Photographic Guide to Epiphytic Plants of Dominica

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Introduction:

Dominica has about seven different forest types containing diverse populations of plants. Three of these seven forest types; Transition, Rainforest, and Elfin, are abundant in epiphytic plants. Epiphytic plants live on other plants and rocks. A previous project on epiphytes had been done by Mandy Corso and Maxwell Fontanier, 2008; where they climbed up into the canopy of the trees to find epiphytes. I expanded upon their project to cover epiphytes low on the trees that could be seen from ground level. The main area that I focused on was epiphytes located in an elfin forest near Boeri Lake. I also took pictures of other epiphytes located at Springfield Research Station, Middleham Falls, Syndicate National park, and at property at Franklin German Jr.

Materials and Methods:

At these different locations that I visited, I took pictures using three different cameras (Kodak C813, Olympus Stylus Tough 8010, and Nikon D7000) depending on how far away the epiphyte was and whether it was raining or not. My Kodak camera did not take very good photos at a distance, while the Nikon D7000 did. The Olympus camera is waterproof, which was an important aspect when taking photos of epiphytes in the elfin forest. When I took pictures at these locations, I recorded the GPS location with a Magellan GPS Tracker. In the field I wrote down all locations and other notes in my field notebook. Once I returned to the Springfield Research Station I downloaded the photos and organized them based on the day and location that I took the pictures. A little each day I would try to identify the plants using Dominica: Nature Island of the Caribbean, Wild Plants of the Easter Caribbean, Caribbean Wild Plants and their Uses, Trees of the Caribbean, Flora of Dominica, Part 2: Dicotyledoneae, and at the Herbarium Archbold Tropical Research and Education Center, Springfield.

Results:

I classified the pictures based on forest type and location. There are three different forest types and under each forest type there is the location where I took the pictures. Most habitats on the island experience two main seasons: a wet season and a dry season. The three main forests that I focused on get more rain than most of the other parts of the island. Transitional forest receives more rain than the dry woodland, then it is the rainforest and elfin.

A transitional forest is the stage between the dry woodland and the rainforest. It contains mainly secondary growth which means that the land has been cultivated and the forest is reclaiming the area. This forest is not as mature as a rainforest or elfin forest, nor is it as wet as those forests. The following locations are considered to fall under transitional forest: Springfield Station, the large Ficus tree and the main living area, and the property at Franklin German Jr.

Transitional Forest

Location Name-Date	GPS Coordinates	Plant Spp. List
Ficus Tree - 5/26	N 15.34664°, W 61.37344°, Elevation 364 M	Antharium grandifolium,Piper spp.(#1), Unknown Fern species
Main Living Area at Springfield Research Center - 5/29	15°20’46 N, 061°22’07 W, Elevation 1860 ft	Anthurium palmatum, Bromeliaceae Tillandsia utriculata, Polypodiaceae Microgramma lycopodioides, Polypodiaceae Phlebodium aureum*, Campyloneurum spp.*
Frankilin German Jr. Property	15°21’56N, 061°21’14W, Elev.1701ft	Loranthaceae Dendropemon carbaeus, three Orchidaceae Polystachya spp., and Bromeliaceae spp. #1

Table 1: If the plant is common through out multiple locations there will be one picture to refer to. Other wise there will be a picture for each plant, for example each Bromeliad spp. will have pictures because I do not know the species name and they all look a bit different. The * mark means that I am not sure if that is the correct species name. All pictures will be at the end of the paper.

The rainforest contains high evergreen canopy trees and has diverse habitats. The tree canopies are layered making it hard to identify the plants at the tops of the trees from ground

level. It rains often in this forest type and often has streams and waterfalls in these areas providing different habitats. The locations that I visited that fall under this forest type are Morne Trois Pitons National Park - Middleham Falls and Morne Diablotin National Park - Syndicate Nature Trail.

Rainforest

Location Name	GPS Coordinates	Plant Spp. List
Syndicate National Park - 5/30	N 15.52399, W 61.42014, Elevation 333M	Bromeliaceae spp. #2, Anthurium palmatum,Anthurium grandifolium
Syndicate Citrus Field- 5/30	N 15°21'56, W 061°21'14, Elevation 1701 ft	Orchidaceae Polystachya spp. #4, Loranthaceae Dendropemon carbaeus,Peperomia rotundifolia, Anthurium grandifolium,
Middleham Falls National Park Trap Area - 5/27	N 15.34925°, W 61.33671°, Elevation 724 M	Anthurium acaule, Bromeliaceae spp.#3,
Middleham Falls National Park Trap Area - 5/29	N 15.34925°, W 61.33671°, Elevation 724 M	Anthurium acaule, Orchidaceae spp. #5, Rubiaceae Schradera exotica*, Bromeliaceae Guzmania plumeiri, Anthurium grandifolium, Cyclanthacease Asaplundia rigida

Table 2: The * mark means that I am not sure if that is the correct species name. Pictures for these will be of the same system for table 1. Pictures will be at the end of the paper.

Elfin forest is a thick forest that is sometimes referred to as cloud forest due to the forest being high in the mountains in or near the cloud line and because of the mosses covering the trees. The location associated with this forest type is Boeri Lake. A few interesting fern spp. were found in this forest type, at times it was hard to distinguish ferns from mosses because of the clumping nature of some species and because of how small they were.

Elfin Forest

Location Name	GPS Coordinates	Plant Spp. List

Boeri Lake - 6/6	N15.35172, W 61.32001, Elevation 870 M	Hymenophyllaceae Trichomanes crinitum, Hymenophyllaceae Hymenophyllum hirtellum, Polypodicaceae Nephrolepis rivularis, Anthurium grandifolium, Anthurium cordatum, Immature Cyclanthaceae Asaplundia rigida, Piper spp., Grammitis spp.*, Selaginellaceae Selaginella substipitata, Hymenophyllaceae Trichomanes spp.*, Hymenophyllaceae Trichomanes elegans, Melastomaceae spp.

Table 3: This location is the main focus of my project and has the most species. It has its own section of pictures. Unknown plant spp. are at the bottom of the photo guide.

Discussion:

The plants that I found the most were bromeliads and fern related plants, these were the types of plants that showed up through out all the different forest types. Some plants would be present in two forest types but not the third one. For example, Anthurium palmatum was in the Transitional forest and in the Rainforest; and the Anthurium rigida was found in the Rainforest and Elfin forest but not in the Transitional forest. Anthurium grandifolium was found in all three forest types. I only found orchids in the transitional and rainforest. It was a bit difficult to identify some plants because I did not have pictures of them in their flowering stages. Some plants were able to be identified based on the leaf structure, vein type, stem structure, whether the leaves were alternate or opposite, woody or herbaceous, and color of the plant. It was also hard to find epiphytes from the ground because of the forest canopy. I also found that taking good quality pictures of different parts of the plant and from different views is an important step in this type of project. It would have also been useful if I was able to have taken plant samples of the epiphytes but due to most of the plants being unattainable no samples were taken. I noticed that there were multiple epiphytic plants that are seen in different forest types while others seem

to be seen in only one forest type. It maybe that the other plants are at the other forest and that I just did not see them on my visit.

Work Cited

Dan H. Nicolson. Flora of Dominica, Part 2: Dicotyledoneae. 1991. Smithsonian Institution Press.

G.W. Lennox and S. A. Seddon. Trees of the Caribbean. 1980. The Macmillan Press LTD.

Mandy Corso and Maxwell Fontanier. 2008. *A Photographic Field Guide to Epiphytic Vascular Plants on Dominica*.

Iara Lacher. 2002. *Diversity of Pteropida in Various Habitats of Dominica*

Andrew J. Lack, Caroline Whitefoord, Peter G. H. Evans, Arlington James, and Helen Greenop. Dominica: Nature Island of the Caribbean. 1997.

Penelope N. Honychurch. Caribbean Wild Plants and their Uses. 1980. Macmillan Publishers Ltd.

Sean Carrington. Wild Plants of the Eastern Caribbean. 1998. Macmillan Education Ltd.

Anthurium grandifolium: is an epiphytic vine characterized by the big heart shaped leaves. This particular picture was taken at Middleham Falls but can be used to identify any Anthurium grandifolium.

Piper spp. (#1),

This picture was taken at the big Ficus Tree which is located on Springfield Research Center

Property.


Anthurium palmatum: Picture taken at Springfield Main living area. It has been a bit dry so the plant is droopy.


Anthurium palmatum: Is an epiphytic vine that has compound palmate leaves that has eight leaflets. This was taken at Syndicate National Park.


Bromeliaceae Tillandsia utriculata: Characterized by its thin leaves and rosette formation. Picture was taken at Springfield Main Living Area.

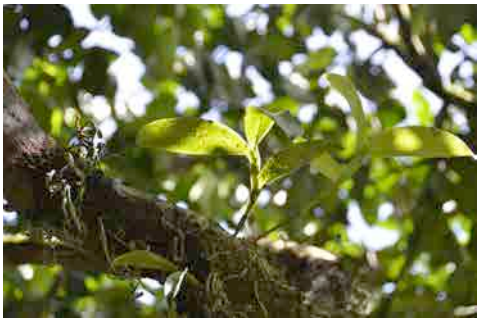

Polypodiaceae Microgramma lycopodioides. Taken at Springfield station

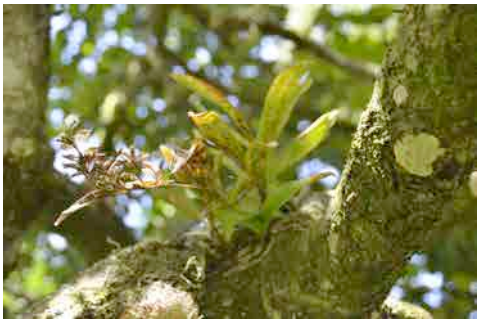

Polypodiaceae Phlebodium aureum? Taken at Springfield station

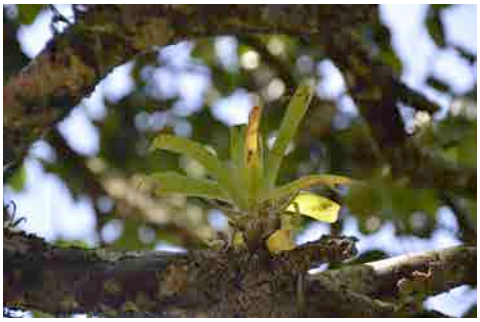

Campyloneurum spp. ? Taken at Springfield Station


Loranthaceae Dendropemon carbaeus: This picture was taken at Franklin German Jr. Property (FGJP). The plant is identified by the swolen base of the plant where it is growing into the tree. It is an epiphytic parasite and often grows in old citrus trees.

 Orchidaceae Polystachya spp. #1: Taken at FGJP. The plant is charactized by its small smooth leaves, its roots gripping the tree which comes from a psudo-bulb.

 Orchidaceae Polystachya spp.#2: Taken at FGJP. Same description as above.

 Orchidaceae Polystachya spp. #3: Taken at FGJP. This has a small flower stalk but because it is dried up and discolored I could not identify this based on the picture.

 Bromeliaceae spp. #1: Characterized by the thin rosette leaves but can not further classify it because it is not in bloom. Taken at FGJP

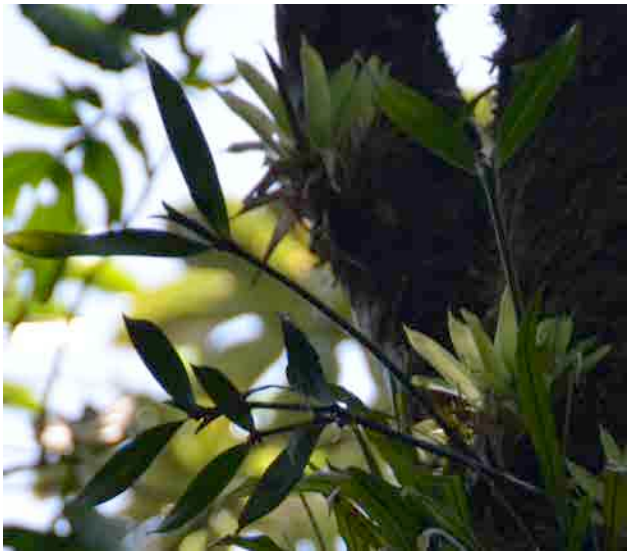

Bromeliaceae spp. #2. Taken at Syndicate National Park


Orchidaceae Polystachya spp. #4 Taken at Syndicate Citrus Field

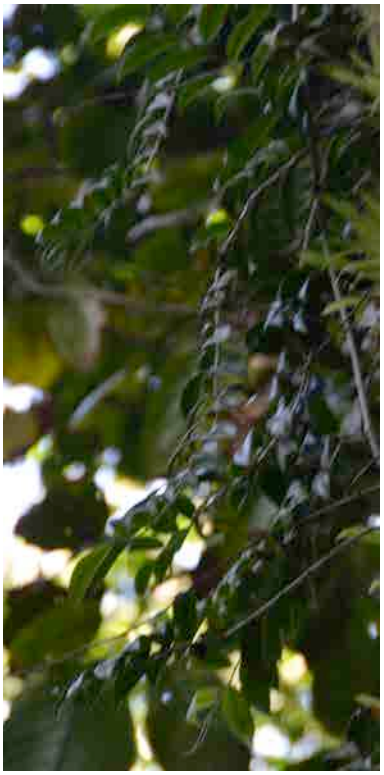

Peperomia rotundifolia. Taken at Syndicate Citrus Field. This species is often mixed up with Peperomia emarginella. Perperomia emarginella is about the size of a needle head while the Peperomia rotundifolia is between the size of a lentil bean and a dime. To get a better idea of the differences look up the Piperaceae file from the Archbold Research Center Herbarium.


Bromeliaceae spp. #3


Anthurium acaule: This picture was taken at Middleham Falls but was found at other locations. It can be identified by its large leaves and the dead matter that gathers around the base of the plant. It resembles a Birds nest thus giving its common name Bird’s Nest.



Orchidaceae spp. #5 Picture was taken at Middleham Falls



Rubiaceae Schradera exotica taken at Middleham Falls. The Rubiaceae family is identified by its opposite leave structure. This species is distinguished mainly by its flowers but I did not see its flowers. So I identified it by its leave shape, color, habitat, and its epiphytic lifestyle. There are few known species of Rubiaceae that are epiphytic.


Bromeliaceae Guzmania plumeiri: This picture was taken at Morne Trois Pitons National Park. This Bromeliad is characterized by its long thin droopy leaves that are in a rosette formation.


Cyclanthacease Asaplundia rigida: An epiphytic vine that is easily identified by its fish-tailed leaves. This picture was taken at Middleham Falls but is also found at other locations.

Boeri Lake Pictures with the plant names are below.

Trichomanes crinitum

Hymenophyllum hirtellum


Nephrolepis rivularis


Anthurium grandifolium


Anthurium cordatum


Immature Asaplundia ridida


Orchidaceae


Similar to Araceae Montrichardia arborescens but lives in different environment and the leaves of Montrichardia arborescens do not have as distinct three lobes. Most likely Tectaria trifoliate, has three distinct lobes that may or may not be connected…


Piper spp. A piper spp. is recongized by the stalk that comes up from the tips or nodes of a plant.


Grammitis spp.?


Selaginellaceae Selaginella substipitata

Hymenophyllaceae Trichomanes spp.?

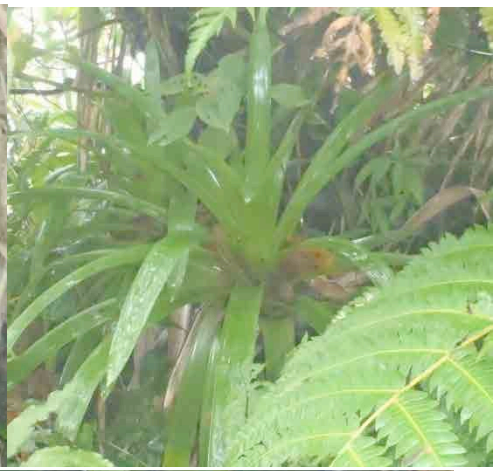
Hymenophyllaceae Trichomanes elegans

Different Melastomaceae spp. that were growning on the sides of tree trunks.



Different Bromeliads found at Boeri Lake that I could not tell for sure what species they were.





Unknown ferns and mosses from Boeri Lake