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Synopsis of the Belostomatidae of Arkansas

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General Notes

Extensive work remains to be done in a number of areas in the lab. Foremost among these after the basic accelerator functions are established are design and construction of equipment to measure and regulate the beam energy with precision. Other necessary projects include improvements to the vacuum system and its gauging capabilities, beam focussing and diagnostic equipment and electronics, and target chamber design.

In summary, a positive ion accelerator is being installed at the University of Central Arkansas. The major hurdles involved in the machine installation and checkout have been passed, and basic beam production is expected in the relatively near future. This laboratory will enable the physics department to offer its students valuable experience with experimental techniques and procedures in a research environment not commonly found in our type of institution.

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A SYNOPSIS OF THE BELOSTOMATIDAE OF ARKANSAS

There have been no studies treating specifically of the Belostomatidae of Arkansas. Pertinent information is either in taxonomic studies which include Arkansas material (Menke, 1958; 1963) or lists of aquatic macroinvertebrates from particular sites within the state (Harp and Harp, 1980; Farris and Harp, 1982; Huggins and Harp, 1983). The purposes of this paper are to present the first statewide species list, to delineate geographic distributions, and to define preferred habitats for belostomatid species, insofar as present knowledge will allow. Arkansas species may be identified by using Gonsoulin's (1973) key to Louisiana species.

Most information presented has been compiled from specimens in the ASU Aquatic Macroinvertebrate Museum; however holdings of the ASU Entomological Museum, and UA-Fayetteville Museum, and UA-Little Rock Entomological Museum were examined, and literature records are included. Finally, 2 collecting trips were made to south and central Arkansas counties to diminish distributional gaps in the data.

Belostoma lutarium (Stal) was first reported from Arkansas by Menke (1958). It is our most common species of *Belostoma*, being represented from 278 collections in 51 counties (Fig. 1). Froeschner (1962) listed only one Missouri specimen but suggested it should occur widely in the state. Gonsoulin (1973) reported this as the most common species of the genus in Louisiana, being found in all aquatic habitats in the state. Wilson (1958) stated that this species was very common in Mississippi, being collected in shallow brackish pools and stock ponds filled with submerged and emergent vegetation. This species occurs in all aquatic habitats in Arkansas, in all physiographic provinces; however, it was most often collected in lowland ponds, streams, and lakes, and in ditches and bayous within the Mississippi Embayment, the Gulf Coastal Plain and Crowley's Ridge. The Louisiana collections include specimens captured during all months except February, May, September and December; the Missouri specimen was collected in July; the Mississippi bugs were collected March-November (Wilson, 1958; Froeschner, 1962; Gonsoulin, 1973). In Arkansas this species has been taken in all months of the year.

Belostoma flumineum Say has not been reported previously from the state. It has been taken in 48 collections in 15 counties in Arkansas (Fig. 2). This is the most common species of the genus in the United States (Gonsoulin, 1973). It has been found year round in Missouri (Froeschner, 1962) and is expected to occur throughout the state. It ranks far behind *B. lutarium* in distribution in Louisiana with collections in March and July from sluggish streams or marsh areas with abundant aquatic vegetation (Gonsoulin, 1973). Wilson (1958) reported this species from stagnant waters in Mississippi. The Arkansas specimens were collected every month except December and in 3 physiographic provinces, the Ozarks, Mississippi Embayment and Crowley's Ridge. Approximately one-half were collected from Ozark streams and one-third from lowland ponds. They also occurred in Ozark ponds and lakes and lowland streams.

Belostoma testaceum (Leidy), not previously reported from Arkansas, was taken in 13 collections in 10 counties (Fig. 3). This species has a fairly wide distribution in Louisiana and was found in June, August, October and November (Gonsoulin, 1973). One specimen was taken in Mississippi from a shallow, shaded pool in a dense swamp (Wilson, 1958). Though not reported from Missouri, it is expected to occur there (Froeschner, 1962). Habitat was not recorded in previous studies (Froeschner, 1962; Gonsoulin, 1973). In Arkansas this species (collected March, April, June, September, October, November, December) was most often found in lowland ponds and rivers, roadside ditches and swamps in the Mississippi Embayment and Crowley's Ridge.

Huggins and Harp (1983) first reported *Belostoma fusciventre* (Dufour) from Arkansas. It is the least common belostomatid in the state, occurring in only 2 collections from 2 counties (Fig. 4). Gonsoulin (1973) recorded a large range extension for this species, which had previously been documented from southern Texas and southeastern Arizona; however, it is not found on the Missouri list (Froeschner, 1962). Habitats from which this species was taken are a lowland creek in the Ouachitas (Arkansas River Valley) and a lowland pond in the Gulf Coastal Plain, both of which appeared to have good quality water. In Louisiana this species was taken in July, August and October; in Arkansas, it was collected in July and November.

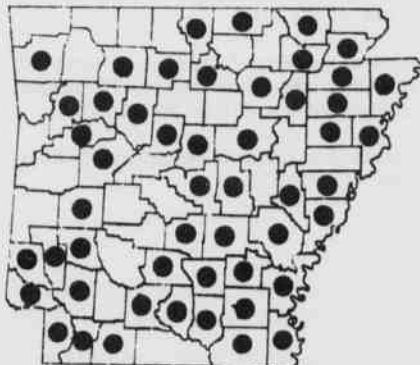


Figure 1. *B. lutarium*

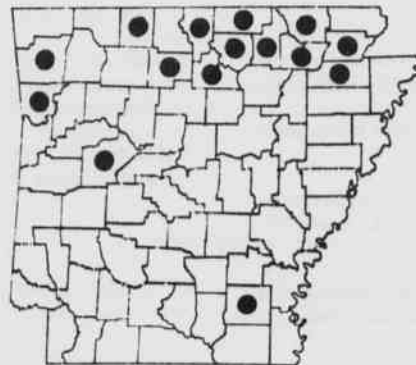


Figure 2. *B. flumineum*

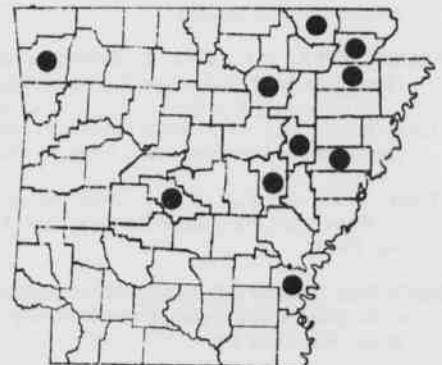


Figure 3. *B. testaceum*

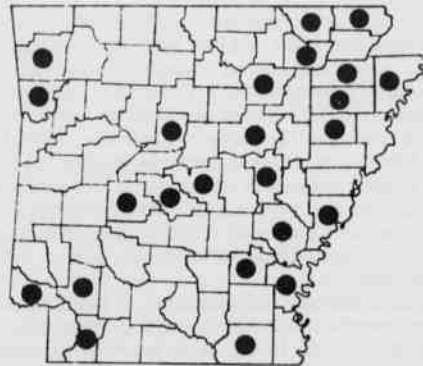
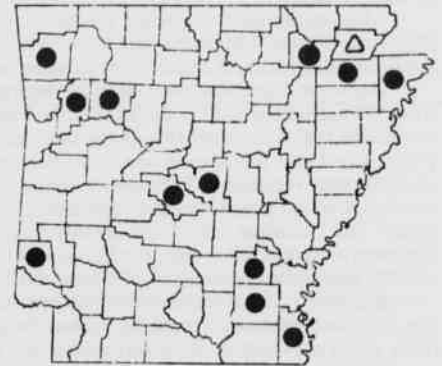
Arkansas Academy of Science

Lethocerus uhleri (Montandon) is the most common species of this genus in Arkansas with 86 collections in 24 counties (Fig. 5). This species was first reported in Arkansas by Menke (1963). These bugs are attracted to lights at night, where they are most often collected (Gonsoulin, 1973). Eight of 14 aquatic collections occurred in lowland ponds, while 7 were found in lowland streams, rivers, lakes and ditches in the Gulf Coastal Plain, Mississippi Embayment and Crowley's Ridge. This species is judged to be common in both Louisiana and Missouri, being collected during June, July and September in the latter (Gonsoulin, 1973; Froeschner, 1962). *L. uhleri* is common in Mississippi where it is frequently collected at lights (Wilson, 1958). This species was taken in Arkansas in every month except June and December.

Lethocerus griseus (Say) also was previously reported from Arkansas by Menke (1963). This species is the second most common of the genus, being taken in 19 collections in 12 counties (Fig. 6). Those few specimens for which habitat data were available were captured at lights. These bugs are reported from sluggish and still waters throughout Missouri (Froeschner, 1962). *L. griseus* is also distributed throughout Louisiana and has been taken there in slow moving or stationary bodies of water with abundant aquatic vegetation (Gonsoulin, 1973). In Mississippi it is active during the warm months and is collected in ponds, streams, borrow pits and lights (Wilson, 1958). Specimens were captured during April, May, June, July, August and October in Arkansas.

Lethocerus americanus (Leidy) has not been previously recorded from the state. One Arkansas specimen is recorded as captured at a street light (Fig. 6). Gonsoulin (1973) reported this species from Louisiana but questions its occurrence since a single specimen taken in 1886 was unavailable to him. Although no specimens have been recorded from Missouri or Mississippi, Froeschner (1962) and Wilson (1958) listed this species; both suggested it should occur in their states because of its known range. The collection in Arkansas was in August.

It is hypothesized that all 7 belostomatid species can be collected during any month of the year in Arkansas. Most should be found in all physiographic regions. *Belostoma flumineum* and *B. fusciventre* may be restricted in their distribution, however, appearing to prefer good quality waters.

Figure 4. *B. fusciventre*Figure 5. *L. uhleri*Figure 6. *L. griseus* • *L. americanus* Δ

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