

ILLINOIS WATER MITES OF THE GENUS *ARRENURUS*

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ABSTRACT

Distributional records for 25 species of *Arrenurus* are presented, including 11 species not previously reported from Illinois.

Arrenurus is the largest, in number of known species, of all water mite genera (Wilson 1961) and includes almost 150 described species in North America (Cook 1976). Individuals of the genus are abundant, making up, in one study (Cook 1954a), 25 percent of all water mite specimens collected. Thus they are encountered frequently by students of fresh water organisms, especially in habitats where aquatic plants are abundant.

In contrast with most other aquatic mites, the species of *Arrenurus* bear distinctive structures of sufficient size to permit their identification at relatively low magnifications, without the necessity of mounting them on slides. At present only males are identifiable in most species, principally on the basis of the secondary sexual modifications of body form. However, association of females with known males has begun (Cook 1976, Mullen 1976) and in the future determination of females may also be possible.

Studies of the genus in North America are fairly numerous, and consist principally of descriptions of new species and regional faunal studies. Some ecological and life history data have also been published (Cook 1954a; Lavers 1945; Mitchell 1959; Mullen 1976; Münchberg 1951, 1953; Wilson 1961; Smith and Oliver 1976). Among the more important references for taxonomic and distributional data are Piersig (1904), Marshall (1908, 1910, 1940, 1944), Mullen (1976), Mitchell (1954), Lavers (1945), Cook (1954a, 1954b, 1955, 1976), and Wilson (1961). The latter three authors treat the *Arrenurus* fauna of Washington, Michigan and middle Tennessee, respectively.

The *Arrenurus* fauna of Illinois is relatively little known, despite abundance of the animals and the history of extensive investigation of aquatic organisms in Illinois. Literature reports the occurrence of only 15 species of *Arrenurus* in the state (Cook, op. cit.; Marshall 1908; Wilson 1961), as compared with 63 from Michigan (Cook, op. cit.) and 31 from middle Tennessee (Wilson 1961).

In our collections of *Arrenurus* from 24 counties of southern Illinois (Fig. 1) we have taken all but one (*americanus*) of the species previously reported from the state and 13 additional species, two of them undescribed. One undescribed species from Gallatin County is similar to *manubriator* and another, found in 12 counties, is similar to *intermedius* and *marshallae*. Distributional data for the 25 named species collected are presented below. For four widespread and common species only the number of county localities is given. Collecting dates for 19 species found on more than one occasion are summarized in Figure 2. Although this figure suggests seasonal differences in species maturity, it is not the result of a quantitative sampling study and should be interpreted cautiously. The collection includes 1911 *Arrenurus* specimens, of which 967 are males. Specimens are housed in the Research Museum of Zoology, Department of Zoology, Southern Illinois University at Carbondale, except for a few in the second author's collection.

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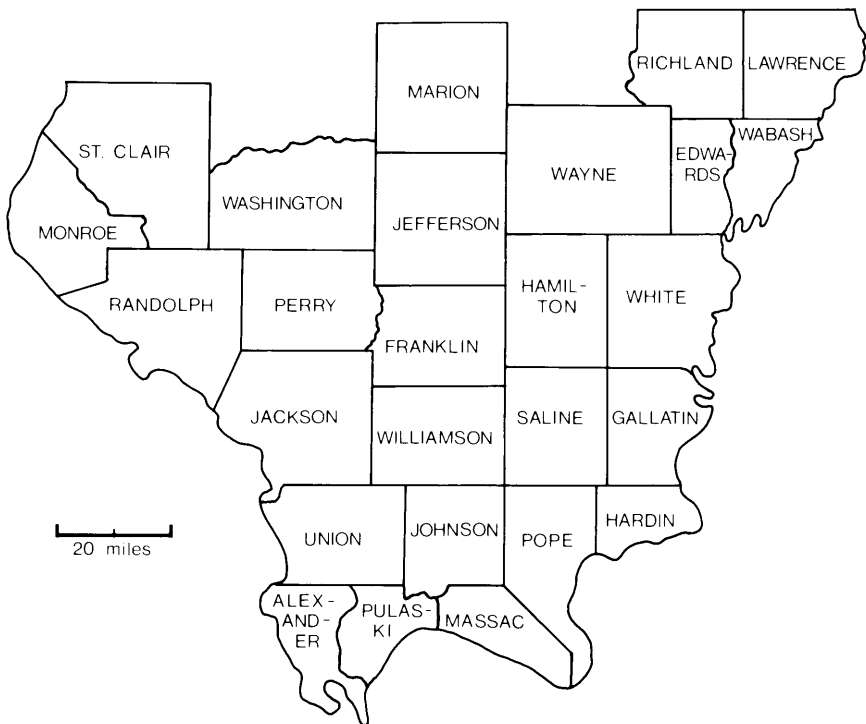


Fig. 1. Map of southern Illinois counties. *Arrenurus* specimens are reported from all but Hardin and Pulaski counties.

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RECORDS OF *ARRENURUS* FROM SOUTHERN ILLINOIS

(* indicates a new Illinois record)

***acutus** Marshall. Jackson Co.: Carbondale, SIUC campus, 1 male. Pope Co.: pond ca 8 km W of Golconda, 3 males.

apetiolatus Piersig. 18 counties, over 200 males.

***bartonensis** Cook. Franklin Co.: Prairie Creek Lake, 1.6 km SW of Zeigler, 5 males. Jackson Co.: Lake Murphysboro State Park, 1 male; Carbondale, SIUC campus, 3 males, Carbondale, McLafferty Road, 1 male. Lawrence Co.: Sam Dale Lake State Park, 1 male. Williamson Co.: Pond E of Lakewood Park, 1 male.

birgei Marshall. 19 counties, 178 males.

***cardiacus** Marshall. Union Co.: LaRue Swamp area, Winter's Pond, 1 male, March.

***crenellatus** Marshall. Franklin Co.: Prairie Creek Lake, 1.6 km SW of Zeigler, 2 males. Jackson Co.: Carbondale, SIUC campus, 2 males.

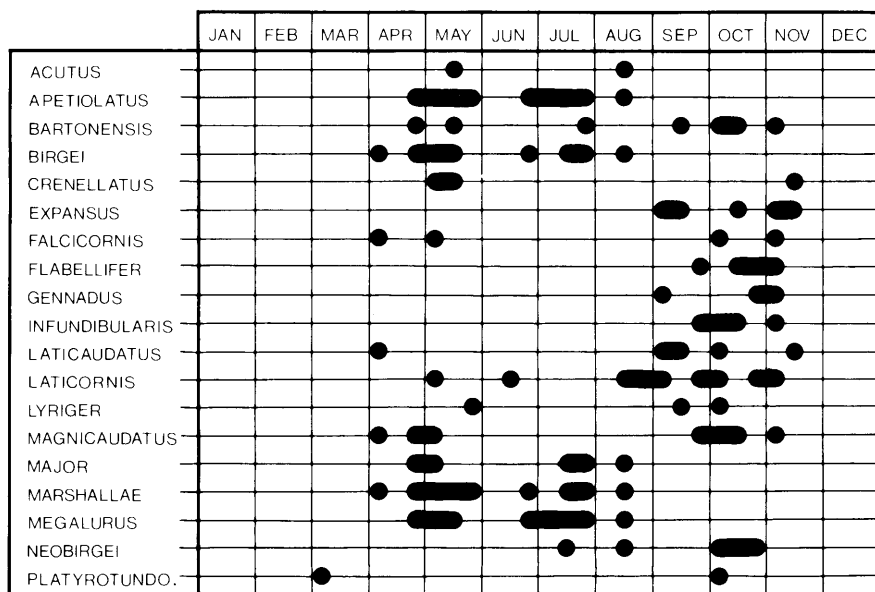


Fig. 2. Summary of collecting dates for 19 *Arrenurus* species found on more than one occasion. Depending on its position, a black dot indicates that a species was collected during the first, middle, or last third of the month.

***expansus** Marshall. Franklin Co.: Prairie Creek Lake, 1.6 km SW of Zeigler, 16 males. Jackson Co.: Carbondale, fish culture pond, Pleasant Hill Road, 3 males; pond 0.8 km W of Carbondale post office, 1 male.

***falcicornis** Marshall. Franklin Co.: Prairie Creek Lake, 1.6 km SW of Zeigler, 23 males. **flabellifer** Marshall. Franklin Co.: Prairie Creek Lake, 1.6 km SW of Zeigler, 2 males. Jackson Co.: Carbondale, SIUC campus, 2 males; Lake Murphysboro State Park, Little Lake, 1 male.

***gennadus** Cook. Franklin Co.: Prairie Creek Lake, 1.6 km SW of Zeigler, 5 males. Jackson Co.: Lake Murphysboro State Park, Little Lake, 1 male; Carbondale, SIUC farms, 1 male.

infundibularis Marshall. Franklin Co.: Prairie Creek Lake, 1.6 km SW of Zeigler, 5 males. Williamson Co.: pond E of Lakewood Park, 5 males.

laticaudatus Marshall. Franklin Co.: Prairie Creek Lake, 1.6 km SW of Zeigler, 1 male. Jackson Co.: Carbondale, pond 0.8 km W of post office, 1 male; SIUC campus, 1 male. 2.4 km S of Boskydell, 2 males. Williamson Co.: pond 0.8 km E of Lakewood Park, 1 male.

laticornis Marshall. Alexander Co.: Horseshoe Lake, 1 male. Franklin Co.: Prairie Creek Lake, 1.6 km SW of Zeigler, 3 males. Jackson Co.: Lake Murphysboro State Park, 1 male. Carbondale, SIUC campus, 2 males; SIUC farms, 1 male; Carbondale city reservoir, 1 male. Lawrence Co.: Red Hills State Park, 1 male. Pope Co.: ca 0.8 km W of Golconda, 1 male. Williamson Co.: 0.8 km NE of Lakewood Park, 1 male.

***lyriger** Marshall. Alexander Co.: Horseshoe Lake, 1 male. Franklin Co.: Prairie Creek Lake, 1.6 km SW of Zeigler, 1 male Jackson Co.: Carbondale, McLafferty Road, 1 male.

magnicaudatus Marshall. Alexander Co.: Horseshoe Lake, 1 male. Franklin Co.: Prairie Creek Lake, 1.6 km SW of Zeigler, 30 males.

- major** Marshall. Alexander, Franklin, Jackson, Johnson, Lawrence, Massac, St. Clair, and Williamson counties, 123 males.
- manubriator** Marshall. Gallatin Co.: Big Lake, 2.8 km NE of Old Shawneetown, 1 male, Aug.
- marshallae** Piersig. 22 counties, 225 males.
- megalurus** Marshall. 13 counties, 69 males.
- montifer** Marshall. Lawrence Co.: Red Hills State Park, 1 male, June.
- ***muttkowskii** Marshall. Franklin Co.: Prairie Creek Lake, 1.6 km SW of Zeigler, 1 male, Nov.
- ***neobirgei** Cook. Jackson Co.: Carbondale, SIUC campus, 6 males. Massac Co.: Mermet Lake, 1 male. Pope Co.: Lake Glendale, 1 male.
- ***platyrotundocuspidator** Münchberg. Franklin Co.: Prairie Creek Lake, 1.6 km SW of Zeigler, 9 males.
- trifoliatus** Marshall. Alexander Co.: Horseshoe Lake, 3 males, May.
- wardi** Marshall. Franklin Co.: Prairie Creek Lake, 1.6 km SW of Zeigler, 1 male, Oct.

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