

Mitigating the Threat of Invasive Alien Species in the Insular Caribbean: A Trinidad and Tobago perspective

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Abstract

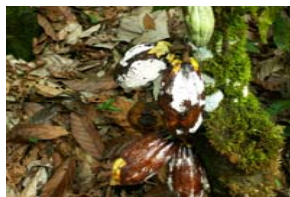
The project aims to broaden the approach to dealing with invasive alien species in the Caribbean by strengthening existing national capacity and measures by fostering regional cooperation frameworks through which Caribbean-wide strategies will be developed. The countries involved in the project are Bahamas, Dominican Republic, Jamaica, St. Lucia and Trinidad & Tobago.

Through this project, Trinidad & Tobago is engaged in three pilot projects centred on protecting the native biodiversity of the Nariva Swamp, protecting the local cocoa industry and germplasm from Frosty Pod Rot and mitigating the spread of the marine invasive *Perna viridis*.

These pilots strongly emphasise the need for capacity building and increased awareness of Invasive Alien Species (IAS) issues among stakeholder groups and are designed so that their findings and lessons learnt will be readily applicable to other sites, including other Caribbean states.

Preventing the Entry of *Moniliophthora roreri* (Causal agent of Frosty Pod Rot of Cocoa) into Trinidad & Tobago

The Frosty Pod Rot (FPR) project is aimed at protecting the cocoa growing areas in Trinidad and Tobago from *M. roreri* through the strengthening of the detection and interception of the disease at the various points of entry; the establishment of systems and protocols for the speedy eradication of the disease if detected and the continuous monitoring of the ports of entry and surveillance of cocoa growing areas for the presence of the disease.



Frosty Pod Rot (*Moniliophthora roreri*)

FPR reduces crop yield by 80% thus if introduced into Trinidad and Tobago it would affect the islands' production of its world renowned 'fine flavoured cocoa' and negatively impact the germplasm collection hosted at the International Cocoa Gene Bank, Trinidad.

In order to achieve its objectives the project has a comprehensive public

awareness programme, which involves training all stakeholders in the recognition and reporting of the disease as well as providing information on the impact of and measures which could be implemented to control the spread of the disease.



Training on recognition and reporting of FPR



Management and Control of the Marine Invasive *Perna viridis* (green mussel) in Trinidad and Tobago

Perna viridis was first observed in Trinidad in 1990 and is believed to have been transported here in the ballast water of ships and / or on ship hull fouling. This is of particular concern given the increasing levels of trade occurring globally.



Green mussel (*Perna viridis*)

Research indicates that *Perna viridis* has been classified as one of the ten most damaging species in the world and has significant human health, environmental and economic impacts. It is a very aggressive invasive and has been able to successfully outcompete many of the other fouling organisms thus causing a disruption in community structure and trophic relationships within marine environments.

The main goal of this project is to conserve the ecological balance of the marine and coastal ecosystems of Trinidad and Tobago by the development of strategies to manage and control the spread of the green mussel. This will be achieved by conducting an ecological assessment of the current distribution, community structure and the occurrence of natural predators; an economic assessment of the impacts and the cost of its control as a fouling organism; and the determination of an effective control of *P. viridis* as a fouling organism. Information gathered will be

used to identify and implement control mechanisms to manage and control the spread of this marine invasive.

The maintenance of the native biodiversity of the ESA – Nariva Swamp by managing and controlling the spread of Red Palm Mite (*Raoiella indica*)

The Nariva Swamp is a Ramsar Site and its palm forest is home to a wide range of biodiversity such as the Blue and Gold Macaw and the endemic Moriche Palm, thus it is essential that this IAS be controlled.



Palm Forest, Nariva Swamp



Red Palm Mite (*Raoiella indica*)

The red palm mite (*Raoiella indica*) is a parasitic mite, which is invasive to the Caribbean region. It was first observed in Trinidad in 2007 and recent surveys have indicated that it is now widespread throughout the island. It is believed that this infestation is as a result of the wide range of plants the mite can inhabit, its means of dispersal and highly reproductive capacity.

The mite feeds through the pores of the leaves of the palms thereby damaging the guard cells in the leaf, resulting in uncontrollable water loss from the plant. It also disrupts the photosynthetic capabilities of the trees causing leaves to turn from green to yellow, then brown and eventually die. Without healthy leaves, the trees cannot produce healthy nuts resulting in severe reduction in production levels. This is of economic, environmental and social significance to Trinidad and Tobago.

The Nariva Project seeks to manage and control the spread of *R. indica* in the swamp. This is expected to be achieved conducting a survey of the level of infestation of the swamp, the development of management protocols to manage and control the spread of red palm mite and the continuous monitoring of the Swamp to ensure that control measure are effective.



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