



# THE FIELD NATURALIST

*BULLETIN OF THE TRINIDAD AND TOBAGO FIELD NATURALISTS' CLUB*

## FOURTH QUARTER OF 1996

### CLUB EVENTS

#### Field Trips

Saturday and Sunday  
25 & 26 January 1997

Camp at Chacachacare

Trail Guide #5

Sunday 23 February 1997

Tamana Hill/Brasso Venado

Sunday 30 March 1997

Chaguaramal

#### Lectures

9 January 1997

ANNUAL GENERAL MEETING

13 February 1997

Doreen Jodhan (National Herbarium)  
FUNGI: GETTING TO KNOW THEM

13 March 1997

Yasmin S. Comeau (National Herbarium)  
DISAPPEARING FERNS

## LECTURES

(13 June 1996)

R.D. Gautam, Ministry of Agriculture, Land and Marine Resources  
Central Experimental Station, Centeno

### BIOCONTROL STRATEGY FOR THE MANAGEMENT OF HIBISCUS MEALYBUG IN COMMERCIAL NURSERIES

Nurseries either Government or private play a vital role in the spread of the hibiscus mealybug in different areas due to sale-commercialization whenever these are not efficiently managed. These nurseries or propagating centres also provide a good habitat and choice of food material for the mealybug. However, experience has shown that these are also potential for the spread/dispersal of exotic ladybirds along with the plant materials disposed, provided judicious chemicals are used prioritising the release of exotic ladybirds.

The public should be sensitized and convinced to conserve the ladybirds and other natural enemies including indigenous ones, and that a little incolum of hibiscus mealybug is necessary to attract long-term effectiveness of the ladybirds and help in natural balance between pest and predator. The "Beetle Bowl" has been created successfully in St. George County and beetles have the potential to feed and survive on several other hosts. Pest elimination is neither possible nor compatible with biological control programmes hence the hibiscus mealybug should be treated like other indigenous/exotic mealybugs.

(14 November 1996)

S. Jhilmit, Assistant Conservator of Forests, Forestry Division  
MANAGEMENT OF THE MORA FORESTS IN TRINIDAD & TOBAGO

The tropical forests of the world are under pressure from squatters and the practice of slash and burn agriculture. Forest managers are forced to struggle against intense competition for the forestry land base. In Trinidad, despite this intense competition, large stands of natural forests have been managed under the polycyclic selection system referred to locally as the Periodic Block System. Using this system, the natural forests have been harvested sustainably ensuring a continuous supply of timber for the local market, whilst maintaining the integrity of the forest ecosystem. The chief method used is the silvicultural selection and harvesting of stems within a defined area of 150-300 ha using a 30-year cutting cycle. Some 10,000 ha of the evergreen seasonal Mora (*Mora excelsa* Benth.) forests are harvested using this method. Blocks which were harvested 30 years ago are now being re-harvested. These appear to be ecologically well balanced in terms of the species composition, diameter distribution, stand structure, regeneration of important species and volume production.

By comparison, another selection method, the Open Range Method, is more widely used. In this method the chief controls are girth limits on selected species. However, lack of adequate control in operating this method has led to over-exploitation of the forests. As a result, forests managed under the Open Range Method appear to be in an ecologically poorer condition than those managed by the Periodic Block System.

An inventory of the periodic blocks has been undertaken to enable analysis and comparison with the Open Range Method. The preliminary results have shown that the forests managed using the Periodic Block System have maintained their biological diversity. This is not true of forests managed using the Open Range Method.

It is anticipated that when completely analyzed and documented, the selection system as practised in the periodic blocks will prove to be a useful system for sustainable management of tropical forests, with potential global applications.



## FIELD TRIP REPORTS

South Coast West of Guayaguayare

By: Dan L. Jaggernaut

27 August 1995

Our scheduled field trip to the distant Guayaguayare coast prompted some field naturalists to overnight closeby on Saturday 26 August and join others on Sunday. Previous arrangements were made and 16 persons overnighed at Ian Cross' house in Church Road, just a few minutes drive from Mayaro junction. Arriving at 6:45 pm we received a warm welcome from host Ian Cross. At the back of the house was a healthy Custard Apple tree, *Annona reticulata* (Annonaceae).

The heavy rains came, and we decided to do some cooking. In about one hour's time we had cooked a large pot of fish broth provided by Ian Cross; other dishes also were prepared for vegetarians. After much talk, some went to bed at 2:00 am but still managed to get up early to see the many birds that flew across the neighbour's garden. Among them were the Tropical mockingbird, *Mimus gilvus*. We saw many of these birds.

By 7:30 am, field naturalists had already taken their early morning walk to the beach and back. We drove down to the market place to await another field naturalist arriving from Port of Spain. We waited for some time and then drove off slowly, giving Dr. Victor Quesnel enough time to meet us on the way. arriving at Guayaguayare, we drove along a countryside road passing over a dangerous wooden bridge, and parked our vehicles near an old house where good vistas could be had of the southwestern coast of Guayaguayare.

In the vicinity of the house between the coconut trees, John Correria gave details about an Amerindian site. A few minutes later, a search was begun and some field naturalists were fortunate enough to find small pieces of artifacts. At 8:45 am some skidded their way down to beach. The coast was lined with hundreds of beautiful sandstones of different shapes and sizes. A few field naturalists chose their specimen of sandstone, and set it aside to pick up on their way back. On an elevated section, recent erosion had taken place close to the coastal palms and forested areas.

Reaching a small waterfall, some paused for a drink. Amidst the vegetation was found the "rope plant", *Furcraea hexapetala* (Agavaceae). From the centre of the plant grew an inflorescence about 4 metres high. Some of the leaves were up to one metre in length with marginal prickles that could pierce the skin quite easily.

Walking with cautious optimism on a rising tide, we reached an area with some large rocks. Here Paul Christopher and Edmund Charles decided to check the safety of the area. When they returned they were soaking wet, so not wanting to get caught by the rising tide, it was decided to start back. Returning to the vehicles everyone partook of



the vegetarian food and forgot the pot of fish broth locked in the trunk of somebody's vehicle. The owner of the house, enjoying the food, said we must visit more often.

Ian Cross then indicated that his friend, Mr. Neckles, a top bushman from the village, would take the group along a beautiful trail. We drove for about 20 minutes, parking our vehicles close to a WASA pumping station. Starting off along the open trail, the rainy weather changed to hot sunshine. Passing through the forest reserve we saw the Swallow-tailed Kite, *Elanoides forficatus*. The bird has a scissors-tail and a sharp call: "que-que". Inside the forested area we took a respite under a large mango tree.

We continued walking enjoying the juicy mangoes. Flying around us were the White-tailed Page moth, *Urania leilus*. Someone commented that it resembled a butterfly. The moths flew very close to us and have been recently seen in large numbers in Port of Spain. The moth migrates from Venezuela and in migration is an impressive sight to see.

Further inside the forest, large Mora trees were found toppled over and hundreds of saplings lay burnt and dried up, attesting to recent bush fires in the dry season. Down a gully was a stream with large patches of oil floating on the surface. Close to the embankment, Selwyn Gomes saw a Galap, *Geomyda punctularia*. Needless to say, the creature was transported to a safer area further upstream. Mr. Neckles led us via a short cut back to the vehicles around 15:20. We gave a special vote of thanks to Ian Cross before setting off for the return journey, some stopping at Manzanilla beach for a dip before the long drive to Port of Spain.





## Natural Ecosystems

By: Paul L. Comeau

The year, 1996, marks the 50th anniversary of the publication of Beard's "The Natural Vegetation of Trinidad". His was not the first detailed assessment of Trinidad's natural vegetation but it remains the most important. As early as 1858, Herman Cruger, who was Superintendent of the Botanic Gardens from 1857-64, published a short account entitled "Outline of The Flora of Trinidad" in which he lists 146 families and 678 genera. Of these, 137 families and 570 genera belong to the flowering plant group which represents 87 and 59% respectively of the present known totals for this aspect of the flora i.e., 158 families and 959 genera. Marshall (1934), who was Conservator of Forests for Trinidad and Tobago, was a precursor to Beard and influenced the latter's thinking on the classification of the natural vegetation. Beard's monumental work, however, has gone unchallenged since it was published half a century ago.

As recently as 1992, Chalmers states in his Tropical Forestry Action Programme (TFAP) report that "there has been no detailed study of (Trinidad's) natural forest since Beard's ecological study of 1946". A Canadian International Development Agency (CIDA) National Forest Inventory carried out in 1979/80 was based on outdated 1969 aerial photography and, therefore, does not give an accurate representation of the nation's forest ecosystems. Over the last 15 years serious encroachments have been made, through shifting cultivation, fire damage and logging, that have reduced the area of our natural forests. Extensive fire damage occurred in 1987 and 1995 leading us further along the negative spiral predicted by Marshall in 1939: rainforest is downgraded to secondary growth and this in turn gets reduced to grassland. According to the Agricultural Society of Trinidad and Tobago (ASTT) 20,000 ha of natural forest, timber plantation and agricultural crop lands were burned in 1987. No estimates are available for the number of hectares burned in 1995 but the evidence seems to indicate that the damage was extensive.

There are widely varying estimates concerning the extent of natural forest cover in Trinidad and Tobago most of which are based on inflated values that have no bearing on reality. Some of these estimates are simply copied from earlier reports without consideration being given to the ever-changing nature of the various forest types. The following table shows land use in Trinidad in 1938 (Beard 1946):

Land type	Area (ha)	% of total
Crown forest	225,463	46
Private forest	45,077	9
Non-forest	7,816	2
Agriculture	153,455	32
Abandoned	42,606	9
Urban	8,667	2
Total:	483,084	100



A careful examination of Beard's (1944, 1946) monographs on Trinidad and Tobago show the following coverage for the natural forest types:

<b>Forest type</b>	<b>Area (ha)</b>	<b>% of total</b>
Evergreen seasonal	145,118	67
Semi-evergreen seasonal (Trin)	19,843	9
Deciduous seasonal	3,839	2
Dry evergreen	506	< 1
Lower montane	31,928	15
Xerophytic (Tob)	802	< 1
Seasonal montane (Trin)	1,942	< 1
Montane (Trin)	207	< 1
Elfin (Trin)	57	< 1
Mangrove (Trin)	5,131	2
Swamp and marsh (Trin)	3,933	2
Secondary (Trin)	1,563	< 1
<u>Plantation (Trin)</u>	<u>1,094</u>	<u>&lt; 1</u>
<b>totals:</b>	<b>215,963</b>	<b>100</b>

Beard's total forest cover for the two islands, 215,963 ha, is 42% of the total land surface area of Trinidad and Tobago which is approximately 512,610 ha. Beard's data was based on extensive and detailed sampling methods and, therefore, can be considered reliable.

Faizool (1990) based on 1988 data puts 230,000 ha or 45% of Trinidad and Tobago under forest cover and 210,000 ha under the various forms of agriculture while Forest Resource Inventory and Management (FRIM) in 1991 reports a national forest cover of 250,000 ha or 49% of the total land area. If Faizool's more conservative estimate for forest land includes plantations of teak, pine, and mixed hardwoods, which amounts to 15,254 ha, then subtracting this from Faizool's total leaves 214,746 ha of forest cover which is just 123 ha less than Beard's estimates if you exclude the latter's plantation cover.

As forest decline has been an ongoing process at least since Marshall's time if not before, then Faizool's and FRIM's estimates are suspect. In 1980 CIDA stated that 44.8% of the land area of Trinidad and Tobago was forested. This is in close agreement with Faizool's (1990) estimate of 45% (see above) and almost three percentage points above Beard's estimate. What exactly is being included as forest land? Are degraded forest and abandoned agricultural land a significant part of the total cover?

Unfortunately we have no reliable updated information on the extent of natural forest cover in Trinidad and Tobago. According to Chalmers (1992) there is also no reliable figure of the actual extent of privately owned forest. The only accurate information concerns the amount of plantation forest on state-owned land which in 1990 was 15,254 ha. The most recent aerial photos with full coverage of Trinidad and Tobago

were taken in 1994 and are being used by a Canadian company to produce a complete new edition of topographic maps for the two islands. These maps, once they are made available, should give some indication of the extent of natural forest that still remains.

Despite the lack of baseline data there is some indication of natural forest decline when the figures for timber production are examined. Natural forest timber production declined from an average of 85,000 m<sup>3</sup> between the period 1955-1980 to an average of 48,000 m<sup>3</sup> between 1980-1989, a decline of 37,000 m<sup>3</sup> or 43%. If the data for a single species, *Mora excelsa* which is a high quality timber, is examined, we find that between 1961-1970 the average annual production of mora logs was just over 22,000 m<sup>3</sup> while between 1980-1989 the average was just under 12,000 m<sup>3</sup>, a decline of 10,000 m<sup>3</sup> or 54%.

Recognizing the fact that the natural forest cover is declining due to shifting agriculture, recurrent fires and over-exploitation through logging is an important step towards defining what remains. Until the time comes for producing a better classification of our natural forest ecosystems we can return to Beard and accept his forest types as valid. Then we can proceed systematically to make some educated guesses as to the present-day status of each type.

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