Cytotaxonomic methods were used in the present study toward a much-needed revision of the harvester ant genus *Pogonomyrmex.* This diverse and exclusively New World group is represented by over 60 taxa from southern Canada to Tierra del Fuego. The North American taxa were revised by COLE (1968), but several species have since been described. No similar comprehensive work exists with respect to the Central and South American species.

The status of the subgenus *Ephebomyrmex* is uncertain (TABER *et al.*, 1987). Cytotaxonomic data can help to resolve this problem and may also be useful in the problems presented by many of the taxa within the nominate subgenus. These include the relation of the single North American polymorphic species to its monomorphic congeners, the phylogenetic significance of COLE'S (1968) system of complexes, and the status of numerous variants and subspecies within these complexes. Cytological methods allow a fresh approach to these and other problems of harvester ant systematics.

Until now, taxonomic studies of the Myrmicinae genus *Pogonomyrmex* have relied soley upon external morphological characteristics, and many of these are illustrated in a recent scanning electron microscopic study (TABER *et al.*, 1987). The results of a cytotaxonomic study are presented herein. Karyotypes were obtained for all available North American species and compared.

MATERIALS AND METHODS

Mitotically active cells are required for chromosome preparations, and the early pupal stage of the ant is the best source of material. These were collected directly from the mounds during the summer and fall in Florida, Texas, New Mexico, Arizona, and California. As a consequence of this large sampling effort, an excellent representation of the genus was obtained in terms of subgenera, complexes, and species. Specific collection data, museum and figure numbers for these samples follow in *table I* (TTU = catalogue number of voucher series in the entomological collection of Texas Tech University).

The method of IMAI *et al.* (1977) was followed with minor modifications. Pharate pupae were selected when available and injected with a 0.01 % aqueous colchicine solution 18 to 24 hours before dissection (COKENDOLPHER and BROWN, 1985). Colchicine prevents the proper formation of spindle fibers during mitosis and results in an accumulation of cells in the metaphase stage. In order to check for any unwanted effects of the drug, colchicine-free larvae were prepared at random intervals during this study. These produced identical results to those of treated larvae, except that fewer metaphase plates were produced. IMAI *et al.* (1977) reported that treated larvae produced chromosomes that were often too highly condensed for C-band analysis.

After 18 to 24 hours of incubation in toweling saturated with 0.01 % aqueous colchicine, the brains of the larvae were removed and placed in a depression slide filled with a hypotonic solution of 1 % aqueous sodium citrate for 20 minutes at room temperature. A single brain was then transferred with a Pasteur pipet to a microscope slide and the excess hypotonic solution was drained off. Several drops of fixative 1 (3:1 glacial acetic acid : absolute ethanol) were applied and drained away. Two additional drops of fixative were then added and after 10 seconds the brain was minced using extremely