

2022

## Additional Distributional Records for a Rare Caddisfly in the Ozarks, *Frenesia missa* (Milne) (Trichoptera: Limnephilidae)

David Bowles

Retired, dbowles524@gmail.com

Follow this and additional works at: <https://scholarworks.uark.edu/jaas>



Part of the [Biodiversity Commons](#), and the [Entomology Commons](#)

---

### Recommended Citation

Bowles, David (2022) "Additional Distributional Records for a Rare Caddisfly in the Ozarks, *Frenesia missa* (Milne) (Trichoptera: Limnephilidae)," *Journal of the Arkansas Academy of Science*: Vol. 76, Article 10.

DOI: <https://doi.org/10.54119/jaas.2022.7601>

Available at: <https://scholarworks.uark.edu/jaas/vol76/iss1/10>

This article is available for use under the Creative Commons license: Attribution-NoDerivatives 4.0 International (CC BY-ND 4.0). Users are able to read, download, copy, print, distribute, search, link to the full texts of these articles, or use them for any other lawful purpose, without asking prior permission from the publisher or the author.

This General Note is brought to you for free and open access by ScholarWorks@UARK. It has been accepted for inclusion in Journal of the Arkansas Academy of Science by an authorized editor of ScholarWorks@UARK. For more information, please contact [scholar@uark.edu](mailto:scholar@uark.edu).

---

## Additional Distributional Records for a Rare Caddisfly in the Ozarks, *Frenesia missa* (Milne) (Trichoptera: Limnephilidae)

### Cover Page Footnote

I thank Tim Vogt, Missouri Department of Conservation for providing specimens from Husman Fen Natural Area, Greg Courtney for collecting specimens in Arkansas, and Joy Mathis for clarifying the location of the Roam farms.

## Additional Distributional Records for a Rare Caddisfly in the Ozarks, *Frenesia missa* (Milne) (Trichoptera: Limnephilidae)

D. E. Bowles

*Ozarks Biological*, 2638 N. Valencia Ave., Fayetteville, Arkansas 72703

Correspondence: Ozarksbiological@gmail.com

Running Title: *Frenesia missa* in the Ozarks

The caddisfly, *Frenesia missa* (Milne) (Trichoptera: Limnephilidae), is widely distributed in the northern and eastern United States and south and eastern Canada (summarized in Moulton and Stewart 1996). In contrast, it has been rarely collected in the Ozarks Physiographic Province (Figure 1). This species was first reported from the Ozarks by Bowles and Mathis (1989) from a small spring near Savoy, Arkansas. Moulton and Stewart (1996) reported several additional specimens of *F. missa* that were reared from pupae collected from the same spring referenced in Bowles and Mathis (1989). Bowles et al. 2020 reported it from a spring in Newton County, Arkansas. It was subsequently reported from two intermittent springs in Pulaski County, Missouri (Mathis and Bowles 1992). Moulton and Stewart (1996) indicated *F. missa* is found in spring seeps on the Springfield Plateau and Osage-Gasconade Hills of the Salem Plateau, and some records from Newton County, Arkansas are located in the Boston Mountains. All Missouri collection records are located on the Salem Plateau. A recent collection from Benton County, Arkansas reported here is a new county record for the state. Likewise, a collection from Reynolds County is a new county record for Missouri, and the first known occurrence from a fen habitat. Arkansas represents the southernmost and likely the westernmost known distributional limit for this species.

The larva was described by Ross (1944) who also illustrated the male and female genitalia. Wiggins (1996) illustrated the larva. Mathis (1997) described the primary larval setation of *F. missa*, which is useful for identifying early instar larvae.

The biology of *F. missa* was presented by Flint (1956). Subsequently, Mathis (1999) described the life history of this species from the Ozarks, which he found was distinctly univoltine. Throughout its range, *F. missa* adults emerge from September through January (Mathis 1999) (Figure 2). Mathis (1999) also noted that *F. missa* is day active and not strongly attracted to light, with only a few individuals being collected using standard light trap methods. That observation matches my experience with this species. The late flight period for adults, coupled with their poor attraction to lights,

may help explain why this species is not commonly collected.

The various records reported here indicate a potentially wide yet scattered distribution of *F. missa* in the Ozarks. Given that the primary habitat of this species is small spring seeps, it is recommended this species be made a species of conservation concern in both Arkansas and Missouri. Although small springs and seeps are abundant in the Ozarks, they are highly vulnerable to a variety of anthropogenic stressors. For example, drying associated with lowered aquifer levels due to groundwater pumping and drought, threatens to dewater the habitats where this species lives. Some small seeps in the Ozarks have already stopped flowing (personal observation). It is anticipated that climatic droughts will become longer and more frequent with the increasing impacts of global climate change (IPCC 2021).

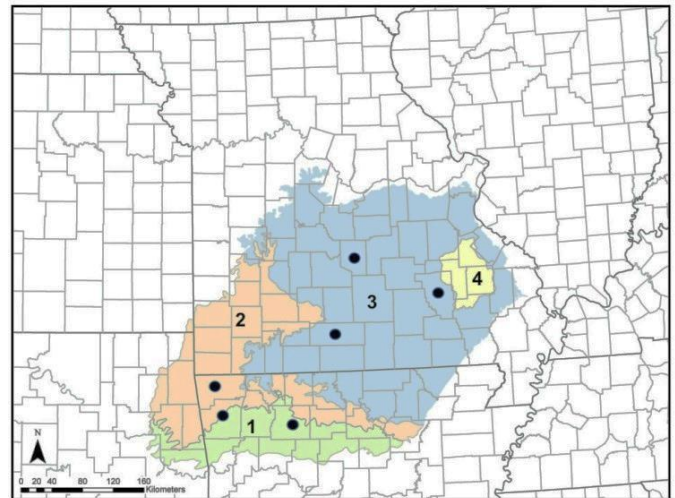


Figure 1. Map of Arkansas and Missouri showing the known county level distribution for *Frenesia missa*, (dots). Highlighted area is the Ozarks Physiographic Region: 1. Boston Mountains, 2. Springfield Plateau, 3. Salem Plateau, 4. St. Francois Mountains.

### Ozarks Regional Collection Data

Enns Museum, University of Missouri-Columbia (UMC); University of Arkansas Insect Collection

***Frenesia missa* in the Ozarks**

(UAIC); David E. Bowles personal collection (DEB); Missouri Department of Natural Resources (MDNR).

**USA, ARKANSAS: Benton Co.**, Bella Vista, 36.4781722, -94.2134164, 25.xi.2021, D. E. Bowles, at light, 1♂, 2♀♀. **Newton Co.**, Buffalo National River, LuAllen Spring-run, Upper Boxley Valley, 35.9441444, -93.4004388, 1991, M. L. Mathis, several larvae (UAIC); same, but, 36.0205972, -93.3430472, 28.iii. 2021, spring seep flowing into small woodland pond, Greg W. Courtney and D. E. Bowles, 3 larvae. (DEB). **Washington Co.**, small spring, 1 mi W of Savoy, 36.1014472, -94.3408499, xi.1988, D. E. Bowles, 1♂ (reared from pupa) (UAIC) (Bowles and Mathis 1989). Additional specimens from this location reared by Moulton and Stewart (1996). **MISSOURI: Douglas Co.**, NW1/4, S36, T25N, R14W, 36.8117702, -92.4324478, 6.v.2020, J. Chilton and C. Wakefield, root mat, 2 larvae (MDNR). **Pulaski Co.**, Cave Spring, Wayne Roam farm near Swedeborg, S Road T-740, 37.87656, -92.28069, March-September, M. L. Mathis (UAIC) (Mathis and Bowles 1992); same, but unnamed spring, Edith Roam farm near Swedeborg, S Road T-740, 37.889283, -92.297098, March-September, M. L. Mathis (UAIC) (Mathis and Bowles 1992). **Reynolds Co.**, Husman Fen Natural Area, (coordinates not available), 13.xi.2010, T. E. Vogt, at large, 2♂♂ (UMC).

Fen Natural Area, Greg Courtney for collecting specimens in Arkansas, and Joy Mathis for clarifying the location of the Roam farms.

**Literature Cited**

- Bowles DE, CR Cheri, FD Usrey, and JM Williams.** 2020. Caddisflies (Trichoptera) of the Buffalo National River, Arkansas. *Insecta Mundi* 0770:1–17.
- Bowles DE and ML Mathis.** 1989. Caddisflies (Insecta: Trichoptera) of mountainous regions in Arkansas, with new state records for the order. *Journal of the Kansas Entomological Society* 62:234–244.
- Flint OS.** 1956. The life history and biology of the genus *Frenesia* (Trichoptera: Limnephilidae). *Bulletin of the Brooklyn Entomological Society* 51:93–108.
- Intergovernmental Panel on Climate Change (IPCC).** In press. *Climate Change 2021: The Physical Science Basis. Contribution of Working Group I to the Sixth Assessment Report of the Intergovernmental Panel on Climate Change.* Cambridge University Press (UK). 196 p.
- Mathis ML** (Ohio Biological Survey). 1997. Primary setation of caddisfly larvae (Trichoptera) with emphasis on Limnephiloids. *In: Holzenthal RW and OS Flint, OS Jr., editors. Proceedings of the 8<sup>th</sup> International Symposium on Trichoptera.* Columbus (OH). p 293–302.
- Mathis ML.** 1999. Life histories of three species of limnephiloid caddisflies (Trichoptera: Limnephilidae, Uenoidae) inhabiting a temporary spring in the Ozark Mountains, U.S.A.. *In: Malicky H and Chagtaramongkol P., editors. Proceedings of the 9th International Symposium on Trichoptera.* Chiang Mai (TH). p 43–52.
- Mathis ML and DE Bowles.** 1992. A preliminary survey of the Trichoptera of the Ozark Mountains, Missouri, U.S.A. *Entomological News* 103:19–29.
- Moulton SR III and KW Stewart** (The American Entomological Institute). 1996. Caddisflies (Trichoptera) of the Interior Highlands of North America. *Memoirs of the American Entomological Institute.* Gainesville (FL). p 313.
- Ross HH.** 1944. The caddisflies, or Trichoptera, of Illinois. *Bulletin of the Illinois Natural History Survey* 23:1–326.
- Wiggins GB.** 1996. *Larvae of the North American caddisfly larvae (Trichoptera), second edition.* University of Toronto Press, Toronto (CA). p 457.



Figure 2. *Frenesia missa*, male, from Benton County, Arkansas.

**Acknowledgments**

I thank Tim Vogt, Missouri Department of Conservation for providing specimens from Husman