

The Millipedes and Centipedes of the Douglas Lake Region

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Aug 19, 1939

The Millipedes and Centipedes of the Douglas Lake Area

(Summer of 1939)

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My observations and conclusions are the result of collecting in the various habitats and localities in order to get a general idea of the distribution of the millipedes and centipedes. The charts included will give a general idea of the distribution of the species found. The various localities listed were used as collecting areas but once with the exception of Grapevine point and Fairy island. I collected species from the latter places three times each and they proved to be the best collecting areas. A more careful check on the material this winter may yield additional species.

When collecting no very heavy concentration of any species was found. The heaviest concentration was of *Lithobius* on Hog island in Lake Michigan. Under one large board there were approximately twenty or more. An accurate count could not be made because all were not caught. *Spirobolus* was found to be rather heavily concentrated in the beach drift on Fairy island. There were also a good many *Polydesmus* found in the same beach drift with the *Spirobolus*. *Parajulus* was found widely scattered. The other genera mentioned were also quite widely scattered.

The types of habitats collected in varied from the wet marshy lands to the dry pasture lands. Both extremes were very poor collecting areas. The dry lands yielded an occasional *Lithobius* or *Parajulus*. The marshy wet lands produced no species. Grapevine point is a good example of dry and wet collecting areas. Some forms were found in the beach drift. A little further back in the woods near the water edge where it was quite moist there were very few to be found. Further into the woods and up the hillside where moisture conditions were good but the land was not too moist

the collecting was good. The same conditions were noticed in other localities. The territory around Ocqueoc lake appeared as good collecting ground but instead turned out very poor. Fairy island proved to be the best collecting for it afforded plenty of decaying leaves and logs. The birch logs seem to be especially good because of the fact that the bark is quite loose but is still intact on the decaying logs. Pine logs proved to be poor collecting places. The hardwood forest was the best place for collecting in every instance. Vincent lake, Grapevine point, and Fairy island were the three best collecting places and the collecting was done in the hardwoods. The second growth poplars in some areas didn't prove to be so good.

The types of animals found most often in the same habitat with the myriapods were ground beetles, crickets, red-backed salamanders, slugs, land snails, isopods, larvae and pupae of insects, Collembola and an occasional Siphidae or Staphalinidae.

On one occasion a *Lithobius* was observed to have a slug grasped in its jaws. Several times other species were apparently feeding on dead insects; whether they killed the insect or not I do not know. The *Spirobolus* that I kept in the laboratory seemed to feed on anything that it could chew. One chewed its way around and through a two inch cork. Another fed on absolutely dry wood. The amount of dead leaves it can consume is great.

I observed no actual breeding habits other than the finding of *Geophilus rubens* coiled around a mass of eggs. There were about 32 eggs in all. I intended to observe the development but the adult must have in all probability eaten the eggs. This occurred on July 22nd. Later, August 9th. an adult and twenty seven young were collected on Fairy island. As nearly as I could count the young had the same num-

ber of legs as the adult. They were white and 7mm. long. On July 31st a number of young Lithobius were collected. They were 4-5 mm long. From this it would appear that at least Lithobius and Geophilus may be breeding in the early part of July and the young hatch in the later part of July or the first of August. I hope to get more data on this next summer. Spirobulus of various sizes were found moulting on Fairy Island.

While working with the collection I found the lower intestine of the Spirobulus to be rather heavily infested with nematodes. Practically all Spirobulus examined contained nematodes. The Rhigonema and Thelastoma are the most common. When examining the contents of a red-backed salamander the remains of a Lithobius were found in the stomach.

I believe Millipedes migrate considerable. I have noticed a number of millipedes crawling across either dry sand, wet beach, or over leaves in the forests. Dr. Thomas states that he has seen Spirobulus in numbers on the shores of Lancaster lake early in the morning. One Spirobulus was in loose sandy loam about eight inches below the surface. No dead leaves were present and the Spirobulus was coiled in its characteristic manner.

From the work this summer the indications are that the type of cover such as hardwoods or conifers has a good deal to do with the presence of the millipedes and centipedes. The observation this summer confirm the general idea that millipedes feed on decayed leaves and wood, while centipedes feed on living animal matter. The indications are that the centipedes breed in early July and the eggs hatch the latter part or in the early August. No observations were made of the millipede's breeding habits. Students of the invertebrate class reported seeing Spirobulus copulating on the beach of Douglas Lake about August 4th or 5th. The breeding habits of all forms no doubt vary a great deal and it is my desire to find out more about them next summer. Observations on breeding habits as well as feeding habits are contemplated. My summer's work has opened a field of many possibilities.

	Hog Island	Vincent lake	Mill Creek	Nichols bog	Lancaster lake	Fairy Island	Grape-vine point	Monroe lake	Penny lake	Ocqueoc
Lithobius forficatus	X	X	X	X						
Lithobius pullus				X						
Lithobius providens		X			X					
Lithobius juvenus					X					
Schendyla nemorensis						X		X		
Geophilus rubus		X				X	X			
Pachymerimum ferrugineum						X				
Lithobius lundii						X				
Lithobius trilobus						X				

