New state records for 33 species of round fungus beetles, small carrion beetles and mammal nest beetles (Coleoptera: Leiodidae) in Ohio, USA

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Abstract. New state records for 33 species of Leiodidae (Coleoptera) are reported from Ohio, with the majority of records from one locality in the southeastern portion of the state. This doubles the known members of the family in Ohio to 66 species in 20 genera.

Key words. Ohio coleopterists, fungivore, local biodiversity.

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Introduction
As part of an ongoing project through the Ohio Coleopterists Society to obtain records for a future checklist of the beetles of Ohio, the Leiodidae (Coleoptera) present an exceptional case. The family Leiodidae is represented by 38 genera and 382 species in North America north of Mexico (Peck and Newton 2017). In their annotated catalog of the Nearctic Leiodidae, Peck and Newton (2017) list 29 species of Leiodidae found to occur in Ohio, with an additional two species from Wheeler (1979) and two species from Karns (2019). Peck and Newton’s (2017) catalog lists the states surrounding Ohio as having significantly higher documented records of Leiodidae (Indiana 39, Kentucky 55, Michigan 54, Pennsylvania 47, and West Virginia 36). The new Ohio state records presented herein bring the Ohio total to 66 species in 20 genera (Table 1), a clearer reflection of the diversity of the Leiodidae known to occur in the state.

Materials and Methods
Representatives of the family Leiodidae that form the basis of this report were collected with large area flight intercept traps (FIT) operated year round, Lindgren funnel traps (LFT) baited with ethanol, a UV light trap, and from a mammal host. The main study area herein referred to as the author’s cabin property (39°15.274′N, 82°21.390′W, 2 miles NE of Prattsville), consists of 9.7 hectares of privately held upland beech-maple hardwood forest in Vinton County, Ohio.

Traps were serviced weekly with all male specimens of Leiodidae extracted, the genitalia dissected, cleared, and placed in euparal on acetate strips which were placed on the pin with the mounted beetle. The evaluation of the aedeagus in all Leiodidae is of great utility in facilitating determination to species (Cooter and Barclay 2006; Peck and Cook 2013b) and is recommended by the author as a matter of course. Due to the difficulty in determining female specimens to species, only males were used for this report. Sample size is indicated by (n =). Materials reported in this study are deposited in the author’s collection.

Table 1. Checklist of Leiodidae known in Ohio based on Wheeler (1979), Peck and Newton (2017), and Karns (2019). New records presented herein are marked with an asterisk *.

<table>
<thead>
<tr>
<th>Subfamily</th>
<th>Tribe</th>
<th>Species</th>
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<tbody>
<tr>
<td>Coloninae</td>
<td>Colon</td>
<td>(Colon) arcum Peck and Stephan</td>
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<tr>
<td></td>
<td></td>
<td>(Myloechus) dentatum LeConte*</td>
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<td></td>
<td>Colon</td>
<td>(Myloechus) forceps Hatch*</td>
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<td>(Myloechus) hubbardi Horn*</td>
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<td></td>
<td>Colon</td>
<td>(Myloechus) megaspostosum Peck and Stephan</td>
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<td></td>
<td>(Myloechus) monstrosum Peck and Stephan*</td>
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<td></td>
<td>Colon</td>
<td>(Eurycolon) oblongum Blatchley*</td>
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<tr>
<td>Leiodinae</td>
<td>Sogdini</td>
<td>Hydnobius longidens LeConte</td>
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<td></td>
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<td>Hydnobius pumilus LeConte*</td>
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<tr>
<td>Leiodini</td>
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<td>Anogdus obsoletus (Melsheimer)*</td>
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<td></td>
<td></td>
<td>Anogdus puritanus (Fall)*</td>
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<td>Anogdus tridens Peck and Cook*</td>
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<td>Cyrtusa subtestacea (Gyllenhal)*</td>
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<td>Isoplustus fossor Horn*</td>
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<td>Leiodes appalachiana Baranowski*</td>
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<td>Leiodes assimiloides Baranowski*</td>
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<td>Leiodes autumnalis Baranowski*</td>
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<td>Leiodes campbelli Baranowski*</td>
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<td>Leiodes collaris (LeConte)*</td>
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<td>Leiodes conferta (LeConte)*</td>
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<td>Leiodes grandipes Baranowski*</td>
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<td>Leiodes pygmaea Baranowski*</td>
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<td>Leiodes sorensoni Baranowski*</td>
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<td>Leiodes stephani Baranowski*</td>
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<td>Lionothus forticornis Daffner*</td>
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<td>Lionothus ulkei Brown*</td>
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<td>Zeadolepus egenus (LeConte)*</td>
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<td>Pseudolioidini</td>
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<td>Colenis bifida Peck</td>
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<td>Colenis impunctata (LeConte)</td>
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<td>Colenis stephani Peck</td>
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<td>Scotocryptini</td>
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<td>Aglyptinus laevis (LeConte)</td>
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<td>Agathidiini</td>
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<td>Agathidium aristerium Wheeler</td>
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<td>Agathidium atroritens Fall</td>
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<td></td>
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<td>Agathidium bushi Miller and Wheeler</td>
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<td>Agathidium dubitans Fall</td>
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<td>Agathidium exiguum Melsheimer</td>
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<td>Anisotoma basalis (LeConte)</td>
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<td>Anisotoma bifoveata Wheeler</td>
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<tr>
<td></td>
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<td>Anisotoma blancharidi (Horn)</td>
</tr>
</tbody>
</table>
Results

Subfamily Coloninae Horn, 1880

Genus *Colon* Herbst, 1797


**Subfamily Leiodinae** Fleming, 1821

**Tribe Sogdini** Lopatin, 1961

**Genus Hydnobius** Schmidt, 1841


**Tribe Leiodini** Fleming, 1821

**Genus Anogdus** LeConte, 1866


*Anogdus puritanus* (Fall). New State Record (*n* = 1): OHIO: Vinton County, author’s cabin property from FIT: 7–14 July 2012(1). This record represents a significant range extension from the previously known distribution: CANADA: MB, ON, QC, USA: MA, NC, SC (Peck and Newton 2017).


**Genus Cyrtusa** Erichson, 1842


**Genus Isoplastus** Horn, 1880

New state records for Leiodidae in Ohio

Genus *Leiodes* Latreille, 1797


*Leiodes assimiloides* Baranowski. **New State Record** \((n = 1)\): OHIO: Vinton County, author’s cabin property from FIT: 25 May–1 June 2013(1).


*Leiodes collaris* (LeConte). **New State Record** \((n = 1)\): OHIO: Vinton County, author’s cabin property from FIT: 12–19 May 2012(1).

*Leiodes conferta* (LeConte). **New State Record** \((n = 2)\): OHIO: Vinton County, author’s cabin property from FIT: 15–27 November 2014(1), 3–17 January 2015(1). The eastern North American distribution for *L. conferta* is represented by the type specimen from Illinois and is presently known from three localities in Ontario and one in Quebec, Canada (Baranowski 1993).

Baranowski (1993) further suggests *L. conferta* has its activity period very late in the year. Specimens known to him were collected from October to December. The Ohio records herein support the cool season activity of this species, which may contribute to its apparent rarity in collections.


Baranowski (1993) lists the North American distribution of *L. grandipes* as: KY, NC, TN, VA, WV. Baranowski (1993) further states *L. grandipes* is “Restricted to the central Appalachian Mountains in North America”. The Ohio records herein represent the first apparent occurrence of this species outside a montane habitat. The Ohio records suggest *L. grandipes* has a peak activity period late September-January, with teneral specimens April-June.


Baranowski (1993) states “This is probably a rare species” with the habitat unknown and likely overwintering as an adult.


Leiodes stephani Baranowski. New State Record \((n = 1)\): OHIO: Vinton County, author’s cabin property from a FIT: 8–15 June 2013(1).

Genus Lionothus Brown, 1937


Lionothus ulkei Brown. New State Record \((n = 5)\): OHIO: Vinton County, author’s cabin property from FIT: 5–16 May 2012(3), 7–14 July 2012(2). The Ohio records herein represent a moderate range extension for this species previously recorded from: USA: DC, FL, GA, MD, MS, OK, TX, VA (Peck and Newton 2017).

Genus Zeadolopus Broun, 1903


Zeadolopus oklahomensis Daffner. New State Record \((n = 2)\): OHIO: Vinton County, author’s cabin property from FIT: 19–27 May 2012(1), 8–15 June 2013(1). The records herein represent a moderate range extension for this species previously recorded from: USA: AL, AR, FL, OK, TX, VA (Peck and Newton 2017).

Subfamily Cholevinae Kirby, 1837

Tribe Cholevini Kirby, 1837

Genus Catops Paykull, 1798

Catops alsiosus alsiosus (Horn). New State Record \((n = 1)\): OHIO: Vinton County; author’s cabin property from a FIT: 31 March–6 April 2018(1).

Tribe Ptomaphagini Jeannel, 1911

Genus *Ptomaphagus* Hellwig, 1795


Subfamily Platypsyllinae Ritsema, 1869

Genus *Platypsyllus* Ritsema, 1869

*Platypsyllus castoris* Ritsema. **New State Record** *(n = 22)*: OHIO: Perry County, Bristol Farm, from trapped American beaver, *Castor canadensis* Kuhl (MAMMALIA: CASTORIDAE): 4 December 1998 (22). Specimens of this interesting ectoparasitic beetle were hand collected from a recently dead beaver. Peck (2006) states “the full distribution of the beetle is probably the same as that of the host”.

Conclusions

The Leiodidae present an interesting case illustrating our poor understanding of the beetle fauna in Ohio. Even though this study doubled the number of reported species, it is based primarily on sampling of a single locality. Ohio has many other regions and habitats that are likely under sampled with unknown faunas. Additional new records for Ohio are anticipated as appropriate surveys are made in other areas.

Acknowledgments

The author thanks the Ohio Department of Natural Resources Division of Forestry, Parks and Recreation and Wildlife Areas for their continued support of the Ohio Coleopterists Society and for providing permits for the sampling of Coleoptera diversity on property under their care. Additional thanks go to Robert A. Androw (Carnegie Museum of Natural History), Robert L. Otto (Shawano, Wisconsin), and editorial staff for their review and valuable input on the manuscript.

Literature Cited


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