 1744; Ivie *et al.* 2008: 243; Peck 2016: 73. **Distribution:** Jamaica, Hispaniola, Montserrat. **Type locality:** Jamaica. **Type depository:** USNM. **Notes:** No WIBF Saba or Montserrat specimens.

Thinodromus croceipes (Fauvel) 1868: 379 (*Trogophloeus*), replacement name; Fleutiaux and Sallé 1890: 381; Blackwelder 1943: 61 (*Carpelimus*); Herman 2001c: 1765; Ivie *et al.* 2008: 243; Peck 2016: 73. **Distribution:** Cuba, Jamaica, Hispaniola, Montserrat, Guadeloupe. **Type locality:** Cuba. **Type depository:** NHM. **Notes:** WIBF records.

TRIBE OXYTELINI

Anotylus glareosus (Wollaston) 1854: 610 (*Oxytelus*); Blackwelder 1943: 100; Herman 2001c: 1355; Assing and Schülke 2006: 32; Ivie *et al.* 2008: 242; Peck 2016: 73. **Distribution:** Cuba, Jamaica, Hispaniola, Montserrat, Dominica, St. Vincent, Grenada, C. America, Atlantic Islands, Pacific Islands, Old World (widespread) **Type locality:** Madeira. **Type depository:** NHM. **Notes:** WIBF records.

Anotylus insignitus (Gravenhorst) 1806: 188 (*Oxytelus*); Fleutiaux and Sallé 1890: 381; Blackwelder 1943: 92; Herman 2001c: 1359; Ivie *et al.* 2008: 242; Peck 2016: 73; Klimaszewski and Brunke 2018: 66, 71; Brattain *et al.* 2019: 51; Steury and Brattain 2020: 5. **Distribution:** Cuba, Caymans, Jamaica, Hispaniola, Puerto Rico, St. Thomas, St. Croix, Antigua, Saba, Montserrat, Guadeloupe, Dominica, St. Lucia, St. Vincent, Mustique? (Peck 2016: 73) Grenada,

Atlantic Islands, N. America, C. America, S. America, old world (widespread). **Type locality:**

“America septentrionali”. **Type depository:** ZMHB. **Notes:** New WIBF Saba record.

Oxytelus incisus Motschulsky 1857: 504; Blackwelder 1943: 96; Herman 2001c: 1433; Ivie *et al.*

2008: 243; Lü and Zhou 2012: 21; Lü and Zhou 2015: 14; Peck 2016: 73; K J Ahn *et al.* 2017:

312. **Distribution:** Cuba, Caymans, Jamaica, Hispaniola, Puerto Rico, Mona, St. Thomas, St.

Croix Antigua, Saba, St. Kitts, Montserrat, Guadeloupe, Dominica, St. Lucia, St. Vincent,

Mustique, Grenada, Barbados, Bermuda, N. America, C. America, S. America, Old World

widespread. **Type locality:** Indes orientales **Type depository:** Blackwelder: “Presumably in the

Deutsch Entomologische Institut, Berlin- Dahlem”. **Notes:** New WIBF Saba record.

SUBFAMILY PAEDERINAE

TRIBE PAEDERINI

SUBTRIBE LATHROBIINA

Pseudolathra nitidum Erichson 1840: 599 (*Lathrobium*); Blackwelder 1943: 315; Beatty 1944:

135; Ivie *et al.* 2008: 243 (*Lobrathium*); Peck 2016: 74 (misspelt as *Pseudolathra nitida*).

Distribution: Cuba, Hispaniola, St. Croix, Montserrat, St. Lucia, N. America, S. America. **Type**

locality: Columbia. **Type depository:** Blackwelder: “Either in the Hope Museum, Oxford, or the

Zoologische Museum, Berlin”. **Notes:** WIBF records.

SUBTRIBE MEDONINA

Lithocharis dorsalis Erichson 1840: 616; Blackwelder 1943: 247, 1944: 117; Beatty 1944: 135;

Ivie *et al.* 2008: 243; Peck 2016: 75. **Distribution:** Cuba, Jamaica, Hispaniola, Puerto Rico, St.

Croix, Antigua, Montserrat, Guadeloupe, St. Lucia, St. Vincent, Grenada, Barbados, S. America.

Type locality: Puerto Rico. **Type depository:** Blackwelder: “Either in the Hope Museum, Oxford, or the Zoologische Museum, Berlin”. **Notes:** WIBF records.

Lithocharis limbata Erichson 1840: 621; Blackwelder 1943: 246; Beatty 1944: 135; Ivie *et al.* 2008: 243; Peck 2016: 75; *Lithocharis* sp. #1 of Ivie *et al.* 2008 belongs here. **Distribution:** Hispaniola, Puerto Rico, St. Croix, Saba, Montserrat, Guadeloupe, Dominica, Martinique, St. Lucia, St. Vincent, Grenada, Barbados, C. America, S. America. **Type locality:** Columbia. **Type depository:** Blackwelder: “Either in the Hope Museum, Oxford, or the Zoologische Museum, Berlin”. **Notes:** New WIBF Saba records.

Lithocharis secunda Blackwelder 1943: 244; Ivie *et al.* 2008: 243; Peck 2016: 75. **Distribution:** Jamaica, Hispaniola, Puerto Rico, St. Croix, Antigua, Montserrat, Guadeloupe, St. Lucia. **Type locality:** Jamaica. **Type Depository:** USNM. **Notes:** Montserrat record of *L. secunda* from Ivie *et al.* 2008 (repeated in Peck 2016) is erroneous. No WIBF Saba or Montserrat specimens.

Lithocharis ochracea (Gravenhorst) 1802: 58 (*Paederus*); Blackwelder 1943: 242, *Lithocharis secunda* of Ivie *et al.* 2008: 243 and Peck 2016: 75 (Ivie 2008 Montserrat record only) belongs here; Peck 2016: 75. **Distribution:** Cuba, Jamaica, Puerto Rico, St. John, Antigua, St. Kitts, Montserrat, Guadeloupe, Dominica, Grenada, Barbados, N. America, C. America, S. America (including Galapagos), Old World widespread. **Type locality:** Germany. **Type depository:** Blackwelder: “Presumably the Zoologische Museum, Berlin”. **Notes:** New WIBF Montserrat record.

Lithocharis sororcula Kraatz 1859: 140; Blackwelder 1943: 241; Ivie *et al.* 2008: 243; Assing 2015: 1145; Peck 2016: 75. **Distribution:** Caymans, Jamaica, Puerto Rico, St. Croix, Antigua,

St. Kitts, Montserrat, Guadeloupe, St. Lucia, St. Vincent, Grenada, Barbados, Old World. **Type**

locality: Sri Lanka. **Type depository:** Blackwelder: “Presumably in the Deutsch

Entomologische Institut, Berlin- Dahlem”. **Notes:** WIBF records.

Lithocharis sp. #1- Ivie *et al.* 2008: 243; Peck 2016: 75. **Distribution:** Montserrat. **Notes:** WIBF records.

“Medon” complex sp. #1- Ivie *et al.* 2008: 243; Peck 2016: 75. **Distribution:** Montserrat. **Notes:** WIBF records.

“Medon” complex sp. #2- Ivie *et al.* 2008: 243; Peck 2016: 75. **Distribution:** Montserrat. **Notes:** WIBF records.

“Medon” complex sp. #3- Ivie *et al.* 2008: 243; Peck 2016: 75. **Distribution:** Montserrat. **Notes:** WIBF records.

“Medon” complex sp. #4- Ivie *et al.* 2008: 243; Peck 2016: 75. **Distribution:** Montserrat. **Notes:** WIBF records.

Sunius debilicornis (Wollaston) 1857: 19 (*Lithocharis*); Blackwelder 1943: 267; Asenjo 2004:

60; Ivie *et al.* 2008: 243; Peck 2016: 75. **Distribution:** Cuba, Caymans, Jamaica, St. Croix,

Antigua, Montserrat, Guadeloupe, St. Lucia, St. Vincent, Grenada, N. America, C. America, S.

America, Old World. **Type locality:** Madeira. **Type depository:** NHM. **Notes:** WIBF records.

SUBTRIBE SCOPAEINA

Scopaeus sp.- Ivie *et al.* 2008: 243; Peck 2016: 76. **Distribution:** Montserrat. **Notes:** WIBF records.

SUBTRIBE STILICOPSINA

Stamnoderus probably new species. Ivie *et al.* 2008: 243 (as *Stamnoderus* sp.); Peck 2016: 76.

Distribution: Montserrat. **Notes:** WIBF records.

Stilocopsis probably new species. **Distribution:** Saba. **Notes:** New WIBF Saba record.

SUBTRIBE ECHIASTERINA

Echiaster microps Blackwelder 1943: 370; Scheerpeltz 1970: 100; Ivie *et al.* 2008: 243; Peck 2016: 76. **Distribution:** Cuba? (Blackwelder 1943: 370), Hispaniola, Montserrat, Martinique.

Type locality: Montserrat. **Type depository:** USNM. **Note:** Correction to Ivie *et al.* 2008- *E. microps* is not a Montserrat endemic. WIBF records.

Echiaster c.f. waterhousei Cameron 1913: 336; Blackwelder 1943: 371; Scheerpeltz 1970: 99; Peck 2016: 77. **Distribution:** Cuba, Jamaica, Hispaniola, Saba, Martinique, St. Vincent, Grenada. **Type locality:** Grenada. **Type depository:** NHM. **Notes:** New WIBF Saba records. Species is very similar to *Echiaster waterhousei* paratype at the Smithsonian (USNM) but it is darker in coloration. Could be a new species.

SUBTRIBE CRYPTOBIINA

Biocrypta fulvipes (Erichson) 1840: 566 (*Cryptobium*); Blackwelder 1943: 337; Ivie *et al.* 2008: 243; Peck 2016: 77. **Distribution:** Puerto Rico, Antigua, Montserrat, Guadeloupe, Grenada, S. America. **Type locality:** Puerto Rico. **Type depository:** Blackwelder: “Either in the Hope Museum, Oxford, or the Zoologische Museum, Berlin”. **Notes:** WIBF records.

TRIBE PINOPHILINI

SUBTRIBE PINOPHILINA

Pinophilus c.f. vermiformis Cameron 1913: 330; Blackwelder 1943: 378; Ivie *et al.* 2008: 243;

Peck 2016: 77. **Distribution.** Montserrat?, Mustique. **Type locality:** Mustique. **Type**

depository: NHM. **Notes:** WIBF records. Species is very close to *P. vermiformis* but the description is inadequate to confirm and the types haven't been studied by the author [JJR]. The posterior margins of the elytra are light in coloration in these specimens.

SUBTRIBE PROCIRRINA

This group needs to be revised before identifications can be attempted. There are likely to be multiple new species in the West Indies. There are many unidentified specimens held in the WIBF.

Palaminus sp. #1- Ivie *et al.* 2008: 243; Peck 2016: 77. **Distribution:** Montserrat. **Notes:** WIBF records.

Palaminus sp. #2- Ivie *et al.* 2008: 243; Peck 2016: 77. **Distribution:** Montserrat. **Notes:** WIBF records.

Palaminus sp. #3- Ivie *et al.* 2008: 243; Peck 2016: 77. **Distribution:** Montserrat. **Notes:** WIBF records.

Palaminus sp. #4- Ivie *et al.* 2008: 243; Peck 2016: 77. **Distribution:** Montserrat. **Notes:** WIBF records.

Palaminus sp. #5- Ivie *et al.* 2008: 243; Peck 2016: 77. **Distribution:** Montserrat. **Notes:** WIBF records.

Palaminus sp. #6- **Distribution:** Saba. **Notes:** New WIBF Saba records.

SUBFAMILY STAPHYLININAE

TRIBE DIOCHIINI

Diochus nanus Erichson 1839: 301; Blackwelder 1943: 455; Herman 2001d: 2446; Ivie *et al.* 2008: 243; Peck 2016: 78. **Distribution:** Cuba, Caymans, Jamaica, Hispaniola, Puerto Rico, St. Croix, Saba, Montserrat, Guadeloupe, St. Lucia, St. Vincent, Mustique, Grenada, Barbados, C. America, S. America. **Type locality:** Columbia. **Type depository:** Museum fur Naturkunde der Humboldt- Universitat zu Berlin. **Notes:** New WIBF Saba record.

TRIBE XANTHOLININI

Microlinus pusio (LeConte) 1880: 171 (*Leptolinus*); Blackwelder 1943: 502; Herman 2001e: 3705; Peck 2006: 154; Ivie *et al.* 2008: 243; Peck 2016: 78. **Distribution:** Jamaica, Montserrat, N. America, S. America (including Galapagos). **Type locality:** South Carolina. **Type depository:** MCZ. **Notes:** Montserrat record in Ivie *et al.* 2008 is incorrectly listed under Paederinae. Cannot find C. America records suggested to exist in Peck 2016: 78. WIBF records.

Neohypnus attenuatus (Erichson) 1839: 330 (*Xantholinus*); Blackwelder 1943: 478; Herman 2001e: 3708; Ivie *et al.* 2008: 244; Peck 2016: 78. **Distribution:** Cuba, Jamaica, Puerto Rico, St. Thomas, Antigua, St. Kitts, Montserrat, Guadeloupe, Dominica, St. Vincent, Grenada, Barbados, N. America, C. America, S. America, St. Helena. **Type locality:** Americae insulae. **Type depository:** Zoologisches Museum der Humboldt-Universitiit zu Berlin. **Notes:** WIBF records.

Neohypnus humeralis (Erichson) 1839: 327 (*Xantholinus*); Blackwelder 1943: 479; Herman 2001e: 3799; Ivie *et al.* 2008: 244; Peck 2016: 78. **Distribution:** Cuba, Hispaniola, Puerto Rico, St John, St. Croix, Antigua, Montserrat, Dominica, St. Vincent. **Type locality:** St John. **Type**

depository: Blackwelder: “Either in the Hope Museum, Oxford, or the Zoologische Museum, Berlin”. **Notes:** WIBF records.

Neohypnus illucens (Erichson) 1839: 315 (*Xantholinus*); Blackwelder 1943: 488; Herman 2001e: 3800; Ivie *et al.* 2008: 244; Peck 2016: 78. **Distribution:** Puerto Rico, St. Thomas, Montserrat, Guadeloupe, Dominica, St. Lucia, St. Vincent, Grenada, S. America. **Type Locality:** Columbia.

Type depository: Blackwelder: “Either in the Hope Museum, Oxford, or the Zoologische Museum, Berlin”. **Notes:** No WIBF Saba or Montserrat specimens.

Neoxantholinus new species - *Neoxantholinus hubbardi* (Blackwelder 1943: 505) of Ivie *et al.* 2008: 244 and Peck 2016: 78 (Ivie *et al.* 2008 Montserrat record only) belong here.

Distribution: Montserrat. **Notes:** Species keys to *Oligolinus* (Now *Neoxantholinus*) in Blackwelder 1943. Species is close to *Neoxantholinus hubbardi* but the underside of the head is strongly margined. WIBF records.

Xantholinini genus? sp. # 1. **Distribution:** Saba. **Notes:** New WIBF Saba record.

Xantholinini genus? sp. # 2. **Distribution:** Saba. **Notes:** New WIBF Saba record.

TRIBE STAPHYLININI

SUBTRIBE TANYGNATHININA

Atanygnathus laticollis (Erichson) 1839: 289 (*Tanygnathus*); Blackwelder 1943: 472; Herman 2001e: 3562; *Atanygnathus* sp. #1 of Ivie *et al.* 2008: 243 belongs here; Peck 2016: 79.

Distribution: Cuba, Hispaniola, Puerto Rico, Antigua, Montserrat, St. Vincent, S. America.

Type locality: St. Vincent. **Type depository:** Blackwelder: “Probably in the Hope Museum, Oxford”. **Notes:** New WIBF Montserrat records.

Atanygnathus sp. #1.- Ivie *et al.* 2008: 243 (as *Atanygnathus* sp. #2); Peck 2016: 79.

Distribution: Montserrat. **Notes:** WIBF records. Unable to find a representative of the other species in the region (*Atanygnathus heterocerus* Cameron) for comparison.

SUBTRIBE PHILONTHINA

Belonuchus gagates Erichson 1840: 424; Blackwelder 1943: 424; Herman 2001d: 2526; Ivie *et al.* 2008: 243; Peck 2016: 79. *Belonuchus* sp. #1 , #2 and #3 of Ivie *et al.* 2008 and Peck 2016: 79 belong here. **Distribution:** Bahamas, Cuba, Caymans, Jamaica, Hispaniola, Puerto Rico, St. Thomas, St. John, Saba, Montserrat, N. America. **Type locality:** Cuba. **Type depository:** Zoologische Museum, Berlin. **Notes:** New WIBF Saba records. There are no C. America records, as suggested to exist in Peck 2016: 79.

Cafius bistratus (Erichson) 1840: 502 (*Philonthus*); Blackwelder 1943: 438; Herman 2001d: 2569, Ivie *et al.* 2008: 243; Peck 2016: 79. **Distribution:** Bahamas, Cuba, Jamaica, Hispaniola, Puerto Rico, Mona, St. Thomas, St. John, St. Croix, Antigua, St. Kitts, Montserrat, Guadeloupe, Dominica, St. Lucia, Grenada, Carriacou, Barbados, N. America, C. America, S. America. **Type locality:** Long Island, New York. **Type depository:** Blackwelder: “Presumably the Zoologische Museum, Berlin”. **Notes:** “Blackwelder 1934: 43” reference in Peck 2016: 79 is a typo. No WIBF Saba or Montserrat specimens.

Cafius algarum (Sharp) 1874: 38 (*Philonthus*); Cameron 1922: 121; Blackwelder 1943: 436; Herman 2001d:2569, 2578; Ivie *et al.* 2008: 243; Peck 2016: 79; Lee *et al.* 2021: 835 (synonyms, *Cafius subtilis* Cameron 1922; *Cafius aguayoi* Bierig 1934). **Distribution:** Cuba, Jamaica, Puerto Rico, Mona, St. Croix, Antigua, St. Kitts, Montserrat, Guadeloupe, Dominica,

N. America, Old World widespread. **Type locality:** Nagasaki. Of *C. subtilis*: Jamaica. **Type depositary:** NHM. **Notes:** No WIBF Saba or Montserrat specimens.

Philonthus discoideus (Gravenhorst) 1802: 38 (*Staphylinus*); Blackwelder 1943: 407; Smetana 1995: 184; Herman 2001d: 2807; Ivie *et al.* 2008: 244; Chani- Posse 2010: 26; Aballay *et al.* 2014: 116; Peck 2016: 80. **Distribution:** Cuba, Jamaica, Hispaniola, Puerto Rico, St. Croix, Antigua, St. Kitts, Montserrat, Guadeloupe, Grenada, N. America, C. America, S. America, Old World widespread. **Type locality:** Herman 2001d: “Not cited, but presumably *Brunsvigae*”. **Type depositary:** ZMHB. **Notes:** No WIBF Saba or Montserrat specimens.

Philonthus havaniensis (Laporte) 1835: 116 (*Staphylinus*); Blackwelder 1943: 418; Herman 2001d: 2836; Ivie *et al.* 2008: 244; Peck 2016: 80. **Distribution:** Cuba, Caymans, Jamaica, Hispaniola, Puerto Rico, Mona, St. John, St. Croix, Antigua, Saba, Montserrat. **Type locality:** Cuba. **Type depositary:** Blackwelder: “Probably in the Muséum National d'Histoire Naturelle, Paris”. **Notes:** New WIBF Saba records.

Philonthus new species- *Philonthus hepaticus* Erichson of Ivie *et al.* 2008: 244 and Peck 2016: 80 (Ivie *et al.* 2008 Montserrat record only) belong here. **Distribution:** Montserrat. **Notes:** New WIBF Montserrat records.

Philonthus hepaticus Erichson 1840: 451; Blackwelder 1943: 401; Herman 2001d: 2837; Ivie *et al.* 2008: 244; Majka *et al.* 2009: 348; Chani- Posse 2010: 32; Peck 2016: 80. **Distribution:** Bahamas, Cuba, Jamaica, Hispaniola, Puerto Rico, St. Thomas, St. Croix, Antigua, Saba, St. Kitts, Montserrat, Guadeloupe, Les Saintes, Dominica, St. Vincent, Grenadines, Barbados, N. America, C. America, S. America, Old World. **Type locality:** “America septentrionalis”. **Type**

depository: Museum für Naturkunde der Humboldt-Universität, Berlin. **Notes:** Montserrat record of *P. hepaticus* from Ivie *et al.* 2008: 244 (repeated in Peck 2016: 80) is erroneous. New WIBF Saba records.

Philonthus longicornis Stephens 1832: 237; Blackwelder 1943: 410; Smetana 1995: 245; Herman 2001d: 2866; Ivie *et al.* 2008: 244; Chani- Posse 2010: 35; Hromádka 2012: 89; Peck 2016: 80. **Distribution:** Cuba, Hispaniola, Puerto Rico, Antigua, St. Kitts, Montserrat, Grenada, N. America, C. America, S. America, Old World widespread. **Type locality:** London, UK. **Type depository:** NHM. **Notes:** No WIBF Saba or Montserrat specimens.

Philonthus ventralis (Gravenhorst) 1802: 174 (*Staphylinus*); Blackwelder 1943: 404; Herman 2001d: 2996; Ivie *et al.* 2008: 244; Peck 2016: 80; Psarev 2019: 120. **Distribution:** Cuba, Caymans, Jamaica, Hispaniola, Puerto Rico, Mona, Culebra, St. Thomas, St. Croix, Antigua, St. Kitts, Montserrat, Guadeloupe, Dominica, St. Lucia, St. Vincent, Grenada, Barbados, N. America, C. America, S. America, Old World widespread. **Type locality:** Lusitania (Portugal). **Type depository:** Blackwelder: “Probably in the Zoologische Museum, Berlin”. **Notes:** WIBF records.

SUBTRIBE HYPTIOMINA

Holius debilis Erichson 1839: 300; Blackwelder 1943: 401; Herman 2001d: 2512; Peck 2016: 81. **Distribution:** Bahamas, Cuba, Hispaniola, Puerto Rico, St. John, Saba, St. Lucia, St. Vincent. **Type locality:** St John. **Type depository:** Blackwelder: “Either in the Hope Museum, Oxford, or the Zoologische Museum, Berlin”. **Notes:** New WIBF Saba records.

Holisus new species. **Distribution:** Saba. **Notes:** WIBF records. Looks similar to *Holisus debilis* but the pronotum is too square.

Holisus guildingii Erichson 1839: 300; Blackwelder 1943: 462; Herman 2001d: 2512. *Holisus* sp. #2 of Ivie *et al.* 2008: 243 and Peck 2016: 81 belong here. **Distribution:** Puerto Rico, Antigua, Saba, Montserrat, St. Lucia, St. Vincent. **Type locality:** St. Vincent. **Type depository:** Blackwelder: “presumably in Hope Museum Oxford.” **Notes:** New WIBF Montserrat and Saba records.

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