Chapter 3

Dung Beetles of Southern Guyana - a preliminary survey

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INTRODUCTION

A number of key features of dung beetles (Coleoptera: Scarabaeidae: Scarabaeinae) are largely responsible for their being used as biodiversity indicators. They are distributed on all of the continents and can be found from the equator to subarctic regions – inhabiting an array of terrestrial ecosystems. Diversity is often highest in tropical rain forests but temperate forests, grasslands and even xeric or high elevation sites can support diverse dung beetle assemblages. Because most dung beetles rely on dung from vertebrates, their abundance and diversity often reflects that of local vertebrates. A number of scarabaeine beetles are associated with non-dung food sources (e.g., fungi, millipedes or termites). These species are rarely collected in dung traps – thus it is important to note that this survey will reflect only a portion (albeit the majority) of the full scarabaeine beetle fauna for this region. Additionally, the dung beetles themselves support a vast assortment of symbionts, primarily mites, nematodes and fungi and as such are an indirect measure of these taxa.

One important characteristic of dung beetles that sets them apart from other potential biodiversity indicator taxa is the ease (and rapidity) with which they can be collected using baited traps. Previous studies have shown that a large percentage of the species (alpha diversity) for a region can be surveyed in a relatively few number of days. However, scarabaeine beetles do show some seasonality in their abundance and thus sampling across several seasons can be expected to yield a better overall diversity measure.

The ability to identify the dung beetles collected on this study varies depending on the genera. Some new world genera can be readily identified to species, however, some groups (e.g., *Dichotomius* or *Deltochilum*) are greatly in need of modern revisions and many species are poorly described or remain unnamed. Other groups (e.g., *Phanaeus*, *Coprophanaeus*, *Canthon*, *Ontherus*, etc.) are better known and species, including undescribed species, can be more easily determined using modern keys.

This report summarizes preliminary results of dung beetle collecting at two sites in southern Guyana, near the border of Brazil. These data will later be compared with preexisting data from other sites across the Guayana Shield and elsewhere in South and Central America.

METHODS

Study site

The Acarai Mountains are seasonally wet, forested, low to mid- 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 (the longest river in the country and the third largest river in South America) and the Courantyne, 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. North of the Acarai Mountains is the Sipu River, a western tributary of the Essequibo River. Along the river 200-400 m elevation, the forest resembles classic low elevation Amazonian forest. It is clear from the vegetation and sandy soil that this habitat floods annu-