

Biological survey of arthropods - Greenwoods Conservancy summer 1996

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INTRODUCTION

Greenwoods Conservancy, a one thousand acre plus property located in Burlington, New York, has been placed under conservation easement by the Otsego Land Trust (Taylor, 1994). Biological Field Station personnel undertake research and environmental education under the provisions of the easement. The development of trails, roads and a dock area, providing access to undisturbed floral and faunal communities, makes Greenwoods a superlative place to study. The property includes the unspoiled 70-acre Cranberry Bog and its watershed, wetlands, forests, meadows and many more unique communities, all with important ecological value. During the summer of 1996, an arthropod survey was conducted at various locations at Greenwoods centered about Cranberry Bog. This paper, a list of arthropod taxa, is the result of that work.

METHODS AND MATERIALS

Aquatic macroinvertebrates were collected at various microhabitats by the use of a triangle net. The studies on Cranberry Bog on the bog mat (A), sedge meadow (B) and graminoid fen (C), were facilitated by use of a small boat (Figure 1). These areas were surveyed twice, once in early and again in late summer. Aquatic arthropods were collected at the following additional sites: Road Pond, Beaver Dam Pond, Seldom Seen Pond, Red Trail Pond, and Woodchuck Pond on two dates during the summer (Figure 2). The organisms were brought to the BFS, preserved in 70% ETOH, identified to Genus and curated for further reference.

Terrestrial arthropods were collected on areas adjacent to Cranberry Bog and Seldom Seen Pond. Six transects were established and samples were collected at 30m (100ft.) intervals along them (Figure 1). Two techniques were employed: sweeping with hand nets and the gathering of leaf litter from the forest floor. The leaf litter was placed in Berlese funnels for 24 hours to facilitate isolation of specimens. All Arthropods were preserved in 70% ETOH. These organisms were determined to Family. Determinations have not yet been verified.

RESULTS AND DISCUSSION

Table 1 provides a taxonomic list of the aquatic arthropods collected during this study. A total of 9 Orders, 34 Families and 60 Genera were identified. The pond on the Red Trail east of the Bog had the greatest species richness. The bog mat(A) exhibited the greatest species richness within Cranberry Bog. Table 2 provides a taxonomic list of terrestrial arthropods. The samples of leaf litter showed an abundance of immature and adult mites.

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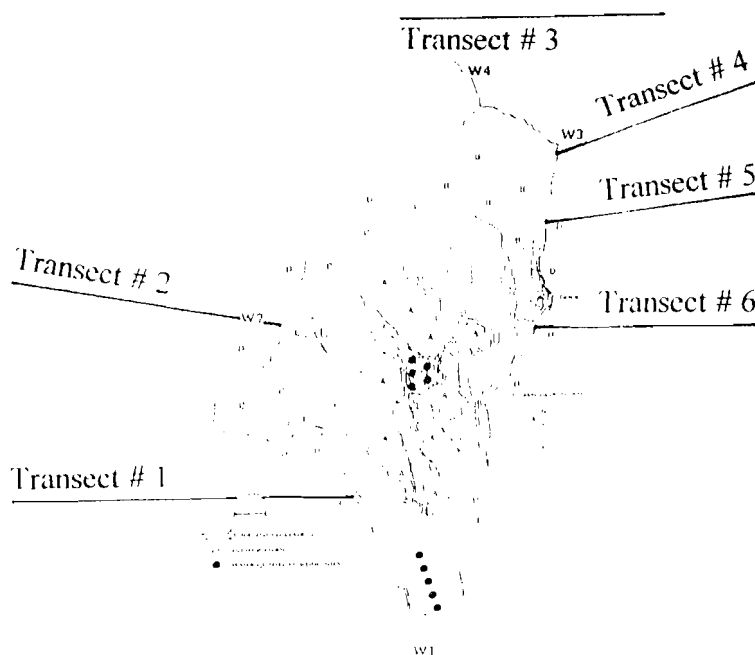


Figure 1. Cranberry Bog illustrating transects (1-6) where terrestrial arthropods were collected. Aquatic arthropods were sampled at sites A, B and C throughout the Bog and at additional sites as numbered (#) in Figure 2.. A = the bog mat or dwarf shrub bog; B = sedge meadow community; C = rich graminoid fen; D = hemlock-hardwood forest. Definitions as per Reschke (1990). 1. Beaver-dam pond. 2. Road pond. 3. Seldom-seen pond. 4. Red-trail ponds. 5. Woodchuck pond. Creek W2 is a permanent stream. Creek W4 is dry in extreme weather. Creek W2 is even more ephemeral and driven by precipitation (Modified from Pagan and Ferluge, 1996).

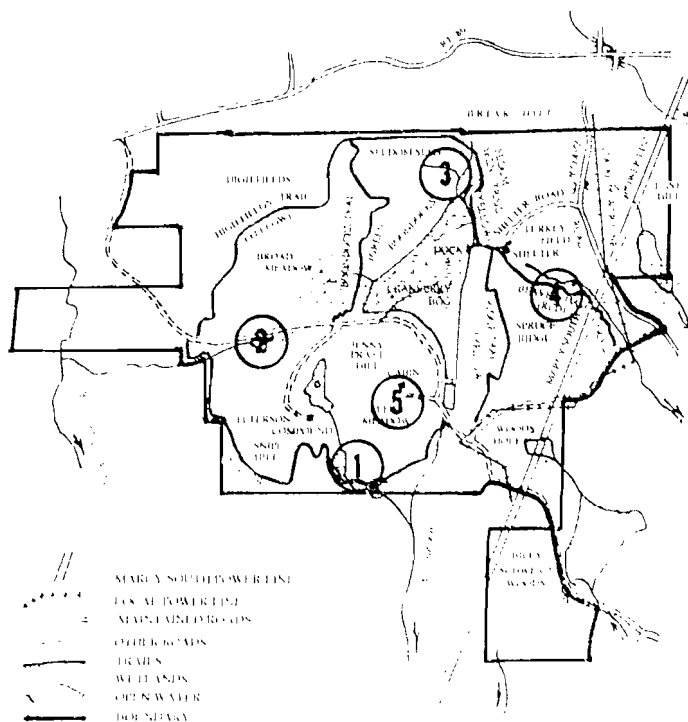


Figure 2. Aquatic arthropod collecting sites in addition to those in Cranberry Bog (see Figure 1.).

SITES			Red Trail Pond		Woodchuck Pond		Road Pond		Beaver Dam Pond		Saidom Seen Pond		Bog A		Bog B		Bog C	
ORDER	FAMILY	GENUS	11-Jun	18-Jul	31-May	16-Jul	06-Jun	18-Jul	31-May	16-Jul	04-Jun	21-Jul	11-Jun	29-Jul	14-Jun	29-Jul	11-Jun	29-Jul
Aaphipoda	Crangonyctidae	<u>Crangonyx</u>		X				X										
	Gammaridae	<u>Gammarus</u>		X						X				X				
	Talitridae	<u>Hyalella</u>		X		X		X				X	X			X		X
Hydracarina			X		X	X					X	X			X			
Ephemeroptera	Baetidae	<u>Calibaetis</u>			X						X							
	Baetidae	<u>Centroptilum</u>				X												
	Baetidae	<u>Baetis</u>	X															
	Caenidae	<u>Caenis</u>			X		X											
	Ephemereillidae	<u>Dannella</u>											X		X			
	Siphonuridae	<u>Siphonurus</u>							X		X							
Odonata	Aeshnidae	<u>Anax</u>		X			X	X										X
	Aeshnidae	<u>Aeshna</u>						X	X		X		X					
	Corduliidae	<u>Dorocordulia</u>									X							
	Corduliidae	<u>Cordulia</u>												X				
	Corduliidae	<u>Samatocloa</u>								X								
	Libellulidae	<u>Flabemis</u>	X			X			X	X	X							
	Libellulidae	<u>Leucorrhinia</u>					X	X				X	X	X			X	
	Libellulidae	<u>Sympetrum</u>	X	X		X		X				X	X		X	X		X
	Gomphidae	<u>Gomphus</u>	X		X							X						
	Odonata	Coenagrionidae	<u>Enallagma</u>			X		X				X		X				X
Coenagrionidae		<u>Nehalennia</u>	X															
Lestidae		<u>Lestes</u>	X	X	X	X		X			X	X					X	
Hemiptera	Mesoveliidae	<u>Mesovelia</u>						X										
	Gerridae	<u>Gerris</u>	X	X			X	X	X	X			X			X	X	X
	Notonectidae	<u>Notonecta</u>	X	X	X	X	X	X	X	X		X	X	X		X	X	X
	Pleidae	<u>Psephenus</u>	X	X	X	X		X			X							
	Nepidae	<u>Nepa</u>	X	X		X		X	X	X								
	Belostomatidae	<u>Belostomatidae</u>		X		X	X		X			X	X	X		X		X
	Belostomatidae	<u>Lethocerus</u>		X		X		X				X	X	X		X		X
	Corixidae	<u>Aesopocorixa</u>					X	X			X		X	X	X	X	X	X
	Corixidae	<u>Trichocorixa</u>	X				X	X									X	X

Table 1. Taxonomic list of aquatic arthropods collected during this study.

SITES			Red Trail Pond		Woodchuck Pond		Pond Pond		Beaver Dam Pond		Seldom Seen Pond		Bog A		Bog B		Bog C		
ORDER	FAMILY	GENUS	11-Jun	13-Jul	31-May	16-Jul	06-Jun	18-Jul	31-May	16-Jul	04-Jun	21-Jul	11-Jun	15-Jul	04-Jun	09-Jul	11-Jun	08-Jul	
Megaloptera	Corydalidae	<u>Chaulicodes</u>		X					X										
	Sialidae	<u>Sialis</u>	X																
Trichoptera	Leptoceridae	<u>Triaenodes</u>	X	X		X						X							
	Psychomyiidae	<u>Psychomyia</u>	X																
	Limnephilidae	<u>Limnephilus</u>			X														
	Limnephilidae	<u>Chyranda</u>																	
	Brachycentridae	<u>Microphles</u>				X													
Coleoptera	Halipilidae	<u>Peltodytes</u>	X				X												
	Halipilidae	<u>Halipilus</u>	X	X	X			X			X		X	X				X	
	Dytiscidae	<u>Dytiscus</u>	X	X		X	X	X					X	X					
	Dytiscidae	<u>Hydroporus</u>			X		X				X			X					
	Dytiscidae	<u>Laccophilus</u>		X				X			X		X	X					
	Dytiscidae	<u>Graphoderus</u>						X											
	Dytiscidae	<u>Deronectes</u>	X																
	Dytiscidae	<u>Hydrovatus</u>	X																
	Dytiscidae	<u>Agabus</u>	X		X														
	Dytiscidae	<u>Coptotomus</u>		X															
	Gyrinidae	<u>Dinetus</u>	X				X		X			X	X	X				X	X
	Gyrinidae	<u>Gyrinus</u>		X															
	Hydrophilidae	<u>Tropisternus</u>		X		X		X		X			X			X		X	
	Hydrophilidae	<u>Hydrophilus</u>		X				X							X				
	Hydrophilidae	<u>Hydrochara</u>	X																
	Hydrophilidae	<u>Hydrocanthus</u>														X			
	Diptera	Tipulidae	<u>Tipula</u>	X	X					X	X								
Stratiomyiidae		<u>Eupharyphus</u>									X								
Stratiomyiidae		<u>Nemotelus</u>	X																
Stratiomyiidae		<u>Odontomyia</u>				X							X		X			X	
Tabanidae		<u>Chrysops</u>	X																
Chironomidae		<u>Ablopesomyia</u>								X					X				

Table 1. Taxonomic list of aquatic arthropods collected during this study.

Insecta	Insecta (cont.)
Isopoda	Orothoptera
Collembola	Acrididae
Sminthuridae	Gryllacrididae
Entomobryidae	Homoptera
Plecoptera	Delphacidae
Periodidae	Hymenoptera
Odonata (Anisoptera)	Bomdinae
Libellulidae	Ichneumonidae
Odonata (Zygoptera)	Formicidae
Coenagrionidae	Mesostigmata
Hemiptera	Ixodidae
Reduviidae	Pseudoscorpiones
Miridae	Dactylocheliferocopios
Nabidae	Cheliferidae
Gelastocoridae	Arachnida
Lygaeidae	Oecobiidae
Lepidoptera	Pulpatore
Geometridae	Phalangidae
Tineidae	Diplopoda
Pterophoridae	Julida
Hesperiidae	Chilopoda
Coleoptera	Geophilomorpha
Cassidinae	Lithobiomorpha
Caribidae	Lithobiidae
Diptera	
Tipulidae	
Psychodidae	
Dixidae	
Culicidae	
Tabanidae	
Rhagionidae	
Sciomyzidae	
Lauxaniidae	
Anthomyiidae	
Muscidae	
Agromyzidae	
Chironomidae	
Cecidomyiidae	
Sciardae	
Doliochopodidae	

Table 2. Taxonomic list of terrestrial arthropods collected during this study.

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REFERENCES

- Borror, D.J., C.A. Triplehorn, and N.F. Johnson. 1989. An introduction to the study of Insects. 6th Ed. Saunders College Pub., New York.
- Cloudsley-Thompson, J.L. 1968. Spiders, scorpions centipedes and mites. Pergamon Press, London.
- McDaniel, B. 1979. How to know the mites and ticks. Wm. C. Brown, Dubuque.
- Peckarsky, B.L., P.R. Fraissinet, M.A., Penton and D.J. Conklin. 1990. Freshwater macroinvertebrates of northeastern North America. Comstock, Ithaca.
- Pennak, R.W. 1953. Freshwater invertebrates of the United States. Ronald Press, New York.