

PROJECT UPDATE: AQUATIC INSECTS OF NEWFOUNDLAND

A project on the aquatic insects of Newfoundland began in 1977, when the interests of the Survey (then a Pilot Study) in the fauna of Newfoundland coincided with the arrival of Dr. D.J. Larson in St. John's. Dr. Larson, aided by Dr. M.H. Colbo and others inside and outside the province, built up an extensive collection of aquatic insects. The results of a preliminary survey of the aquatic insects of Newfoundland, and a more detailed treatment of the caddisflies, have recently been published.)

The early interest in Newfoundland's aquatic fauna was prompted by two main ideas. First, much of the fauna was inadequately known, even though aquatic habitats are very prevalent in Newfoundland and cover as much as one-third of the surface area of the island. Second, the fauna of Newfoundland presumably reflects mainly postglacial immigration from the mainland to an island or peninsula situation, and is therefore uniquely interesting in a Canadian context.

The recent survey of the fauna (which is reasonably comprehensive except for some of the more difficult groups of aquatic Diptera) reveals a generally boreal fauna of several hundred species. But the fauna is reduced to only about 15% of the number of species known from the mainland, a reduction which appears to be due only partly to the relative isolation of the island: the fauna is clearly limited too by physiographic and climatic conditions. Typical habitats are oligotrophic (or mesotrophic), the waters held on resistant rocks or discharged rapidly into the sea, in a cool boreal climatic zone. For these and other reasons the diversity of the habitats themselves is reduced compared with the mainland. The fauna is nevertheless balanced in terms of major adaptive types. Except for some narrowly specialized higher taxa, species belonging to the full range of dominant boreal taxa and of trophic and other ecological status are represented. However, lentic (still water) forms in this fauna tend to belong to species widely distributed in Canada as a whole, whereas many species from running waters are confined to the eastern part of the continent, or are at the northern limit of their range. In addition, there are very few "endemic" species which might provide faunal evidence for past "refugia" in the area of Newfoundland. Finally, the fauna as recently surveyed shows little evidence of having been modified by man (except very locally) either through the introduction of species or through wholesale change of habitats.

These conclusions show that a very useful synopsis of the nature of the aquatic insect fauna of Newfoundland has been attained. More detailed investigations - for example on the mayflies and their relationships to mainland faunas - are now being undertaken.

¹ Larson, D.J. and M.H. Colbo. 1983. The aquatic insects: biogeographic considerations. pp. 593-677 in G.R. South (Ed.), Ecology and biogeography of the island of Newfoundland. Junk, The Hague. Marshall, J.S. and D.J. Larson 1982. The adult caddisflies (Trichoptera: Insecta) of insular Newfoundland. Mem. Univ. Nfld. Occ. Pap. Biol. 6. 86 pp.