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Research

MISSISQUOIS NATIONAL WILDLIFE REFUGE
REPORT ON INVERTEBRATE COLLECTIONS, 1984

Collecting Methods:

The principal effort at collecting was concentrated in pitfall traps. These were at two sites: 10 traps were located on the "Big Island" [Metcalf?], and 15 were on Shad Island. The latter set were in three groups in different vegetation zones, 5 among dense ferns nears the East Channel of the river, 5 on largely bare soil in dense shade, and 5 in dense beds of arrowhead. These three sets form a series, the first set being the highest, driest, and longest time above water, the second set intermediate, and the third set, very low, wet, and above water level for the shortest period of time.

Other collecting methods supplemented the pit traps. Diurnal terrestrial animals were collected on the mud, and nocturnal ones were found under driftwood and beneath bark. Flying insects were collected by net, and dipnets were used to collect aquatic animals.

Results:

A rough estimate of the collection is about 4,000 specimens. These are now being processed. Mature insects have been pinned or point mounted, as appropriate. The specimens in alcohol are largely sorted, so that each vial contains members of a single species collected on a single occasion. Further work awaits the printing of labels. These will be done in 1-2 weeks. When these labels have been placed on the specimens, identification can begin in earnest.

Very Interesting!

I will be unable to present a listing of species taken during last season for several more months; however, I have already identified several unusual species. For instance, the ground beetle *Pterostichus scrutator*, not previously taken in Vermont, is abundant in the pitfall samples. Another ground beetle, *Bembidion muscicola*, recorded in Vermont from only two localities, is also abundant. A minute true bug, family *Dipsocoridae*, apparently does not belong to any recognized North American species. Samples of this species will be sent to an expert on *Hemiptera* for identification. The ground beetle *Pterostichus melanarius* is of interest because all trapped individuals have fully developed hind wings, while in mainland populations perhaps 25% of them have vestigial wings, and in Europe, where the species is native, fully winged individuals are a small fraction of the population. This case is of interest from an evolutionary standpoint. The fully-winged condition is caused by a recessive gene, consequently, the dominant gene, for wing reduction can not be carried by flying individuals, and the absence of short-winged specimens at the collecting site may reflect the fact that these sites are isolated by channels of the river. Another effect of isolation may be the absence of the centipede *Lithobius forficatus*, which is usually very common in flood plain habitats.

Plans for next season:

I hope to place a set of pitfall traps on the west bank of the West Channel, and another set opposite them on Metcalf Island, in a similar

habitat. This will make it apparent which species are absent from the island sites because of inability to cross the river channels. I would like also to pitfall trap in habitats which are higher above than the last year's sites, such as the types of habitats near the Maquam and Black Creeks. Other kinds of collecting need to be done also, but I am not sure how many of them can be attempted in one season. These include more intensive work on aquatic forms; collecting of the insects specific to the dominant plants, including trees, work on the insects and snails of emergent vegetation, and more extensive trapping of flying insects, using both Malaise and light traps.

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