morphological critera like coloration, shape and length of epinotal spines, and shape of petiole and postpetiole. In addition,, isozyme studies were done on ultrathin Polyacrylamide gels (0.2 mm), cast on polyester sheets (using the " flap " technique, RADOLA, 1980). pH-range was 4 to 8 and 3.5 to 9.5 (ampholines by Serva and LKB). Whole white pupae were crushed in 20 µl of a solution containing 20 % glycerol and 2 % Bromthymol Blue, and applied to the gel surface. Gels were run for approximately 5,000 Volthours, not exceeding 1,500 V. Gels were stained with Coomassie Brilliant Blue R 250, or using standard histochemical stains (SHAW & PRASAD, 1970 ; HARRIS & HOPKINSON, 1976, recipes slightly varied) for Isocitrate Dehydrogenase (IDH), Superoxide Dismutase (SOD), NAD dependent Malate Dehydrogenase (MDH), and others.

RESULTS

Evidence of queen polymorphism within *Leptothorax sp. A.*

Colonies of this species are usually small with often less than a dozen and rarely up to 100 adult individuals. Thus, it is quite easy to aspirate them completely, and to check their natural composition.

Among a total of 237 *Leptothorax* colonies collected in the field we found 144 colonies having an intermorphic queen. During the time of sampling the reproductives were easily recognized by their considerably extended gasters. 38 colonies with a gynomorphic dealate queen each, apparently belonged to the same species, *Leptothorax sp. A.* Their workers were of similar size and coloration, and no morphological differences could be found with the aid of a dissecting microscope. Finally, 55 colonies with gynomorphic queens apparently did belong to a second, larger species, with darker coloration in ♀♀ and ☿☿. It will be referred to as *Leptothorax sp. B.* in the further text.

Conspecifity of the colonies with intermorphic queens and the similar ones with gynomorphic queens is better demonstrated by eleven colonies among the 144 with intermorphic queens which either in addition contained several nonfertile gynomorphs, or intermorph and gynomorph pupae, which apparently were offspring of the intermorphic queens. No colonies, however, were found with gynomorphic queen and exclusively intermorphic offspring.

In laboratory culture several colonies were producing female offspring over up to seven subsequent breeding cycles (artificially shortened annual cycles, see BUSCHINGER, 1974 b). In all these experiments the offspring of a colony, and thus its queen, was identical in all breeding cycles :

— One colony, collected in June, 1983, at Baie-St.-Catherine, with intermorphic queen and intermorph and gynomorph pupae, was producing ergatomorphs, intermorphs and gynomorphs during four subsequent breeding cycles.

— A colony with intermorphic queen, collected June, 1983, at La Baie, produced ergatomorphs and exclusively intermorphic young queens in seven breeding cycles.

— A colony with gynomorphic queen (*species A*), collected June, 1983, in the Laurentides Park, over seven breeding cycles had always gynomorphic offspring together with ergatomorphs.