12-2009

A new country record for *Chrysina diversa* (Ohaus, 1912) (Coleoptera: Scarabaeidae: Rutelinae) in Central America

Conrad P. D. T. Gillett
National Zoological Collections of Suriname, conradgillett@hotmail.com

INSECTA MUNDI

A Journal of World Insect Systematics

0108

A new country record for *Chrysina diversa* (Ohaus, 1912) (Coleoptera: Scarabaeidae: Rutelinae) in Central America

Conrad P. D. T. Gillett
Nationale Zoölogische Collectie van Suriname,
Universiteitscomplex Leysweg,
Postbus 9212, Paramaribo, Suriname

Date of Issue: December 11, 2009

CENTER FOR SYSTEMATIC ENTOMOLOGY, INC., Gainesville, FL

Conrad P. D. T. Gillett
A new country record for *Chrysina diversa* (Ohaus, 1912) (Coleoptera: Scarabaeidae: Rutelinae) in Central America
Insecta Mundi 0108: 1-3

Published in 2009 by
Center for Systematic Entomology, Inc.
P. O. Box 141874
Gainesville, FL 32614-1874 U. S. A.
http://www.centerforsystematicentomology.org/

Insecta Mundi is a journal primarily devoted to insect systematics, but articles can be published on any non-marine arthropod taxon. Manuscripts considered for publication include, but are not limited to, systematic or taxonomic studies, revisions, nomenclatural changes, faunal studies, book reviews, phylogenetic analyses, biological or behavioral studies, etc. **Insecta Mundi** is widely distributed, and referenced or abstracted by several sources including the Zoological Record, CAB Abstracts, etc.

As of 2007, **Insecta Mundi** is published irregularly throughout the year, not as quarterly issues. As manuscripts are completed they are published and given an individual number. Manuscripts must be peer reviewed prior to submission, after which they are again reviewed by the editorial board to insure quality. One author of each submitted manuscript must be a current member of the Center for Systematic Entomology.

Printed copies deposited in libraries of:
CSIRO, Canberra, ACT, Australia
Museu de Zoologia, São Paulo, Brazil
Agriculture and Agrifood Canada, Ottawa, Ontario, Canada
The Natural History Museum, London, England
Muzeum i Instytut Zoologii Pan, Warsaw, Poland
National Taiwan University, Taipei, Taiwan
California Academy of Sciences, San Francisco, CA, USA
Florida Department of Agriculture and Consumer Services, Gainesville, FL, USA
Field Museum of Natural History, Chicago, IL, USA
National Museum of Natural History, Smithsonian Institution, Washington, DC, USA

Electronic copies in PDF format:
Printed CD mailed to all members at end of year.
Florida Center for Library Automation: http://purl.fcla.edu/fcla/insectamundi
University of Nebraska-Lincoln, Digital Commons: http://digitalcommons.unl.edu/insectamundi/

Author instructions available on the Insecta Mundi page at:
http://www.centerforsystematicentomology.org/insectamundi/

Printed Copy ISSN 0749-6737
On-Line ISSN 1942-1354
CD-ROM ISSN 1942-1362

INSECTA MUNDI 0108: 1-3 2009

A new country record for *Chrysina diversa* (Ohaus, 1912) (Coleoptera: Scarabaeidae: Rutelinae) in Central America

Conrad P. D. T. Gillett
Nationale Zoölogische Collectie van Suriname,
Universiteitscomplex Leysweg,
Postbus 9212, Paramaribo, Suriname
conradgillett@hotmail.com

Abstract. *Chrysina diversa* (Ohaus, 1912) is recorded for the first time from Belize. Detailed information on its capture in that country is presented.

Résumé. *Chrysina diversa* (Ohaus, 1912) est signalée pour la première fois de Belize. Des informations détaillées sur sa capture dans cette pays sont présentées ici.

Key words. Belize, Cayo, Las Cuevas Research Station, scarab beetle, jewel scarab, shining leaf chafer

Introduction

The ruteline scarab beetle genus *Chrysina* Kirby is composed of approximately 100 species (Hawks 2001) distributed from the southwestern United States to Ecuador, with over 90% of these species occurring in Mexico and Central America. Several species have been described recently, with at least 35 species having been described in the last 20 years since Morón's iconographic summary (Morón 1990). A high diversity of *Chrysina* species is especially present in upland cloud forest areas or pine-oak forests, and there is often a high degree of local endemism. This high diversity is especially apparent along the central spine of cordilleras running the length of Central America, with a reduced diversity in lowland areas (see maps in Morón 1990). One area of predominantly low elevation is the Yucatan Peninsula of Mexico and the neighbouring country of Belize. Hitherto only a single species of *Chrysina* has been recorded from Belize: *C. purulhensis* Warner and Monzón, which was described from specimens collected in the Guatemalan departments of Baja Verapaz and Alta Verapaz, in addition to specimens from the Cayo district of Belize (Warner and Monzón 1993). The Belizian locality for the paratypes of *C. purulhensis* is in the Mountain Pine Ridge, which, at an altitude of approximately 1000 m, represents the highest relief in that country. It is an area of pine-oak woodland which has since been devastated by the scolytine *Dendroctonus frontalis* Zimmermann (personal observation, June 2006). Several more specimens of *C. purulhensis* (belonging to two color forms) were subsequently recorded from the area (Thomas 2008).

A second species of *Chrysina* can now be added to the Belizian fauna with the recent discovery of *C. diversa* (Ohaus, 1912) in the Maya mountains of Cayo district. The present record relates to four specimens of *C. diversa* which James Kitson and I collected in June 2006 while undertaking postgraduate fieldwork in Belize. The label data of these specimens and an additional older specimen from Belize, now housed in the Natural History Museum, London, are detailed below.

Material examined

Collection acronyms are as follows:
BMNH - The Natural History Museum, London, UK
MGCB - Michael P.T. Gillett collection, Birmingham, UK
JKCE - James Kitson collection, Edinburgh, UK

1 male (with parameres dissected and mounted on card): BELIZE (Cayo), Chiquibul Forest Reserve, Las Cuevas Research Station, 16°44'N 88°59'W, June 2006, BMNH{E} 2006-141, C. Gillett & J. Kitson (BMNH), illustrated in Figure 1.

1 female: BELIZE (Cayo), Chiquibul Forest Reserve, Las Cuevas Research Station, 16°44'N 88°59'W, June 2006, J. Kitson coll. (JKCE).

1 male and 1 female: BELIZE (Cayo), Chiquibul Forest Reserve, Las Cuevas Research Station, 16°44'N 88°59'W, 500m Tropical rainforest, June 2006, C. Gillett leg., M.P.T. Gillett coll. (MGCB).

1 male (with parameres dissected and mounted on card): Belize: Cayo, Las Cuevas/ 23.vi.95, A. Howe/ V0831/ Belize, 1995, Chiquibul Forest Res., Las Cuevas field station, 88°59'W; 16°44'N, BMNH{E} 2005-78/ *Chrysina diversa* Ohaus, det. B.C. Ratcliffe 2007 (BMNH)

Figure 1. Male *Chrysina diversa* (Ohaus) collected at the Las Cuevas Research Station, Cayo, Belize, scale in millimeters. Photograph by Harry Taylor.

Discussion

The four specimens collected in June 2006 were all collected at light on the night of the 12th of June. The circumstances relating to their capture are worth recounting here. During the first two and a half weeks of June 2006, James Kitson and I collected beetles every night from a mercury vapor light set up on the side of the main building of the Las Cuevas Research Station. We also collected at the many lights around the various buildings in the vicinity and, during the last week, at a second mercury vapor light set up approximately 500 m away along the road leading to the station. No specimens of *C. diversa* were collected at any of these lights throughout that time, although the overall scarab beetle diversity was substantial (C. Gillett personal observation). However, during one evening of light rain we were able to take a relatively weak actinic bulb (powered from a portable battery pack) approximately 1 km along a path deep into the forest to where a small natural clearing had been made by a fallen tree. Here we set up a sheet and were able to collect the four specimens detailed above within 2 or 3 hours before 21:00. Very few other Coleoptera were collected together with the *C. diversa* in the forest. Las Cuevas is situated at approximately 500 m altitude in an area of tropical evergreen forest that experiences an annual wet season beginning around May/June which coincided with our sampling. During most days in early- to mid-June, Las Cuevas experienced anywhere from half an hour to several hours of rain, most notably during the late afternoon before nightfall. Although our samples were small, it is possible that the species may prefer the deep cover of forest at the site, only rarely venturing out into clearings.

Chrysina diversa has been recorded only from the following Mexican states: Chiapas, Oaxaca and Veracruz (Morón 1990). It is apparently common in Mexico, being widely distributed in evergreen tropical forests between 50 m and 800 m in the aforementioned states (Morón et al. 1997). The present record extends the distribution of this species considerably to the east, posing the question of whether it may one day be discovered in the intervening area of northern Guatemala (particularly in the Departments of El Petén and Alta Verapaz). It also suggests the possibility that further species of *Chrysina* may await discovery in Belize, which has received comparatively little attention from entomologists. The remote area of the Maya mountains to the southwest of Las Cuevas would appear to offer the greatest probability of new discoveries. The ruteline scarab fauna of Las Cuevas unsurprisingly contains several species having distributions extending from the tropical southern Mexican states - e.g. *Macropoides crassipes* (Horn) and *Macropoidelimus mniszechi* (Sallé), in addition to more widespread species found throughout Central America (e.g. *Chasmodia collaris* Blanchard) and more localized species narrowly shared only with neighbouring Guatemala (e.g. *Epichalcoplethis monzoni* Soula). It thus will not be wholly surpris-

ing if additional species of *Chrysina* belonging to any of these three distribution patterns may one day be recorded in Belize. Species assemblages in the genus *Chrysina* have been used in biogeographic studies which have identified areas of endemism in Guatemala. As a result, it has been suggested that the study of *Chrysina* distributions should be considered during the prioritization of areas for conservation and/or protection in Central America (Schuster and Canio, 2006).

Acknowledgments

I thank the staff of the Belize Forest Department for assistance in obtaining research and export permits. I am also grateful to Stefan Viggiani (Natural History Museum, London) and the British Airways conservation scheme for generous assistance with travel, and Imperial College, London, for a bursary that allowed the fieldwork to be undertaken. I thank James Kitson (University of East Anglia, UK) for his companionship in the field while we completed our MSc. projects in Belize. My gratitude is extended to Ron Cave (University of Florida, USA) and to David Hawks (University of California) for generously taking the time to review this note, and to Harry Taylor (Natural History Museum photographic unit) for the photograph.

The research undertaken for this publication was possible through the following Belize Forest Department permits: Scientific collection/research permit, wildlife protection act No. 4/1981. Ref. No. CD/60/3/06 (15) 29th May 2006. Wildlife protection act #4 of 1981 – section 15, permit to export fauna of Belize. Ref. No. CD/60/3/06 (38) 29th May 2006.

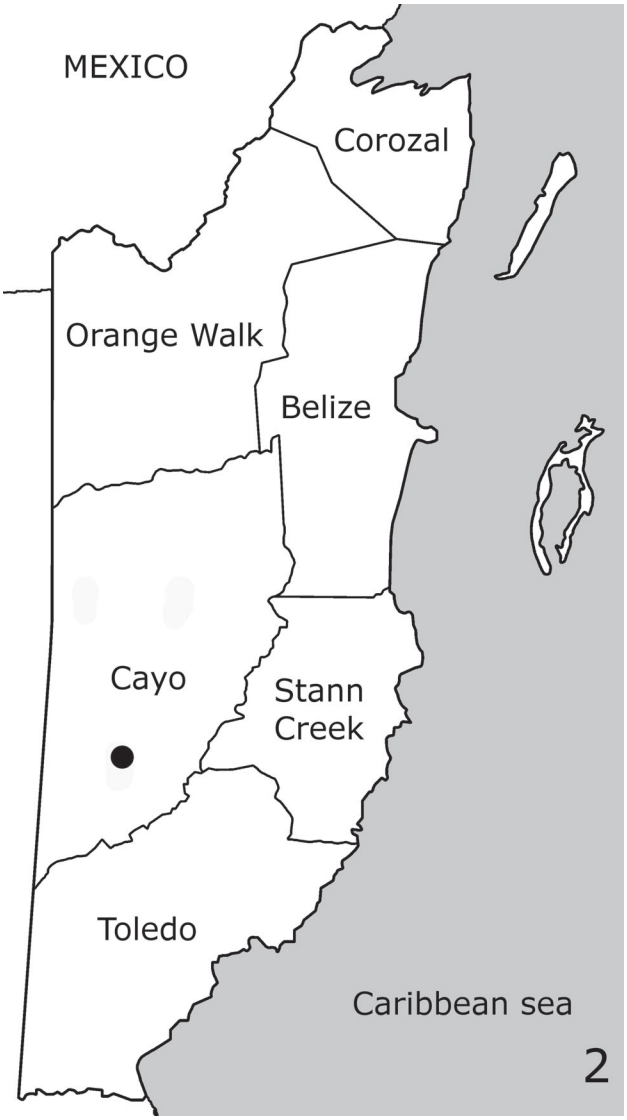

Figure 2. Approximate location of Las Cuevas Research Station in Belize (shown by black dot).

Literature cited

Hawks, D. C. 2001. Taxonomic and nomenclatural changes in *Chrysina* and a synonymic checklist of species (Scarabaeidae: Rutelinae). Occasional Papers of the Consortium Coleopterorum 4: 1-8.

Morón, M. A. 1990. Rutelini 1: *Plusiotis - Chrysina - Chrysophora - Pelidnotopsis- Ectinoplectron*. The beetles of the world 10. Sciences Nat; Venette, France. 145 p., 32 pl.

Morón, M. A., B. C. Ratcliffe, and C. Deloya. 1997. Atlas de los escarabajos de México (Coleoptera: Lamellicornia). Vol 1. Familia Melolonthidae. Comisión Nacional para el Conocimiento y Uso de la Biodiversidad (CONABIO) y Sociedad Mexicana de Entomologia; México. 280 p.

Schuster, J. C., and E. B. Cano. 2006. What can Scarabaeoidea contribute to the knowledge of the biogeography of Guatemala? Coleopterists Society Monograph 5:57–70.

Thomas, D. 2008. Lavender Blue - An annotated checklist of the *Chrysina* of Belize. Scarabs 24:1-8. URL: http://www.museum.unl.edu/research/entomology/Newsletter/Scarabs24.pdf

Warner, W. B., and J. Monzón. 1993. A new *Plusiotis* from Guatemala and Belize (Coleoptera: Scarabaeidae). Insecta Mundi 7(1-2): 211-213.

Received October 1, 2009; Accepted October 22, 2009.