"AQUATIC AND TERRESTRIAL INSECT BIODIVERSITY IN A TEMPERATE WETLAND AND POND"

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Abstract:

Wetlands and pond margins are complex habitats that act as ecotones between terrestrial and aquatic ecosystems. They are rich in biodiversity and draw organisms from both terrestrial and aquatic environments. Some invertebrates live their entire lives in water or on land, while others live as larva and nymph in water and emerge at the stage of adulthood. There are differences between invertebrates to be found in these two ecosystems on either side of the ecotone. Some of the major aquatic groups are the mayflies (*Ephemeroptera*), and the dragonflies (*Odonata*). Some orders such as the Beetles (*Coleoptera*) have terrestrial and aquatic species, while other groups such as the ants (Formicidae) are strictly terrestrial. Plants potentially act as terrestrial islands in aquatic habitats and also serve as emergence substrates for a range of aquatic insects. We used floating pit traps in a wetland and in the margin of a pond to make a comparison of aquatic and terrestrial insects found in the ecotone between aquatic and terrestrial habitats. Traps were set with or without contact with vegetation. We hypothesized that traps in contact with vegetation would accumulate a more diverse sample of both terrestrial and emergent aquatic.

Introduction

A wetland is an area of land which soil is saturated with moisture either permanently or seasonally. Such areas may also be covered partially or completely by shallow pools of water. Wetlands are considered the most biologically diverse of all ecosystems. Are complex ecosystems that act as interface between terrestrial and aquatic habitats (Lefeuvre *et al*. 2003). A pond is a body of standing water, either natural or man-made, that is usually smaller than a lake, which also serves as a long life and growth of aquatic and terrestrial insects.

Some of insects enter into this world through ponds and wetland and some of them even live all their in ponds or wetlands whereas others live their larval and nymph stages in both until and leave them on reaching adult stage. We can detect differences between invertebrates found in both ecosystems. Some of the largest aquatic groups are found are mayflies (Ephemeroptera) and dragonflies (Odonata). Also we can find some kinds of aquatic and terrestrial beetle (Coleoptera) and some kind of ants (Formicidae). Plants are essential to these ecosystems as the y act as terrestrial Island and contain nutrients for aquatic insects that live.

Proposal

The purpose of this study was to determine and learning the aquatic and terrestrial insect present between Wetland and Pond located in Camp Johnson and compare the different in the species richness between both using floating pit traps in the margin of a Pond and Wetland. We hypothesized that trap in contact with vegetation would accumulated more diversity sample of both terrestrial and emergent aquatic insect

Materials and Methods

We will compare the diversity of invertebrates found on samples with the ones found at special tubes situated at Lily Pad, both pond and wetland localized at Camp Johnson. We prepare 100 tubes with 25ml of ant freezing which 60 were united to hollow plastic tubes via two cables. We introduce a pipette to each of the hollow tubes to give support and make them float when water enter through them. These pipettes were wrapped in plastic to keep the samples off harm when it rains. In the wetland we took 50 tubes, which 30 were prepared to put in the water and the other 20 at the stream bank. These tubes were situated at a point far enough from the roads to prevent any indirect effect from it. Tubes were grouped in groups of 4 in 5 different sites of the bank and in group of 5 in 6 sites close to the vegetation so the macro invertebrates could jump into the tubes. This process was the same in both pond and wetland. The tubes were recollected two weeks after letting them in the field. After being collected the pit traps, the samples will be separated and classified in the laboratory using a microscope and collecting the data in the computer.

Results:

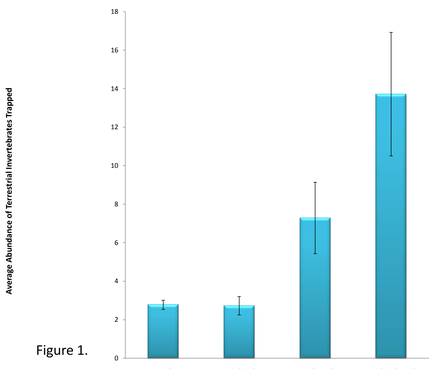

Figure 1.

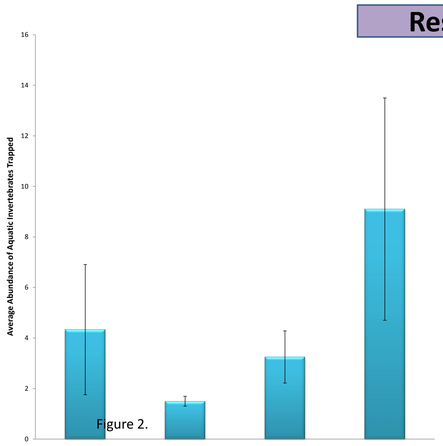

Figure 2.

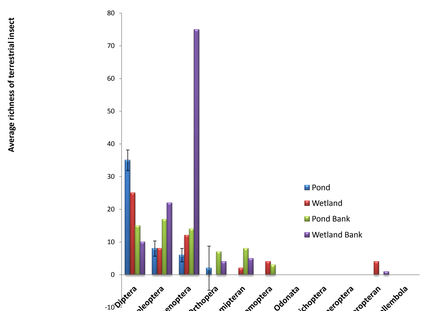

Figure 3.

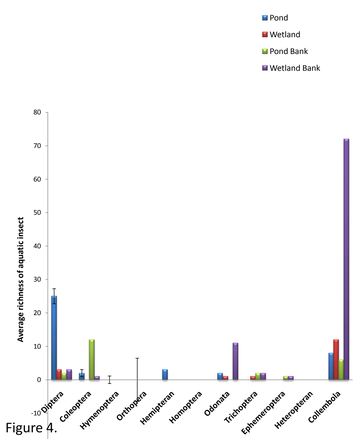

Figure 4.

Average abundance of terrestrial invertebrates trapped on the pit traps in the Camp Johnson Wetland and Lily Pad Pond with the standard error (Fig. 1). Average abundance of terrestrial invertebrates trapped on the pit traps in the Camp Johnson Wetland and Lily Pad Pond with the standard error (Fig. 2).

Average richness of the terrestrial insect trapped on the pit traps in Camp Johnson Wetland and Lily Pad Pond with the standard error (Fig. 3). Average richness of the aquatic insect trapped on the pit traps in Camp Johnson Wetland and Lily Pad Pond with the standard error (Fig. 4).

Discussion:

I put 100 pit traps, 50 pit traps in the wetland and 50 pit traps in the pond for a total of 100. But only appear 83, this was because it was raining in the 2 weeks the pit traps was left. In those pit traps left in the water of the wetland touching the vegetation was found more species than those that not. It was found in the pit traps touching the vegetation in the water 26 species versus 7 species in pit traps no touching vegetation in the water. In the pit traps touching the vegetation on the bank of the wetland were found more aquatic and terrestrial insects, than those pit traps that wasn't touching the vegetation. It was found 64 species in the pit traps touching the vegetation versus 0 species in the pit traps that wasn't touching the vegetation.

It was found in the pit traps in the water touching the vegetation, having the more richness. The pit traps in the water touching vegetation was found 34 species, and the pit traps no touching the vegetation was found only 9 species. The pit traps in the bank touching the vegetation was found 42 species, and the pit traps no touching the vegetation was found 0 species.

With these results we can conclude we can found more aquatic and terrestrial insects because these plants are essential for the survival of these insects. Also they play a role for their developmental and housing.

Wetland (water)		Pond (water)	
Touch vegetation	No touch vegetation	Touch vegetation	No touch vegetation
26	7	34	9
Wetland (banks)		Pond (banks)	
Touch vegetation	No touch vegetation	Touch vegetation	No touch vegetation
64	0	42	0

Table 1.
•Amounts of wealth of aquatic and terrestrial insects found within the pit traps in the Camp Johnson Wetland and Lily Pad Pond. They fall into the pit traps in the water and bank and vegetation touching or not its standard error

References

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•http://academics.smcvt.edu/Vermont_rivers/ ©2008 Saint Michael's College
•Identifying Aquatic Insects From Your Pond, Penobscot County Soil & Water Conservation District Natural Resources Conservation Service, http://www.penobscotswcd.org/publications/insects.pdf

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