



Food and Agriculture
Organization of the
United Nations

Summary Report of Knowledge, Attitudes and Practices (KAP) Surveys undertaken for six Pilot Protected Areas in Trinidad and Tobago, 2016-2019

Food and Agriculture Organization of the United Nations (FAO/UN)
GCP/TRI/003/GFF
Improving Forest and Protected Area Management in Trinidad and Tobago
2020

Citation:

IFPAMTT (2020) Summary report of Knowledge, Attitudes and Practices (KAP) Surveys undertaken for six pilot protected areas in Trinidad and Tobago, 2016/2019.

Acknowledgement:

The Project Coordinating Unit wishes to thank all persons who contributed to the undertaking and analysis of the KAP surveys and subsequent development of communication plans for each pilot protected area. We acknowledge the assistance of the Environmental Management Authority, the Department of Natural Resources and Forestry, enumerators, field supervisors, data entry assistants, report writers and members of the Communication Working Groups.

Executive Summary

The “Improving Forest and Protected Area Management in Trinidad and Tobago” (IFPAMTT) project, which started in 2015, was a five year project funded by the Global Environment Facility (GEF) and implemented by the Food and Agriculture Organization of the United Nations (FAO/UN) on behalf of the Government of the Republic of Trinidad and Tobago. The project aimed to develop a new protected area system, develop and test new financial mechanisms needed to support protected areas and enhance management effectiveness through piloting management arrangements in pilot protected areas. The approaches piloted through the project could be replicated later on in other protected areas, to improve the capacity of stakeholders to effectively manage protected areas in Trinidad and Tobago.

A key activity undertaken in the project was the formulation of a comprehensive communication plan, built around key products and processes identified in the project document. An appropriate communication plan is fundamental for enhancing and stimulating public awareness, educating stakeholders and guiding appropriate action for forest and protected areas in Trinidad and Tobago. The communication plan was informed by an assessment of the knowledge, attitudes and practices (KAP) of a sample of people (5% of populations) that live in communities in the vicinity of six pilot protected areas that were the subject of the project’s focus. The six pilot sites were the Main Ridge Forest Reserve (MRFR), a proposed North-East Tobago Marine Protected Area (NETMPA), the Matura Forest and Coastal Zone, the Caroni Swamp, the Nariva Swamp and Coastal Zone and the Trinity Hills and Eastern Extension.

KAP surveys, conducted in 2016-2017 provided useful insight to guide the development of a communication plan. Most elements of the plan were implemented over three years of the project (2017-2019). Towards the end of 2019, KAP surveys were repeated. Analysis of the findings of the latter round of KAP surveys provided i) the opportunity to assess changes in knowledge, attitudes and practices in light of communication and outreach activities undertaken since 2016-2017 and ii) precipitated recommendations to managers on areas for continued work in public communication that are needed to improve management of these sites.

The 5% sample size of randomly selected persons that were engaged in the KAP surveys was required to assess the level of public awareness accurate to a 95% confidence level with a $\pm 5\%$ confidence interval. While in the 2016-2017 surveys there was some variation in the time surveys were conducted, in 2019 all surveys were conducted between the hours of 1:00 p.m. and 6:00 p.m. using questionnaires that were administered by a team of enumerators.

The surveys gathered information on awareness of protected areas, knowledge of boundaries, endangered species found in the protected area, and managers of the sites. Persons’ attitudes towards protected areas was gathered as well as information on use of the protected area by the respondents and use by others, and willingness to participate in management of the sites. The

opportunity was taken to find out about people's knowledge of other conservation initiatives at the site (Nariva Swamp, in particular), their valuing of the protected area, and the best means of communicating with the respondent in the future.

Awareness of the pilot sites by persons in surrounding communities varied between the two surveys and also by location. The highest level of awareness was noted for the Caroni Swamp and the Nariva Swamp, while respondents were least aware of the Matura Forest (Matura National Park ESA) and the Trinity Hills Game Sanctuary (within the Trinity Hills and Eastern Extension site). People also generally did not know the location of the boundaries of the sites, though for the Matura Forest and Coastal Zone (Matura National Park ESA particularly) there was a small improvement in knowledge of boundaries from the 2016-2017 survey to the 2019 survey.

Respondents generally were aware of the ecological, economic and historical importance of the sites. Their knowledge of "protected species" was generally low, and often when asked to name a protected or endangered species, there was apparent misinterpretation of the terms "protected" and "endangered." The level of perceived threats to the sites was generally high and mostly so for the Caroni Swamp and Nariva Swamp where 69% and 71% of respondents respectively noted threats. Respondents associated with the Matura Forest and Coastal Zone noted increased threat levels from 39% in 2016 to 64% in 2019. Some of the major threats identified include illegal hunting, over exploitation of resources, fires, pollution, agriculture and illegal activities.

Respondents generally view the sites as important with over 75% of respondents at five sites rating them as important or very important. Respondents recommended more surveillance and monitoring, infrastructure and development and more on the ground management of these sites. Less than 50% of persons however wanted to be involved in the management of the sites. People's knowledge of the managers of the pilot sites is very low (less than 30%).

While the extent of public communication in the local communities varied between sites, those sites where face-to-face communication at the local level was greatest yielded improvement in desired awareness and positive interaction with sites. Improvements were mostly seen at the Matura Forest and Coastal Zone, and the Nariva Swamp and Coastal Zone.

Recommendations that were proposed to address knowledge gaps and to promote behavioral change in support of management of the pilot sites include continuous education and outreach activities to (a) increase awareness of the site, in particular the boundaries (b) increase understanding of "protected/endangered" animals and (c) reduce or mitigate threats. Additionally, the managers of the sites should make known their roles and responsibilities and should have more on the ground presence especially through surveillance and monitoring.

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List of Acronyms

CBD	Convention on Biological Diversity
ESA	Environmentally Sensitive Area
ESS	Environmentally Sensitive Species
FAO	Food and Agriculture Organization
GEF	Global Environment Facility
GORTT	Government of the Republic of Trinidad and Tobago
IFPAMTT	Improving Forest and Protected Area Management in Trinidad and Tobago
KAP	Knowledge, Attitudes and Practices
IUCN	International Union for the Conservation of Nature
MFCZ	Matura Forest and Coastal Zone
MNP	Matura National Park
MRFR	Main Ridge Forest Reserve
NETMPA	North-East Tobago Marine Protected Area
NRCSWL	National Restoration, Carbon Sequestration, Wildlife and Livelihoods
NSCZ	Nariva Swamp and Coastal Zone
P3DM	Participatory Three-Dimensional Modelling
PA	Protected Area
PPA	Pilot Protected Area
THEE	Trinity Hills and Eastern Extension
TT	Trinidad and Tobago
UN	United Nations

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1.0 Background

The Improving Forest and Protected Area Management in Trinidad and Tobago Project (IFPAMTT)

Trinidad and Tobago (TT) has approximately 60% of its land area under forest cover which includes several biomes such as evergreen seasonal forest, deciduous seasonal forest, dry evergreen forest, montane forest, mangrove forest, palm marsh and marsh forest (CBD 2010). Managing biodiversity therein to provide national and global benefits to human societies is relevant to TT where their sustainable supply is under constant threat. Trinidad and Tobago's endowment of biodiversity and diverse ecological habitats has been the focus of conservation attention since 1776, with the designation of Main Ridge in Tobago as a Forest Reserve. Despite the declaration of protected areas (PAs) under multiple laws (30+), efforts to manage biodiversity remains disjointed and ineffective.

Multiple pressures from diverse stakeholders and rapid economic growth have put these ecosystems at further risk. Unplanned and unregulated land conversion has led to changes in the extent and integrity of natural ecosystems in Trinidad and Tobago. Data from the Food and Agricultural Organization's (FAO) World's Forests report (2003), estimated that from 1990 to 2000, forests in Trinidad and Tobago disappeared at a rate of 0.8% per year (CBD 2010). The National Wetlands Policy 2002 also indicated that over 50% of the original wetlands of Trinidad and Tobago have disappeared. Loss of habitats and conflicting interests of various stakeholders have led to a decline in wildlife populations in many natural areas, threatening the existence of many globally and nationally important species. As such, species that have been recognised as endangered in Trinidad and Tobago have been designated as Environmentally Sensitive Species (ESS) and cannot be hunted or removed from their environment (Table 1).

Table 1. Environmentally Sensitive Species and IUCN Status

Category	Common name	Scientific Name	IUCN Status
Birds	Trinidad Piping-guan or Pawi	Pipile pipile	CR
	White-tailed Sabrewing Hummingbird	Campylopterus ensipennis	NT
	Scarlet Ibis	Eudocimus ruber	LC
	West Indian Manatee/ Sea Cow	Trichechus manatus	VU
Mammals	Ocelot	Leopardus pardalis	VU
Amphibians	El Tucuche Golden Tree Frog	Phyllodytes auratus	CR
Reptiles	Olive Ridley Turtle	Lepidochelys olivacea	NL
	Hawksbill Turtle	Eretmochelys imbricata	CR
	Green Turtle	Chelonia mydas	EN
	Loggerhead Turtle	Caretta caretta	VU
	Leatherback Turtle	Dermochelys coriacea	VU

CR – Critically Endangered; EN – Endangered; VU – Vulnerable; NT – Not Threatened; LC – Least Concern

The GORTT, in recognizing the shortcomings of conservation efforts, initiated policy reforms with the adoption of new Protected Area (PA) and Forest Policies in 2011 and a National Wildlife Policy in 2013. Subsequent to this, the Government initiated the IFPAMTT project. This project, which started in 2015 in Trinidad and Tobago, is a pilot project funded by the Global Environment Facility (GEF) and implemented by the Food and Agriculture Organization of the United Nations (FAO/UN) on behalf of the GORTT. The project had four technical components:

- To improve the legal and institutional arrangements for protected area management;
- To improve the infrastructure for biodiversity conservation;
- To develop and test a sustainable financing system;
- Monitoring and evaluation and information dissemination.

These components contribute to:

- developing a new PA system;
- developing and testing new financial mechanisms needed to support PAs;
- enhancing management effectiveness through piloting management arrangements in pilot PAs which could be later replicated in other PAs; and
- building the skills and expertise of staff with responsibility to manage PAs in Trinidad and Tobago.

The project was implemented in six pilot sites; these are:

- Main Ridge Forest Reserve (MRFR)
- North-East Tobago Marine Protected Area (NETMPA) (proposed)
- Matura Forest and Coastal Zone (MFCZ)
- Caroni Swamp
- Nariva Swamp and Coastal Zone (NSCZ)
- Trinity Hills and Eastern Extension (THEE)

The locations of these sites are shown in Figure 1.

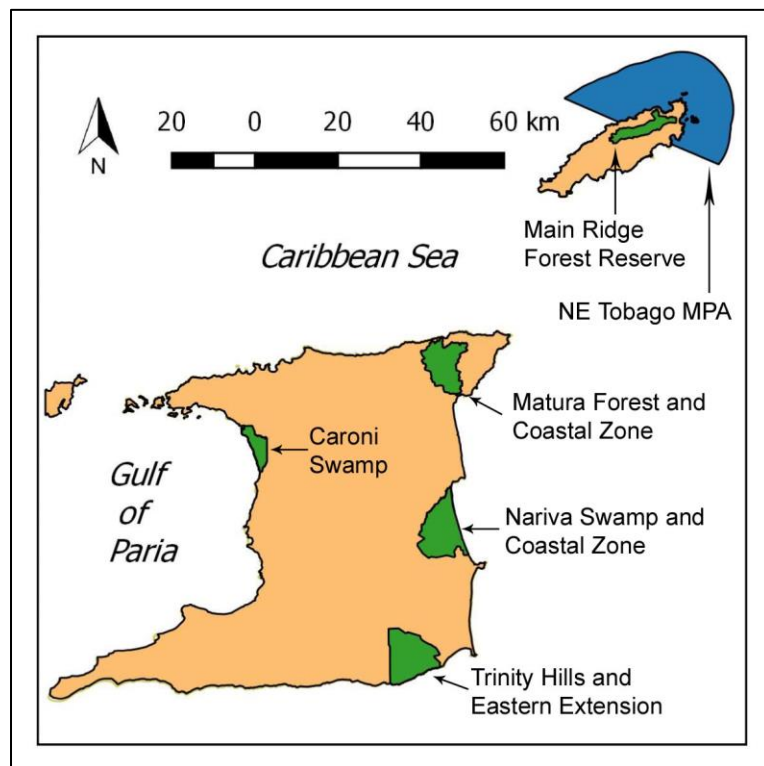


Figure 1. Map showing locations of the six pilot sites

2.0 Introduction

An appropriate communication strategy is important for enhancing and stimulating public awareness, as well as educating stakeholders about appropriate actions regarding forest and protected areas in Trinidad and Tobago. The project document outlined key components for a communication plan. One of the components of this plan was the undertaking of Knowledge, Attitudes and Practices (KAP) Surveys among people who lived near the six pilot protected areas. These surveys were to be initiated by the second year of the project at two (2) pilot sites and then repeated in each of two subsequent years, at two more sites in each year.

The Project Coordination Unit of the FAO/UN however obtained the support of the Project Steering Committee to undertake the KAP surveys at all sites over the period August 2016 to April 2017. The decision to undertake the surveys at all sites was based on an interest in obtaining the data from these surveys as a baseline, from which a more detailed communication strategy could be devised for all areas that could be implemented in the progress of the project.

Communication plans for each PA were developed with stakeholders after review of the results of the first round of KAP surveys. These plans identified specific audiences and matched products and pathways in communication which were suited to these audiences. Several of the products and pathways engaged members of local communities surrounding these PAs as a specific audience, however other communication actions were undertaken with other audiences.

A second round of KAP surveys, conducted towards the end of the project was also agreed to, with the intention of again capturing the views of persons in the vicinity of the six PPAs to determine whether there were discernible shifts in knowledge, attitudes and practices after implementation of communication activities and to identify required actions for future and continued public communication by managers/stakeholders moving forward.

2.1 The KAP Survey

KAP surveys are mostly quantitative methods of data collection that provide both qualitative and quantitative information. This survey technique can reveal key characteristics of a group, regarding their knowledge, attitudes and behaviors with respect to a particular issue (Gumucio et al., 2011). KAP surveys can provide a large quantity of data that can be used in statistical analyses (Gumucio et al., 2011) in order to collect what is known, believed, and done in relation to a topic (WHO, 2008).

Information gathered can highlight shortcomings in knowledge, cultural beliefs and behavioral patterns, needs of an area and associated problems and also identify barriers in a programme's delivery and possible solutions. This data is beneficial as it enables program managers to set priorities to address pertinent issues identified (WHO, 2008).

2.2 The Pilot Protected Areas

This section provides a brief introduction to the six pilot protected areas of focus in the project.

Main Ridge Forest Reserve PPA

The Main Ridge Forest Reserve pilot protected area (PPA), comprising 3,937 ha, is currently designated the Main Ridge Forest Reserve (MRFR) and it is the oldest forest reserve in the western hemisphere, having been set aside in 1776 (source). The volcanically influenced site extends from the northeast of the island southwesterly for approximately seventeen kilometers (Figure 2).

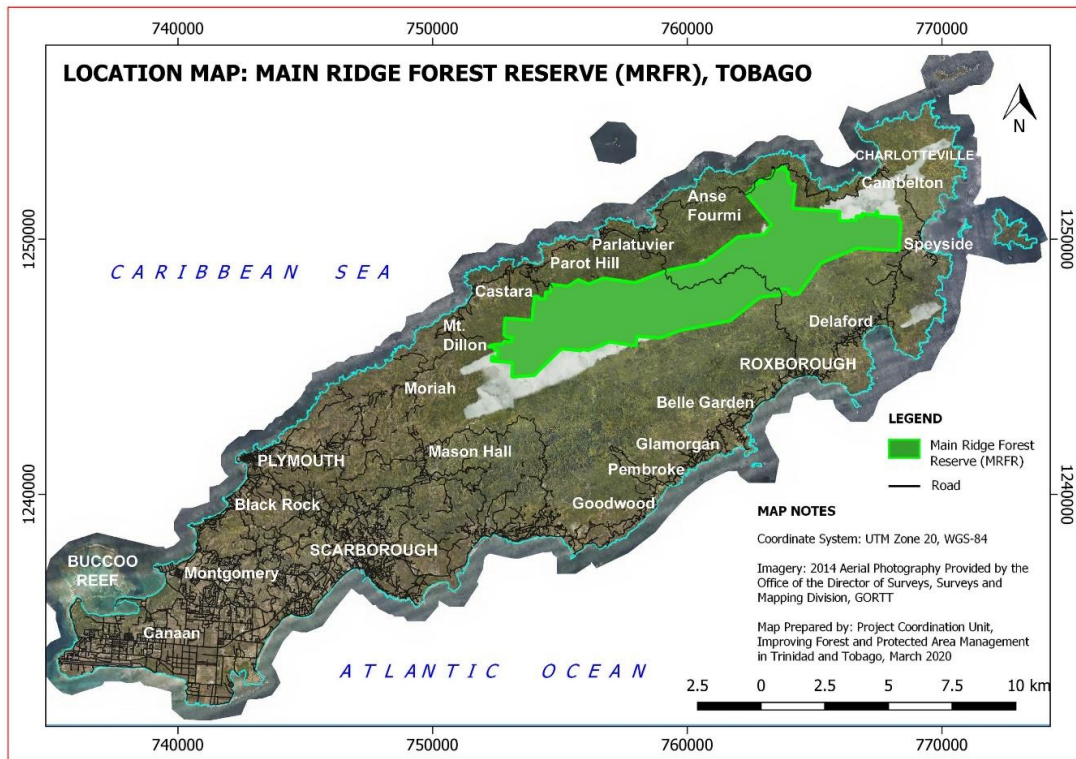


Figure 2. Map showing location of the Main Ridge Forest Reserve PPA

The MRFR comprises of forested ridges from the north coast to gentler slopes with deep valleys which run down to a narrow fertile coastal plain in the South (Thelen and Faizool 1980). Its maximum altitude is 549m near its midpoint. Ten communities surround the MRFR: Charlotteville, Speyside, Delaford, Betsy's Hope, Louis d'Or, Roxborough, Parlatuvier, L'Anse Fourmi, Hermitage and Bloody Bay.

The site is heavily utilized for ecotourism – nature walks, bird watching and mountain biking – with Gilpin Trail being the focal point for intensive use. Access to this PPA is primarily through one access road from Bloody Bay to Roxborough, which bisects the reserve. While managed for ecotourism, its local wildlife is exploited by hunters who harvest mammals such as the nine-banded armadillo (*Dasypus novemcinctus*), agouti (*Dasyprocta leporina*) and wild hog (*Pecari tajacu*) for commercial and subsistence purposes.

North-East Tobago Marine PPA

The proposed North-East Tobago Marine Protected Area (NETMPA), (Figure 3), covers an estimated 59,280 ha, extending along the entire coastal strip from Roxborough on the north-east coast, north to Parlatuvier on the north-west coast and extending seawards for 6 nautical miles (11.1 km). With an additional proposed extension to Castara, the area will cover 67,300 ha. The proposed NETMPA encompasses several large coral reef formations, Little Tobago Island, Goat Island, St. Giles Islands and numerous Rocks, such as the Sisters and Brothers Rocks. Bays that are within the MPA include King's Bay, Tyrrel's Bay, Man-of-War Bay and Bloody Bay.

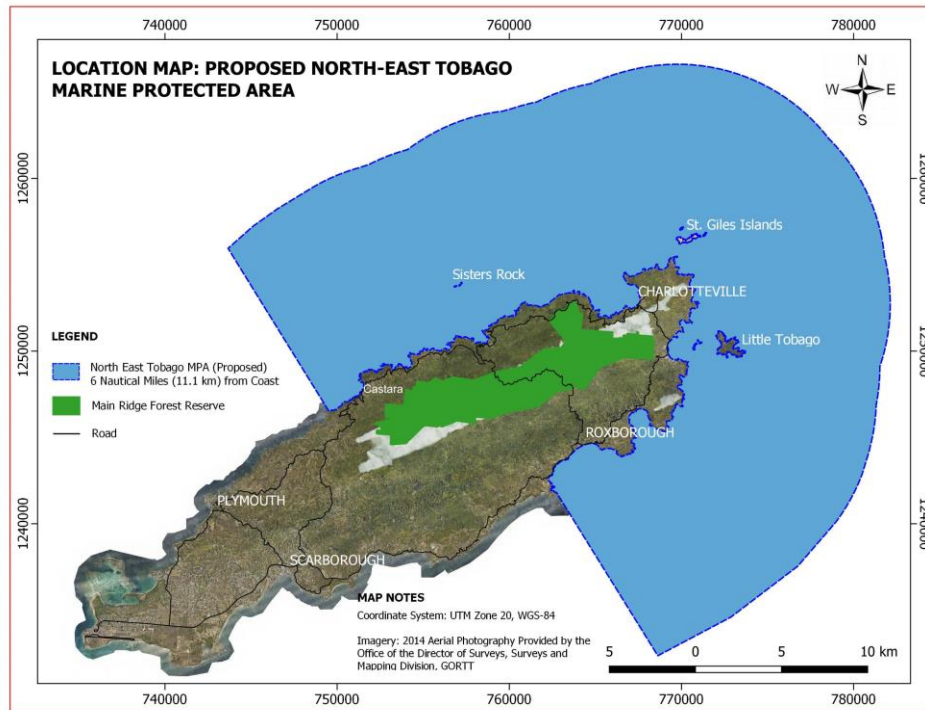


Figure 3. Map showing location of the proposed NETMPA

This is the largest proposed protected area under the project and includes terrestrial sites, marine benthic and open-water ecosystems. It hosts a significant proportion of Tobago's coral reefs with representation of globally threatened species including Staghorn Coral (*Acropora cervicornis*), Elkhorn coral (*Acropora palmata*), brain corals (*Montastraea sp.*) and Hawksbill turtles (*Eretmochelys imbricata*). The offshore islands are important regional breeding habitats for seabird species.

Widespread overfishing of reefs has removed many herbivorous fish species, upsetting the competitive balance between corals and seaweeds, often leading to a fundamental change in the community. The highly invasive Lionfish (*Pterois volitans*) has established in NE Tobago and can potentially cause significant harm to the marine ecology of the area (Albins and Hixon, 2011).

Anthropogenic threats to Tobago’s coral reefs include land and marine-based pollution, coastal development, sedimentation, nitrification, overfishing and unsustainable tourism (van Bochove and McVee, 2012). Climate change related occurrences such as hurricanes and tropical storms and coral bleaching are significant threats to biodiversity at this site (van Bochove and McVee, 2012). Coral disease incidents have also impacted Tobago’s corals following bleaching events.

Matura Forest and Coastal Zone PPA

The Matura Forest and Coastal Zone (MFCZ) pilot protected area is located in north-east Trinidad and includes the 9000 ha. of the Matura National Park Environmentally Sensitive Area (MNPESA), and the seasonally-prohibited coastal beaches of Rincon, Matura and Fishing Pond – approximately 39 ha. of beach habitat (Figure 4).

The Environmentally Sensitive Area (ESA) designation was gained under the Environmentally Sensitive Areas Rules, 2001 through Legal Notice No. 323 of 2004 (EMA, 2004).

The ESA designation allows for conservation of natural resources and protection from environmental degradation, habitat conversion and fragmentation (EMA 2004). Significant outcomes of the designation are the involvement of community organizations in the management of the park, and increased protection of threatened species such as the Trinidad Piping

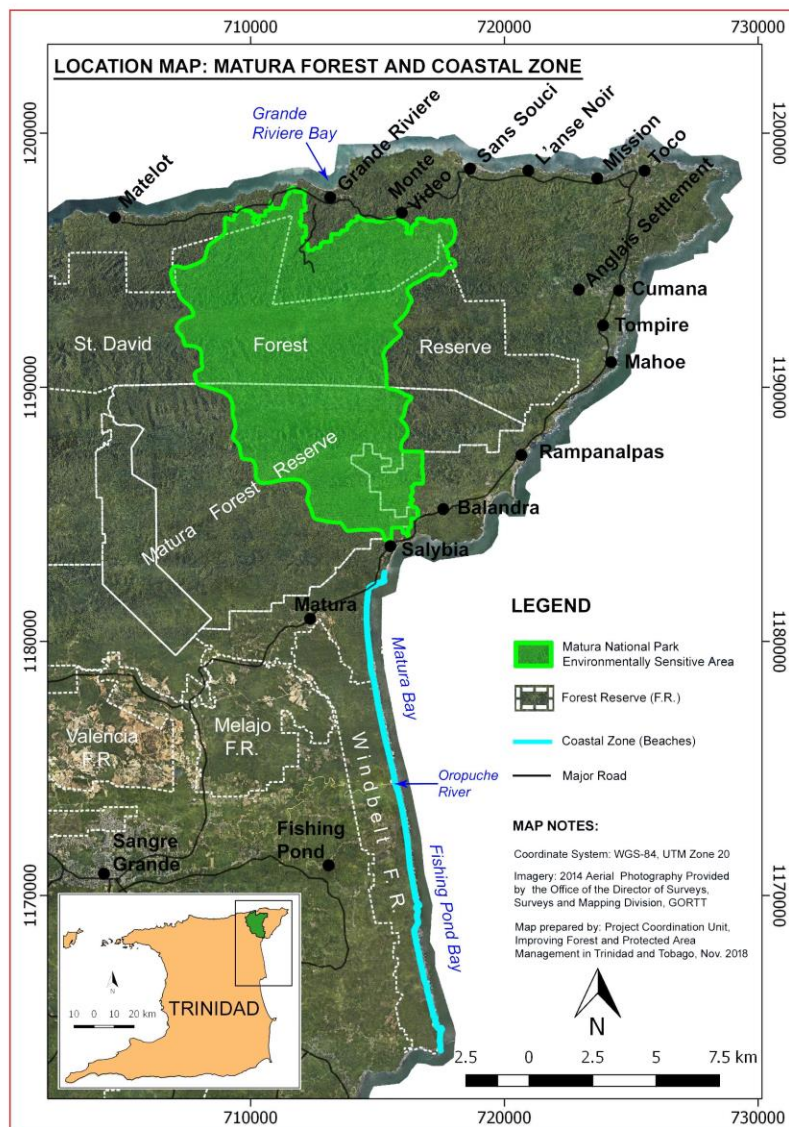


Figure 4. Map showing location of the Matura Forest and Coastal Zone PPA

Guan (*Pipile pipile*) (Hayes et al., 2009) and the Ocelot (*Leopardus pardalis*), whose declining population levels have made them locally endangered in Trinidad (EMA, 2005; EMA, 2013).

The PA consists primarily of State lands (parts of the Matura and St. David Forest Reserves) with about 10% privately owned or leased, especially in North-eastern and South-eastern areas (Salybia area). The private lands, most of which were formerly cocoa, coffee and tree crop estates have been abandoned for decades (Van den Eynden et al., 2007). About 5% of the National Park area is currently inhabited and/or farmed (Van den Eynden et al., 2007).

Forested areas are adjacent to the pilot PA on all sides except for the community of Salybia in the South-eastern corner. Adjacent fish landing sites are Salybia and Balandra to the South/South-east and Grande Riviere to the North. The pilot PA is entirely in the Sangre Grande Regional Corporation. The pilot PA also occupies part of the Ward of Matura.

There are fifteen surrounding coastal communities. These are Matura, Salybia, Balandra, Rampanalgas, Mahoe, Tompire, Cumana, Anglais Settlement, Toco, Mission, L'anse Noir, Sans Souci, Montevideo, Grande Riviere and Matelot. Approximately 7,542 persons live in these 15 communities and make heavy use of the PPA. Local livelihoods are at least, partially derived from this site through subsistence farming and agriculture (Van den Eynden et al., 2007). At least 500 hunters use the area for subsistence and commercial hunting, despite its designation as an ESA.

The beaches at Rincon, Matura and Fishing Pond have heavy seasonal use for ecotourism during the Leatherback turtle (*Dermochelys coriacea*) nesting season, having 15,000-16,000 visitors annually to the beaches for the purpose of turtle-watching. The beaches which are part of the "Coastal Zone" area of the PPA – Rincon, Orosco, Matura and Fishing Pond are listed as Prohibited Areas, and persons require a permit for turtle-watching during the months of March – September.

The forested area is biologically very diverse, with over 200 known tree species and nine endemic plant species from Trinidad. Of the nine endemic plants, two were assessed as endangered. They are *Ocotea trinidadensis* and *Clusia tocuchensis* (Van den Eynden et al., 2008; Baksh-Comeau et al., 2016). Apart from the previously mentioned Trinidad piping guan and ocelot, other animal species found here include the anteater (*Tamandua tetradactyla*), Neotropical river otter (*Lontra longicaudis*) and Red Howler Monkey (*Alouatta macconnellii*). There have been rare sightings of the Blue and Yellow macaw (*Ara ararauna*) and West Indian Manatee (*Trichechus manatus*).

Caroni Swamp PPA

The Caroni Swamp pilot protected area (PPA) is approximately 3,258 hectares and includes all the lands formerly designated as the Caroni Swamp Forest Reserve and encompasses the areas set aside as the Caroni Swamp wildlife sanctuary. The PPA is bounded westward by the Gulf of Paria, southerly by the Madame Espagnole River, eastward by the Main North-South Drain and northward by the Caroni River in part (Figure 5).

The Caroni Swamp’s hydrology was altered in the 1920’s to facilitate rice cultivation under the Cipriani Reclamation Scheme. This resulted in the formation of large tracts of freshwater marsh. From 1942 to 1957, freshwater marsh and agriculture lands increased, but after this period there was a steady decline in both, as freshwater was diverted away from the wetland and saltwater intruded further inland.

The entire PPA is owned by the state. To the north of the site are state and private land holdings with agricultural and residential/commercial land use in the Aranguez area. The Beetham landfill and the Beetham Wastewater Treatment Plant both fall within the PPA. To the south, land use is agricultural and residential, while to the west fishing activities predominate in the Gulf of Paria. There are several fish landing sites adjacent to the PPA at Carli Bay, Orange Valley, Brickfield and Sea Lots. Inland fish landing sites are located at Cacandee (Felicity) and on the Blue River just west of the Uriah Butler Highway.

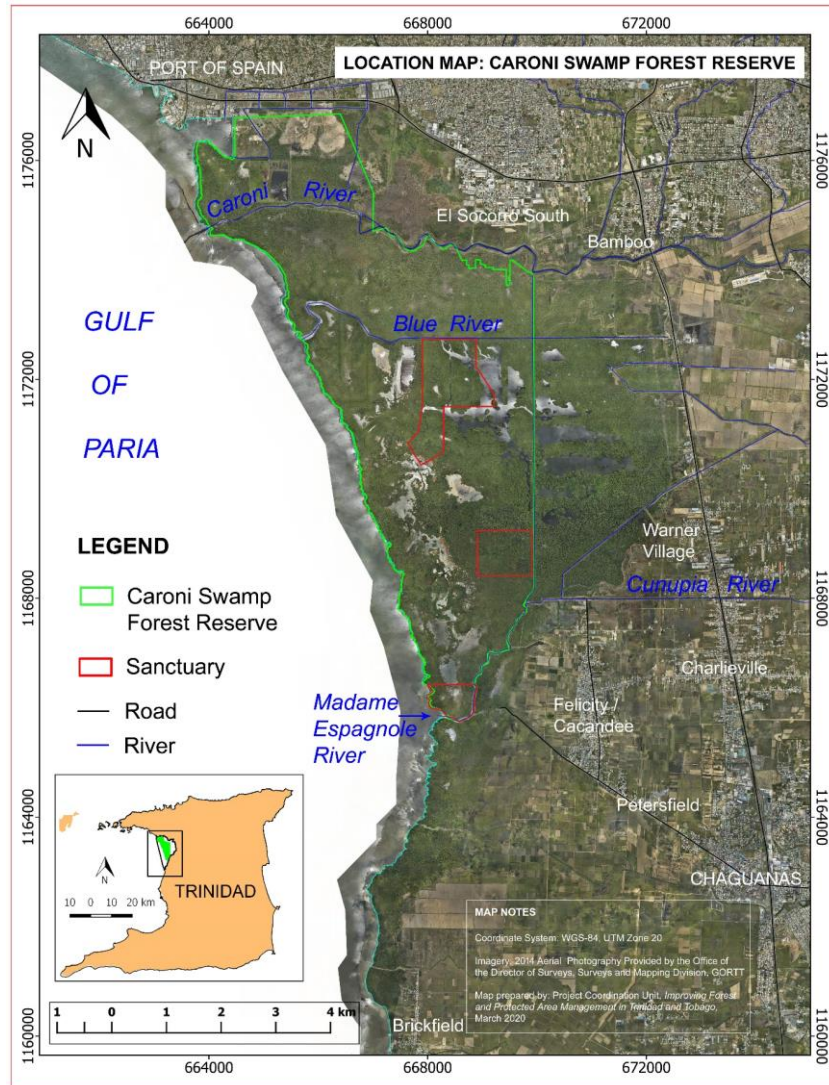


Figure 5. Map showing location of the Caroni Swamp PPA

In the 2011 Housing and Population Census, the estimated population for the Municipality of San Juan-Laventille was 155,606 accounting for 11.75% of the entire population of the country, with a population density of 651 persons per sq. km. Communities surrounding the pilot site include Sea Lots, Port of Spain, Aranguez, Felicita and Charlieville.

The PPA is in Caroni River Basin catchment area that encompasses the Caroni Swamp. The hydrometric area covers a total of about 883 sq. km, or approximately 22% of the land area of Trinidad (Juman et al, 2002) and contains a significant portion of the national population, non-petroleum manufacturing and agricultural activities. The site is used extensively for fishing, harvesting of crabs, oysters and conch. Fishing is a vital commercial activity in the adjacent marine areas as well as the inland waterways. Eco-tourism occurs in the form of boating tours and bird watching, whilst agriculture is a major activity in areas north, east and south of the Swamp.

The swamp is a diverse ecosystem consisting of mangroves, marshes, lagoons and mudflats that supports a rich diversity of flora and fauna. It is the largest mangrove wetland in the country accounting for 56% of this forest type (Juman and Ramsewak, 2012). The dominant mangrove species is the red mangrove (*Rhizophora mangle*). The PPA serves as a breeding/nursery habitat for fish (marine and freshwater species) and shrimp that sustain fisheries in the Gulf of Paria. Its hydrological value includes flood water interception, sediment trapping and shoreline stability (Alleng, 1997). The system also serves as a receiving and absorbing body for land-based run-off and pollutants.

The Caroni Swamp is a home for commercially important resource organisms such as the mangrove oyster, mussels, clams and conch and to 190 reported bird species including migratory species, the national bird, the Scarlet Ibis (*Eudocimus ruber*). It provides a habitat for 24 species of fin fish, including several commercially important species such as tarpon (*Megalops atlanticus*) and grey snapper (*Lutjanus griseus*). Other important fauna include, the silky anteater (*Cyclopes didactylus*), crab eating racoon (*Procyon cancrivorous*), oysters (*Crassostrea rhizophorae*), mangrove crab (*Aratus pisonii*), hairy crab (*Ucides cordatus*), caiman (*Caiman crocodylus*) and tree boa (*Corallus ruschenbergerii*).

Nariva Swamp and Coastal Zone PPA

The Nariva Swamp and Coastal Zone PPA is the Nariva Swamp Managed Resource Environmentally Sensitive Area (ESA) (Figure 6), which includes approximately 70 ha of beach to the low water mark along Cocos Bay. The ESA comprising a total of 11,343 ha was designated an Environmentally Sensitive Area under the Environmentally Sensitive Areas Rules, 2001 through Legal Notice No. 334 of 2006 (EMA, 2006). The site includes the Nariva Swamp Prohibited Area, Bush Bush Game (Wildlife) Sanctuary and part of the Nariva Windbelt Reserve.

There are four principal wetland vegetation types in Nariva Swamp – freshwater marsh, palm swamp, freshwater swamp woods and mangrove. The Nariva Swamp supports one of only two communities in Trinidad of the Moriche palm (*Mauritia spp*). The Palmiste Palm (*Roystonea oleracea*) exists here and is under severe threat because of the unsustainable harvesting of the meristems (palm hearts) primarily for local cuisine. The trees are also destroyed for poaching of nests of young parrots for the pet trade. The harvesting of Moriche palms has decreased due to increased awareness of the palms' importance – promoted under the EMA's National Restoration,

Carbon Sequestration, Wildlife and Livelihoods (NRCSWL) project. Moriche palms were replanted under the NRCSWL project with limited success as the palms seem to thrive more on the eastern portion of the area rather than the western portion of the swamp.

The Nariva Swamp contains over 594 animal species which includes; 179 bird species including 25 species of waterfowl, 45 species of mammals including the 32 species of bats, 3 species of porcupine and anteater and 92 species of mosquitoes.

Important birdlife includes some highly endangered birds such as the blue and yellow macaw (*Ara ararauna*) which is locally endangered and probable extinct, red-bellied macaw (*A. manilata*) and dickcissel (*Spiza americana*).

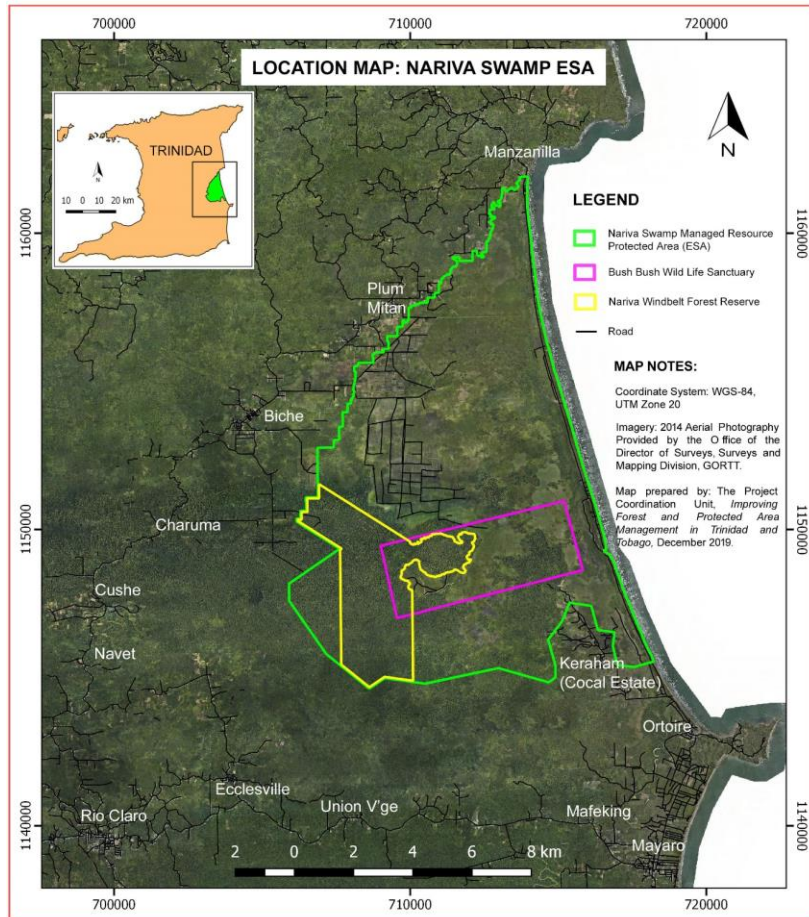


Figure 6. Map showing location of the Nariva Swamp and Coastal Zone PPA

Amongst the mammals are the Red Howler monkey (*Alouatta seniculus*), white fronted Capuchin (*Cebus albifrons*) and the Manatee (*Trichechus manatus*) which is globally threatened.

The area sustains a small ecotourism industry whilst other human activities are associated with the harvesting of wildlife, freshwater fish, crabs, oysters, molluscs and seasonal agriculture (e.g. watermelons, peppers, and tomatoes). Some species are harvested by local communities for subsistence and commercial purposes. In the case of the blue and yellow macaw (*Ara ararauna*), and several of the local finches, extraction for the pet trade has led to extirpation of the species at the site. The blue and yellow macaw (*Ara ararauna*), however benefited from an intensive reintroduction programme circa 2003 to restore this species.

Habitat destruction has affected more than one-third of this wetland, with significant removal of the natural vegetation and modification of the hydrology of the swamp by illegal rice farmers in the 1990s. The impact of these alterations remains a critical factor in the ecosystem's management today. Agricultural squatting remains a significant threat, with the boundaries of the existing PA being constantly threatened by illegal farming. Associated with illegal and legal farming at this site, is the threat of slash and burn agriculture, which is practiced by farmers and can potentially have significant consequences for the natural habitats.

Trinity Hills and Eastern Extension PPA

The Trinity Hills and Eastern Extension Pilot Protected Area (PPA) (Figure 7), encompassing an area of 11,525 hectares, is located in South-east Trinidad. The PPA comprises the Trinity Hills Game/Wildlife Sanctuary (8,200 ha) and a part of the adjacent Victoria-Mayaro Forest Reserve (3,325 ha), referred to as the Eastern Extension. Available records show that the pilot protected area is entirely state lands.

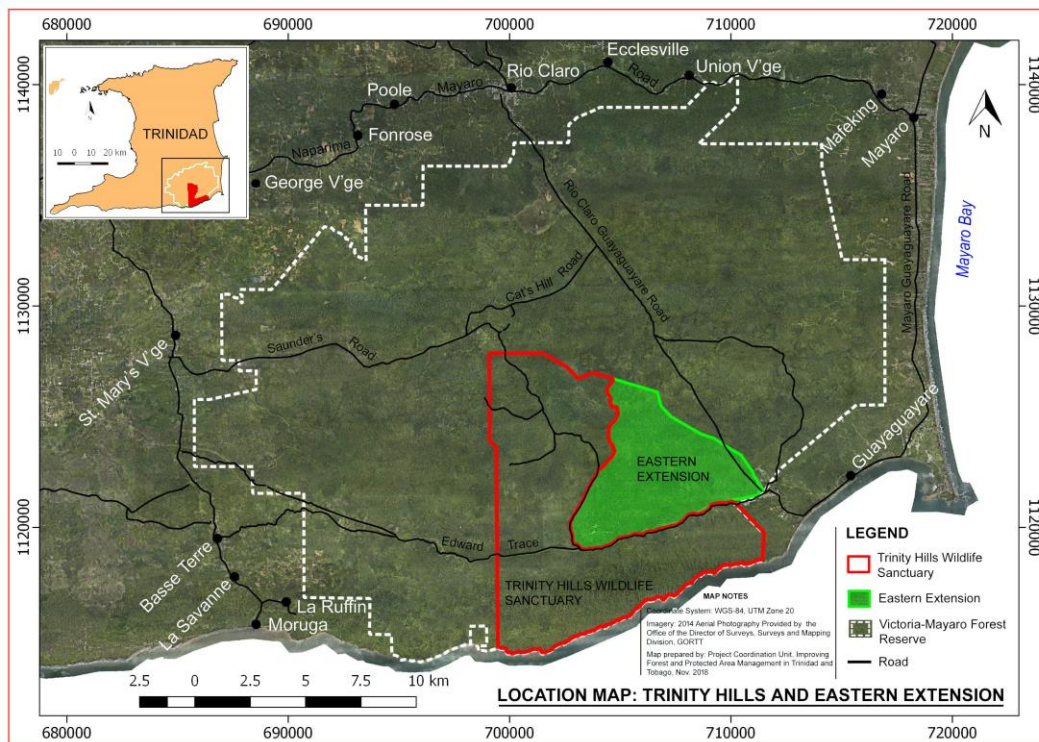


Figure 7. Map showing location of the Trinity Hills and Eastern Extension PPA

The pilot protected area is bounded by the sea (the Columbus Channel) to the south, the boundary of the Wildlife Sanctuary to the west (the Victoria-Mayaro county line) and a combination of gas-line right-of-way and Sanctuary boundary to the east.

Legal designations for the site include:

- Trinity Hills Forest Reserve 1922

- Trinity Hills Wildlife Sanctuary 1934
- Victoria-Mayaro Forest Reserve 1954
- Trinity Hills Game Sanctuary declared a Prohibited Area under the Forests Act (1989)
- In 1980, a part of Trinity Hills Sanctuary was included in the system of National Parks to be managed as a Scientific Reserve.

Landowners adjacent to the pilot protected area include the State and State agencies. The Beachfield facility, adjacent to the most eastern point of the pilot protected area is under the jurisdiction of the State-owned Heritage Petroleum Company Limited. The surrounding areas are forested state lands.

The site contains the last lowland virgin forest in southern Trinidad (Thelen and Faizool, 1980). It is the best undisturbed example of the three main forest fasciation – *Carapa-Mora*, *Carapa-Pentaclethra-Sabal*, and *Trichilia-Brosimum-Protium* (Beard, 1946). These forests occur on a highly undulating landscape, drained by the Pilote, Black Water, Lucy, Hilaire, Stone, La Table and Moruga rivers (Dardaine, 1972).

The site contains the complete mammalian fauna of the island, including ocelots (*Leopardus pardalis*), tamandua anteaters (*Tamandua tetradactyla*) both species of monkeys (*Alouatta seniculus* and *Cebus albifrons*), all five game mammals (*Dasyprocta leporina*, *Agouti paca*, *Dasyopus novemcinctus*, *Peccari tajacu* and *Mazama americana*) and Neotropical river otters (*Lontra longicaudis*) (Nelson, 1996). Over half of Trinidad's 67 bat species occur in the Victoria-Mayaro Forest Reserve (Clarke and Downie, 2001).

The area is cited as an 'Important Bird and Biodiversity Area' by Birdlife International¹ and is one of the historical ranges of the globally endangered Trinidad Piping guan or Pawi (*Pipile pipile*) and a potential site for its reintroduction. Thirty-one (31) bird species have been recorded, most of them are common forest species, except for two endangered species, the Mountain Quail-Dove and Pawi. There is an abundance of reptiles such as Morocoys, Galaps, Iguana and Matte, Bush master, Fer de Lance, Cascabel and Macajuel.

¹ BirdLife International is a nature conservation partnership working to conserve birds, their habitats and global biodiversity. Extracted from <http://www.birdlife.org/datazone/info/ibacritglob>

3.0 Process

This section describes the process used for execution of the KAP Surveys. It involved identification of a sample size of respondents for each site, development of the questionnaire with project stakeholders, training of enumerators and conduct of the survey in the field. Key approaches which emerged in the process and which represent the participatory nature of the project are highlighted in blue.

Selecting the target audience

The KAP surveys were aimed at targeting the communities in and around the six pilot protected area sites. The Trinidad and Tobago 2011 Population and Housing Census Demographic Report was the basis for the population estimation (CSO, 2012). Survey respondents from the communities were chosen randomly regardless of gender, education level or socio-economic status (Gumucio et al., 2011). Respondents for the survey were selected who were over the age of ten years.

Selecting the sample size

From the population of communities in and around each PPA, a 5% sample size of randomly selected persons was required for the KAP assessment, accurate to a 95% confidence level with a $\pm 5\%$ confidence interval. In Tobago, one KAP survey was conducted in communities which are common to both pilot sites - the Main Ridge Forest Reserve (MRFR) and the Proposed North East Tobago Marine Protected Area (NETMPA).

The KAP Questionnaire

Survey design is important for KAP surveys as it can help to gather useful information for decision-making by ensuring it meets project objectives and takes into account the social and psychological dynamics which affect the respondents' knowledge, attitude and practices. Questions were kept simple and focused, and questions deemed 'leading' were avoided (WHO, 2008).

The very first survey undertaken in April 2016 for the Matura Forest and Coastal Zone area was developed by project partner, the Environmental Management Agency. Given the participatory nature of the IFPAMTT project, this questionnaire was used as a 'zero draft' and presented to subsequent Project Subcommittees who advised on amendments to the draft that were suitable to their respective sites. For the 2019 surveys, the questionnaires used were, in general, standardized among sites.

The survey questionnaire covered four (4) basic areas: Demographic data, Knowledge assessment, Attitudes assessment and Practices assessment - See Appendix 1 for a sample of the questionnaire that was used for the 2019 survey.

Respondents' demographic data was obtained from questions regarding: Current area of residence; Gender; Age; and Employment.

The Knowledge assessment comprised of questions to determine the level of knowledge the respondent had about the PPA. The following areas were assessed:

- Awareness of the existence of the PPA and its boundaries
- Knowledge of the existence of endangered animals in the PPA
- General knowledge of the PPA
- Knowledge of threats to the PPA
- Knowledge of the managers of the PPA

The Attitude assessment of the survey comprised of questions which were used to determine the attitude of the respondent towards the PPA. The following areas were assessed:

- The importance of the PPA to the respondent and justification of the level of importance
- Improvements to the PPA
- Suggestions for better management of the PPA
- Whether the respondent was interested in being engaged in the management of the PA

The Practices Assessment comprised of questions which sought to identify the practices conducted by the respondent and other stakeholders within the PPA.

Additionally, from the second 2016-2017 survey (for Tobago PPAs), respondents were asked about the best means of communicating with them. This question was added to questionnaire for all subsequent surveys.

For the Nariva Swamp PPA survey (conducted in 2017), some questions were added to capture respondents' knowledge about the National Restoration, Carbon Sequestration, Wildlife and Livelihoods Project, which was being implemented at that location by the Environmental Management Authority (EMA). These questions were also included in the 2019 survey questionnaire used for the Nariva Swamp PPA.

Selection and Training of Enumerators

While the first KAP Survey (executed for the Matura Forest and Coastal Zone PPA in April 2016) was conducted by staff of the EMA, an effort was made in subsequent surveys to engage persons from areas surrounding the PPAs in the process. This was done in several ways, including:

- a. Engagement of staff of partner agencies (Tobago PPA survey of 2016 engaged on-the-job trainees and staff of the Department of Natural Resources and Environment);
- b. Engagement of persons from surrounding communities through nomination by Subcommittee members;
- c. Engagement of persons from communities through nomination by Government agencies.

After selection of 8-10 enumerators, the Project Coordination Unit prepared these persons to conduct the survey in a one-day training workshop.

The workshop introduced participants to the project and the PPAs, process of selection of sample sizes and how to effectively conduct the survey in the field. Role play was an important part of the training, to assist the enumerators in developing strategies to address safety issues and

dealing with different scenarios which may arise on surveys. Trainees who came from the local community aided in revision of questions to effectively communicate with people in the communities. The trainees therefore gained a variety of skills from this training workshop.

Execution of Surveys

The first two surveys conducted for Matura Forest and Coastal Zone PPA, and the Tobago PPAs were conducted in communities between the hours of 8 a.m. to 4 p.m. This time was adjusted for subsequent surveys to the hours of 1:00 p.m. to 6:00 p.m. since this increased the chance of meeting persons at their homes. There was a random selection of homes visited and some persons encountered on the street were also interviewed once they were willing to participate and were from the area.

In most instances a maximum number of 10-12 persons were interviewed by each enumerator per day. The date of the surveys and the number of surveys completed are shown in Table 2.

Table 2. Date of KAP surveys and number of surveys completed

Pilot Site	Number of Surveys Targeted	First KAP Survey		Second KAP Survey	
		Date of Survey	Number of Surveys Completed	Date of Survey	Number of Surveys Completed
Tobago PPAs	446	August 2016	420	11 - 20 November 2019	432
Matura Forest	380	04 - 08 April 2016	370	25 Nov. - 09 Dec. 2019	397
Caroni Swamp	1346	29 Nov. - 12 Dec. 2016	1349	25 Nov. - 10 Dec. 2019	1360
Nariva Swamp	910	10 - 25 April 2017	910	11 - 20 November 2019	961
Trinity Hills	1070	13 - 24 February 2017	1074	11 - 22 November 2019	1082

Data Compilation and Analysis

All questionnaires were returned to the Project Coordination Unit at the completion of the surveys. Data entry was undertaken, collecting responses in an Excel table. Graphical presentations of quantitative data were prepared, and qualitative data were collated into preassigned categories. Each set of survey results were presented to the members of the respective Subcommittees at a special meeting to which survey enumerators were invited.

After the first set of KAP surveys, a Communication Working Group was set up for each Subcommittee to review the survey results and identify key audiences for communication. Members of the Working Group were invited to share their experience of liaising with these audiences and to identify the best means of communication based on their past interactions. From these discussions of the Communication Working Group, site-specific communication strategies were designed.

4.0 Main Findings of the KAP Surveys

This section presents the summary of results of the two KAP surveys by PPA. The main findings are presented on respondents' demographics, knowledge, attitudes and practices. Detailed results are contained in the individual KAP reports, which can be found on the National Forest and Protected Areas website².

4.1 Main Ridge Forest Reserve and North-East Tobago Marine PPAs

The following fourteen (14) communities were surveyed: Mt. Dillon, Castara, Parrot Hill, Parlatuvier, L'Anse Fourmi, Cambleton, Charlotteville, Speyside, Delaford, Roxborough, Belle Garden, Glamorgan, Pembroke and Goodwood. Table 3 gives the demographic data of respondents, while Table 4 presents the responses to questions posed in the 2016 and 2019 surveys.

Table 3. Demographic data for respondents in Tobago PPAs KAP Surveys (2016, 2019)

Time of Survey	August 2016	November 2019
Number of completed questionnaires	420	432
Age of respondents (years)		
50+	34%	33%
41-50	16%	17%
31-40	18%	21%
18-30	20%	21%
Gender of respondents		
Male	55%	60%
Female	44%	38%

Table 4. Main findings of the Tobago PPAs KAP Surveys (2016, 2019)

Question	2016 Finding	2019 Finding
Have you heard of the Main Ridge Forest Reserve?	Yes = 87% (366 respondents)	Yes = 77% (334 respondents)
Have you heard of the proposed North East Tobago Marine Protected Area?	Yes = 57% (240 respondents)	Yes = 40% (174 respondents)
	<i>Note: Findings below based on 376 respondents</i>	<i>Note: Findings below based on 423 respondents</i>

² <https://www.protectedareastt.org.tt/index.php/resources/publications/knowledge-attitudes-and-practices-surveys>

Do you know any of the boundaries of the Protected Areas?	Yes = 23% No = 58%	Yes = 20% No = 51%
What do you know about the Main Ridge Forest Reserve? <i>Note: Respondents were allowed to give multiple responses</i>	Ecological Importance = 30% Economic Importance = 24% Historical Importance = 16% Nothing/No Response = 23%	Ecological Importance = 7% Historical Importance = 5% Economic Importance = 3% Nothing/No Response = 29%
What do you know about the proposed North East Tobago Marine Protected Area? <i>Note: Respondents were allowed to give multiple responses</i>	Economic Importance = 25% Ecological Importance = 7% Historical Importance = 1% Nothing/No Response = 25%	Ecological Importance = 3% Historical Importance = 1% Economic Importance = 2% Nothing/No Response = 71%
Do you know of any animals living in Main Ridge Forest Reserve that you are not allowed to hunt/remove? <i>Note: The 2016 question asked about endangered species.</i>	Yes = 41% No = 42% Uncertain = 12% <i>Species identified: Game species (66%), snakes (14%), hummingbird (3%)</i>	Yes = 54% No = 17% Uncertain = 5% <i>Species identified: Game species (43%), sabrewing hummingbird ()</i>
Do you know of any animals living in the proposed North East Tobago Marine Protected Area that you are not allowed to hunt/remove? <i>Note: Respondents were allowed to give multiple responses</i>	Yes = 33% No = 46% Uncertain = 9% <i>Species identified: sea turtles (65%) and fish (24%)</i>	Yes = 22% No = 14% Uncertain = 4% <i>Species identified: sea turtles</i>
Do you think the Main Ridge Forest Reserve is important? Scale: 0 (not at all) – 5 (very important)	3-5 = 81% 0-2 = 1% No response = 18%	3-5 = 76% 0-2 = 0% No response = 24%
Do you think the proposed North East Tobago Marine Protected Area is important? Scale: 0 (not at all) – 5 (very important)	3-5 = 55% 0-2 = 2% No response = 43%	3-5 = 40% 0-2 = 0% No response = 60%

Do you participate in any activities within the Main Ridge Forest Reserve?	Yes = 43% No = 43%	Yes = 16% No = 53%
Do you participate in any activities within proposed North East Tobago Marine Protected Area?	Yes = 40% No = 18%	Yes = 10% No = 26%
Do you think there are threats to the Main Ridge Forest Reserve?	Yes = 54% No = 35% Uncertain = 11% <i>(see Figure 8 for threats identified)</i>	Yes = 43% No = 23% Uncertain = 7% <i>(see Figure 9 for threats identified)</i>
Do you think there are threats to the proposed North East Tobago Marine Protected Area?	Yes = 37% No = 23% Uncertain = 5% <i>(see Figure 8 for threats identified)</i>	Yes = 22% No = 13% Uncertain = 3% <i>(see Figure 9 for threats identified)</i>
Would you like to be involved in the management of the Main Ridge Forest Reserve?	Not a question in 2016	Yes = 22% No = 46%
Would you like to be involved in the management of the proposed North East Tobago Marine Protected Area?	Not a question in 2016	Yes = 12% No = 27%
Who is responsible for managing the Main Ridge Forest Reserve?	Forestry (THA) = 23% Did not know = 6% No response = 14%	Forestry (THA) = 19% Did not know = 4% No response = 35%
Who is responsible for managing the proposed North East Tobago Marine Protected Area?	Fisheries (THA) = 11% Did not know = 4% No response = 42%	Fisheries (THA) = 8% Did not know = 5% No response = 68%
What suggestions do you have for better management of these area?	Employment = 10% Education = 4% No suggestion/response = 44%	More surveillance, monitoring, = 13% No suggestion/response = 57%
Note: Respondents were allowed to give multiple responses		

What is the best means of communicating information regarding these areas? <i>Note: Respondents were allowed to give multiple responses</i>	Newspaper = 12% Public consultations/meetings = 25% Radio = 16% Social media = 22% Television = 17%	Newspaper = 4% Public consultations/meetings = 10% Radio = 5% Social media = 31% Television = 0%
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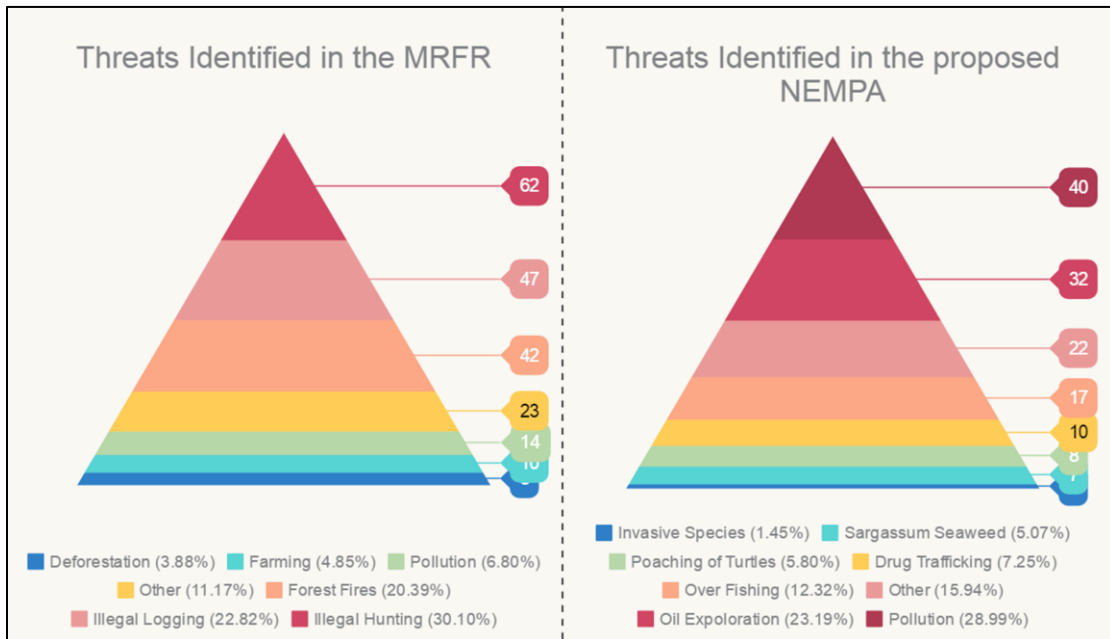


Figure 8. Threats identified in the MRFR and the NETMPA in 2016 KAP Survey

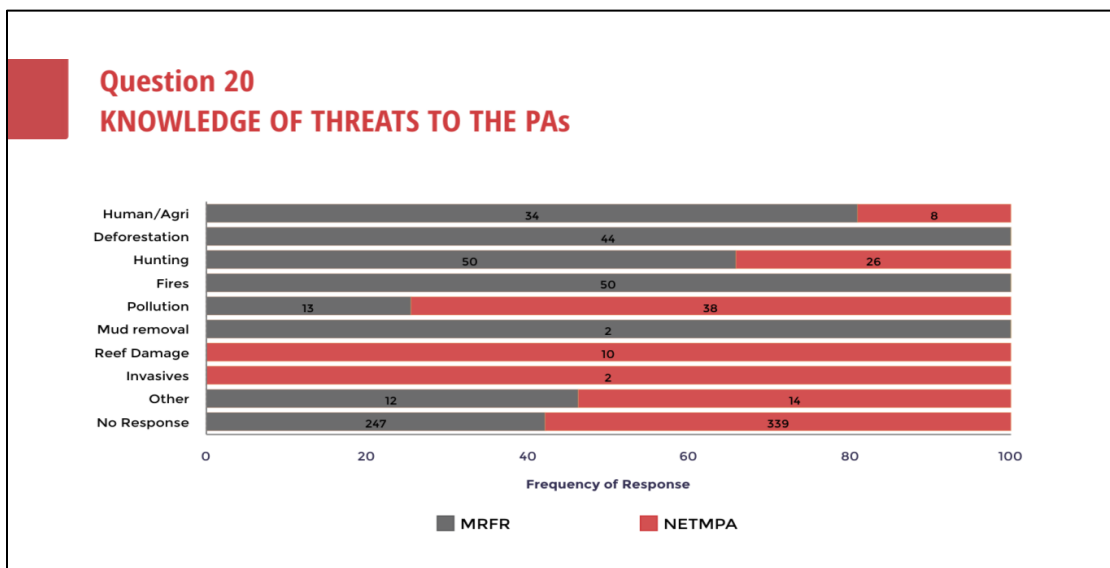


Figure 9. Threats identified in the MRFR and the NETMPA in 2019 KAP Survey

4.2 Matura Forest and Coastal Zone PPA

The KAP surveys focused on the Matura National Park (MNP) and were conducted in the fifteen (15) surrounding communities: Matura, Salybia, Balandra, Rampanalgas, Mahoe, Tompire, Cumana, Anglais Settlement, Toco, Mission, L'anse Noir, Sans Souci, Montevideo, Grande Riviere and , Matelot. Table 5 gives the demographic data of respondents, while Table 6 presents the responses to questions posed in the 2016 and 2019 surveys.

Table 5. Demographic data for respondents in MFCZ PPA KAP Surveys (2016, 2019)

Time of Survey	April 2016	November – December 2019
Number of completed questionnaires	368	397
Age of respondents (years)		
50+	25%	37%
41-50	15%	17%
31-40	20%	21%
18-30	24%	20%
Gender of respondents		
Male	60%	57%
Female	40%	43%

Table 6. Main findings of the MFCZ PPA KAP Surveys (2016, 2019)

Question	2016 Finding	2019 Finding
Have you heard of the Matura National Park?	Yes = 42% (156 respondents) No = 58%	Yes = 47% (186 respondents) No = 53%
	<i>Note: Findings below based on 156 respondents</i>	<i>Note: Findings below based on 186 respondents</i>
Do you know any of the boundaries of the Matura National Park?	Yes = 14% No = 76% Uncertain = 9%	Yes = 21% No = 68% Uncertain = 9%
What do you know about the Matura National Park? <i>Note: Respondents were allowed to give multiple responses</i>	Forested/protected/conservation = 31% Tourism = 10% Not much/No Response = 63%	Ecological/conservation importance = 47% Recreation/ecotourism = 12% Nothing/No Response = 32%
Do you know of any animals living in the Matura National Park that you are not allowed to hunt/remove?	Yes = 39% No = 46% Uncertain = 11% <i>Species identified: pawi (13%), ocelot (8%), monkey, Game species (8%)</i>	Yes = 69% No = 18% Uncertain = 7% <i>Species identified: Game species (36%), pawi (58%), ocelot (26%), monkey (9%)</i>

Note: 2016 question asked about endangered species.		
Do you think the Matura National Park is important? Scale: 0 (not at all) – 5 (very important)	3-5 = 85% 0-2 = 5% No response = 10%	3-5 = 91% 0-2 = 2% No response = 7%
Do you use or participate in any activities within the Matura National Park and surrounding areas?	Not a question in 2016	Yes = 33% No = 61%
Do you know that the Matura National Park is an Environmentally Sensitive Area (ESA)?	Not a question in 2016	Yes = 61% No = 25% Do not know what that means = 5%
Do you think there are threats to the Matura National Park?	Yes = 39% No = 35% Uncertain = ---% <i>(see Figure 10 for threats identified)</i>	Yes = 64% No = 19% Uncertain = 5% <i>(see Figure 11 for threats identified)</i>
Would you like to be involved in the management of the Matura National Park?	Not a question in 2016	Yes = 46% No = 46%
Who is responsible for managing the Park?	Did not know = 43% Forestry Division = 2% Government = 7% EMA = 6% NGO = 10%	Did not know = 35% Forestry Division = 25% Government = 8% EMA = 3% NGO = 2%
What suggestions do you have for better management of this area?	No suggestion/response = 50% Education = 9% Employment = 9%	No suggestion/response = 58% More surveillance and monitoring = 26%
What is the best means of communicating information regarding these areas?	Not a question in 2016	Social media = 26 % Public meetings = 20% Television = 19% Radio = 15%

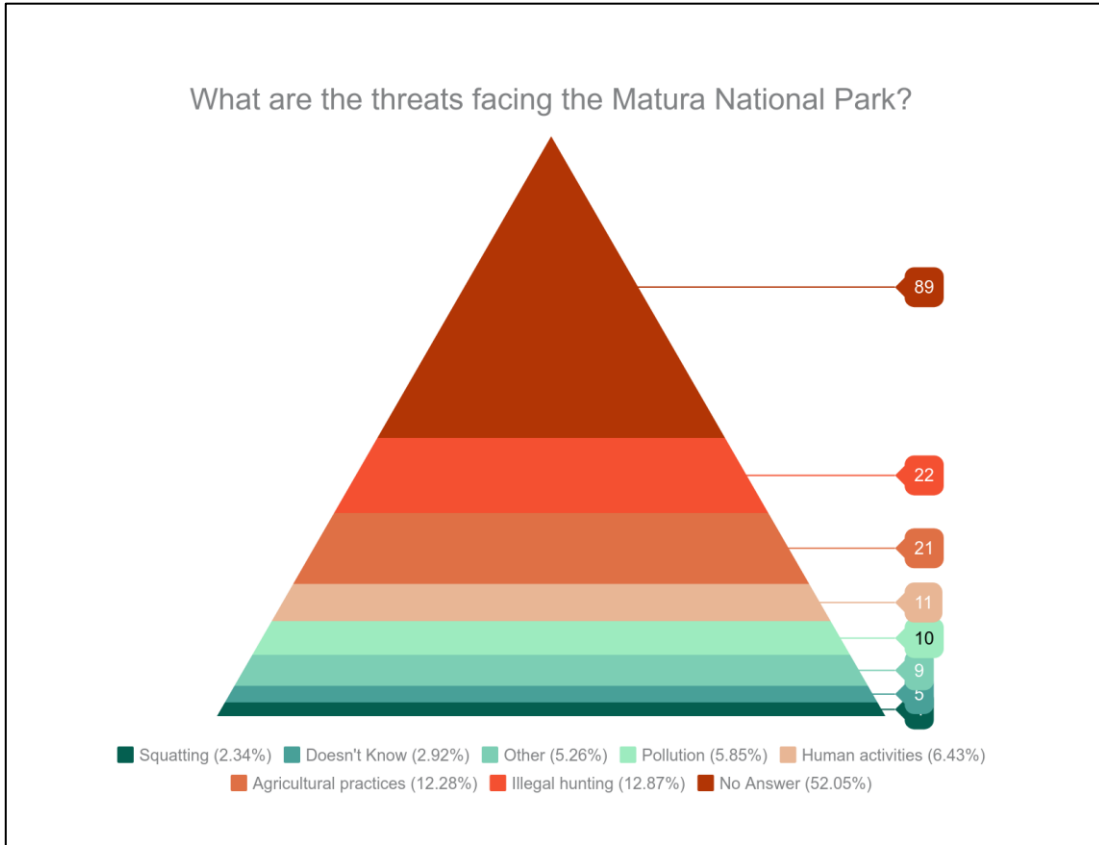


Figure 10. Threats identified in the MNP in 2016 KAP Survey

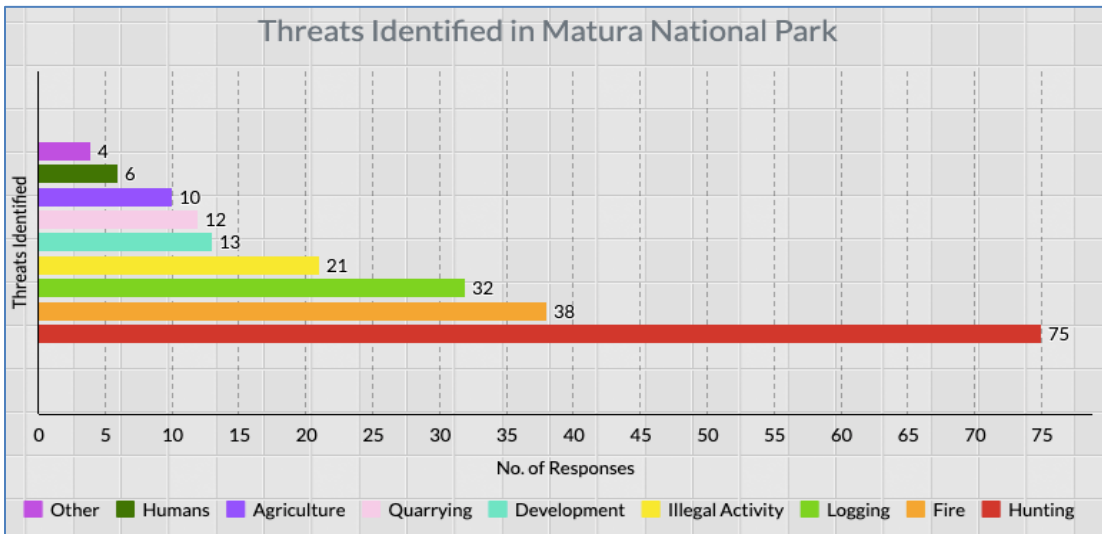


Figure 11. Threats identified in the MNP in 2019 KAP Survey

4.3 Caroni Swamp PPA

The KAP surveys were conducted in the following communities: El Socorro South, Bamboo, Warner Village, Charlieville (including Pierre Road), Felicity/Cacandee, Petersfield and Brickfield. Table 7 gives the demographic data of respondents, while Table 8 presents the responses to questions posed in the 2016 and 2019 surveys.

Table 7. Demographic data for respondents in Caroni Swamp PPA KAP Surveys (2016, 2019)

Time of Survey	November – December 2016	November – December 2019
Number of completed questionnaires	1349	1360
Age of respondents (years)		
50+	32%	32%
41-50	17%	21%
31-40	20%	21%
18-30	21%	16%
Gender of respondents		
Male	66%	63%
Female	33%	36%

Table 8. Main findings of the Caroni Swamp KAP Surveys (2016, 2019)

Question	2017 Finding	2019 Finding
Have you heard of the Caroni Swamp?	Yes = 98% (1318) respondents No = 2%	Yes = 96% (1311) respondents No = 4%
	<i>Note: Findings below based on 1318 respondents</i>	<i>Note: Findings below based on 1311 respondents</i>
Do you know any of the Protected Area boundaries?	Yes = 29% No = 59% Uncertain = 9%	Yes = 31% No = 56% Uncertain = 13%
What do you know about the Caroni Swamp? <i>Note: Respondents were allowed to give multiple responses</i>	Ecological Importance = 89% Economic Importance = 44% Protected/Restricted = 13% Nothing/No Response = 10%	Ecological Importance = 74% Recreational Activities = 19% Restricted Area = 13% Economic Activities = 11% Nothing/No Response = 3%
Do you know of any animals living in the Caroni Swamp that you are not allowed to hunt/remove? <i>Note: 2016 question asked about endangered species.</i>	Yes = 65% No = 31% Uncertain = 3% <i>Species identified: Scarlet ibis (33%), caiman (14%), snakes (10%)</i>	Yes = 89% No = 7% Uncertain = 2% <i>Species identified: Scarlet ibis (81%), manatee (1%), Game species (1%)</i>

Do you think the Caroni Swamp is important? Scale: 0 (not at all) – 5 (very important)	3-5 = 95% 0-2 = 3% No response = 2%	3-5 = 96% 0-2 = 2% No response = 2%
Do you use or participate in any activities within the Caroni Swamp?	Yes = 33% No = 35%	Yes = 50% No = 47%
Do you think there are threats to the Caroni Swamp?	Yes = 63% No = 37% Uncertain = ---% <i>(see Figure 12 for threats identified)</i>	Yes = 74% No = 16% Uncertain = 5% <i>(see Figure 13 for threats identified)</i>
Would you like to be involved in the management of the Caroni Swamp?	Not captured in 2016	Yes = 42% No = 51% Uncertain/no response = 7%
Who is responsible for managing the Caroni Swamp?	Government = 52% Forestry Division = 17% Did not know = 16% Everyone/community = 7%	Did not know/unsure = 23% Government = 20% Min. of Agriculture = 17% Forestry Division = 12%
What suggestions do you have for better management of this area? <i>Note: Respondents were allowed to give multiple responses</i>	More surveillance and monitoring = 26% Infrastructure & development = 14% On the Ground Mgt. = 11%	More surveillance and monitoring = 34% Maintenance = 23% Infrastructure & development = 7% No suggestion/response = 14%
What is the best means of communicating information regarding these areas? <i>Note: Respondents were allowed to give multiple responses</i>	Social media = 35% Newspaper = 30% Television = 42% Radio = 20% Public consultations/meetings = 28%	Social media = 27% Newspaper = 16% Television = 25% Radio = 17% Public consultations/meetings = 11%

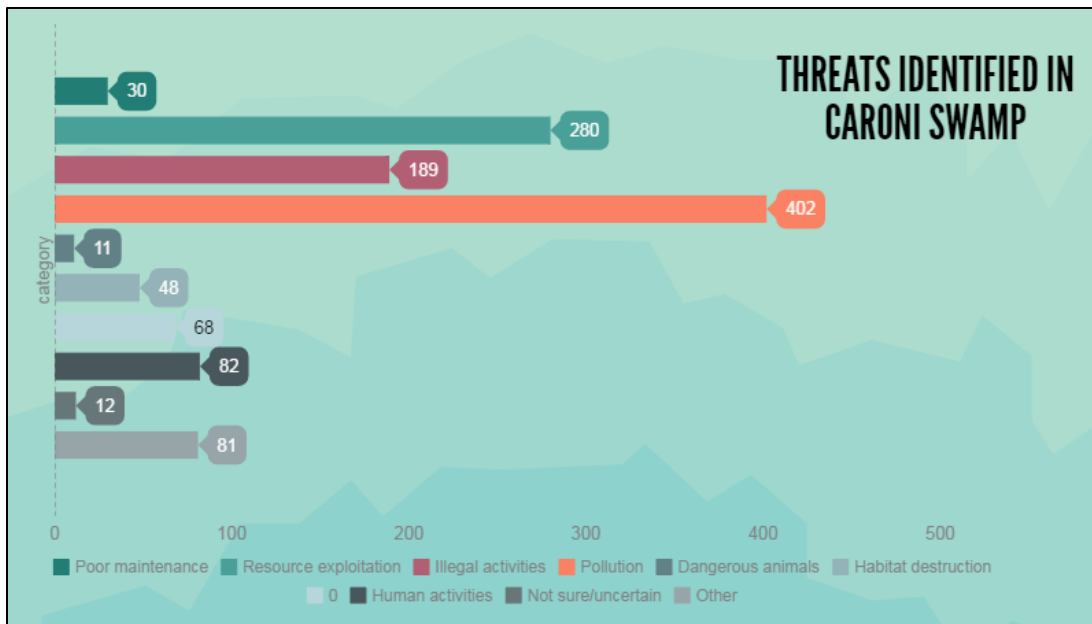


Figure 12. Threats identified in the Caroni Swamp in 2016 KAP Survey

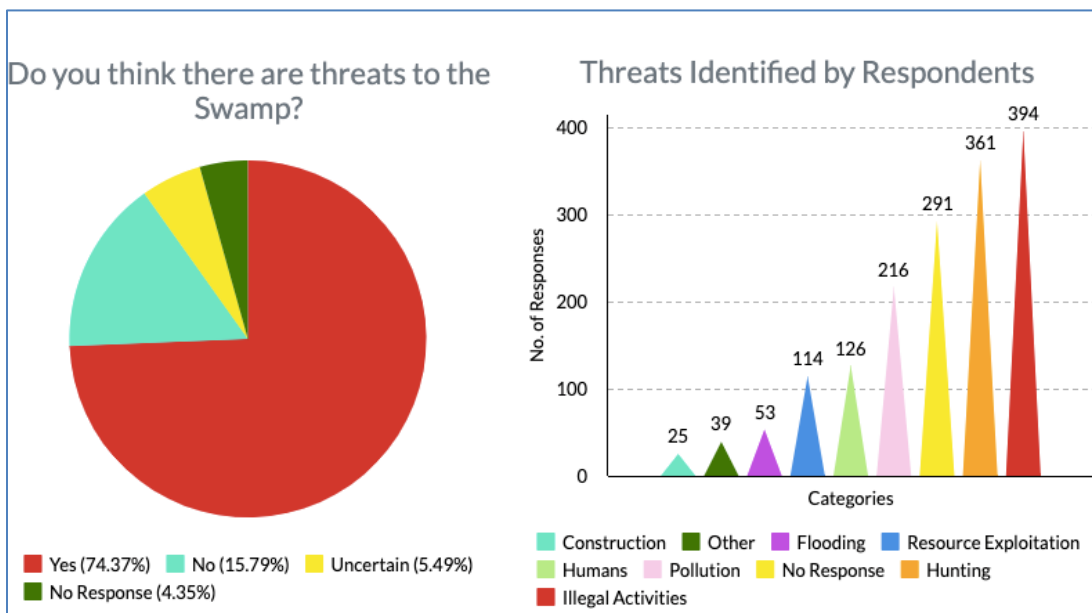


Figure 13. Threats identified in the Caroni Swamp in 2019 KAP Survey

4.4 Nariva Swamp and Coastal Zone PPA

The KAP surveys were conducted in the following twelve (12) communities surrounding the pilot site: Manzanilla, Plum Mitan, Biche, Charuma, Cucho, Navet, Ecclesville, Union Village, Mafeking, Mayaro, Ortoire and Kernaham. Table 9 gives the demographic data of respondents, while Table 10 presents the responses to questions posed in the 2016 and 2019 surveys.

Table 9. Demographic data for respondents in NSCZ PPA KAP Surveys (2017, 2019)

Time of Survey	April 2017	November 2019
Number of completed questionnaires	910	961
Age of respondents (years)		
50+	33%	38%
41-50	17%	20%
31-40	18%	19%
18-30	19%	16%
Gender of respondents		
Male	56%	57%
Female	43%	42%

Table 10. Main findings of the NSCZ PPA KAP Surveys (2017, 2019)

Question	2017 Finding	2019 Finding
Have you heard of the Nariva Swamp Environmentally Sensitive Area (ESA)?	Yes = 81% (740) respondents No = 18%	Yes = 86% (827) respondents No = 14%
	<i>Note: Findings below based on 740 respondents</i>	<i>Note: Findings below based on 827 respondents</i>
Have you heard of the Bush Bush Wildlife Sanctuary?	Yes = 60%	Yes = 70% No = 25% Uncertain = 3%
Have you heard of the Nariva Windbelt Forest Reserve?	Yes = 36%	Yes = 43% No = 47% Uncertain = 7%
Do you know any of the Protected Area boundaries?	Yes = 35% No = 48% Uncertain = 14%	Yes = 30% No = 56% Uncertain = 12%
What do you know about the Nariva Swamp ESA?	Ecological Importance = 79% Economic Importance = 31% Nothing/No Response = 11%	Ecological Importance = 54% Economic Activities = 34% Nothing/No Response = 10%
<i>Note: Respondents were allowed to give multiple responses</i>		
Do you know of any animals living in the Nariva Swamp	Yes = 77% No = 18% Uncertain = 5%	Yes = 82% No = 15% No response = 3%

<p>ESA that you are not allowed to hunt/remove?</p> <p><i>Note: 2016 question asked about endangered species.</i></p>	<p><i>Species identified: Manatee (26%), Game species (13%), monkey (10%), caiman (6%), birds, snakes (20%), ocelot (1%)</i></p>	<p><i>Species identified: Manatee (38%), Game species (47%), ESS (17%), monkey (18%), birds (16%), snakes (13%), ocelot (1%)</i></p>
<p>Do you think the Nariva Swamp ESA is important? Scale: 0 (not at all) – 5 (very important)</p>	<p>3-5 = 97% 0-2 = 3% No response = 0%</p>	<p>3-5 = 97% 0-2 = 2% No response = 1%</p>
<p>Do you participate in any activities within the Nariva Swamp ESA?</p>	<p>Yes = 35% No = 62%</p>	<p>Yes = 29% No = 69%</p>
<p>Do you think there are threats to the Nariva Swamp ESA?</p>	<p>Yes = 70% No = 21% Uncertain = 7%</p> <p><i>(see Figure 14 for threats identified)</i></p>	<p>Yes = 71% No = 22% Uncertain = 5%</p> <p><i>(see Figure 15 for threats identified)</i></p>
<p>Would you like to be involved in the management of the Nariva Swamp ESA?</p>	<p>Not captured in 2017</p>	<p>Yes = 36% No = 58% Uncertain/no response = 6%</p>
<p>Who is responsible for managing the Nariva Swamp ESA?</p>	<p>Forestry Division = 11% Government = 24% Everyone/community = 13% Did not know = 17%</p>	<p>Forestry Division = 16% Government = 24% EMA = 13% Did not know/unsure = 7%</p>
<p>What suggestions do you have for better management of this area?</p> <p><i>Note: Respondents were allowed to give multiple responses</i></p>	<p>More surveillance and monitoring = 33% Infrastructure & development = 10% On the Ground Mgt. = 12% No suggestion/response = 18%</p>	<p>More surveillance and monitoring = 38% Infrastructure & development = 10% No suggestion/response = 25%</p>
<p>What is the best means of communicating information regarding these areas?</p> <p><i>Note: Respondents were allowed to give multiple responses</i></p>	<p>Television = 25% Public consultations/meetings = 23% Social media = 20% Newspaper = 18% Radio = 10%</p>	<p>Newspaper = 29% Social media = 27% Radio = 26% Public consultations/meetings = 22% Television = 20%</p>
<p>Are you aware of the EMA's National Restoration, Carbon Sequestration, Wildlife and Livelihoods Project?</p>	<p>Yes = 31% No = 55% Uncertain/no response = 14%</p>	<p>Yes = 32% No = 57% Uncertain/no response = 10%</p>

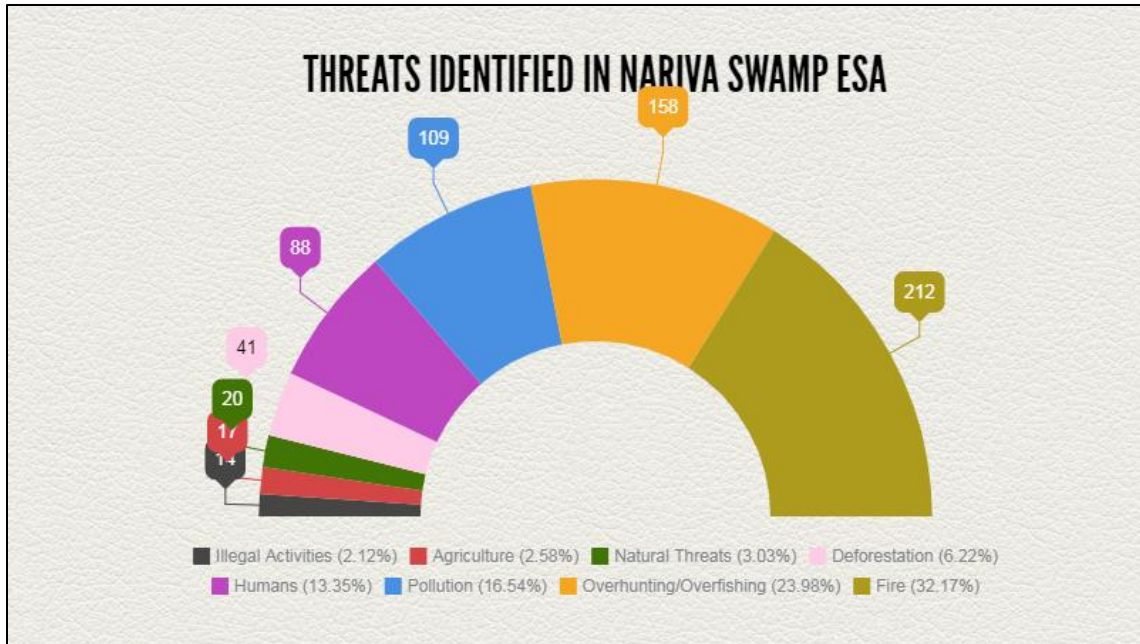


Figure 14. Threats identified in the Nariva Swamp in 2017 KAP Survey

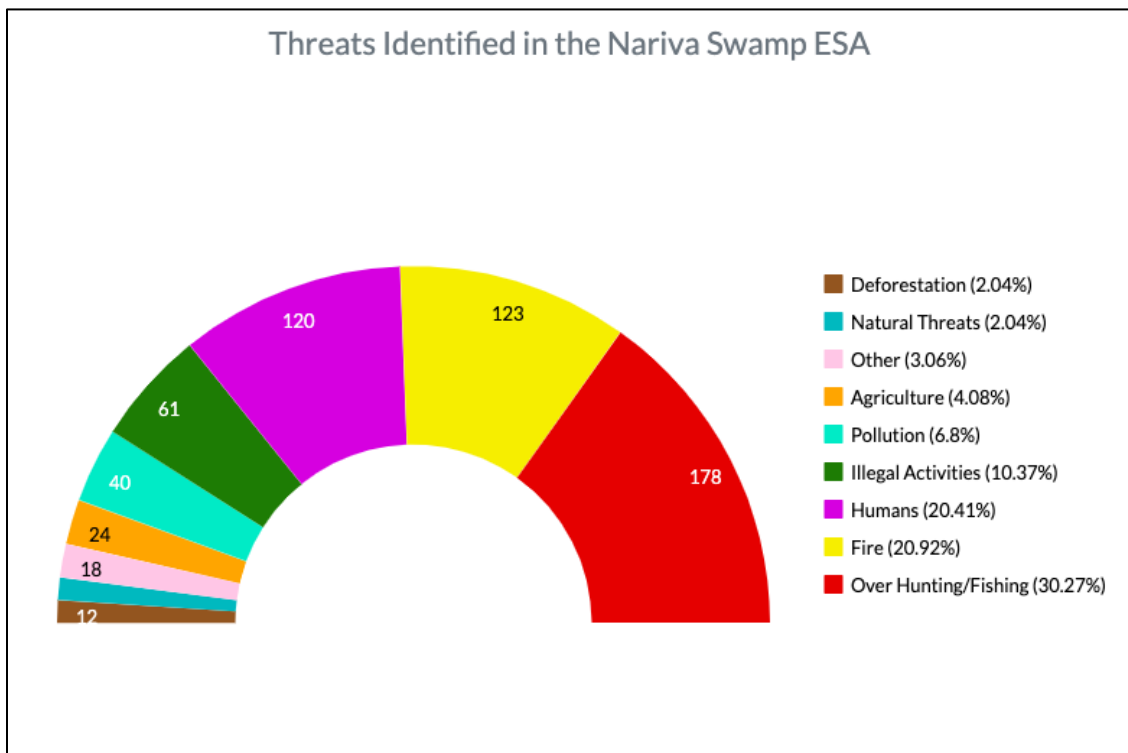


Figure 15. Threats identified in the Nariva Swamp in 2019 KAP Survey

4.5 Trinity Hills and Eastern Extension PPA

The KAP surveys focused on the Trinity Hills Wild Life / Game Sanctuary and were conducted in the following twelve (12) communities surrounding the site: Moruga, La Ruffin, Bon Jean, La Savanne, Basse Terre, St. Mary's Village, Fonrose, Poole, Rio Claro, Mora Settlement, Abysinya, Rio Claro, Deep Ravine and Guayaguayare. Table 11 gives the demographic data of respondents, while Table 12 presents the responses to questions posed in the 2016 and 2019 surveys.

Table 11. Demographic data for respondents in THEE PPA KAP Surveys (2017, 2019)

Time of Survey	February 2017	November 2019
Number of completed questionnaires	1074	1082
Age of respondents (years)		
50+	31%	23%
41-50	19%	15%
31-40	19%	22%
18-30	22%	21%
Gender of respondents		
Male	58%	54%
Female	40%	44%

Table 12. Main findings of the THEE PPA KAP Surveys (2017, 2019)

Question	2017 Finding	2019 Finding
Have you heard of the Trinity Hills Wildlife Sanctuary?	Yes = 45% (479 respondents) No = 53%	Yes = 42% (451 respondents) No = 58%
	<i>Note: Findings below based on 479 respondents</i>	<i>Note: Findings below based on 451 respondents</i>
Do you know any of the boundaries of the Trinity Hills Wildlife Sanctuary?	Yes = 23% No = 64% Uncertain = 13%	Yes = 20% No = 62% Uncertain = 18%
What do you know about the Trinity Hills Wildlife Sanctuary?	Ecological Importance = 32% Historic Importance = 22% Economic Importance = 7% Nothing = 26%	Ecological Importance = 30% Historical Importance = 18% Economic Importance = 10% Nothing/No Response = 28%
Do you know of any animals living in the Trinity Hills Wildlife Sanctuary that you are not allowed to hunt/remove?	Yes = 37% No = 50% Uncertain = 13%	Yes = 65% No = 17% Uncertain = 7%
<i>Note: 2017 question asked about endangered species.</i>	<i>Species identified: Game species (43%), monkey (14%), Ocelot (10%)</i>	<i>Species identified: Game species (96%), Pawi/ocelot/Scarlet ibis (4%)</i>

Do you think the Trinity Hills Wildlife Sanctuary is important? Scale: 0 (not at all) – 5 (very important)	3-5 = 92% 0-2 = 8%	3-5 = 85% 0-2 = 4% No response = 11%
Do you use or participate in any activities within the Trinity Hills Wildlife Sanctuary and surrounding areas?	Yes = 27% No = 71%	Yes = 7% No = 86%
Do you think there are threats to the Trinity Hills Wildlife Sanctuary?	Yes = 46% No = 3% Uncertain = ---% <i>(see Figure 16 for threats identified)</i>	Yes = 49% No = 27% Uncertain = 13% <i>(see Figure 17 for threats identified)</i>
Would you like to be involved in the management of the Trinity Hills Wildlife Sanctuary?	Yes = 37% No = 60% Uncertain = ---%	Yes = 26% No = 64% Uncertain = 9%
Who is responsible for managing the Trinity Hills Wildlife Sanctuary?	Did not know = 30% Government = 25% Forestry Division = 21% Oil & Gas companies = 3%	Forestry Division = 28% Government = 13% Did not know = 7%
What suggestions do you have for better management of this area? <i>Note: Respondents were allowed to give multiple responses</i>	More surveillance and monitoring = 16% Infrastructure & development = 22% On the Ground Mgt. = 13%	More surveillance and monitoring = 28% Infrastructure & development = 24% No suggestion/response = 26%
What is the best means of communicating information regarding these areas? <i>Note: Respondents were allowed to give multiple responses</i>	Social media = 27% Newspaper = 21% Television = 23% Radio = 11% Public consultations/meetings = 14%	Social media = 32% Newspaper = 18% Television = 17% Radio = 14% Public consultations/meetings = 14%

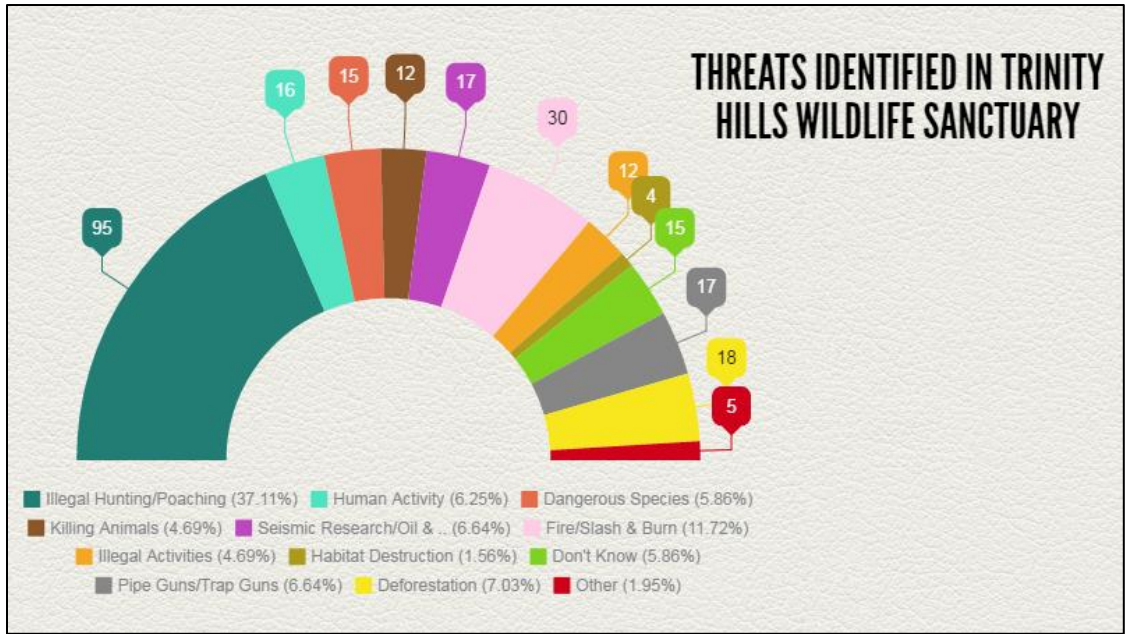


Figure 16. Threats identified in the Trinity Hills Wildlife Sanctuary in 2017 KAP Survey

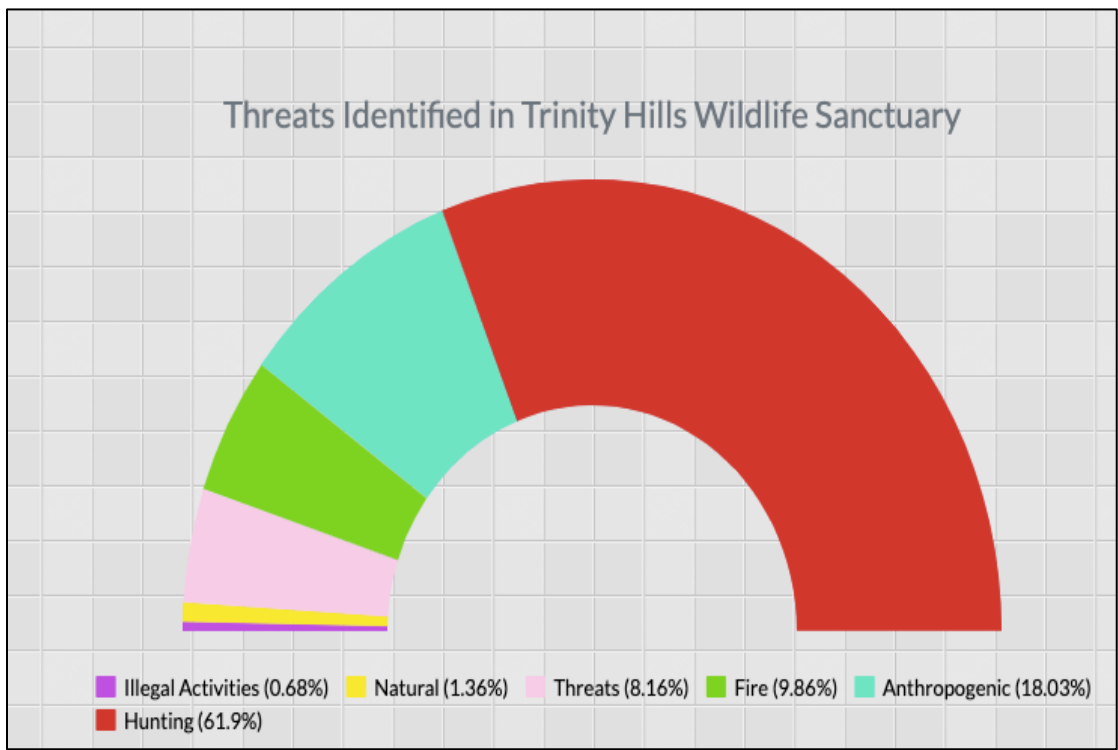


Figure 17. Threats identified in the Trinity Hills Wildlife Sanctuary in 2019 KAP Survey

5.0 Discussion

In this section, the results presented will be discussed to note i) key shifts seen between the surveys; ii) communication actions undertaken between surveys and iii) areas for which continued or additional communication action is recommended.

5.1 Knowledge Gaps

Knowledge of the Protected Area and its Boundaries

People's knowledge of the six pilot protected areas varied by site. Comparing data by site and by survey, the Caroni Swamp was by far the most well-known of the protected areas, with over 95% of persons surveyed indicating knowledge of the site in both the 2016 and 2019 surveys.

Peoples' awareness of the Nariva Swamp and the Main Ridge Forest Reserve was also high in 2016, however while awareness rose for Nariva Swamp in 2019, it declined for the Main Ridge Forest Reserve among survey respondents. The results for the Matura Forest and Coastal Zone and the Trinity Hills and Eastern Extension lagged much further behind, with less than 50% of respondents being aware of these protected areas in both 2016 and 2019, with improvement for Matura Forest and Coastal Zone in 2019 and a small reduction for Trinity Hills and Eastern Extension. Though the NE Tobago Marine Area is not by law a protected area, people's awareness of the site stood around the mid-range (57%) in 2016 and was lower (40%) in 2019.

Awareness of the boundaries of protected areas was consistently low among sites and for each survey year; generally, less than a quarter of respondents indicated knowledge of boundaries. Only for the Matura Forest and Coastal Zone area was an increase in this knowledge seen between surveys.

Knowledge of Assets of the PA

Respondents identified ecological value of five of these sites as their main perspective, though this was greatest for the swamp areas – Caroni Swamp and Nariva Swamp. The main value associated with the North East Tobago marine area, was an economic one.

At each site, respondents showed increased knowledge of species of animals that should not be hunted/removed for example at Matura Forest and Coastal Zone people named the Pawi (13% in 2016 and 58% in 2019), while at Caroni Swamp, people named the Scarlet Ibis (33% in 2016 and 81% in 2019). For the Trinity Hills Wildlife Sanctuary, awareness that there should be no hunting of game species also rose (43% in 2017, 96% in 2019).

Knowledge of Managers of the PA

For most of the sites, knowledge of specific managers by respondents was lacking. In the 2016-2017 surveys, management of the Caroni Swamp was best known with over 50% of respondents citing "Government" or "Forestry Division", but for other sites these combined managers were known to less than 50% of respondents.

By the 2019 surveys, there were notable increases in knowledge of managers at the Matura Forest and Coastal Zone PPA and Nariva Swamp, specifically increased knowledge of the Forestry Division

as the manager. More persons from communities surrounding the Trinity Hills Wildlife Sanctuary also cited the Forestry Division as manager in the 2019 survey than in the 2017 survey.

Knowledge of Threats to the PA

People's perception of threats to protected areas varied among site, with threats most seen in the Caroni Swamp and Nariva Swamp and least at the NE Tobago marine area in both years in which the surveys were conducted. Interestingly, the perception of threats increased between the 2016 and 2019 surveys at all sites located in Trinidad but decreased at the sites located in Tobago.

The type of threat that was seen as most important remained the same between the 2016 and 2019 surveys for the North-East Tobago Marine Area – pollution, for the Trinity Hills Wildlife Sanctuary – illegal hunting, and for Matura Forest and Coastal Zone – illegal hunting. The main threat type changed from the 2016/2017 to the 2019 surveys for the remaining sites: in Nariva Swamp from Fire to Overhunting; in Main Ridge Forest Reserve from Illegal Hunting to Fires; in Caroni Swamp from Pollution to Illegal Activities.

5.2 Attitudes

Importance of Protected Areas

At all sites, respondents agreed that protected areas are important. While this importance was constant or increased between surveys for the Matura Forest and Coastal Zone, Nariva Swamp and Coastal Zone and Caroni Swamp, the percentage of respondents who agreed that the sites were important decreased between the 2016-17 and 2019 surveys for the three other sites.

Suggestions for better management of the PPA

The majority of respondents in both the 2016-2017 and 2019 surveys for the Main Ridge Forest Reserve, NE Tobago Marine Area and Matura Forest and Coastal Zone did not think that there were any improvements in management needed. Respondents to both KAP Surveys for the Caroni Swamp and Nariva Swamp identified monitoring and surveillance as the main improvement needed for management, with increased number of respondents identifying this in the 2019 survey. In the 2016-2017 survey for the Trinity Hills and Eastern Extension, respondents' top suggestion for better management of the PPA was infrastructure and development, however in the 2019 survey, the top suggestion was monitoring and surveillance.

Respondent interest in being engaged in the management of the PA

Less than 50% of respondents in each of the KAP surveys indicated interest in being engaged in the management of the protected areas. This aspect was only investigated in the 2019 survey for Trinity Hills and Eastern Extension. The highest percentage of respondents that were interested were respondents to the 2019 survey (46%) for Matura Forest and Coastal Zone followed by the respondents to the 2019 survey (42%) for Caroni Swamp. For the Trinity Hills and Eastern Extension, the number of respondents that were interested in being engaged in the management of the PA decreased from the 2016-17 survey to the 2019 survey. It is noted that 7% of

respondents to the Caroni Swamp survey and 13% of respondents to the Nariva Swamp survey (both in 2016-2017) identified Everyone/Community as being responsible for management of the protected area.

5.3 Behaviours

Participation in activities at the Protected Area

In most cases, the majority of respondents to the surveys indicated that they did not participate in activities in the respective protected areas. Only for the 2019 Caroni Swamp survey, 50% of respondents indicated that they participate in activities in the protected area.

Best means of communication

Respondents provided a range of communication avenues through which information could be shared with them. In 2019, social media was the top platform for all sites, except Nariva Swamp, where newspapers were the top platform. In 2016-2017, more variety was seen in the top platform; for the Tobago sites this was Public Consultations/Meetings; in Caroni Swamp and Nariva Swamp, Television; and for Trinity Hills and Eastern Extension, Social Media. It is noted that this question was not asked in the 2016-2017 Matura Forest and Coastal Zone KAP Survey.

5.4 Communication actions undertaken

After the conduct of Knowledge, Attitudes and Practices Surveys in communities surrounding the six Pilot Protected Areas in 2016-2017, certain trends in data emerged among sites. Based on the review of those survey results with respective Subcommittees, specific target audiences were identified in the development of site-specific communication strategies to address knowledge gaps and to improve attitudes and behaviors. These strategies incorporated some of the products identified in the communication plan that was outlined in the project document. The outline of the individual communication strategies developed for each PA and the overall communication plan adopted in the IFPAMTT project is available online³.

These audiences identified included policy makers, local communities, community NGOs and other specific groups, such as teachers and students and the PA managers themselves. Actions directed towards the local and national community, executed prior to the 2019 KAP surveys, were intended to impact positively on the results of the new KAP assessment. The range of activities and products used and discussion of degree of impact of these, are outlined by Pilot Protected Area below.

³ IFPAMTT (2017) Communication Plan

<https://www.protectedareastt.org.tt/index.php/resources/publications/project-resources/320-communication-plan-for-six-pilot-protected-areas>

Main Ridge Forest Reserve and North East Tobago Marine PPAs

There were fourteen (14) targeted communication activities supported by the development of site-specific products. Some communication activities undertaken for the Tobago sites focused on both sites. The full list of activities/products is given in Table 13.

Table 13. Communication activities and products used for Tobago PPA sites

<u>Month</u>	<u>Communication Activity/Product</u>	<u>Audience</u>
November 2017	Community walkabout in Charlotteville with brochure highlighting biodiversity and livelihoods	<u>Local community</u>
May-July 2018	Livelihood assessment in communities surrounding sites	<u>Local community</u>
June 2018	Breakfast meeting with Secretaries and Administrators of the Tobago House of Assembly	<u>Policy makers</u>
August 2018	Resource User Survey for the Main Ridge Forest Reserve	<u>Users of PA</u>
<u>August 2018?</u>	<u>Train the Trainer programme undertaken with Game Wardens and Forestry Division officers in preparation for sustainable hunting campaign in Tobago</u>	<u>Managers</u>
<u>August 2018?</u>	<u>Sustainable Hunting Campaign undertaken with members of the hunting community</u>	<u>Resource users - hunters</u>
October 2018	Community walkabout in Speyside with Speyside brochure highlighting biodiversity and livelihoods	<u>Local community</u>
October 2018	Educational symposium on the open hunting season for hunters, cage bird owners and wildlife farmers	<u>Resource user - hunters</u>
October 2018	Presentation of the safe handling and consumption of Game species – workshop with Blue Food Festival chefs	<u>Resource user - consumer</u>
October 2018	Teachers Toolkit for primary science workshop with teachers	<u>Primary School teachers</u>
October 2018	Community Symposium held jointly with the Institute of Marine Affairs	<u>Local community</u>
October 2018	Secondary school symposium held for 20 students of ten secondary schools	<u>Secondary School students</u>
	Financial Management Workshop for fisherfolk	<u>Extractive users - Fisherfolk</u>
March 2019	Main Ridge Forest Fitness Challenge – walk/run/cycle at Main Ridge Forest and kids' jamboree/story time event with pre-schools	<u>General public and pre-school teachers</u>
July 2019:	Consultations on the management plans for the two sites	<u>General public and PA stakeholders</u>
	Newspaper articles published in Tobago Today/Guardian and Newsday Tobago	<u>General public</u>

Information brochures and consequent 'walkabout' exercises which targeted the NE Tobago marine area were seen as a key activity to build knowledge of this site which is proposed for protection. Face-to-face communication with the local community was recommended by stakeholders and hence the 'walkabouts' were seen as a key mechanism for communication.

A financial workshop targeting fisherfolk was also a very specific activity designed for communicating with resource/extractive users of the site. The 2019 KAP results however showed low knowledge about the site, noted by an actual decline in knowledge from the 2016 survey.

For the Main Ridge Forest Reserve, there were key activities to target the school community of teachers and students, with the development of a Primary Science Teachers Toolkit and Workshop which was attended by representatives of all primary schools; and a Secondary School Symposium to which all secondary schools were invited. The inaugural Main Ridge Forest Fitness Challenge saw participation of over 200 persons and featured educational activities for pre-school students from east Tobago.

The sustainable hunting campaign which took place in Tobago (and Trinity Hills and Eastern Extension) encompassed training of enforcement officers, outreach to the hunting fraternity and an education session on proper handling and storage of game meat for cooks in the annual “Blue Food Festival”.

Summary and Recommendations

While there were several face-to-face activities and public events to build knowledge of the two sites, the reduced figures for knowledge of the sites, boundaries, managers, threats, importance suggests that continuous communication is necessary. There was an increase in knowledge of endangered animals in the 2019 survey and given that the information brochures and signage will be completed shortly, these will be useful to bolster that knowledge. Based on feedback received in the 2019 KAP survey, social media platforms may be a useful avenue to carry out communication with the public, as this was noted as the preferred medium by majority of respondents.

Matura Forest and Coastal Zone PPA

There were eight (8) targeted communication activities undertaken for the Matura Forest and Coastal Zone area. In all cases, the communication activities were targeted at the local community as shown in Table 14.

Table 14. Communication activities and products used in Matura Forest and Coastal Zone PPA

<u>Month</u>	<u>Communication Activity/Product</u>	<u>Audience</u>
<u>July - August 2016</u>	<u>Construction of Participatory 3D Model of ESA</u>	<u>Local community</u>
	<u>Media communication workshop with local civil society/community NGOs</u>	<u>Local community - NGOs</u>
<u>July 2017</u>	<u>Livelihood assessment in communities surrounding the site</u>	<u>Local community</u>
	<u>Conservation objective consultation</u>	<u>Local community</u>
<u>April - September 2018</u>	<u>Livelihood clinics to build capacity of community groups (Matura to Toco)</u>	<u>Local community - NGOs</u>
<u>August 2019</u>	<u>Consultations on development of the Management Plan</u>	<u>Local community</u>

<u>October 2019</u>	<u>Farmers' Workshop for farmers from Matura, Fishing Pond and Vega de Oropouche communities</u>	<u>Extractive users – Farmers</u>
	<u>Forestry Division community visits to inform residents of signage installation exercise</u>	<u>Local community</u>
<u>November 2019</u>	<u>Installation and unveiling of signage in communities surrounding the site</u>	<u>Local/national community</u>
	<u>Participation in educational programmes hosted by others</u> <ul style="list-style-type: none"> - <u>Eco-Blend environmental exhibition (Nature Seekers)</u> - <u>Exhibition at annual beach clean-up (Nature Seekers)</u> - <u>Exhibition at Bioblitz (UWI/TTFNC)</u> 	<u>Local community</u>
<u>Newspaper articles published in Newsday newspaper and Guardian</u>		<u>General public</u>

Few communication activities were undertaken in Matura Forest and Coastal Zone; however, these were all undertaken at the local community level. The interaction was also varied, with interface among NGO groups at the livelihood clinic and communication workshop, local community residents at education exhibitions and livelihood assessment.

The P3DM activity as well as Forestry Division visits to households prior to the signage exercise also provided opportunities to build local residents' knowledge of the PA and their knowledge of the site managers. There was an increase in knowledge of the site in the 2019 survey and awareness of managers – particularly the Forestry Division - also improved.

It is noted that the community turnout at activities varied; the livelihood clinic which built capacity of NGOs to develop project proposals and to interface with donors saw participation of 17 groups, however only 5 persons attended the consultation on the development of the Conservation Objective Statement.

This was the only site at which signage was installed prior to the undertaking of the second KAP survey in 2019. The visual signage incorporated images of some of the animals and plants found in the PA, including the Pawi and Ocelot. It is noted that more respondents in the 2019 survey knew of the boundaries of the site and more persons also cited the Pawi as an endangered animal found at the site, above what was seen in the 2016 KAP survey. There was also increased awareness of the site as a no-take zone for game animals, increased awareness of threats and the ecological value of the site.

Summary and Recommendations:

The face-to-face interaction and the use of informational signage may have been key contributors to improvements seen in respondents' knowledge of and attitudes to the PAs. The recommendation is to build upon the positive in-roads made through continued use of direct interface with local communities, especially by managers – as levels of knowledge is still in the minority though improved – working alongside the vibrant local NGO community. Social media platforms are also preferred by respondents.

Caroni Swamp PPA

There were seven (7) communication activities undertaken for the Caroni Swamp prior to the 2019 KAP survey. Less than half of these targeted the local community, while several targeted key stakeholder agencies. The list of activities/products used is listed in Table 15.

Table 15. Communication activities and products used for Caroni Swamp PPA

<u>Month</u>	<u>Communication Activity/Product</u>	<u>Audience</u>
<u>May – June 2018</u>	<u>Livelihood assessment in communities surrounding the site</u>	<u>Local community</u>
	<u>Conservation objective consultations with tour operators</u>	<u>Local community focus groups</u>
<u>June 2018</u>	<u>Breakfast meeting with senior policy makers</u>	<u>Policy makers</u>
	<u>Discussion with agencies and manufacturing bodies on water management issues relevant to the Caroni River</u>	<u>Technical representatives</u>
<u>August 2018</u>	<u>Resource User Survey</u>	<u>Local community</u>
<u>September- November 2018</u>	<u>Research/Information sharing Series</u>	<u>Managers and educational institutions</u>
<u>August 2019</u>	<u>Consultations on development of the Management Plan</u>	
	<u>Newspaper articles published in Newsday newspaper and Guardian</u>	<u>General public</u>

The Caroni Swamp is one of the more well-known protected areas in Trinidad, because of the high-profile use as a nature tourism site for many years. Though there were few interfaces with the local community through communication activities, the popularity of the site is perhaps the key contributor to a high percentage of respondents being aware of the site.

There was an increase in the percentage of respondents being aware of threats and indicating that the area is important from 2016 to 2019. More respondents in the 2019 survey identified the Scarlet Ibis as an animal that should not be removed from the Swamp. The latter result may have been influenced by the listing of the Scarlet Ibis as an environmentally sensitive species in 2019 and reports on fines laid on persons who were caught with carcasses of this national bird.

Summary and Recommendations

The few public communication actions carried out may not have influenced much change in the the public's perceptions and attitudes. Two information brochures were produced for the site and signage which will be installed, can also support this and in particular, guide persons to know where the boundary of the site is located.

In 2020, after the second KAP survey was done, two activities were undertaken for the World Wetlands Day observance. The activities targeted schools in communities surrounding the Caroni Swamp and photographers/artists and were well received. The Forestry Division and Ministry of Agriculture, Land and Fisheries representatives on the PPA Subcommittee assisted as facilitators of these activities and local tour operators were also engaged. It is believed that if these types of activities are undertaken on an annual basis within communities, these can assist in building knowledge among the local community of the site and its managers and support closer relationships among formal and informal managers. Use of social media and television are also recommended platforms for communication as noted by respondents to the survey.

Nariva Swamp and Coastal Zone PPA

Seven (7) communication activities were undertaken for the Nariva Swamp and Coastal Zone PPA. The majority of activities were undertaken with direct interface with members of local communities as noted in Table 16.

Table 16. Communication activities and products used for Nariva Swamp and Coastal Zone PPA

<u>Month</u>	<u>Communication Activity/Product</u>	<u>Audience</u>
	<u>Roundtable discussion undertaken on land use in PA</u>	<u>Managers and Subcommittee</u>
<u>October 2017</u>	<u>Farmers' workshop at Plum Mitan for tenanted farmers in northern portion of Nariva Swamp</u>	<u>Local farming community</u>
	<u>Conservation objective consultation in two communities</u>	<u>Local community</u>
<u>April 2018</u>	<u>Outreach to persons camping near to the Nariva Swamp and fishing at Jagruma River during the Easter vacation</u>	<u>Local community and visitors</u>
<u>May 2018</u>	<u>Community Caravan educational exercise in six (6) selected communities bordering the Nariva Swamp. Nariva Swamp brochure shared with households and individuals</u>	<u>Local communities</u>
<u>May-June 2018</u>	<u>Livelihood assessment in communities surrounding the site</u>	<u>Local communities</u>
<u>August 2019</u>	<u>Consultations on development of the Nariva Swamp Management Plan</u>	<u>Local communities</u>
	<u>Newspaper articles published in Newsday newspaper and Guardian</u>	<u>General public</u>

Like the Caroni Swamp, the Nariva Swamp and Coastal Zone area is well-known. There are many persons living in nearby communities that use the area for livelihood activities including farming and tour guiding. An ongoing Green Fund- funded project in the Swamp – the EMA's National Restoration, Carbon Sequestration, Wildlife and Livelihoods (NRCSWL) project - is supported by the engagement of persons belonging to various community-based organizations.

The respondents' knowledge of the Swamp was therefore high in both surveys, as well as knowledge of animals that should not be removed from the site. People felt that the area was important, and the 2019 survey results indicated that there was growing awareness of the managers of the Swamp – both Forestry Division and the Environmental Management Authority.

They began implementation before the IFPAMTT project and was active until 2019 in the communities surrounding the Nariva Swamp. Based on the data collected, awareness of the project remained at 32% from 2017 and 2019.

The communication outreach activities involved much face-to-face interaction. The community caravan targeted communities on the western flank of the Swamp as stakeholders noted that the ongoing Green Fund project engaged mainly persons from the north and east of the Swamp. The caravan moved through six communities, ensuring that each community was able to learn about the initiatives being undertaken in the PA, using an information brochure which gave key messages about wise use of the site. The Easter outreach and farmers' workshop allowed for direct interface also to clarify the role of managers and the need for management of the Swamp.

Summary and Recommendations

Improvements in survey results indicated that like the Matura Forest and Coastal Zone PA, the face-to-face engagement of managers with members of the local community assists in building knowledge of the Swamp and improving relationships between the two. Providing brochures to the public enables sharing of information that can be shared with others. Signage and another information brochure, both of which will provide information on assets of the PA, will add to this thrust.

A video feature on the Nariva Swamp was produced after the survey was undertaken in 2019. Within three days of its release, viewership has risen to over two thousand, indicating keen interest in the site. Respondents to the 2019 survey indicated a spread of platforms which can be used for communication, including television, social media, radio, public consultation, and newspapers and thus the use of these platforms should be pursued.

Trinity Hills and Eastern Extension PPA

Six (6) communication activities were undertaken for the Trinity Hills and Eastern Extension PA. Half of these targeted the local community, as seen in Table 17.

Table 17. Communication activities and products used for Trinity Hills and Eastern Extension PPA

<u>Month</u>	<u>Communication Activity/Product</u>	<u>Audience</u>
	<u>Roundtable discussion on boundaries of the PA</u>	<u>Managers and PA Stakeholders</u>
<u>September 2017</u>	<u>Train the Trainer programme undertaken with Game Wardens and Forestry Division officers in preparation for sustainable hunting campaign in SE Conservancy</u>	<u>Managers</u>
<u>September 2017</u>	<u>Sustainable Hunting Campaign undertaken with members of the hunting community</u>	<u>Resource users - hunters</u>
	<u>GPS mapping of hunting camps near the boundary of the PA</u>	<u>Managers</u>
<u>May-June 2018</u>	<u>Livelihood Assessment in communities surrounding the site</u>	<u>Local communities</u>
<u>March 2019</u>	<u>Hosting of Thrills of Trinity Hills environmental exhibition in Rio Claro community for four days. Trinity Hills brochure shared with attendees and posters on wildlife sanctuaries shared with schools from Rio Claro to Tableland</u>	<u>Local communities</u>
<u>August 2019</u>	<u>Consultations on development of the Nariva Swamp Management Plan</u>	<u>Local communities</u>
	<u>Newspaper articles published in Newsday newspaper and Guardian</u>	<u>General public</u>

The Trinity Hills Wildlife Sanctuary was the least known of the four Trinidad PPAs. It is offset from communities and surrounded by the Victoria-Mayaro Reserve. Given the threats of agricultural squatting and wildlife poaching, as well as possible impacts of nearby energy exploration, the site's value to biodiversity conservation needs to be communicated.

Security of entry and exit to the area was historically aided by the management of nearby land-based energy fields by PETROTRIN; and the company gave support to project initiatives in

communication. With the closure of PETROTRIN in late 2018, there was an absence of representation by the new land manager, Heritage Petroleum, on the Subcommittee and Communication Working Group.

Few activities were done targeting local communities, as land use discussions with key stakeholders were necessary regarding the PA boundaries in the earlier part of the IFPAMTT project. This PA was selected for the pilot of a sustainable hunting campaign (together with Tobago), as the surrounding Victoria-Mayaro Forest Reserve is the most heavily hunted area in the island. Two information sessions hosted by the Forestry Division/Wildlife Section for hunters elaborated on where and when hunting can take place, issuing of permits, filing of mandatory return forms, and how hunters can share information with the Wildlife Division to assist in monitoring of wildlife health.

A community caravan designed quite similar to the Nariva Swamp Community Caravan – was originally planned for three communities, Guayaguayare, Moruga and Rio Claro to build awareness of the site. Owing to harsh weather events, the plan was modified, and the event was staged as a four-day educational exhibition in Rio Claro. This event incorporated activities designed for school groups from Pre-school to Secondary School among which participation was high. Community attendance was sustained over the four-day period, which offered a programme of brief presentations on key aspects of the Wildlife Sanctuary.

While knowledge of the site remained low in the 2019 KAP survey, there was a noticeable increase in the number of respondents who were aware of endangered species at the PA and that the site is a no-take zone for wildlife, and awareness of threats, notably illegal hunting/poaching.

Summary and Recommendations

The Forestry Division's input into the hosting of the community caravan, as well as the experience gained in hosting the sustainable hunting campaign can assist in the continuance of communication with other communities surrounding the PA. With an increase in respondents' knowledge of managers in the 2019 survey, continued community engagement is recommended. If community outreach is undertaken on an annual or semi-annual basis, together with other actions soon to be implemented (e.g. installation of informational signage, sharing of a video feature about the site), there should be improved attitudes towards the site's management.

Support for communication activity should be sought from partner agencies, notably key stakeholders such as Heritage Petroleum, Environmental Management Authority and the Ministry of Energy and Energy Enterprises, which each have roles to play in land-based activities in the surrounding Victoria-Mayaro Forest Reserve, from an energy exploration perspective. Community based organizations that were engaged on the Subcommittee have all demonstrated commitment to the site's improved management and sustaining a network with these groups may assist in making inroads for public awareness and supportive action.

A Teachers' Toolkit for Secondary Schools (Social Studies topics) is being produced by the Communication Working Group and this resource can aid outreach work with schools in the surrounding communities. A Forest Monitoring Protocol was developed for the PA and a citizen science approach can be promoted using this tool to build positive attitudes to the site among communities.

6. Conclusion and Lessons Learned from the Surveys

The undertaking of the KAP Surveys is a useful tool to inform managers of PAs of people's knowledge, attitudes and behaviours and uncovers information about use of these sites and present threats, as well as person's willingness to engage in management.

Engagement of persons from the local community in the process of undertaking KAP surveys is a mutually beneficial exercise, in that this provides an opportunity to gain first-hand knowledge of local perceptions and to support capacity building in new skills among the enumerator team.

Following the 2016-2017 KAP surveys and the consequent development of communication plans, it is noted that for some of the PAs there was a large degree of local community interaction, while for others there was a greater emphasis on communication activities with managers or focused groups.

A comparative assessment of survey results among sites and by survey year shows that the sites where there was the greatest degree of local community interaction there were more noticeable and positive shifts in knowledge of respondents.

The use of visual cues (signage, brochures) appeared to assist in knowledge gains about location of sites, boundary locations and wildlife assets. Notably, persons appeared to become more knowledgeable about Environmentally Sensitive Species over the three-year period and that ESAs are 'no take' zones for game species and other wildlife. This may have been aided by new pronouncements of ESAs in the case of the Scarlet Ibis in the Caroni Swamp PPA.

Engagement of managers in education outreach improved respondents' awareness of the roles of these persons in management of the protected areas, particularly the Forestry Division. Interface with active non-governmental and community-based groups in this outreach also assisted as seen in the Matura Forest and Coastal Zone PPA.

Awareness of threats to the protected areas and associated valuing of these sites increased in areas in which there was engagement with persons on outreach activities.

Despite many public communication activities taking place in Tobago with local communities, the survey indicated lower awareness indicators, suggesting that there is a need for continuous communication, particularly in the NE Tobago marine area with is proposed for protection and not currently under a legal mantle of protection.

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Appendix 1 Sample KAP Questionnaire used for surveys in 2019

Date: ___ / ___ /2019 Community: _____ Initial and survey # _____

“Improving Forest and Protected Area Management in Trinidad and Tobago”

KNOWLEDGE, ATTITUDES AND PRACTICES (KAP) SURVEY QUESTIONNAIRE MATURA FOREST AND COASTAL ZONE PILOT PROTECTED AREA

Survey Objectives: To explore the knowledge, attitudes and practices among the stakeholders of the 15 communities surrounding the Matura National Park and Coastal Zone Area.

Information to be read to respondent:

Your answers will not be released to anyone and will remain anonymous. Your name will not be written on the questionnaire or be kept in any other records. Your participation is voluntary and you may choose to stop the interview at any time. Please note that the survey will take no longer than 10 minutes to complete.

Thank you in advance for your assistance.

- 1) In which area do you currently live? _____
- 2) How old are you?
 - Under 12 years (1)
 - 13-17 years (2)
 - 18-30 years (3)
 - 31-40 years (4)
 - 41-50 years (5)
 - Over 50 years (6)
- 3) Gender
 - Male (1)
 - Female (2)
- 4) Are you currently employed?
 - Yes (1) (Go to question 5)
 - No (2) (Go to question 6)
- 5) Do you work in the area?
 - Yes (1) What do you do?

 - No (2)
- 6) Have you heard of the Matura National Park?
 - Yes (1)
 - No (see note below) (2)

N.B. Enumerator to note, if after having outlined the indicated area/s, the respondent is in fact aware of the area. If the response is truly 'No', the enumerator should stop administering the survey given the fact that the remaining questions are based on knowledge of the Matura National Park.

7) Do you know any of the boundaries of the Matura National Park?

- Yes (1)
- No (2)
- Uncertain (3)

8) What do you know about the Matura National Park?

9) Do you know of any animals living in the Matura National Park that you are not allowed to hunt/remove?

- Yes (1)
- No (2)
- Uncertain (3)

If yes, note which species were identified.

10) Do you think the Matura National Park is important?

Not at all

0

1

2

3

4

Very

5

Explain your answer:

11) Do you use or participate in any activities within the Matura National Park and surrounding areas?

- Yes (1)
- No (2)

If yes, explain in which area these activities take place and your interest in the area.

12) What other activities are conducted in the Matura National Park?

13) Do you know that the Matura National Park is an Environmentally Sensitive Area (ESA)?

- Yes (1) (go to Question 14)
- No (2) (go to Question 15)
- I don't know what that means (3) (go to Question 15)

14) What does this mean?

15) Do you think there are threats to the Matura National Park?

- Yes (1) (go to Question 16)
- No (2) (go to Question 17)
- Uncertain (3) (go to Question 17)

16) What are some of these threats?

17) What can be improved?

18) Would you like to be involved in the management of the Matura National Park?

- Yes (1)
- No (2)

If yes, how would you like to be involved?

19) Who is responsible for managing the Park?

How do you know this?

20) What suggestions do you have for better management of this area?

21) What is the best means of communicating information regarding these areas?

- Newspaper (1)
- Public consultations/meetings (2)
- Radio (3)
- Social Media (4)
- Television (5)
- Other (please explain) _____ (6)

End of Survey. Please thank the respondent for participating.

This report was produced under the project
“Improving Forest and Protected Area Management in Trinidad and Tobago”
Funding was provided by
the Government of the Republic of Trinidad and Tobago (GORTT),
the Food and Agriculture Organization of the United Nations (FAO/UN),
the European Union (EU)
and the Global Environment Facility (GEF).



Food and Agriculture
Organization of the
United Nations



European Union

