

## **Insect Classification Fall 2003**

ENY 4161 - Student Project

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### **Aradidae**

The family Aradidae is a member of the order Heteroptera and commonly known as flat bugs. Aside from being very flat several other characteristics distinguish Aradidae from other Heteropteran families. Aradids are three to eleven millimeters in length. They are usually a dark brown or black color, with a somewhat granular body surface; however, variations of grays and yellows also have been recorded. It is speculated that such patterns are a means for camouflage, as it can be hard to distinguish an aradid from its woody habitat. Naturally decaying trees and/or large limbs are good places to find aradids, specifically those of the genera *Mezira*. They can be found underneath the bark layer, as well as on the surface of the bark, depending on the particular species. The wings are fully developed, but they are small and do not cover the whole abdomen. They have a four-segmented antennae as well as a four-segmented beak, while having two tarsomeres. The abdomen of the aradid is divided into ten segments, and the head lacks ocelli. Members of this family have dorsal scent gland openings and the spiracles are clearly recognizable from the second to the eighth segment of the abdomen in both sexes.

Members of this family usually feed on fungi, but some may feed on sap. The type of fungi they eat is often an indicator of intra-family classification. They possess a specialized feeding mechanism in the form of coiled setae. A key attribute of the aradid is that stylets are coiled inside of the head, rather than protruding from the head, as is the case in virtually all heteropterans and homopterans. The manner in which these are coiled is often a method of classification between subfamilies of Aradidae.

Mating occurs in the places that this family usually dwells: fungi, beneath bark, etc. Mating does not happen in flight. Eggs are typically laid on the wood they inhabit and are deposited in line with the grain of the wood.

Aradid eggs are often subject to a parasitic relationship with a small wasp. Eggs that have been parasitized may be identified by being black in color prior to emergence, whether it is an aradid or parasite. Eggs that remain after emergence may also be identified as formerly parasitized by having a large circular hole where the wasp left the egg, opposed to the traditional tiny slit that would have been made by the aradid. Such wasp is a member of the family Scelionidae, and has been found to parasitize other heteropterans as well.

Some members of this family (genera *Mezira* and *Aradus*) may be found in groups of a few to several hundred. This may be because of the limited supply and area of food. More interestingly this may be due to the evolution of gregarious behavior. The scent produced by the nymphs and adults alike may be signals to other members of the species to come together. The scent is also likely used as a defense mechanism.

Members of Aradidae are drawn to light, but usually not directly as many dipterans are. There have been recorded mass flights of this family and such appear to be seasonal. Within these mass flights one can find several genera and species of Aradidae as well as species of the order Coleoptera.

### **Species key to Florida Aradidae (Heteroptera)**

1a) Scutellum greatly enlarged covering all but a narrow margin of a dominal disc inside of connexival sutures. Hemelytra completely covered and membranous, except for thickened costal margins which are exposed at edges of basal half of scutellum. Edge of connexival doubled. .... *Calisius contubernalis*

- 1b) Not exactly as described above .....2
- 2a) Metapleura scent gland opening with a well developed usually channel like evaporating area extending to lateral margin of thorasic pleuron behind middle legs. Body sometimes obscured by dirt but not encrusted .....3
- 2b) Not exactly as described above. ....4
- 3a) Interior lobe of pronotum w/o longitudinal carinae. Spiracles of segments 5, 6, 7, 8 not lateral. .... *Notapictinus aurivilli*
- 3b) Pronotum not produced into broad lobes which curve forward and reach almost to level of eye. 2<sup>nd</sup> and 3<sup>rd</sup> connexival plates separated by a distinct suture. .... *Mezira sayi*
- 4a) First four pairs of spiracles dorsal, lateral or ventral. If the latter, then with first, second, third progressively closer to margin in fourth lateral. Head with a posteriorly widening elevation at middle, the antennae sometimes held in a groove on either side of this and extending into a depression on either side of median elevation on pronotum. ....  
..... *Neoproxius gypsatus*
- 4b) Not exactly as described above. ....5
- 5a) Found in Highlands county. Found often in rodents nests. Does not resemble an unfed tick. .... *Acaricoris floridus*
- 5b) Found more diversely than the above species. Closely resembles an unfed tick. ....  
..... *Acaricoris ignotus*

### Species list of Florida Aradidae

*Calisius contubernalis* (Bergroth)  
*Acaricoris floridus* (Drake)  
*Neoproxius gypsatus* (Bergroth)  
*Mezira sayi* (Kormilev)  
*Notapictinus aurivilli* (Bergroth)  
*Acaricoris ignotus* (Harris)

### Bibliography

Stephen J. Taylor and J.E. McPherson. Distributional Records of some Florida Aradidae (Heteroptera). *Florida Entomologist*; (June 1989), v72(2):265-267

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