

Report for the summer of 1941

THE BIOLOGY OF THE DIPLOPODA AND CHILOPODA OF THE
DOUGLAS LAKE REGION

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Following are the localities with their locus key that were collected in during the summer of 1941. The specimens collected are listed on the pages following.

LOCALITY	LOCUS KEY
1. Fairy Island -----	T.37N-R.3W-S 29
2. Mouth of Carp Creek.	T.36N-R.3W-S 4
3. Mud Lake	T.37N-R.2W-S 18
4. North Fishtail	T.37N-R.3W-S 22
5. Old Saw Mill on Burt Lake	T.36N-R.3W-S 4
6. Goose Pond, Wilderness Park	
7. West of Boat House	T.37N-R3W -S 33
8. Duncan Bay	T.38N-R.1W-S 22
9. Old Log Lab.	T.37N-R.3W-S 34
10. Hardwoods ????	T.34N-R.2W-S 29
11. Grape Vine Pt.	T.37N-R.3W-S 28
12. Cross Village, Weycamp Dr.	T.38N-R.5W+S 34
13. Hardwoods North of Riggs	T.37N-R.3W-S 23
14. Ingleside Beach	T.37N-R.3W-S 17
15. Vincent Lake	T.37N-R.3W-S 17
16. Hardwoods near Town Hall	T.36N-R.3W-S 13
17. Hardwoods, Algonquin Camp	T.35N-R.3W-S 16
18. Indian River State Park	T.35N-R.3W-S 26
19. Old Light House, Mackinaw City	T.39N-R.4W-S 11
20. Carp Village	T.39N-R.4W-S 10
21. North of Carp Lake	T.38N-R.4W-S 13
22. Trail End Bay Road	T.39N-R.3W-S 13
23. Hardwoods near French Lake	T.39N-R.4W-S 26
24. Trail End Bay beach	T.39N-R.4W-S 22
25. Little Lake, Rogers City	
26. Ocqueoc Lake	
27. Hardwoods Near Hoeft. State Pk	T.36N-R.4E-S 25
28. Onaway State Park	T.35N-R.2E-S 7
29. Weycamp Lake	
30. French Lake	T.39N-R.4W-S 27
31. Hook Point	T.37N-R.3W-S 22
32. Sturgeon River East of Wolverine	T.33N-R.3W-S 6
33. Silver Lake near Wolverine	T.33N-R.3W-S 11 & 12
34. Pigeon River Banks	T.34N-R.2W-S 25
35. Quarry near Afton	T.35N-R.2W-S 36
36. Hardwoods	T.34N-R.2W-S 29
37. West Shore of Burt Lake	T.36N-R.3W-S 17
38. Hardwoods west of Burt Lake	T.36N-R.3W-S 17
39. Towers Dam	T.34N-R.1E-S 11
40. Osmund Fire Tower road	T.34N-R.1W-S14
41. Pigeon River State Forest	T.34N-R.1W-S 4
42. Aloha State Park	T.36N-R.1W-S 8
43. Long Lake	T.36N-R.1W-S12
44. Branch of Milliken Cr.	T.34N-R.1W-S 3
45. Hardwoods near fire tower	T.38N-R.3W-S 25
46. Carp Lake-Dee Kay beach	T.38N-R.4W-S 4
47. Hardwoods near Carp Lake	T.38N-R.3W-S 31
48. Old lake bed near Carp Lake	T.38N-R.3W-S 31

The following is a list of the Diplopoda and Chilopoda that have been classified this summer. The numbers given refer to the localities in which that particular species has been collected. The list of localities and their numbers are given on the the preceeding page. The entire collection of this summer has not been classified. There are quite a number of the Julidae family and from preliminary examination should contain some additional species.

DIPLOBODA

- Polydesmus serratus---- 1-6-40-4-12-38-5-15-3-16-41-28-42-45-48
46-47.
- Polydesmus moniliaris-- 41-13-38-34-21-33-11-1-48-45
- Spirobolus marginatus-- 11-48-12-8
- Parajulus canadensis--- 1
- Parajulus dux --- 1-12
- Scytonotus granulatus-- Hog island

CHILOPODA

- Geophilus rubens----- 1-15-12
- Pachymerium ferrugineum 6-38-1-48-45
- Lithobius forficatus--- 14-5-8-25-26-34-35-32-33-40-42
- Lithobius politus----- 1-42
- Lithobius multidentatus 2-13
- Lithobius cardinalis--- 2-20-15-22-12-6-9-25
- Lithobius tivius----- 5
- Lithobius jowensis----- 22-2-12-28-16
- Lithobius pullus----- 22-12-38-27
- Lithobius lundii----- 1
- Lithobius trilobus----- 1-35
- Lithobius proridens---- 15

HABITAT OBSERVATIONS

During my collecting trips this summer certain plant associations and soil conditions seemed to influence the presence and numbers of Myriapoda. The aspens and pines seldom if ever contained Myriapoda. Those particular associations are usually quite dry and sandy with very little suitable cover. This year however was an exceptionally dry year and some otherwise favorable conditions failed to have any Myriapoda present. Rotting pine logs have not been very productive but on a few occasions I have found Lithobius and Polydesmus present in them. The most suitable areas have been the hardwoods where the maples, beech and oak are the dominant trees. The hardwoods seem to be the best when the trees are not too closely associated and there are plenty of leaves on the ground. The better collecting spots within these areas are the depressions where leaves and moisture have collected and next to the large decaying logs where the leaves have collected. Lithobius has been found to be quite numerous under rocks, boards logs and any other form of cover where the soil is well supplied with humus. This is apparently due to the greater number of insects and other forms of life present in these places. These other forms naturally serving as food. During the latter part of the summer polydesmus, Lithobius and Parajulus were often found concentrated in slightly moist areas that were surrounded by much dryer areas. This concentration being due no doubt to the very dry season. Along stream banks and lake shores collecting was usually good. A few old lake and stream beds proved to ^{be} good also. Apparently the Myriapoda all prefer a very similar habitat for I have found several different genera in the same log or small area.

ANIMAL ASSOCIATIONS

The most obvious animals found in the same habitat with the *Myria poda* are the different species of ground beetles. The isopods and colembola are quite common. The red-backed salamander is frequently found and fungus beetles occasionally. Land snails are commonly found in the hardwoods in the same habitat. Spiders and insect larvae are frequent inhabitants of the same environment. The *Lithobius* frequently has small mites clinging to its legs. These are not visible until magnified during classification.

LIFE HISTORY NOTES

The first week of the summer session the eggs of the *Spirobolus marginatus* were found in what appeared to be fecal balls. These eggs were brought in and their development studied up to the present time. A control group was left in the field to compare developments. At the present time the *Spirobolus marginatus* young have passed through three moults. These are being taken back in order to carry them on through their development. The development in the field so far has been at the same rate as those in the laboratory. The eggs were collected on June 30th and started hatching July 9th. When first hatched they were without appendages or eyes. The eggs develop at different rates apparently because of the time they were layed. The first two moults take place within the fecal ball. Following the first moult the larvae has three ocelli, three pairs of legs and seven segments. Following the second moult they have seven pairs of legs, three ocelli, and twenty two segments. After the second moult they feed on the fecal ball some and eventually emerge from it by chewing their way out. They continue to feed and grow in size until about nine mm long and then moult for the third time. After the third moult they have six ocelli, twenty

nine segments and all except the last six segments have legs. They have shed the posterior portion of the moult intact the other or anterior portion seems to split along the side and come off. The other moults seemed to split along the sides and came off in pieces.

I observed one *Lithobius* moulting and it split along the dorsal anterior portion and then pulled itself out. The latter part of the summer it was quite common to collect specimens that had newly moulted. Two examples of regeneration have been noted. One was an antennae on a *Lithobius forficatus* the other was a regenerated leg on a *Geophilus rubens*.

SUMMARY

Most of the time this summer has been spent collecting specimens from as many localities as possible and comparing environments in which they were found. Some life history notes have been taken but other than *Spirobolus marginatus* no definite effort has been made to trace the life history of any of the forms found. The habitat conditions this summer have been greatly affected by the dry summer so that it has been difficult to determine what might be a normal habitat. However except for unusual concentration toward the last part of the summer distribution seemed to be about normal according to past collecting records.