



Zootaxa 2951: 1–97 (2011)
www.mapress.com/zootaxa/

Copyright © 2011 · Magnolia Press

Monograph

ISSN 1175-5326 (print edition)

ZOOTAXA

ISSN 1175-5334 (online edition)

ZOOTAXA

2951

**The species of *Eupelmus* (*Eupelmus*) Dalman and *Eupelmus* (*Episolindelia*)
Girault (Hymenoptera: Eupelmidae) in North America north of Mexico**

GARY A. P. GIBSON

Agriculture and Agri-Food Canada, Canadian National Collection of Insects, K. W. Neatby Bldg., 960 Carling Avenue, Ottawa,
Ontario, Canada, K1A 0C6. E-mail: Gary.Gibson@agr.gc.ca



Magnolia Press
Auckland, New Zealand

Accepted by A. Taeger: 20 Jun. 2011; published: 8 Jul. 2011

GARY A. P. GIBSON

The species of *Eupelmus* (*Eupelmus*) Dalman and *Eupelmus* (*Episolindelia*) Girault (Hymenoptera: Eupelmidae) in North America north of Mexico

(*Zootaxa* 2951)

97 pp.; 30 cm.

8 Jul. 2011

ISBN 978-1-86977-761-6 (paperback)

ISBN 978-1-86977-762-3 (Online edition)

FIRST PUBLISHED IN 2011 BY

Magnolia Press

P.O. Box 41-383

Auckland 1346

New Zealand

e-mail: zootaxa@mapress.com

<http://www.mapress.com/zootaxa/>

© 2011 Magnolia Press

All rights reserved.

No part of this publication may be reproduced, stored, transmitted or disseminated, in any form, or by any means, without prior written permission from the publisher, to whom all requests to reproduce copyright material should be directed in writing.

This authorization does not extend to any other kind of copying, by any means, in any form, and for any purpose other than private research use.

ISSN 1175-5326 (Print edition)

ISSN 1175-5334 (Online edition)

Table of contents

Abstract	3
Introduction	4
Material and methods	4
Descriptive taxonomy	7
<i>Eupelmus</i> Dalman	7
Key to subgenera of <i>Eupelmus</i> Dalman	8
<i>Eupelmus</i> (<i>Episolindelia</i>) Girault	9
Key to species of <i>E.</i> (<i>Episolindelia</i>) in North America north of Mexico	9
1. <i>Eupelmus</i> (<i>Episolindelia</i>) <i>australiensis</i> (Girault)	9
2. <i>Eupelmus</i> (<i>Episolindelia</i>) <i>fuscipectus</i> n. sp.	12
3. <i>Eupelmus</i> (<i>Episolindelia</i>) <i>grisselli</i> n. sp.	14
4. <i>Eupelmus</i> (<i>Episolindelia</i>) <i>rubicola</i> (Ashmead) n. stat.	14
5. <i>Eupelmus</i> (<i>Episolindelia</i>) <i>varicauda</i> n. sp.	17
<i>Eupelmus</i> (<i>Eupelmus</i>) Dalman	17
Key to species of <i>E.</i> (<i>Eupelmus</i>) in North America north of Mexico	19
1. <i>Eupelmus</i> (<i>Eupelmus</i>) <i>annulatus</i> Nees	22
2. <i>Eupelmus</i> (<i>Eupelmus</i>) <i>arizonensis</i> n. sp.	27
3. <i>Eupelmus</i> (<i>Eupelmus</i>) <i>conigerae</i> Ashmead	28
4. <i>Eupelmus</i> (<i>Eupelmus</i>) <i>curticipunctus</i> n. sp.	30
5. <i>Eupelmus</i> (<i>Eupelmus</i>) <i>cushmani</i> (Crawford)	33
6. <i>Eupelmus</i> (<i>Eupelmus</i>) <i>cyaniceps</i> Ashmead	44
7. <i>Eupelmus</i> (<i>Eupelmus</i>) <i>cynipidis</i> Ashmead	51
8. <i>Eupelmus</i> (<i>Eupelmus</i>) <i>dryorhizoxeni</i> Ashmead	56
9. <i>Eupelmus</i> (<i>Eupelmus</i>) <i>microzonus</i> Förster	62
10. <i>Eupelmus</i> (<i>Eupelmus</i>) <i>nitifrons</i> n. sp.	65
11. <i>Eupelmus</i> (<i>Eupelmus</i>) <i>pervius</i> n. sp.	66
12. <i>Eupelmus</i> (<i>Eupelmus</i>) <i>pini</i> Taylor	71
13. <i>Eupelmus</i> (<i>Eupelmus</i>) <i>stramineipes</i> Nikol'skaya	75
14. <i>Eupelmus</i> (<i>Eupelmus</i>) <i>utahensis</i> Girault	77
Species excluded from <i>Eupelmus</i>	79
Unrecognized names	81
Acknowledgments	81
References	82

Abstract

The species of *Eupelmus* (*Eupelmus*) Dalman and *Eupelmus* (*Episolindelia*) Girault (Chalcidoidea: Eupelmidae) in North America north of Mexico are revised. Illustrated keys are given to differentiate the three subgenera of *Eupelmus* and females and known males of 19 recognized species of *E.* (*Eupelmus*) and *E.* (*Episolindelia*). Five species are classified in *E.* (*Episolindelia*), including the three newly described species *E.* (*Episolindelia*) *fuscipectus* **n. sp.**, *E.* (*Episolindelia*) *grisselli* **n. sp.**, and *E.* (*Episolindelia*) *varicauda* **n. sp.**, which are based only on females. *Eupelmus rubicola* (Ashmead), described originally from a unique male, is tentatively associated with females and is classified as *E.* (*Episolindelia*) *rubicola* **n. stat.** based on this association. Fourteen species are classified in *E.* (*Eupelmus*), including the four newly described species *E.* (*Eupelmus*) *arizonensis* **n. sp.**, *E.* (*Eupelmus*) *curticipunctus* **n. sp.**, *E.* (*Eupelmus*) *nitifrons* **n. sp.**, and *E.* (*Eupelmus*) *pervius* **n. sp.** Two Palearctic species, *E.* (*Eupelmus*) *stramineipes* Nikol'skaya and *E.* (*Eupelmus*) *microzonus* Förster, are newly recorded from North America. Newly placed in synonymy under *E. microzonus* is *E.* (*Eupelmus*) *insulae* Masi **n. syn.** It is further suggested that *E.* (*Eupelmus*) *nigricauda* Nikol'skaya likely is also a junior synonym of *E. microzonus*. Information is also given on the identity of the Palearctic names *E.* (*Eupelmus*) *afes* Silvestri, *E.* (*Eupelmus*) *martellii* Masi, *E.* (*Eupelmus*) *nubilipennis* Förster, *E.* (*Eupelmus*) *spongipartus* Förster, and *E.* (*Eupelmus*) *urozonus* Dalman. A lectotype is designated for *E.* (*Eupelmus*) *pini* Taylor and under this name are placed in synonymy the Palearctic names *E. aloysii* Russo **n. syn.**, *E. carinifrons* Yang **n. syn.**, *E. sculpturatus* Nikol'skaya **n. syn.**, and *Eupelmus suecicus* Hedqvist **n. syn.** Four other new synonyms made are *Eupelmus amicus* Girault under *E.* (*Eupelmus*) *cushmani*

(Crawford) **n. syn.**, *Eupelmus ficigeræ* (Ashmead) under *E. (Eupelmus) dryorhizoxeni* Ashmead **n. syn.**, *Eupelmus momphae* Gahan under *E. (Eupelmus) cyaniceps* Ashmead **n. syn.**, and *Eupelmus quercus* under *E. (Eupelmus) cynipidis* Ashmead **n. syn.** The subspecies *Eupelmus cyaniceps scolyti* Liao, described originally from China, is treated as *E. (Eupelmus) scolyti* Liao **n. stat.** and compared to *E. (Eupelmus) formosae* Ashmead. *Eupelmus floridanus* Howard is treated as a **nomen dubium** and the following 20 species are newly transferred from *Eupelmus* to other genera — *Anastatus (Anastatus) ashmeadi* (Melander & Brues) **n. comb.**, *Brasema aurata* (Ashmead) **n. comb.**, *Brasema barda* (Girault) **n. comb.**, *Brasema brevicauda* (Crawford) **n. comb.**, *Brasema bruchivora* (Crawford) **n. comb.**, *Brasema coccidis* (Girault) **n. comb.**, *Brasema dryophantæ* (Ashmead) **n. comb.**, *Brasema flavovariegata* (Ashmead) **n. comb.**, *Brasema fontei* (Walker) **n. comb.**, *Brasema juglandis* (Ashmead) **n. comb.**, *Brasema lamachus* (Walker) **n. comb.**, *Brasema limneriæ* (Howard) **n. comb.**, *Brasema macrocarpæ* (Ashmead) **n. comb.**, *Brasema neococcidis* (Peck) **n. comb.**, *Brasema neomexicana* (Girault) **n. comb.**, *Brasema rosæ* (Ashmead) **n. comb.**, *Brasema speciosa* (Girault) **n. comb.**, *Brasema sphaericephalus* (Ashmead) **n. comb.**, *Reikosiella (Reikosiella) biguttata* (Girault) **n. comb.**, and *R. (Reikosiella) charitopoides* (Girault) **n. comb.**

Key words: Chalcidoidea, Eupelminae, illustrated key

Introduction

Species of *Eupelmus* Dalman (Hymenoptera: Chalcidoidea: Eupelmidae: Eupelminae) have been classified in the three subgenera *E. (Eupelmus)*, *E. (Episolidelia)* Girault, and *E. (Macroneura)* Walker since Gibson (1995). The seven North American species of *E. (Macroneura)* were revised and keyed under the generic name *Macroneura* by Gibson (1990). However, there are no keys to the North American species of *E. (Episolidelia)* or *E. (Eupelmus)* excluding two species that Crawford (1908) included in *Cerambycobius* Ashmead, a junior synonym of *Brasema* Cameron, and three species of *E. (Eupelmus)* that parasitize the oriental fruit moth (Allen 1962). Furthermore, when Gibson (1995) differentiated *Brasema* from *Eupelmus* he did not include a list of valid species in either of the two genera. Most species of *Brasema* were described originally in *Eupelmus* and although Burks *et al.* (2005) corrected the nomenclature of the South American species, most North American *Brasema* remain incorrectly classified in *Eupelmus*. Because of this, Noyes (2010) listed 44 available valid species names for *Eupelmus* in the Nearctic region, but of these only 24 are true *Eupelmus* and the other names belong in *Brasema* or other genera.

Species of *Eupelmus* are mostly primary or secondary larval/pupal ectoparasitoids of a wide variety of holometabolous insects in concealed situations. Species recognition in the genus, as for other genera of Eupelminae, is based almost entirely on females. This is partly because of the extreme sexual dimorphism that uniquely characterizes Eupelminae within Eupelmidae (Gibson 1986, 1995), but also because males of most species are even more similar to each other than are females. Males of some species have been described if they were reared or otherwise associated with females, but since Ruschka (1921) keys to species of *Eupelmus* invariably differentiated only females. Furthermore, the correct application of names in North America for species of *E. (Eupelmus)* depends partly on resolution of species concepts within the “*urozonus*-group” in Europe, as is discussed under *E. (Eupelmus)*. The present paper is an initial attempt to clarify the taxonomy and host relationships of Nearctic *Eupelmus* by revising the morphospecies of *E. (Episolidelia)* and *E. (Eupelmus)* within North America north of Mexico. This necessitated reviewing concepts and nomenclature of *urozonus*-group species in Europe and the generic placement of species classified in *Eupelmus* in North America. Although much was accomplished, readers are warned that exact limits of variation for some *urozonus*-group species in North America remain uncertain and not all males or females were confidently distinguished. Ultimately, accurate determination of species limits for *urozonus*-group species in both North America and Europe will require comprehensive molecular and biological analyses in association with refined morphological concepts.

Material and methods

This study was based on about 3,300 examined regional specimens plus additional Palaearctic and Neotropical specimens from 34 institutions listed below. Collections designated with an asterisk (*) indicate institutions that contain, but from which type material was not borrowed for examination. Type specimens of species described