

THE WAITUKUBULI NATIONAL TRAIL:
DEFINITION OF A PRE-PRODUCT
AND
IDENTIFICATION OF ENVIRONMENTAL ISSUES

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The feasibility study

A feasibility study of the proposed Waitukubuli National Trail in Dominica is being undertaken by the Caribbean Natural Resources Institute (CANARI) on behalf of the Waitukubuli Ecological Foundation (WEF). This report has been prepared for CANARI and forms part of the feasibility study.

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Also in this series

Lane, B. 2001. The Waitukubuli National Trail: its market position and potential. Waitukubuli Ecological Foundation, Roseau, Dominica, Feasibility Study Report No. 1. CANARI Technical Report No. 288: 22pp.

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EXECUTIVE SUMMARY

BACKGROUND INFORMATION

Dominica is the most northerly of the Windward Island chain with a total area of 751 km² and a population of 71,000. It is a volcanic island with a series of complex mountain ranges, aptly giving Dominica the description of being rugged.

Sixty-five percent (65%) of Dominica's land area is covered by vegetation ranging from dry scrub woodland on the coast to lush, tropical forest in the interior and a wide variety of fauna and flora. The interior is interspersed with rivers, waterfalls and lakes. This has earned Dominica the name "The Nature Island of the Caribbean".

Dominica's economy has been dependent on agriculture with bananas contributing up to 70% of export earnings. This has declined considerably over the last ten years. As a result, emphasis is being placed on tourism development as a means of diversifying and boosting the economy.

The primary tourism resource base in Dominica is its pristine natural environment. The volcanic landscape with its lush rainforests, supports a rich diversity of flora and fauna of great interest to nature tourists and the unspoilt coral reefs provide unique diving opportunities. The country is largely unspoiled by either development or pollution, and boasts a unique and varied cultural and historical heritage. Sustainable tourism development - linking the tourist to the environment- enabling economic development to take place without spoiling Dominica's primary resource- the environment- has been the *raison d'être* of Dominica's tourism thrust, promoting itself as the "Nature Island of the Caribbean". There are three National Parks, one of which is designated a World Heritage Site. A national trail will complement and boost Dominica's tourism product.

One of the major activities undertaken by visitors to Dominica is hiking. There are numerous trail networks in Dominica some developed, and others traditional hunting or farming trails. Some work has recently been undertaken to locate, describe and map the trails. The work of Fabrice Gallet, and that of Dr. Peter Evans, are especially important in the identification and possible linkage, and the development of a network of trails that will form the national trail.

GOALS AND OBJECTIVES

The major goal of this project is to develop a national trail in Dominica utilizing existing trails where possible. It is felt that such a project will serve to achieve the following:

- To develop a sense of national pride and appreciation of Dominica as the "Nature Island of the Caribbean" and to serve as a symbol of national pride.
- To foster community participation as an integral part of the development process and to promote community tourism.

- To utilize Dominica's natural resources and its historical and cultural heritage on a sustainable basis for the economic benefit and well being of its people.
- To enhance Dominica's tourism product and to increase its marketability as a nature tourism destination.

PROJECT CONCEPT

The Waitukubuli Ecological Foundation initiated a visionary concept aimed at creating a national identity for Dominica through the creation and development of a national trail, the Waitukubuli National Trail. It is envisioned that this national trail will be created through a national effort at which all relevant communities will participate and benefit from this project. The trail as proposed will traverse from the north to south of Dominica, linking existing and possible new trails. Proposed trail length could be about 150 miles long and/or a minimum requirement of 14 days or more for hiking the entire length of the trail.

The national trail will represent a symbol of Dominica's natural, historical and cultural assets that will ensure the indigenization of its product. The description provided by the U.S. National Trail Systems Act for a national scenic trail aptly describes the product one seeks to develop. The national scenic trails are defined thus: "extended trails so located as to provide for maximum outdoor recreation potential and for the conservation and enjoyment of the nationally significant scenic, historic, natural, or cultural qualities of the areas through which such trails may pass. National trails may be located so as to represent desert, marsh, grassland, mountain canyon, rivers, forest and other areas, as well as landforms which exhibit significant characteristics of the physiographic regions of the Nation".

In this vein, the Waitukubuli National Trail should incorporate and thus represent significant historical, cultural and natural assets of Dominica.

PRE-PRODUCT OVERVIEW

There are diverse national trails in Europe and North America spanning hundreds of miles with varied attractions ranging from ecological, historical and cultural assets. While Dominica is unable to compete in terms of length of trail because of its size, it should offer a competitive product relative to its size and resources. In developing a national trail as a tourism product, it must be borne in mind that product competitiveness will determine its marketability. As such, variety, uniqueness, safety, requisite facilities and services are important components of the proposed product.

The national trail should represent the heart and soul of Dominica's tourism product, representative of the largest natural, historical and cultural resource base of Dominica. It should complement and enhance Dominica's existing tourism product and increase the marketability of the "nature island image". In this vein, the trail should be a wilderness

trail intended to showcase Dominica's unique forest habitats and varied ecosystems and to integrate its historical and cultural heritage. The integration of rural or community tourism as a vehicle for the provision of tourism support services is vital to the development and success of the project.

The national trail as a sustainable tourism product should exhibit some key components as follows:

- Environmental sensitivity, ensuring that natural resources are protected.
- Some level of economic independence for communities in terms of employment and income generation and effective use of resources.
- Community participation and involvement to include the involvement of youth in planning, conservation and environmental management.
- Educational, recreational, scientific and therapeutic opportunities.

The trail is envisaged as a linear trail going from north to south or vice versa, with a series of interconnecting trails forming a network of trails. The network will consist of linear or loop trails offering the following:

1. Specialized product types like

- Geology / Volcanology e.g. the Boiling Lake/Valley of Desolation, Titou Gorge, Hot and Cold Sulphur Springs.
- Bird watching, specifically the indigenous parrot species, *Amazona imperialis*, the Sisserou, and *Amazona arausiaca*, the Jaco, ensuring that the protection of the habitat of these species, especially the Sisserou, is not compromised.
- Mountain climbing.
- Other.

2. Historical / Cultural phenomena- Maroon trails, Carib trails.

3. Rest stops for overnight accommodations. Rest stops should be determined using varying criteria like average number of hiking hours a hiker is expected to cover a day: a probable minimum of 6 hours/day following which a visitor would seek food and accommodation. This means for example, that after a 6-hour hike, a loop or linear trail should lead to accommodation and eating facilities.

4. Some basic facilities/ amenities -toilet facilities, picnic shelters, interpretive facilities and directional signs.

5. Other services like telecommunications e.g. mobile phones and trail safety facilities e.g. medical posts, emergency services etc.

CONCLUSION AND RECOMMENDATIONS

A national trail will be a landmark for Dominica specifically in term of highlighting the true features of Dominica as the "Nature Island of the Caribbean". It must be developed within the framework of wilderness preserve so as to conserve the integrity of the forest- its fauna, flora and ecological diversity. A range of interpretive and recreational facilities and services must be put in place so as to provide a product that is competitive and unique.

The development of a national trail entails careful utilization of natural resources for economic development. This will require the implementation of mechanisms for monitoring impacts associated with human use so as to mitigate any negative impacts on the resources. It is a challenge in terms of ecological sustainability, community involvement and economic gain, and it could serve as a model for eco-tourism development.

In order to be competitive, the trail must represent a product that stands apart, that can attract visitors and something that all Dominicans can be proud of.

INTRODUCTION

Dominica's major tourist attractions are its natural, historical and cultural resources. Nature tourism, including the ecological and marine tourism (specifically diving, and whale and dolphin watching) and the festivals like Independence, Carnival and the World Creole Music Festival, are a major pull for visitors to Dominica.

Hiking is undertaken by most visitors to Dominica. Hiking trails range from a few minutes to a full day and from easy to challenging. Dominica is well known for its natural attractions -mountains, rivers, waterfalls, diversity of flora and fauna, volcanic phenomena- the Boiling Lake and Sulphur Springs. In fact there are existing trails to most of these attractions. Dominica has a competitive product that needs to be developed in terms of facilities and services. A national trail that incorporates Dominica's product elements will enhance Dominica's competitiveness as a nature island destination. The trail is expected to connect points of interest through a network of trails. It is expected that such a product would increase length of stay in Dominica and tourism expenditure.

Fabrice Gallet's Inventory and Mapping of Major Trails in Dominica (Gallet 1997) identified 32 walking and hiking trails, 19 located in the south of the island, 6 centrally located and 7 in the north. He indicated that there was potential for developing other trails. Presently there exists a diversity of trails leading to various attractions ranging from ecological diversity to geological phenomena to historical and cultural features to unique fauna and water basins. The development of a national trail incorporating Dominica's outstanding features and catering to a variety of needs and market demands for this type of facility will complement the existing tourism product.

RECOMMENDED CHARACTERISTICS OF THE PROPOSED NATIONAL TRAIL

TRAIL CONCEPT

The proposed national trail should be a "wilderness trail" consistent with the National Park concept, i.e. the protection of the natural features and processes of parks and forest reserves, and the interpretation of these resources for educational, scientific and recreational purposes. Park zonation and other existing park management policies and programmes as well as those of Forest Reserves will be strictly adhered to where the trail passes through these areas.

A range of interpretive, recreational and other visitor services must be provided consistent with this basic concept with all trails oriented to pedestrian use. As far as possible, the use of motorized roads should be avoided.

Integrated in this, is the concept of ecotourism based largely on the sustainable utilization of natural resources for economic development. The adjacent communities should be the focal areas and beneficiaries of economic development. As such the role of the communities in the development and management of the national trail is crucial to the

sustainable development and success of the project. The community will be expected to provide the services required. As such, it will be important to provide training in tourism awareness and tourism product strategies.

TRAIL CONFIGURATION

It is envisaged that the trail will traverse from north to south or vice versa and will basically be a linear trail with a series of interconnecting loop or linear trails forming a network of trails. These interconnecting loop or linear trails will highlight a variety of features, services and amenities that will provide the diversity and uniqueness for which the trail will be known- its image. This will consist of the following:

- A variety of walks from leisurely to challenging.
- Specific other attractions: either unique features or more sensitive habitats, wildlife or archaeological sites or volcanic phenomena.
- Controlled visitation to sensitive sites or to view endangered species of plant or animal wildlife.
- Themes to add variety and interest to the trail and to meet the needs of varying visitor demands and interests.
- Sections that serve as routes to overnight accommodation facilities, exit points and other services undertaken at the community level.

In looking at the overall description of the trail, it will be segmented according to the following identified features:

- Length
- Duration for completion
- Level of difficulty
- Characteristics
- Amenities and facilities
- Safety requirements and needs

PROPOSED TRAIL FEATURES

The following will serve as a guideline for the major elements to be considered when selecting features for inclusion into the national trail.

Natural Assets

The significant natural elements represented should encompass the following:

Significant forest types

This will entail a diversity of ecosystem ranging from dry scrub woodland and littoral vegetation on the coast to secondary forest and grasslands to mature rain forest, montane forest, and elfin woodlands or cloud forest at the highest elevation.

Diversity of wildlife

This will include a diversity of birds, insects, plants but exclusives of endangered species. A loop trail could be considered for limited or controlled access to view endangered species of birds e.g. the parrots as opposed to open access.

Significant geological formations or volcanic phenomena

Nine volcanic cones make up the island of Dominica, four of which are located in the Morne Trois Pitons National Park and World Heritage Site. In addition to these, there are a number of volcanic phenomena including the following:

The Boiling Lake

Hot and cold Sulphur Springs

The Crater Lakes- Freshwater and Boeri Lakes

Titou Gorge

Other features

Optional mountain climbs

Mountains of grandeur

Waterfalls, Lakes, rivers, and caves

Vistas

Historical Features

Dominica's historical legacy is fascinating to visitors. To date, the most highly visited area is the Carib Territory. Still undiscovered by Dominicans and visitors alike is the role of Maroons in shaping Dominica's history and remnants of their physical activities left behind in the form of maroon trails. Some examples of the island's historical legacy should be highlighted as follows:

Carib Indian Territory

Old Carib trails

Maroon trails

Cultural Assets

This could be manifested through identified village overnight stops- a fishing village, a historically significant community/ village

Carib Territory

A village known for bay rum production -- Petite Savanne

Banana field packing

Areas with known significant historical buildings

ROUTE CHARACTERISTICS

In developing a national trail, it is important from the very start to develop an image that will distinguish the product and ensure some level of competitiveness. Today's traveler seeks increasingly to visit destinations with good environmental management policies and practices. A high quality national trail should have some of the following characteristics:

- * Challenging
- * Offers a wide variety of experiences
- * Is informative
- * Avoids duplication
- * Provides alternative network of trails to accommodate varying user types
- * Is inviting and well maintained
- * Ensures the safety of users, among other things.
- * Protects the resources that form the very basis of the product.

TRAIL INFRASTRUCTURE

Amenities and facilities

Trail facilities are required to enhance visitors' experience and enjoyment of the resources characteristic of the trail and to meet onsite management needs for protection of the resources. A design theme should be developed for all trail facilities and structures to harmonize with the environment. As far as possible, local materials will be used as well as local technology in design and form. It is expected that international signage will be used.

Facilities and services essential for on-site visitor and management needs must be developed and constructed.

Trail head development must include parking area, restaurant/bar and toilet facilities, and interpretive centers for orientation and trash receptacles, among others. Consideration must be given to installing such facilities at both points of entry on the trail- north and south. Both ends are indeed trailheads offering entry or exit points to the trail. The rationale for having interpretive centers at both ends of the trail is to facilitate clients that may want to commence the hike either from the north or south. In other words, the national trail is not expected to have a distinct entry and exit point at the north or south. Each end could serve as an entry or exit point for clients hence this service would be required.

An interpretive center is not necessarily an elaborate structure. It is expected to function as:

- An orientation center to visitors
- A source of information and literature
- A sales point for the purchase of site passes to the national trail, and for the purchase of brochures, books, and other local mementos.
- A checkpoint for assessing visitor numbers etc.

Other facilities required along the trail are as follows:

- Basic toilet facilities, male and female. These will be required along the trail most likely located in the areas where shelters will be installed. It is a basic requirement. These may be pit latrines or chemical toilets.
- Picnic shelters/ rest stops. Picnic shelters serve as rest stops for snacking and will be especially important to clients who hike in groups and desire to do a leisurely walks and to “picnic”. It is also important as a shelter for stormy days. Hikers may find themselves leaving to hike on what is considered “bright and sunny” and then comes a heavy storm as is typical of Dominica’s weather. Some hikers do seek shelter from the storm and may not want to get off the trail immediately to go to a community especially if it is a matter of assessing the storm or rain in an effort to continue their hike.
- Directional signs and way marks are important guiding tools for users.
- Interpretation of features of the trail, ecological, geological, historical, for educational purposes.
- Development of an interpretive centre at both ends of the trail to serve as an information/orientation centre.
- Bar/ restaurant facilities at both ends of the trail to cater to clients for the same reason given above-both ends can serve as entry or exit points. It is expected that such services will be provided by entrepreneurs from adjacent communities.

Accommodation services

There are a number of alternatives available as follows to be located within designated villages/communities:

- Guest Houses
- Bed and Breakfast
- Farm Houses

The product offered has to be a quality, high-end product not based on consumption but on emotive experience. The service offered has to be customized service, very welcoming where décor, environment and culinary traditions/ local cuisine are important. This will require a high element of human input. This does not require elaborate structures. Major attributes must be in keeping with nature tourism and community lifestyle. Overall the facilities should be clean, offering good food with a definite nature tourism feel. Overall, it should provide acceptable standards and unique features that distinguish it from the general accommodation facilities.

Accommodation sites should be located based on the average number of hours a hiker is expected to cover a day-an average of six to eight hours or the equivalent in miles after

which the hiker is expected to seek accommodation. A loop or linear trail off the main trail to an adjacent community would lead to such a service- accommodation, food and beverage services, in selected communities.

There has always been a great demand for camping. However, this had not been encouraged in the past due to prevailing social problems and the general low occupancy rates experienced by the hotel sector. These social problems have been curbed. While the accommodation sector still experiences low occupancy rates, camping as a product is still very much in demand and to some extent, will appeal to groups of potential clients keen on hiking the national trail.

The development of a controlled campsite outside of the parks and forest areas is recommended. This should be located in close proximity to an identified community. Camping facilities are not allowed in the National Parks. It is expected that this will be undertaken by private entrepreneur or community groups.

Guiding services

The development of guiding services for specialized activity like botany, bird watching, history, and geology and volcanology is an important component of the national trail product.

Guiding services will be optional but must be available for those who desire them. It is most likely that persons hiking the trail from one end to the next may not request a guide. However for the specialized alternative tours, guides will be required. It will be desirable to train persons from the communities for that service.

The offer of guiding services does not preclude the need to have self-guided trails. In fact it is desirable that the network of trails is self-guiding as is the norm in the majority of existing national trails. The role of the guides would be provision of services for specialized activities and of course to meet the need of clients who would require that service irrespective of the self-guiding nature of the trails.

Ranger services

Persons from the communities would be trained to offer these services which constitute regular patrol of the trail for "on the ground" maintenance and management of services and facilities, and the security for visitors among others.

Trail safety

Safety of visitors is a major priority for any product offer. As such, trail construction must cater to visitor safety. In addition to this, provision for emergency services and medical facilities must be made. This includes provision of ranger services mentioned above, a medical post and helicopter emergency landing.

A medical post may constitute an area where telecommunication facilities are available to make emergency calls for medical assistance or emergencies. It should allow for direct contact with the main hospital services, the Fire Service or the Community Health

Centers in any of the participating communities. Such services may be located within rain shelters.

The idea of a helicopter emergency landing site does not imply the creation and development of a helipad. It means that an appropriate area or areas for landing should be identified in case of an emergency and thus become part of the product offer.

Mountain biking and horseback riding

These activities usually conflict with the use of existing trails and reduce product quality. While the national trail is not expected to "be all things to all men", it is possible to include these two as alternative activities available through one of the loops or linear trail.

Horseback riding has not been part of the tourism product offer and may not be considered for the immediate future. However, there is a demand for mountain biking. It is already a component of Dominica's tourism product offer and may be considered in the medium term. The availability of proper biking trails has been considered one of the shortcomings for the marketing of this product.

CRITERIA FOR THE SELECTION OF TRAILS FROM THE EXISTING NETWORK

Trails can be classified as loop or linear, open or closed, gentle or steep. The proposed national trail is expected to be a linear trail with adjoining trails-linear or loop- to form a network of trails.

It is important that an evaluation of the present status and accessibility of existing trails is undertaken. This will include an environmental assessment of the trails and any negative effects that have occurred as a result of use or overuse of the facility.

The following should be used as a baseline for selecting trails from the existing network:

- Existing trails with known social and environmental conflicts should be avoided, e.g. trails that conflict with private landowners or with watershed areas.
- Those that have reached the optimal environmental capacity should be avoided.
- Trails that are proved to be unsafe and hazardous to users should be avoided.
- Trails located in waterlogged areas should be avoided.
- Trails located in geographical areas known to be hostile to tourists should be avoided, e.g. Wesley/Woodfordhill and Calibishie areas where crimes against visitors have been on the rise.
- Trails with slopes over 60 degrees should be avoided.
- Trails oriented to year round use should be considered.
- Trails that pass through rivers and are impassable during heavy rains should be re-evaluated for use.
- Trails with adequate provisions for facilities and demand of users should be incorporated.

In addition to above, existing trails highlighting the following should be incorporated:

- Features of the Morne Trois Pitons National Park and World Heritage Site.
- Features of the Morne Diablotin National Park with special sensitivity to avoiding:
 1. the habitat of the Sisserou parrots since they are extremely sensitive to human activity.
 2. Major water catchments located there.
 3. Very old, large Gommier trees, *Dacryodes excelsa*, located there.
 4. Rare plant species like Laurier de Rose found in mature rain forests in the central portion of the island (Weber 1973).
- Geological and volcanic features.
- Vegetation types and distribution.
- Historical sites and features.
- Cultural phenomena and lifestyles.
- Water- Lakes, rivers and waterfalls.
- Vistas.
- Mountain climbing.
- Bird watching.

CRITERIA TO SELECT THE ROUTE OF NEW SECTIONS OF THE TRAIL

The objective for the development of the national trail is to select the route that has the optimum capability of interconnecting the existing trails taking into account:

- The need for highlighting unique historical, cultural and natural assets.
- Environmental considerations that will minimize negative impact on these resources.
- The environmental concerns and issues outlined.
- Safety of visitors, taking into consideration physical limitations and historical information on violence against visitors in specific geographic areas.
- Natural hazards, including areas prone to earthquakes, floods and landslides.
- Land use patterns.
- Socio-cultural conflicts.
- Socio-economic issues.
- Interlinkages, notably access roads to villages and communities.
- Resource conflicts that should be avoided.
- Park zoning.
- Recreational opportunities.

The following are some examples worth considering:

Trails of historical significance

Carib Trail in Pont Cassé and Castle
Bruce

Cabrits National Park

Trail from Freshwater Lake to Grand
Fond via Laudat
Maroon Trail at Jacko Flats

Capuchin Carib; Trace at Emerald Pool
 Carib Territory and L'escalier Tete
 Chien
 Historical trail from Petite Soufriere to
 Rosalie
 Maroon trails in northwest Rosalie and
 Morne Laurent

Trails with volcanic /geological
 significance

Crater Lakes- Freshwater and Boeri
 Boiling Lake and Valley of Desolation
 Wotton Waven, Sulphur Springs
 Titou Gorge
 Cold Sulphur Springs

Lakes and waterfalls

Boeri Lake and Freshwater Lake
 Kashibona Lake
 Woodford Hill Lake
 Trafalgar Falls
 Victoria Falls
 Sari-sari Falls

Jack Falls
Mountain climbing
 Morne Diablotin
 Morne Trois Pitons
 Morne Micotrin
 Morne Watt

Ecological/ Biodiversity

Middleham Area
 Morne Diablotin/ Heights of Governor
 Morne Trois Pitons
 Syndicate area
 Emerald Pool
 Northern Forest Reserve
 Central Forest Reserve

Villages of historical significance

Soufriere/ Scotts Head
 Grand Bay /Geneva Estate
 Colihaut
 Carib Territory
 Petite Savanne- Bay leaf processing
 Capuchin

MARKETS

There has been dramatic growth in adventure travel over the last ten years. The market is strengthened by the educational community, back packers, health enthusiasts, and nature lovers and family travel and persons with a genuine love of natural and cultural resources.

This type of activity is considered as special interest tourism. As such it is a niche market with specific requirements. There is a direct relationship between the type of attraction and the type of tourist. Attracting visitors depends on a number of factors including competitiveness, price level, access and quality of infrastructure, facilities and services.

Some market issues to be addressed:

- What products should be developed.
- Hikers' expectations during high and low season.
- Year round activity or possible closure during the hurricane season.
- Environmental impact and related restrictions to be considered.
- What market segments can be related to the tourism products.

A U.S. Travel Data Center travel survey undertaken in 1992 indicated that 7% or 8 million U.S. traveler had taken at least one ecotourism trip and 30% or 33 million

claimed that they would take one ecotrip within three years. Another study undertaken in 1994 of North American travel consumers indicated the following:

- 77% had taken a vacation involving activities related to nature, outdoor adventure or learning another culture
- of the 23% remaining who had not, all but one respondent stated a lack of interest

ECOTOURIST MARKET PROFILE

AGE	25-45
GENDER	50% MALE, 50% FEMALE-with clear differences in activity
EDUCATION-COMPOSITION	82% were college graduates
TRIP DURATION-	66% as couple, 15% as families, 13% alone
EXPENDITURE-	8 – 14 days
TOP 3 ELEMENTS OF THE TRIP	26% spent US\$1,000-1,500
MOTIVATION FOR TAKING THE TRIP-	Wilderness, wildlife, hiking and trekking
	Enjoying the scenery, nature, new experiences and places.

The marketing strategy should be directed towards the specialist market, i.e. niche travel intermediaries like specialist travel agents and wholesalers/ outbound tour operators and special interest markets like the following:

- Health clubs/ fitness centres
- Adventure travel
- Back packing
- Natural history societies
- Trail societies and organizations
- Hiking clubs like Ramblers Association
- Out door recreationists
- Educational institutions
- Photography clubs
- Family groups

Some promotional techniques to be utilized:

- Advertising
- Publicity
- Public relations

This will entail the preparation of collateral material like brochures, topographic maps audio-visual presentation and a general guide showing main routes and secondary routes like loops, junctions etc. eating and accommodation facilities.

Advertising

Target Groups

- Specialist publications like outdoor magazines, Smithsonian magazines, National Geographic, adventure travel magazines should be targeted.
- Travel trade publication aimed at tour operators and other trade organizations.
- Participation at specialist trade shows e.g. Adventure Trade Show held annually in Chicago.

Publicity and public relations

Familiarization tours

Hosting of Tour Operators and Travel Agents and Specialist media- National Geographic Audubon, Islands Magazine, Smithsonian Institute

Internet marketing

Website production, marketing and development of linkages to special interest sites and businesses.

LINKAGES

The development of a national trail from north to south of Dominica will entail working with various groups, organizations and departments as follows:

- Forestry Division
- Division of Agriculture
- Environmental Coordinating Unit
- National Development Corporation
- Community Tourism Organizations set up by the NDC
- Ministry of Community Development and Gender Affairs to include Local Government
- Youth Development Division
- Various NGOs like the Carib Council, the Dominica Conservation Association, the Dominica Hotel and Tourism Association, local tour operators and tour guides, the Association of Local Development Agencies, boy scouts, girl guides.

There are some ongoing projects that will influence the development and outcome of this project:

- The proposed National Ecotourism Development Project being funded by the European Union and administered by the Ministry of Finance and Planning.
- The National Biodiversity Action Plan being implemented by the Environmental Coordinating Unit.
- Standards being developed by the NDC specifically the NISE programme and the Sisserou Seal of Excellence being developed through French Technical Assistance to promote joint marketing with the French territories.
- The COMPACT Project – Ministry of Agriculture

ENVIRONMENTAL ASPECTS

CRITERIA FOR THE SELECTION OF TRAILS - ISSUES & CONCERNS

INTRODUCTION

Trails are usually 3.5 –4 feet wide with cross or side drains of 1ft X 1 ft. Trails are low impact because of the size and the need to preserve the features of the trail. For example, a trail is expected to be diverted around an important forest tree instead of having to cut down that tree to facilitate trail direction and construction. However, there are prevailing ecological and topographic conditions under which trail construction will create varying environmental impacts if certain measures are not implemented.

While historical, cultural and natural assets of an island should be representative aspects of trail characteristics, these features of existing trails must be evaluated before inclusion. A detailed environmental audit is required. This will provide information on topography, rainfall and drainage patterns, flora and fauna and other features of the trail necessary for location of facilities, trail direction and configuration.

Trail components must stimulate the needs and interest of clients and enhance client enjoyment. In addition, trails must minimize negative impacts as a result of construction and use especially in wilderness areas.

Trail construction and usage should not disturb the following:

- * Watershed areas.
- * Wildlife habitats for rare or endangered species.
- * Rare or unusual natural features.
- * Soil mantle and ground cover especially in areas prone to erosion.
- * Social and cultural practices and norms.

Trails must take into account the existing or proposed zoning for areas, especially National Parks, and should be consistent with the concept of biodiversity conservation.

TOPOGRAPHY AND SLOPES

Key elements are relief, slopes steepness, slope length, and valley depth. Very steep slopes are more prone to erosion as a result of the increasing speed of the gravitational flow of water in areas of high precipitation. It is better to avoid very steep areas where steps must be constructed to facilitate access. Where it is unavoidable, and steps have to be constructed, various mitigation measures must be implemented for trail stabilization and minimum soil erosion.

The major impacts of trail constructions under these conditions are:

- Land slippage.
- Soil erosion.
- Loss of vegetation as a result of above.
- Safety of visitors.

Mitigation measures

Drainage is one of the most important requirements under conditions of high rainfall. Where it is unavoidable to use steep slopes for trail construction, the use of steps stabilized with stones or logs, is also desirable for the comfort and safety of users. The stabilization of the tread must be undertaken as well as drainage to reduce erosion. The gradient of the steps must allow for run-off water from the path to a side drain and directed to a culvert or cross drain so as to prevent soil erosion. Log water bars are presently used in the Park. In order to be effective they must be constructed at an angle to the direction of travel and wedged so as to control run-off and divert water to minimize soil erosion and to protect the trail.

If paths are constructed on slopes, the gradient of the path should also be such that it allows water to flow across the path into a side drain and off the path. Water should not be allowed to run across the path and down the slope since it will destroy both the path and the trail. While trails are expected to be challenging, it is important that trails are constructed along the contour of the land rather than going straight up or down a slope. The use of switchbacks or zigzags would reduce the steepness of trails and would allow for traversing a steep area using the contour of the land. This allows for reduce run-off and soil erosion during and after trail construction especially in areas of high rainfall.

Stabilization of treads is also very important to reduce slippage both in dry areas where there is loose soil e.g. the southern areas and in wet areas where the soil tends to be wet for long periods. Treads should be reinforced with a covering of coarse gravel or tarrish to provide comfort and safety to users.

The protection of the natural soil mantle and vegetation cover is important to hold the soil and reduce land slippage. Where trail construction has affected these aspects, efforts should be made to encourage the growth of ground cover.

Where water from culverts or drains ends up in rivers or streams, silt traps should be used to reduced sedimentation of these watercourses.

Maintenance and use

In areas of high precipitation, land slippage and silting of water bars or drains are most common. Other maintenance concerns are trail overgrowth, fallen trees on trails, maintenance of treads and replacement of log bars where steps are used.

SOIL TYPES AND STRUCTURE

Soil structure, depth and permeability must be taken into account before trails are constructed. Sticky clays are difficult for walking simply because the soil tends to accumulate under one's footwear when the soil is wet. This soil type also has a low level of permeability and during excess precipitation, it tends to become muddy. As such, it increases slippage and soil erosion.

In the south of the island, some areas tend to have loose types of soil typical of sandy loam. Such soil types can pose problems on trails if the tread is not properly surfaced. Additionally, they are prone to erosion during periods of intense rainfall.

Under these conditions tread construction is important to avoid problems associated with these conditions. Treads must be well drained, properly graded and provide a smooth surface. The use of tarrish (usually 3 inches thick) is recommended.

GROUND WATER DEPTH

Trails should avoid areas of high water table or waterlogged areas. Increased precipitation would create water puddles or flooding of the area. Where it is unavoidable, construction of raised boardwalks will provide a solution. However, this can be expensive, especially if boardwalks are extensive.

Boards must be decay resistant. There are a number of local tree species used for this purpose as discussed in other sections.

RAINFALL

Areas of very high rainfall require well-designed trails to ensure the safety of visitors. In addition, vegetation cover should be maintained as much as possible in order to conserve the ecology of the area and to reduce erosion.

- Where steps are constructed, stones or treated, decay-resistant wood should be the preferred raw material with the tread being surfaced with coarse gravel or tarrish. In Dominica, wood like Carapite, *Amanoa caribaea*, Bois Diable, *Licania ternatensis* and Fougere, *Ficus spp.*, are decay resistant and suitable for this.
- High rainfall creates serious erosion problems and drainage of water from the treads into a side drain as stated earlier, must be considered during construction.
- Excess rain creates extensive wet or “boggy” areas even where slopes carry out excess water, hence unique and extensive drainage measures are needed for trail construction and maintenance.

Mitigation measures

Trails should be raised above wet ground and shaped to drain water. Culverts, cross channels and waterbars should be considered during construction so as to avert the development of ditches.

Coarse gravel, tarrish or wood chippings provide good surfaces for stabilizing trails. They provide a good tread and increase the structural capacity of the trails.

Where required, sediment traps must be installed where water drains into a river or stream.

VEGETATION

Trails should not disturb rare biological features, endemic plants or animals, or endangered species of plant or animals. The national trail should not pass through the habitat of the Sisserou parrot. A loop or linear trail should provide access for viewing the parrots.

Rainforest

Rainforest is characterized by dense vegetation and closed canopy and frequent rainfall. As a result, soils tend to be thin and trees prone to windfall; soils tend to be wet and highly erodible. One of the important characteristics of trails in an environment like this is drainage.

Mitigation measures

The following measures must be undertaken with respect to trail construction:

- Trails should not be designed with wood unless it is decay resistant. Stones should be the preferred raw material.
- Log water bars should be constructed at an angle to the direction of travel in order to divert water off the trail tread. In uphill slopes, the log waterbars should be wedged.
- Large stone / boulders should not be used on treads as they tend to accumulate moss. This creates a slippery condition and is dangerous to users. However they can be used for a raised pathway or construction of steps.

Elfin woodland

Elfin woodland and montane thicket are rare on Dominica, covering 970 ha or 1.3% of the total land area of the island. It is difficult to construct trails in this area more so in elfin woodland where the trees are gnarled and low lying. As such, care should be taken to ensure that this habitat is neither adversely affected nor that the endemic species that are found only in this area, e.g. *Chromolaena impetrolaus* and *Chromolaena macrodon* are found in elfin woodland on Morne Diablotin.

Mitigation measures

The environment in elfin woodlands is windy and wet. Trail construction should, as much as possible, follow the contour of the land in steep areas rather than construction of steps.

Where vegetation is cut, care must be taken to ensure that this is at a minimum since there is very little natural regeneration in areas like this. As such, where it requires replanting and tending of trees, this should be done.

WATERSHED PROTECTION

Forest soils have a capacity for high water retention and permeability and are important for increased flow of water into rivers and streams. Trail construction should not hinder this process. Natural vegetation cover including ground cover should be protected or replaced during or after trail construction.

Hiking trails can cause sedimentation of streams or rivers if they are not properly constructed or designed. Sediment traps are important in areas where water is diverted to streams or rivers.

RARITY AND ENDEMISM

Wildlife habitats for rare and endangered species of plants and animals, especially the Sisserou and Jaco parrots, should be protected. There should be controlled access to these.

Unique geothermal areas should also be protected, e.g. a new trail should be developed for specific areas in the Valley of Desolation specifically in the areas where there are numerous thermal pools where the trail is not well demarcated.

The habitat of a rare hardwood Laurier de Rose, *Lauraceae* sp., found in the central portion of the island in mature rainforest, should also be safeguarded. In addition, Dominica has several endangered species of plants that should be protected.

PARK ZONING

Areas of the World Heritage Site and the Morne Diablotin National Park have been zoned as scientific. It precludes visitation of this kind. This should be strictly observed. As much as possible, trails should be constructed in intensive or extensive use zones.

VISUAL IMPACT

For example, a trail cut up a steep hillside that can be viewed for miles is considered as scarring the hillside. Where hand rails, fences or other safety features have to be developed along trails to ensure visitor safety, they must be constructed in such a manner as to blend with the environment. Local materials and technology must be used where they are suitable and available.

MAN-MADE FEATURES

Water reservoirs

Drainage diversion developed for trails should not impact on water reservoirs to effect pollution of the water or to reduce the inflow of water. The use of sediment traps should be utilized to minimize any negative impact.

SOCIO-CULTURAL ISSUES **SOCIO-ECONOMIC ISSUES**

This should take into account the rights of private ownership and the public's "right of way". Areas of the Park with a history of land ownership problems are Middleham Estate, Laudat/ Freshwater Lake area both of which have trails, and Petite Savanne Area that does not have a good trail system.

Location of trails in areas prone to violence against visitors will create problems. There is historical evidence of crime against visitors in the areas of Woodford Hill, Wesley and Calibishie. The development of trails in these areas should not be considered since this would put potential hikers at risk.

ARCHAEOLOGICAL AND HISTORICAL SITES

There are a number of historical areas for possible inclusion within the trail system. Bois Cotelette, the Maroon trails, the Carib traces and Carib village with its historical features are just some of these. Access to these areas should not jeopardize the historical features, buildings, historical paths e.g. the Carib trail at the Emerald Pool. It is necessary to ensure that trail construction is undertaken and utilized in such a manner as to preserve the historical and cultural assets of these areas.

MANAGEMENT/MAINTENANCE

Regular maintenance of trails is a very important requirement in ensuring a high quality product and ensuring heightened visitors' experience and enjoyment of the trail. Under varying topographic conditions there are various problems that have to be monitored and solved on a regular basis. In some areas trails are quickly overgrown by vegetation if they are not regularly maintained. In others, this entails silting of drains, clearing of paths or flooding. While it is desirable to have a properly scheduled maintenance programme, provisions must be made for emergencies like flooding during periods of unpredictable high rains, hurricanes, etc.

One of the most important areas of maintenance for trails is drainage. All culverts, cross channels or water bars must be cleaned regularly to avoid silting and back up of water on trails that can cause erosion, especially in areas of high rainfall.

Maintenance of treads must be undertaken regularly to ensure a high quality of trail and visitor safety. Where coarse gravel or tarrish is used they have to be replaced to ensure a smooth and safe surface. Logs used for trail construction have to be periodically replaced. Litter on trails must be picked up to ensure neatness and cleanliness. Trees tend to fall over trails and must be removed. Landslides tend to occur blocking drains and must be cleared.

OTHER AREAS OF CONCERN

Mountain biking and horseback riding

Mountain biking and horseback riding are two activities that tend to use national trails. These usually conflict with genuine hikers and their enjoyment. It is important that this is considered at a very early stage in order to avoid future conflicts. It should be noted that in the past these are also opportunities that have been looked at in order to diversify the tourism product.

It is important that the same trail is not utilized for all three activities. However, these may be considered as specialized activities to be developed through the construction of loop or linear trails.

CONCLUSION AND RECOMMENDATIONS

Tourism development in Dominica is at an infancy stage. The development of a national trail will complement the existing tourism product and enhance its marketability. In fact, it will increase visitor length of stay, since the potential clients are expected to programme longer stays in order to achieve their objectives. This will mean increase expenditure as a result.

However, the development of a trail of this magnitude will impact on the policies, programmes and administration of forest reserves, national parks, and forest utilization of both and private lands. It is therefore very important to collaborate with all relevant stakeholders at every stage of the development process.

Some guiding principles must be applied to the development process to ensure some level of success in terms of stakeholder participation, conservation and sustainable development as follows:

- The adoption of necessary measures and practices to ensure the sustainable use of renewable resources and the conservation of non-renewable resources.
- Proper management and use of plant and animal habitat and cultural and historical monuments and sites to ensure their protection from the negative impacts of tourism.
- The development of environment management systems and programmes as an integral part of the decision making process at both the public and private sector levels.
- The integration of community cultural values and concerns including local customs and traditions into the planning and development process.
- Ensuring that environmental impact assessment is a prerequisite for development, acknowledging any identified impact of tourism development projects and activities and implementing the necessary corrective and remedial measures.
- Establishing appropriate mechanisms to empower communities to participate in the planning, development and management of the national trail through discussions, consultations, education and economic partnership.

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The Waitukubuli Ecological Foundation (WEF)

(economic development through environmental conservation)

The Waitukubuli Ecological Foundation (WEF) was established as a charity under the laws of England and Wales by Dominicans and friends of Dominica resident in London in 1996. In 1999 it was registered as a Non-Profit Organisation under the Companies Act of the Commonwealth of Dominica.

The Foundation aims to contribute to the holistic development of Dominica by developing, discussing and disseminating through public education and practice the approach that the development of the economy and the conservation of the environment should be conceived of together as an interconnected whole, a concept which should apply in all our strategic planning and thinking. It recognizes as a fact of reality that the effective conservation of the environment can only be achieved with public support which itself will depend on effectively addressing the people's concerns for their livelihood. The effort to conserve Dominica's God-given, wonderful natural environment should proceed by identifying those projects and areas that are simultaneously income generators as well as conservation measures.

One of the WEF's objectives is to do just that. The national trail is a case in point, for not only will it establish a key facility for the development of the tourism sector of the economy – ecotourism, but it will also be a significant conservation measure since it would create a benign conservation logic in giving the people a vested interest in maintaining the natural beauty and integrity of the environment in order to attract visitors to the trail for the economic benefits they would bring to rural communities and the island as a whole.

The choice of the words "ecological" and "Waitukubuli" in the name of the Foundation connotes the concept of environmental conservation as embracing more than just the natural environment, but includes all aspects of human socio-economic and historical-cultural activity. The WEF is therefore particularly interested in those areas where history, economics and environment converge. Such a juncture is provided by a project aimed at the discovery and restoration of the many Maroon ruins and caves around the island, which would not only create new and more interesting tourist attractions, but would also greatly enhance public appreciation of the island's history and heritage which would impact on the effort of nation building as well as of environmental conservation.

But perhaps the most significant project along these themes is the advocacy and promotion of the gradual transformation of the island's agriculture from its present reliance on artificial chemicals and poisons to a wholly or mostly organic culture. Organic agriculture would not only be the single greatest environmental conservation measure, but would also provide the basis for the revival and recovery of the island's agricultural economy. By these means we hope to contribute to the creation of a happier, healthier and more humane society within one of the most wonderful natural environments available anywhere in the modern world in the 21st century.

Membership to the WEF is open to Dominicans and friends of Dominica at home and abroad on subscription both to the finances and philosophy of the Foundation. For more information contact Bernard Wiltshire at the address below:

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