

Two New Handsome Fungus Beetle (Coleoptera: Endomychidae: Lycoperdininae, Epopocinae) Records for Oklahoma

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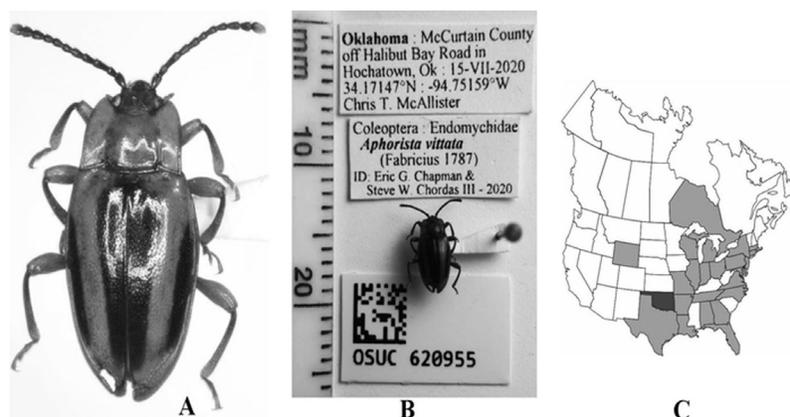
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Insects belonging to the order Coleoptera include more described species (> 400,000) than any other group of organism on Earth. As such, they make up 40% of all insect species described to date, which is also about 25% of all animals (McHugh and Liebherr 2009).

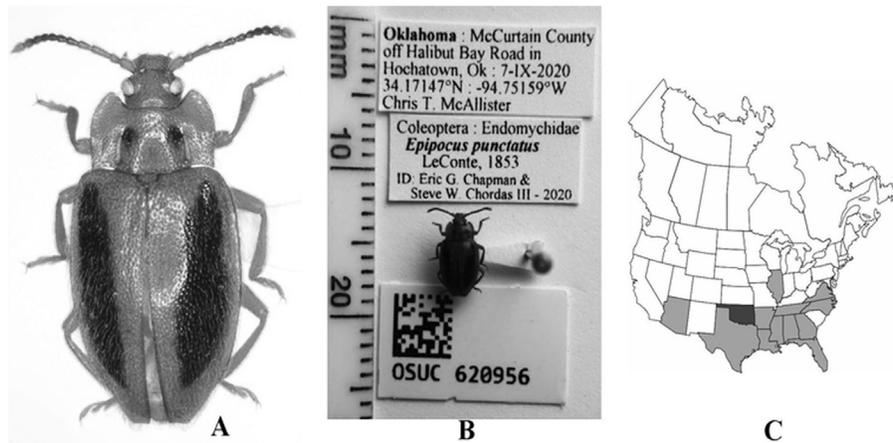
The handsome fungus beetles of the family Endomychidae currently includes approximately 130 genera and 1,782 species and subspecies arranged among 12 subfamilies with the highest diversity in tropical and subtropical areas of Africa, Asia and the Americas (Shockley et al. 2009a, b). In terms of diversity in Oklahoma, there are 10 genera and 12 species in the family (<http://entoweb.okstate.edu/museum/coleoptera/Endomychidae>.

These beetles are relatively small to moderately sized, mostly reddish-brown in color and usually with contrasting markings on the pronotum and/or elytra. The subfamily Lycoperdininae constitutes the largest subfamily of Endomychidae, containing 38 genera and over 635 described species (Tomaszewska 2005).

During July and September 2020, two beetles were collected below a night light at a residence in Hochatown, McCurtain County. They were transferred to individual vials containing 70% (v/v) ethanol. Voucher specimens were deposited in the C. A. Triplehorn Collection at The Ohio State University, Columbus, Ohio. Dorsal habitus images of each species (Figs. 1A, 2A) were created via stacking digital



Figures 1A–C. *Aphorista vittata*. (A) Dorsal view of *A. vittata*. (B) (Top to bottom) location label, identification label, voucher specimen, unique museum number and code, scale bar in millimeters (mm) on left side of each image. (C) Distribution of *A. vittata* in North America. Light shade = prior literature records (Shockley et al. 2009); dark shade = new state record.



Figures 2A–C. *Epipocus punctatus*. (A) Dorsal view of *E. punctatus*. (B) (Top to bottom) location label, identification label, voucher specimen, unique museum number and code, scale in millimeters (mm) on left side of each image. (C) Distribution of *E. punctatus* in the United States. Light shade = prior literature records (Shockley et al. 2009); dark shade = new state record.

photographs (using CombineZP) of the curated voucher specimens captured with a Cannon EOS DSLR through an Olympus SZ60 dissecting microscope processed with Corel PaintShopPro 2021 (Corel Corporation 2020). Maps of literature records (Figs. 1C, 2C) were created with CorelDraw 2019 (Corel Corporation 2019), museum and data labels with voucher specimen and millimeter (mm) scale (Figs. 1B, 2B) were captured using a 10× close-up lens attachment on a Cannon EOS DSLR.

One beetle was identified as *Aphorista vittata* (Fabricius, 1787) (Fig. 1A) with the following collection data: **Oklahoma**: McCurtain County, off Halibut Bay Road in Hochatown (34° 10' 17.0286"N, 94° 45' 5.7414"W); 15 VII 2020; C. T. McAllister (CTM), collector (unique museum specimen code: OSUC 620955) (Fig. 1B). Habitat of the area included various pines (*Pinus* spp.) and hardwoods (*Quercus* spp.) situated in the Southern Ouachita Mountain uplands.

Aphorista vittata is a species of handsome fungus beetle that occurs in North America and Southern Asia. It is a small to moderately-sized (5.5 to 8.0 mm), bright and attractively colored orange to brownish red mycetophagous beetle with elongate, tapering black stripes on the elytra down to the suture and a long black spot on each side; its front coxae are globular

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and distinctly separated (Tomaszewska 2005). Adults are attracted to light and often associated with wood rotting basidiomycete fungi of the family Boletaceae (Tomaszewska 2005; Ferreira 2016). This beetle has now been recorded from Ontario, Canada, and the following US states: Alabama, Arkansas, Connecticut, Delaware, Florida, Georgia, Illinois, Indiana, Louisiana, Massachusetts, Maryland, Michigan, Missouri, North Carolina, New Jersey, New York, Ohio, **Oklahoma (new state record)**, Pennsylvania, Rhode Island, Tennessee, Texas, Wisconsin, Wyoming, Virginia, and Washington, D.C. (Shockley et al. 2009a; Fig. 1C). In addition, Shepard (1983) reported three species of endomychids from the state but not *A. vittata*. Because this beetle has not been previously documented from Oklahoma, we report *A. vittata* here as a new geographic record for the state.

The other beetle was a handsome fungus beetle, *Epipocus punctatus* LeConte, 1853 (Fig. 2A) with the following collection data: **Oklahoma**: McCurtain County, off Halibut Bay Road in Hochatown (34° 10' 17.0286"N, 94° 45' 5.7414"W); 6 IX 2020; CTM, collector (unique museum specimen code: OSUC 620956) (Fig. 2B). It belongs to the *tibialis* group and ranges in length from 4.8 to 7.3 mm, the ventral surface is entirely red, and possesses a pronotum with

narrow margins and two black spots and an M-shaped mark on its disc (Strohecker 1977). This beetle has been previously reported from Costa Rica, El Salvador, Guatemala, Honduras, México, Panama, and now 13 U.S. states, Alabama, Arkansas, Arizona, Florida, Georgia, Illinois, Louisiana, Mississippi, North Carolina, **Oklahoma (new state record)**, Tennessee, Texas, and Virginia (Fig. 2C). In México, specimens of *E. punctatus* have been collected from hard bracket poroid fungus (Polyporaceae) and banana debris (Arriaga-Varela et al. 2007).

Several species of handsome fungus beetles (including *A. vittata*) tend to orient to filter paper baited with cantharidin (2,6-dimethyl-4,10-dioxatricyclo-[5.2.1.0] decane-3,5-dione), an odorless, colorless, defensive compound produced by most meloid and some oedemerid beetles (Price and Young 2006). However, the role of cantharidin in the biology of endomychids is not known but one thought is it may mimic other terpenoid compounds in the environment, such as terpenoid fungal metabolites that may promote beetles in locating fungal hosts (Young 1984). Therefore, collection methods for endomychids should include cantharidin-baited pitfall traps. Using this sampling technique could increase the number of taxa of handsome fungus beetles reported from Oklahoma.

Acknowledgments

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References

- Arriaga-Valera E, Tomaszewska W, Naverete-Heredia JL. 2007. A synopsis of the Endomychidae (Coleoptera: Cucujoidea) of México. *Zootaxa* 1594:1–38.
- Corel Corporation. 2019. CorelDraw 2019 [software]. Ottawa (Ontario): Canada.
- Corel Corporation. 2020. PaintShopPro 2021 [software]. Ottawa (Ontario): Canada.
- Ferreira RN. 2016. Annotated checklist of the handsome fungus beetles of Connecticut, USA (Coleoptera: Cucujoidea: Endomychidae). *Arq Entomol* 15:279–289.
- McHugh JV, Liebherr JK. 2009. Coleoptera. In Resh VH, Cardé RT (eds.). *Encyclopedia of insects*, Second Ed. New York (NY): Academic Press. p 183–201.
- Price MB, Young DK. 2006. An annotated checklist of Wisconsin sap and short-winged flower beetles (Coleoptera: Nitidulidae, Kateretidae). *Insect Mund* 20:69–84.
- Shepard WD. 1978. Records of minor families of Coleoptera from Oklahoma. *Proc Okla Acad Sci* 58:44–47.
- Shockley FW, Tomaszewska KW, McHugh JV. 2009a. An annotated checklist of the handsome fungus beetles of the world (Coleoptera: Cucujoidea: Endomychidae). *Zootaxa* 1999:1–113.
- Shockley FW, Tomaszewska KW, McHugh JV. 2009b. A review of the natural history of the handsome fungus beetles (Coleoptera: Cucujoidea: Endomychidae). *Insect Mund* 72:1–24.
- Strohecker HF. 1977. Revision of the genus *Epipocus* (Coleoptera: Endomychidae). *Trans Amer Entomol Soc* 103:303–325.
- Tomaszewska KW. 2005. Phylogeny and generic classification of the subfamily Lycoperdininae with a re-analysis of the family Endomychidae (Coleoptera: Cucujoidea). *Ann Zool* 55 (Suppl. 1):1–172.
- Young DK. 1984. Field records and observations of insects associated with cantharidin. *Great Lakes Entomol* 17:195–199.

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