The Habits of the Lesser Antillean Iguana (*Iguana delicatissima*)

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Abstract

The Lesser Antillean Iguana, or *Iguana delicatissima*, is a threatened species on the IUCN Red List. They have been reduced to only eight islands in the Lesser Antillean chain and are continuing to drop in numbers. The purpose of this experiment was to observe the perching habits of the Lesser Antilles Iguana and also to determine the tree species where they were found to be used to aid in the construction of a National Conservation Action Plan. I looked at both overall perch height, and also the mean perch height of the male and female iguanas separately. I calculated these data and compared mean perch height between sexes. I also recorded the tree species that each iguana was sighted in and compared these data to known information. I found that these iguanas are can be found at a wide range of varying heights in the tree canopy and they also do not show a preference to one species of tree over others. These data can be used to better understand the habits of the Lesser Antilles Iguana and potentially help in the conservation of this endangered species. Including what tree species to replant or protect and also what areas are best suited for the iguanas.

Introduction

The Lesser Antilles Iguana, or *Iguana delicatissima*, was recognized as an endangered species by the IUCN Red List of Threatened Species in 2010. It is currently only found on eight islands in the Lesser Antilles Island chain and is continuing to decrease in numbers (Legouez 2017). This is mainly due to the proliferation of the Green Iguana, or *Iguana iguana*, and the loss of suitable habitat. In order to create a successful National Action Plan, a plan set in place to conserve a threatened species, these islands need to be aware of the natural habitat of the Iguanas, their breeding habits, and their general demeanor (Legouez 2017). In my study of the Lesser Antilles Iguana on the Island of Dominica, I looked into a few of these aspects. I asked myself these three questions. Where in the tree canopy are the Lesser Antilles Iguanas commonly found, high in the tree canopy or lower to ground level? Is there a difference in perch height between males and females of the species? And my last question was what species of tree do the iguanas most commonly frequent? These questions will aid in future conservation or reintroduction of the Lesser Antillean Iguana to islands similar to Dominica. They tell us how tall and mature a tree needs to be for these iguanas to utilize it. They also let us know which tree species need to be conserved in their habitat range in order to keep the population numbers from decreasing. Since *Iguana delicatissima* is only found on certain areas of Dominica, we firstly had to locate areas where the iguanas frequented. From previous experiments we knew that they could be found by Champagne Bay (Priesmeyer 2006). We found out from the Field Station Manager, Nancy Osler (persp. comm.), that there was also a fairly large population of Iguanas down by Sunset Bay.

Materials and Methods

Throughout my study, I visited Champagne Bay three times and Sunset Bay twice to collect information. While I was there I used binoculars to locate the Iguanas. Once I had located an iguana I determined if it was a male or female. Female Iguanas are mainly green with a brown tail, where dominant males are generally grey with blue scales along the sides of their head. Next, I observed the angle to the perch of each individual iguana. This helps us to know how mature a tree needs to be for an iguana to utilize it, so they will know how long they need to wait to reintroduce the iguanas into an area if they have to replant. I used a Suunto Clinometer to find the angle from the base of the tree to where the Iguana was perched. If I was not even with the base of the tree I would have to take two angles in order to get an accurate height. I took one measurement from the base of the tree to the 0° angle from where I was standing, which was a negative or positive number. Depending on whether the base of the tree was above my head or below. Then I measured the angle from the iguana's perch to the 0° angle. This data was placed in google sheets to be used in an equation later. I also had to measure the distance it was from myself to the tree trunk. In order to do this I used a Nikon Prostaff 3I Laser Rangefinder which will give the distance from you to any object in meters. All of this information was then recorded in Google Sheets so it could be converted into charts and tables. In order to calculate the perch height of the individual iguanas I used the equation Tan(angle) = Opposite/Adjacent. This equation is used to find the length of the opposite side of a right-angled triangle. But if the the base of the tree was not at eye level the equation needed to be adjusted by splitting the one large triangle into two smaller ones. If the base of the tree was below my position then I would calculate the two smaller right triangles then add them together (equation 1). If the base of the tree was above me I would calculate the larger

triangle that went from the iguana perch down to eye level then subtract the smaller triangle that went from the base of the tree to eye level (Equation 2).

Equation 1: Height = Tan(angle from perch to 0°)*distance (m) + Tan(angle from base of trunk to 0°)*distance (m)

Equation 2: Height = Tan(angle from perch to 0°)*distance (m) - Tan(angle from base of tree to 0°)*distance (m)

I also compared the perch height to the sex of the iguana, male or female which tells us if males and females stick to separate areas of a tree or are found in the same places. This is necessary in order to know what canopy layers a tree will need to support both males and females. The last factor that I included in my study was the tree type. I identified the trees family, genus, and species and also recorded this in the Google Sheet. The Lesser Antilles Iguana is known to occupy low level forest and are found in trees with broad green leaves and lots of branches (Brouwers 2015). I wanted to observe specific species of tree that they frequently occupy so it will be known which areas to preserve to reduce the chance of continued reduction in the Iguana population.

Results

I ended up with a sample size of ten Lesser Antillean Iguanas. There were five females and five males observed from the locations of Champagne Bay and Sunset Bay. Once the perch heights were calculated, the means of both the male and female heights were calculated and compared as shown in Table 1.

Group Statistics

	SexC	N	Mean	Std. Deviation	Std. Error Mean
Height (m)	1.0	5	8.888	7.2358	3.2359
	2.0	5	11.770	10.3428	4.6255

Table 1: An overall view of the comparison of male and female perch heights. Males are shown by a number 1 and females a number 2.

This table shows an overall view of the different aspects of the compared perch heights. It shows the number of individuals, the mean height in meters, the standard deviation and the standard error of the mean. The SexC 1.0 are the male individuals and the SexC 2.0 are the female individuals. These data are further broken down in Figure 1 where it shows the mean perch height in bar graph form. The black bars represent the 95% confidence that the mean will fall somewhere on that line for each sex. The colored bars show the observed mean taken from the data of each sex. I compared means using a t-test, and there was no significant difference in perch height ($t = 0.51$, $df = 8$, $p = 0.624$).

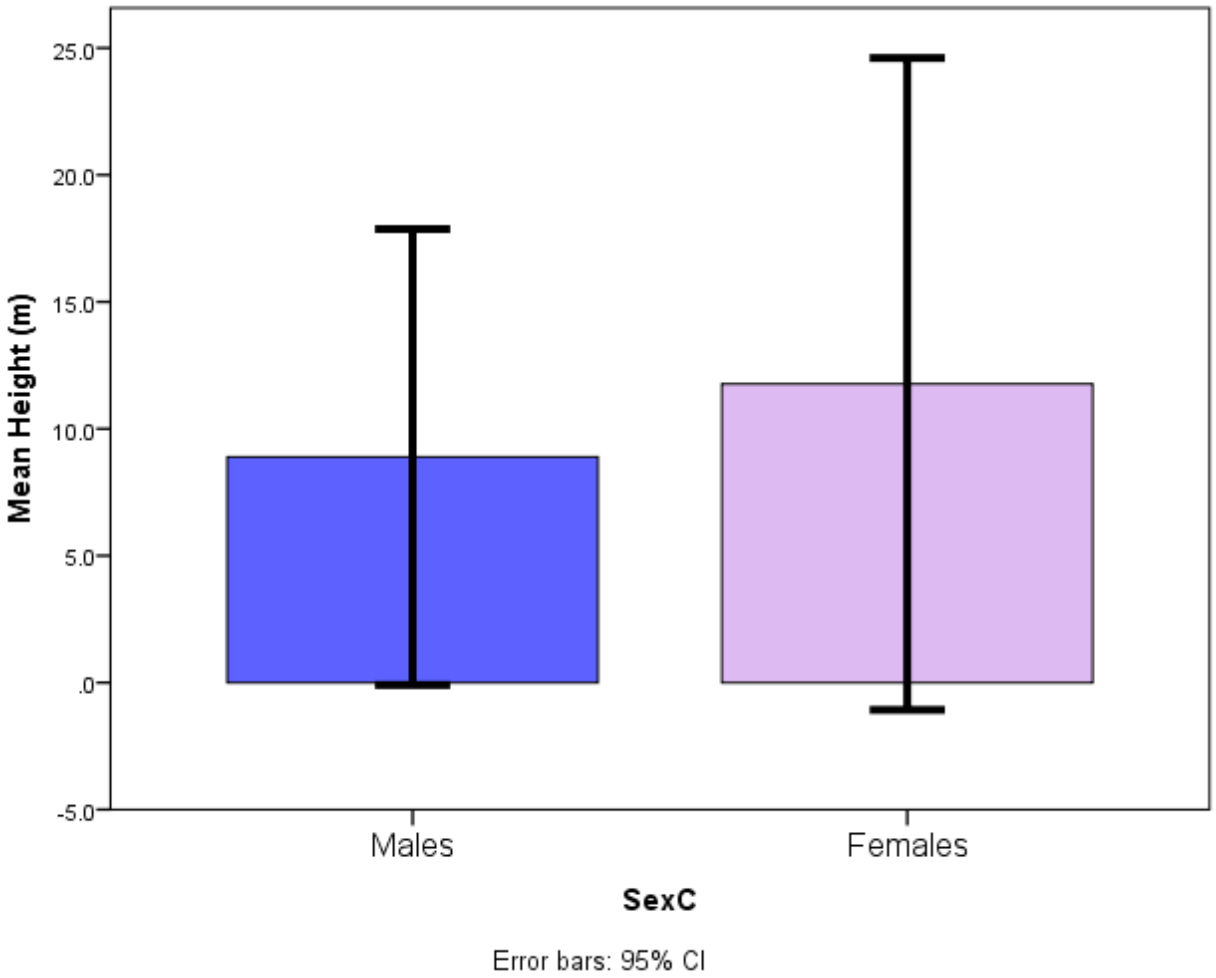

Figure 1: Comparison of mean perch height of male and female iguanas. The error bars represent 95% confidence intervals around the means. There is not a significant difference between the means of the males and females perch height. The slight difference is due to the high variability in height difference.

There were five different tree species observed that had at least one Lesser Antilles Iguana found perched in its branches. The genus and species were *Terminalia catappa, Leucaena leucocephala, Morinda citrifolia, Samanea saman,* and *Swietenia mahogani.* Figure 2 shows the number of iguanas observed in each of the different tree species.

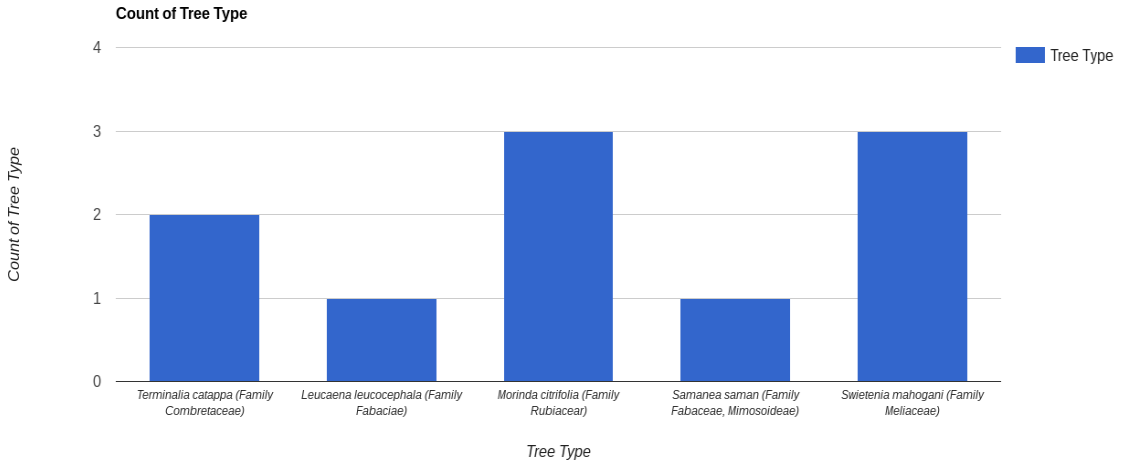

Figure 2: Number of Iguanas compared to the species of tree.

The results taken from the study showed us some important characteristics of the Lesser Antilles Iguana. Based on the data collected on the perch heights of males and females, it was observed that there was no significant difference between the mean perch height of males and females. The female perch heights were slightly higher compared to the males perch height, coming in at 11.77 meters where the males was 8.89 meters. The slight deviation is due to the high variability in height but the difference is not significant enough to say that females are found higher in the tree canopy than the males. This means that males and females generally occupy the same areas of the tree canopy anywhere between 3 meters and 30 meters.

Discussion

The results show us that the type of tree best suited for the iguanas are ones that have many branches, ranging from low on the trunk of the tree all the way to the top. This is because the iguanas were found at a wide range of heights going from three to thirty meters. I also observed that if a male was spotted in a tree that there was usually a female either in the same tree or in one with branches

connecting them and vice versa. So these trees need to be close enough for the iguanas to easily move from tree to tree without having to go all the way to the ground to cross.

The results from the species of tree that the iguanas are generally found. It showed that they did not have a specific preference to one tree species but were pretty evenly distributed between many different species. From the sample of ten Lesser Antilles Iguanas, there were five different tree species that they were found in. This shows that they do not necessarily favor one tree species over others. I did notice that they did favor trees that had thicker branches, that ran as close to horizontal to the ground as possible. This makes conservation and reintroduction of the Lesser Antilles Iguana easier because they are not picky when it comes to eating and/or resting places. There just has to be a reasonable number of mature trees in the area.

Conclusion

Overall the study I completed on the Lesser Antilles Iguana gave me valuable information on the conservation of the species. It explained a lot about both the males and females perching habits on the Island of Dominica. It also showed me that if there is a significant push to protect the habitat that is suitable for these iguanas then there is a good chance that the population will not shrink any more that it has. More studies should be conducted in order to further understand these aspects of the Lesser Antillean Iguanas. It is difficult to locate these iguanas because they are arboreal and tend to be found high up in the tree canopy. Finding a better way to locate and record data on this species might be necessary to get a more accurate set of data and a larger sample size.

Sources

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