

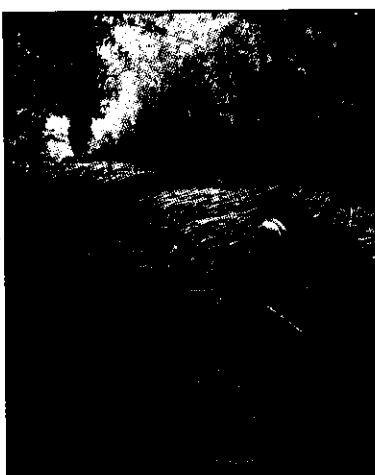
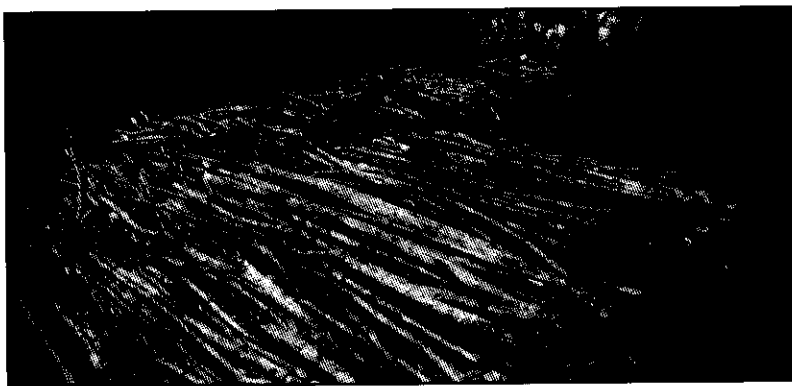
A healthy forest environment



Clearing of forest lands for lumber and agriculture—a common practice



Trail through forest



Mangroves can be harvested in a sustainable manner for charcoal production as in the case of the Mankoté Mangrove

Objectives: The objectives of this project are to :

- catalogue and establish a database for specimens compiled in the national herbarium;
- establish a management structure for the national herbarium;
- add new flora specimens to the present collection, also, to include non-vascular plants;
- improve on the existing physical conditions in the herbarium;
- establish a protocol for the operational functioning of the herbarium;
- develop a tool for monitoring and updating the status of all flora species in the different life zones;
- develop the staffing required for the full time management of the herbarium;
- dissemination of all relevant information to research institutes and the general public.

Activities: The main steps to be followed in this project are as follows:

- conduct an inventory and sample all natural vegetation types in all recognized life zones of the island;
- collection of three samples of each species of St. Lucia's flora;
- partitioning of the herbarium to include the following - filing room, storage room, drying room and laboratory room;
- purchasing of all necessary equipment, tools, materials and literature required for smooth operation of the national herbarium;
- procurement of the services of a plant taxonomist to spearhead the collection and cataloguing process, and identification of the various flora species (taxon of the species);
- collaboration with the Sir Arthur Lewis Community College and the University of the West Indies, St. Augustine Campus, for setting up a center to house the second and third sub-collections;
- training persons in the following fields - general botany, economic botany, ecology, ethno-botany, field methodology and herbarium management techniques;

Total estimated costs: EC\$ 850,000/US\$ 316,197.

Implementation and institutional arrangements: This project will be co-ordinated by the Department of Forestry in close collaboration with the relevant NGOs, the Sir Arthur Lewis Community College and the University of the West Indies, St. Augustine Campus.

Project 19: Development of artificial habitats for coastal and marine resources

Rationale: There is need to replace lost habitats and thus prevent or halt the loss (by death, migration, and loss of fecundity) of certain threatened and important marine species such as lobsters, reef fish, conch, sea urchin and coastal pelagics.

Objectives: The objectives of this project are to:

identify critical marine areas and ecosystems under threat;

- research, identify and establish environmentally suitable artificial habitats which will improve and if necessary replace threatened or lost habitats.

Activities: This project will involve the following activities:

- conduct of relevant surveys in coastal and offshore areas to determine habitats under threat of destruction;
- establishment of samples of artificial habitats (e.g. lobster house and artificial reefs) to determine their impact on biodiversity conservation;
- conduct of relevant public education and awareness programmes, especially among fishing communities;
- formulation of a comprehensive programme for the development of artificial habitats.

Total estimated costs: EC\$ 150,000/US\$ 55,799.

Implementation and institutional arrangements: This project will be implemented by the Department of Fisheries.

Project 20: Evaluation of the medicinal and culinary properties of herbs

Rationale: A number of herbs have traditionally been used for medicinal and aromatic purposes. There are other species which are not currently used in the country, but which are known to other societies for their medicinal and culinary uses. There would be much to gain from a systematic investigation of the current and potential uses of these herbs.

Objectives: The objectives of this project are to:

- foster greater awareness of the uses of local herbs;
- promote small-scale business activities based on the sustainable use of these resources;
- contribute to agricultural diversification.

Activities: The main steps to be followed in this project are as follows:

- surveys of current knowledge about uses of herbs in the country;
- collection of information from other countries;
- preparation of a technical package to guide processing and commercial uses;
- dissemination of information to farmers and processors;
- provision of technical assistance for processing and producing.

Total estimated costs: EC\$ 76,000/US\$ 28,272.

Implementation and institutional arrangements: This project will be implemented by the Department of Forestry, in collaboration with the St. Lucia National Trust and other relevant organisations.

Project 21: Promotion of organic farming

Rationale: The use of organic methods has a positive impact on biodiversity, as it reduces the negative impacts associated with the use of agro-chemicals, and encourages the use of more local species and varieties, thus increasing the chance of contributing to the conservation and dissemination of cultivars. Produce from organic farms are known to be better for human health. Organic farming offers the additional benefit of using organic waste in the production system.

These methods are relatively well known, but there are a number of obstacles to their acceptance by a larger number of farmers, including the lack of awareness of the benefits of organic farming, the absence of a strong demand from the consumer, and the weakness of marketing arrangements.

Objectives: The objectives of this project are to:

- support the growth of organic farming;
- reduce the negative impacts of agricultural production on biodiversity.

Activities: The main activities to be implemented in this project are as follows:

- public awareness campaign on the value and benefits of organic farming, and on the qualities of organic produce;
- sensitisation of the farming community, and extension of organic farming methods to interested farmers;
- provision of funding and technical assistance to pilot projects;
- liaison with public and private sector interests to improve marketing arrangements;
- conduct of a study to establish the feasibility of a programme of certification of organic farmers and produce.

Costs: To be estimated.

Implementation and institutional arrangements: This project will be implemented under the auspices of the Department of Agriculture, acting in collaboration with the Ministries of Education and Commerce and with relevant community organisations, notably the National Council for the Advancement of Rastafari.

Project 22: Increasing and managing plant diversity for sustainable rural livelihoods

Rationale: There are a number of plant species which provide useful goods and services to people, as well as the basis for sustainable uses that can bring benefits to people while maintaining diversity. The propagation of these species can bring the additional benefits of enhancing the use of marginal lands, assisting in the beautification of public areas and landscapes, and improving soil conservation.

Objectives: The objectives of this project are to:

- conserve important species and cultivars;
- sustain the production of goods which contribute to local production and subsistence systems;
- generate revenue and employment for small-scale producers;

- enhance St. Lucia's tourism product by improving the quality and diversity of craft and art work offered to visitors.

Activities: The main steps to be followed in this project are as follows:

- identification of the plant species that are the best candidates for a propagation programme (Latanier, *Cocothrynx barbadensis*, used in the making of brooms; spices; cashew trees; indigenous timber species; etc.);
- identification of potential partners at the community level;
- establishment of community-based nurseries, and propagation of plants in established government nurseries;
- provision of training and technical assistance to community groups.

Costs: To be estimated.

Implementation and institutional arrangements: This project will be co-ordinated by the Department of Forestry, working in close collaboration with the Department of Agriculture and with relevant NGOs and community groups.

Appendix 1: TRENDS AFFECTING ST. LUCIA'S BIODIVERSITY AND CAUSES OF THESE TRENDS

Ecosystems	Threats	Causes
<p>Forests and Terrestrial Wildlife There are five forest types (rainforest, lower montane rainforest, montane elfin woodland, secondary forest, and dry scrub woodland) covering approximately 35% of the land area. 1/3 of the forest area is in government forest reserves, including one protected area (the Parrot Sanctuary). There are at least 1,310 plant, cycads and gymnosperms belonging to 143 families, plus 119 fern species; 150 bird species; 14 reptiles; 9 mammals and 4 amphibians.</p>	<p>22.5% loss of forest between 1977 and 1989 - losses high in both rainforest and scrub forest</p> <p>27 endangered plant species, 4 endangered bird species</p> <p>2 endemic species, the St. Lucia muskrat (mammal) and the mountain chicken (amphibian), thought to be extinct</p>	<p>agricultural conversion, especially for bananas</p> <p>deforestation for charcoal production</p> <p>removal of vegetation cover for housing and infrastructural development</p> <p>loss of habitats critical to endangered species</p>

Ecosystems	Threats	Causes
<p>Coastal and Marine Ecosystems Coastal and marine ecosystems are diverse, including coral reefs, seagrass beds and mangroves, which provide home to a wide array of species of fish, invertebrates, birds and sea mammals. Most coastal and all marine natural areas are under public ownership.</p>	<p>patch and narrow fringing reefs seriously affected by sedimentation and land-based pollutants</p> <p>approximately 12.5% of beach length currently mined for sand</p> <p>approximately 40% of mangroves lost, remainder under stress</p> <p>stocks of most commercially important benthic species diminishing and potentially threatened</p>	<p>possible excessive harvesting of commercially important species, particularly some groupers and shallow reef snappers, the conch and the white sea urchin</p> <p>inadequate disposal and treatment of liquid waste</p> <p>unregulated construction and dredging in coastal areas</p> <p>soil erosion from poor agricultural practices on steep slopes</p> <p>mining of sand for construction purposes</p> <p>conversion and reclamations of mangroves, and illegal use of these areas for waste disposal</p> <p>illegal trade in coral and other protected species</p> <p>illegal exploitation such as unauthorized foreign fishing and fishing in marine reserves</p> <p>illegal and destructive fishing methods</p>

Ecosystems	Threats	Causes
<p>Freshwater Ecosystems Freshwater habitats include 37 rivers and water catchments, and a small number of marshes, swamps, underground springs, flood plains and inland mangroves. There are also constructed systems such as the Rodney Bay sewage treatments ponds, the Roseau dam and aquaculture ponds. All these systems provide habitats for the maintenance of flora and fauna. Relatively little is known about the species present, but recent studies have identified at least 13 species of shrimp, many micro-invertebrate families, a few fish and several bird species.</p>	<p>50% of the wetlands already lost, and decline still continuing</p> <p>increase in the incidence of water poisoning with undetermined effects on freshwater and possibly marine biota</p> <p>increases in siltation and pollution above water intakes</p> <p>increases in human demands for freshwater (for drinking, irrigation, washing, bathing, industry, recreation) with demand exceeding supply in some catchments, particularly during the dry season</p> <p>transformation of water courses and systems to facilitate urban development and flood control</p>	<p>conversion and reclamation of mangroves, and illegal use of these areas for waste disposal</p> <p>increased use of toxins for fishing, and absence of control</p> <p>deliberate and indiscriminate disposal of agro-chemicals and industrial wastes</p> <p>continuing expansion of banana cultivation and other crop production on steep slopes in catchments above water intakes</p> <p>rapidly growing population, particularly in Castries and Gros Islet</p> <p>rapidly growing tourism industry</p> <p>changing patterns of consumption and recreation</p> <p>expansion of settlements into water catchment areas</p> <p>inappropriate river management schemes and techniques</p> <p>river sand mining, river bank cultivation and deforestation</p>

Ecosystems	Threats	Causes
<p>Agro-ecosystems A wide variety of fruit, vegetable and other crops are grown in St. Lucia. Banana cultivation is usually conducted in a monoculture system and is considered the largest and most significant agricultural production activity on the island. Land races, old crop varieties and wild relatives of crops are an important, although poorly documented, component of the nation's biodiversity. There are approximately 24 varieties of <i>Musa</i> species. Livestock production has been increasing and new genetic material is being introduced. Agro-ecosystems contain a number of other useful species, including medicinal plants.</p>	<p>although the status of many local varieties is not well documented, some are likely to be threatened by the introduction of new hybrids and by the clearing of agricultural lands</p> <p>non-propagation of important genetic material, resulting in loss of varieties and cultivars which could play a role in future crop improvements</p>	<p>conversion of agricultural lands for other uses</p> <p>abandonment and displacement of local varieties</p> <p>reduction in demand for local species, varieties, hybrids and breeds</p>