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Protect-Ed is the biannual newsletter of the GEF-funded project "Improving Forest and Protected Area Management in Trinidad and Tobago". (GCP/TRI/003/GFF).

Protect-Ed reports on progress made in the development of a new protected areas system through the activities of five stakeholder committees in six pilot protected area sites in Trinidad and Tobago.

Protect-Ed is produced by the Project Coordination Unit.

Welcome!

- 1 Welcome back to **Protect-Ed**, the newsletter that shares information on activities in forest and protected area management in Trinidad and Tobago!
- 3 Three months ago, the first issue of **Protect-Ed** was released, providing a report on progress made in the four year project "Improving Forest and Protected Area Management in Trinidad and Tobago". Readers had positive things to say about
- 4 **Protect-Ed** and we are hoping that this new issue continues to generate positive feedback on what is shared.
- 6 In this issue, you can read perspectives on the project from the stakeholders that are involved in various Pilot Protected Area Subcommittees and other project updates. Feel free, once again to share your views on this new issue. Our contact information is provided on the back cover.
- 7 We take this opportunity to wish you the very best for the Christmas Season and the New Year 2017... and please, enjoy reading **Protect-Ed**!

CARONI SWAMP: A NATURAL TREASURE
Dr. Rahanna Juman, Institute of Marine Affairs

Caroni Swamp is one of our natural treasures – located about 15 minutes from the city of Port of Spain and home to the radiantly coloured Scarlet Ibis (*Eudocimus ruber* L.), the national bird of Trinidad. It is the largest mangrove swamp, but second largest wetland in Trinidad and Tobago after the Nariva Swamp; occupying approximately 21.7 km of the Gulf of Paria coastline and covering an estimated 9,648.4 hectares (ha). For years, many locals as well as visitors have traversed the mangrove lined channels within this wetland looking at a diversity of birds, reptiles and mammals, but do they know that this wetland is protected under national law, and is designated a wetland of international importance?

Portions of Caroni Swamp have been delimited protected areas for just under eight decades. The Caroni Swamp Forest Reserve (28.3 km²) was proclaimed in 1936. In 1953, 1.4 km² of the Forest Reserve was designated a Wildlife Sanctuary for breeding Scarlet Ibis. In the Wildlife Sanctuary, all fishing, oyster collecting and hunting was outlawed. Subsequent to this, in 1987, a major part of Caroni Swamp, south of the Blue River, was declared a Prohibited Area (Forests Act, Chap 66:01). This meant

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that all fishing, oyster collecting and other extractive activities (including cutting mangrove bark, stakes, poles) became illegal and, with the exception of licensed tour guides, local communities were no longer permitted to use the resources. Although these interventions have been made, poaching of scarlet ibises and harvest of oyster still continues.

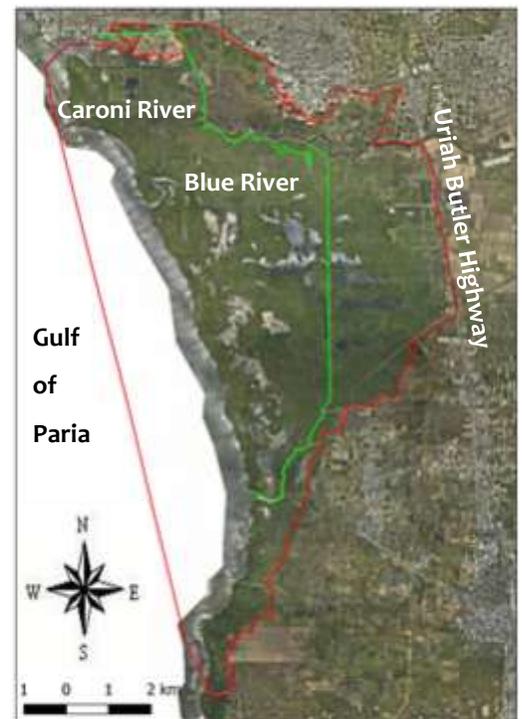
Further recognition of Caroni Swamp's value came in 2005 when the Swamp was designated a Wetland of International Importance under the Ramsar Convention. However, despite the Ramsar designation and its protection status, Caroni Swamp continues to be degraded by human activities within its boundary, and in the associated drainage basin. Changes within the boundary of the wetland date as far back as the 1920's when the hydrology was altered to facilitate rice farming. Over the years, mangroves were removed to build roads and highways, develop residential areas, a solid waste dump, and sewage ponds.

Caroni Swamp receives water from the largest hydrometric area in Trinidad and Tobago, the Caroni River Basin, which is situated in northwest Trinidad and covers about 883.4 km², equivalent to 22% of the land surface area of the island. This River Basin is the most populated part of the country, housing about 33% of the national population. The Caroni River Basin has experienced extensive land-use / land cover changes within the past few decades and this has had serious consequences for the Swamp which is the receiving environment for the land-based runoff. Caroni Swamp receives sediment laden water polluted with sewage, wastewater from industry and agricultural run-off. This has affected the quality of the habitat, and the shellfish harvested in the swamp (pers comm. Christine Bullock, IMA). Fish kills and mangrove dieback seem to be a regular occurrence.

The designation of Caroni Swamp as a Ramsar Site in 2005 was expected to bring much needed attention and conservation intervention, yet between 2003 and 2007, built development within the wetland doubled and significant marshlands have been lost. Mangrove forest has expanded and continues to overgrow marsh vegetation, the habitat of juvenile Scarlet ibis, as salt water intrudes further inland. This salt water intrusion results from human activities, but may be compounded by relative sea level rise associated with global climate change. Privately owned lands occur within the Ramsar Site and development of these lands continues to negatively impact the wetland, especially along the Uriah Butler Highway.

There is an urgent need for intervention in the Caroni Swamp and its associated river basin to address degradation of the wetland, and to protect and restore the diverse plant communities found there, including the habitat of the Scarlet Ibis. This requires a sustained engagement by all stakeholders: those that use the Swamp for their livelihoods, and those that negatively impact the Swamp by their activities.

The Institute of Marine Affairs is represented on the Caroni Swamp Pilot Protected Area Subcommittee as well as the Subcommittees for Nariva Swamp and Coastal Zone, Matura Forest and Coastal Zone and the North East Tobago Marine Pilot Protected Areas



Map showing the Caroni Swamp Forest Reserve (green) and the Caroni Swamp Ramsar Site (red).

2014 Aerial photography provided by the Office of the Director of Surveys, Survey and Mapping Division, GORTT

IMPROVING FOREST AND PROTECTED AREA MANAGEMENT IN TRINIDAD AND TOBAGO THROUGH THE LENS OF THE COMMUNITY RESIDENT

- Ms Dianne Wells, Toco Foundation

Stakeholders in Conservation, Watchdogs of the Environment, Protectors of the Forest, these are all terms bandied about as *them* not *us*. Terms reserved for the socially responsible businesses involved in projects in fenceline communities. These are not terms owned by the average villagers within the protected areas covered in this project. The success of this project, as does all other social investment initiatives, depends heavily on the engagement of the community, the trust of the residents and the ability to move beyond the “what’s in it for me syndrome” into the “my role as a stakeholder” in the project success.

This project’s charter has identified the development and testing of new financial mechanisms needed to support protected areas, piloting management arrangements in protected areas towards enhanced effectiveness and building the skills and expertise of personnel with responsibility to manage protected areas in Trinidad and Tobago. What does that mean for communities eking out a living, practicing anthropogenic activities, creating their own survival ecosystems? Is there place for the people, planet, profit equation within the dashboard of the overarching goal of protecting this important biodiversity?

With an estimated sixty percent (60%) of the land area of Trinidad and Tobago under forest cover, then quite simply the majority rules. Every effort should therefore be made to ensure that the forest is protected and major efforts be focused on catalytic change to adapt community behavior to becoming watchdogs of their environment.

The creation of a “people, planet, profit ecosystem” will therefore allow for a win-win outcome, through the sustainable development of protected area management niches, which can satisfy all agendas. How can the lens be adjusted to allow for shifting paradigms among residents, even whilst reducing the community footprint?

- Let’s find a community mobilizer, that one person who can create catalytic action and be the change agent.
- Let’s change the conversation on the block to include entrepreneurial adaptation strategies as an integral component in the sustainable way forward.
- Let’s encourage collaborative partnerships with the other stakeholders already providing niche opportunity training.
- Let’s make the community part of the solution. Let’s meet them at the point of their need.
- Let’s create social biodiversity!



The Toco Foundation is represented on the Matura Forest and Coastal Zone Pilot Protected Area Subcommittee

AN UPDATE ON THE BASELINE BIOLOGICAL SURVEY

- Department of Life Sciences, The University of the West Indies

As part of the broader project to Improve Forest and Protected Area Management in Trinidad and Tobago, the University of the West Indies, St. Augustine (UWI) began fieldwork on a baseline survey of the six proposed protected areas (PPAs) across Trinidad and Tobago in July of this year, to identify and assess *indicator species* for future and ongoing monitoring.

Indicator Species: Species used to monitor environmental changes, assess the efficacy of management, and provide warning signals for impending ecological shifts

This baseline study has intentions to study 7 groups of organisms – vegetation, herpetofauna, arthropods (specifically butterflies and dragonflies), marine organisms and freshwater organisms, avifauna, and mammals (including bats) across the 6 PPAs.



©FAO/Renoir Auguste

Above: Turpin's Frog

Through visual encounters and transect surveys, conducted during the Herpetofauna Survey, quite a few species have been observed. A select few of these include: Caiman (*C. crocodilus*) and Ruschenberger's treeboa (*C. ruschenbergerii*) the Leaf Anole, and Rainbow boa, the venomous Fer-de-lance, the Trinidad Stream Frog and the Green Iguana, in Trinidad, and Turpin's frog (*P. turpinorum*), Urich's litter frog (*P. urichi*) and Hawksbill turtles in Tobago.



©FAO/Rakesh Bhukal

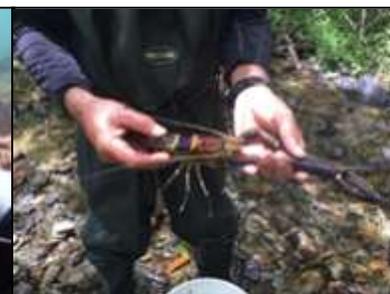
Above: Ruddy Daggerwing

Data loggers for the Arthropod Survey have been deployed at all 6PPAs and transects are being used to collect data on species richness, diversity and abundance of both butterflies and dragonflies. Regularly occurring butterfly species thus far include the Scarlet Peacock (*Anartia amathea*) and the White Peacock (*Anartia jatrophae*), while those rarely observed include the Ruddy Daggerwing (*Marpesia petreus*).

With the much appreciated assistance of community members and cooperation of fishermen on the Marine Surveys, fish landing surveys were conducted at Parlatuvier, Castara and Charlotteville, and commendably, all fish landed at these sites over the course of the survey were recorded and weighed.



Left: Performing coral surveys



©FAO/Guy Marley

Right: Catch and release of crayfish

During the coral surveys, detailed assessments were made to assess coral size, diseases, bleaching, mortality and other health characteristics. Fish species were also identified in situ in belt transects and their sizes estimated and benthic surveys conducted.

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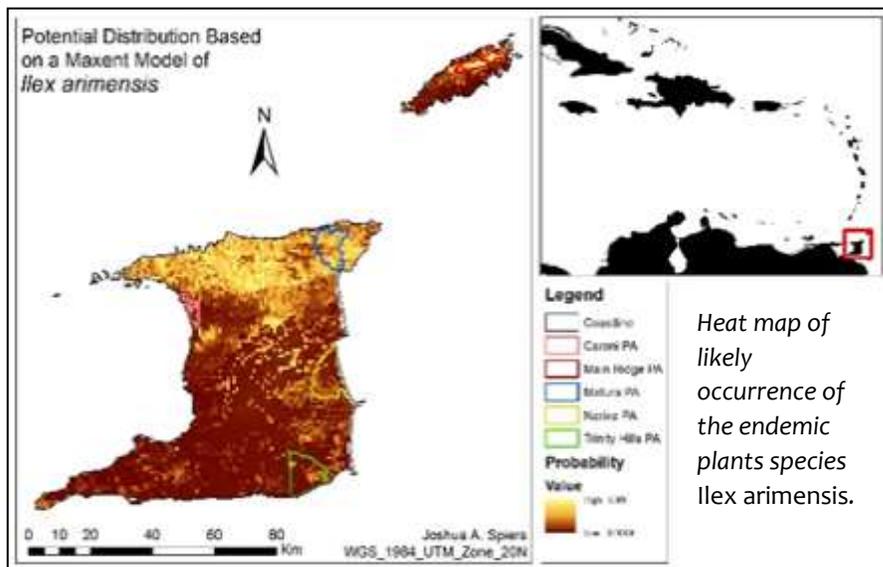
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Freshwater surveys are also near completion, despite quite challenging conditions encountered during the wet season. At each site, environmental characteristics and water quality parameters were recorded in addition to fish and decapods findings. Samples of benthic macroinvertebrates have been sorted and preserved, and the taxonomy is underway.

Plants that are endemic to Trinidad and Tobago are found nowhere else in the world so it is our responsibility to save them. Of the approximately 59 endemic flowering plants the distribution of all of them has been predicted based on their environmental requirements on the modelling program Maxent.

An Unmanned Aerial Vehicle (UAV) was acquired to help assess the status of vegetation communities in the protected areas. Testing and development of skills to fly the UAV continues with flights over Nariva Swamp and Trinity Hills pilot protected areas planned.

When the teams complete their final analyses in the upcoming months, we hope to share the findings on those species which are the best indicators of the health of our PPA ecosystems. Until then, new and exciting information continues to come in with each additional survey.



Heat map of likely occurrence of the endemic plants species *Ilex arimensis*.

At left: Mike Oatham with the UAV.



©FAO/J. Speirs

Summary of Key Project Activities: October - November 2016

When	What
OCTOBER	<ul style="list-style-type: none"> •World Food Day Observance: Green Market, Santa Cruz and Dwight Yorke Stadium, Bacolet •Meeting of Matura Forest and Coastal Zone Pilot Protected Area Communication and Outreach Working Group
NOVEMBER	<ul style="list-style-type: none"> •UWI Life Sciences/TT Field Naturalists' Club Bioblitz, Botanical Gardens, Port of Spain •Meeting of Matura Forest and Coastal Zone Pilot Protected Area Communication and Outreach Working Group •Caroni Swamp Pilot Protected Area Subcommittee Meeting •Nature Seekers' EcoBlend Environmental exhibition, Matura Village •Visit of GEF Supervision Mission - Key Meetings held •Trinity Hills & Eastern Extension Pilot Protected Area Subcommittee - discussion of PPA Conservation Objective •Tobago Pilot Protected Area Subcommittee - presentation of Knowledge, Attitudes and Practices Survey results •Meeting of Matura Forest and Coastal Zone Pilot Protected Area Subcommittee •Training of enumerators for Caroni Swamp Pilot Protected Area KAP Survey

SHARK AND RAY SURVEYS IN THE PROPOSED NORTH EAST TOBAGO MARINE PROTECTED AREA**Environmental Research Institute Charlotteville (ERIC)**

Sharks and rays are keystone species that are typically under-represented in scuba surveys, however, the good news is that this will not be the case for the baseline survey datasets for the proposed North East Tobago Marine Protected Area (MPA).

The Environmental Research Institute Charlotteville (ERIC) was contracted to conduct shark and ray surveys along the Atlantic coast to add to its 2016 collaboration with Global FinPrint that had already resulted in successful baited remote underwater video (BRUV) surveys of sharks and rays along the Caribbean coast of the proposed Tobago MPA.



©FAO/ERIC

Setting BRUVs where the Atlantic Ocean meets the Caribbean Sea

The ecological and economic value of healthy populations of sharks and rays are widely acknowledged, with a number of countries implementing legislation for their protection. Shark sanctuaries in Palau and The Bahamas generate significant income through tourist dollars – an individual reef shark in Palau is estimated to be worth US\$1.9 million over its lifetime, while shark tourism in The Bahamas has generated approximately US\$800 million to date. People are willing to pay greater amounts for the opportunity to see these animals in the wild.

A number of species of shark and ray have been observed on the BRUVs set by ERIC, with preliminary rapid analysis yet to suggest any clear distribution pattern: southern stingray, eagle ray, nurse shark, sharpnose shark, reef shark, smoothhound, tiger shark, and great hammerhead sharks have all been recorded, albeit in numbers that strongly suggest depleted populations.

Once compiled and comprehensively analysed, the full dataset will be locally and globally comparable, and will yield the necessary information to make effective and appropriate decisions regarding improved conservation management of sharks and rays, data that would be deficient in the absence of these BRUV surveys.



Area within proposed Tobago MPA where BRUVs have been set to record sharks and rays



©FAO/ERIC

A critical component of the successful implementation of protection measures is stakeholder support, achieved through engagement, consultation, awareness and participation. The team of ERIC community based field technicians is closely involved in all aspects of our fieldwork and data collection, whilst officers from the Department of Fisheries and Marine Resources have at times accompanied the ERIC team during BRUV surveys for observation and participation. The exposure and involvement of these individuals and stakeholder groups, some of whom are boat captains and fishermen, in a globally significant project to improve the conservation management of historically vilified species, could go some way towards

securing that support. This is even more critical when considered in the context of the potential for specific shark protection measures to be incorporated into the proposed Tobago MPA; their omission would likely preclude any similar measure being introduced for a number of years thereafter. A shark sanctuary offering full protection would be ecologically, economically and socially beneficial for the North East Tobago Marine Protected Area and its communities.

ERIC is represented on the stakeholder Subcommittee for both pilot protected areas in Tobago.

BUILDING A SUSTAINABLE MODEL FOR LOCAL COMMUNITIES

Nature Seekers



Many local communities throughout the Caribbean have been faced with the challenge of sustaining the involvement of residents in realising the goals of conservation and social enterprise.

The primary cause of this lies in a community’s inability to fully anticipate the needs associated with building the right capacity for project execution. In our experience, the most critical areas for capacity include governance, project management and inter-personal skills. However, where capacity exists, poor market conditions; disabling business environment and infrastructure can plague rural enterprises and weaken the opportunities for success.

Many local businesses including Nature Seekers were not built to cater to the needs of customers but instead developed upon the products they could supply. Therefore, most projects fail to target specific customers and thus, suffer the fate of failure very early in the life of local enterprises.

To this end, Nature Seekers has innovated its operational approach to project execution. Our training and experience over the years have unearthed some key factors which are essential in sustaining local participation in the management of natural resources and local enterprises.

These include the basic factors of production (land, labour, capital and management). When donors and grant funders are not willing to discuss and facilitate these key factors, continuation beyond the life of the project is unlikely.

For rural communities, leadership also plays a unique role in creating the right culture for social innovation. This involves motivating members to achieve new levels of growth and development simultaneous to activity implementation. As such, a core responsibility of community groups is to build honest leadership and create the environment for attracting the right partnerships.

The diagram at right illustrates the factors which guide Nature Seekers in implementing this new thinking in developing and creating value.



©FAO/Nature Seekers

Above: A participant in Nature Seekers’ glass recycling craft project



Nature Seekers is represented on the Matura Forest and Coastal Zone Pilot Protected Area Subcommittee

Summary of Key Project Activities: December 2016

What

- Conduct of KAP Survey in communities surrounding Caroni Swamp Pilot Protected Area
- Initiation of Interpretive Trail Design Course - 20 participants from organizations represented on the Subcommittees
- Meeting of Tobago Pilot Protected Area Subcommittees - Communication Plan development
- Trinity Hills & Eastern Extension Pilot Protected Area Subcommittee Meeting - discussion of PPA Conservation Objective

Contact us! We'd love to hear from you!

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DRAFTING THE CONSERVATION OBJECTIVE

The **Nariva Swamp and Coastal Zone** and the **Trinity Hills and Eastern Extension** Pilot Protected Area Subcommittees, crossed a key milestone recently, in preparing the first draft of the **Conservation Objective** for their respective sites.

The **Conservation Objective** is a statement describing the desired ecological/geological state of a key component/feature of a protected area. It establishes the purpose for designating the protected area for conservation.

In the next issue of **Protect-Ed** we will share more on progress of the recommendation of conservation objectives for all pilot areas as the Subcommittees continue work on this important first step in selection of the appropriate category of Protected Area as outlined in the National Protected Area Policy.

PROJECT FUNDERS



Food and Agriculture Organization of the United Nations



THE BACK STORY: GEF SUPERVISION MISSION

During the period 7-11 November 2016, the project hosted a two-member Supervision Mission of the Global Environment Facility (GEF).

The purpose of the mission was to assess progress on the project and consider recommendations for review going forward from the mid-term.

During these talks, the Hon. Minister of Agriculture, Lands and Fisheries gave his support to the establishment of a unit within the Forestry Division for forest and protected areas. This will assist in required capacity building as well as transitioning of project outcomes in line with the National Forest and Protected Areas Policies. The supervision team also held talks with the Chief Secretary of the Tobago House of Assembly, the Hon. Orville London and other THA officials, the Ambassador of the European Union, the Permanent Secretary of the Ministry of Planning, and various project committees and consultants to the project.



At left: Senator the Hon. Clarence Rambharat, Minister of Agriculture, Land and Fisheries (center) greets Dr. Claus Eckelmann, Lead Technical Officer FAO (left) and Dr. Illias Ammon, Forestry Officer FAO (right).

At right: Mr. Tomasso Vicario, FAO/GEF Secretariat (right) speaks with Mr. Denny Dipchansingh, Deputy Conservator of Forests, Forestry Division T&T (left).