

## NEW RECORDS OF PARASITIC WASPS (HYMENOPTERA) FROM THE INTERIOR HIGHLANDS OF ARKANSAS<sup>1</sup>

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**ABSTRACT:** New records of parasitic hymenopterans are presented from Arkansas including 50 new state records and 14 significant range extensions into the state. Twenty-three parasitic wasp species were discovered in nine seeps/springs in the Ouachita National Forest while 21 parasitic species were found in eight springs in the Ozark National Forest. The findings from these Arkansas seeps and springs based on pan-trapping demonstrate the importance of these unique habitats.

Recent collections from yellow and white pan traps in the Ozark and Ouachita Mountains in Arkansas have yielded many new state and regional records of hymenopteran parasitic wasps, in addition to several new species unknown previously to science. Relatively little is known concerning the parasitic wasps inhabiting Arkansas. Earlier, Masner (1990) had commented that the faunal exploration of Hymenoptera of America north of Mexico was far from complete and recommended field work in underexplored or unexplored areas of the Ozark Plateau, among other areas. This study was conducted to collect more information concerning the biodiversity of the Ozark and Ouachita Mountains and the distributional ranges of those hymenopteran species inhabiting these upland areas of the state.

It has long been known that the Ozarks and Ouachita Highlands in Arkansas represent areas of biogeographic significance. These regions represent considerable endemism and refugia for disjunct populations of organisms particularly those with faunal affinities to the southern Appalachian Mountains (Ross and Ricker, 1971; Mayden, 1985; Carlton and Cox, 1989; Poulton and Stewart, 1991; Mohlenbrock, 1993; Robison and Allen, 1995; Carlton and Nobles, 1996; Moulton and Stewart, 1996; Robison et al., 1997; and Carlton and Robison, 1998). With this in mind, a systematic collecting effort was initiated in 1993 to survey the parasitic hymenopteran fauna in the Interior Highlands region of Arkansas. Collecting efforts were concentrated primarily in seep and spring areas, which are known to be preferred habitat for certain parasitic wasps.

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## METHODS AND MATERIALS

Wasps were collected using yellow and white pan traps. After capture, wasps were rinsed in freshwater and subsequently placed in 70 percent isopropyl alcohol or 95 percent ethanol for storage and forwarded to LM for positive identification. This study was an offshoot of a larger project on the biodiversity of the springs and seeps of the Ouachita Mountains in Arkansas by H. W. Robison and Betty G. Crump. Specimens remain in the care of LM in the Canadian National Collection of Insects (CNCI, Ottawa).

## RESULTS

Collection localities, dates of capture, and brief notes on habitat or rarity relating to each species are included below by family.

**Scelionidae**

*Baryconus bidentatus* Ritchie and Masner. AR: Johnson Co.: Baker Spring, ca. 5 mi. N. of Oark, Sec. 27, T13N, R24W. 6 Sept. 1994. Rare species; second record from AR.

*Baryconus floridanus* Ashmead. AR: Johnson Co.: Baker Spring, ca. 5 mi. N. of Oark, Sec. 27, T13N, R24W. 6 Sept. 1994. Montgomery Co.: Blue Springs, 7 mi. NW Bonnerdale, S of Rd. 44, Sec. 15, T3S, R23W. 5 July 1998. Rare eastern species.

*Cremastobaeus* sp. AR.: Johnson Co.: Little Piney Creek at St. Hwy. 123, 5 mi. NE. of Hagarville, Sec. 26, T11N, R22W. 15-28 July 1994. One male. This undescribed species is known from other states. **New state record for the genus.**

*Gryon floridanum* (Ashmead). AR: Montgomery Co.: Singing Springs, 7 mi. NE of Norman, Sec. 22, T3S, R24W. 25 June 1998. Blue Springs, 7 mi. NW of Bonnerdale, S. of Rd. 44, Sec. 15, T3S, R23W. 5 June 1998; 10 July 1998. **New state record.**

*Gryon insulare* (Ashmead). AR: Montgomery Co.: Boxx Springs, 4.5 mi. SW of Black Springs, E of Rd. 11, Sec. 33, T3S, R26W. 25 June 1998. Rare eastern species.

*Holoteleia coracea* Masner. AR: Montgomery Co.: Boxx Springs, 4.5 mi. SW of Black Springs, E. of Rd. 11, Sec. 33, T3S, R26W. 14 Nov. 1995. Blue Springs, 7 mi. NW Bonnerdale, south of Rd. 44, Sec. 15, T3S, R23W. 8 October 1998. **New state record.**

*Holoteleia laticeps* Masner. AR: Johnson Co.: Baker Flats Springs, ca. 5 mi. N. of Oark, Sec. 27, T13N, R24W. 11 September 1995. **New state record.** Significant extension of range to the west in distribution.

*Holoteleia polita* Masner. AR: Johnson Co.: Baker Flats Springs, ca. 5 mi. N. of Oark, Sec. 27, T13N, R24W. 11 Sept. 1995. One female. Montgomery Co.: Singing Springs, 7 mi. E. of Norman, Sec. 22, T3S, R24W. **New state record.** Significant extension to the west in distribution.

*Idris castaneus* Masner and Denis. AR: Johnson Co.: Gilliam Bog, Sec.11, T11N, R23W. 6 Sept. 1994. Montgomery Co.: Blue Springs, 7 mi. NW of Bonnerdale, Sec. 15, T3S, R23W, S. of Rd. 14. 22 Nov. 1995. **New state record.**

*Idris cornutus* (Ashmead). AR: Montgomery Co.: Singing Springs, 7 mi. N Norman, Sec. 22, T3S, R24W. 25 June 1998. Rare eastern species. **New state record.**

*Idris leedsi* Masner and Denis. AR: Johnson Co.: Baker Spring, ca. 5 mi. N. of Oark, Sec. 27, T13N, R24W. 6 Sept. 1994. **New state record.**

*Idris* sp. A. **Undescribed species.** AR: Johnson Co.: Little Piney Creek at St. Hwy. 123, ca. 5 mi. E. of Hagarville, Sec. 26, T11N, R22W. 15-28 Sept. 1994. **New state record.**

*Idris* sp. B. **Undescribed Species.** AR: Johnson Co.: White Road Spring, ca. 12 mi. NE Clarksville, Sec.28, T11N, R22W. 6 Sept. 1994. One male. **New state record.**



*Inostemma* sp. AR: **Undescribed species**. Johnson Co.: Little Piney Creek at St. Hwy. 123, ca. 5 mi. E. of Hagarville, Sec. 26, T11N, R22W. 6 Sept. 1994. Known from elsewhere. **New state record**.

*Macroteleia carinata* Ashmead. AR: Johnson Co.: Baker Spring, ca. 5 mi. N. of Oark, Sec. 27, T13N, R24W. 6 Sept. 1994. One female. Rare species. **New state record**.

*Paridris laeviceps* (Ashmead). AR: Montgomery Co.: Singing Springs, 7 mi. NE of Norman, Sec. 22, T3S, R24W. 25 June 1998. **New state record**.

*Probaryconus striatus* (Ashmead). AR: Montgomery Co.: Blue Springs, 7 mi. NW Bonnerdale (Sec. 15, T3S, R23W) S. of Rd. 44. 14 Nov. 1995. One male; two females. Slatington Spring, 5.2 mi. SE of Big Fork, west of Rd. 1, Sec. 33, T3S, R27W. 22 Sept. 1995. **New state record**. Rarely collected across transitional and austral zones in US.

*Scelio incertus* Muesebeck. AR: Johnson Co.: Gilliam Bog, Sec. 11, T11N, R23W. 6 Sept. 1994. Female; first discovery since the original description in 1972. Known previously only from type series in TX. **New state record**.

*Spiniteleia* sp. **Undescribed species**. AR. Johnson Co.: Baker Spring, sec. 27, T13N, R24W. 11 Aug.-6 Sept. 1994. Two females. Dick Johnson Spring, Sec. 29, T11N, R22W. 3 males. Wood Mountain Spring, ca. 12 mi. NE of Clarksville, Sec. 34, T11N, R22W. 11 Aug.-24 Sept. 1994. One male. **New state record**.

*Spiniteleia campbelli* Masner. AR: Johnson Co.: Wood Mountain Spring, ca. 12 mi. NE of Clarksville, Sec. 34, T11N, R22W. 6 Sept. 1994. Baker Spring, ca. 5 Mi. N. of Oark, Sec. 27, T13N, R24W. 6 Sept. 1994. Dick Johnson Spring, Sec. 29, T11N, R22W. 6 Sept. 1994. Numerous males and females. Previously known only from Kentucky. **New state record**.

*Telenomus* sp. **Undescribed species**. Johnson Co.: Baker Spring, ca. 5 mi. N. of Oark, Sec. 27, T13N, R24W. 6 Sept. 1994. Known from elsewhere. **New state record**.

*Telenomus longicornis* Ashmead. AR: Montgomery Co.: Blue Springs, 7 mi. NW Bonnerdale south of Rd. 44, Sec. 15, T3S, R23W. 10 July 1998. **New state record**. Presumed parasitoid in gerrid eggs.

*Thoronella* sp. **Undescribed species**. AR: Johnson Co.: Upper Mulberry River, 21 mi. N. of Clarksville. 15-28 July 1994. Two males. **New state record for the genus**. Widespread eastern species ranging from Florida to Canada (Quebec); phoretic on dragonflies (e.g. *Aeschna*).

*Thoronidea* sp. **Undescribed species**. AR: Montgomery Co.: Boxx Springs, 4.5 mi. SW Black Springs, E of Rd. 11, Sec. 33, T3S, R26W. 10 July 1998. Rattlesnake Springs, 4 mi. NE Caddo Gap N of Rd. C52, Sec. 33, T3S, R24W. 10 July 1998. Rare eastern species (MD, MS, VA), presumed parasitoid of gelastocorid eggs. **New state record for the genus**.

*Tiphodytes* sp. **Undescribed species**. AR: Polk Co.: Bard Springs, 20 mi. SE of Mena, AR, Sec. 20, T4S, R28W. 7-11 Oct. 1995. Members of *Tiphodytes* are parasitoids of the eggs of Gerridae. **New state record**.

*Trimorus annulicornis* (Ashmead). AR: Montgomery Co.: Tea Creek Springs, 6.5 mi. NW Bonnerdale S of Rd. 476, Sec. 23, T3S, R23W. 25 June; 10 July, and 8 August 1998. Rattlesnake Springs, 4 mi. NE Caddo Gap, N of Rd. C52, Sec. 33, T3S, R24W. 10 July 1998. Boxx Springs, 4.5 mi. SW Black Springs E of Rd. 11, Sec. 33, T3S, R26W. 25 June 1998. Slatington Spring, 5.2 mi. SE Big Fork W of Rd. 1, Sec. 33, T3S, R27W. 25 June, 3 July, and 10 July 1997. Rare eastern species.

## Diapriidae

*Auxopaedeutes* sp. **Undescribed species**. AR: Montgomery Co.: Brier Creek Spring, 25 mi. W. of Glenwood, Sec. 20, T4S, R27W. 19 July 1994. Johnson Co.: Dick Johnson Spring, Sec. 29, T11N, R22W. 6 Sept. 1994. This undescribed species is recorded from other localities. Members associated with *Solenopsis* ants. **New state record for the genus**.



*Basalys* sp. **Undescribed species**. AR: Montgomery Co.: Powell Creek Seeps, Sec. 35, T3S, R24W. 5-21 May 1998. Boxx Springs, 4.5 mi. SW Black Springs E of Rd. 11, Sec. 33, T3S, R26W. 25 June 1998. **New state record**. Also known from Florida, Georgia (Sapelo Island), and Canada (Ontario).

*Belyta longicollis* Fouts. AR: Montgomery Co.: Slatington Spring, 5.2 mi. SE Big Fork W of Rd. 1, Sec. 33, T3S, R27W. 25 June, 3 July, 10 July 1997. Distinct eastern species. **New state record**.

*Entomacis ambigua* Brues. AR: Johnson Co.: Baker Spring, ca. 5 mi. N. of Oark, Sec. 27, T13N, R24W. Rare species; this marks the southernmost record of this species. **New state record**.

*Entomacis* sp. **Undescribed species**. AR: Montgomery Co.: Tea Spring, 6.5 mi. NW Bonnerdale, S of Rd. 476, Sec. 23, T3S, R23W. 8 October 1997. **New state record**.

*Idiotypa* sp. Johnson Co.: Woods Mountain Spring, ca. 12 mi. NE of Clarksville, Sec. 34, T11N, R22W. 6 Sept. 1994. Many females. **First record of this genus from Arkansas**.

*Ismarus gibsoni* Masner. AR: Johnson Co.: Dick Johnson Spring, Sec. 29, T11N, R22W. Fall, 1993. **New state record**.

*Paramesius* sp. A. AR: Johnson Co.: Gilliam Bog, Sec. 11, T11N, R23W. 6 Sept. 1994. **Undescribed species**. **New state record for the genus**; known from other states.

*Paramesius* sp. B. AR: Johnson Co.: Gilliam Bog, Sec. 11, T11N, R23W. 6 Sept. 1994. Large series collected. **New state record**. Rare species known from elsewhere.

*Spilomicrus antennatus* (Jurine). AR: Montgomery Co.: Slatington Spring, 5.2 mi. SE of Big Fork, Sec. 33, T3S, R27W, W. of Rd. 1. 14 Nov. and 5 Dec. 1995. Two males. Widespread Holarctic species; fall-winter species which is very rarely collected; transcontinental in US. **New state record**.

*Spilomicrus brevicornis* (Ashmead). AR: Montgomery Co.: Tea Spring, 6.5 mi. NW of Bonnerdale, Sec. 23, T3S, R23W, S. of FSR 76. 5 Dec. 1995. One male. **New state record**. Widespread, but very rarely collected; late fall-winter species.

*Spilomicrus exul* Masner. AR: Montgomery Co.: Rattlesnake Spring, 4 mi. NE Caddo Gap, N of Rd. C52, Sec. 33, T3S, R24W. 10 July 1997. **New state record**.

*Spilomicrus flavicornis* Ashmead. AR: Montgomery Co.: Tea Creek Spring, 6.5 mi. NW Bonnerdale, Sec. 23, T3S, R23W. 8 October 1997. Blue Spring, 7 mi. NW Bonnerdale, S. of Rd. 44, Sec. 15, T3S, R23W. 5 July 1998. **New state record**.

*Spilomicrus ruficornis* (Provancher). AR: Montgomery Co.: Blue Spring, 7 mi. NW Bonnerdale, S. of Rd. 44, Sec. 15, T3S, R23W. 8 October 1997. Rattlesnake Springs, 4 mi. NE of Caddo Gap, N of Rd. C52., Sec. 33, T3S, R24W. 10 July 1998. **New state record**.

*Spilomicrus stepheni* Masner. AR: Montgomery Co.: Boxx Spring, 4.5 mi. SW of Black springs, Sec. 33, T3S, R26W. 10 June 1998. **New state record**; major range extension southwestward as VA is the closest known locality.

*Spilomicrus sylvicola* Masner. AR: Montgomery Co.: Blue Springs, 7 mi. NW of Bonnerdale, S of Rd. 44, Sec. 15, T3S, R23W. 5 July 1998. **New state record** and major range extension southwestward as VA is the closest known locality.

*Synbelyta* sp. **Undescribed species**. AR: Montgomery Co.: Tea Spring, 6.5 mi. NW of Bonnerdale, S. of Rd. 476, Sec. 23, T3S, R23W. 14 Nov. 1995. One female. **New state record for the genus**. Several females known from more northern states in North America.

*Trichopria* sp. **Undescribed species**. AR: Montgomery Co.: Brier Creek Spring, Sec. 20, T4S, R27W. **New state record**. Known only from Arkansas.

## Platygastriidae

*Acerotella acerina* Masner. AR: Johnson Co.: Baker Spring, ca. 5 mi. N. of Oark, Sec. 27, T13N, R24W. 6 Sept. 1994. Arbaugh Springs, Sec. 24, T13N, R24W. 6 Sept. 1994. **New state record**. Known only from Ontario, Quebec, and New Brunswick in Canada and MD. These specimens represent a major extension southward.



*Eritrissomerus cecidomyiae* Ashmead. AR: Johnson Co.: Baker Spring, ca. 5 mi. N. of Oark, Sec. 27, T13N, R24W. 6 Sept. 1994. Arbaugh Spring, Sec. 24, T13N, R24W. 6 Sept. 1994. Associated with hickories. **New state record.**

*Inostemma caryae* (Ashmead). AR: Johnson Co. Baker Spring, ca. 5 mi. N. of Oark, Sec. 27, T13N, R24W. 6 Sept. 1994. Arbaugh Spring, Sec. 24, T13N, R24W. 6 Sept. 1994. Associated with hickories. **New state record.**

*Inostemma* sp. **Undescribed species.** AR: Newton Co.: Arbaugh Spring, 3 km SW of Arbaugh, Sec. 24, T13N, R24W. 27 May 1995. One female. Johnson Co.: Baker Spring, ca. 5 mi. N. of Oark, Sec. 27, T13N, R24W. 27 May 1995. One male. Known from other states. **New state record.**

*Ipitrachelus foutsii* Jackson. AR: Montgomery Co.: Singing Springs, 7 mi. NE Norman, N. of Rd. 208, Sec. 22, T3S, R24W. 25 June 1997. **New state record.** Major extension westward.

*Platygaster caryae* Ashmead. AR: Johnson Co.: Baker Spring, ca. 5 mi. N. of Oark, Sec. 27, T13N, R24W. 6 Sept. 1994. Arbaugh Spring, Sec. 24, T13N, R24W. 6 Sept. 1994. Associated with hickories. **New state record.**

### Chrysididae

*Amisega floridensis* (Krombein). AR: Johnson Co.: Baker Spring, ca. 5 mi. N. of Oark, Sec. 27, T13N, R24W. 6 Sept. 1994. Numerous males and females. Dick Johnson Spring, 10 mi. NE of Clarksville, Sec. 29, T11N, R22W. 20 Aug.-24 Sept. 1994. Ninety-two males and females. Parasitoid in walking stick eggs. **New state record.**

*Microsega bella* Krombein. AR: Johnson Co.: Gilliam Bog, Sec. 11, T11N, R23W. One female. Rare species, known previously from only TX and OK. **New state record.** Parasitoid in walking stick eggs.

### Rhopalosomatidae

*Olixon banksii* (Brues). AR: Johnson Co.: Little Piney Creek at St. Hwy. 123, 5 mi. E. of Hargarville, Sec. 26, T11N, R22W. 15-28 July 1994. One male. **New state record.**

## DISCUSSION

A total of 50 new state records of parasitic wasps was documented from Arkansas during the study period 1993-1998 as well as 14 significant range extensions into the state. Twenty-three parasitic wasp species were discovered in collections from nine different seeps/springs in the Ouachita National Forest while 21 parasitic wasp species were found in eight springs in the Ozark National Forest areas. Only four parasitic wasp species were shared by the two national forests. In the Ouachita NF, Blue Springs had the highest number of parasitic wasp species with eight, while Singing Springs and Boxx Springs had five species, and Slatington and Tea springs were inhabited by four species. In the Ozark NF, twelve species of parasitic wasps were collected from Baker Spring, while Gilliam Spring had five species collected from its environs and Arbaugh Spring had only four species. In addition, four species of parasitic wasps (*Idris leedsi*, *Idris* sp., *Trichopria* sp., and *Spinitelesia* sp.) new to science were discovered during this study of hymenopteran biodiversity in the Interior Highlands of Arkansas.

These 50 new state records and 14 records of significant range extension collected primarily from seeps and springs on national forests lands demon-



strate the importance of these unique habitats and their attributes, and supports the USDA Forest Service efforts to conserve and manage these areas.

This study was not intended to be an exhaustive study of the hymenopteran biodiversity of Arkansas, but rather to shed light on the poorly known parasitic hymenopteran fauna of Arkansas and provide a basis from which future studies may be initiated. The study does however, provide another proof that an intensive focus on a targeted microhabitat (seeps and springs) using specialized collecting techniques to penetrate the microhabitat will yield good results.

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#### LITERATURE CITED

- Carlton, C. E. and R. T. Cox.** 1989. A new species of *Arianops* from central Arkansas and the biogeographic implications of the Interior Highlands *Arianops* species (Coleoptera: Pselaphidae). *Coleopt. Bull.* 44: 365-371.
- Carlton, C. E. and L. S. Nobles.** 1996. Distribution of *Speyeria diana* (Lepidoptera: Nymphalidae) in the Interior highlands of Arkansas, Missouri, and Oklahoma, with comments on conservation. *Entomol. News* 107: 213-219.
- Carlton, C. E. and H. W. Robison.** 1998. Diversity of litter-dwelling beetles in the Ouachita Highlands of Arkansas, USA (Insecta: Coleoptera). *Biodivers. Conserv.* 7: 1589-1605.
- Masner, L.** 1990. Status report on taxonomy of Hymenoptera in North America, p. 231-240. In: *Systematics of the North American Insects and Arachnids: Status and Needs*, ed. M. Kosztarab and C. W. Schaefer. Agricultural Experimental Station Information Series 90-1. Blacksburg: Va. Polytech. Instit. State Univ.
- Mayden, R. L.** 1985. Biogeography of Ouachita Highlands fishes. *Southwest. Nat.* 30(2): 195-211.
- Mohlenbrock, R. H.** 1993. Ouachita Mountains, Arkansas. *Nat. Hist.* 9:22-24.
- Moulton, S. R. and K. W. Stewart.** 1996. Caddisflies (Trichoptera) of the Interior Highlands of North America. *Mem. Am. Entomol. Inst.* 56: 1-313.
- Poulton, B. C. and K. W. Stewart.** 1991. The stoneflies of the Ozark and Ouachita Mountains (Plecoptera). *Mem. Am. Entomol. Soc.* 38: 1-116.
- Robison, H. W. and R. T. Allen.** 1995. *Only in Arkansas: a study of the endemic plants and animals of the state.* Univ. Arkansas Press, Fayetteville. 121 pp.
- Robison, H. W., G. W. Byers, and C. E. Carlton.** 1997. Annotated checklist of the Mecoptera (Scorpionflies) of Arkansas. *Entomol. News* 108(4): 313-317.
- Ross, H. H. and W. E. Ricker.** 1971. The classification, evolution, and dispersal of the winter stonefly genus *Allocapnia*. III. *Biol. Monogr.* 45: 1-166.



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