Urban Ant Fauna of Port of Spain, Trinidad, West Indies

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ABSTRACT

A one-day survey of ants in the city of Port of Spain yielded 154 samples representing 23 species. The greater part of these were found in two relatively well-vegetated areas. The pattern of samples gives a diversity index of H' = 2.39 and an estimate of the number of species present but not collected of f_0 = 5.3. The overall faunal composition was largely as expected, with no notable distinction between daytime and nighttime sampling except for the strictly nocturnal presence of *Camponotus atriceps.*

Key words: neotropical, diversity

INTRODUCTION

Habitat disturbance is well known to diminish species diversity, and urbanisation is the most severe of all very widespread forms of terrestrial disturbance. Ants (Hymenoptera: Formicidae) are a prominent feature in virtually all terrestrial habitats. With about 16,000 known species (Bolton *et al.* 2007) and an enormous density of individuals, they are a key ecological force (Hölldobler and Wilson 1990). 209 species are recorded from Trinidad, West Indies (Starr and Hook 2003), although the true total is certainly substantially higher. Although urban environments are certainly relatively poor in species of ants, no unitary trend has yet appeared in this trend (Philpott *et al.* 2010). Our purpose here is to report a preliminary survey of ants in a tropical city, with comments on the findings.

MATERIALS AND METHODS

All collecting was on 5 November 2016 in the city of Port of Spain, Trinidad & Tobago. Our focus was entirely urban and external, extending from the north end of the Queen's Park Savanna to the area in and around the Lapeyrouse Cemetery (10°40'N 61°31'W), disregarding the nearby Royal Botanic Garden and other garden-like localities. We collected about two-thirds of our samples in the morning between 08:00-12:00h, the rest in the early night between 18:30-20:00h.

Ants, like other social insects, occur in more or less discrete groups (colonies). Accordingly, our sampling and analysis were based on colonies, rather than individual organisms. We walked slowly while scanning the ground and tree trunks. On encountering ants, we collected one or a few apparent nestmates, after which we walked an estimated five meters further before resuming the search. This five-meter interval was to minimize the likelihood of taking to samples from a single colony.

We later sorted all samples into morphospecies, which we identified to genus and in a few cases to species by reference to Hölldobler and Wilson (1990) and other identification materials. Specimens are deposited in the University of the West Indies Zoology Museum Land Arthropod Collection (UWIZM).

RESULTS AND DISCUSSION

Our 154 samples represent 23 morphospecies (Table 1). The faunal composition contained no surprises, except perhaps for the paucity of *Pheidole*. Our comparison between the day and night fauna was far from rigorous. Nonetheless, it allows the rough generalisation that these are much the same except for the nocturnal habit of *Camponotus atriceps*.

Although there is no known way to predict the ant fauna of a disturbed habitat, the species richness in our samples was greater than expected. The Shannon diversity index (Magurran 2004) yields a moderately high figure of H' = 2.39. Eight of our morphospecies were represented by a single sample (singletons) and another six by two samples (doubletons). Applying the Chao1 method (Gotelli and Colwell 2011) estimates the number of undiscovered species at f_0 = 5.3. That is, it is estimated that by continuing our search method in the study area we would eventually reach a total of 28 or 29 morphospecies, about 13% of those known from the island.

It is plain that the two well-vegetated parts of our study area -the savannah and cemetery- contributed disproportionately to this diversity. The rest of the area was a wasteland with respect to ants, with a few samples of *Paratrechina* sp. A and almost nothing else. This is in line with the commonsense expectation that parks and similar features furnish the

Table 1. Samples of ants collected during a single day in Port of Spain, Trinidad. Each sample of one or more workers was collected at least five meters from any other. Further explanation in text.

+ = 1-4 samples during the period.

++ = 5 or more samples during the period.

	No. of samples	Day	Night
Dolichoderinae			
Azteca sp. A	5	++	
Azteca sp. B	2	+	
Azteca sp. C	4		+
Dolichoderus sp.	2	+	
Tapinoma sp. A	9	++	+
Tapinoma sp. B	2	+	
Ectatomminae			
Ectatomma ruidum	1	+	
Formicinae			
Camponotus atriceps	28		++
Paratrechina sp. A	37	++	++
Paratrechina sp. B	1		+
Myrmicinae			
Acromyrmex sp.	2	+	
Atta cephalotes	1	+	
Cephalotes atratus	17	++	+
Cephalotes sp. A	2	+	
Cephalotes sp. B	1		+
Pheidole sp.	1		+
Solenopsis sp. A	3	+	
Solenopsis sp. B	21	++	+
Solenopsis sp. C	2	+	
Tetramorium sp.	1	+	
Pseudomyrmecinae			
Pseudomrymex sp. A	10	++	+
Pseudomrymex sp. B	1	+	
Pseudomrymex sp. C	1	+	
Total	**154**		

greater part of the biodiversity of any city. Gardens (which we did not include) are presumably even more diverse on account of the intentional variety of plants.

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