




**Alien Species
Invading our Daily Lives in Saint Lucia**

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*“UWI Open Campus /FRC Saint Lucia Country Conference 2012”
Rodney Bay, 2-4 May, 2012*

What are Invasive Alien Species (IAS)?

IAS are plants, animals or micro-organisms that are not native to a specific ecosystem and whose introduction threatens biodiversity, food security, health or economic development.




What are the Costs of IAS?

IAS are the second most important threat to global biodiversity (second to habitat destruction)

The global cost of IAS is estimated at US\$1.4 trillion per year (nearly 5% GDP) – and rising in times of globalization and climate change.


Extrapolated to Saint Lucia, the annual cost of IAS is EC\$244 million, or nearly EC\$1,500 per capita per year.



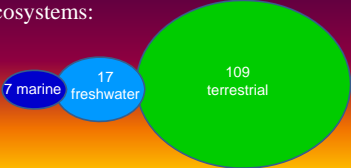
Pink Hibiscus Mealybug on Asian Ornamentals

How Serious is Saint Lucia's IAS Problem?

- 131 IAS recorded in St Lucia
 - 109 in terrestrial ecosystems
 - 28 vertebrates – several are feral pets and livestock, but also hitchhikers on construction materials
 - 29 invertebrates
 - 47 plants – at least 28 are ornamental plants, 5 microbes & viruses
 - 17 in freshwater ecosystems:
 - 9 animals, 8 plants
 - 7 in marine ecosystems




Anolis sagrei
Morton & Cox, 2011




How Serious is Saint Lucia's IAS Problem?

- Dengue cases increase
 - 2009: 18
 - 2010: 97
 - 2011: >500
 - Vector benefits from climate change in Caribbean
- Lionfish invasion
 - Sting casualties
 - Recreational and professional diving
 - Eats anything it can fit into mouth
 - Impact on reef fish, crustacean & fishing industry
 - => Restaurant offer?
 - => Food security – crime?



© Petit & Prudent



How Serious is Saint Lucia's IAS Problem?

- *Sargassum* seaweed invasion
 - Forced temporary hotel closure in Antigua
 - was operating at 70% capacity



Barbados



Antigua

How Serious is Saint Lucia's IAS Problem?

- Vicious cycle of inflammable grasses and fire hazard at Pigeon Island landmark



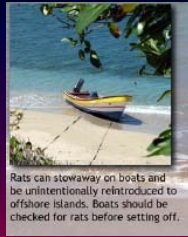
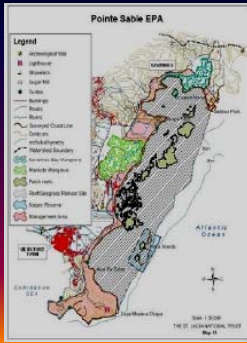
Lemon grass (*Cymbopogon citratus*)



- Dogs from yachts need a veterinary permit to land. Aggressive breeds are banned, but still bred and traded unhindered.



Fragile and Unique Ecosystems



Rats can stowaway on boats and be unintentionally reintroduced to offshore islands. Boats should be checked for rats before setting off.



Photos: © M. Morton, DWCT

Fragile and Unique Ecosystems



The Saint Lucia racer - probably the world's rarest snake



The Saint Lucia pygmy gecko - one of the smallest lizards in the world



The Saint Lucia worm snake - one of the smallest snakes in the world



Red-billed tropic bird



Bridled tern



Royal tern

Photos: © G. Guida, S. Brooker, M. Morton, C. Clarke, & T.C-W Hank

Fragile and Unique Ecosystems

The Maria Islands Need Your Help

The Maria Islands are a seabird sanctuary reserved for some of Saint Lucia's unique and some of the world's rarest wildlife. Saint Lucia's offshore islands were the only home of the flightless St. Lucia warbler, the harmless St. Lucia racer snake, and the harmless St. Lucia racer snake.

But these islands can easily be invaded by species introduced by humans that can destroy Saint Lucia's rare and unique wildlife.

How can I help?

- Check your boat for any signs of rats. Rats are the biggest danger to the island's birds. You will have to get the permission of the St. Lucia Wildlife Agency.
- Take home any garbage. Leaving it behind encourages rats.
- Do not light fires. Take care with matches and smoking. Burnings could destroy a bird island like this very quickly.
- Report any activities that might harm the Maria Islands or any of the wildlife to the MCA at 468-5644 or 468-5641.





Pet Pathway

Mini zoo escapes threaten unique Saint Lucian fauna

Orange-winged *Amazona amazonica* & Saint Lucian parrot *A. versicolor*




compete for food and nesting holes.

Pet Pathway

Mini zoo escapes threaten unique Saint Lucian fauna

Iyanola



Alien iguana cage



Photos: © M. Morton & E. Corry

Ornamental Plant Pathway

Who would not want to take these back onto the cruise ship?



Ornamental Plant Pathway



Red palm mite

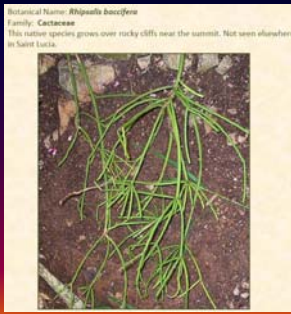
Climate Change and Caribbean Mountain Flora

Decreasing habitats and climate change push mountain flora to higher altitude until there is nowhere to go



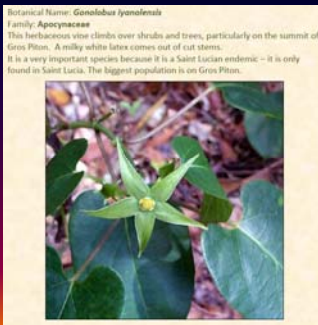
Source: Petit & Prudent (2010) Climate Change and Biodiversity in EU OTs

Rare & Endemic Plants of the Pitons



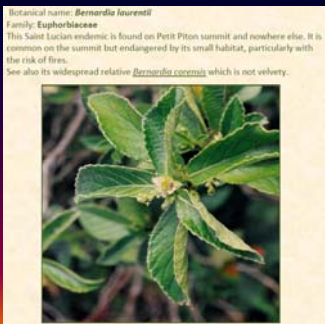
Source: R. Graveson (2011) Plants of Petit and Gros Piton

Rare & Endemic Plants of the Pitons



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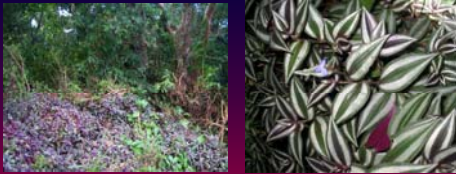
Rare & Endemic Plants of the Pitons

Botanical Name: *Juniperus barbadensis* var. *barbadensis*
 Family: **Cupressaceae**
 Local name: pencil cedar
 The subspecies 'barbadensis' is found on the summit of Petit Piton. It is the only population left in the world, having become extinct in Barbados and other areas of Saint Lucia.



Source: R. Graveson (2011) Plants of Petit and Gros Piton

Well-intended, but ill-informed use of exotic ornamentals




Tradescantia carpet on Piton Trail now smothers our native flora

Source: www.saintlucianplants.com

Plants of Saint Lucia
 Wild Flowering Plants

Home	Commelinaceae family
Aliases	<i>Tradescantia zebrina</i> hort. ex Bosse, Volst. Handb. Bl.-pflanz. 4: 625. 1849. Syn.: <i>Zebraea pendula</i> Schinzl. (1849).
Families	Wandering Jew
Species	Naturalized low trailing herb of semi-evergreen seasonal forest. Very common Gros Piton. Very rare elsewhere.
Local names	Of African origin
Endemics	Invasive around tracks on Gros Piton, replacing native ground flora. It should be removed from this native forest. An awareness programme is required for the community of Fond Gens Libres. Also a cultivated ornamental.
International names	



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 Template design by Andrew Hilliard

Source: www.saintlucianplants.com



World Heritage Convention

- Aims to protect the world cultural and natural heritage
- IAS have been recognized as a threat to WH sites, i.e. on Galapagos Islands: *“Various threats including insufficient prevention of possibilities for the introduction of alien species, insufficient resource allocation for conservation agencies and park management, presence of a large number of illegal immigrants, rapid uncontrolled growth of tourism, fishing over-capacity and sports fishing”*
- Non-compliant WHS have lost prestigious status as result of mismanagement development, e.g. Dresden along Elbe valley; Belize Barrier Reef listed as “at risk”



Tools

- Public Education Campaigns
 - Off-shore islands brochure
 - Lionfish poster and post cards
 - Seagrass poster – regional database
 - Youth field trips
- Voluntary Code of Conduct
 - Developed by and for Ornamental Plant Sector
 - Awareness-raising
 - Promotion of indigenous ornamental species of same use
 - ⇒ requires knowing what’s native!




Tools

- Report suspicious sightings
 - Migratory birds, day-active moth and katydid after Hurricane Tomas





Photo © M. Morton, DWCT





Conclusions & Recommendations

- **Prevention is better than cure!** Let's keep risky exotics out
- Most attractive ecotourism sites are at most risk
- Off-shore islands particularly vulnerable and require utmost care
- Deliberately introduced ornamentals and pets represent huge risk, but VCoC are available or planned.
- **Get informed and share this knowledge!** Your neighbours, community, colleagues and business partners will appreciate it.
- Authorities require collaboration of private sector to curb smuggling
- **Public-Private Partnerships** lead to cost-effective measures and minimize conflicts of interest

Invasive Species – relax if you still can !



Thank you!







Photo credits:
 D. Gustave & D. Lewis Forestry, Fire & IAS
 M. Morton et al., Durrell Wildlife Conservation Trust
 Roger Graveson's The Plants of Saint Lucia
