Special Section: Social Insects in the Neotropics

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Published online: 14 November 2018

Ants, termites, wasps, and bees are representatives of a small—but very successful—group of organisms that achieved the highest degree of social organization among animals, known as eusociality. Eusociality is one of the main reasons that explain the ecological dominance of these insects. Although ants, termites, social wasps, and bees represent a tiny fraction of the biodiversity of a tropical forest, their biomass is greater than that of all vertebrate species combined. In addition, they play key ecological roles and provide many services to humankind. Termites have a great ability to digest cellulose and thus are of key importance for soil formation and the cycling of nutrients. Termites are regarded as “ecosystem engineers” since the abiotic and biotic modifications they cause in the habitat influence the abundance of many other species. Wasps and ants are voracious predators of other insects and as such help to regulate the population of these insects, including those that are pests in agriculture. Ants have also evolved mutualistic relationship with many plant species, providing the dispersal of their seeds or, most commonly, protection against herbivores. Bees are the chief pollinators of most flowering plants and many crops and plantations depend heavily on bees to maintain their productivity. Without bees, many of the vegetables we eat every day would simply disappear.

The Neotropical region extends from South America through Central America into tropical Mexico and it is well-known for the endemism of several taxa of animals and plants. Neotropical social insects constitute a very diverse group of insects, with enormous ecological dominance. A traditional example shows that in some Neotropical forests, social insects constitute approximately 30% of animal biomass (ants and termites) and 80% of total insect biomass (Fittkau & Klinge 1973). In terms of diversity, the Neotropics are the second most diverse in terms of described termite species; 30% of ant species are found in the Neotropics (the

richest region in the world); 70% of the species of Neotropical social wasps (mostly Polistinae) are endemic; 60% of social bees (Apinae) are also endemic to the Neotropics, if we include orchid bees, that may bear some pre-social behaviors. These data show that social insects are essential for the survival of the Neotropical region.

The most important threats to social insects are the loss of their diversity in response to anthropogenic activities. Reasons implicating in species decline include mainly the habitat loss due to landscape fragmentation, pesticides, invasive species, and, ultimately, the global climate change. The understanding of the important role of social insects in the ecosystem and economy urges through efforts from basic to applied research together with biodiversity conservation.

This Special Section is dedicated to this exquisite group of the world biodiversity. A set of the articles on Neotropical social Hymenoptera accepted for publication in *Neotropical Entomology* in the end of 2017 and in 2018 were grouped in this issue. Seven articles are focused on the ecological functions and population regulation of ants (Achury & Suarez 2017, Grüter *et al* 2018, Knowlton & Kamath 2018, Rocha *et al* 2018a, b, Sheeja *et al* 2018, Walter *et al* 2018); three articles are dedicated to the ecology and diversity of bees (Campollo-Ovalle & Sánchez 2018, Poveda-Coronel *et al* 2018, Saravia-Nava *et al* 2018) and other two articles explore the ecology of termites (Ferreira *et al* 2018, Rodrigues *et al* 2018). By publishing them together, we aim to bring light to the diversity, species interactions, population regulation, and the highly relevant ecological roles of these insects in tropical ecosystems.

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