

Two Representatives of a Tropical Suborder of Opilionids (Arachnida) Found in Indiana¹

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The arachnid order Opiliones is divided into three suborders; all three of these orders are found in the United States, but only one is common. This common group is the suborder Palpatores, which is represented here by the ubiquitous, long-legged, "daddy-long-legs" or harvestmen. Another suborder, Laniatores, is less familiar. Most of its members have flattened bodies and short legs. The third suborder, Cypophthalmi, consists of small, secretive forms which are found in only a few areas such as Florida, Washington, and Oregon.

While the members of the suborder Palpatores are found throughout the tropical, subtropical, and temperate sections of the world, the Laniatores are confined chiefly to the tropical and subtropical areas. In such regions, these forms are often very abundant and highly varied in appearance. Some have elaborate white patterns upon their backs with varying arrangements of spines and tubercles. Only a few forms are found as far north as the United States; however, two species are found abundantly in a few localities in Indiana. These two species are *Vonones ornata* (Wood) and *Phalangodes flavescens* (Cope).

Vonones ornata belongs to the family Cosmetidae. It has a flattened reddish body with some white markings and short legs. The body is about five millimeters long, and the legs vary in length from eight to 15 millimeters. *Vonones ornata* is widely distributed through southern Indiana. One of the northernmost populations is along the Wabash River just south of Lafayette.

During the summer these animals are found under rotting logs and usually occur singly or in pairs, rarely are they found in large numbers in any one place. As fall approaches, they begin to aggregate in large groups, often numbering up to 50 individuals under a single brush heap or pile of logs. At the approach of cold weather, they apparently disappear into the ground and are not found again until spring. From our observations, it appears that many are able to survive the winter by lodging in protected spots. In the spring and early summer, both adults and immature forms are found.

From cytological studies, it appears that they must breed throughout the summer months, and then lay the eggs under the logs or in the leaf mold.

In making studies of collections, it was noted several times that the females outnumbered the males in a ratio of nearly two to one. This is difficult to understand, for the spermatogenesis in the male followed the usual pattern and should have resulted in the normal one to one ratio of sexes.

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Their food seems to consist chiefly of smaller invertebrates and debris. In captivity, they have been observed to feed upon small pieces of liver and ground beef.

Phalangodes flavescens has been found in only one locality in Indiana, Wyandotte Cave. This is the type locality of this species, but it has been found in a few sections of Ohio, Virginia, West Virginia, and other southeastern states. This is a very small reddish form with its body averaging about two millimeters in length, and the legs between four and six millimeters. It is a member of the family Phalangodidae, the members of which are found throughout the tropical and subtropical areas of the world.

In Wyandotte Cave, this species was found in great abundance among rotting pieces of wood which had been carried into the cave. Here it appeared to be feeding upon the fungus which covered the wood. This species can not be regarded as a strictly cave form, for it has not lost its eyes and does not have extremely long legs. Also, it is very commonly found outside caves.