IUCN Regional Workshop on: Invasive Alien Species (IAS)

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Overlook of Dominica's Biodiversity and the Invasive Alien Species situation.

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Biodiversity and it's importance to Dominica
the 'Nature Isle of the Caribbean/World'

Current status!

It has been estimated that 60% of the country is covered with natural forests which is evenly matched with diverse marine ecosystems. These ecosystems are essential for the survival of a number of types of Biodiversity including; species diversity, genetic diversity, and ecosystems diversity.

These serves as the basis for our continued survival by providing food, shelter, goods and services that support our health and the country's economy.

Dominica's Terrestrial and Marine Ecosystems

Terrestrial Biodiversity:

We are characterized by having 9 vegetation types which form concentric rings around taller mountains; lower rings around adjacent mountains merge into one another.

These include:

Elfin woodlands, montane forest, Rainforest/Evergreen, Secondary rain forest, semi-evergreen (deciduous) forest, dry scrub forest, littoral woodland, fumarole vegetation and coastal wetland vegetation.

Functions include:

1. Water-shed management (potable water supply, hydroelectricity, flood control)
2. Soil conservation (control erosion)
3. Recreation and sports
4. Economic production(wood & non-wood prod.)
5. Ecosystems maintenance (important for endemism, continue relation man-environment)
6. Scientific research
7. Spiritual and personal health
8. Educational functions
9. Agro-forestry

Marine Biodiversity

Our marine environment is rich in species and genetic diversity ranging in ecosystems from:

- Coral reefs
- Sea-grass beds
- Marine volcanic craters and fumarole zones
- Coastal wetlands
- to very small patches of Mangrove forests;

Important to a number of fishes (estuaries), whales, seabirds colonies and even protecting our shores for nesting leatherback, hawksbill and green sea turtles.

How to prevent the introduction of Invasive alien species and the diffusion of newly introduced species into local ecosystems?

Introduction of IAS:

- Control at ports of entry (air and seaports quarantine officers training)
- Comprehensive communication, education and public awareness programs (to specific target and user groups (hucksters, sea captains, florists, farmers, etc.) – media, IAS identification cards, plays & drama, cause and effect posters.
- New and revised legislation and policies
- Land use zoning (appropriate use and control of land and marine space)
- Trans-boundary monitoring programs (country agreements)
- Biodiversity corridors and connectivity (Integration of local and regional Protected Areas management plans)

How to prevent diffusion of IAS..?

For a species to become invasive, it must successfully out-compete native organisms for food and habitat, spread through its new environment, increase its population and harm ecosystems in its introduced range. So diffusion can be prevented by:

- **Introduce systematic control and monitoring mechanisms (ej. periodic search and kill methods)**
- **Delimit areas as quarantine zones to apply control measures (natural or other to reduce adaptation to local conditions)**
- **Local community participation (develop capacities, incentives)**
- **Increased public awareness and education programs**
- **Identify and apply, if possible, local or regional natural control methods (physical or biological)**
- **Increased monitoring programs to record habitat and behavioral changes**

Examples of Invasive alien species found in Dominica:

Flora:

- **Lemon Grass or Citronella grass** (*Cymbopogon nardus* or *Cymbopogon winterianus*) - invading mainly coastal vegetations and ecosystems and is a serious health hazard (bush-fires). It is the most extensively distributed, and was brought in for the extraction of citronella oil and mulching for agricultural crops
- **African Tulip** (*Spathodea campanulata)* – invading disturbed semi-evergreen and deciduous forests
- **Zing Zing** (Leguminaceae Spp) – invading disturbed coastal vegetation
- **Heliconia wageriana** – invading disturbed interior vegetations and coasts
- **white cedar thrips** (bacteria affecting white cedar leaves)

Fauna:

- **Puerto Rican Crested Anole lizard** (Anolis cristatelus) – currently our main invasive animal specie which has now spread from Roseau to a number of coastal villages even moving in-land, and because of its aggressive nature, not only reproduces quicker than our local Anolis lizard but eats the eggs causing a population decline.
- **Eurasian collard Dove** (Streptopelia decaocto) – an aggressive dove specie affecting urban habitats of local doves and pigeons.
- **Chytridiomycosis** – skin fungal disease affecting our Mountain chicken (Crapaud frog)
- **Giant African Snail** - affecting agricultural crops in North
- **Citrus tristeza virus, red palm mite**, **giant african snail**; just to name a few;

Review of some work done on IAS in Dominica

Giant African Snail:

- Identified on 23rd March 2007 on holdings of a Mr. Andrew of Dos D'ane, in North of Island.
- It may have came from ??
- Entered by ??
- Min. of Agriculture responsible for eradication
- Day and night surveys ongoing
- Daily handpicking and baiting (slug & snail bait)
- Clearing and burning of debris
- Public education & awareness (poster-to be more attractive, brochures in process and public presentations)

Cont'…

Lemon grass:

- Brought in for production of citronella oil (European markets) and agriculture farm mulching.
- Main plant IAS on-island (all over)
- Invading forests from sea level to about 1000 m
- Public sensitization programs (as fire hazard, plant IAS – residents, schools, village councils, etc.)
- Monitoring programs (Forestry depart., Fire depart.)
- Main effects – encroaching on coastal vegetation, destroys soil organisms (burning), depletes soil nutrient and moisture levels, fire hazard to farmers and residential owners.

Semi deciduous Forest being converted to grassland (not suitable for grazing livestock)

Expanse of Lemon Grass (*Cymbopogan citratus*) Area burnt repeatedly; changing the landscape, hydrology, ecology and soil conditions

Heliconia wageriana

Local heliconia

Eurasian colored dove

Local pigeons and doves

Puerto rican anole

Dominican anole

Avoid introduction of other species

Iguana iguana

Cuban iguana