

## Chapter 6

### Dung Beetles of Lely and Nassau plateaus, Eastern Suriname

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#### INTRODUCTION

Dung beetles (Insecta: Coleoptera: Scarabaeidae: Scarabaeinae) are frequently used as a focal taxon in biodiversity studies for several reasons (Larsen and Forsyth 2005). Dung beetles are a diverse and abundant group of insects, especially in tropical forests, and their diversity patterns often mirror those of overall biodiversity. Most dung beetle species have small distributional ranges and high Beta-diversity, with relatively few species shared between habitat types (Spector 2002). Dung beetles are very sensitive to many kinds of disturbance. Since they depend primarily on mammal dung for food and reproduction, dung beetles may be a good indicator of mammal biomass and hunting intensity. By burying vertebrate dung, beetles perform several important ecosystem functions, including recycling nutrients for plants, dispersing seeds, and reducing infestation of mammals by parasites (Mittal 1993, Andresen 2002). Finally, dung beetles are a tractable group to study because they can be rapidly and cheaply sampled in a standardized and non-biased way using transects of baited pitfall traps (Larsen and Forsyth 2005). Within just a few days, this trapping method usually captures the majority of Alpha-diversity and also yields good abundance data.

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#### METHODS

I sampled dung beetles at Lely and Nassau plateaus in eastern Suriname using pitfall trap transects. Ten traps baited with human dung were placed approximately 150 m apart at each site and collected every 24 hours for four days (see Larsen and Forsyth 2005 for methodology details). Each trap consisted of 16 oz plastic cups buried in the ground and filled with water and liquid detergent. Bait was suspended above the cups wrapped in nylon tulle and covered with large leaves. Human dung baits were replaced every two days. Since some dung beetle species feed on other resources, additional traps were baited with rotting fungus, rotting fruit, and dead insects. At Nassau, I placed two flight intercept traps consisting of mosquito netting with soapy water beneath. These types of traps often passively catch dung beetle species not attracted to baits.

At Lely, 11 traps were placed from October 27-31, 2005 in primary forest that varied in canopy height and in plant species composition depending on the soil, with small, short trees dominating in more rocky areas. In addition, three traps were placed from October 27-29; one trap was placed in the grassy airstrip, one in secondary forest at the edge of the airstrip, and one in a weed-filled clear-cut area surrounding a radio tower. One trap baited with dead insects and one trap baited with rotting fungus were also placed in primary forest. At Nassau, 10 traps were placed from November 2-6, 2005 in the same general forest type as at Lely, although in many places the forest was taller and showed a wetter forest floor with greater leaf litter decomposition. Two flight intercept traps, one trap baited with dead insects and one trap baited with rotting fruit were also placed in primary forest. Beetles were sorted and identified as they were collected, and vouchers were placed in alcohol for further identification and museum collections.