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The Dynastinae (Coleoptera: Scarabaeidae) of the Bahamas with a description of a new species of *Cyclocephala* from Great Inagua Island

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The Dynastinae (Coleoptera: Scarabaeidae) of the Bahamas with a description of a new species of *Cyclocephala* from Great Inagua Island

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Res ipsa loquitur
— ancient Roman phrase

Abstract. The seven genera and 13 species of dynastine scarabs recorded from the Bahamas are reviewed. Two of those species are endemic, including *Cyclocephala dolichotarsa* Ratcliffe and Cave, **new species**, described from Great Inagua Island. Eleven species are also known to occur in the USA and/or Cuba. Six species are probably not established based on infrequency of collection.

The Islands

The Commonwealth of the Bahamas is an archipelago of about 700 islands and cays residing on a submarine tableland (the Bahama platform) in the Atlantic Ocean north of Cuba and Hispaniola. It extends more than 800 km from Grand Bahama Island, which lies about 97 km off the southeastern coast of Florida, southeasterly to Great Inagua Island, about 80 km from the eastern tip of Cuba. Total land area in the Bahamas is estimated at 13, 939 km^2. The greatest elevation in the Bahamas is 63 m on Cat Island. Eleuthera and Long Island have the most hills exceeding 30 m. Most of the islands and cays are relatively flat. Bimini, for example, has an elevation of only 6 m. The Bahamas have no rivers, but New Providence, San Salvador, and Great Inagua have large lakes. The islands are composed of calcium carbonate derived from corals. Extensive forests of Caribbean pine are found in the interior of Great Abaco, Andros, New Providence, and Grand Bahama. The habitat on Grand Bahama is greatly disturbed. Hardwood scrub, known locally as "coppices," also occurs on some islands, as does coastal scrub. The average annual rainfall is about 1,120 mm, and most precipitation occurs during the summer months. Prevailing winds are from the northeast in winter and from the southeast in summer (Encyclopedia Britannica 2007). Hurricanes and tropical storms strike the Bahamas almost yearly, flooding the soil and downing trees, which may destroy dynastine beetle habitat and/or provide fodder for larval development.

The Beetles

The Bahamas have an insect fauna that is surprisingly diverse considering the small size of the islands. The proximity of the Bahamas to Florida, Cuba, and Puerto Rico undoubtedly contributes to the richness of the insect fauna there, because some of it is shared with those places. Some insects, perhaps most, are adventive, while others are endemic. Several groups of Bahamian insects have been surveyed in detail, *e. g.,* Buprestidae (Cazier and Rindge 1951), Cerambycidae (Cazier et al. 1952; Browne et al. 1993), Carabidae (Darlington et al. 1953), Cleridae (Vaurie et al. 1952), Anthribidae (Valentine et al. 1955),

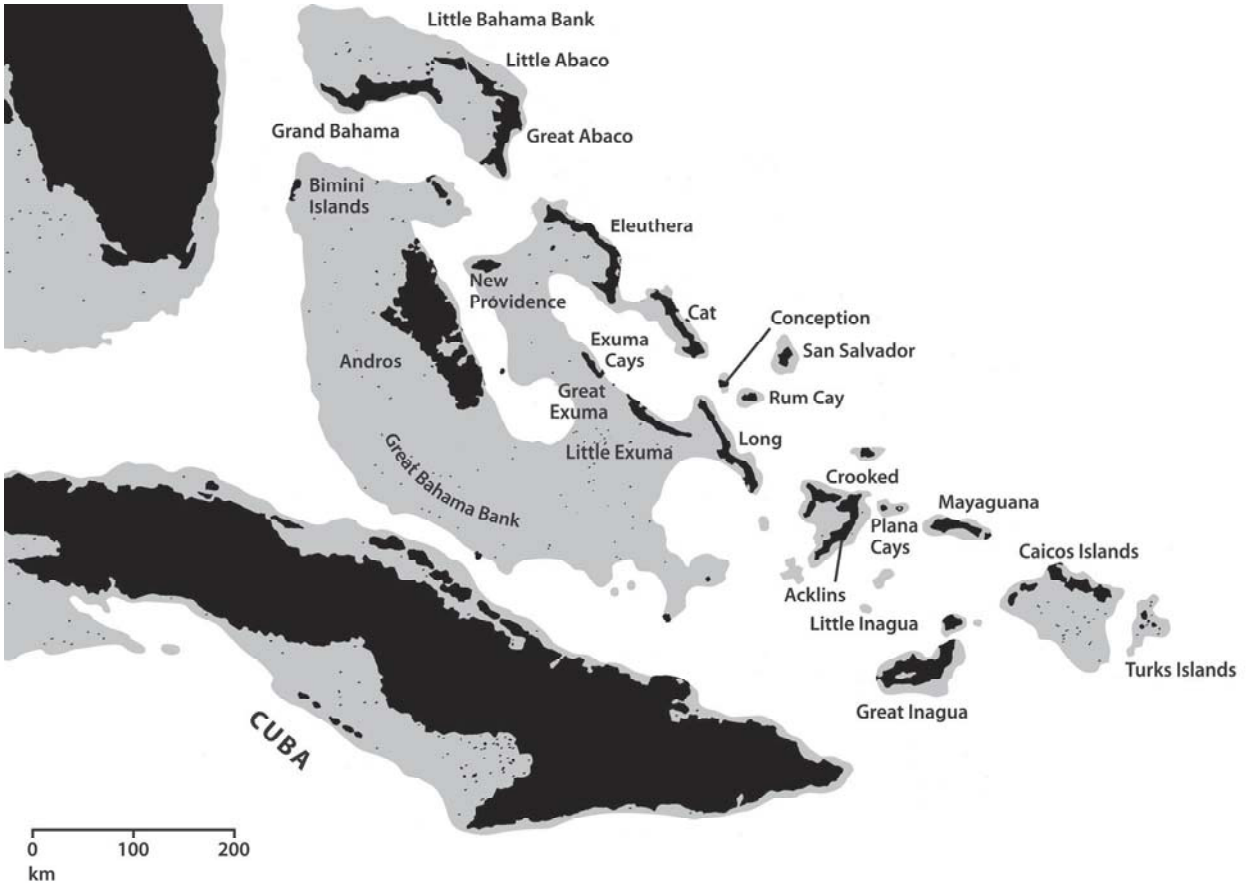

Figure 1. Map of the Bahamas archipelago, Cuba, and Florida with present-day emergent land indicated in black and approximate coastlines during the last glaciation indicated by light shading. Map modified from Morrison (1998).

Tenebrionidae (Steiner 2006), Isoptera (Scheffrahn et al. 2006), Homoptera (Metcalf et al. 1954), ants (Morrison 1998), and butterflies (Rindge et al. 1952). The Scarabaeidae have not yet been surveyed, although Blackwelder (1944) reported, without specific data, the occurrence of a few species.

Members of the subfamily Dynastinae (Coleoptera: Scarabaeidae) occur in all the major biogeographic regions of the world. About 1,500 species of dynastines are known, although the actual world fauna may reach 2,000 species (Ratcliffe and Cave 2006). More species are found in the New World tropics than in any other realm. In the West Indies, there are 17 genera and approximately 60 species.

Collecting in the Bahamas is revealing an increasing number of Dynastinae there, mostly those with Cuban and Puerto Rican affinities. Some of these species may have rafted to the Bahamas by passive over-water dispersal following favorable surface- current patterns or storm tracks (the dispersal paradigm) or represent the descendants of populations remaining from periods when ocean levels were lower during the Pleistocene that allowed for land connections with other areas (the vicariance paradigm) (Sealy 1985). Pregill and Olson (1981) observed that historical factors may provide a better explanation for the distributional patterns of many animal groups in the West Indies rather than ecological factors because of fluctuations in sea level during the Pleistocene. They noted that about 65,000 years ago, near the end of the last interglacial period, sea level was 8-10 m higher that now, and almost all of the Bahamas would have been submerged except for a few isolated hills. During the Wisconsin glaciation about 17,000 years ago, sea levels fell to approximately 120 m *lower* than at present, which allowed distance relationships to change substantially, both within the archipelago and between the Bahamas and Cuba, which would have been less than 15 km away during the last glaciation (Figure 1).

Whether some of these dynastine species are, in fact, established with breeding populations in the Bahamas is now being ascertained. The previous "single-night" light trap records for single specimens are being augmented by recent, successful collecting of several specimens over several nights which verifies establishment of a population. Larvae and adults could additionally be sought after in decaying logs and tree stumps, piles of decaying vegetation, or feeding on the roots of palms. A species could be considered to be established if larvae are found in these habitats. Our list should probably be considered dynamic, because dispersal to the islands, from nearby Cuba and Hispaniola in particular, may still be an ongoing process. Inevitably, some of these mobile species may become established in the Bahamas.

The following list represents all of the dynastine records for the Bahamas with which we are familiar. Nearly all of these represent previously unpublished records, and because of this and the relative rarity of Bahamian records, we provide complete collecting data. Collection acronyms are: Canadian Museum of Nature (CMNC), Carnegie Museum of Natural History (CMNH), Florida State Collection of Arthropods (FSCA), Ohio State University Collection (OSUC), Texas A&M University (TAMU), U. S. National Museum, Smithsonian Institution (USNM), Museum of Comparative Zoology at Harvard University (MCZC), Montana State University Entomology Collection (MTEC), American Museum of Natural History (AMNH), Snow Entomological Museum at the University of Kansas (SEMC), Paul Lago Collection (PKLC), Robert H. Turnbow Collection (RHTC), Ronald D. Cave Collection (RDCC), and Brett C. Ratcliffe Collection (BCRC).

We also describe a new species of *Cyclocephala* from Great Inagua Island that we know is established because of the numbers taken at lights. We adhere to the phylogenetic species concept as outlined by Wheeler and Platnick (2000). This concept defines species as the smallest aggregation of populations diagnosable by a unique combination of character states.

The Dynastinae of the Bahamas

Tribe Cyclocephalini

***Cyclocephala dolichotarsa* Ratcliffe and Cave, new species**
Figure 2-3

Type Material. Holotype labeled "BAHAMAS: Great Inagua, Salt Pond Hill; blacklight trap; 12-VII-2007, Thomas, Turnbow & Smith". Allotype labeled "BAHAMAS: Great Inagua, South Bay road; blacklight trap in *Coccothrinax* forest, 10-vii-2007; Thomas, Turnbow & Smith, colls". Six male paratypes labeled as holotype; one male paratype with same data but date of 10-VII-2007; 2 male paratypes labeled as allotype; 1 male paratype labeled "BAHAMAS, Great Inagua, Matthew Town, 16 July 2007, M. C. Thomas"; 2 male paratypes labeled "BAHAMAS, Great Inagua, Matthew Town, at light, 9 July 2007, R. Turnbow". Holotype, allotype, and 4 paratypes deposited at the Florida State Collection of Arthropods (Gainesville, FL); remaining paratypes deposited at the University of Nebraska State Museum (Lincoln, NE) (1), U. S. National Museum (Washington, D.C., currently at University of Nebraska) (1), Ronald D. Cave collection (Port St. Lucie, FL) (1), and Brett C. Ratcliffe collection (Lincoln, NE) (3).

Holotype. Male. Length 8.1 mm; width 3.9 mm. Color completely testaceous except for piceous apices of femora, tibiae, and tarsomeres. *Head:* Surface finely shagreened. Frons with small, sparse punctures. Frontoclypeal suture impressed, slightly arcuate. Clypeus with small, moderately dense punctures; apex broadly parabolic, weakly reflexed, with marginal bead. Interocular width equals 3.0 transverse eye diameters. Antenna with 10 segments, club longer than segments 2-7. *Pronotum:* Surface sparsely punctate; punctures minute to small. Base with complete marginal bead. *Elytra:* Surface shagreened, punctate; punctures small to moderate in size, shallow, some in striae with setae; setae sparse, very slender, moderately long, pale, in rows. *Pygidium:* Surface finely scabrous, setigerous; setae long, pale, moderate in density. In lateral view, surface regularly convex. *Legs:* Foretibia tridentate, teeth subequally spaced from one another. Both spurs at apex of metatibia with apices acute. Protarsus weakly enlarged: tarsomeres 2-4 each slightly larger than preceding and with small, ventral angulation at apex; 5th barely curved, about 5 times longer than 4th, with elongately oval depression on median side, ventral lobe or teeth absent; median claw enlarged (about three times thickness of lateral claw), apex finely cleft, base with

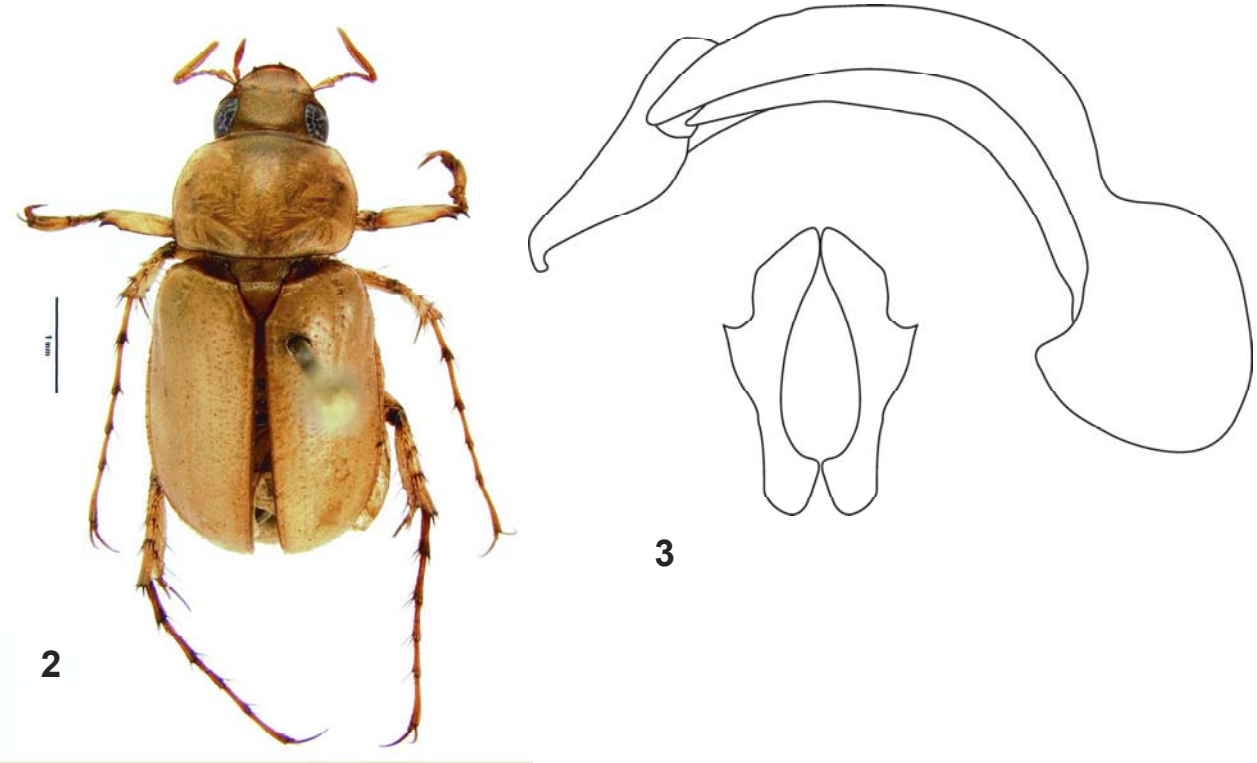

Figure 2-3. **2)** *Cyclocephala dolichotarsa* Ratcliffe and Cave, n. sp. Scale line = 1.0 mm. **3)** *C. dolichotarsa* parameres.

small, rounded lobe. Posterior tarsus almost twice as long as posterior tibia. Claws on meso- and metatarsi long, slender, about 2/3 length of tarsomere 5. *Venter:* Prosternal process minute, narrowly conical, with long, dense setae. *Parameres:* Figure 3.

Allotype. Female. Length 7.7 mm; width 3.9 mm. As holotype except in the following respects: *Head:* Clypeus densely punctate, almost rugopunctate. *Elytra:* Lateral margin for almost entire length with sparse row of long, slender setae. *Pygidium:* Surface finely shagreened, punctate; punctures small, moderately dense. In lateral view, surface less convex than in male. *Legs:* Foretarsus simple, not enlarged. Both spurs on apex of metatibia with apices rounded. Posterior tarsus only a little longer than posterior tibia. Claws of meso- and metatarsi slightly shorter than those in male.

Variation. Males (12 paratypes). Length 7.1-8.5 mm; width 3.7-3.9 mm. The male paratypes do not differ significantly from the holotype. All but one have a sparse row of long, slender, dark setae on the lateral margin of the elytra (as in the female), thus suggesting that most of these setae were abraded away in the holotype.

Diagnosis. *Cyclocephala dolichotarsa* appears superficially melolonthine-like because of its slender legs and long tarsomeres combined with an elongate, "soft" body form. This species is recognized by the presence of a marginal line at the base of the pronotum, relatively large antennal club, parabolic clypeus, presence of sparse, dorsal setae in rows on the dorsal surface of the elytra and along the lateral elytral margin, tridentate protibia, slender and elongate tarsomeres and claws of the meso- and metatarsi, small prosternal process, lack of any dorsal pattern, simple epipleuron in the female, and form of the parameres in the male. In Endrödi's (1985) key to *Cyclocephala* species, *C. dolichotarsa* will go only so far as either couplets 143 or 151, depending on how you characterize the elytral setae (absent or sparse versus abundantly present).

Figure 4-5. 4) Rocky outcrop in *Coccothrinax inaguensis* forest along south coast of Great Inagua. Photo by M. C. Thomas. **5)** Roadside in *Coccothrinax inaguensis* forest along northwest coast of Great Inagua. Photo by M. C. Thomas.

The male parameres in caudal view resemble those of *C. cubana* (Chapin), but that species is almost twice the size of *C. dolichotarsa*, has a shorter antennal club, stout meso- and metatarsomeres, an epipleural flange on the elytral margin of the female, and short, blunt parameres in lateral view.

The "soft" body form and very elongate tarsomeres and claws are reminiscent of those characters in *C. melolonthida* Ratcliffe and Cave from El Salvador. *Cyclocephala dolichotarsa* and *C. melolonthida* were both collected from sandy beach habitats and share characters possibly adapted for this relatively harsh environment: small, "soft" body form; reduced prosternal process; presence of at least some long, dorsal setae; and elongate and slender tarsomeres and claws.

Distribution. Great Inagua, at 1544 km^2, is the third largest island in the Bahamas. It is located at the southern end of the Bahamas archipelago, where it is less than 90 km from both Cuba and Haiti. It is one of the driest islands in the Bahamas, with an average rainfall of only 65 cm. The low rainfall, combined with the drying northeast trade winds, contribute to the establishment of xerophytic vegetation over most of the island. The highest point on the island is 33 m. All the specimens of *C. dolichotarsa* were collected at blacklight traps in a sand habitat. The Salt Pond Hill locale is dominated by buttonwood trees (*Conocarpus erectus* [L.]) and mangrove forest with some larger trees, and the South Bay road locale (Figure 4-5) has a widespread, dwarf palm forest of *Coccothrinax inaguensis* Read.

Etymology. From the Greek *dolichos*, meaning long, and *tarsos*, meaning foot. Hence the long-footed *Cyclocephala.*

***Cyclocephala pasadenae* Casey**

Cyclocephala pasadenae is found from the southwestern quadrant of the United States (where it is abundant) eastwards, where it becomes less common. Based upon the single collecting record in the Bahamas, we suspect that this species is not established there.

Grand Bahama, Freeport, 4 September 1965, J. B. Williams, at light, 1 male, CMNC.

***Dyscinetus morator* (Fabr.)**

Dyscinetus morator is known from the southeastern United States, Cuba and Puerto Rico, but until now has not been reported from the Bahamas. It is a very common insect in south Florida, from where it may have dispersed. A breeding population is no doubt established on Eleuthera Island judging from the

long series of specimens collected during a ten year period. The lack of specimens from Grand Bahama Island is either due to an enigmatic absence or reflects insufficient collecting.

Andros, BARC, 27 July 1987, J. Browne, orchard edge, blacklight, 1 female, CMNC; Andros, Behring Point, Nottage's Cottages, 13 August 1987, J. Browne, high coastal coppice, blacklight, 2 males and 1 female, CMNC; Andros, Blanket Sound (N), Forfar Field Station, 3 June 1987, J. Browne, junction of low coastal coppice and dry pineland, blacklight, 1 female, CMNC; Andros, CDC farm, Shotgun Coppice, 19 July 1987, J. Browne, high interior coppice, blacklight, 2 males and 1 female, CMNC; Andros, Fresh Creek, Andros Town, Androsia, 11 July 1987, J. Browne, low interior coppice, blacklight, 1 male, CMNC; same data but 5 August 1987 and high interior coppice, 2 females, CMNC; same data but 8 August 1987 and high interior coppice, 1 male, CMNC; Andros, Queen's Highway, 8.8 miles south of Fresh Creek, Blue Hole Coppice, J. Browne, 11 August 1987, high interior coppice, blacklight, 1 female, CMNC; **Eleuthera**, Rainbow Bay, 15 May 1984, R. and D. Wiley, 1 specimen, FSCA; 17 September 1984, R. and D. Wiley, 2 specimens, FSCA; March 1986, J. Wiley, blacklight trap, 2 specimens, FSCA; 7 May-9 June 1986, J. Wiley, 1 specimen, FSCA; 1 July 1986, J. Wiley, 1 specimen, FSCA; October 1986, J. Wiley, blacklight trap, 17 specimens, FSCA; 2-7 November 1986, J. Wiley, blacklight trap, 3 specimens, FSCA; 11-19 November 1986, D. B. and R. W. Wiley, 1 specimen, FSCA; 1 July 1987, D. B. and R. W. Wiley, 4 specimens, FSCA; 1 June 1994, R. W. and D. B. Wiley, 1 specimen, FSCA; **Great Exuma**, Hummingbird Cay, W of Georgetown, 10-12 June 1968, B. K. Dozier, 2 males and 9 females, FSCA; 1 female, CMNC; **San Salvador**, Gerace Research Center, 14 February 2004, W. E. Steiner and J. M. Swearingen, 1 female, USNM.

***Dyscinetus picipes* Burmeister**

Dyscinetus picipes is found over most of the southwestern United States and Colorado, Kansas and Nebraska; it also occurs in Mexico and much of the West Indies (Chapin 1932; Saylor 1945; Endrödi 1966). Specimens of *D. picipes* from the Bahamas have the punctation on the frons and pronotum shallower but just as dense as that of mainland specimens. This species seems to be established on Great Inagua.

Great Inagua, Matthew Town, at light, 9 July 2007, Robert Turnbow, 1 male, RHTC; Great Inagua, Salt Pond Hill, 14 July 2007, R. Turnbow, 1 male, RHTC; Great Inagua, Northwest Point, 11 July 2007, M. C. Thomas, R. H. Turnbow and T. R. Smith, blacklight trap in *Coccothrinax* forest, 4 males and 2 females, FSCA; Great Inagua, north coast road, N21.10813 W 73.60196, 13 July 2007, M. C. Thomas, R. H. Turnbow and T. R. Smith, blacklight trap in mature mangrove forest, 6 males and 7 females, FSCA; Great Inagua, vicinity of Middle Point, 15 July 2007, M. C. Thomas, R. H. Turnbow and T. R. Smith, blacklight trap in mangrove forest, 1 male and 1 female, FSCA.

Tribe Pentodontini

***Tomarus cuniculus* (Fabricius)**

Tomarus cuniculus is widespread, occurring in Cuba, Puerto Rico, Haiti, Jamaica, St. Thomas, Barbados, Trinidad, Guyana (Endrödi 1985), and southern Florida (Peck and Thomas 1998). *Tomarus cuniculus* could have reached the Bahamas by overwater dispersal. The numerous recent records indicate clearly that this species is established in the Bahamas.

Bahamas (no other data), Mann collection, 2 specimens, AMNH; Bahamas (no other data), April 1928, 3 specimens, CMNH; **Andros**, Forfar Station at Stafford Creek, 7 August 1982, 1 specimen, MTEC; Andros, Forfar Field Station, 13 July 1983, J. Peacock, 1 male (PKLC); Andros, May 1987, J. Browne, blacklight, 1 female, CMNC; Andros, Fresh Creek, Andros Town, Androsia, 7 July 1987, J. Browne, high interior coppice, blacklight, 1 male, CMNC; same data but 11 July 1987 and low interior coppice, 1 female, CMNC; same data but 12 July 1987, 1 female, CMNC; same data but 5 August 1987, 1 male and 1 female, CMNC; same data but 6 August 1987, low coastal coppice, 1 female, CMNC; Andros, San Andros, Robinson's Place, 10 June 1987, J. Browne, wet pineland, blacklight, 1 female, CMNC; Andros, North Blanket Sound, Forfar Field Station, 5 May 1994, R. S. Anderson, coastal coppice, at lights, 1 male and 2 females,

CMNC; Andros, Forfar Field Station, black light trap, 9 June 2004, R. Turnbow, 1 male, RHTC; Andros, Forfar Field Station, mv+bl, 5 June 2004, R. Turnbow, 2 females, RHTC; same data but 6 June 2004, 12 males; same data but 10 June 2004, 2 females; Andros, Forfar Field Station, mv+bl, 22 July 2006, R. Turnbow, 1 male, RHTC; same data but 24 July 2006, 1 female; Andros, Forfar Field Station, black light trap, 25 July 2006, R. Turnbow, 5 males and 3 females, RHTC; same data but 26 July 2006, 1 female; same data but 27 July 2006, 2 females; Andros, Forfar Field Station near Stafford Creek, 22-28 July 2006, M. C. Thomas and T. R. Smith, UV trap in coastal coppice, 2 males and 5 females, FSCA; **Berry Islands**, Frazier Hog Cay, 30 April 1953, E. B. Hayden and L. Giovannoli, at lights, 1 female, AMNH; **Bimini**, 10-14 April 1952, E. Mayr, 2 males, 1 female, AMNH; **Eleuthera**, Governors Harbour, 31 March 1953, L. Giovannoli, at lights, 1 female, AMNH; **New Providence**, Nassau, May-June 1917, W. M. Mann, 2 males, 3 females, AMNH; New Providence, Nassau, 15 April 1945, R. L. Chermack, 1 male, AMNH; New Providence, Nassau, 5 April 1953, E. B. Hayden, at lights, 4 males, 1 female, AMNH; New Providence, Nassau, 16 April 1953, E. B. Hayden, at lights, 5 males, 6 females, AMNH.

***Tomarus gibbosus* (De Geer)**

Tomarus gibbosus is widespread in the United States and parts of Mexico (Endrödi 1985) and southern Florida (Peck and Thomas 1998). It remains unknown if this species is established in the Bahamas.

Abaco, Man-o-War Cay, 15 August 1971, H. and A. Howden, 2 females, CMNC.

Tribe Oryctini

***Strategus ajax* (Olivier)**

Strategus ajax is indigenous to Cuba (Ratcliffe 1976). Twenty six specimens of this species have been collected on Great Exuma, Andros, Bimini, and Eleuthera islands in the Bahamas from 1962-1993 but only two specimens afterwards. Based upon the number of specimens collected, we believe this species is established in the Bahamas. This species may have rafted on flotsam with favorable ocean currents from Cuba. Iturralde-Vinent and MacPhee (1999) concluded that the effect of surface-current flow as a dispersal agent, while generally from the southeast to the northwest in the present-day Caribbean Sea, has not always been so, because surface-current patterns have changed radically with the formation of the islands of the West Indies and the closure of the isthmus of Panama. Given those constraints, it is reasonable to conjecture that the occurrence of *S. ajax* in the Bahamas is a relatively recent, geologically, event. The short distance between Cuba and the Bahamas, hence the brief over-water dispersal time, would favor survival of rafting, salt-intolerant animals.

Andros, San Andros, 16 August 1977, J. W. Smith, at light, 2 males and 1 female, TAMU; Andros, Stafford Creek, 8 August 1982, B. and B. Valentine, 1 male, OSUC; Andros, Forfar Station at Stafford Creek, 8 August 1982, B. and B. Valentine, at light, 1 specimen, MTEC; Andros, San Andros Airport, 29 July 2006, M. C. Thomas, at light, 1 male, FSCA; **Bimini**, South Bimini, 21 November 1962, R. Thomas, 1 female, FSCA; **Eleuthera**, Rainbow Bay, 17 September 1984, R. and D. Wiley (3 specimens); 16-26 October 1985, J. R. Wiley (3 specimens); October 1986, J. Wiley (7 specimens); 1 July 1992, R. W. and D. B. Wiley (2 specimens); 21-26 November 1993, J. R. and S. C. Wiley, blacklight, (4 specimens), 11 males and 8 females, FSCA; **Great Exuma**, Simon's Point, 20 January 1980, 1 male at blacklight (Ratcliffe 1982); **New Providence**, Coral Harbour, 14 February 2005, W. E. Steiner and J. M. Swearingen, found dead near base of casuarina near beach, 1 male, USNM.

***Strategus anachoreta* Burmeister**

Strategus anachoreta occurs in Cuba (Ratcliffe 1976). It seems likely that this species rafted to Eleuthera on flotsam, although the surface currents from Cuba to Eleuthera are not particularly conducive for this. It remains unknown (and unlikely in our opinion) that *S. anachoreta* is established in the Bahamas.

Eleuthera, Rainbow Bay, 16-26 October 1985, J. R. Wiley. 1 male and 1 female, FSCA.

***Strategus atlanticus* Ratcliffe**

Strategus atlanticus, known only by the holotype, is from San Salvador Island (formerly Watling Island) in the Bahamas (Ratcliffe 1976). Christopher Columbus made his first New World landfall at this island on 12 October 1492. The name of the island was changed from Watling to San Salvador, the original name given to it by Columbus, in 1926. The occurrence of *S. atlanticus* on San Salvador in the southern Bahamas is almost certainly the result of its ancestors being fortuitously rafted from Cuba, Hispaniola, or Puerto Rico, where it has close phylogenetic relationships with *S. aenobarbus* (Fabr.), *S. ajax*, and *S. talpa* (Fabr.) (Ratcliffe 1976).

San Salvador, 10-21 October 1891, C. B. Cory, 1 male, MCZC.

***Strategus talpa* (Fabr.)**

Strategus talpa is known from Puerto Rico and the Leeward Islands (Antigua, St. Barthélemy, St. Croix, St. John, St. Thomas, and Tortola) (Ratcliffe 1976). Surface-currents could account for over-water dispersal from Puerto Rico to the Exumas in the Bahamas. It remains unknown if *S. talpa* is established in the Bahamas.

Great Exuma, Simons Point, 24 January 1980, S. A. Teale, 1 female, SEMC; **Little Exuma**, 5 January 1979, S. A. Teale, 1 male, SEMC.

Tribe Phileurini

***Homophileurus cubanus* Prell**

Homophileurus cubanus is known only from Cuba (Endrödi 1985). It seems likely that this species rafted to Andros on flotsam. Based upon a single specimen, it remains unknown (and unlikely in our opinion) that *H. cubanus* is established in the Bahamas.

Andros, Forfar Field Station, black light trap, 8 June 2004, R. Turnbow, 1 female, RHTC.

***Phileurus valgus antillarum* Prell**

Phileurus valgus (Olivier) is a common species ranging from the southern United States to Argentina (Endrödi 1985). The Caribbean population, *P. valgus antillarum*, is known from the Lesser Antilles and Cuba ((Endrödi 1985; Chapin 1932). The few samples collected at a single site are not sufficient evidence to confirm establishment.

New Providence, Carmichael area, 14 April 2007, 1 at BL, 2 on rotten trunk of *Pinus caribaea* at night, W. E. Steiner and J. M. Swearingen, 3 females, USNM.

***Planophileurus planicollis* (Chevrolat)**

Planophileurus planicollis occurs in Cuba (Endrödi 1985). Ratcliffe (1988) reported this species as the first occurrence of a phileurine from the Bahamas, where it is known (in some numbers) from a single locality. The collection of several specimens over a 25 year period strongly indicates establishment of this species.

Andros, Forfar Field Station, 1 July 1981, J. W. Peacock, 1 female, BCRC; Andros, Blanket Sound (N), Forfar Station, 3 June 1987, J. Browne, blacklight, 2 females, CMNC; Andros, Forfar Field Station, MV+BL light, 2 June 2001, R. Turnbow, 2 females, RHTC; same data but 4 June 2001, 1 female; Andros, Forfar Field Station, BL trap, 9 June 2004, R. Turnbow, 1 female, RHTC; Andros, Forfar Field Station near Stafford Creek, 22-28 July 2006, M. C. Thomas and T. R. Smith, UV light in coastal coppice, 1 specimen, FSCA; Andros, Forfar Field Station, MV+BL light, 23 July 2006. R. Turnbow, 1 male, RHTC.

In summary, 13 species of dynastine scarabs belonging to seven genera have been collected on one or more Bahamian islands. Only two species, *S. atlanticus* and *C. dolichotarsa*, are endemic. Eight species share their distribution with Cuba, but only five seem to be established in the Bahamas. Five species occur also in the USA, but two of these are clearly not established in the Bahamas. Further collecting is

required to provide evidence that any of the six putatively non-established species are actually breeding in the Bahamas.

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