

**Diversity of Shore Birds on Dominica, W.I.**

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## **Abstract**

In order to determine the diversity of different species of shore birds at Champagne Beach and in the town of Roseau, 16 species were observed over a three-week period. There was found to be a pattern that smaller birds tend to stay at the shore of Champagne Beach more than in the town of Roseau. Of the 26 species of shore birds, a little less than half of those were observed on Champagne Beach and in Roseau.

## **Introduction**

Over 350 species of birds have been recorded in the Eastern Caribbean region (Evans 1990). Of those, 175 species have been recorded in Dominica (Evans 1997). There are about 26 species of shore birds in Dominica.

Dominica has an area of less than 800 square kilometers that is rich in habitat diversity. The habitats range from cloud forest, montane thicket, tall stands of rain forest, to drier dense woodlands (Evans & James 1997b). The boundary of the island is comprised of sea cliffs between secluded coves and sandy or rocky beaches and estuaries. The diversity of bird species that reside on an island is influenced by the distance that island is from a major landmass, and its size and variety of habitats (Evans & James 1997b). The country of Venezuela in South America is the closest continent to Dominica, which being a small island cannot have the same diversity of species as other islands. Dominica is an enjoyable place to bird watch because of its size and rich avifauna.

It was hypothesized that bird diversity on Champagne Beach and in the town of Roseau would be great.

## **Materials and Methods**

This project was done mainly through observation of the different species of birds. Observations were done by taking tallies of each different species of bird in 15-minute intervals for one hour. Most of the field observations were made with binoculars and identifications were checked with a field guide of birds in Dominica or of the West Indies (Bond 1993, Evans & James 1997).

The main study site for diversity of shore birds was at Champagne Beach. Champagne Beach is south of Roseau and Point Michel. It is a secluded beach, with few human visitors.

However, occasionally people can be seen fishing, or cruise ships can be seen passing by. Vegetation includes: Coconut trees (*Cocos nucifera*), Mango trees (*Mangifera indica*), and Papaya trees (*Carica papaya*), Banana trees (*Musa species*), Palm trees and various ferns, shrubs and ivy. Champagne beach is a rocky shore bordered on the landward side by cliffs with intermittent caves. Some of the cliffs are covered with the various vegetation mentioned previously. The weather on Champagne Beach is usually consistently, warm and sunny and about 85 degrees Fahrenheit. We were there on May 23rd, 27th, 28th, 30th and June 2nd. It only rained the last day of the project.

The second study site was in Roseau, along the seawall. Observations were done on May 31st and June 4<sup>th</sup>. In Roseau there are many stands set up along the side of the road for tourists to come and shop. At the edge of town there is one large market where fruits and vegetables can be purchased. Along the seawall there are ports where cruise ships come and dock. Also, there are many restaurants and various businesses along the seawall.

## **Results**

The Magnificent Frigate Bird was the most frequently seen bird at both localities (table 1 and 2). The second most frequently seen bird on Champagne Beach was the Yellow Warbler, while the Plumbeous Warbler and the Zenaida Dove were seen the same amount of times (Table 1). Other birds were seen only one time (table 1). In Roseau, the second most frequently seen bird was the Royal Tern (Table 2). However, no one bird in Roseau was seen as frequently as the frigate bird on Champagne Beach (Table 1 and 2). The Zenaida Dove was seen the least amount of times in Roseau (Table 2). However, The Zenaida Dove was seen the same number of times in both places, as well as being seen the same number of times as the Purple-throated Carib on Champagne Beach (Table 1 and 2). Table 3 shows of the shore birds found in Dominica.

## **Discussion**

The Frigate Bird, in the family Fregatidae, is described as a large black bird with a long wingspan, short neck and long forked tail. It is the seabird most often seen by birdwatchers on the islands (Evans 1990). Frigate Birds eat fish by swooping from the air, and often steal food from other birds (Evans 1990). Table 1 and 2 illustrate that the Frigate bird was the dominate

species as far as the number of times it was seen. One reason could be that this bird could adapt easily to different environments. It can adapt to living in a secluded area of a beach, as well as in a city environment with many people. Another possibility is that it uses aggressive behavior to foraging as means to adapt, and out compete other birds.

Warblers are in the family Emberizidae, while the Zenaida Dove is in Columbidae. These two groups were the next most frequently seen birds on the beach, but not in Roseau. Warblers are insectivorous. The Yellow Warbler is described as a yellow bird with the underparts streaked with chestnut coloring (Bond 1993). The Plumbeous Warbler is described as grey bird with white wing bars and a white eye-stripe. The Zenaida Dove is described as having reddish-brown coloring, with pink underparts and cinnamon around the head. The Zenaida Dove is mainly a seedeater (Evans 1990). One possible reason that these birds have been seen more frequently on the beach rather than in Roseau because of seclusion. Smaller birds maybe more fearful of people than a larger bird, like the Frigate Bird. Another possible reason could be that there are more resources and protection available on the beach, than in the city. The Purple-throated Carib, Bananaquit, and the Lesser Antillean Bullfinch were only spotted on Champagne Beach (table 1). Possible reasons could be since they are smaller birds, they may be more fearful of people, and the beach offers more protection. The other two birds observed, the Barn Owl, and the Broad-Winged Hawk were only seen once. This may be due to their roosting sites. The Barn owl nests in caves, tree cavities, and in old buildings (Evans 1990). The Broad-Winged Hawk nests in tall trees, a resource not readily available in the middle of Roseau.

The second and third most frequently seen bird in Roseau was the Royal Tern and the Laughing Gull (table 2). Terns and Gulls are in the family Laridae (Evans 1990). The Royal Tern is described as a white bird with an orange bill, and black nape feathers. The Laughing Gull is described as having a grey and white body, with a sooty-grey head (Evans 1990). Both are piscivorous feeders. Possible reasons as to why these birds were found in Roseau might be because their resources are more available to them. Conceivably, they are better suited to be around people. However, each bird seen in Roseau was not seen the same number of time as another species of birds (table 2). This could be because there is more area for them to cover, and their numbers on average are greater than that of the birds at Champagne Beach.

In conclusion, it seems as though there might a general pattern. Smaller birds, such as the warblers, doves, and caribs can be found more on Champagne Beach as opposed to Roseau.

Again, because of their smaller size, human disturbance affects them more. While the larger birds, like the Frigate, the gulls, and terns, adapt better to humans. However, it seems as though the Frigate Bird and the Zenaida Dove are able to adapt to both environments, which may be due to the fact they they can nest in various habitats. Overall, there seems to be a greater diversity on the beach, as opposed to town (table1). Of the 26 species of shore birds, 14 species total were observed, a little less than half (table 3). The hypothesis does seem to be correct; there is a great diversity among the sites.

### **References**

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Table 1. Observations on Champagne Beach

<u>Common Name</u>	<u>Scientific Name</u>	<u>Total # of times seen</u>
Magnificent Frigatebird	<i>Fregata magnificens</i>	50
Yellow Warbler	<i>Dendrocia petechia</i>	6
Plumbeous Warbler	<i>Dendrocia plumbea</i>	4
Zenaida Dove	<i>Zenaida aurita</i>	3
Purple- throated Carib	<i>Eulampis jugulais</i>	3
Barn Owl	<i>Tyto alba</i>	2
Bananaquit	<i>Coereba flaveola</i>	1
Broad-Winged Hawk	<i>Buteo platypterus</i>	1
Lesser Antillean Bullfinch	<i>Loxigilla noctis</i>	1

Table 2. Observations in Roseau

<u>Common Name</u>	<u>Scientific Name</u>	<u>Total # of times seen</u>
Magnificent Frigatebird	<i>Fregata magnificens</i>	34
Royal Tern	<i>Sterna maxima</i>	27
Laughing Gull	<i>Larus atricilla</i>	15
Carib Grackle	<i>Quiscalus lugubris</i>	7
Brown Pelican	<i>Pelecanus occidentalis</i>	5
Greater Shearwater	<i>Puffinus gravis</i>	4
Zenaida Dove	<i>Zenaida aurita</i>	3

Table 3. Shore birds in Dominica

<b><u>Common Name</u></b>	<b><u>Scientific Name</u></b>
Greater Shearwater	<i>Puffinus gravis</i>
White-tailed Tropicbird	<i>Phaethon lepturus</i>
Brown Booby	<i>Sula leucogaster</i>
Brown Pelican	<i>Pelecanus occidentalis</i>
Magnificent Frigatebird	<i>Fregata magnificens</i>
Osprey	<i>Pandion haliaetus</i>
Broad-Winged Hawk	<i>Bufo platypterus</i>
Spotted Sandpiper	<i>Actitis macularia</i>
Pomarine Skua	<i>Stercorarius pomarinus</i>
Laughing Gull	<i>Larus atricilla</i>
Royal Tern	<i>Sterna maxima</i>
Bridled Tern	<i>Sterna anaethetus</i>
Brown Noddy	<i>Anous stolidus</i>
Zenaida Dove	<i>Zenaida aurita</i>
Barn Owl	<i>Tyto alba</i>
Lesser Antillean Swift	<i>Chaetura martinica</i>
Purple Throated Carib	<i>Eulampis jugularis</i>
Antillean Crested Hummingbird	<i>Orthorhyncus cristatus</i>
Ringed Kingfisher	<i>Ceryle torquata</i>
Red-legged Thrush	<i>Turdus plumbeus</i>
Yellow Warbler	<i>Dendrocia petechia</i>
Blackpoll Warbler	<i>Dendrocia striata</i>
Plumbeous Warbler	<i>Dendrocia plumbea</i>
Bananaquit	<i>Coereba flaveola</i>
Lesser Antillean Bullfinch	<i>Loxigilla noctis</i>
Carib Grackle	<i>Quiscalus lugubris</i>