

The Terrestrial Isopods (Oniscoidea) of Indiana¹

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The purpose of this paper is two-fold. First, since the isopods of Indiana are little-known, and there is no list of isopods of the state, it seemed desirable to list the species known to occur in Indiana as well as a few that might be expected to occur. In the second place, since the distribution of any animal or plant is important in the study of its biology and ecology, the distribution records of these species is given as far as known at the present time. Many of the species listed here may prove to be state-wide in their distribution. Finally, a key is included for the identification of the forms included in this paper.

The literature on the isopods is extensive, but scattered. The two most significant American works are those of Richardson (1905) and Van Name (1936), including the two supplements to the last named work (1940 and 1942). Van Name has attempted to bring together the descriptions and distribution records of all land and fresh-water isopods of the Western Hemisphere. It is, therefore, a good compilation of the pertinent information in the literature up to 1942.

The writer has collected isopods chiefly as a spare time activity. The main collection points have been around Bloomington and Winona Lake. These two places give a fair idea of the southern and northern distribution. No claim is made that the following list includes all of the land isopods of the state. Extensive collecting in other areas will undoubtedly turn up other species. Van Name suggests (1936, p. 37) that "95 per cent of the land isopods that will come to the notice of the ordinary observer in most parts of the United States or Canada will belong to one or another of [these] 8 species . . .": *Oniscus asellus*, *Porcellio scaber*, *Porcellio spinicornis*, *Porcellionides pruinosus*, *Cylisticus convexus*, *Tracheoniscus rathkei*, and *Armadillidium vulgare*. All of these, he states, are old world species that have been introduced into America by human agencies and have spread across the continent with the expansion of civilization.

Five of these species have been collected by the author and are included in the present paper. The other three have been reported from adjacent states and may possibly occur in Indiana. *Oniscus asellus* is reported from Rock Island, Illinois (Richardson, 1905), and from the state of Michigan (Hatchett, 1947). It is rather common in the East, especially in the New England area. It might occur in the northern part of the state. It is one of the larger isopods and may be distinguished by the three joints in the flagellum of the antennae. *Porcellio laevis* is quite widespread and has been reported from Cincinnati, Ohio (Richardson, 1905). It might occur in the southern part of the state. *Porcellio spinicornis* has been reported recently from Michigan (Hatchett, 1947) and might occur in the northern part of the state.

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Previous Indiana Records

Only four species of the present list have been reported for Indiana by earlier authors. In 1873 Packard described a new form from "Indiana" which he called *Euphiloscia elrodii*. Hay (1891) lists this as the only "sow-bug" described from the state, although he mentions that several species are common. Packard's description is vague and the type locality is uncertain, but it is thought that his species is identical with *Ligidium longicaudatum* Stoller (see Van Name, 1936, p. 76, and 1940, p. 134). If this could be proven, Packard's specific name would have priority over *longicaudatum*, since the latter was applied by Stoller (1902) 29 years later. In this paper the writer has assumed the synonymy but has used the later nomenclature in the absence of conclusive evidence regarding the identity of Packard's isopod. Davis (1951) has recorded *L. longicaudatum* from a sphagnum bog near Bloomington in Monroe County.

In 1899 Hay described a new species of "subterranean isopod," *Haplophthalmus puteus*. It is generally conceded to be identical with the previously described *H. danicus*. Hay collected "40 or 50 specimens" from an old well near Irvington in Marion County.

Blatchley (1896) listed one specimen from Wyandotte Cave which he referred to the genus *Porcellio*. It was probably *Porcellio scaber*. This species was listed by Banta (1907) as an inhabitant of Mayfield's Cave in Monroe County. It was also reported by Evermann and Clark (1918) to be common around Lake Maxinkuckee in Marshall County.

The last species is *Tracheoniscus rathkei* (formerly *Porcellio rathkei*). This is recorded by House (1910) from Winona Lake in Kosciusko County. Hatch (1939) also reports this species from Winona Lake.

To my knowledge, the records listed above represent the only reports of any of the Oniscoidea in the fauna of Indiana.

In the following list of Indiana species, the reader is referred to certain pages in Richardson (1905) and Van Name (1936) where complete descriptions of each of the species may be found. For an understanding of the various terms used in describing isopods one may turn to either of the above named works (especially Van Name) or to an earlier work of Richardson (1904).

LIST OF SPECIES

Family Ligiidae

1. *Ligidium longicaudatum* Stoller.

Richardson (1905), p. 689.

Van Name (1936), p. 70.

Localities—Kosciusko County; Monroe County.

This species may be distinguished from other Indiana isopods by the flagellum (terminal portion) of the large second antennae, which has 12 to 15 segments. No other species in Indiana has more than 6 or 7. It frequents damp or wet places (most often near some body of water) under leaves and rocks. It moves very rapidly and is difficult to capture.

Family Trichoniscidae

2. *Trichoniscus demivirgo* Blake.

Richardson (1905), p. 694 (as *T. pusillus*).

Van Name (1936), p. 78.

Locality—Monroe County.

This is a small species (4-5 mm.) that prefers damp places under stones and leaves. It moves rapidly (as do most of the members of this family). It is a reddish-brown color with a darker brown reticulation. The eyes consist of three ocelli which, in my specimens, are so closely grouped together that it is difficult to distinguish them.

3. *Trichoniscus* species.

Locality—Monroe County.

The writer has one small specimen (2.75 mm.) from the Cascades Park in Bloomington. It was secured under an old stump in a moderately dry situation. It belongs to the subgenus *Miktoniscus* (see Van Name, 1936, p. 87) which is distinguished from other groups in the genus *Trichoniscus* by having only a single ocellus and having the back covered with tubercles. It bears some differences from any of the species of *Miktoniscus* described from America. It is white, or nearly so, in the living condition and can be distinguished from *Haplapthalmus danicus* (the only other tiny white isopod now known from Indiana) by the position of the tubercles on the back. In this species the generally acute tubercles are arranged in more or less transverse rows while in *H. danicus* the tubercles are blunt (sometimes reduced to continuous raised ribs or ridges) and arranged in longitudinal rows.

4. *Haplapthalmus danicus* Budde-lund.

Richardson (1905), p. 697 (*H. puteus*).

Van Name (1936), p. 90.

Localities—Fulton County; Kosciusko County; Marion County (Hay, 1899); Marshall County; Monroe County.

This tiny, white isopod, about 3 to 4 mm. long, is not as commonly seen as its wide distribution would seem to indicate. Perhaps they are often overlooked because of their size by people who think they might be just the young ones of other common species with which they are found. They frequent moist soil under boards and logs.

Family Oniscidae

5. *Porcellio scaber* Latreille.

Richardson (1905), p. 621.

Van Name (1936), p. 226.

Localities—Clay County; Kosciusko County; Marshall County (Evermann & Clark, 1918); Monroe County; Wabash County.

This is a large isopod, varying from 10 to 15 mm. in length. It has many conspicuous tubercles scattered over the back, two segments in the flagellum of the antennae, and its color is generally a uniform black or slate gray, but sometimes may be mottled with brown. It has respiratory tubes (trachea) in only the first two pairs of abdominal plates.

6. *Porcellionides pruinosis* Brandt.

Richardson (1905), p. 627 (*Metaponorthus pruinosis*).

Van Name (1936), p. 238.

Localities—Kosciusko County; Monroe County; Wabash County.

This is a medium sized (9 to 10 mm.) isopod, dusty gray to reddish-gray in color, that may be distinguished by the two segments in the flagellum of the antennae and the fact that the abdomen is abruptly narrower than the thorax. The proximal joint of the flagellum is supposed to be twice the length of the distal segment, but in my specimens it varied from being equal in length to almost twice in length. This isopod appears to be able to withstand the driest conditions of any that the writer has collected. One was found in the dust under some rocks at a limestone quarry near Bloomington and several were found in the dust in the basement of a house in Wabash County.

7. *Cylisticus convexus* De Greer.

Richardson (1905), p. 609.

Van Name (1936), p. 259.

Localities—Kosciusko County; Lagrange County; Marshall County; Monroe County; Wabash County.

This common isopod is one of the few that can roll themselves into a ball. It may be distinguished from the two species of *Armadillidium* (the others of Indiana that can roll themselves into a ball) by the presence of long, pointed uropods projecting from the posterior end of the body. In the genus *Armadillidium* the uropods are broad and do not project beyond the rounded outline of the posterior end of the body. *Cylisticus convexus* is gray, with rows of light patches along each side of the body, and reaches a length of 12 mm. or so.

8. *Tracheoniscus rathkei* Brandt.

Richardson (1905), p. 617 (*Porcellio rathkei*).

Van Name (1936), p. 262.

Localities—Brown County; Clay County; Fulton County; Kosciusko County; Lagrange County; Marshall County; Monroe County; Wabash County.

This is perhaps the commonest isopod of Indiana. It is spread over much of the eastern United States. It has trachea in all five pairs of abdominal appendages. Its color is somewhat variable, ranging from gray to brown, with three rows of light patches along the back. The back has some low tubercles on it. The average length is about 12 mm.

Family Armadillidiidae

9. *Armadillidium vulgare* Latreille.

Richardson (1905), p. 666.

Van Name (1936), p. 276.

Localities—Kosciusko County; Monroe County.

This species and the following one can roll themselves up into a perfect little ball, with no part of their body projecting outward. From this habit they have been given the name of "pill bugs." They are large, reaching nearly 15 mm. in length. The color varies from dull gray to

light brown. *A. vulgare* has a wide range but its occurrence locally may be restricted. It prefers living under logs and boards in semi-dry conditions.

10. *Armadillidium nasatum* Budde-lund.
Richardson (1905), p. 668 (*A. quadrifrons*).
Van Name (1936), p. 279.
Localities—Brown County; Monroe County.

This species is almost identical with *Armadillidium vulgare*. It may be distinguished by the large, squarish lobe which projects forward directly from the middle of the head. There is a notch in the middle of the margin of the head where it connects with this lobe. Sometimes the projecting lobe of the epistome is not so prominent, but the notch in the margin of the head is always there.

Key to the Species Now Known from Indiana

1. a. With 2 segments in the flagellum of the antennae.....2
b. With more than 2 segments in the flagellum of antennae.....7
2. a. Uropods long and pointed, projecting from the rear of the body...3
b. Uropods short, broad and truncate, forming part of the outline of the rounded posterior end of the body.....6
3. a. Body highly convex in cross-section, capable of rolling into a ball, *Cylisticus convexus*.
b. Body more or less depressed; not capable of rolling into a ball...4
4. a. Abdomen abruptly narrower than thorax, *Porcellionides pruinosis*.
b. Abdomen not abruptly narrower than thorax.....5
5. a. Trachea in only the first 2 pairs of abdominal appendages; body highly tuberculate, *Porcellio scaber*.
b. Trachea in all 5 pairs of abdominal appendages; body only slightly marked with low tubercles, *Tracheoniscus rathkei*.
6. a. Front margin of head entire, not surpassed by epistome, *Armadillidium vulgare*.
b. Front margin of head with a small, v-shaped notch; epistome projecting beyond head as a large, squarish lobe, *Armadillidium nasatum*.
7. a. With 12 to 15 segments in the flagellum of the antennae, *Ligidium longicaudatum*.
b. With 4 to 7 segments in the flagellum of the antennae.....8
8. a. Lateral parts of abdominal segments flared out and separated from each other; longitudinal ridges or rows of tubercles on the back; small; white, *Haplophthalmus danicus*.
b. Lateral parts of abdominal segments bent down and in close contact with each other, making the abdomen appear narrower than the thorax9
9. a. Body more or less smooth, with tiny setae scattered about; larger; reddish-colored, *Trichoniscus demivirgo*.
b. Body thickly covered with rather acute tubercles arranged in more or less transverse rows; small; white, *Trichoniscus (Miktoniscus)* sp.

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