

A Survey of Rat Populations at Springfield Plantation

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Abstract

In order to determine the relative abundance and location of *Rattus rattus* and *Rattus norvegicus* a survey was conducted around Springfield Plantation. The results proved inconclusive because only one rat was trapped over the three week period.

Introduction

Rats have plagued mankind for centuries. They have managed to invade every land surface except the polar regions (1). They are extremely good at adapting to different environments, which accounts for their widespread distribution. Through the years we have become accustomed to living with rats, although it is not always a desired relationship. We are consistently reminded that they are pests, as they cause billions of dollars worth of damage annually to crops (2). Infestations on islands are particularly devastating, because the rat population competes with humans for land and crops.

Dominica has been reported to have a healthy, thriving rat population. This is particularly interesting because they have two species of rats that populate the island. Each species has specific characteristics that affect its preferred habitat.

The black rat, *Rattus rattus*, is also commonly called the ship rat or roof rat. They are believed to have originated in Southeast Asia, where they were distributed world-wide by harboring themselves in ships (3). They are excellent climbers and prefer to nest in trees (4). In Dominica the tree of choice would be the Palm Tree. Black rats prefer to live in warmer environments than brown rats, which is why they are often abundant in tropical and sub-tropical environments.

The brown rat, *Rattus norvegicus*, is also referred to as the Norwegian rat. Brown rats are believed to have originated in Asia and spread by the same mechanism as the black rat (3). Brown rats are not as agile as black rats, so they are limited in their climbing abilities. They tend to be excellent swimmers and are more subterranean (1). As opposed to the black rat, brown rats prefer to nest

in burrows. Brown rats live in more harsh climates than black rats, which is why they are more widely distributed.

This investigation was undertaken to determine which habitats were occupied by the two species of rats. Each species of rat has a preference for a specific type of habitat. The black rat should be more populous around the Main House since they generally live closer to man. The brown rat should predominately live near the Check Hall River since they prefer to burrow and are very adept swimmers. There should be a mixture of black and brown rats living near the Bee House, since there is water and man present.

Methods and Study Site Description

Fourteen Sherman Traps (Fig. 2) and four Have-a Heart squirrel traps were used to sample rats. Sherman traps are designed to catch small rats. Have-a-Heart squirrel traps are larger than the Sherman traps, and are made with mesh wire. These traps are designed to catch larger rats, because a small rat could easily escape through the mesh wire. All traps were baited with peanut butter.

After the rat is trapped, it is transferred from the trap to a sock. While the rat is in the sock, it is weighed using a hanging scale. The next step is to transfer the rat from the sock to a clear plastic container so the physical description of the rat can be recorded. Color, sex, body length, and tail length are collected (Table 2). Using Table 1, the rat is identified as either a black or brown rat. Before releasing the rat, it is marked with Methylene-Blue in order to determine if the same rat is being trapped at a later date.

This survey was conducted at three different general locations. Five traps were set on the trail leading to the Check Hall River. A second set of five traps was set in various locations around Springfield Plantation and the Stream House. A third set of five traps was set along the trail leading to the Bee House on Mount Joy. Each trap was checked in the morning, noon, and before sunset each day.

The path to the Check Hall River consists of partially disturbed tropical deciduous land. The paths are continuously being cleared along with many of the

plants. The path to the river is lined with trees and shrubs, which could provide both species of rats with shelter and protection from the elements. Not many tree or fruit crops line the path, there are primarily ornamental plants and shrubs.

Springfield Plantation and the Stream House are both on extremely disturbed land. Very little of the natural habitat remains. There are many herbs and fruit crops around both locations, such as mango, papaya, coconut, pineapple, and lemon grass. Many ornamental plants are also located around both locations.

The Bee House path consists of partially disturbed tropical deciduous land. However, the land is less disturbed than the path leading to the Check Hall River. The path is lined with many trees and shrubs, primarily mango trees and dasheen. The land is also more elevated the other two locations.

Results

The results obtained are summarized in Table 2. There was only one rat caught during the three weeks of trapping. However, a ground lizard and a land crab (Fig. 4) were both trapped.

Discussion

There was little data collected over the three week period. Many factors could be involved in the apparent absence of rats near Springfield Plantation. The rat populations could vary depending on food, predators, and territory.

The most probable explanation was that the staff at Springfield Station removed the rats source of food. When asked, Fifi stated, “We haven’t had a rat problem since we removed the vegetables from the garden.” One common way people fight the increasing rat populations is by removing the food source of the rat. More likely than not, the rat populations around Springfield Station moved to another location where the food was more plentiful.

Another possibility was that predators have kept the rat population around Springfield Plantation low. At least one cat that lives at the Main House and more than likely more live in the outlying area. Cats are one of the most notorious

solutions to decreasing the rat populations in an area.

The last reason there were not many rats trapped could be because the traps were not placed in the proper areas. Most rats live in an area that usually doesn't exceed more than 150 feet in diameter (2). The traps may have been set in an area that was outside of the living radius of the rats, which would explain why only one rat was trapped.

References

1. http://www.animalz.co.nz/library/small_pet/rats.htm
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<http://www.aolsvc.worldbook.aol.com/ar/?na/ar/co/ar460040.htm>, May
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3. <http://www.the-piedpiper.co.uk/th1b.htm>
4. <http://www.algonet.se/~rsm/r8/rattuse.html>

Tables

Table 1: Rat Identification Table

Characteristic	Black Rat	Brown Rat
Body Length	7-8 inches	11 inches
Tail Length	Longer than body	Shorter than body
Weight	150-200 grams	400-800 grams
Ears	Larger and partially bald	Smaller and covered in fur
Snout	More pointed	Less pointed
Color	Black, grayish-brown, smokey grey body with grey or white underside	Brownish-gray to reddish-gray

Table 2: Information on Trapped Rats

Trap #	Species	Sex	Color	Weight	Body Length	Tail Length
4	Black rat		black	30 grams	7 cm	9 cm

Figures



Figure 1: Black Rat



Figure 2: Sherman Trap



Figure 3: Have-a-Heart Trap



Figure 4: Crab