

**The Comparison of Insectivorous and  
Frugivorous Bat Species in Two Different  
Environments**

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## Abstract

Bats were collected with mist nets over a two week period on the island of Dominica from May 26 to June 7, 2005. Data on species composition were compared for two different habitats: a rose apple tree *Syzygium jambos* on a trail through a secondary forest and at the Check Hall River. Results clearly showed that insectivorous bats feed at the river and frugivorous bats feed at the fruit tree.

## Introduction

Dominica is filled with many species of bats, including both frugivorous and insectivorous species. The prominent frugivorous species of Dominica are *Artibeus jamaicensis*, *Brachyphylla cavernarum*, *Ardops nichollsi*, and *Sturnira lilium*. The insectivorous bats of Dominica include *Pteronotus davyi*, *Tadarida brasiliensis*, *Molossus molossus*, *Natalus stramineus*, *Eptesicus fuscus*, and *Myotis dominicensis*. (Evans and James, 1997)

Different feeding habits cause bats to hunt for their food in different types of habitats. My project involved seeking out two of these habitats, comparing the species that were caught in the habitats, and relating this to their feeding habits of frugivory or insectivory.

## Materials and Methods

To collect bats, avian mist nets six meters in length were used and poles were cut from the forest surrounding the plantation house to support the nets. The nets were set up at four different localities on the Springfield Research Centre. These localities were chosen because of evidence of bat activity (Sweny, 2003; Hunter et al., 2001). The locations were the veranda at the guesthouse, the Check Hall River, Bee House Pond, and

at a rose apple tree on the Fifi trail. Since no bats were collected in our first attempts on the veranda and at the Bee House pond, the other two sites were chosen for this study.

Gloves were used to facilitate removal of bats from the net. Sometimes the net was cut if the bat was hopelessly entangled. Headlamps were also used to see at night.

After the bats had been caught, they were removed from the net. The species and sex were recorded as well as the time of capture. They were then released away from the net, so as not to become entangled again.

The first netting at the Check Hall River was on the 27<sup>th</sup> of May. The net was set up by 6:30 pm. Six bats were caught at the same time. We were unable to extract the bats before they became entangled, and the net was therefore taken down. The mist net on this day was used only from 6:30 pm to 7:30pm. The second netting at the Check Hall River occurred on the 3<sup>rd</sup> of June. The third netting at this site was on the 7<sup>th</sup> of June. On both the 3<sup>rd</sup> and 7<sup>th</sup> of June the net was set up by 6:00 pm and stayed up until 9:00 pm.

The first netting at the rose apple tree occurred on May 29<sup>th</sup>. The net was set up on the southeast side of the tree. The second netting at the tree was on June 5<sup>th</sup>. This time the nets were set up on the southeast side and the west side. Some fruit that had recently fallen was found on the ground. These were put back on the tree in a way that made them look like they were growing naturally. Small branches were clipped to make a sharp point. The fruit was then poked onto the sharp point. On both days the net was set up by 6:00 pm and stayed up until 9:00 pm.

## **Results**

Bats were captured on five nights over a two week period (Table 1). Six species of bats were recorded in the two habitats being studied (Table 1).

At the river mostly insectivorous bats were caught, as shown in Figure 1. Few frugivorous bats were caught. At the rose apple tree only frugivorous bats were caught, as shown in Figure 2.

## **Discussion**

Frugivorous bats feed and roost in fruit trees, so as expected only frugivorous bats were caught there. Insectivorous bats were seen overheard catching insects, but none were caught. They tended to forage over the open areas over the nearby banana field.

Insectivorous bats were caught over the river, but they were not the only ones. Frugivorous bats were also caught. There was a fig tree nearby. At night, during the netting, figs would fall out of the tree. Some of these figs had bite marks in them from bats. This may be where the frugivorous bats were coming from.

At the Check Hall River, more frugivorous bats were caught at the first netting than the second. No frugivorous bats were observed at the third netting, but a large bat thought to be frugivorous did escape from the net before we could examine it. The frugivorous bats caught at the second Check Hall River netting were different species than the frugivorous bats caught at the first netting (Table 1).

Frugivorous bats roost in the fruit trees, whereas insectivorous bats roost in caves or buildings and seek out places to find their food. Since the fruit bats were in the fig tree and may roost there, they may have learned to avoid the net after they were caught.

It is also interesting to note that most of the insectivorous bats caught at the Check Hall River were females (Table 1). Many of these females were pregnant. Perhaps their weight would not allow them the agile maneuverability of the males. Many bats were observed dodging the net. These could have possibly been the lighter, more agile males.

## **Acknowledgements**

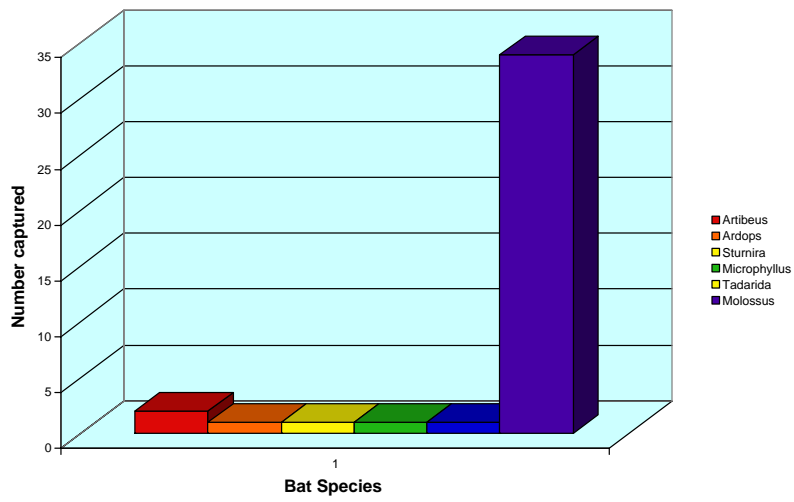
Thanks to Dr. Wharton for helping me with this project so much and for helping us catch bats and untangle them. He took a lot of bat bites for our research!

Thanks to Taylor Cotton for his theory on frugivorous bats learning to avoid the nets at the Check Hall River.

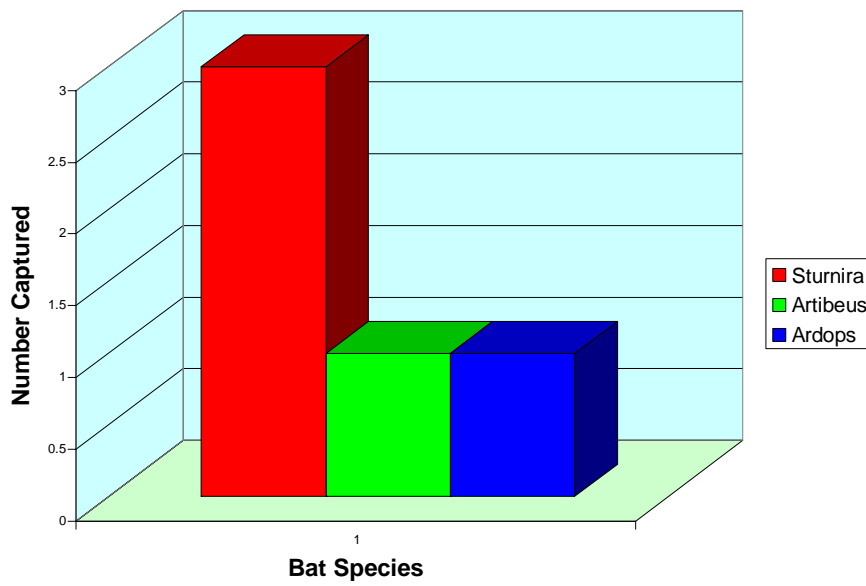
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**Figure 1: Bats Captured at the Check Hall River**



**Figure 2: Bats Captured at the Rose Apple Tree**



**Table 1:** Comparison of Bat Species caught in two different habitats at Springfield Research Center/ Dominica

	<b>Species</b>	<b>Gender</b>	<b>Eating Habits</b>
<b>Check Hall River</b> May 27	2 <i>Artibeus</i> 1 <i>Ardops</i> 3 <i>Molossus</i>	N/A	Frugivorous Frugivorous Insectivorous
<i>Syzygium jambos</i> May 29	2 <i>Sturnira</i> 1 <i>Artibeus</i>	All Female Female	All Frugivorous Frugivorous
<b>Check Hall River</b> June 3	1 <i>Sturnira</i> 1 <i>Tadarida</i> 8 <i>Molossus</i>	Female Male All Female	Frugivorous Frugivorous Insectivorous
<i>Syzygium jambos</i> June 5	1 <i>Sturnira</i> 1 <i>Ardops</i>	Female Male	Frugivorous Frugivorous
<b>Check Hall River</b> June 7*	23 <i>Molossus</i> 1 <i>Microphyllus</i>	6 Males,17 Female Male	Insectivorous Nectivorous

\* all came from downstream