A Study of Butterfly-Flower Associations on Dominica

D'Angela Manago, Jennifer Munse, and Kayla Sagebiel

Texas A&M University

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Introduction

Dominica has a colorful array of butterflies consisting of fifty-five different species (Evans, 1997). The butterflies feed on a variety of beautiful flowers that are endemic or introduced to Dominica. The butterflies and flowering plants have life cycles which intimately involve each other, sometimes to the point of co-evolution between two species.

The purpose of this project was to assess association of species of butterflies with the species of plant that they feed on at the Springfield Station. This is of interest in order to link butterflies species with flowers on Dominica.

Methods and Materials

Before collecting butterflies the weather conditions were recorded with the Kestril 4000. Observations and collecting began at 9 to 9:30am for five days. The butterflies were collected with an insect net only after they had fed on a flower. Then they were placed in a kill jar with Kimwipes lining it that had a couple of drops of Ethyl acetate after their thoracic muscles had been broken. The flower was then marked with flagging tape, and recorded. We designated flower areas as stations of fifteen minutes each with two rounds a day. After that, the butterflies were pinned with wax paper and left to dry for a few days in order to preserve them for identification and pictures.

Results

Some of the butterfly species showed obvious specificity to plant species while others fed on multiple flower species (see Table 1). It was found that there was a strong correlation between specific butterflies and flowers such as; *Aphrissa statira* to *Catharanthus roseuus, Appias drusilla* to *Plumeria acutifalia* and *Begonia X superba, Dryas julia* to *Euphorbia pulcherrma, Heniargus hanna* to *Emilia fosbergii,* and *Pyrgus oileus* to *Gerbera (sp).* Through observation it was noticed that the stations were affected by a decreased amount of sunlight or rain, wind, and smoke from a trash fire. During these conditions, butterflies were found not to be as active. Observations and collecting could be skewed due to areas that were affected by changes in the sun exposure during an observation period. On many occasions rain also affected the observations and the time periods were changed.

On one specific occasion a fire was five feet from our second station which made observations and collecting at stations one and two impossible because of the heat and smoke.

Discussion

Many kinds of butterflies are involved with co-evolution of certain flowers species. Though we know that some of these plant species are wholly or partially poisonous we are only able to guess about the evolutionary significance of our results.

Certain behavioral characteristics were noted for many of the species such as the *Hemiargus hanno* which would remain in the area but would rarely land to feed. This is in direct contrast to larger species that would consistently feed flying from one flower to the next. Examples of these are the *Agraulis vanillae, Dryas inlia,* and *Danaus plexippus*. This observation would form the basis for an interesting farther research opportunity.

Table 1. Percentages of Butterfly Species Found on Flower Species

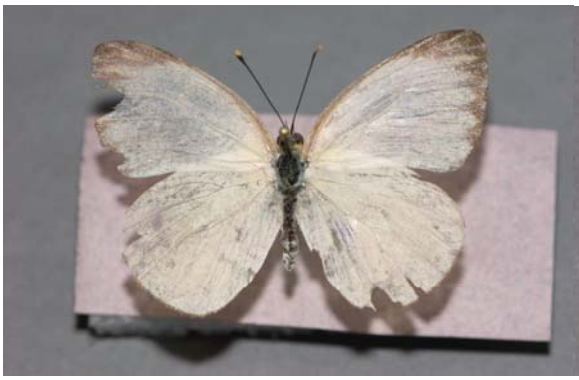
	Butterfly Species	*Agraulis vanillae*	*Anartia jatrophae*	*Appias drusilla*	*Aphrissa statira*	*Ascia monuste*	*Danaus plexipuppus*	*Dryas jnlia*	*Eurena leuce*	*Hemiargus hanno*	*Hesperiidae*	*Junonia evarete*	*Phoebis sennae*	*Pyrgus oileus*	*Wallengrenia ophites*
Flower Species															
Amarathus spinosus						50%				25%					25%
Portulaca										50%			50%		
Catharanthus roseus					100%										
Plumeria acutifalia				100%											
Tithoria diversifolia		20%	20%				40%				20%				
Mussaenda frondosa		50%	50%												
Lantana involucrata		56.25%	12.50%		6.25%	12.50%				6.25%					6.25%
Rauvolfia tetraphylla			100%												
Portulaca pilosa		50%										50%			
Turnera ulmifolia					50%						25%				25%
Euphorbia pulcherrima								100%							
Portulaca oleracea					3.57%					17.86%	3.57%			75%	
Petiveria alliaceae									33.33%					66.67%	
Gerbera sp.														100%	
Emilia fosbergii										100%					
Begonia x *superba*				100%											

Percentages were based on number of butterflies observed of a given species feeding on the particular flowering plant compared to the total number of butterflies.

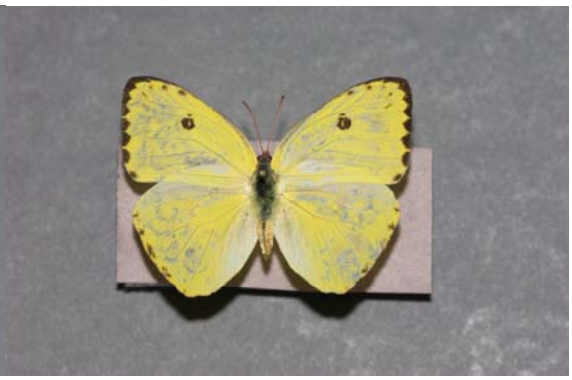
Butterfly Species:

Agraulis vanillae - Gulf Fritillary

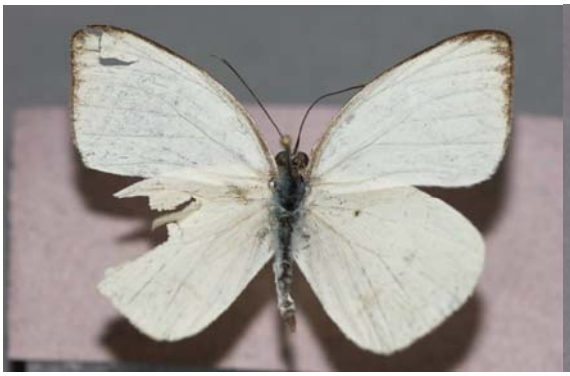
Anartia jatrophae - White Peacock



Appias drusilla - Florida White



Aphrissa statira - Migrant Sulphur

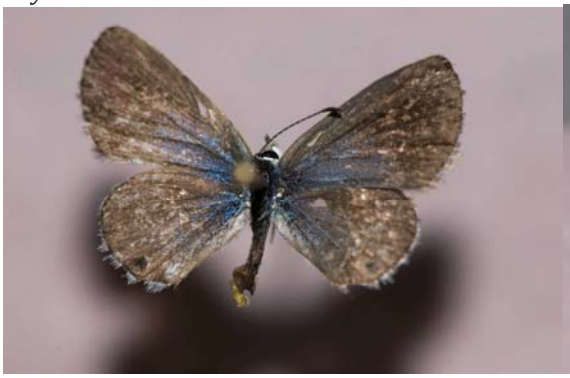


Ascia monuste - Great Southern White

Danaus plexippus - Monarch

Dryas inlia - Flambeau

Eurena leuce - Hall's Sulphur



Hemiargus hanno - Hanno Blue

Hylephila phylaeus - Fiery Skipper

Junonia evarete - Caribbean Buckeye

Phoebis sennae - Cloudless Sulphur

Pyrgus oileus - Tropical Chequered Skipper

Identified Flower Species That Butterflies Feed On

Armarathus spinosus

Begonia X superba

Catharanthus roseus

Emilia fosbergii

Euphorbia pulcherrima

Gerbera sp.

Lantana involucrate

Mussaenda frondosa

Petiveria alliaceae

Plumeria acutifolia

Portulaca

Portuleca oleracea

Porulaca pilosa

Rauvolfia tetraphylla

Tithoria diversifolia

Turnera ulmifoia