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Acropyga and *Azteca* Ants (Hymenoptera: Formicidae) with Scale Insects (Sternorrhyncha: Coccoidea): 20 Million Years of Intimate Symbiosis

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ABSTRACT

Species of the genus *Acropyga* are rarely encountered subterranean ants that rely on mealybugs or aphids to provide their nutritional needs. Female *Acropyga* (Formicinae) alates of pantropical and Mediterranean species carry mealybugs with their mandibles while swarming and probably inoculate their new nests with these mealybugs. The natural history of *Acropyga* and other mealybug-tending ant species, a summary of the various reports of *Acropyga* females toting mealybugs, and a new record from French Guiana are presented here. Also provided are a first report and description of *Acropyga* alates with mealybugs in Dominican amber dated to the Miocene, a discovery indicating that this intimate association and relatively uncommon behavior has existed for at least 15–20 million years. The mealybugs found with the *Acropyga* females in amber are related to the hypogaec genera *Eumyrmococcus* Silvestri and *Neochavesia* Williams & Granara de Willink (Pseudococcidae, Rhizoecinae) and represent three new species of a new genus. The genus *Electromyrmococcus* and the species *Electromyrmococcus abductus* Williams, *Electromyrmococcus inclusus* Williams and Agosti, and *Electromyrmococcus reginae* Williams are described. A piece of Dominican amber containing workers of *Azteca alpha* Wilson (Dolichoderinae) and 23 scale insects is also presented and the significance of these specimens in Dominican amber is discussed.

INTRODUCTION

Of the numerous symbiotic relationships known from animals, few are as impressively intimate as those that occur between ants and

a variety of arthropods (reviewed in Hölldobler and Wilson, 1990). The trophobiotic associations, which involve the trophobiont providing nutrient-rich excretions or secre-

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