

---

## NOTES ON THE BIOLOGY AND DISTRIBUTION OF *ARADUS ROBUSTUS* (HEMIPTERA: ARADIDAE)<sup>1</sup>.

Richard A.B. Leschen<sup>2</sup>, Steven J. Taylor<sup>3,4</sup>

**ABSTRACT:** The fungus *Irpex lacteus* is reported as a new host for *Aradus robustus*. New records of feeding, flight and mating are provided. New state records for the species are given for Arkansas and Mississippi along with additional records for Missouri and Florida.

Little is known about the biology of *Aradus robustus* Uhler. Blatchley (1926) mentions that *A. robustus* is found beneath bark of red and black oaks, apparently hibernating. Matsuda (1977) states that this species is associated with *Quercus* sp. Froeschner (1942) reports adults of *Aradus robustus* being collected from October to May with one nymph collected on March 16. *A. robustus* was found by Torre-Bueno (1935) under the bark of a hemlock log and on and under the bark of a beech log. He observed nymphs from July 19 through August 16, and adults from July 3 through about August 28. These authors make no references to any fungal associations, mating, or flight by this species.

Except for one female found under bark, most of the specimens we collected were on the fungus *Irpex lacteus* (Fr.) Fr. (Basidiomycetes: Polyporaceae). The fungus was found in mixed deciduous forests on the exterior of small hardwood branches which had fallen to the forest floor. These branches ranged from 2.5 to 10.2 cm in diameter. Overholts (1953) lists many host trees for *I. lacteus*, but the biology of the species is virtually unknown (Robert L. Gilbertson, pers. comm.).

One adult *A. robustus* was observed on May 5 with its stylets imbedded in *I. lacteus*, apparently feeding. Mating was observed five times on the fungus from April 19 through July 13. Mating was usually observed during and up to five days after periods of rain. During mating the male and female were in the typical copulatory position for the Aradidae with the male beneath and slightly to one side of the female, as discussed by Usinger and Matsuda (1959). Nymphs of instars two through five were commonly found on the fungus, often in association with adults. Although *I. lacteus* is

---

<sup>1</sup>Received January 14, 1987. Accepted April 3, 1987

<sup>2</sup>Entomology Department, University of Arkansas, Fayetteville, Arkansas, 72701.

<sup>3</sup>Biology Department, Texas A&M University, College Station, Texas, 77843.

<sup>4</sup>Authors' names in alphabetical order.

present year round, no specimens of *A. robustus* were found on the fungus after August 18.

Late instars of *A. robustus* were found as early as April 24, which suggests that at least some individuals of this species may overwinter as immatures. Heliövaara (1982) has found that another species in this genus, *Aradus cinnamoneus*, overwinters in crevices in bark on their host trees and within 30 cm of the base of the host trees in litter. One specimen of *Aradus robustus* was collected in December in northern Florida from mixed hardwood litter and others from Arkansas were collected under bark in March and April, suggesting that similar habitats may serve as overwintering sites for this species.

Linsley and Usinger (1942, 1944) record dispersal flights for twelve other species of *Aradus* in May and June in California. We collected one adult female specimen of *A. robustus* flying, evidently in dispersal, in a bottomland mixed pine-hardwood forest in March.

Parshley (1922 a&b) reports *A. robustus* from Quebec, Ontario, Northwest Territories, Maine, New Hampshire, Massachusetts, Rhode Island, New York, New Jersey, Connecticut, Pennsylvania, Delaware, District of Columbia, Maryland, North Carolina, Tennessee, Florida, Michigan, Indiana, Illinois, Wisconsin, Minnesota, Iowa, North Dakota, Missouri, Nebraska, Kansas, and Texas. Blatchley (1926) records *A. robustus* from Oklahoma and Froeschner (1942) has found *A. robustus* to be rather rare in Missouri. While there are many records from northern and eastern United States, there are only a few records from the southeastern United States. Note that since *I. lacteus* occurs commonly in the eastern United States and in Canada (Overholts, 1953), *I. lacteus* and *A. robustus* have broadly sympatric distributions.

Our collections and material examined at the University of Arkansas at Fayetteville extend the range of this species to include portions of Arkansas and Mississippi and provide additional records for Missouri and Florida. The material examined in this study is deposited at the University of Arkansas at Fayetteville and in the S.J. Taylor collection.

Locality data are as follows:

ARKANSAS: Arkansas Co., 4 mi E. of Ethel, Lot #13, 31 July 1969, (R.L. Brown); Columbia Co., under bark, April 1968, (I. Lee); Crawford Co., Lee Creek/Hwy 59, on 5 July 1986, (R.A.B. Leschen); Crittenden Co., from trash, 10 March 1955; Faulkner Co., near Lake Conway spillway, under bark, 11 March 1985, (S.J. Taylor); Garland Co., Camp Clear Fork, on *I. lacteus*, 15 June 1986, 19 June 1986, (R.A.B. Leschen); Logan Co., Mt. Magazine, on *I. lacteus*, 12 May 1986, 18 August 1986, (R.A.B. Leschen); Cove Lake, on *I. lacteus*, 5 May 1986, 12 May 1986, (R.A.B. Leschen); Pope Co., 19 May 1970, (R. Flanagan); Pulaski Co., Little Rock, Maumelle Pk., flying, 10 March 1985, (S.J. Taylor);

Washington Co., grass, 19 March 1972, (R. Stevenson); 1 mi NE of Lake Wedington, on *I. lacteus*, 19 April 1986, 24 April 1986, (R.A.B. Leschen); 1 mi NE of Lake Wedington, on *I. lacteus*, 5 May 1986, (S.J. Taylor and R.A.B. Leschen); Lake Wedington, on *I. lacteus*, 16 May 1986, 19 May 1986, 13 July 1986, 5 August 1986, (R.A.B. Leschen).

MISSISSIPPI: Holmes Co., sweeping, 22 April 1975, (H. Greenbaum).

MISSOURI: Green Co., James R./Hwy 125, *I. lacteus*, 24 May 1986, (R.A.B. Leschen).

FLORIDA: Leon Co., Tallahassee, berlese mixed hardwood litter, 17 December 1976, (C.W. O'Brien and Wibmer).

#### ACKNOWLEDGMENTS

We are grateful to Jay Justice (Arkansas Mycological Society) for confirmation of the identification of the host fungus. We thank Merrill H. Sweet (Texas A&M Univ.), R.T. Allen (Univ. of Arkansas), Christopher Carlton (Univ. of Arkansas) and two anonymous reviewers for reviewing the manuscript.

#### LITERATURE CITED

- Blatchley, W.S. 1926. Heteroptera or True Bugs of Eastern North America. The Nature Publishing Company, Indianapolis, Indiana. 1116pp.
- Froeschner, R.C. 1942. Contributions to a synopsis of the Hemiptera of Missouri, Pt. II. Coreidae, Aradidae, Neididae. Amer. Mid. Nat., 27: 591-609.
- Heliövaara, Kari. 1982. Overwintering sites of the pine bark-bug, *Aradus cinnamomeus* (Heteroptera, Aradidae). Ann. Ent. Fenn., 48: 105-108.
- Linsley, E.G. and R.L. Usinger. 1942. Notes on some flat bugs from the vicinity of Mt. Lassen, California (Hemiptera, Aradidae). Pan-Pacific Entomol., 18(2): 83-86.
- Linsley, E.G. and R.L. Usinger. 1944. Further notes on the habits of some flat bugs with a description of the male of *Aradus patibulus* Van Duzee (Hemiptera, Aradidae). Pan-Pacific Entomol., 20(3): 111-114.
- Matsuda, Ryuichi. 1977. The insects and arachnids of Canada. Part 3. The Aradidae of Canada (Hemiptera: Aradidae). Can. Dept. Agric. Publ. 1634. 116pp.
- Overholts, Lee Oras. 1953. The Polyporaceae of the United States and Canada. University of Michigan Press, Ann Arbor. 466pp.
- Parshley, H.M. 1922a. Essay on the American species of *Aradus* (Hemiptera). Trans. Amer. Entomol. Soc., 47: 1-106.
- Parshley, H.M. 1922b. Hemipterological Notices. II. Entomol News, 33: 41-43.
- Torre-Bueno, J.R. de la. 1935. Biological notes on Aradidae. Bull. Brooklyn Entomol. Soc., 30: 113-114.
- Usinger, R.L. and R. Matsuda. 1959. Classification of the Aradidae (Hemiptera-Heteroptera). British Museum (Nat. Hist.), London, 410pp.