

## Chapter 2

### Ants of Southern Guyana - a preliminary report

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#### INTRODUCTION

Due to the combined efforts of a global community of ant systematists and ecologists, codified in Agosti et al. (2000), ants that inhabit the leaf litter have been widely used as biological indicators in biodiversity studies conducted at localities across the planet. Leaf-litter ants serve as good biodiversity indicators for conservation planning because they are: (1) ecologically dominant in most terrestrial ecosystems; (2) easily sampled in sufficiently statistical numbers in short periods of time (Agosti et al. 2000); and (3) sensitive to environmental change due to their many interdependencies with other components of the local biota (Kaspari and Majer 2000).

The ant diversity of Guyana is largely unknown. Previous studies suggest a rich ant fauna with more than 350 species (Wheeler 1916, 1918; Weber 1946; Kempf 1972; La Polla et al. 2007), but this figure likely underestimates the true number of species present in the country. It is well known that the New World tropics possess one of the richest ant faunas in the world, with nearly 3100 known species (Kempf 1972, Fernandez and Sendoya 2004).

This preliminary report summarizes ant collecting at two sites in southern Guyana, near the border of Brazil. These data will later be compared with pre-existing data from other sites across the Guayana Shield.

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#### METHODS

##### Study site

The Acarai Mountains are wet, forested, low-altitude (<1500 m) uplands located in the southern part of Guyana. The Acarai Mountain range lies along the border shared between Guyana and Brazil, and is one of four mountain ranges in Guyana. Two important Guyanese rivers, the Essequibo River (the longest river in the country and the third largest river system in South America) and the Courantyne River, originate in the Acarai Mountains. The Acarai Mountains are actually one part of a larger range that extends into the Wassarai Mountains to the north and east.

##### Field methods

Ants were sampled at two main sites; Site 1 in the Acarai Mountains (October 6-19, 2006; Acarai Mountains including a satellite camp, New Romeo's Camp) and Site 2 located along the Kamo River (October 21-26, 2006; Kamo River). Sampling consisted of: (i) intensive hand collecting in leaf litter, rotten logs, fallen trees, and vegetation, and (ii) 60 leaf- and 40 wood-litter samples utilizing maxi-Winkler litter extractors. Each transect consisted of ten separate collections of sifted litter, six liters each, each sample collected separately from the others, and each sample consisting of litter from one or more microhabitats. Leaf-litter samples were taken from leaf litter (including small twigs and branches), whereas wood-litter samples were taken exclusively from rotten and decaying logs. Sampling followed a modification of the well-known and extensively utilized ALL protocol (Agosti et al. 2000). Sifted litter samples were suspended