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## Project Update: Arthropods of Peatlands

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Peatlands cover a substantial part of Canada. These habitats support distinctive faunas, and some “bog specialists” have been recognized in well-known groups. Overall, however, surprisingly little is known about peatland arthropods. A Survey project on the aquatic species of peatlands and marshes produced a symposium volume in 1987 reviewing the faunas of these habitats (Rosenberg and Danks, editors. *Mem. Ent. Soc. Can.* 140).

Attention then turned to the diverse and interesting terrestrial species of peatlands. Study of the biology and systematics of the species is important because these unique habitats have great effects on water resources, especially through potential water retention and filtration, as well as having scientific interest in ecological, zoogeographic and other contexts. Initiatives for further study of peatland arthropods were focussed into a symposium held at the 1991 Entomological Societies meeting in Montreal. The proceedings of that symposium have just been published (Finnamore and Marshall, editors. *Mem. Ent. Soc. Can.* 169) as described on page 1 of this newsletter. The contents of the volume are as follows:

- Peatland arthropods introduction (S.A. Marshall and A.T. Finnamore)
- An overview of factors that influence the development of Canadian peatlands (D.H. Vitt)
- Bog arachnids (Araneae, Opiliones) from Manitoba taiga (C.W. Aitchison-Benell)
- Spiders (Araneae) of six small peatlands in southern Ontario or southwestern Quebec (C.D. Dondale and J.H. Redner)
- Ground-living spiders, opilionids, and pseudoscorpions of peatlands in Quebec (S. Koponen)
- Changes in the terrestrial spider fauna (Arachnida: Araneae) of a North German raised bog disturbed by human influence. 1964–1965 and 1986–1987: A comparison (H.-B. Schikora)
- Oribatida of Canadian peatlands (V.M. Behan-Pelletier and B. Bissett)

The Odonata of the northern cordilleran peatlands of North America (S.G. Cannings and R.A. Cannings)

Evolution of *Limotettix* Sahlberg (Homoptera: Cicadellidae) in peatlands, with descriptions of new taxa (K.G.A. Hamilton)

Phenology, reproductive biology, and habitat associations of *Nicrophorus* Fab. (Coleoptera, Silphidae) of the Mer Bleue bog area (Ottawa, Canada) (C.W. Beninger)

The importance of habitat structure and food supply for carabid beetles (Coleoptera, Carabidae) in peat bogs (H. Främbs)

The beetle fauna of a mature spruce–sphagnum bog, Algonquin Park, Ontario; ecological implications of the species composition (M.P.W. Runtz and S.B. Peck)

Peatland Sphaeroceridae (Diptera) of Canada (S.A. Marshall)

Hymenoptera of the Wagner Natural Area, a boreal spring fen in central Alberta (A.T. Finnamore)

Terrestrial arthropods of Canadian peatlands: Synopsis of pan trap collections at four southern Ontario peatlands (D.C.A. Blades and S.A. Marshall)

Relative efficiencies of wet and dry extraction techniques for sampling aquatic macroinvertebrates in a subarctic peatland (P.E.K. McElligott and D.J. Lewis)

The introductory paper points out that originally it was hoped that a comprehensive study of peatland arthropods could be supported through cooperation in collecting and systematic work. The lack of adequate taxonomic knowledge of many groups and the limitation of geographically complete collections proved too great to overcome in a comprehensive way; but nevertheless many insights into the biology, distribution, and systematics of peatland arthropods, and into the nature of peatland habitats and the communities that live there, were obtained. These insights came from comprehensive inventories of specific habitats, more restricted surveys, overviews of certain peatland taxa, and studies of the biology, evolution and systematics of certain peatland genera.

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The editors summarize some of the findings from these various approaches as follows:

“This volume reports about 3600 terrestrial species, and includes estimates of species richness which suggest that as many as 6000 species could occur in rich fens (Finnamore 1994). Multiple factors have influenced the development of peatland arthropod assemblages. Many species possibly are influenced by chemical factors (Behan-Pelletier and Bissett 1994; Scudder 1987) and a large species component, especially that of macroarthropods, may be influenced by physical factors such as vegetation architecture (Cannings and Cannings 1994; Finnamore 1994; Larson 1987). Species assemblages for both aquatic and terrestrial groups in peatlands seem to reflect the surrounding habitat, each peatland tending to have its own species assemblage (Wolcott and Montgomery 1933; Judd 1960; Hamilton 1987; Runtz and Peck 1994). Historical factors are especially important in interpreting the fauna

of a habitat type largely restricted to glaciated areas. Peatland faunas demonstrate strong boreal and Holarctic affinities (Aitchison-Bennell 1994; Behan-Pelletier and Bissett 1994; Cannings and Cannings 1994; Marshall 1994) yet peatland formation in much of western Canada is relatively recent (Vitt 1994). Despite the fact that there seems to have been a time lag between deglaciation and initiation of peatland development, some groups show an apparent pattern of endemism along the postglacial fringe (Marshall 1994). Some arthropod taxa are closely associated with North American peatlands, suggesting that this habitat has been an important component of Nearctic biogeography since before the Pleistocene (Hamilton 1994)”.

The editors conclude that much work remains to be done on peatland arthropods, and they suggest priorities for future work. This volume will be a valuable resource both for current understanding and for these future endeavours.

