

# MONOS ISLAND STUDIES

(Mosquitoes, Reptiles, Bats, Bromeliads, Orchids)

by

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About a half mile off the north-western end of Trinidad lies the island of Monos, roughly one and a half square miles in area, and rising sharply from the turbulent waters of the Bocas to a maximum height of nine hundred and forty two feet. Standing on the windy Ridge among the abandoned fortifications of the last war, and pushing aside the thick, stunted and tangled secondary growth, one can see the sister islands of Huevos, Chacachacare and Patos, like giant green stepping stones, bridging the seven miles of water which separates Trinidad from the Paria Peninsula of Venezuela.

A small island, true, but one which is geologically as old as the mountains of our Northern Range, offering a marked contrast in its plant and animal life, from its dry Ridge with cacti to its green valleys with common plants like the balisier (*Heliconia*). The island of Monos has no streams or springs, but the upper reaches of the Grand Fond Bay Valley can be humid at times and may have seepage pools in its ravine bed.

These conditions of geographic position, isolation and climate, may result over the passage of time in the evolution of geographic subspecies or even new species. And while only a partial survey of the Reptilia and other incidental groups was done, a study of the mosquitoes was especially undertaken, as owing to the short generation period of insects, characters may become more readily fixed in a population.

This report covers two trips with the Trinidad Field Naturalists' Club in May and August of 1964 to Monos Island, during which time the largest valley, Grand Fond Bay, was studied.

## Family CULICIDAE: Order Diptera (Mosquitoes)

Insects, unlike the higher animals, show a vast degree of adaptability by their capacity to exploit every possible niche in the environment, thus becoming the most successful single group in the world. This is well reflected in the adults and larvae of mosquitoes whose breeding places are widely divergent, and often species specific.

The first visit to Monos took place during the dry season, in May, and all possible breeding places were checked, from the terrestrial patches of *Gravisea aquilega* (Bromeliaceae) on Point Blanche to the flowers of *Heliconia elongata* (Musaceae) in the upper reaches of the valley. They were all dry except for a large tree hole along the ravine bed in which were larvae of *Culex originator* and *Aedes fulvithorax*. While on the Ridge, three solitary mosquitoes, *Phoniomyia lassalli*, *Wyeomyia medioalbipes* and *Haemagogus splendens*, were caught alighting on man. Our second study, conducted in August after the rainy season had begun, presented a different picture, as the bromeliads and other sources which were checked in May now had water and were teeming with life.

As a result of these studies, fourteen species comprising nine genera, and two specimens of *Haemagogus* of doubtful specific status, are now known to occur on the island as shown on the summarised list of species and breeding places. Further studies would most certainly reveal several more.

Mosquito species	Breeding place
1) <i>Aedes fulvithorax</i>	Tree hole and cut Bamboo
2) <i>Culex gairus</i>	<i>Gravisea aquilega</i>
3) <i>Culex gaudeator</i>	<i>Gravisea aquilega</i>
4) <i>Culex originator</i>	Tree hole
5) <i>Delinocerites magnus</i>	Crabhole on beach
6) <i>Haemagogus spegazzinii</i>	Cut Bamboo
7) <i>Haemagogus splendens</i>	Tree holes, cut Bamboo and Bamboo internode
8) <i>Phoniomyia lassalli</i>	<i>Gravisea aquilega</i>
9) <i>Psorophora ferox</i>	Seepage pool in upper reaches of valley
10) <i>Sabethes undosus</i>	Cut Bamboo and Bamboo internode
11) <i>Toxorhynchites theobaldi</i>	Cut Bamboo
12) <i>Wyeomyia arthrostigma</i>	Cut Bamboo
13) <i>Wyeomyia (Dendromyia) clasoleuca?</i>	Flower of <i>Heliconia elongata</i> . It was noticed ...that the newer flowers produced more larvae than the older ones.
14) <i>Wyeomyia medioalbipes</i>	<i>Gravisea aquilega</i>

There appeared to be quite a variation in the adults of some species from their respective Trinidadian forms. The Monos **Haemagogus splendens** have silvery, sometimes bluish-tinged silvery scales on the postpronotum, whereas they are consistently greenish in our Trinidadian form. The Monos **Wyeomyia medioalbipes** have in addition to the white scales on the base and apex of the pronotal lobes, metallic bluish-green scales, these being more pronounced in the females than the males, whereas in our Trinidadian form such scales are not metallic or bluish-green, but are blackish-brown and dull colored. These examples may be only geographic forms of the same species occupying an intermediate position between the mainland and Trinidadian forms.

Now, adding some more to the general confusion are two individual specimens of **Haemagogus**, showing characters which are quite distinct from the two Trinidadian species and the Monos forms. These I have designated below as **Haemagogus** sp. near **spgazzinii** and **Haemagogus** sp. near **splendens** for the sake of special treatment and attention.

- 15) **Haemagogus** sp.  
near **spgazzinii**                      One female biting man. Pronotal lobes completely silvery scaled instead of being predominantly blue.
- 16) **Haemagogus** sp.  
near **splendens**                      One female reared from pupa ex tree hole (old stump) from which also came typical **Haemagogus splendens**. Mesonotal and pronotal lobe scales appeared violaceous blue instead of being green and blue respectively.

If these two specimens are variations of the Monos species, then it would appear that the Monos species are in a transition stage and would not be the same as the Trinidad species in which I have not yet seen any such major variations. At the same time it sounds fantastic to suggest that four closely related species exist on such a small land mass, and a positive determination would require much more material from in and around Monos for study. All the larval collections were reared and the material sent to Professor John Belkin, University of California, Los Angeles, who is presently engaged in a revision of neotropical culicidae.

## Class REPTILIA

Besides the previously mentioned factors which assist in the evolution of new forms of life, there are others which affect and determine the presence, absence, number of species or of a single species on a land mass. In direct comparison to north-west Trinidad, no doubt the new effective environment with particular reference to the limitations of the land mass as area, and to a lesser extent sustenance, played a great part in shaping the present day representation of the Monos Squamata (Lizards and Snakes), particularly the Snakes. Such were my mental ramblings while keeping a lookout for what I expected to see and at the same time for the unusual.

During the May study I saw one specimen of **Drymobius boddaerti** (Machete Couesse), which was caught by Margaret French. It is non-poisonous and is in the group AGLYPHA (Family COLUBRIDAE), which is characterized by the absence of hollow or grooved teeth. Possibly several of these snakes could have been seen in the late afternoon, as was our experience in 1962 when we were on the high ground of Patos Island, but it would have been asking too much on one trip, to tackle for the second time in a day the untracked and steep slope of the Ridge. The second study in August added to the list a **Boa constrictor** (Macajuel) which was seen by Mr. Laforest and companions, while Mr. French saw another **Drymobius boddaerti**.

By far the most common lizards were the Iguanas and the common garden lizard (**Ameiva ameiva**) which was not seen higher than 75 feet above sea level. Along the ridge at an approximate elevation of 550 feet, three Skinks (**Mabuya mabouya aenea**) were seen, two of which were caught by Boos. Other species were seen at random and recorded. The following list of the species either seen and/or collected is in my opinion not yet complete for the island, and repeated trips would undoubtedly add more.

- OPHIDIA (Snakes)
- 1) **Boa constrictor** (Macajuel)
  - 2) **Drymobius boddaerti** (Machete Couesse)
- LACERTILIA (Lizards)
- 1) **Ameiva ameiva** Common garden lizard
  - 2) **Gonatodes vittatus** Streak lizard. Common house lizard the male of which has a white medio-dorsal streak.

- 3) *Iguana iguana* Iguana.
- 4) *Mabuya mabouya aenea* Skink.
- 5) *Plica plica*
- 6) *Thecadactylus rapicaudus* Wood slave.  
(Sometimes found in houses)

#### Order CHIROPTERA (BATS)

No determined effort was made to study the bats. Several specimens which flew into the mist nets set up by Mr. and Mrs. French for their bird studies were bagged and taken back to Trinidad, where they were identified at the Bat Control Unit, Ministry of Agriculture, which is housed at the Virus Laboratory. They included rare and common species, fruit and insect eaters, and some about which nothing is known of their roosting habits. My group and I inspected many possible roosting places including a semi-hollow tree on the northern end of the Ridge which proved to be negative. The only place where we saw bats was under an outcrop of rock on the very ravine bed of the Grand Fond Bay Valley. These flew away on approaching, and it was not possible to make an identification or to catch any. Six species and possibly a seventh were recorded; it is quite probable that nearly all of these, if not all, are first records for Monos Island. The list of species is as follows.

- 1) *Ametrida centurio* Dept. Agr. No. 64-214 pregnant female.  
This is an uncommon species in Trinidad.  
Only five specimens have been recorded from here. Roosting place unknown.
- 2) *Artibeus cinereus cinereus* Dept. Agr. No. 64 348 lactating female. A fairly common fruit bat in Trinidad.
- 3) *Artibeus lituratus palmarum* juvenile male. This was the first bat netted on the initial trip and as there was no question as to its identity, it was released. It is the very common fruit bat of Trinidad which one can often see under the fronds of the coconut palm.
- 4) *Noctilio leporinus leporinus* This is a fish-eating bat. None were caught but several specimens were seen in the beams of our flashlights as they circled and dived over the waters of Grand Fond Bay.

- 5) **Sturnira Illium Illium** Dept. Agr. No. 64-212 adult male, Dept. Agr. No. 64-347 adult female. A fairly common fruit bat in Trinidad with a sweet smelling glandular secretion on its shoulders. Roosting place unknown.
- 6) **Vampyrops helleri** Dept. Agr. No. 64-213 pregnant female. A fairly common bat recorded from several localities in Trinidad. Roosting place also unknown.
- 7 probably **Carollia** This is the specimen which escaped after Mr. French and I had extricated it from the net.

#### Family BROMELIACEAE (BROMELIADS or WILD PINES)

A direct outcome of the mosquito survey is this brief rundown of the bromeliads seen and/or collected. Bromeliads may be either terrestrial or epiphytic. Since most of them can hold water in their leaf axils, making a breeding source for mosquitoes, they came in for special attention. Six species were seen.

- 1) **Bromelia chrysantha** Terrestrial on Point Blanche. In full bloom in May. Plant collected (TRVL Herb No. 390)
- 2) **Bromelia karatas** (Manicou fig) Terrestrial, along Ridge.
- 3) **Gravisea aquilega** Epiphytic and terrestrial. Very large terrestrial patches on Point Blanche. During May they were all in bloom but in August the inflorescences were dry save for an occasional one.
- 4) **Pitcairnia integrifolia** Terrestrial and saxicolous on rocky west coast of Point Blanche. Many plants in bloom in August. Some collected.
- 5) **Tillandsia flexuosa** Epiphytic. No flowering in May and nearly in August. Plans collected.
- 6) **Tillandsia utriculata** Epiphytic. One plant seen and collected.

## Family ORCHIDIACEAE (ORCHIDS)

On the afternoon of the sixteenth of May after assisting in pitching camp, it was rather late, and feeling too tired to attempt any strenuous climbing, I took my field bag and made a brief reconnaissance of the area with the intentions of laying a plan for the morrow and at the same time making some mosquito larval collections. But on my way back on coming upon a fallen tree, and following a logical piece of advice, I looked it over. There, close to some bromeliads on the said tree was a plant of *Oncidium cebolleta*, which only a few weeks earlier Raymond Martinez and I had removed from a felled tree in St. Patrick's churchyard, Newtown, Port-of-Spain. I am not too familiar with the orchids and not as keen as others, but with the eager help of my group and having been spurred on by the possibilities of this find, we collected several species on that trip including *Eulophidium maculatum*, a South American terrestrial, which up to that time had only recently been recorded from Tucker Valley, as well as near St. Augustine, Trinidad.

The second trip in August also proved to be highly successful orchidwise, as we were able to demonstrate that *Eulophidium maculatum* is a very common plant in the valley, second in line to *Oncidium luridum*, the Brown Bee. And further, while scanning the trees for plants of *Oncidium cebolleta*, my eyes fell upon a host of plants, which, on examination in the hand, turned out to be the rather uncommonly seen *Brassavola cucullata*. In our plant collections we did not ravage the stock but just sampled, leaving healthy plants behind to carry on. And so for the Grand Fond Bay Valley, the Ridge and top of Point Blanche, we were thus able to record nine species as stated.

- 1) *Brassavola cucullata*            Epiphytic. Grand Fond Bay Valley, a few feet above sea level. Collected 2-VIII-64. The last time that I know of when this plant was collected in these parts was in 1957 in Scotland Bay by Dr. Aitken.
  
- 2) *Catasetum macrocarpum*       Epiphytic. Grand Fond Bay Valley and (Monkey-throat)            Point Blanche.
  
- 3) *Caularthron bicornutum*       Epiphytic. On the Ridge, elevation circa (Virgin)            500 to 600 feet and on Point Blanche elevation circa 300 feet.

- 4) *Epidendrum secundum* Terrestrial. On the Ridge. Elevation circa 700 feet. Growing in large clusters in the loose soil and seeking shelter from the sun under the hardy and stunted shrubs. At the end of an old flower stalk could be seen a new plant with roots growing downwards in the manner of aerial roots. Flowering in May.
- 5) *Epidendrum stenopetalum* Epiphytic. Grand Fond Bay Valley.
- 6) *Eulophidium maculatum* . . . . . Terrestrial. Grand Fond Bay Valley. This orchid is not in Schultes' book.
- 7) *Oncidium cebolleta* Epiphytic. In Schultes the comments are that it is an importation into Trinidad from the mainland seeing that it is found in a few isolated places in Port of Spain. Subsequent to the Monos trip I saw a plant which I was told came off a fallen tree at Las Cuevas and was further told that it was quite common on the United States Naval Station (prior to the last war). Mr. Raymond Martinez, a member of this club and a very keen orchid enthusiast, collected this species in St. Lucia in August 1964.
- 8) *Oncidium luridum* Epiphytic. Grand Fond Bay Valley and on  
(Brown Bee) Point Blanche to a much lesser extent.
- 9) *Spiranthes acaulis?* Terrestrial. Point Blanche. Elevation  
circa 300 feet. Collected 3-VIII-64. . .

In bringing this report to a close I must express my gratitude to Dr. T. . G. Aitken, Trinidad Regional Virus Laboratory, for the plant identifications and comments on manuscript; to Mr. Robert Loregnard, Zoologist, Bat Control Unit, Ministry of Agriculture, also for comments on manuscripts; again to Mr. Robert Loregnard and his assistant Mr. Franklin Thurab, for the bat determinations; and lastly but by no means least the members of my group, namely, Theresa and Rose Leekam, Janet Chun and Julius Boos, without whose invaluable assistance this report would not have been possible. They have gone through the seemingly endless razor grass which covered us at times, and have endured extreme exhaustion and a blistering sun to bring back many specimens. For their moral support and spartan courage, my sincere appreciation is once more extended.



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