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THE TARANTULA *ATYPUS MILBERTI* IN MICHIGAN (ARANEAE: ATYPIDAE)

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The arachnid genus *Atypus* (family Atypidae, suborder Mygalomorphae) contains four species in North America. These tarantulas are atypical because they have retained remnants of the primitive segmentation characteristic of Mesozoic spiders; the dorsum of the abdomen has tergites which differ little or not at all from those found on Oligocene spiders in the Florissant shales or in Baltic amber. The atypical tarantulas are among the most generalized of all living spiders, lacking the specialized morphological features of more advanced families. They lack reduction, migration, or enlargement of eyes; they have simple dry silk glands only; their legs lack specialization for running or silk handling; the carapace is unspecialized.

This genus seems to remain successful in interspecific competition, not because of morphological specialization, but due to behavioral uniqueness. The spider constructs a vertical tube web from an underground burrow up the trunk of a tree. The web acts as a shield, making the spider unrecognizable as a potential predator. The prey is attacked through the silk, pulled inside the tube, and sucked dry. Afterwards the carcass is thrown out and the tube is repaired.

Two species of *Atypus* are known to occur in temperate North America. *A. milberti* (Walckenear) and *A. niger* Hentz have been recorded as far north as Ohio, Indiana and Illinois (Gertsch, 1936). These two species have been taken on three occasions in Wisconsin (Levi, 1954; Levi *et al*., 1958), but only *Atypus milberti* has been recorded from Michigan. Lowrie (1948) reports a specimen from a lakeside subclimax forest in Berrien County, and Chickering (1952) records a specimen sifted from leaves in the spring in Jackson County. In two separate studies, Drew (1957, 1967) made detailed collections of the spider fauna as related to mesic forests in a southern Michigan woodlot and on Beaver Island, without turning up *Atypus*. Despite intensive collecting by Drew, Chickering and others, only two Michigan records for this species are thus far known. This raises the question of whether the animal is an established rare species in Michigan, or whether the previous records are the result of dispersal without establishment of a population.

During the spring, summer, and fall of 1966 approximately 100 pitfall traps were placed in the major forest types of central Michigan at the Rose Lake Wildlife Experiment Station, Clinton County, by Thomas Hlavac and myself. The traps were plastic cottage cheese cartons, 4.5 in. diameter by 3 in. depth, filled with one-fourth inch of ethylene glycol. The traps remained in the field for the entire summer and were checked at roughly one week intervals.

For the period of 13-23 June 1966, three mle *Atypus milberti* (Walckenear) were recovered. The specimens were from three separate traps of six in an oak, hickory, elm, and ash association. The soil is sandy in this habitat but is still quite moist even in the driest parts of the summer and would thus appear to be a suitable substrate for burrowing spiders.

This species is not well adapted to a ground-running type of existence, as are

many of the true tarantulas. This is well illustrated by the experiment of Fitch (1963) where an *Atypus* was killed by a jumping spider (*Phidippus*) when the two were confined in a glass jar. The jumping spider is the lesser in size.

The majority of the records for males of *Atypus* are from a week in late spring when the males apparently leave their webs and wander in search of a mate. The remainder of the year is presumably spent in a tube web described above.

Fitch (1963) records *Atypus milberti* during late spring in Kansas from an upland oak-hickory association. Available records from other states give little or no ecological data. It would seem that this species has an affinity for dry upland forests, and that the movements of the males are extremely seasonal, apparently related to their search for mates. The lack of records for the species from mesic forests indicates an extremely narrow niche for the species.

The occurrence of three male specimens during a single collecting period would seem to indicate that *A. milberti* is an established species in southern Michigan. The animal is apparently restricted to the sandy soils in the oak-hickory association.

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