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The Millipedes and Centipedes of Michigan

1949 U.B.S. Summer Session Report

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GENERAL:

1. Research this summer was devoted, in the main, ^{to} in scheduled county collections. These collections were made in the neighboring counties of Cheboygan, the more distant middle tier counties of the State and two extensive tours through the fifteen counties of the Upper Peninsula.

A total of forty-five counties were visited with as many as four to five collection sites in some counties. These trips involved a great deal of planning, time, and money, and consequently absorbed much of the summer's research time.

With a few exceptions most of the specimens collected were carefully preserved in Formula #2 in one-half ounce packers and packed in partitioned cardboard boxes for subsequent identification. Each bottle bears an inked number which was recorded on the field record at the time of collection. Also submitted with this report is a list of the collection sites, locus key, and the collection bottle numbers to be used in the event that the field records were accidentally destroyed.

Collections were made at sites deemed most favorable for a variety of chilopods and diplopods.

In addition to the county collections, as many natural history notes were taken at the time of collections on Field Record Form #3 which upon tabulation and analysis will reveal a considerable amount of data pertinent to this study. However it is not feasible to analyze these data until county collections for the entire state have been definitely completed, but a tentative list of the categories of data that these county collections field records will possibly present is presented below as an indication of the kinds of data ~~will~~ recorded. It is understood that the list is by no means exhaustive. These categories will certainly serve to some valuable capacity either as topic outlines or topic headings at a later date.

The data categories mentioned above are listed as a separate, in this report.

2. Animal collections for rearing purposes:

- A. Geophilus rubens: Seven large females collected at Wilderness Park on July 5, 1949 were isolated and reared in plaster cups to obtain eggs. One female died Aug. 3. Preserved. None of the females deposited eggs. The remaining six are still alive at the time of this report. These will be brought back to Ann Arbor.
- B. Seventy-five to eighty Polydesmids (serratus) in two large terraria were collected and will serve as subjects for laboratory experiments this fall. The specimens, although somewhat crowded seem to do much better in the large terraria

than in the too moist plaster cups.

C. Twenty Lithobius forficatus were collected for rearing experiments in the fall.

3. Feeding Experiment on Polydesmus serratus

Five specimens were placed in a clean plaster cup with glass cover.

July 13: A freshly plucked Betula alba pap. was inserted into the cup. The leaf was trimmed with shears to exactly 5 sq. cm.

July 17: Fresh Betula leaf removed. Leaf unmarred at edges and at surface. Inserted an old Betula leaf (last year's), same size as above. Specimens began to feed on leaf immediately.

July 18: Old Betula leaf about 1/4 consumed. Many fecal pellets on floor and walls of container.

July 21: Removed old Betula leaf (1/2 eaten). Inserted old Quercus borealis leaf, 5 sq. cm.

Aug. 2 Oak leaf about 1/8 consumed, many large holes in surface. Many fecal pellets. Oak leaf and pellets removed. Cup cleaned. Leaf replaced,

Aug. a freshly fallen Betula alba pap., yellowed but with several small areas still bearing chlorophyll (green). Cut 5 sq. cm.

Aug. 6 The freshly fallen but yellowed Betula leaf showed a few erosion marks on the edges. No puncture marks on surface. Removed leaf. Cleaned cup. Inserted Acer saccharum leaf, 5 sq. cm., last year's leaf. Spotted. Dried. Moistened with tap water.

Aug. 9 Several erosion marks evident along the once smoothly cut border; one puncture mark greatly enlarged and one specimen feeding at site at time of observation. Few fecal pellets. Leaf returned to plaster cup.

4. Prepared a State Map to show all the collection sites of this investigation.

5. Identification of the Thumb Area Collections made this spring are almost completed. The following entries are made upon the complete identification of a specimen:

1. Entered on F.R. made at time of collection.
2. Specimen data slip, placed with the preserved specimen.
3. Collection catalog entry
4. Entered on species distribution sheet
5. Spotted on species distribution map

With all the above entries it wasn't considered feasible to make a sixth record for this report. However a list of the millipedes and centipedes found in Michigan up to the date of this report is included as a separate.

Diplopoda:

- Callipus lactarius
- Fontaria coriacea
- Parajulus canadensis
- Parajulus diversifrons
- Parajulus dux
- Parajulus immaculatus
- Parajulus impressus
- Parajulus pennsylvanicus
- Parajulus venustus
- Polydesmus serratus
- Polydesmus moniliaris
- Polyzonium rosalbum
- Scytonotus granulatus
- Spirobolus marginatus

Centipedes:

- Cryptops hyalinus
- Geophilus rubens
- Geophilus setiger
- Geophilus varians
- Linotenia chionophila
- Lithobius bilabiatus
- Lithobius forficatus
- Lithobius jowensis
- Lithobius multidentatus
- Lithobius proridens
- Lithobius politus
- Lithobius pullus
- Otocryptops sexspinosus
- Pachymerium ferrugineum
- Scutigera coleoptrata

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Categories of Data from Field Record Date on County Collections

- I. The County Records of Michigan Diplopods and Chilopods
 - A. Species found
 - B. Distribution (locus key)

- II. The Relative Abundance of Michigan Diplopods and Chilopods
 - A. The most abundant millipede from records
 - B. The modst abundant centipede from records
 - C. Rare or uncommon species of the above groups.
 - D. The species of centipede that seems to present the best adaptation to the greatest variety of ecological situations.
 - E. The species of centipede that seems to present the best adaptation to the greatest variety of ecological situations.
 - F. The size range of Michigan Diplopods and Chilopods.

- III. The Macrohabitats and the species of millipedes and centipedes collected in same:
 - A. The Beach-Maple-Hemlock Climax Forest
 - B. The young Beach-Maple Association
 - C. The Sterile Soil Association
 - 1. Pine
 - 2. Oak
 - D. The Aspen Association
 - E. The Lake Shore Association
 - F. The Stream Flats Association
 - G. The Open Field Association
 - H. The Abandoned Edifice or Farm Yard
 - I. The Greenhouse

- IV. The Microhabitat (Cover) Preferences of the Several Species
 - A. Dead Leaves of the Forest Floor
 - 1. Deciduous
 - 2. Coniferous
 - B. Mull or deciduous leaf mold
 - C. Duff or coniferous leaf mold
 - D. Fallen Timber
 - 1. Log, sites in respect to the log.
 - 2. Sticks
 - 3. Planks
 - E. Loam (within the soil)
 - F. Growing grasses, vegetation, etc.

- V. The Moisture Requirement of various Species
 - A. Some correlation with respect to temperature, weather conditions, etc. on distribution.

- VI. Faunal Association Lists

- VIII. Distinct Range of certain specific species within the State
 - A. Fontaria coriacea
 - B. Polyzonium rosalbum
 - C. Otocryptopos sexspinosus

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Summer Collections: 1949 U.B.S.

County	Locus Key	Place	Collecting Bottle Number
Chippewaw	T45N-R2W-S25	Lake McInnis on M129	199
	T45N-R2W-S16	Garlinghouse Lake	187
	T45N-R5W-S6	Whitmarsh Lake	188
Luce	T45N-R8W-S14	Woodlot along M-28	190
	T47N-R10W-S20	Cook's Lake	198
	T45N-R11W-S10	East Lake	191
Marquette	T48N-R25W-S11	Park-Presque Isle Pt.	193
	T46N-R23W-S29	Exp. Forest U.S. 41	194
Alger	T46N-R18W-S25	1 m W Shingleton	189
	T46N-R20W-S6	Au Train River	192--196--FEE#9
	T45N-R20W-S6	Basin Lake	197
	T45N-R21W-S33	Forest M-67, Limestone	200
Delta	T41N-R21W-S28	Whitefish River	208
	T41N-R21W-S36	U.S. 2 Ensign	201
Schoolcraft	T41N-R16W-S17	Indian Lake State Pk	207
	T41N-R15W-S11	on U.S. 2	205
	T41N-R14W-S35	Gulliver Lake	209
	T46N-R15W-S33	Swamp on M-28	301
Mackinac	T43N-R8W-S4	Garnet Lake	206 -- & FEE#9
	T43N-R7W-S22	along M-27	202
	T42N-R5W-S30	Brevort Lake State Cp.	203
Menominee	T38N-R25W-S11	U.S. 2	180
	T38N-R27W-S2	Mill Pond	182
	T39N-R27W-S17	Leaper Lake	184
Dickinson	T39N-R28W-S30	Lake Mary	181
	T40N-R30W-S17	Spring Lake, M-95	183 (care)
Iron	T43N-R32W-S30	1 m W Crystal Falls	158- 185
	T43N-R34W-S17	N.E. 1 m Iron River	165
	T44N-R37W-S36	Von Patten Fox Pk	159
Gogebic	T44N-R38W-S6	Sun's Lake	160
	T45N-R40W-S26	Peach Lake	161-- 102-A
	T47N-R42W-S21	State Pk.	164
Ontonagon	T48N-R39W-S29	Baltimore River, M-28	162
Houghton	T52N-R36W-S12	Lake Gerald	163
	T53N-R33W-S23	Highway M-41	167
	T56N-R33W-S16	Co. Rdside Pk.	168
Keeweenaw	T59N-R28W-S33	Copper Harbor	176
	T58N-R29W-S10	Lake Medora	166
Baraga	T51N-R33W-S3	U.S. 41	177
	T50N-R33W-S1	Baraga State Pk.	170
	T49N-R33W-S18	Fords Forest, Alberta	172
	T48N-R31W-S17	Lake Ruth	171
Otsego	T29N-R3W-S17	Dodge Lake	101
	T30N-R3W-S1	Lumbering site	103
Clare	T17N-R4W-S10	Woodlot--U.S. 27	115-a
	T20N-R4W-S35	Arnold Lake	104-A--106-A
Mainistee	T21N-R17W-S36	U.S. 31	132-A
	T21N-R13W-S17	Pine River	118-A
Mason	T20N-R17W-S12	Along US 31	114-A
	T19N-R17W-S7	Victory Pk	103-A, 101A
Missaukee	T24N-R7W-S16	M-66	121-A
	T22N-R8W-S4	Crooked Lake	120-A, 148-A
Newaygo	T14N-R13W-S13	Diamond Lake	112-A
	T14N-R14W-S35	1 m W Altna	122-A

County	Locus Key	Place	Collecting Bottle Number
Oceana	T16N-R18W-S24	Pentwater Lake	123-A (care)
	T14N-R15W-S11	McLaren Lake	154-A
Osceola	T17N-R8W-S22	Alexander Lake	108-A
	T17N-R9W-S25	Hiway	105-A
Wexford	T22N-R9W-S19	Hiway	110-A --147
Antrim	T30N-R9W-S23	U.S. 31, Mudlake	51, 59, and 47
	T30N-R9W-S36	U.S. 31	73
Benzie	T27N-R15W-S28	Benzie State Park	68, 74, 63
	T34N-R7W-S6	Platte Creek, Co.Rd. 673	42
Charlevoix	T34N-R7W-S29	Susan Lake, Co.Rd. 630	66, 43, 49
	T34N-R7W-S19	Oygster Bay, Lake Charlevoix	60
Crawford	T26N-R4W-S10	Lake Margrethe	11
	T26N-R3W-S16	Schellenbarger Lake	45
	T28N-R3W-S5	Horseshoe Lake	44
Emmet	T35N-R5W-S13	Odenfish hatchery, US31	70, 69
Grand	T26N-R12W-S17	Cedar Hedge Lake, US31	46
Traverse	T25N-R11W-S12	M113	39, 7, 62, 61
Kalkaska	T25N-R8W-S17	Long Lake, Co.Rd.608	50
	T26N-R7W-S26	M66	50-A
	T27N-R7W-S22	Kettle Lake	55
	T27N-R5W-S20	Bear Lake	75
Leelanau	T30N-R11W-S21	West arm of G.T. Bay	71
	T30N-R12W-S29	Good Harbor Bay, M22	65
	T29N-R13W-S23	Lime Lake	40, 16
	T29N-R13W-S9	Bass Lake, M22	53
Crawford	T27N-R3W-S10	Hardwick Pines	135A-166-A
Alcona	T27N-R5E-S17	Crooked Lake	130A, 131-A
	T26N-R7E-S4	Jewel Lake	2
Alpena	T30N-R8E-S15	Squaw Bay, U.S.23	126-A
	T31N-R6E-S30	Co.Rd.	124-A
Montmorency	T30N-R4E-S10	M32	129-A
	T31N-R2E-S14	M32	4
Oscoda	T27N-R3E-S24	M72	125-A, 127A
	T26N-R2E-S12	Mio Pond	Negative
Roscommon	T22N-R2W-S5	Mud Lake Outlet	138-A
Arenac	T19N-R7E-S2	US23	142-A
	T18N-R4E-S9	Pine River, M61	133-A
Bay	T17N-R4E-S12	Saginaw Bay	143-A
Gladwin	T17N-R2W-S25	Farm	137-A
	T18N-R1E-S9	Tittabawassee, M61	134-A
Iosco	T22N-R6E-S2	Lloyd Lake	140-A, 141-A
	T22N-R6E-S28	M55	144-A
Midland	T16N-R1W-S26	Variety Creek	139-A
Ogemaw	T24N-R2E-S13	M33	145-A
	T23N-R4E-S28	Sages Lake	146-A
Marquette	T45N-R25W-S18	Princeton, M-35	175
Cheboygan	T37N-R3W-S28	GVP, US	56, 120-A, 128-A