

INSECTA MUNDI

A Journal of World Insect Systematics

0752

A new species of *Uvarus* Guignot, 1939
(Coleoptera: Dytiscidae: Hydroporinae: Bidessini)
from Florida, USA

J. H. Epler
461 Tiger Hammock Road
Crawfordville, FL, USA 32327

Date of issue: February 28, 2020

J. H. Epler

A new species of *Uvarus* Guignot, 1939 (Coleoptera: Dytiscidae: Hydroporinae: Bidessini) from Florida, USA

Insecta Mundi 0752: 1–4

ZooBank Registered: urn:lsid:zoobank.org:pub:DFFA138D-C0C3-4B4F-B7B0-DC36B0B46BB4

Published in 2020 by

Center for Systematic Entomology, Inc.

P.O. Box 141874

Gainesville, FL 32614-1874 USA

<http://centerforsystematicentomology.org/>

Insecta Mundi is a journal primarily devoted to insect systematics, but articles can be published on any non-marine arthropod. Topics considered for publication include systematics, taxonomy, nomenclature, checklists, faunal works, and natural history. *Insecta Mundi* will not consider works in the applied sciences (i.e. medical entomology, pest control research, etc.), and no longer publishes book reviews or editorials. *Insecta Mundi* publishes original research or discoveries in an inexpensive and timely manner, distributing them free via open access on the internet on the date of publication.

Insecta Mundi is referenced or abstracted by several sources, including the Zoological Record and CAB Abstracts. *Insecta Mundi* is published irregularly throughout the year, with completed manuscripts assigned an individual number. Manuscripts must be peer reviewed prior to submission, after which they are reviewed by the editorial board to ensure quality. One author of each submitted manuscript must be a current member of the Center for Systematic Entomology.

Guidelines and requirements for the preparation of manuscripts are available on the *Insecta Mundi* website at <http://centerforsystematicentomology.org/insectamundi/>

Chief Editor: David Plotkin, insectamundi@gmail.com

Assistant Editor: Paul E. Skelley, insectamundi@gmail.com

Head Layout Editor: Robert G. Forsyth

Editorial Board: J. H. Frank, M. J. Paulsen

Founding Editors: Ross H. Arnett, Jr., Virendra Gupta, John B. Heppner, Lionel A. Stange, Michael C. Thomas, Robert E. Woodruff

Review Editors: Listed on the *Insecta Mundi* webpage

Printed copies (ISSN 0749-6737) annually deposited in libraries

CSIRO, Canberra, ACT, Australia

Museu de Zoologia, São Paulo, Brazil

Agriculture and Agrifood Canada, Ottawa, ON, Canada

The Natural History Museum, London, UK

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

Zoological Institute of Russian Academy of Sciences, Saint-Petersburg, Russia

Electronic copies (Online ISSN 1942-1354, CDROM ISSN 1942-1362) in PDF format

Printed CD or DVD mailed to all members at end of year. Archived digitally by Portico.

Florida Virtual Campus: <http://purl.fcla.edu/fcla/insectamundi>

University of Nebraska-Lincoln, Digital Commons: <http://digitalcommons.unl.edu/insectamundi/>

Goethe-Universität, Frankfurt am Main: <http://nbn-resolving.de/urn/resolver.pl?urn:nbn:de:hebis:30:3-135240>

Copyright held by the author(s). This is an open access article distributed under the terms of the Creative Commons, Attribution Non-Commercial License, which permits unrestricted non-commercial use, distribution, and reproduction in any medium, provided the original author(s) and source are credited. <http://creativecommons.org/licenses/by-nc/3.0/>

Layout Editor for this article: Robert G. Forsyth

A new species of *Uvarus* Guignot, 1939 (Coleoptera: Dytiscidae: Hydroporinae: Bidessini) from Florida, USA

J. H. Epler

461 Tiger Hammock Road
Crawfordville, FL, USA 32327
johneppler3@comcast.net

Abstract. A new species of *Uvarus* Guignot, 1939 (Coleoptera: Dytiscidae: Hydroporinae: Bidessini), is described from Florida, USA. It is most similar to *U. suburbanus* (Fall), but differs in the shape of the much stouter and broader median lobe of the male genitalia.

Key words. Diving beetle, taxonomy.

Introduction

The Bidessini are a large tribe of very small beetles (most are <4 mm in length) in the subfamily Hydroporinae of the diving beetle family Dytiscidae. Forty-seven genera of bidessines are currently known worldwide, with more expected to be described; the tribe represents the largest group within the family, containing about 16% of currently recognized dytiscid species (Miller and Bergsten 2016).

The bidessine genus *Uvarus* Guignot, 1939, contains nine described species in North America north of Mexico (Larson et al. 2000); the genus has 65 species world-wide (Miller and Bergsten 2016). The genus requires worldwide revision, as it may be polyphyletic (Biström 1988).

Larson et al. (2000) reviewed the genus for North America and proposed two groups: the *lacustris* group, consisting of four species, and the *granarius* group, with five species. They also discussed some of the problems with the taxonomy of the genus, including the status of the type-species, *U. lacustris* (Say); the type of the species is lost. Epler (2010) treated the species known from Florida and included one undescribed species, *Uvarus* sp. 1.; this new species is described below.

Materials and Methods

Most of the material was collected by consulting firm personnel during sampling events for biomonitoring programs in Florida. The letters/numbers displayed in brackets following the locality data are station identifiers.

All specimens, except one fluid-preserved male with genitalia dissected, were point-mounted; genitalia were dissected from the males and placed in a drop of glue on the point adjacent to the specimen or in a micro-vial attached to the pin. Measurements, drawings and habitus photos were made using a Leica Wild MZ8 stereomicroscope; a Leica DMLC compound microscope was used to produce the genitalia drawings. Drawings done on paper were inked and then scanned; figures were cleaned up using Affinity Photo.

Abbreviations used: FSCA – Florida State Collection of Arthropods, Gainesville, FL, USA; JHE – JH Epler collection, Crawfordville, FL, USA.

Results

Uvarus sinofelihelanthus Epler, new species

Uvarus sp. 1 Epler 2010: 5.116, 5.119 (in key; distribution)

Diagnosis. This species is most similar to *U. suburbanus* (Fall) as redescribed by Larson et al. (2000). Both taxa lack a subhumeral lateral carina but *U. sinofelihelanthus* differs in the shape of the much stouter and broader median lobe of the male genitalia.

Description. ($n = 5 \text{ ♂♂}, 1 \text{ ♀}$). Total length 1.72–1.80 mm; width 0.92–0.98 mm; length/width 1.84–1.88; head width 0.52–0.58 mm; interocular distance 0.28–0.30 mm; pronotum length 0.28–0.30 mm, width 0.78–0.80 mm; pronotal plica length 0.12–0.16 mm; elytron length 1.18–1.24 mm; elytron plica length 0.12–0.22 mm.

Head reddish-brown above, yellow to reddish-brown posterior of eyes; yellow ventrally. Palpi yellow with apical infuscation; antennae yellow to pale brownish-yellow. Pronotum dorsally yellow with medial darker area along posterior margin, ventrally yellow. Elytron dark reddish-brown with slightly paler maculation in subhumeral area and subapically, yellow along lateral humeral area (Fig. 2) or dark yellow-brown with weak stripe, and punctures darkened (Fig. 3). Venter pale reddish-brown, epipleuron mostly yellowish, darker posteriorly; abdominal sternites reddish-brown. Fore and middle legs yellow/pale brown; hind legs light reddish-brown, tarsi paler.

Body elongate-oval, widest at about basal 1/3 of elytra (Fig. 1). Head microreticulate, with sparse fine punctures anterior to an imaginary line drawn through the posterior margin of the eyes, head behind this line smooth, shining. Clypeus convex, with a pair of shallow, semi-triangular frontal impressions that give suggestion of a low medial ridge and small rounded lip along anterior margin. Pronotum shining, non-reticulate, with sparse small punctures and narrow lateral bead; with basal plicae that extend slightly more than half length of pronotum at same level, apically turning mediad. Elytron shining, with moderate punctation, slightly denser towards apex; each puncture bearing a seta that is subequal in length to distance between punctures; with basal plica that is longer or subequal to pronotal plica; elytron lateral margin posterior to humeral area smoothly rounded, without carina or ridge. Epipleuron shining, mostly impunctate, with < 10 minute punctures mostly near ventrolateral margin. Metasternum, metacoxae and abdominal sternites with very fine, sparse punctures bearing very thin setae subequal to or slightly longer than space between punctures; metasternum with shallow impression at base of anteromedial process (Fig. 9).

Male genitalia with lateral lobes two-segmented (Fig. 5); median lobe stout, with broad convex apex (Fig. 6, 7).

Type material. HOLOTYPE (deposited in FSCA), ♂, USA: FLORIDA: Union Co., New River near Lake Butler at State Road 100, 29°59'53"N, 82°16'27"W [NEW 009], 5-v-2003, leg. Bob Giambrone. PARATYPES (4♂♂, 1♀): FLORIDA: Alachua Co., Santa Fe River at Worthington Springs, 29°55'18"N, 82°25'34"W [SFR 030], 4-iii-1996, leg. Bob Giambrone, 1 ♀ (FSCA); Columbia Co., Santa Fe River at O'Leno State Park, 29°54'51"N, 82°34'48"W [SFR 040], 12-iv-2016, leg. Efrain Tavarez, 1 ♂ (FSCA); Hardee Co., Peace River at Heard Bridge Road, north of Wauchula, 27.57631, -81.80447 [PRMP-10], 10-v-2019, leg. Sheri A. Huelster, Stephanie Healey, 1 ♂ (JHE); Manatee Co., Myakka R at Wauchula bridge, 12-x-1983, leg. R.P. Rutter, 1 ♂ (JHE); Union Co., New River near Lake Butler at State Road 100, 29°59'53"N, 82°16'27"W [NEW 009], 1-viii-2002, leg. Bob Giambrone, 1 ♂ (JHE).

Etymology. From *sino* – relating to China; *felis* – cat; *helianthus* – sunflower. Named for China Cat Sunflower, a musical composition by Robert Hunter and Jerry Garcia.

Comments. To date the species is known only from Florida, but its occurrence in the New and Santa Fe Rivers in the Suwannee River Basin of northern Florida indicates it might be found elsewhere on the southeastern Coastal Plain; other specimens were collected further south, in the Myakka and Peace River drainages. All specimens were collected from the margins of small rivers by dipnet.

Elytral plica length was longer than pronotal plica length in three males, and equal in two males and the single female. The faint maculation of the elytra varies from a weakly banded pattern (Fig. 2) to a single faint stripe (Fig. 3); both “variants” exhibit a similar weak longitudinal stripe. This maculation is apparent only when the elytron is lifted up or removed.

Epler (2010) reviewed the species of *Uvarus* known from Florida; he provided keys for southeastern species and habitus photographs of all Florida species and an additional species that may occur in Florida, *U. suburbanus* (Fall). One unknown species was keyed as “*Uvarus* sp. 1”, here described as *U. sinofelihelianthus*. In Larson et al. (2000) it will key to *U. suburbanus* (Fall), a species they (ibid.: 133) redescribed from “type specimens from Staten Island, New York, Talbot Co., Maryland ... and specimens from Louisiana”.

Epler (2010) examined a series of *U. suburbanus* in the FSCA determined by F.N. Young and considered that a specimen from College Park, Maryland, fit the species as redescribed by Larson et al. (2000). Figures of this specimen and its genitalia are included here (Fig. 4, 8).

The two species are similar in appearance, both lacking the weak to well developed subhumeral lateral carina found in other members of the granarius group. They are best separated by the stouter median lobe of the male genitalia in *U. sinofelihelianthus* (Fig. 6–7). In general form, *U. sinofelihelianthus* is slightly slimmer and elytral punctation appears to be slightly denser than that of *U. suburbanus*, but more material of both taxa needs to be examined.

Acknowledgments

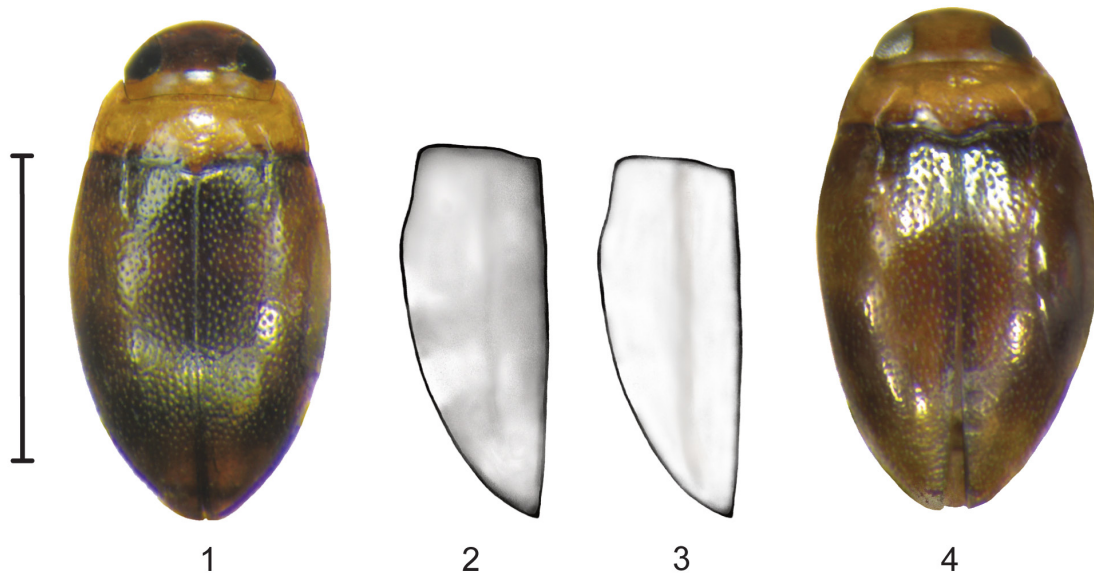
Many thanks to Laura Line (Water and Air Research, Inc., Gainesville, FL), Sheri Huelster (Cardno, Riverview, FL), and Marc Minno (Suwannee River Water Management District, Live Oak, FL) for providing some collection data, and to Olof Biström (Helsinki, Finland) for providing valuable literature. Bob Rutter (retired biologist for the Florida Department of Environmental Protection, Punta Gorda, FL) once again provided important material. I am very grateful for the reviews of the original manuscript by Olof Biström and Dave Larson; their comments and suggestions improved the paper.

Literature Cited

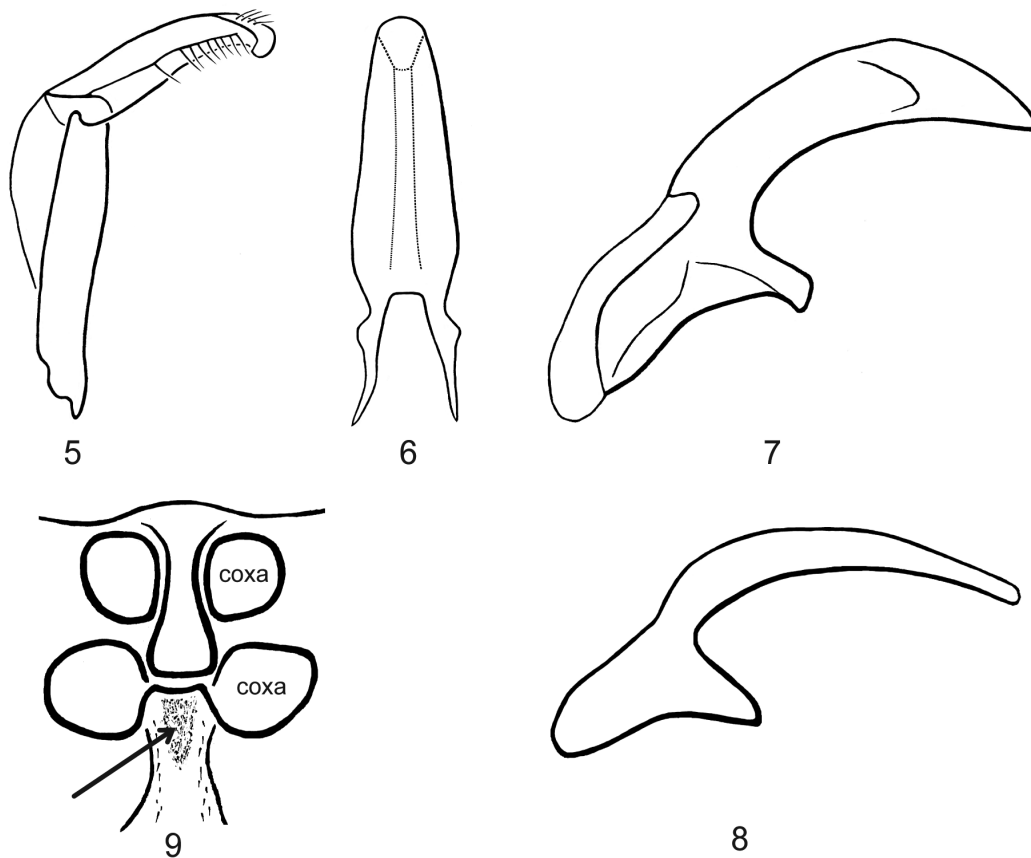
- Biström, O. 1988.** Review of the genus *Uvarus* Guignot in Africa (Coleoptera, Dytiscidae). *Acta Entomologica Fennica* 51: 1–38.
- Epler, J. H. 2010.** The water beetles of Florida - an identification manual for the families Chrysomelidae, Curculionidae, Dryopidae, Dytiscidae, Elmidae, Gyrinidae, Haliplidae, Helophoridae, Hydraenidae, Hydrochidae, Hydrophilidae, Noteridae, Psephenidae, Ptilodactylidae and Scirtidae. Florida Department of Environmental Protection; Tallahassee, FL. 399 + iv p.
- Larson, D., R. Roughley, and Y. Alarie. 2000.** Predaceous diving beetles (Coleoptera: Dytiscidae) of the Nearctic Region, with emphasis on the fauna of Canada and Alaska. National Research Council of Canada Research Press; Ottawa, Ontario, Canada. 982 p.
- Miller, K. B., and J. Bergsten. 2016.** Diving beetles of the world. Systematics and biology of the Dytiscidae. Johns Hopkins University Press; Baltimore, MD. 320 p.

Received December 16, 2019; accepted January 27, 2020.

Review editor Gareth S. Powell.



Figures 1–4. Adult habitus and elytra, *Uvarus* sp. **1)** *Uvarus sinofelihelanthus*, habitus, male holotype. **2)** *U. sinofelihelanthus*, elytron with weak maculation. **3)** *U. sinofelihelanthus*, elytron with weak stripe. **4)** *U. suburbanus* (Fall), habitus, Maryland specimen. (scale line = 1 mm)



Figures 5–9. Male genitalia and ventral structures, *Uvarus* sp. **5)** *U. sinofelihelanthus*, lateral lobe. **6)** *U. sinofelihelanthus*, median lobe, dorsal aspect. **7)** *U. sinofelihelanthus*, median lobe, lateral aspect. **8)** *U. suburbanus*, median lobe, lateral aspect. **9)** *U. sinofelihelanthus*, anteromedian extension of metasternum, arrow indicating weak depression.