

THE ANT FAUNA NEAR THE TREE-LINE IN NORTHERN QUÉBEC (FORMICIDAE, HYMENOPTERA)

André FRANCOEUR

*Laboratoire de biosystématique
Université du Québec à Chicoutimi,
Québec G7H 2P9, Canada*

Abstract

Specimens collected during recent surveys show that the ant fauna of regions adjacent to the tree-line in northern Québec includes at least five established species. An additional species is represented by queens only at Poste-de-la-Baleine. The ant *Leptothorax acervorum*, known up to now as an exclusive palearctic element, is recorded for the first time from North America. The available data on the ecology and the range of this particular insect fauna are discussed for the eastern part of the nearctic forest-tundra ecotone.

Résumé

Des échantillonnages récents effectués au Québec montrent que la myrmécophage de régions adjacentes à la limite nordique des arbres se compose d'au moins cinq espèces bien établies. Une espèce additionnelle est représentée seulement par des reines, à Poste-de-la Baleine. La présence surprenante de *Leptothorax acervorum*, une forme jusqu'à présent connue uniquement de la région paléarctique, est signalée pour la première fois en Amérique du Nord. On discute les données disponibles sur l'écologie et la répartition de cette faune particulière d'insectes pour la partie orientale de l'écotone néarctique forêt-toundra.

Introduction

It is generally stated and accepted that ants cannot maintain colonies very far beyond the northern limit of trees in North America (Wilson, 1971). Since Parry in 1826 recorded the abundance of one species, under the name of *Formica rubra*, at the Whale-Fish Islands and the Melville Peninsula (cited by Weber, 1953), no well established colony has apparently been recorded so deeply inside the nearctic tundra. Modern observations concern the forest-tundra ecotone (Brown, 1955; Gregg, 1972) which stretches out as an extremely irregular boundary, penetrating inland in some places, especially along river valleys. Occasionally isolated workers or alate females and males have been captured many kilometers deep in the tundra biome (Brown, 1955; Weber 1950). They had probably been dispersed by winds or driftwood.

This northern picture of the nearctic myrmecofauna is derived from very limited, sporadic and unchecked data. It appears that the ant components of biocenoses adjacent to both sides of the tree-line still remain very poorly known as a whole from taxonomic, ecological and biogeographical points of view. This holds true in particular for the involved forest and shrub tundra in northern Québec. Fortunately, recent data acquired through general collecting in some localities, along with some older

series, provide new and significant information on northern ants. They are compared with those published by Gregg (1972) for Churchill, Manitoba, on the western side of Hudson Bay. Such knowledge is also needed to support a sounder interpretation in paleoecological studies of ant subfossils in Holocene deposits.

Available data

Table I gives the species recorded and the number of samples available for the present analysis. Series were collected by myself in the mentioned localities, except Rivière-à-l'Eau-Claire, during a week stage in 1980 and 1981. Others were supplied by two colleagues of Université Laval, Drs. Serge Payette and J.-M. Perron, or were found in the insect collection of Université de Montréal (one sample) and in the Canadian National Collection (two samples). Most series discussed hereafter are represented by specimens in the author's collection.

The name of Fort-Chimo includes Stewart Lake and Old Chimo Village areas. Samples from Lac Guillaume-Delisle (Richmond Gulf) were collected in three different sites: Le Goulet, Parnassie Island and near the mouth of the Ouiatchouan River.

Relevant data on the species included in this review are summarized as follows.