

Drivers of Degradation in Terrestrial Ecosystems in the Caribbean

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Most of the biodiversity of Terrestrial Ecosystems in the Caribbean is associated with Forests

- Where are the Forests of the Caribbean
- The role of forest in a changing landscape
- Drivers of Degradation
- Opportunities for Restoration
- The Social Dimension

Land area, forest cover, and population density (FRA 2010)

Area and Population	Total Area	Forest Cover	% Forest	Total Population	Population Density
Country	1000 ha	1000 ha	% of land area	1000	Persons /km2
Total Lesser Antilles	1,256	461	28	3,332	265
Total Greater Antilles	22,116	5,456	31	36,557	221
Total Continental Countries	40,120	31,533	81	1,476	6

The role of forest in a changing landscape

Phase 1

Free for all

- Forest as land reserves for agriculture and
- “unregulated” source for timber

Phase 2

Conservation of what remained

- Forest Reserves
- Timber harvesting regulations
- as a source for timber and land reserve for other land uses
 - Forest plantation establishment
 - Plantation management
 - Managing natural regeneration
 - Interventions in natural forests

Phase 3

Decline in Agriculture

- Emerging secondary forest on agricultural land
- Puerto Rico, Barbados, St. Kitts and Nevis

Lessons learned from changing roles of forest in the landscape

- The vegetation cover in a landscape is not static
- It changes according the demand for land
- Forest are the last and least appreciated land use

Example for Deforestation and Degradation

- Lowland forest to agriculture
- Mountain forests to subsistence agriculture
- Dry forest to residential areas
- Mangroves to marinas, hotels and shrimp farming
- Unsustainable logging
- Unmanaged wild fires
- Invasive species
- Mining (Bauxite, Sand and Gold)

Low land forest to agriculture



Natural Succession



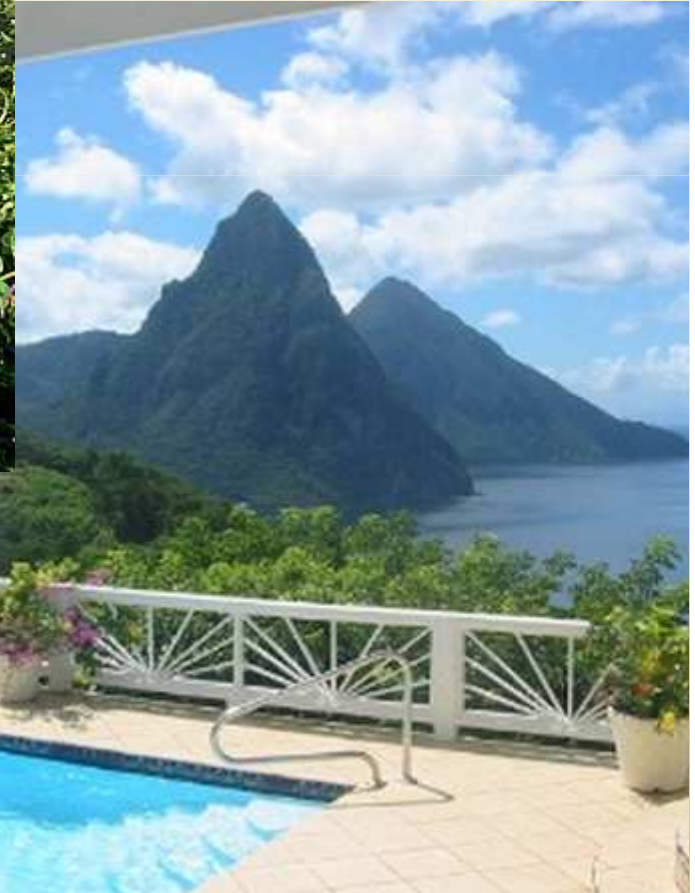
Reforestation by default



Mountain Forest to Subsistence Agriculture



Dry Forest to Residential Areas



Mangrove Forest to Marinas, Hotels and Shrimp farms



Increased urbanization

- Rural areas are being abandoned
- Cities and their surroundings are increasingly crowded and “cast in concrete”



Unsustainable Logging



Unmanaged wild fires



Fire and invasive species



Mining for Gold, Bauxite and Sand



Drivers of Degradation

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Poverty



Income/per ha and Biodiversity

Land use model	Income per ha	Biodiversity	External benefits examples	External costs examples
Supermarket	High	Low to absent	employment	Flooding and sealing of surface
Agriculture	Moderate	Limited to a few species	Direct contribution to food security	Leaching of pesticides and fertilizers
Forest	Low	high	Provision of water into the aquifer	Limited generation of <u>cash</u> income

Poverty and Biodiversity

- Hunger for land
- Agricultural frontier
- Marginalized people on marginal lands
- Unsecure land tenure
- Biodiversity conservation needs to address poverty



Conclusion

- Although the widespread extensive deforestation of the Caribbean has come to a halt and some natural forest recovery can be observed there is a continued degradation of biodiversity.
- Key drivers for biodiversity degradation are increased urbanization and other land use changes in sensitive ecosystems: mountains, mangroves, dry forests

Questions

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