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NEW DISTRIBUTION RECORDS FOR SOME BAHAMIAN DARKLING BEETLES (COLEOPTERA: TENEBRIONIDAE)

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ABSTRACT

Collections of new specimens and others found in the material at the Gerace Research Center provide more new information on the distribution and seasonal occurrences of certain beetles (Insecta: Coleoptera) on San Salvador and other Bahamian islands. Three darkling beetles (Tenebrionidae) are added to the list of known species on San Salvador; one of these, the non-native *Trachyscelis aphodioides*, is a new record for the Bahamas, and specimens are also listed for the Turks and Caicos Islands. Two other species, *Platydema micans* and *Zophobas atratus*, are new island records. Some new locality records for the San Salvador endemic, *Branchus geraceorum*, are presented. Newly detected on New Providence in June 2013, the small, colorful, South American *Poecilocrypticus formicophilus*, known to be associated with fire ants, is also a first-time record for the Bahamas. Occurrences of *Cymatothes tristis* (Amarygmini) and members of the genus *Lobopoda* (Alleculinae) on New Providence will be discussed.

INTRODUCTION

With each visit to islands of the Bahamas, new collection records of darkling beetle species (Tenebrionidae) continue to be discovered, in spite of the previous fieldwork at the same sites over many years. Some may be recent arrivals of non-native colonists that are expanding their range; others may simply occur in low numbers in uncommon habitats, making their detection a chance event. Here we report additional species and specimen records from New Providence and San Salvador, adding to previously published lists and notes (Steiner 2006b, 2007, 2011). Beetles in other families (Buprestidae, Scarabaeidae, et al.) that were discussed at the 15th Symposium on the Natural History of the Bahamas, June 2013, will be treated by other specialists in future works.

METHODS

The collecting techniques used were described in earlier studies (Steiner 2005a, 2005b) as were specimen preservation and preparation methods. Specimens are deposited in the U.S. National Museum of Natural History, Smithsonian Institution, Washington, DC, USA, and the collection at the Gerace Research Center; others are to be incorporated into the Bahamian National Insect Collection, Nassau. Specimen label data below are given verbatim, with commas inserted for clarity, and breaks between labels are separated by a forward slash. The number of specimens bearing those data follow in parentheses.

NEW DISTRIBUTION RECORDS FOR NEW PROVIDENCE

Poecilocrypticus formicophilus Gebien

This small, colorful beetle (Diaperinae, Crypticini) is recognized as introduced from South America (Steiner 1982) and is associated with fire ants (*Solenopsis* spp.) and other exotic ants; it has become widespread in the southeastern USA (MacGown 2005, Steiner 2010). Beetles are 2.6-2.8 mm long, elongate-oval (Figure 1), with head mostly black, pronotum orange, and elytra black and yellow, the latter usually forming a variable C-shaped area.

Specimens examined. "BAHAMA ISLANDS: New Providence, west end, Jaws Beach, 25°01'06"N, 77°32'43"W, 12 June 2013 / Under leaf litter and fallen fruits of *Terminalia catappa*, sandy soil, roadside; Colls. W. E. Steiner & J. M. Swearingen" (2); same data except "18 June 2013" (1).

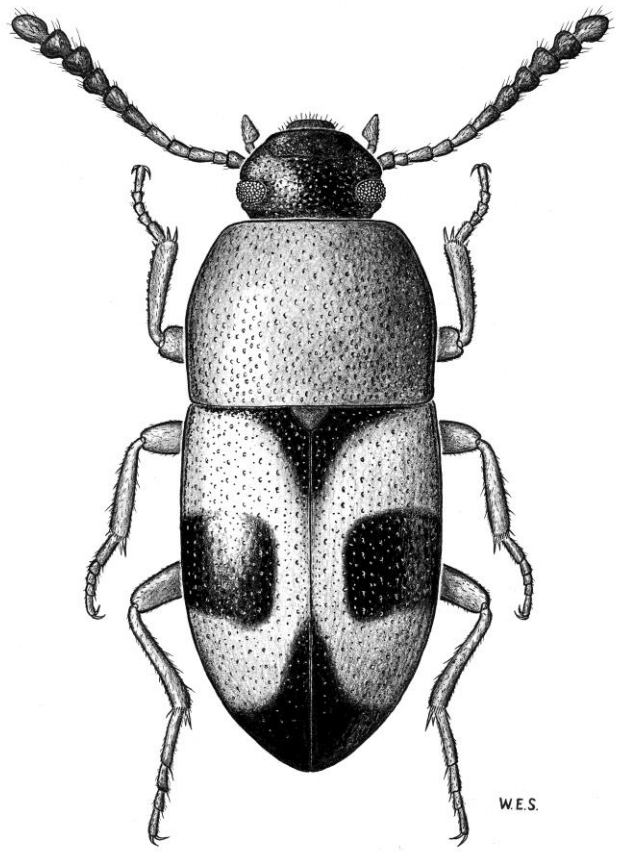

Figure 1. Poecilocrypticus formicophilus, mixed media drawing; length of beetle 2.7 mm.

Co-occurring with the above specimens of *P. formicophilus* were series of the related cryptic ine, *Gondwanocrypticus platensis* (Fair-maire), and two other geophilous darkling beetles, *Blapstinus fortis* LeConte and *Alaetrinus pullus* (Sahlberg). These were previously reported from New Providence (Steiner 2011). Also under the leaf litter were numerous Red Imported Fire Ants (*Solenopsis invicta* Buren), their nests in the soil nearby, and specimens of the ants are point-mounted with the beetles. This aggressive pest ant is also of South American origin (Trager 1991) and a recent arrival to the Bahamas (Davis et al. 2001, Deyrup 1998).

Cymatothes tristis (Laporte)

The wide distribution of this beetle (Tenebrioninae, Amarygmini) (Figure 2) and records from Grand Bahama, with habitat information, were reviewed (Steiner 2005a). Not an unexpected occurrence on any of the forested islands of the northwestern banks, we found two specimens on New Providence, representing a new record for the island.

Specimens examined. "BAHAMA ISLANDS: New Providence, "Carmichael area, 25°0'31"N, 77°25'24"W, 11 June 2013 / Under bark of rotting log and stump, probably *Ficus* sp., pine forest, roadside; coll. W. E. Steiner & J. M. Swearingen" (1); same data except "Orange Hill, forest off Blake Road, 25°3'54"N, 77°27'14"W, / On base of tree after dark, mixed forest edge and road cut" (1).

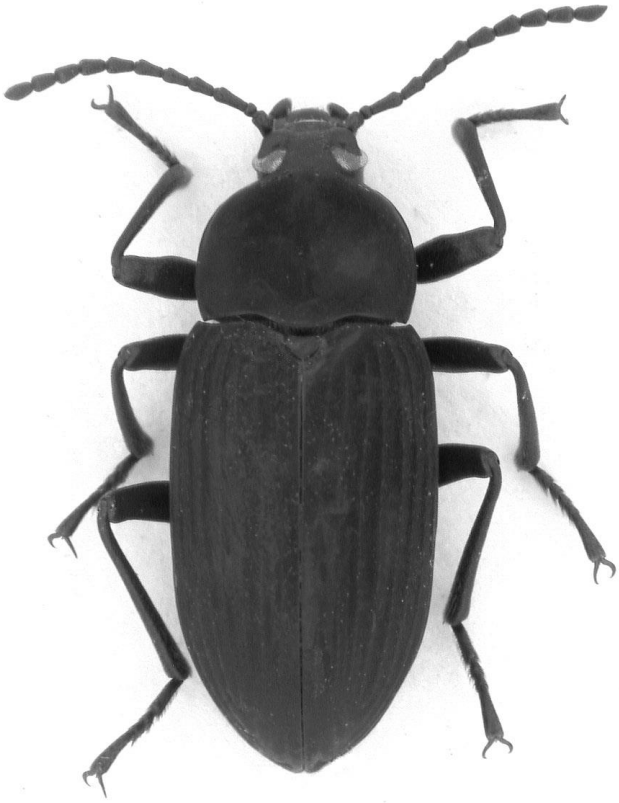

Figure 2. Cymatothes tristis, image of specimen from Orange Hill, New Providence; length of beetle 14 mm.

***Lobopoda* species**

Five species of the large genus *Lobopoda* (Alleculinae, Alleculini) have so far been described from the Bahamas (Campbell 1971, Steiner 2006a) but only one is listed as occurring on new New Providence (Steiner 2011), *L. androsi* Campbell. This record is based on a single disarticulated specimen in USNM, identified by Campbell. We have collect-ed and identified four males of these elusive beetles, none of which are *L. androsi* but that represent new island records of two other species, *L. bahamensis* Campbell and *L. nesiotica* Campbell (Figure 3).

Figure 3. Lobopoda bahamensis (left) and L. nesiotica (right), images of specimens from New Providence; length of beetles 8.5 mm.

Lobopoda bahamensis, specimens examined. "BAHAMA ISLANDS: New Providence, Orange Hill, forest off Blake Road, 25°3'54"N, 77°27'14"W, 11 June 2013 / At black light, mixed forest edge and road cut; coll. W. E. Steiner & J. M. Swearingen" (1); same data exept "pine forest area SW of airport, 25°01'20"N, 77°28'45"W, 18 June 2013 / At black light in open forest, *Pinus caribaea* and low shrubs, sandy soil on karst" (1).

Lobopoda nesiotica, specimens examined. "BAHAMA ISLANDS: New Providence, Paradise Island, Cabbage Beach, 25°5'30"N, 77°19'W, 14 February 2005 / In sand under edge of leaf litter layer, shrub zone behind beach; W. E. Steiner, J. M. Swearingen Collectors / Reared from larva; adult emerged 2 Apr.; psvd. 11 Apr. '05" (1); "BAHAMA ISLANDS: New Providence, near Old Fort Bay, 25°02'43"N, 77°29'54"W, 15 June 2011 / At black light, gap at base of forested hill, sandy soil; coll. W. E. Steiner & J. M. Swearingen" (1).

NEW DISTRIBUTION RECORDS FOR SAN SALVADOR

***Trachyscelis aphodioides* Latreille**

This small scarab-like darkling beetle (Diaperinae, Trachyscelini) (Figure 4) is another non-native, probably from Europe; the brief review of its patchy Antillean distribution (Steiner 2004) included the Turks and Caicos Islands but not the Bahamas. Its recent discovery on two beaches on San Salvador adds another exotic species to the country's faunal list. In addition to these specimens, we give data for known Turks and Caicos collections. Note: The 1984 speci-mens from Grand Turk collected by Margaret Collins are mistakenly labeled "Bahama Islands" and "Hawk's Nest" should be "Hawkes".

Figure 4. Trachyscelis aphodioides, image of specimen from Sandy Hook, San Salvador; length of beetle xx mm.

Specimens examined. "BAHAMA ISLANDS: San Salvador, Sandy Hook, Snow Bay, 23°57' 16"N, 74°29'20"W, 19 June 2011 / W. E. Steiner, J. M. Swearingen, J. Campion Collectors / On open beach in sand under wood and seaweed debris" (15); "BAHAMA ISLANDS: San Salvador,

East Beach, 24°05'27"N, 74°26'23"W, 15 June 2013 / On open beach in sand under seaweed drift; colls. W. E. Steiner, J. M. Swearingen, N. B. Elliott, C. L. Landry" (4). "BAHAMA ISLANDS: Gibbs Key, near Grand Turk Is., 30 May 1984, M. S. Collins / In sand under beach drift and logs" (1) "BAHAMA ISLANDS: Grand Turk Is., May 1984, M. S. Collins" [no other data] (1); "BAHAMA ISLANDS: Grand Turk Is., Hawk's Nest, south end of is., May 1984, M. S. Collins / In sand under beach drift and logs" (42); same data except "5 May 1984" (120), "14 May 1984" (38), "4 June 1984" (18); TURKS & CAICOS ISLS., Gibbs Cay (east of Grand Turk), 21°27'N, 71°06'30"W, 6 February 2001 / W. E. Steiner & J. M. Swearingen collectors." (3); "TURKS & CAICOS ISLS., Grand Turk, NW coast near North Wells, 21°30'20"N, 71°08' 30"W, 5 February 2001 / In beach sand under seaweed drift at high tide line; Colls. W. E. Steiner & J. M. Swearingen" (5); "TURKS & CAICOS ISLS., Grand Turk, S. end, Boaby Rock Point, 21°25'50"N, 71°08'20"W, 4 February 2001 / In beach sand under seaweed drift at high tide line; Colls. W. E. Steiner & J. M. Swearingen" (7); "TURKS & CAICOS ISLS., Providenciales, Grace Bay Beach, 21°48'N, 72°13'W, 26 January 1998 / In sand under leaf litter and drift at base of dune plants; collrs. W. E. Steiner & J. M. Swearingen" (3); same data except "2 February 1998" (2); "TURKS & CAICOS ISLS., Providenciales, Long Bay Beach, 21°48'N, 72°12'W, 1 February 1998 / Under seaweed drift at high tide line on sand beach; Colls. W. E. Steiner & J. M. Swearingen" (16); same data except "4 km NW Wheeland on north coast, 21°50'N, 72°18'W, 27 January 1998" (3).

Platydema micans Zimmerman

This is a widespread Middle American species (Diaperinae, Diaperini) with distribution records that include the Greater Antilles and southeastern United States (Triplehorn 1965) north to Maryland (Steiner 2008) and was reported from Grand Bahama (Steiner 2005a). The following specimens repre-sent a new island record for San Salvador, and we also give records for Turks and Caicos Islands, with similar habitat information. Among the plain-colored, shiny *Platydema* species that have no cephalic horns (Figure 5), the key character separating this from other similar species is the wide humeral elytral interval between the lateral punctate striae.

Figure 5. Platydema micans, images of specimens from Sandy Hook, San Salvador; length of beetles 3.5 mm.

Specimens examined. "BAHAMA ISLANDS: San Salvador, Sandy Hook, Snow Bay, 23°57' 16"N, 74°29'20"W, 19 June 2011 / Among seeds and husks under fallen leaves in grove *Coccothrinax* palms, sandy scrub flats behind beach / W. E. Steiner, J. M. Swearingen, J. Campion collectors" (3); "TURKS & CAICOS ISLS., Providenciales, Turtle Cove Point, 21°48'N, 72°16'W, 30 January 1998 / Under leaves at base of *Coccothrinax* palm in sandy scrub behind beach; collrs. W. E. Steiner & J. M. Swearingen" (4); same data except "Long Bay Beach, 21°48'N, 72°12'W, 1 February 1998" (10).

Zophobas atratus (Fabricius)

This large, black beetle (Tenebrioninae, Tenebrionini) (Figure 6) is probably native to Central and South America, where it breeds in bat guano in caves and buildings (Tschinkel 1984), but also can be found under rocks in loose soil. It is probably not native to the Bahamas, and so far recorded only from New Providence (Steiner 2011). This and probably other *Zophobas* species are often bred in captivity and sold commercially

for pet food and fish bait. A first record of the species on San Salvador, a single female beetle without habitat data, was found in the collection of the Gerace Research Center.

Specimens examined. "BAHAMA ISLANDS: San Salvador, near Hard Bargain Trail, 29 May 2005, D. L. Smith et al." (1).

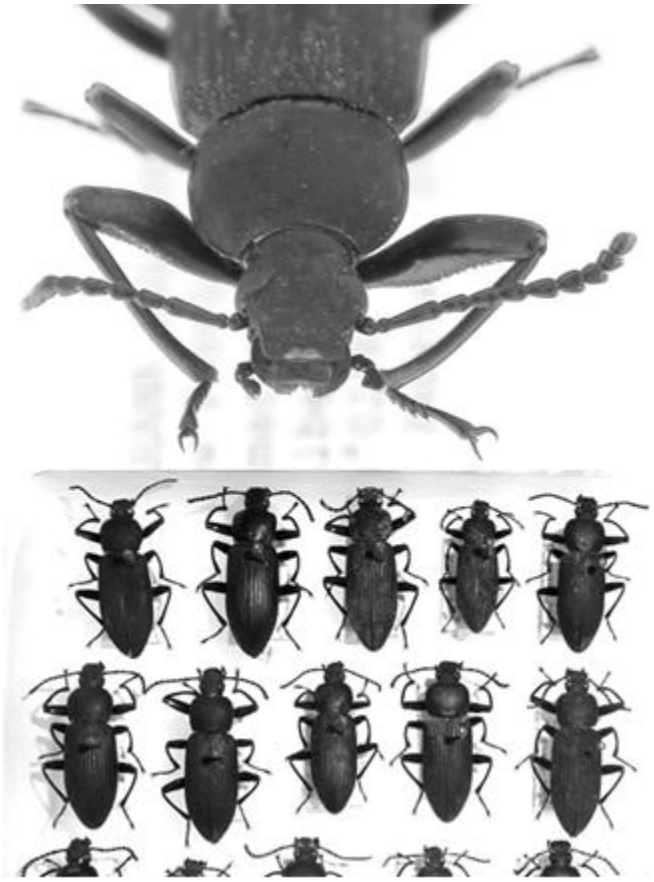

Figure 6. Zophobas atratus, frontal view of male and dorsal view of pinned specimens from Yamacraw, New Providence; length of beetles 21-26 mm.

Branchus geraceorum Steiner

Since its description (Steiner 2006a), we have made a few more collections of this island endemic (Pimeliinae, Branchini) (Figure 7), including associated larvae (Steiner 2013), listed below. The recent find of a specimen at Kerr Mount is particularly noteworthy, since most specimens are from low sandy coastal sites behind beach habitats; this site is above a rocky bluff at 20 m above sea level and .25 km inland from the beach.

Figure 7. Branchus geraceorum, image of holotype specimen from Sandy Point, San Salvador; length of beetle 14.2 mm.

Specimens examined. "BAHAMA ISLANDS: San Salvador, Fortune Hill area, Kerr Mount, 24°01'06"N, 74°27'21"W, 14 June 2013 / Under rock in loose sandy soil & leaf litter, partial shade of small trees near house ruins / W. E. Steiner, J. M. Swearingen, D. Kjar, J. Winter, N. Sealey, collectors" (1); BAHAMA ISLANDS: San Salvador, Grotto Beach, 23°57'15"N, 74°33' 41"W, 2 May 2010 / In sand under leaf litter, shrub zone behind beach; Colls. W. E. Steiner, D. Kjar, et al." (1 larva); "BAHAMA ISLANDS: San Salvador, North Point, near Govt. Dock, 24°07'25"N, 74°27'26"W, 24 June 2009 / On sand under dry leaf litter of *Coccoloba* and other shrubs, foot of rock bank behind beach; coll. W. E. Steiner & J. M. Swearingen" (2, 2 larvae); same data except "18 June 2011" (1); same data except "9 May 2010 / coll. W. E. Steiner, D. Kjar, et al." (8 larvae); "BAHAMA ISLANDS: San Salvador, Sandy Hook, Snow Bay, 23°57'16"N, 74°29' 20"W, 19 June 2011 / Among seeds and husks under fallen leaves

in grove *Coccothrinax* palms, sandy scrub flats behind beach / W. E. Steiner, J. M. Swearingen, J. Campion collectors" (1, hollow hind body only); "BAHAMA ISLANDS: San Salvador, Sandy Point, 23°58'N, 74°33'W, 23 June 2009 / On sand under dry leaf litter of *Coccothrinax and Bursera* grove, foot of rock bank behind beach; W. E. Steiner & J. M. Swearingen collectors" (3, 2 larvae); same data except "3 May 2010 / W. E. Steiner, D. Kjar et al. collrs." (1, 8 larvae).

CONCLUSIONS

New species records for islands of the Bahamian archipelago continue to be discovered, and include both naturally distributed, native species and exotic ones. Adding to the previous checklists and records cited earlier, the number of darkling beetle species now known from New Providence is 41, and for San Salvador, 31. The need for keys to the species is recognized and will be addressed in future works. Surveys of other islands are of urgent importance.

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