With the exception of the afrotropical *Monomorium rufulum*, in which both apterous and alate emales are produced (BOLTON, 1986), in the higher subfamilies, Myrmicinae and Formicinae, queen polymorphism appeared to be restricted to certain socially parasitic species. In the Formicinae, it was found in *Polyergus rufescens* (STITZ, 1939 and personal observations of A.B.), and in *Aporomyrmex ampeloni* (FABER, 1969). Among the Myrmicinae, the guest ants of the genus *Formicoxenus*, living in nests of *Formica* and *Myrmica* species, apparently all have polymorphic queens (FRANCŒUR *et al.*, 1985), and in the slavemaking ant, *Harpagoxenus sublaevis*, a genetical origin of queen polymorphism has been demonstrated (BUSCHINGER, 1978 ; WINTER & BUSCHINGER, 1986). The meaning of queen polymorphism is not yet understood. In Formicoxenus it might be adaptive in that the winged queens are able to reach and colonize distant host species nests, whereas the flightless ones are better fit for the continuous exploitation of the suitable habitat where they were born, with usually several closely neighboring host species nests. Queen polymorphism thus may be kept in balance by two counteracting selective forces. In *Harpagoxenus sublaevis*, queen polymorphism apparently represents a side-effect of a genetically mediated caste determination (WINTER & BUSCHINGER, 1986).

Quite unexpectedly, therefore, we recently found a polymorphic queen caste in a non-parasitic *Leptothorax* species from Quebec, Canada. The species in question is close to, but certainly not identical with, *Leptothorax muscorum* (Nyl.). The taxonomy of the North American species belonging to the subgenus *Leptothorax* s. str. (= *Mychothorax* Ruzsky) is quite in confusion. A revision of the group and the identification of our taxon will be provided by A. FRANCŒUR. We therefore refrain from giving a definite name yet, and will refer to it in the further text als *Leptothorax species A.*

MATERIAL AND METHODS

Complete colonies of *Leptothorax sp. A* and other related species were collected in early summer 1979 (BUSCHINGER), 1983 (BUSCHINGER, FRANCŒUR, ALLOWAY, STUART), and 1985 (BUSCHINGER, HEINZE) in Quebec in several localities along St. Lawrence and Saguenay Rivers (*fig. 1*). The ants nest in dry, decaying sticks on flat, sunexposed rocks which are partly covered by lichens and shrubs. Some were also found in light coniferous forests, and a few colonies were collected underneath small pebbles.

A total of 237 colonies were gathered. Some of them were directly stored in 70 % ethanol, others were kept alive in artificial nests (BUSCHINGER, 1974 b) over several breeding cycles.

To check the reproductive function of intermorphic females about 100 of them were dissected as described by BUSCHINGER & ALLOWAY (1978).

Measurements of length and width of thorax etc., and classification of thoracic structures, wing vestiges and ocelli were done with a Wild M5 dissecting microscope. About 200 queens and other females with spermatheca, inseminated or not, were examined, though not all measurements could be taken from each female. Thoracic