

Kayla Sagebiel

Dasyprocta leporina Agoutis on Dominica

June 10, 2006

Texas A&M University

Dasyprocta leporina Agoutis on Dominica



Agouti Picture 1.

Abstract

Dasyprocta leporina or the red-rumped agouti has a big impact on the forest ecology of Dominica because they are scatter hoarders. They accidentally disperse the seeds of trees because they will bury the seeds in order to go back later to eat them when food is scarce (Silvius & Fragoso, 2003). This has generated several questions such as how are seeds dispersed by the agoutis? (Silvius & Fragoso, 2003. McMillan, Personal Communication). Based upon my observations, several additional questions have been raised. What is the distance that the agoutis will take the food from the main source? What path is taken by the agouti? Is it the same path or at least the same relative area? Drawing from this, are they territorial to a certain area for food and space? Also, which foods do they prefer, coconut or breadnuts?

Introduction

The Dasyprocta leporina, otherwise known as the Brazilian Agouti, is a rodent that is commonly found on Dominica. The agouti was brought here by the Arawak or Carib Indians in the 1400's (Elvis, Personal Communication). According to the "Common Agouti" article from Wikipedia, agoutis have five front toes and three hind toes. Their fur is a brown and black brindle that appears to be glossy. Their habitats include garden

areas, savannas, and rainforest. They feed on fruits and vegetables. According to my observations and interviews with Brother Matthew and Christine Luke, the agoutis around Dominica feed on Musa sapientum – banana, Cocos nucifera – coconut, Colocasia esulenta – dasheen, Dioscorea sp.- yams, Ipomoea batatas - sweet potatoes (with the leaves and not the vines), Brassicaceae - cabbage and Artocarpus sp. - breadnuts. They also like to feed on fungus such as Trachaderm, also known as blue green fungus, and feces. (Christine Luke, Personal Communication and Silvius, Fragoso 2003). When food is scarce, they will bury excess food approximately three inches in soft ground (Elvis, Personal Communication). Agoutis are active during the day unless disrupted; at this point they will become nocturnal (Agouti, Dalive). The Dominican agouti population I observed has been recorded to be active any time of day or night by Christine Luke. However, peak activity appears to be at sunrise, morning, and dusk. They will even be active in the rain because they can shake off the water.

Farmers often think of agoutis as pests, as they tend to enter large farms and dig up the yams to eat (Dexter George, Personal Communication). However, if dogs are around they are less likely to enter that area or are active late at night (Christine Luke, Personal Communication). I talked with Piere, who has a garden and dogs. He mentioned that he does not have a problem with agoutis because he has dogs. Agouti hunting is prevalent in Dominica because there is not a bagging limit. The hunting season is for a six month period which peaks October through November (Alie, Personal Communication). The agoutis are hunted to be eaten, to sell the meat, and to make leather from the skin (Alie, Personal Communication).

The parental care behaviors of agoutis are not well known. According to the Honolulu Zoo, the gestation period is three months with the birth of two to three young in a nest of leaves and sticks. Christine Luke observed that the female's mammary glands will swell up but not too much because they still have to be able to escape danger. The mother also appears to feed by herself the first few weeks while the babies are nursing. Eventually, the babies come to feed with the mother. Through my observations, I noticed that the mother will root around and grunt a little to teach the babies how to eat. They will stay close to her in the beginning until they learn where the food is. I noticed that a few of the older babies will come and eat by themselves, but they are more likely to eat together in a group than the adults.

Preliminary Observations

Brother Matthew and Christine Luke have a unique bond with wild agoutis that they call "Basie." This name has been given to their relatively tame agoutis because their son had helped to rescue and take care of two agoutis. The name Basie was given to the first agouti and it has stayed the common name for each agouti that shows up to their Organic Mushroom Farm. The first day I went to observe, Brother Matthew Luke put coconut mash on a log in front of the porch. There is also a piece of tin staked up so that the agoutis can crawl under this for their comfort while eating if they would like. A few minutes after he called them, adult agoutis started coming up to the log and eating the coconut mash. I noticed that they would come and eat for quite awhile. Around noon the agoutis left. They did come on paths and followed these paths back and forth. I noticed that one adult agouti would not let the two younger ones stay around to eat. She would chase them off and make a "ger ger" sound.

The second day of my observations was to see if the agoutis would pick up small pieces of coconut and stay around to eat it or run off. For the most part, the agoutis would grab a piece of coconut start to chew on it and then run off with the food in their mouth.

About five minutes later they would show up again to grab another piece of coconut.

The agoutis would come from one direction and leave in that same direction. I also watched their interactions with each other. Every time a different adult agouti came into the area, the agouti that was already there would take off. It was like an unwritten rule that they respect the new agoutis' space. The third day began the experiment.

Materials and Methods

The materials used for this experiment were; four spools of cotton string, two toilet paper tubs, Duct Tape, four plastic glow in the dark stakes, Panasonic camcorder and camera, paper, pen, meter tape measure, Kestrel 4000, Philips Flathead Screwdriver, scissors, cutting knife, pen, paper, flagging tape, fern limbs, coconut pieces, and breadnuts.

I took two spools of cotton string and transferred half of the spool to the toilet paper tubs.

I used Duct Tape to hold the string in place. The reason for doing this was to have more than two spools of string so that I could compare and contrast the attraction of agoutis to either coconut or breadnuts. In order to do this experiment, the minimum amount of setups should be two in order to have a better probability of attracting and observing the agoutis. I drove the four stakes into the ground in different locations that the agoutis seem to come around the most due to my previous observations. I also put a piece of tape at the top of the stake with a number in order to keep the balls of string apart when writing data. After this was done, a hole was put into the pieces of coconut and a breadnuts with the Philips Flathead Screwdriver. Then, the end of the string was placed

through the hole and tied. Next, the string end with the food was measured out with the meter tape measure to about 23cm in order to know the exact distance that the string would be carried. Then, it was placed on the stake. The stakes were covered the first three days with fern limbs in order to hide the smell of the stakes and string from the agoutis. Each ball of string was designated a certain stake number to keep the coconut and breadnuts consistent to each location. Before the agoutis came, a reading of the weather was taken with the Kestrel 4000. After an agouti took off with the piece of food, the time was taken. I would wait a few minutes and then put a piece of flagging tape on the end closest to the ball of string in order to keep the spot marked for accurate measuring. The string was gathered and measured with the meter tape measure. The data was recorded and the string was set back up with food for the next agouti. I also recorded the paths that the agoutis would take (shown in Figure 1). The camera and camcorder were used for observation of data. I also tried using camera traps around the Springfield Station to catch images and location of wild agoutis. However, this was unsuccessful.

Results

The beginning of the experiment appeared to be unsuccessful. I had set out the stakes and two camera traps on the direct paths of the agoutis. However, any time that the agoutis would come out to eat, they would only come for a second and then take off again. As for the paths with the camera traps, they ignored them altogether. No agoutis took off with food that day while I was present. I had decided to take up the camera traps and I covered the stakes with fern limbs to cover the new and different smell. Even though the beginning was rough, the next two days were very successful. The following

drawing (Figure 1) indicates the paths that were used for the next two days by the agoutis to take their food and eat it. Table 1 indicates the average length of the different strings that were taken by the agoutis.

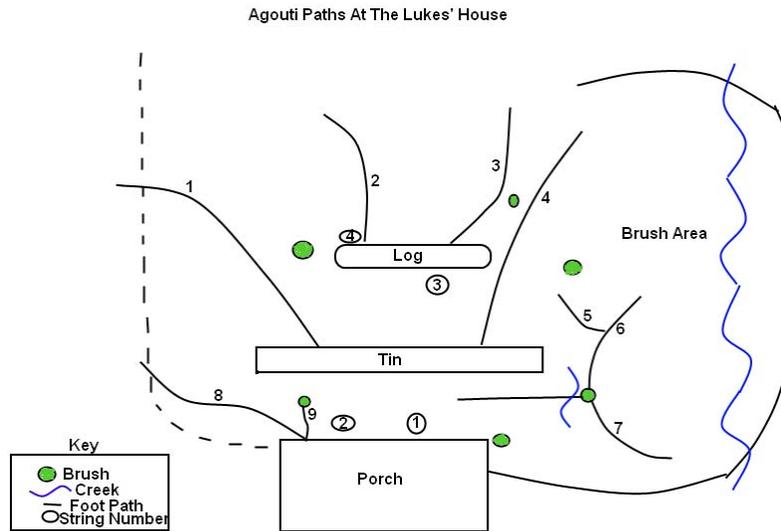


Figure 1

Agouti String Length, Paths Taken and Food Eaten (Table 1)

String Number	Number of Events	Average Length (inches)	Food	Paths
1	2	131.29	Breadnuts	6, ?
2	10	251.608	Coconut	5, 6, 7, 8, 9, ?
3	6	106.225	Coconut	2,6,?, tin
4	2	89.76	Breadnuts	2, 5

Note: ? means that the path is unknown.

It is apparent that string number 2 had the most activity and was taken twice the length of any other strings. Due to my observations, the conclusion to this is because it is closer to the area that the agoutis use as their main paths (see Figure 1). One can see that path

number 6 is the most traveled path for three of the four stings. The area is covered with trees and bushes which provides more shelter and comfort. I have assumed that their nesting areas are across the creek at the edge of the map on Figure 1 because the strings went in that direction and some went down into the creek itself. If this is true then path number 6 is the best path to be taken due to its location being a relatively direct path. Also, the coconut appears to be their favorite out of breadnuts and coconut. This was explained to me by Dexter because he mentioned to me that in the wild, the agoutis can not open up a coconut on their own. Therefore, if they can get pieces of coconut of course they would be more interested in that. This makes sense and has shown to be the case.

Discussion

This experiment gives good information about agoutis and their behavior. It will give good input for seed dispersal however, the experiment would have to be for a longer period of time and more detailed. Through this data though, a few assumptions can be made. In order to have these assumptions tested, there would have to be more data studied over an extended period of time. First, as for the distance that the agoutis take the food from the main source, it is obvious from the above information that different distances have been obtained. Through my observations, I find that adult agoutis are able to carry the string farther than the young agoutis because the adult can pull the string harder and faster through the brush. Second, the paths that are taken are relative to their home ranges. During the experimental part of my observations, the main agoutis that participated came from the right side of the porch and usually returned to that area. When I looked through that area it was obvious that it had several paths that wound in

and out together. This was the mother and her two babies' main home range. Clearly the nest was not in that area but the paths all wound together to their nest. The next biggest question is whether coconut or breadnuts were eaten the most. It is clear in the above table that coconut seems to be the favorite.

Conclusions

I believe that this experiment can be carried out much better. One way to do this is to put tracking devices on the agoutis for the time period that they are observed. This could lead one to their nesting areas and give exact range of home ranges traveled. It can also explain whether or not they do disperse seeds and how far away from the main source the agoutis will bury the seed. It would also be good if one could find agoutis that are not trained or tamed in any manner. This could be accomplished through disguising camera traps a little better or setting up more. The problem that I have observed with the camera traps is that the agoutis can smell the camera traps easily because they have a great sense of smell (Elvis, Personal Communication). Territorial and dominance issues would be nice to observe.

Acknowledgements

I would like to thank Dr. Woolley and Dr. Lacher for their time and help on the field research. I would also like to thank Christine, Brother Matthew, and Riverstar Luke for letting me observe the agoutis that come to eat in their yard.

Literature Cited

“Agouti.” Dalive.com. <http://www.dalive.com/dominica/nature/agouti.php>

“Agouti.” Honolulu Zoo. <http://www.honolulu zoo.org/agouti.htm>

Alie, Kelvin. Wildlife and Habitat Protection Department International Fund for Animal Welfare, Massachusetts.

“Common Agouti.” Wikipedia Encyclopedia. (January 2006).
http://en.wikipedia.org/wiki/Common_agouti

Elvis. Dominica.

George, Dexter. Rostie Sea Turtle Imitative and Farmer, Dominica.

Luke, Matthew. Organic Mushroom Farmer, Rainforest Mushrooms, Dominica.

Luke, Christine. Organic Mushroom Farmer, Rainforest Mushrooms, Dominica.

McMillan, Patrick. Curator of the Herbarium. Department of Biological Sciences. Clemson University, South Carolina.

Peire. Farmer, Dominica.

Silvius, Kirsten and Fragoso, Jose M. V. (2003). Red-rumped Agouti (*Dasyprocta leporine*) Home Range use in an Amazonia Forest: Implications for the Aggregated Distribution of Forest Trees. *BIOTROPICA* 35(1): 74-83.

Trowhon, Misty. (1999). Fruit and Vegetables of Dominica. Texas A&M University.