

**THE BIODIVERSITY OF SMALL AND MEDIUM-SIZED MAMMALS IN A
COFFEE-DOMINATED LANDSCAPE IN COSTA RICA**

BY

ELIZABETH DONELAN

**A THESIS SUBMITTED IN PARTIAL FULFILLMENT OF THE
REQUIREMENTS FOR A
MASTERS OF SCIENCE
IN
ENVIRONMENTAL SCIENCE**

UNIVERSITY OF RHODE ISLAND

2009

Abstract

For many years it has been assumed that growing coffee in direct sunlight (technified coffee) is the best way to maximize yields. Technified coffee has many adverse effects, one of which may be the loss of biodiversity. Recently, there has been a push to convert sun coffee fields into shaded polycultures, with the assumption that this is overall better for the environment. I assessed how these different approaches to growing coffee influence small and medium-sized mammal abundance, richness, and diversity. I conducted research on the 500-ha La Hilda coffee farm near San Pedro de Poas, Costa Rica from 2005 to 2008. I employed Sherman and Tomahawk live traps in 20 50 x 50-m grids in both the forest and in coffee fields to capture mammals.

Standard measurements were taken for all mammals captured in traps. Vegetation analyses were conducted to characterize the habitats where grids were placed.

Mammal diversity was generally higher in the forest, however, there was no difference in mammal diversity when sun coffee and shade coffee were compared. The forest had a higher abundance of mammals, however, the mammal community was dominated by two species *Heteromys desmarestianus* and *Peromyscus mexicanus*. The coffee sites were dominated by *Reithrodontomys* spp. The overall landscape configuration of La Hilda may be beneficial in maintaining small and medium-sized mammal populations. The mix of sun and shade coffee near to forest appears to be a desirable habitat for a wide variety of mammals.