

BIODIVERSITY..... a resource to be protected



**Presented
by
National Environment and Planning Agency**

TOPICS

- What is biodiversity?
- Ecosystem Biodiversity
- Species Biodiversity
- The Importance of Biodiversity
- Threats to Biodiversity
- IYOB



International Year of Biodiversity



<http://www.nepa.gov.jm/iyb/pages/index1.html>

What is biodiversity?

“the variability among living organisms from all sources including, *inter alia*, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems” (Convention on Biological Diversity)



Ecosystem Biodiversity Summary

- Ecosystem is a geographical area where a community of living (plants and animals) and non-living (climate, landscape) things interact together and affect each other
 - There are several ecosystems, each of which is important in terms of its functions, benefits derived and biodiversity it supports
 - All ecosystems are interrelated, i.e. activities in one area often affect the state of other areas, directly or indirectly
 - Biodiversity of species depends on the maintenance of ecosystem integrity



Ecosystem Diversity



Inland resources

- Forests
- Plains
- Rivers
- Wetlands



Coastal and marine resources

- Wetlands
- Mangrove forests
- Beaches
- Sea grass beds
- Coral reefs
- Open waters



FORESTS

- Montane, Mist, Dry Limestone, Wet Limestone
- Plants, birds, insects, reptiles, amphibians
- Wood, fuel, agriculture, medicinal plants, food, watershed/catchment areas aesthetic value, tours
- Charcoal burning, animals hunted, plants removed for sale, deforestation, land modification – agriculture; housing; roads; mining, invasive animal and plant species
- landslides, land instability, flooding



PLAINS AND WETLANDS

- Plains, swamps, rivers, mangrove forests
- Birds, reptiles, crustaceans, fish, plants
- Fishing, recreational purposes, irrigation, land reclamation – housing and agriculture, juvenile fish nursery
- Pollution by sewage and effluent release, animals hunted, trees removed
- Flooding, fish kills, fouling of water



COASTLINE AND COASTAL WATERS

- Beaches, seagrass beds,
- Coral reefs, open waters
- Fish, turtles, plants, corals
- Beach nesting by birds and turtles, fishing, recreation: swimming, diving, snorkeling
- Over-fishing, turtle slaughter, reef blasting, beach developments, effluent release, pollution, dredging, sand mining, ballast water, removal of coral
- Beach erosion, reduced protection from surf, species invasions, species loss, pollutant effects: fish kills, toxins in marine organisms



Species Diversity



Jamaican Coney

- Species diversity takes into account **ALL** species present within various terrestrial, freshwater and marine habitats.
- Birds, Reptiles, Mammals, Fish, Insects, Crustaceans, Plants, Micro-organisms, etc



Solanum troyanum



Jamaican Mango

Species richness and endemism in plants

TERRESTRIAL FLORA	TOTAL NO. OF SPECIES	# OF ENDEMIC SPECIES	% ENDEMIC SPECIES
Bromeliads	60	22	36.7%
Orchids	230	60	26%
Ferns	579	67	11.5%
Cacti	20	10	50%
Palms	10	7	70%
Grasses	~200	1	0.5%

High level of plant endemism in the island – rated 5th in the world's islands by the IUCN (World Conservation Union) in terms of endemic plants species



Species richness and endemism in animals

TERRESTRIAL FAUNA	TOTAL NO. OF SPECIES	NO. OF ENDEMIC SPECIES	% ENDEMIC SPECIES
Rotifers	211	<21	<10
Land Snails	514	505	98.2
Grapsid Crabs	9	9	100.0
Jumping Spiders	26	20	76.9
Fireflies	48	45	93.8
Butterflies	133	20	15.0
Ants	59	6	10.3
Amphibians	22	22	100.0
Reptiles	43	33	76.7
Shore and Sea Birds	39	1	2.6
Land Birds	67	30	44.8
Bats	21	2	9.5
Other Mammals	2	2	100.0



The Importance of Biodiversity [values and benefits]

- Direct Values
 - goods and services
- Indirect Values
 - function of the resources
- Option values
 - future potential uses
- Existence values
 - knowledge of biodiversity
- Bequest values
 - values for future generation



WHY IS BIODIVERSITY IMPORTANT

- food, construction material, raw material for industry, medicine
- basis for all improvements to domesticated plants and animals
- stores and cycles nutrients essential for life, e.g. carbon, nitrogen and oxygen
- absorbs and breaks down pollutants, including organic wastes, pesticides, heavy metals
- protect catchment basin and
- buffers extreme water conditions
- produces soil and protects it from excessive erosion



Threats to Biodiversity



- Habitat loss and fragmentation
- Introduction of species
- Over-exploitation of plant and animal resources
- Over-exploitation of habitats and natural products

Threats to Biodiversity



- Pollution of soil, water and atmosphere
- Global climate change
- Industry, housing and agriculture





Thank you....

Questions

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Comments