INSECTA MUNDI A Journal of World Insect Systematics

0745

New state records of lady beetles (Coleoptera: Coccinellidae: Coccinellinae) from Missouri and Mississippi, USA

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Date of issue: January 31, 2020

CENTER FOR SYSTEMATIC ENTOMOLOGY, INC., Gainesville, FL

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Insecta Mundi 0745: 1–4
ZooBank Registered: urn:lsid:zoobank.org:pub:610643CE-3740-4750-8553-2C7B0F0FCE94

Published in 2020 by
Center for Systematic Entomology, Inc.
P.O. Box 141874
Gainesville, FL 32614-1874 USA
http://centerforsystematicentomology.org/

Printed copies (ISSN 0749-6737) annually deposited in libraries
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Layout Editor for this article: Robert G. Forsyth

INSECTA MUNDI 0745: 1–4 2020

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Abstract. New state records for three species of lady beetles (Coleoptera: Coccinellidae: Coccinellinae) are reported from two states in the south-central USA. *Hyperaspis bolteri* LeConte and *Exochomus childreni guexi* LeConte are newly reported for the state of Missouri, and *Hyperaspis connectens* (Thunberg) is newly reported for the state of Mississippi.

Introduction

Reporting new faunal records for specific areas or governmentally formulated regions such as states or provinces enhances the knowledge of species' geographical ranges and regional biodiversity (McCafferty 2000; Taylor 2010). New records may fill in gaps and confirm hypotheses about a species' geographic range and they may also provide knowledge about a new or unexpected geographic distribution of a particular species. Reported here are new state records for three species of lady beetles (Coleoptera: Coccinellidae: Coccinellinae) from the states of Missouri and Mississippi, USA.

Materials and Methods

New state records of lady beetles were found among undetermined adult specimens of lady beetles in the University of New Hampshire Insect Collection (UNHC), Durham, New Hampshire, USA. Label information was reported verbatim with no edits or attempts at interpretation of label data. Specimens discussed in this paper were identified using keys in Gordon (1985). A revised classification of the Coccinellidae (Seago et al. 2011) was used for nomenclatural purposes. Pinned specimens of beetles that represent the primary state records in this paper were designated as voucher specimens.

Results

Hyperaspis bolteri LeConte, 1880

Missouri (**new state record**), 1.5 mi W Kingdom City, Callaway Co., Tucker Prairie, Dec. 2-3, 1974, 1 ♂, 1♀. No prey or specific habitat was listed. These specimens (Figure 1) constitute a new state record for Missouri. A search of the Symbiota Collections of Arthropods Network (SCAN) found a later collection record of *H. bolteri* recorded at BugGuide.net with similar collection data: Missouri, Callaway, 38.835964°, −91.92409°, 2012-05-27 (https://bugguide.net/node/view/757506).

Hyperaspis connectens (Thunberg, 1808)

Mississippi (**new state record**), Picayune, 7-28-1977, L. Ferreira, 1 ♀. No prey or habitat data were recorded with the specimen (Figure 2).

***Exochomus childreni guexi* LeConte, 1852**

Missouri (**new state record**), Centerville, June 11, 1977, S. C. Thewke, 2 ♀♀. No prey or habitat data were included with the collection data. Each specimen represented a different one of the two major elytral color patterns (Figure 3) known for *E. childreni guexi* (Gordon 1985).

Discussion

New records reported here for the three species of lady beetles contribute fundamental knowledge about their geographic distributions and the composition of insect communities in south-central USA. The new state records for *Hyperaspis bolteri* and *H. connectens* essentially fill in gaps associated with the known geographic distribution for these two species. The new state record from Missouri was expected, given that Gordon (1985) listed *H. bolteri* from the states of Indiana, Illinois, and Kansas within the USA. Similarly, the new state record of *H. connectens* from southern Mississippi was expected, given that its collection site has a similar latitude to this species' known geographic distribution in southern Louisiana and northern Florida in the United States (Gordon 1985). Prey and other bionomic aspects of many species of *Hyperaspis* are poorly known (Majka and Robinson 2009), and additional sampling with an emphasis on prey and habitat associations of *H. bolteri* and *H. connectens* would be useful.

The previously known distribution of *Exochomus childreni guexi* extended from Louisiana through southern Texas (Gordon 1985). Thus, the new state record of *E. childreni guexi* for Missouri increases its known distribution considerably northward. Members of *Exochomus* prey on aphids (Gordon 1985), and it would be informative to determine if new prey records for this lady beetle may be associated with its northern distribution.

Hesler and Kieckhefer (2008) hypothesized that processing unsorted and undetermined coccinellid specimens will reveal new information about the geographic distributions of lady beetle species. The new state records reported here support that hypothesis and may serve as impetus for further sampling of lady beetles and the treatment of unprocessed material.

Acknowledgments

Don Chandler loaned beetle specimens from the University of New Hampshire Insect Collection. Eric Beckendorf photographed the lady beetles used in the figures. Mathew Brust, Guy Hanley and Lauren Hesler reviewed drafts of this paper. This research was supported by funding through USDA-ARS CRIS Project Number 3080-21220-006-00D.

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Received December 17, 2019; accepted January 4, 2020.
Review editor Oliver Keller.

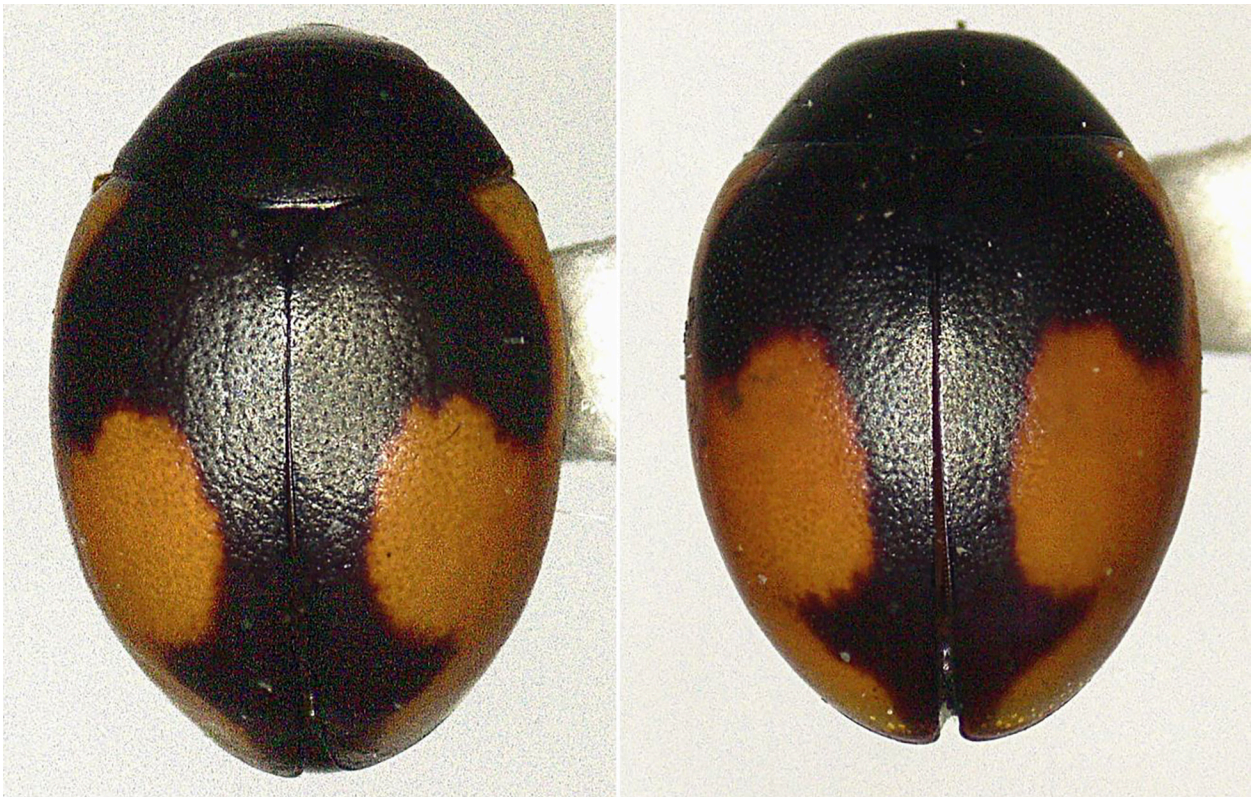

Figure 1. Specimens of *Hyperaspis bolteri* (male, left; female, right) constituting a new state record for Missouri, USA.

Figure 2. Specimen of *Hyperaspis connectens* constituting a new state record for Mississippi, USA.

Figure 3. Specimens of *Exochomus childreni guexi* constituting a new state record for Missouri, USA.