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Noteworthy Records of Hispines from Belize (Coleoptera: Chrysomelidae)

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Abstract. *Cephaloleia consanguinea* Baly, *Cephaloleia fulvolimbata* Baly, *Cephaloleia ruficollis* Baly, *Chalepus amabilis* Baly, *Chalepus brevicornis* (Baly), *Chalepus pici* Descarpentries and Villiers, *Microrhopala erebus* (Newman), *Octhispa bimaculata* Uhmann, *Octotoma championi* Baly, *Pseudispa tuberculata* Staines, *Sceloenopla erudita* (Baly), *Stenispa guatemalensis* Uhmann, *Sumitrosis gestroi* (Weise), and *Sumitrosis terminatus* (Baly) (Coleoptera: Chrysomelidae: Cassidinae) are new country records of hispine chrysomelids for Belize, based on collections cited herein. These collections also document new host records for *Calyptocephala gerstaeckeri* Boheman (*Chamaedorea tepejilote* Liebm., Arecaceae), *Cephaloleia consanguinea* (*Heliconia bourgaeana* Petersen, *H. collinsiana* Griggs, *H. latispatha* Benth., *H. wagneriana* Petersen; Heliconiaceae), and *Cephaloleia perplexa* Baly (*Heliconia bourgaeana*, *H. latispatha*; Heliconiaceae).

Introduction

Hispines comprise half of the subfamily Cassidinae (sensu lato) (Coleoptera: Chrysomelidae). Until recently, most authors treated the hispines as a separate subfamily, but recent work has shown that there is no biological or morphological reason to retain sub-familial status. The combined subfamily consists of 6000 species placed in 42 tribes. See Staines (2002a) for a detailed history of the classification of the two groups. In this paper, our use of "hispine" refers to members of the formerly recognized Hispinae, not the Old World tribe Hispini.

New World cassidines fall into three ecological feeding groups (Staines 2002a; Chaboo 2007). Most Cassidinae (s. str.) are external feeders. Members of the former subfamily Hispinae are either appressed or rolled-leaf feeders (tribes Alurnini, Arescini, and Cephaloleiini), which feed primarily on monocots; or leaf-miners (tribes Chalepini, Prosopodontini, and Sceloenoplini), which feed primarily on dicots.

The insect fauna of Belize is poorly documented. A review of the hispine literature showed only 15 species reported from Belize. Extensive museum studies by Staines have failed to find much cassidine material from Belize. Recent field work in Belize and an examination of the insect collections of Brigham Young University (BYUC) and National Museum of Natural History, Smithsonian Institution (USNM) yielded specimens significant for understanding the distribution and ecology of hispines. These records include 14 new country records and seven new host records. In addition to the specimens cited herein, Naczi retains duplicates of his collections in his personal collection. Nomenclature of Belizean host plants follows Balick et al. (2000).

Results and Discussion

***Calyptocephala gerstaeckeri* Boheman** [Tribe Spilophorini]

Belize. Toledo District: ca. 9 mi NNE of Medina Bank, N side of Bladen Branch, 16°33'07"N, 88°42'00"W, 12 Apr 2008, R. Naczi; on *Chamaedorea tepejilote* Liebm. leaves (Arecaceae); (2 specimens, USNM). **New Host Record**

Calyptocephala gerstaeckeri is known from Belize, Costa Rica, Guatemala, Mexico, Nicaragua, and Panama (Borowiec 1999, 2009).

Beetles of the genus *Calyptocephala* Chevrolat appear to be restricted to various genera of Arecaceae. Recorded host plant species include *Arecastrum romanzoffiana* (Cham.) Becc. (*C. brevicornis* Boheman), *Astrocaryum* sp. (*C. paralutea* Buzzi and Miyazaki), *Bactris gasipaes* Kunth. (*C. marginipennis* Boheman), *Elaeis guineensis* Jacq. (*C. brevicornis* and *C. paralutea*), *Chamaedorea tepejilote* (*C. brevicornis* and *C. marginipennis*), and *Chamaedorea wendlandiana* Hemsl. (*C. brevicornis*) (Monrós and Viana 1951; Moura 1985; Oyama and Mendoza 1990; Buzzi and Miyazaki 1992; Windsor et al. 1992; Mora-Urpí et al. 1997; Meskens et al. 2008). Córdova-Ballona and Sánchez-Soto (2008) described the immature stages of *C. gerstaeckeri* on *Elaeis guineensis* and *Chamaedorea elegans* Mart. in Mexico. *Chamaedorea tepejilote* appears to be a new host record for this beetle.

The host palm grows in small colonies scattered in the rainforest over many hectares of the floodplain of the Bladen Branch. Feeding damage was quite evident on fronds of most plants in each of the four colonies observed. Adult beetles occurred on undersides of leaflets of mature palm fronds. However, individuals of *C. gerstaeckeri* were infrequent, and many of them were dead, adhering as dried remains on the palm leaves. Perhaps the date of collection is near the end of the adult season for the beetle.

***Cephaloleia consanguinea* Baly** [Tribe Cephaloleiini].

Belize. Toledo District: ca. 9 mi NNE of Medina Bank, N side of Bladen Branch, 16°33'35"N, 88°43'50"W, 6 Jan 2006, R. Naczi and T. Pop; in rolled leaves of *Heliconia bourgaeana* Petersen (Heliconiaceae); (6 specimens, USNM). Same locality data except N side of Bladen Branch, 16°33'21"N, 88°42'35"W, 4 Jan 2007, Keyona Gonzalez and Patricia Jackson; in rolled leaves of *Heliconia collinsiana* Griggs (Heliconiaceae); (1 specimen, USNM). Same locality data except Belize Foundation for Research and Environmental Education property, 16°33'21"N, 88°42'29"W, 4 Jan 2007, Keyona Gonzalez and Patricia Jackson; in rolled leaves of *Heliconia latispatha* Benth. (Heliconiaceae); (1 specimen, USNM). Same locality data except Belize Foundation for Research and Environmental Education property, 16°33'N, 88°42'W, 4 Jan 2007, Keyona Gonzalez and Patricia Jackson; in rolled leaves of *Heliconia wagneriana* Petersen (Heliconiaceae); (1 specimen, USNM). **New Country Record. New Host Records.**

Cephaloleia consanguinea was previously known only from Guatemala, Costa Rica, and Panama (Staines 1996). Thus, these collections are new country records and extensions of the known range to include Belize. In the focus area for field work in southern Belize, four species of *Heliconia* occur (*H. bourgaeana*, *H. collinsiana*, *H. latispatha*, and *H. wagneriana*). Adults of *C. consanguinea* were common in the rolled, expanding leaves of all four species.

Previously reported host plants for *C. consanguinea* are *Heliconia imbricata* (Kuntze) Baker, *H. latispatha*, *H. mariae* Hook., *H. pogonantha* Cuford, and *H. tortuosa* Griggs (Strong 1977). Staines (2004) mentioned that examination of Strong's voucher specimens showed that the species studied was *C. belti* Baly rather than *C. consanguinea*. The collections cited are the first definitive hosts for *C. consanguinea*: *H. bourgaeana*, *H. collinsiana*, *H. latispatha*, and *H. wagneriana*. Given the collection of the beetle species from all locally available *Heliconia* species in Belize, *C. consanguinea* appears to be relatively general in its feeding preferences within the plant genus.

***Cephaloleia fulvolimbata* Baly** [Tribe Cephaloleiini].

Belize. Toledo District: ca. 8 mi NNE of Medina Bank, ca. 1 mi S of Bladen Branch, 16°33'16"N, 88°42'49"W, 13 Apr 2008, R. Naczi; swept from herbaceous vegetation; (3 specimens, USNM). **New Country Record.**

Cephaloleia fulvolimbata was previously known only from Guatemala and southern Mexico (Staines 1996). Thus, this collection is a new country record, but not an unexpected one. The host plant is unknown (Staines 1996), and remains so. General sweeping of herbaceous vegetation yielded the beetle collection, but no knowledge of the host. One possible host plant, *Thalia geniculata* L. (Marantaceae), was present in the area but was not extensively sampled for *C. fulvolimbata*.

***Cephaloleia perplexa* Baly** [Tribe Cephaloleiini].

Belize. Toledo District: ca. 9 mi NNE of Medina Bank, N side of Bladen Branch, 16°33'35"N, 88°43'50"W, 6 Jan 2006, R. Naczi and T. Pop; in rolled leaves of *Heliconia bourgaeana* (Heliconiaceae); (4 specimens, USNM). Same locality data except Belize Foundation for Research and Environmental Education property, 16°33'21"N, 88°42'29"W, 4 Jan 2007, Keyona Gonzalez and Patricia Jackson; in rolled leaves of *Heliconia latispatha* (Heliconiaceae); (1 specimen, USNM). **New Host Records.**

Cephaloleia perplexa is known from Mexico, Belize, Guatemala, and Costa Rica (Staines 1996). Before this collection, only five specimens had been known. Five rolled, expanding leaves of *Heliconia bourgaeana* yielded 21 specimens of *C. perplexa*. These beetles were infrequent inside the leaves (usually 1–3 beetles per leaf, but sometimes as many as 5 per leaf). Individuals of *C. perplexa* co-occurred with the much more common *C. consanguinea* in the rolled leaves.

In addition, sampling of several rolled leaves of *Heliconia latispatha* yielded one individual of *C. perplexa*. Naczi had sampled the same population of *H. latispatha* the previous year, but without finding *C. perplexa*. Evidently, *C. perplexa* is quite rare in *H. latispatha*, at least at this locality. In *H. latispatha*, the lone *C. perplexa* occurred with several adults of *C. consanguinea*.

Because no host had been known for *C. perplexa* (Staines 1996), *H. bourgaeana* and *H. latispatha* are new host records for the beetle species. Two other species of *Heliconia* (*H. collinsiana* and *H. wagneriana*) occur in the vicinity of *H. bourgaeana* and *H. latispatha* at the collection localities, and Naczi sampled each of these others. However, *C. perplexa* apparently did not associate with these other *Heliconia* species. In contrast to *C. consanguinea*, *C. perplexa* appears to be relatively host-specific.

***Cephaloleia ruficollis* Baly** [Tribe Cephaloleiini].

Belize. Orange Walk District: Rio Bravo Conservation Area, La Milpa, VII-17-1996, C. W. and L. O'Brien; (1 specimen, BYUC). **New Country Record.**

Cephaloleia ruficollis was previously known from Costa Rica, El Salvador, Guatemala, Honduras, and Mexico (Staines 1996). Thus the collection cited above is a new country record, though not unexpected from Belize. There is no published information on the biology of this species. The larval host plant is most likely a member of Zingiberales (Staines 2004).

***Chalepus amabilis* Baly** [Tribe Chalepini].

Belize. Orange Walk District: Rio Bravo Conservation Area, La Milpa, VII-11-1996, C. W. and L. O'Brien; (1 specimen, BYUC). Cayo Distr.: Chiquibul National Park, Doyles Delight near campground, 19-28 Aug. 2007, P. W. Kovarik, 16°29'35"N 89°02'49'W, 1100 m, flight intercept trap; (1 specimen, BYUC). **New Country Record.**

Chalepus amabilis was previously known from Colombia, El Salvador, Mexico, and Nicaragua (Staines 1997). Adults have been associated with *Chusquea* sp. and *Panicum* sp. (Poaceae) (Staines 1997).

Chalepus brevicornis (Baly) [Tribe Chalepini].

Belize. Toledo District: Columbia Forest, 5 km N San Antonio, 11 June 1981, W. E. Steiner; (1 specimen, USNM). **New Country Record.**

Chalepus brevicornis was previously known only from Guatemala, Mexico, and Nicaragua (Staines 1993). There is no published information on the biology of the species. The larval host plant could be in several plant families, but is most likely a member of Poaceae or Fabaceae (Staines 2002a).

***Chalepus pici* Descarpentries and Villiers** [Tribe Chalepini].

Belize. Cayo District: Chiquibul National Park, Dry Creek Trail, 20-22 Aug. 2007, P. W. Kovarik, 16°29'N 89°02'W, 950-1100 m, yellow pan trap; (1 specimen, BYUC). **New Country Record.**

Chalepus pici was previously known from Brazil, Costa Rica, El Salvador, Mexico, Nicaragua, and Panama (Staines 1997). There is no published information on the biology of this species. The host plant is probably a member of Poaceae (Staines 2002a).

***Microrhopala erebus* (Newman)** [Tribe Chalepini].

Belize. Belize: 19 miles NW Belize City, Aug. 11, 1977, E. W. and L. O'Brien and Marshall; (2 specimens, BYUC). **New Country Record.**

Microrhopala erebus was previously known from the United States and Mexico (Staines 2006). Adult beetles have been associated with *Solidago* sp. (Asteraceae) (Staines 2006).

***Octhispa bimaculata* Uhmann** [Tribe Chalepini].

Belize. Toledo District: Columbia Forest, 5 km N San Antonio, 11 June 1981, W. E. Steiner; (1 specimen, USNM). **New Country Record.**

Octhispa bimaculata was previously known only from Costa Rica (Uhmann 1957). Staines (1998) reported adults associated with *Paullinia* sp. and *Serjania* sp. (Sapindaceae), and *Pithecoctenium echinatum* K. Schum. (Bignoniaceae) in Costa Rica. Larvae have been reared from leaves of *Stigmaphyllon lindenianum* A. Juss. (Malpighiaceae) (Hespenheide and Dang 1999).

***Octotoma championi* Baly** [Tribe Chalepini].

Belize. Orange Walk District: Rio Bravo Conservation Area, Well and Bajo Trails, vii-12-1996, C.W. and L.B. O'Brien; (1 specimen, BYUC). **New Country Record.**

Octotoma championi was previously known from the United States, Costa Rica, El Salvador, Guatemala, Honduras, Nicaragua, and Panama (Staines 1989, 2006). The species is a leaf-miner in *Lantana camara* L., *L. hispida* H. B. K., and *L. trifolia* L. (Verbenaceae) (Staines 1989, 2006).

***Pseudispa tuberculata* Staines** [Tribe Sceloenoplini].

Belize. Cayo District: Chiqibul National Park, Doyles Delight, Dry Creek Trail, 19-20 Aug. 2007, P. Kovarik, 16°29'N, 89°02'W, 950-1100 m, yellow pan trap; (1 specimen, BYUC). Same label data except 20-22 Aug. 2007; (2 specimens, BYUC). Same locality except 20-27 Aug. 2007, flight intercept trap; (2 specimens, BYUC). **New Country Record.**

Pseudispa tuberculata was previously known from Costa Rica, Mexico, and Panama (Staines 2002b). There is no published information on the biology of this species, and the host plant is unknown.

***Sceloenopla erudita* (Baly)** [Tribe Sceloenoplini].

Belize. Orange Walk District: Rio Bravo Conservation Area, Mahogany Trail, vii-19-1996, C. W. and L. O'Brien; (1 specimen, BYUC). **New Country Record.**

Sceloenopla erudita was previously known from Colombia, Costa Rica, Mexico, Nicaragua, Panama, and Venezuela (Staines 1997). This species has been associated with *Anthurium* sp. (Araceae) and *Cluspania* sp. [sic] (Clusiaceae) (Santiago-Blay 2004).

***Stenispa guatemalensis* Uhmann** [Tribe Cephaloleiini].

Belize. Toledo District: 15–30 September 1906, Peck; (2 specimens, USNM). Toledo District: Punta Gorda, March 1931, [collector unknown]; (1 specimen, USNM). **New Country Record.**

Stenispa guatemalensis was previously known only from Colombia and Guatemala (Uhmann 1957). There is no published information on the biology of this species, but the larval host plant is probably a member of Cyperaceae or Poaceae (Staines 2002a).

***Sumitrosis gestroi* (Weise)** [Tribe Chalepini].

Belize. Orange Walk District: Rio Bravo Conservation Area, La Milpa, VII-17-1996, C. W. and L. B. O'Brien; (1 specimen, BYUC). **New Country Record.**

Sumitrosis gestroi was previously known from Costa Rica and Nicaragua (Staines 1997). There is no published information on the biology of this species, and the host plant is unknown.

***Sumitrosis terminatus* (Baly)** [Tribe Chalepini].

Belize. Orange Walk District: Rio Bravo Conservation Area, 7-13-1996, 2nd Logging Rd., C. W. and L. O'Brien; (1 specimen, BYUC). **New Country Record.**

Sumitrosis terminatus was previously known from Colombia, Costa Rica, Guatemala, Mexico, and Panama (Uhmann 1957). Larvae have been reared from an unidentified member of Fabaceae (Hespenheide and Dang 1999).

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