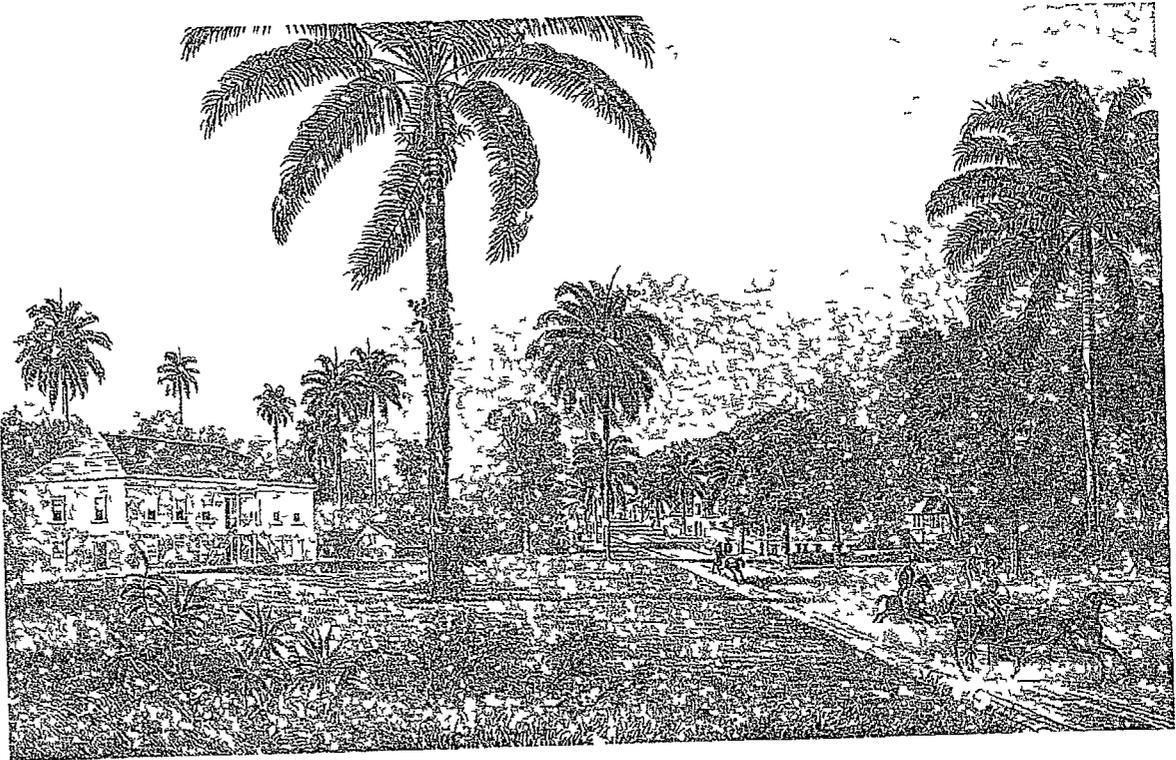


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BATH AND EASTERN ST. THOMAS JAMAICA

ENVIRONMENTAL ASSESSMENT

January 1999



Prepared by
Alison Kenning Massa

 **Technical Support Services, Inc**
Technical Assistance Contractor

For

 **Natural Resources Conservation Authority**
Protected Areas Management Branch

United States Agency for International Development
Development of Environmental Management Organizations (DEMO) Project
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1 INTRODUCTION AND OBJECTIVES OF THE ENVIRONMENTAL ASSESSMENT

Bath Springs, Spa and Botanical Garden offer an important opportunity to preserve a portion of Jamaica's cultural and biological patrimony, a potential opportunity to develop a heritage tourism destination of real distinction and an opportunity to generate other forms of income for a particularly impoverished part of the country

This environmental assessment was occasioned by a combination of the following

- the concern of the Natural Resources Conservation Authority (NRCA) about the environment in the Bath area,
- an effort by the National Investment Bank of Jamaica (NIBJ) to divest the Government-owned Bath Fountain Hotel and Spa (FHS), and
- the interest of the NRCA in using the USAID-funded Development of Environmental Management Organizations (DEMO) Project to address and initiate action in small areas whose environment and tourism potential are interlinked and need improvement

The town of Bath is located in east-central St Thomas some six miles (9.6 km) north of Port Morant on the northern edge of the Plantain Garden River floodplain (Map 1). Bath Springs and the Bath Fountain Hotel and Spa lie some distance north of the town, reached by a narrow road along the Sulphur River which drains the southern slopes of the Blue Mountains. Map 2 shows the immediate environs of Bath.

Conditions and opportunities in and around the town of Bath needs to be addressed within the context of the surrounding

environmental and social conditions and other existing or potential points of interest. The latter include the Blue and John Crow Mountains, the St Thomas Great Morass, beaches, and numerous historic sites, a number of which were noted in the NIBJ offering¹. Thus in addition to the intrinsic interest of the springs, spa and botanic garden, the town's location is potentially strategic in terms of the development of a network of existing and future attractions in eastern St Thomas and Portland. The assessment therefore addresses Central and Eastern St Thomas (The portion of the 300-square mile parish that lies to the west of the Morant/Negro River Watershed tends to relate more directly with the Kingston region.)

This assessment concludes that Bath could become the focal point of several types of alternative travel and tourism but that achievement of such a vision will require a significant effort. Moreover, any revival of Bath, and especially realization of its potential pivotal role, will demand a simultaneous effort to revive, restore, and improve or develop other places of interest and to attend to physical and social infrastructure needs.

The environmental assessment examines the issues, constraints and options associated with realizing these opportunities and offers suggested courses of action. It compiles readily available background information and, based on that information,

¹ "The Bath Spa lies a short distance from a number of places of interest: Bachelor's Hall Plantation, Eastern Banana Estates, Prospect Beach, Bailey's Beach, Duckenfield Sugar Estate, Old Pera Beach, Holland Light House, Rocky Point Beach, Amityville Settlement, Reach Falls, walking and riding trails in the Blue/John Crow Mountains, and others."

observation and interviews with a variety of key informants, it

- provides an understanding of the natural and man-made environment of the area,
- discusses the potential for and value of protected area declaration,
- addresses related issues in order to assist the NRCA, the Government of Jamaica and surrounding communities to achieve the most beneficial package of environmentally sustainable economic uses of the environment,
- recommends actions, and
- identifies issues that may need further examination in any EIA on future development and/or tourism activities

Available information on the environmental conditions in the entire study area is presented in the second chapter, while those in the Bath area itself are presented in Chapter 3. Chapter 4 discusses future options and visions. Existing organizational capacity is considered in Chapter 5 and the final chapter summarizes key recommendations.

The objective of the draft document is to allow all interested parties to consider and come to consensus on an overall strategy for environmental protection, improvement and sustainable economic development of the resources of the Bath area that provides maximum benefit to the Government of Jamaica and the residents of St. Thomas, one of the nation's poorest parishes. Through the Strategic Interventions in the Environment (SITE) component, the DEMO Project has assisted the NRCA and local NGOs to address environmental management in an integrated manner and developed models of such intervention. Bath represents a "mini-SITE" area for continued intervention by the NRCA, the St. Thomas Environmental Protection Association (STEPA) and other local NGOs.

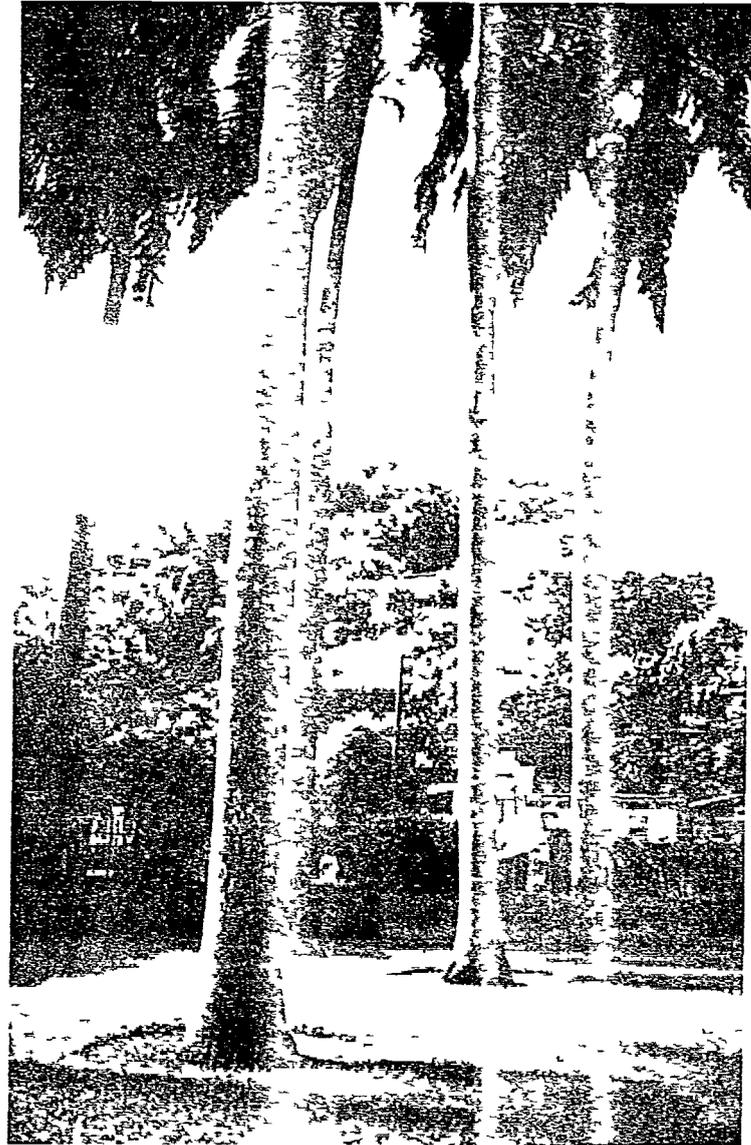


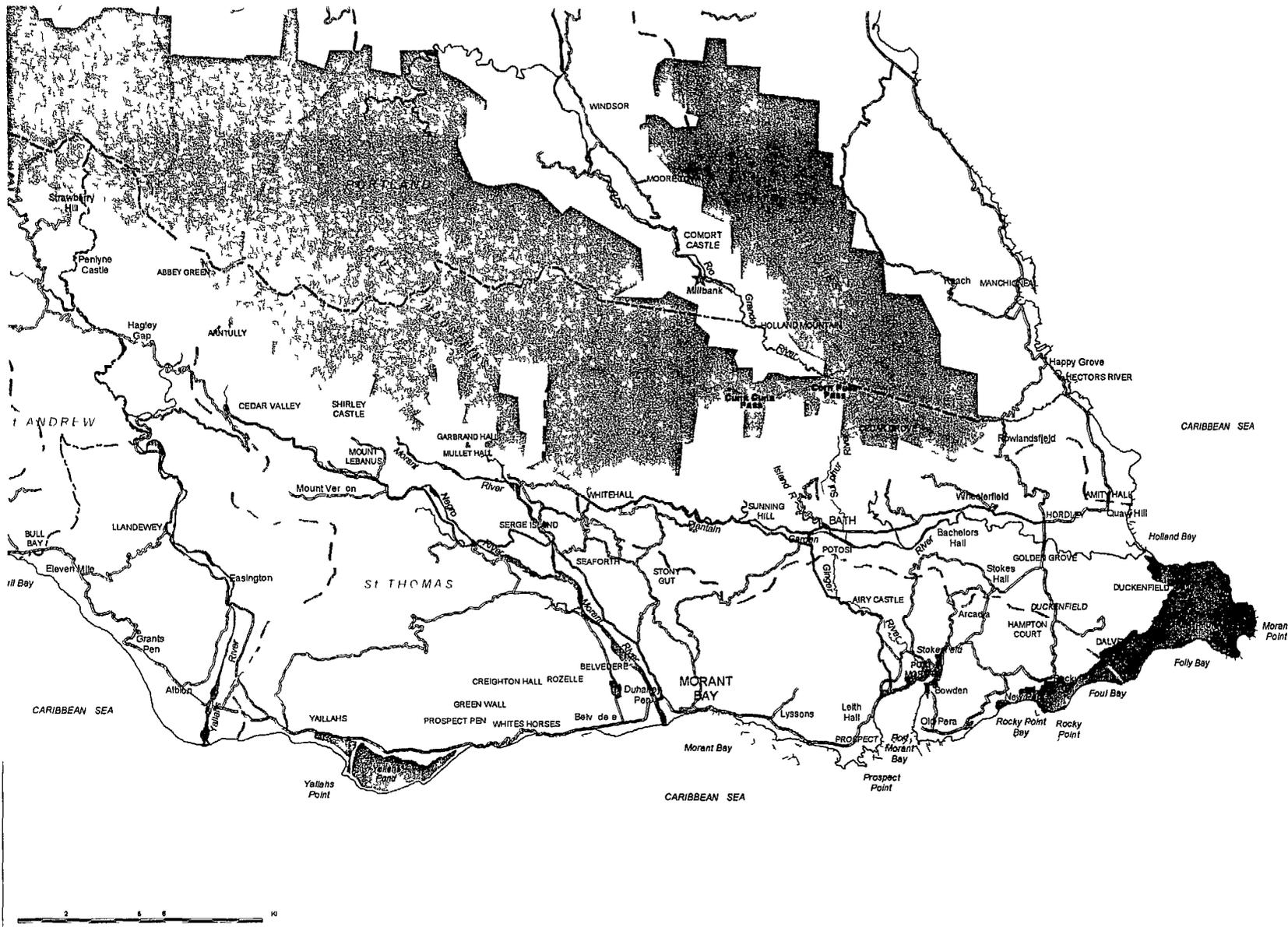
Figure 1 Royal Palms Bath Botanical Garden

Map 1
Parish of St Thomas

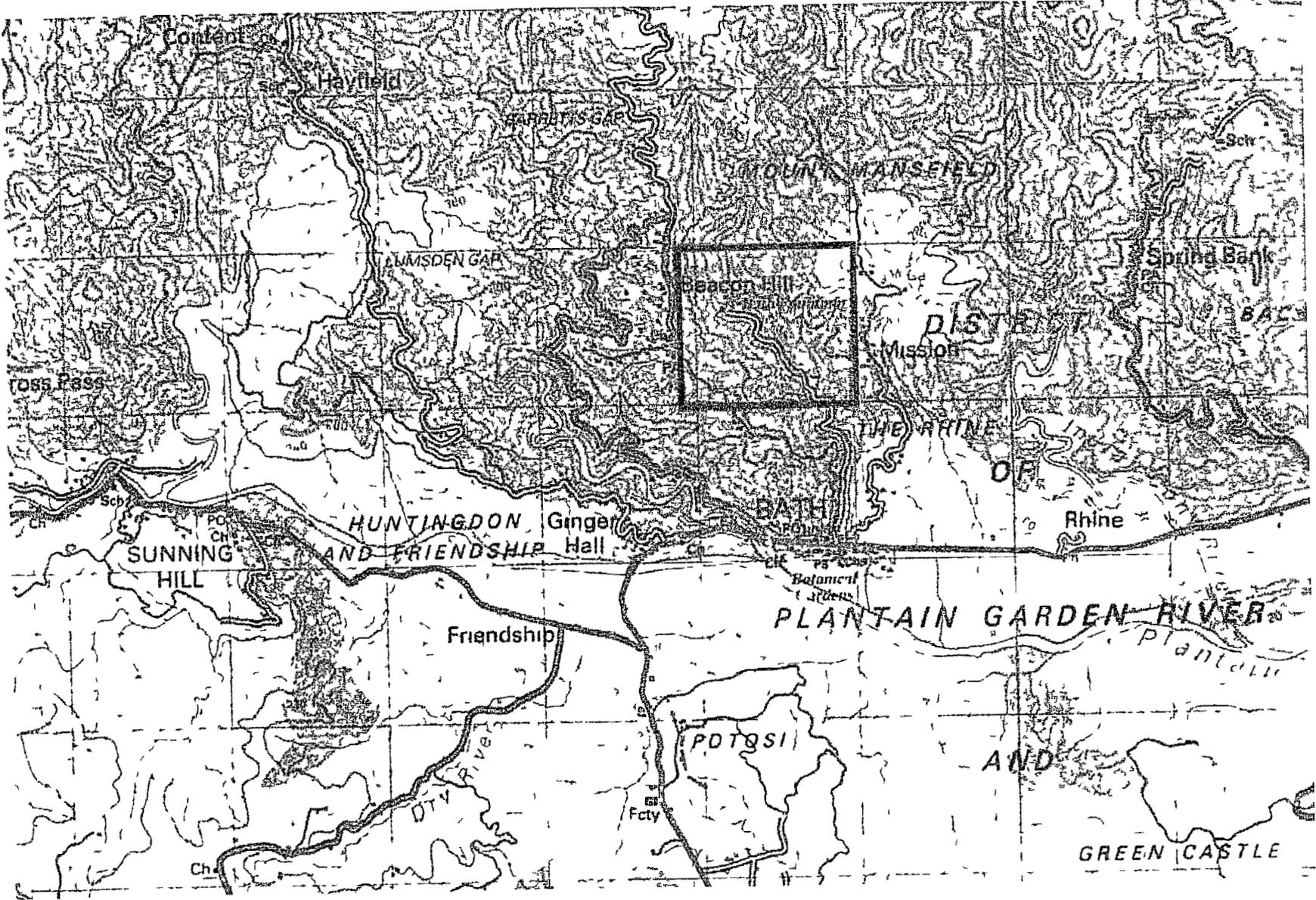


Legend

- Watershed Management Units
- Parish Boundary
- Class A Roads
- Class B Roads
- Class C Roads
- Other Roads
- Rivers & Streams
- Blue Mtn Ranger Station
- National Park Boundary Buffer Zone Reefs



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Map 2 Bath and Environs

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2 EASTERN ST THOMAS – ENVIRONMENTAL CONDITIONS, ISSUES AND OPPORTUNITIES

The Central and Eastern St Thomas extends from the Negro River watershed eastwards. The Negro River, including Trinityville and Cedar Valley, has historically been linked more closely with Morant Bay and the Plantain Garden Valley than with the Yallahs watershed to the west. The Yallahs watershed, which has been the subject of numerous studies and projects, and areas further west are considered more properly in the context of the Kingston sphere of influence.

2.1 Topography

Map 3 shows that Eastern St Thomas is dominated by the Blue and John Crow Mountains that reach over 6,000 feet, and the coastal plains, including the flat lands of the Plantain Garden River plain and the St. Thomas Great Morass. Bath lies at the foot of the Blue Mountains on the edge of the Plantain River floodplain. It is also approximately equidistant from the crest of the Blue Mountains and the mangrove, swamp and reef fringed coast. Environmental conditions will therefore address the mountains, the foothills/coastal plains and the coast.

2.2 Climate

Temperatures are moderate, ranging from a mean maximum of 88.4 degrees F to a mean minimum of 71.9 degrees F. The parish lies in the shadow of the Blue Mountains and is drier than its neighbor, Portland to the north. Average annual rainfall varies widely throughout the parish. In the Blue Mountains, it can be as high as 2000mm (80") in the foothills and 5000 mm (200") high up. Morant Point receives between 1250-1750mm (50-70") while the west, beyond the study area, is relatively dry with less than 1250mm (50"). Heavy rainfall in major watersheds, 300-500mm (12-16") in 24 hours, results in frequent floods.

2.3 Geology

2.3.1 Geological/Landscape Provinces Geologically the parish is divided into distinct Northern and Southern parts by the East-west Plantain Garden fault. The formations (Map 4) include

- **White Limestone** – strata occur in a wide belt (approximately 2 miles wide) stretching from West to East across the parish from Eleven Miles in the far west to Stokes Hall. This limestone formation is over 1,000 feet thick and dips seawards with the younger, softer chalky Montpelier limestone. North of the Plantain Garden River, the white limestone forms the John Crow Mountains block.
- **Yellow Limestone** – represented in the parish by the Fort Hill Beds. These are well-bedded, sandy limestones and marls and occur in Western and Central parts of the parish, the largest outcrop area being in locality of Font Hill.
- **Richmond Formation**, covering a large part of western St Thomas between the Morant and Yallahs river. Smaller outcrops are found West of the Yallahs river.
- **Wag Water Formation** – found west of the Yallahs river between Halberstadt and Llandewey. Embedded in this formation in the Halberstadt area are thick beds of gypsum.
- **New Cattle Porphyry** intruded into the sediments of the Wagwater formation to the South.
- **Cretaceous Formations** – outcrop on the south and south-eastern slopes of the Blue Mountain range, to the north of Bath, south of the main Plantain Garden Fault in the valleys of Hills and Clarkes Rivers.

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- **Alluvium** The valley flats of the main rivers draining the parish, Yallahs, Morant and Plantain Garden, are covered by extensive quaternary and recent alluvial deposits composed of silt, gravel and some clay. Other areas include the Great Morass, west of Morant Point, the terraces north of Port Morant, Sunning Hill and the upper reaches of the Plantain Garden River.
- **Coastal Formation** Along the coast at Belvedere Point, from Morant Bay to Rocky Point, around Morant Point and North from Holland Bay around Amity Hall and Booby South Point are a series of conglomerates, coral breccias, marls, sands and coralline limestone classified as Tertiary Formation. This formation also outcrops inland from the Great Morass around Duckenfield and Dalvey. In the West there is a small outcrop near Easington Bridge.

2 3 2 Economically Valuable Mineral Resources

A number of metallic minerals (including nickel, chromium, iron, manganese, copper, silver and platinum) occur in the Blue and John Crow Mountains. Commercial mining is limited to the "Serge Island" type marble deposits found along the south and south-western part of the range. These marbles are famous for their color and banded structure.

Limestone, marl, sand and gravel are extensively available. Because of the low level of development, the disfiguring results of illegal or poorly planned quarrying are relatively rare. However, the illegal mining of river sand is having significant impacts on the integrity of drainage regimes. Illegal mining is also altering the sand balance on some beaches.

2 3 3 Soils

The soils of the parish comprise chiefly sandy loam, black clay, clayey and stony loams, and shale stone. There is practically no limestone for which the northern section of the island is famous. The soils in the Blue Mountains are generally well drained, wet,

brown loams up to 100cm/3 ft deep. They are classified according to bedrock and elevation, and may contain clays, gravels or stones. However, due to intense exploitation of virgin woodlands during the last 400 years, the slopes (generally steeper than 30°) are prone to landslides and excessive soil erosion is a major problem. Hillside erosion is most common in the Blue Mountain range due to the steep slopes and the amount of agriculture occurring on them, it has been estimated that erosion is occurring at a rate of 40 tons of top soil per year in deforested areas. Landslides are also relatively common in the John Crow Mountains.

2 3 4 Places of Geologic Interest

The Bowden Shell Bed This formation is exposed in the bank on the left of the road to Bowden just before the junction with the track to Old Pera. This Pliocene horizon is the most famous fossiliferous deposit in Jamaica. About 600 species of benthic molluscs, including bivalves, gastropods and scaphopods, have been identified in the bed, as well as foraminifers, bryozoans, calcareous algae, echinoids, and corals (Donovan, et al., 1995).

The Old Pera Beds A similar formation can be seen exposed in cliffs at Old Pera.

Judgement Cliff Landslide Although outside the area of focus of this document, this feature at Easington on the Yallahs River is the dramatic result of the 1692 earthquake. The event not only caused the destruction of Port Royal but the collapse of a mountainside on a plantation, burying the inhabitants and pushing the surface one-half mile southwards.

Map 3
Topography

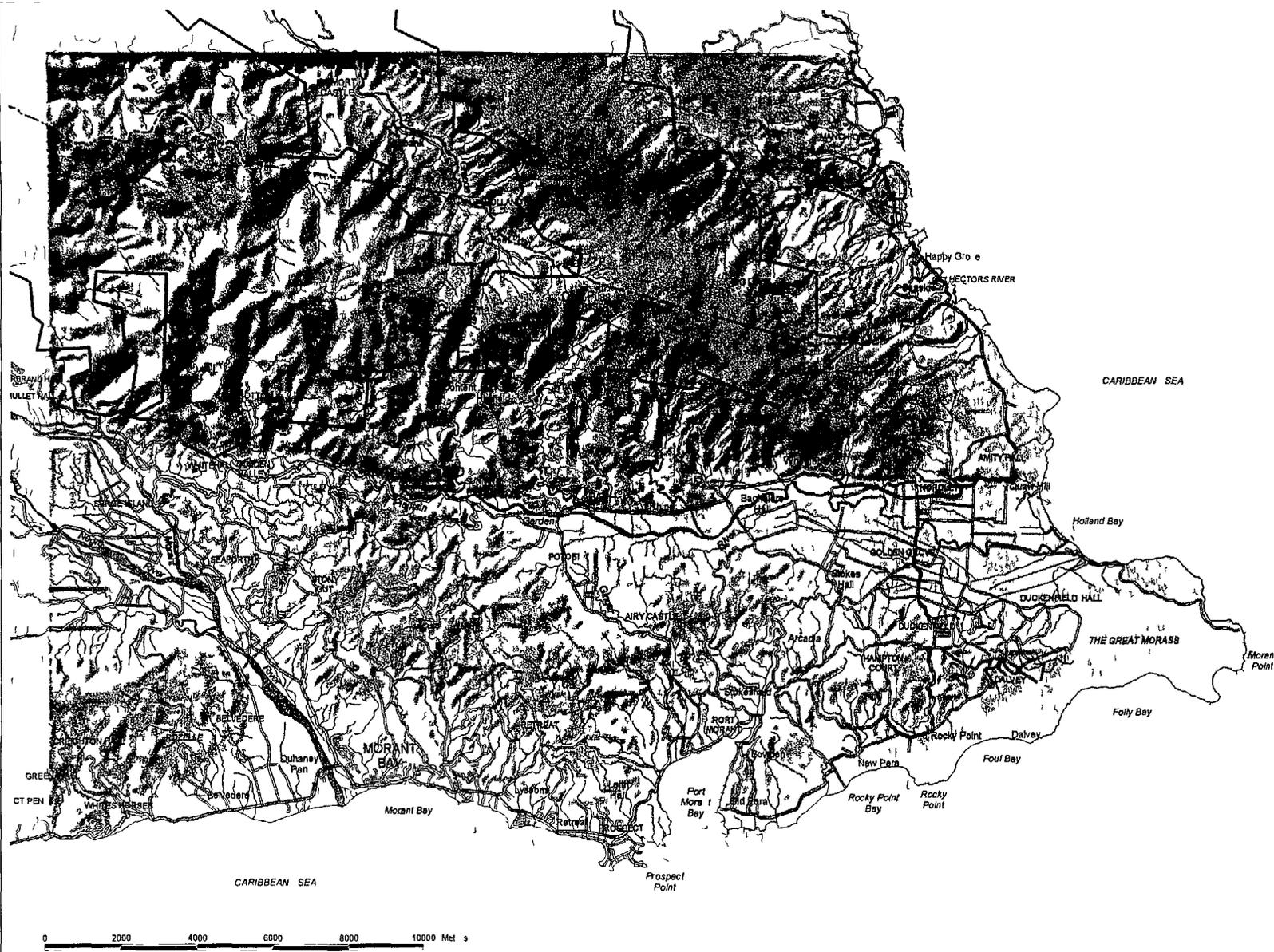


Legend

- National Park Boundary
- - - Parish Boundary
- Class A Roads
- Class B Roads
- Class C Roads
- Other Roads
- Rivers & Streams
- ★ Blue Mtn Ranger Station

Reefs
Topography [metres]

0	99
100	199
200	298
299	398
399	498
499	597
598	697
698	796
797	896
897	996
997	1095
1096	1195
1196	1295



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Map 4
Geology

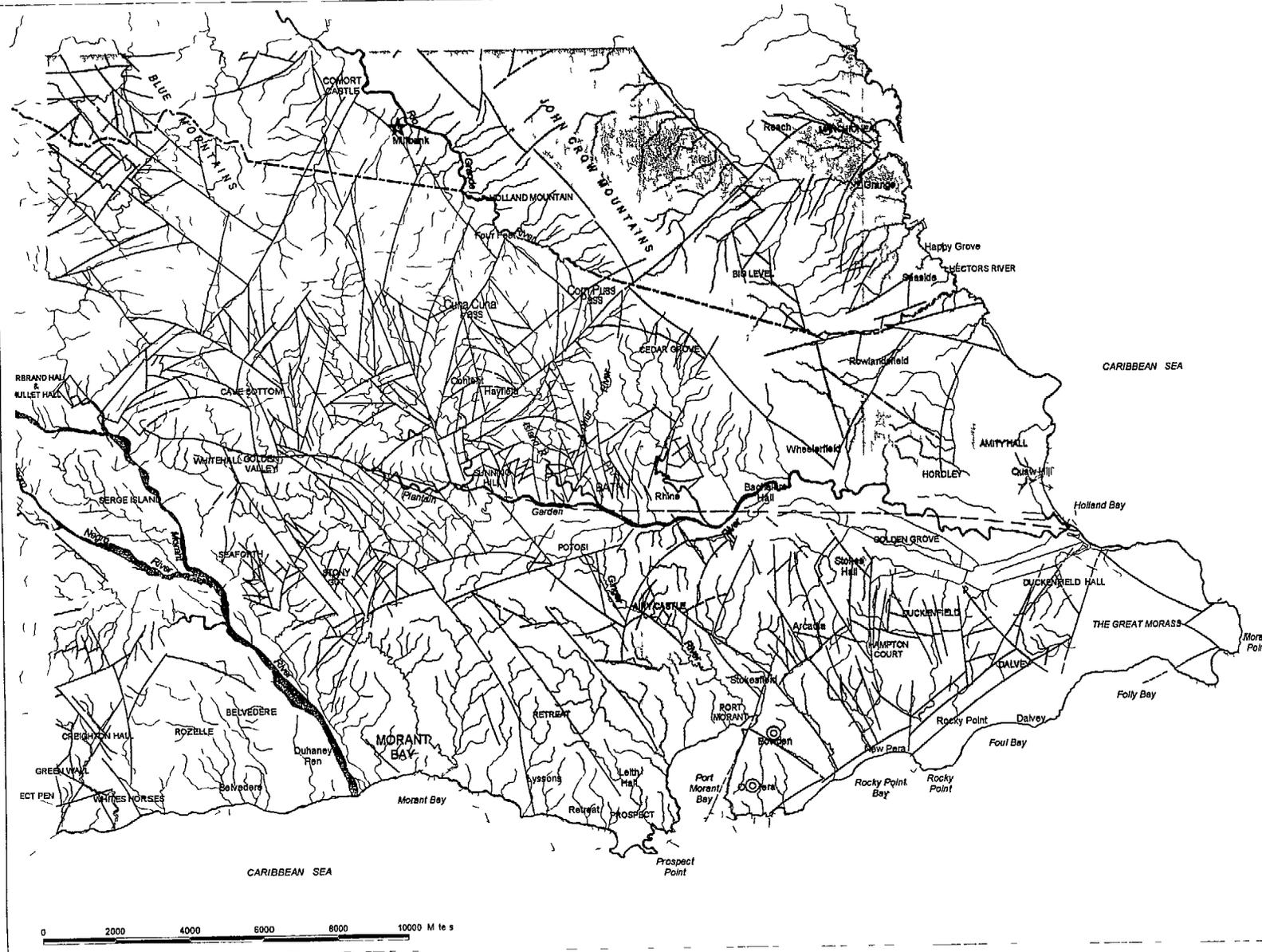


Legend

- Parish Boundary
- Faults
- ★ Blue Mtn Ranger Station

Reefs

- Bath/Dunrobb Fm
 - Belle ue Fm
 - Bowden Pen Fm
 - Back Rio Grande Fm
 - Cross Pa s Fm
 - Grandiorite
 - G ger House Fm
 - Mt Hille ma Schists
 - St. Helen's Gap Fm
 - Spanish Rv. Fm
 - R o Grande Fm
 - Bo ny Gate F
 - Font Hill Fm
 - Richmond Fm
 - Bowden/Manchio eal Fm
 - Alu um
 - Elevated Reef
 - Ma shland
- ⊙ Bowden Shell Bed
 ⊙ Old P a Bed



Bath & Eastern St. Thomas Environmental Assessment
 Prepared by the Conservation Authority
 Technical Studies & Environmental Information System Branch
 with assistance from Technical Support Services in Technical
 Assistance Contract for the GOALS/USAID Development of
 Environmental Management Organization (DEMO) project

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2.4 Hydrology

Western St. Thomas is dominated by the Yallahs River and its delta flood plain. Eastern St. Thomas is drained by the Negro River, rising near the Blue Mountain Peak and flowing into the Morant River west of Morant Bay, and the Plantain Garden River, the only major east-flowing river in Jamaica, which flows along the base of the Blue and John Crow Mountain and enters the sea at Holland Bay. Watershed boundaries are shown on Map 1. River valleys are deeply incised. The north and south flowing, fast perennial streams that originate along the Grand Ridge are a source for urban water supply and are considered to have potential for small scale hydroelectric generation.

Major types of relief and drainage are

- **Steep Mountain and V-Shaped Gullies in the limestone, metamorphic and shale mountains.** Relief and drainage is excessive, and erosion hazard is high.
- **Limestone Hills.** Located to the north-east and across the south of the parish. The slopes are not as precipitous and run-off is modified by permeable limestone. The soils in these areas are moderately well to well drained and erosion hazard is moderate.
- **Alluvial Basins.** The nearly level to level areas which have slow run-off but moderate to rapid permeability and internal drainage. Erosion hazard is low.
- **Dissected Terraces.** Occurring mainly along the coast, east of Morant River these areas are characterized by flat extensive tops and steep sides. Erosion hazard is moderate to high.
- **Great Morass.** This is the poorly drained area between the sea and the 15m (50 ft) contour line in the extreme south east of the parish. Vegetation is mainly mangrove.
- **Salt Ponds.** At the edge of the Yallahs delta, these consist of two large saline ponds separated from the sea and from each other by narrow sand bars.

There are numerous mineral springs, (some as hot as 53°C) located along major fault zones that may extend more than 20km into the crust. These have been used for centuries and those feeding the Sulphur River are used at the Bath Spa.

2.5 Ecosystems

Bath lies in the buffer zone of the Blue and John Crow Mountains National Park. It lies in the least visited part of the Blue Mountains and at the base of the John Crow Mountains which have a distinct character. It also lies on the edge of the coastal plain and is relatively close to the coastal wetlands and the St. Thomas Great Morass. The following sections describe the character of the important ecological zones surrounding Bath. Bath itself is examined further in Section 2.5.7 and Chapter 3.

2.5.1 The Blue and John Crow Mountains

The Blue Mountains/John Crow Mountains National Park includes all the area within forest reserves on these two ranges, and the northwestern end of the Port Royal Mountains. The area provides a major source of water supply and provides protection for montane forest ecosystems.

Flora. The park is an important centre of plant endemism. The Blue Mountains and perimeter contain Jamaica's largest area of volcanic soils providing unique habitat for many species and the Blue and John Crow Mountains also provide the highest altitude habitat in Jamaica (above 1500m). In the John Crow Mountains, a combination of the highest rainfall in Jamaica with pockets of soil between outcrops of limestone supports nearly half of Jamaica's c. 579 fern species, many of which are restricted to the area, and a high proportion of flowering plant species with very limited range. It is estimated that up to 40% of the flowering plants occur nowhere else in the world.

The vegetation of the drier southern slopes of the Blue Mountains includes areas where trees are generally denser and

of lesser diameter over a fairly dense shrub dominated by melastomes and members of the coffee family *rubiccae*. Some trees such as a redwood (*Eligenia harrisii*) and burn nose (*Daphnopsis americana*) are apparently restricted to the southern slopes, while others, such as *Garrya fadyenii*, are rare on the northern slopes. The herb layer is dominated mainly flowering plants, such as the orchid *Spiranthes speciosa*, with scattered ferns. Lianas are abundant, including dense thickets of climbing bamboo. The epiphytic flora is more than on the northern slopes. Little pristine forest remains on the slopes and many species such as switch sorrel (*Dodonaea viscosa*) and *Baccharis* are found mostly in disturbed areas.

Fauna The John Crow Mountains form the major habitat of Jamaican hutia, the large swallowtail butterfly, *Papilio homerus*, and Black billed Streamertail, *Trochilus polymus scitulus*, and many other endemic species. Five species of *Eleutherodactylus* frogs which are shared between the Blue Mountains and John Crow Mountains, are endemic to these ranges. One species (*E. nubicola*) is only found at higher parts of Port Royal and Blue Mountains and another (*E. alticola*) is endemic to areas above 1680m in the Blue Mountains. *E. orcutti* is the only endemic aquatic whistling frog and is thought to be very rare. Other important endemic species include the Jamaican Yellow Snake, Jamaican blackbird and Ring Tailed Pigeon.

Important ecosystems include

- Low to upper montane forest in a contiguous tract on limestone in the John Crow Mountains and specially the unique high altitude elfin forest, on karst limestone on the summit plateau
- Continuous tracts of forest on the north slopes of the Blue Mountains from lower montane to upper montane elfin forest at the highest altitude sites in Jamaica
- Montane rain forest 1400 m unique ecosystems with high endemism which includes unique stunted forest on acid humus on a few prominent knolls in the west of the Blue

- Mountains, unique high altitude limestone shrubland on karst limestone on John Crow Peak (c 1700 m) important centre of endemic flora
- Fast flowing streams in forested catchments

Issues The edges of John Crow Mountains and lower reaches of northern slopes of the Blue Mountains have indistinct boundaries due to shifting cultivation practiced over centuries at their margins. There are many small communities on the periphery of the area which depend on the mountain to various degrees. The Parks in Peril¹ project has identified the major threats both to the park and the downstream environment are deforestation, erosion, siltation, nutrient overload, chemical contamination and poorly planned development.

Competition for Cultivation There is much competition for meager resources on southern slopes on steep, fragile acid, easily eroded slopes, such as land use conflicts between coffee, small-scale agriculture (thyme, escallion, carrots etc), plantation forestry (declining extent). Competition for scarce irrigation water leads to increased encroachment on forest for land.

Deforestation In some areas of the Blue Mountains at lower elevations natural forest is being cut and replaced for commercial scale timber and for large-scale agriculture. Elsewhere, especially in buffer zone, small patches of natural forest are being burned and cleared for small patches of hillside farms or being cut selectively, with removal of species of greatest use and value. Historically the southern slopes of the Blue Mountains have seen the greatest deforestation, particularly near Cinchona where there has been massive soil erosion.

Erosion As noted previously, due to the high level of rainfall, steep terrain, and lack of vegetative buffers along stream edges,

¹ The Nature Conservancy and Jamaica Conservation and Development Trust. Blue and John Crow Mountains National Park WorkPlan. January 1998.

flooding and erosion become problems in both large and small rivers. The Rio Grande and Yallahs River have frequent large scale floods that erode their banks and farmlands, and are filled with sediment washing away homes, latrines, crops and roads. Local residents believe that flooding has become more severe in recent years on the Plantain Garden River.

Sand Mining Also noted previously, mining sand from rivers is an increasing problem as growth continues in the buffer area. Laws against it are not being enforced, and construction companies are getting a cheap source of sand. Sand mining accelerates erosion of river beds, damages riparian areas, disturbs the natural flood cycle, and can also cause rivers to change course.

Chemical Contamination Contamination of water courses from agricultural chemical runoff is another unquantified threat. Agricultural and garden chemicals (pesticides, fungicides, herbicides, rat poison, etc.) are washed off the land and into streams and drainage ditches. Probably the main cause of such contamination is the plantations of chemical-intensive crops such as bananas, coffee, and coconut. Another potential source is improper disposal of garbage including items such as old car batteries, plastics, pesticide containers, etc. The effects of these chemicals are not well-known. Rivers near coffee factories in the Blue Mountains have become sterile due to the natural tannins of the coffee beans. Levels and effects of chemical contaminants in the water are unknown so areas suspected of contamination should be tested and monitored to begin to understand the situation.

Poorly Planned Development Too often, natural forests are cleared to create space for building, further compounding the problems of siltation and improper sewage disposal. More development adds to the overload on a deficient infrastructure, creating more sewage, garbage, and chemicals.

The immediate impacts of this unplanned development are deforestation, loss of habitat, and erosion. Longer-term impacts result from the number of people these developments attract and the cumulative physical impacts of additional visitors, residents and infrastructure on the already stressed natural environment.

Hunting The Blue and John Crow Mountains National Park Management Plan (NRCA 1993) reported that while hunting pressure has diminished in other areas of Jamaica, "hunting of hutias appears to be increasing in the John Crow Mountains."

2.5.2 Foothills and Coastal Plains

Having been cultivated for several centuries, the ecology of the non-marshy floodplains, the coastal plain and more accessible fringes of the mountains has been almost entirely man-altered. Exceptions are small areas of primary forest that still exist in such places as Belvedere and Rozelle. These areas contrast with the scrub that characterizes the non-cultivated areas of the drier western zone. The yellow snake and hutia (coney) have been found at Belvedere while the blue swallowtail butterfly frequents Rozelle, where the Jamaica Natural History Society has proposed establishment of a blue swallowtail reserve. Rozelle Falls may have some type of protected status. Both areas need an updated assessment. In addition, it must be assumed that the agricultural areas have some habitat value, especially for birds, although this has not been assessed.

A significant number of large guango trees (*Samanea samans*) survive on the plains. However, the author has observed instances of the chopping down of healthy trees along cane field roads with chain saws and has been informed that this is a growing trend. This needs to be investigated.

The focus of this assessment, Bath, lies on the edge of the Blue and John Crow Mountains National Park and the agricultural plains. Cultivation has removed much old growth forest in the buffer zone on the lower slopes of the park. However, the edge location, the unique character of the John Crow Mountains and the presence of the mineral springs and introduced plant species described in Chapter 3, give it unique ecological interest.

The area is thought to be habitat for the Giant Swallowtail butterfly, *Papilio homerus*, and the Black-billed Streamertail, *Trochilus polymus scitulus*, as well as an area with great interest to birdwatchers. There is very little written information about the natural environment specific to the Bath area. Further information and protection measures are required.

2.5.3 South and East Coasts

The coastal area of Saint Thomas between the Yallah's River and Hector's River on the Portland boundary is both scenic and degraded. Much of the coast is fringed by mangroves and large, predominantly mangrove wetland areas, including the St Thomas Great Morass, along with significant areas of deciduous forest. Much of the coastline is undeveloped and consists of long narrow gray, brown and (on the east coast) white sand beaches, many of which are used as fishing beaches. Extensive seagrass beds and coral reefs are found throughout the coast outside the Yallahs and Morant River deltas. The reefs form submerged atolls relatively close to shore at Lyssons and Prospect and become a long straight reef reaching 5 to 5km from shore off Pera and Rocky Point. Members of STEPA say that the existence of "glistening water" is "strongly rumored."

Neither the oceanography nor the marine communities of the area have been investigated. The mangroves, seagrass and reefs represent a fish nursery of great importance and the reefs may be of interest to divers. Manatees were occasionally seen along this coast in the early 1980s (Haynes-Sutton, pers. obs.)

Threats Despite the relatively low level of development, the coast is nevertheless subject to a number of common threats. In most cases the effects of these factors are not as far advanced as in many other parts of Jamaica. However, they need to be dealt with immediately. The mangroves and seagrass beds are under stress. The condition of the extensive coral reefs is not well known but from observations, degradation is already evident.

Pollution Many of the south coast beaches are polluted. Water quality is perhaps better than it would be if the population were less sparse. However, the effects of unsewered legal and illegal development along the coast are becoming evident. Where sewage "treatment" plants are constructed but allowed to malfunction or even to cease to function, the ecosystems and beaches are being impacted. The pollution of Prospect Beach received recent attention in the press. However, a resident who has monitored the coral reef from Prospect Beach to Blue Mahoe Bay and Duppy River for over twenty years¹ notes that

"In the mid 1970s, the reef was in good health and fish and other marine life were plentiful. On the opening of the sewage plant of the Prospect Housing Scheme, the coral in the Prospect Beach area began to deteriorate. Two years later the coral in the Blue Mahoe Bay area on the open seaside of the island started to die. The deterioration has continued at a steady rate until present day when even the sheltered bay between has started to be affected. The local fishermen have made regular reports on its deterioration. Severe deterioration [is occurring] in all areas [believed to be] in the path that the currents flow from Prospect Beach. The fish and marine life has declined, the beach area has become less sandy in some areas with more coral chips and coarser sand."

¹ Daphne-May Lewis. St. Thomas Environmental Protection Association communication with NRCA 1996 and pers. comm. 1998.

Garbage accumulates on beaches at an accelerating rate, transported by currents from a dump and other sources. It must also be assumed that non-point sewage pollution (despite the small size of the population), has an effect on surface water quality from the mountain communities down to the shore line and contaminating ground water. Contributing factors include pesticide and fertilizer use, erosion and sediment transport, extensive livestock grazing, the predominance of pit latrines even in flood-prone areas with alluvial soils and high water tables. Use of wells for domestic purposes may be leading to salt water infiltration but there is so far no evidence of this.

Sedimentation (from upland s development) Sediment is transported by the Yallahs River, the Negro and Morant Rivers and increasingly by the Plantain Garden River

Mangrove Destruction Mangroves are being impacted by cutting for charcoal and fishpots throughout the coastal area, so that wave energy is no longer as effectively dissipated as it once was and the coast is more vulnerable to storm and hurricane damage

Sand Mining Illegal sand extraction from beaches and dunes, especially at Copacabana in the west, is going on unchecked, altering the sand balance and increasing erosion

Erosion The coastline is generally impacted by coastal erosion, a fact of nature that is ignored by developers at their peril. A small hotel at Bailey's Bench (east of Yallahs) was built when the beach was significantly more extensive. It is now threatened with destruction. Removal of mangroves, sand mining and inappropriate development, especially in the west, have accelerated the effects of coastal erosion and placed more people and property at risk. Beaches such as White Horses are not only affected by coastal erosion but during recent severe storms were also damaged by sediment transport and landslides resulting from improper inland development

Squatting Many beaches, including White Horses, Poor Man's Corner and Rozelle, and stretches of accessible shoreline, such as the base of Bowden Bay at Port Morant, are increasingly the site of squatter shacks and concrete structures. This illegal development is unsafe, threatened by coastal and land-based erosion and storm damage, unsightly and damaging to the coastal environment. Other beaches are garbage-strewn and otherwise ignored or poorly treated. Lyssons is a notable example (see Table 2)

Unsustainable Exploitation of Wildlife Little is known about the extent of improper practices. However, STEPA is concerned about the dynamiting of fish and crab catching with bamboo bottle torches. The latter is a traditional practice in Eastern St Thomas but may be causing a reduction in crab population

2.5.4 The St Thomas Great Morass

A part of the coast with special interest and importance is the St Thomas Great Morass, the third largest wetland in Jamaica and one of the least studied. The morass is formed in a low-lying basin at the estuary of the Plantain Garden River. It abuts alluvial lands on the landward edges and is enclosed by low sandy dunes to seaward beyond which area extensive seagrass beds and coral reefs. A spur of higher ground, formed by limestone, stretches east to the lighthouse. It includes large mangrove wetlands and interesting coastal woodlands

Ecosystems and Habitats These include coral reefs, seagrass beds, other benthic communities, sandy and rocky beaches, sand dunes with associated coastal woodland, mangrove woodland, secondary scrub, salinas, rivers, remnants of swamp forest and a fresh water herbaceous swamp

The morass has received very little study. It may have hydrological importance, helping to reduce the impacts of runoff on the onshore reefs. It also helps to dissipate the effects of trade winds and of hurricanes which tend to approach from the east

Little is known of the details of its ecology and there are no records of rare, threatened or local endemic plants on the site. The following is based on an assessment performed for the National Parks System Plan (Haynes-Sutton, 1992)

The coastal community (strand woodland) includes small tree species such as Scarlet Cordia *Cordia sebastena*, Sea Grape, and Beach Mahoe. In more sheltered spots trees bear dense growths of bromeliads and orchids such as *Broughtonia sanguinea*. Trees such as guango *Samanea saman* may reach considerable size. At Morant Point the coastal woodland is transformed into an interesting palm break dominated by *Thrinax parviflora*. Most of the wetland appears to be a large, mature mangrove woodland with *Rhizophora mangle*, *Laguncularia racemosa* and *Avicennia germinans*.

Several channels and ponds in the morass provide habitat for aquatic birds, crocodiles and other wildlife. At least one large channel and several small ones open to the sea and carry salt water into the morass. It is difficult to assess the extent of the swamp forest community in the Morass, because of the inaccessibility of the center of the area. A patch of swamp forest vegetation behind the coconut plantation and beach at Holland Bay (including species such as Broadleaf *Terminalia latifolia*) was particularly badly affected by Hurricane Gilbert in 1988. Herbaceous swamp is largely restricted to a narrow strip surrounding the Plantain Garden River. Common species include *Typha domingensis*, *Phragmites australis*, and *Cyperus giganteus*.

Salinas are found behind the berm at Rocky Point and similar places. There are patches of *Eleocharis sp* and *Acrostichum aureum*. Secondary scrub is found on the limestone island near the lighthouse and along the road leading to it. *Thrinax parviflora* is common in the secondary pasture and scrubby woodlands. Other trees include *Leucena* and *Samanea*.

The most important element of the fauna appears to be a large, but unstudied, population of crocodiles (*Crocodylus acutus*). The large area of swamp, the inaccessibility of the interior and the apparent presence of many ponds and channels suggest that there could be a significant population of crocodiles. The undeveloped sand dunes of the coastal fringe are likely to be of special importance as breeding habitat for crocodiles. The sandy beaches are extremely scenic and are of importance for nesting crocodiles and turtles including Hawksbill (*Eretmochelys imbricata*).

At least 9 species of reptiles including 5 endemic species, have been found in the area.

The interior provides habitat for common aquatic species such as herons and egrets as well as a large number and diversity of migrant warblers using the black mangroves near the beach. Loss of wintering habitat has been identified as a cause of the decline of migrant warblers in North America and there is considerable interest in protecting important wintering areas. The habitat appears suitable for West Indian Tree Ducks (Sutton and Haynes-Sutton, 1992).

Issues and Threats As a result of its remoteness and inaccessibility, the St. Thomas Great Morass appears to have survived in a fairly healthy natural state. The most serious threats to date have been natural disasters rather than man-made ones. However, it is privately owned and not protected under any law, although the area was designated for conservation in the St. Thomas Development Order (15 4 65). Many reports have proposed protection of the morass (including the National Physical Plan, 1974, the Country Environment Profile, 1987, the National Forestry Action Plan and for the Plan for a System of Protected Areas for Jamaica, 1992) but there have been no moves to implement protection. Research is likely to show that the morass is valuable ecologically as well as scenically and culturally. Human activities are damaging the area and although

no major activities are currently planned this could change. If land is to be acquired or leased it is better to secure it before other uses are proposed which might increase its value.

Natural Disasters Hurricanes tend to arrive in Jamaica from the east, and thus the St. Thomas Great Morass is more frequently exposed to their effects than any other part of the Jamaican coastline. Hurricane Gilbert's devastation had particular impact on the larger trees but there has been significant regeneration. The vulnerability of the area to hurricanes has probably retarded the trend towards development of the beaches for housing or resorts. The area is low lying and vulnerable to wave action in high seas. Any rise in sea level as a result of global warming would increase the extent and frequency of sea water penetration into the wetland.

Exploitation As noted above, charcoal burners are very active in all the accessible areas of coastal woodlands and black mangroves, especially near Rocky Point. Pot sticks are being harvested in large numbers. This is affecting the visual quality of the area and decreasing its value for wildlife. A plan for sustainable harvesting of mangrove and other fast growing woods for charcoal should be an important element of any plan for protection of the area.

Fishermen in the coastal villages are reported to use dynamite. The extent to which they depend on the nearshore fishery is not known. Bird shooting (of columbids and waterfowl) may be a problem in some parts. There is little evidence of harvesting of thatch and skills such as basket making are scarce. There is no craft industry but one could be developed sustainably with an appropriate market and training. Irish Moss is harvested from algal beds near Holland Bay. This is another industry which could be managed and expanded on a sustainable basis.

Pollution The main source of pollution is from the Plantain Garden River, which carries heavy loads of silt and probably of agricultural chemicals from the banana and cane plantations.

2.5.4 Morant Cays

The Morant Cays consist of four small limestone cays about 60 km southeast of Morant Point (Middle Cay, South West Cay and two small islands comprising North East Cay). The cays are separated from the mainland and the rest of the continental shelf surrounding Jamaica by deep water. The Cays are surrounded by Morant Bank, an area of about 200 sq km with a water depth of less than 20m, which is a productive fishing area.

Fauna and Flora The area has different types of large fish, especially groups like the triggers and snappers. There are relatively large numbers of spiny lobster and queen conch. The most important fauna is the nesting bird population, including large number of Brown Noddy (*Anous Stolidus*) and Sooty Tern (*Sterna Fuscata*) and small groups of Bridled Terns (*S. Anaethus*), Royal Terns (*S. Maxima*), Laughing Gulls (*Larus atricilla*), and Frigatebirds (*Frigata supp.*). Hawksbill and Leatherback turtles have been reported to be present.

Scientific and Research Importance Research has been carried out on the nesting of birds. The area is not yet evaluated but the low level of disturbance of marine life suggests that the Morant Cays could be an important conservation site and a useful control to the depleted and overfished inshore reefs.

Socio-Economic Values The Cays provide fishing and temporary residence for small numbers of fishermen (up to 100), and seasonal egg collectors, both licensed and unlicensed.

Threats There is minimal underwater disturbance, and fishery pressure is not as high as on the Pedro Banks or the mainland. The exception is North East Cay where resident fishermen are based. The other cays are unoccupied but are visited for egg gathering.

Legal Protection In theory, the cays are fully protected under the Morant and Pedro Cay Law of 1907 (amended 1953). This Act prohibits unlicensed trespass, killing or disturbance of birds, egg collecting and turtle hunting, or fishing within 4.8 km of the Cays. Licences are issued for fishing and egg collection.

Management The cays come under the aegis of the Commissioner of Lands and Fisheries Division. The Morant and Pedro Cays Law is in abeyance due to the difficulty of policing and enforcement. The NRCA has maintained a presence on Middle Cay or visited for one day (1998) during the nesting season, to prevent egg collection on this Cay, but not on the others.

2.6 History and Cultural Heritage

No Arawak remains have yet been located in the east of Jamaica. The first evidence of settlement is Spanish: the Morante hato was established near Morant Bay and the road to Morant Point lighthouse is still locally known as "the old Spanish road". The east of Jamaica was the first to be abandoned by the Spanish and the first British plantations were established in the 1650's in the Plantain River valley. St Thomas, which later embraced the old parish of St David, is one of Jamaica's oldest parishes.² Because of its age, the parish has a rich heritage with a number of interesting sites from the British period, including great houses, forts, windmills and historical wrecks in or near Bowden Bay (Port Morant Harbour) (See Table 1). Most importantly, as the location of the Morant Bay Rebellion, it is regarded by many as the cradle of modern Jamaica.

The English government of the mid 17th century hoped that English people would emigrate to Jamaica in large numbers.

However, the island's well-deserved reputation as an unhealthy place deterred free migration from England but planters and poor whites immigrated from other islands. Among the earliest were a group of 1600 white planters from the island of Nevis, led by Major Luke Stokes, induced by a command from Oliver Cromwell, who landed in Bowden Bay in December 1656. Eastern St Thomas would eventually become one of the most fruitful parts of the island, with its rich and abundant rainfall but at that time it was fever-ridden. After four months, fever had claimed two-thirds of the colonists, including Stokes and his wife who had settled at Stokesfield, a site with magnificent views but too close to the swamps of Port Morant.

The remainder struggled on, reinforced in 1658 by a new English regiment which settled around the old Spanish hato and established its headquarters at Colonel Freeman's house near Morant Bay. Various other groups of settlers filtered in from different parts of the English Caribbean, as Jamaica's potential became clear during the 1670s and 1680s. Ten years later they had succeeded in establishing about sixty plantations. By far the largest number of immigrants came as slaves from Africa, estimated at 1500 per year during the 1670s, and perhaps 2,000 per year in the 1680s.

The Plantain Garden River plain and adjacent lands as far as the St Thomas Great Morass were planted in sugar (see Figures 2 and 3). The productivity of the plantations made this richest part of the island, if not the most secure. Stoke's sons survived and prospered, building Stokes Hall near Golden Grove, on the edge of the St Thomas Great Morass. Stokes Hall was one of the many, and possibly first, fortified great houses in Jamaica, built to withstand the French. However, the French invaded in 1694 and ravaged the parish, which did not recover for many years.

² It is believed to have been named after the Governor Thomas Hickman, Lord Windsor, in 1662.

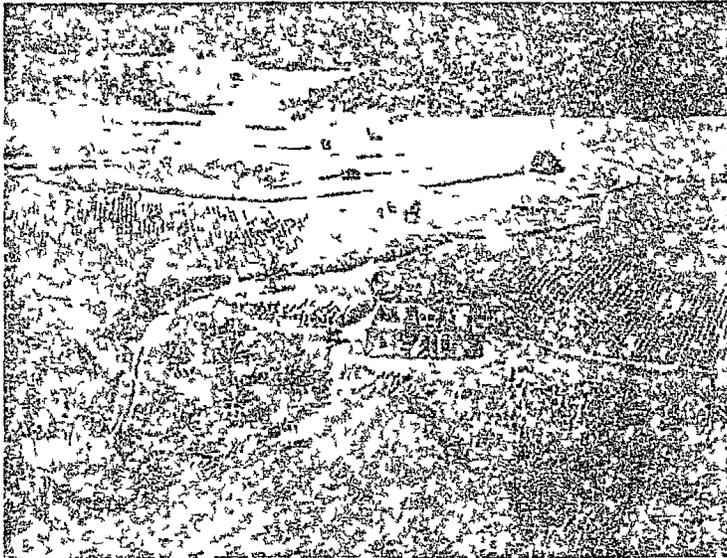


Figure 2 Aerial view of Stokes Hall ruins and surroundings

While sugar continued to be cultivated on the flat lands in the 18th Century, in 1728 the then governor introduced coffee to his estate. By the end of the century coffee was being extensively planted in hilly areas. Production increased greatly after the abolition of slavery in 1838 as many former slaves grew coffee among their crops and sold their surplus to the bigger estates with their own pulperies and barbecues, such as Abbey Green, Moy Hall, Radnor and Silver Hill.

Hit by the slave revolt, declining sugar prices, droughts and, in 1864, floods, the sugar estates began to be abandoned. These conditions accelerated destitution among the emancipated ex-slaves, leading to nearly intolerable conditions among the poor in many parts of the island, including St. Thomas.



Figure 4 Aerial Photograph of Plantain Garden River Flood Plain



Figure 5 Cadastral map of part of the Plantain Garden River Valley

The movement that was forming free villages grew and discontent came to a symbolic head at Morant Bay in October of 1865. The attempted arrest for non-payment of rent of a smallholder in Stony Gut, an impoverished district north of Morant Bay, met with strong resistance. One of the instigators, Paul Bogle, a Baptist preacher from Stony Gut, led a band to petition the plantocracy at Morant Bay. The ensuing confrontation left the Custos and his supporters burned out of the Court House, 18 of the rebels dead and 31 others wounded.

Looting of estate houses and in some cases murder of their occupants followed, triggering a reign of terror. Governor Eyre sealed off the southeastern valleys and allowed the 'forces of order' to comb them for insurgents and their plunder, leaving about one thousand houses in ruins and 600 people killed, with or without trial. Bogle and George William Gordon, a prominent Kingston businessman were hanged at Morant Bay under the provisions of martial law, despite having conducted the preliminary discussions regarding Jamaica's independence with the Governor.

Issues The rich heritage of the parish has been significantly ignored and deserves further study and attention. St Thomas has more sites listed or formally designated by the Jamaica National Heritage Trust (JNHT) than any other, with the Morant Bay courthouse as its centerpiece. An even greater number of sites has been assembled in Table 1 which lists structures, both intact and ruined, that remain as potential points of interest and interpretation (see also Figure 5). It should be noted that some sites are at present hard to find or in need of restoration or repair. Moreover, given the general lack of attention to this part of the island, there may well be others still to be identified.

The parish is also the site of a number of historical "firsts." For example, as described in Chapter 3, Bath which came into existence in 1779 became the Island's first incorporated city

with a mayor, an alderman and councillors. The first general hospital in Jamaica was built in Bath but later removed to Hoidley and the first swing bridge was built across the Plantain Garden River.

A more sinister first was the introduction of cremation during a smallpox outbreak among slaves on plantations in the parish. Finally, in what is surely only a sample of "firsts," Queen Victoria is said to have first tasted coconut water at Leith Hall, presumably the target of a shrewd piece of publicity.

Ironically, in more recent times, the parish has tended to lag behind the rest of the nation in terms of public and private investment, social and economic conditions and the level of national awareness of and attention to both what the parish has to offer and what it needs.



Figure 6 Ruined Sugar Mill at Old Pera

TABLE 1 PLACES OF HISTORICAL AND CULTURAL SIGNIFICANCE

PLACE OF INTEREST	LOCATION	HISTORY/SIGNIFICANCE	CONDITION	STATUS/ RECOMMENDATION
MILITARY AND NAVAL INSTALLATIONS				
1 Yallahs Ponds	Signal Tower	Built in 1770 s to communicate with Port Royal		National monument
2 Morant Bay Fort	Behind Courthouse Morant Bay	Built 1758 and designated to hold nine guns Plaque commemorates the 1865 rebels whose mass grave were excavated in 1965	3 24 pounder guns on carriages remain	JNHT listed
3 Fort Lindsay Ruins	Port Morant Harbour	Built 1770 to command eastern side or entrance to Port Morant harbour	Formerly contained 9 large guns	JNHT listed
4 Fort William	Port Morant Harbour	Built 1770 to command western side or entrance to Port Morant harbour	?	JNHT listed
PUBLIC BUILDINGS				
5 Bath Fountain, Hotel and Spa	Bath	Located near site of Bath Springs		National Monument
6 Bathhouse (hospital)	Bath	1779	1st floor (basement) and steps remain in Botanic Garden	
7 Morant Bay Courthouse	Morant Bay	Site of Morant Bay Rebellion 1865		
CHURCHES AND CEMETERIES				
8 Simon Taylor Tomb	Lyssons	Frequently mentioned in Lady Nugent s journal	Fine marble panels and urns	
9 Freeman Tomb	Belvedere west of Morant Bay	Early and interesting example of estate tomb		
10 Anglican Church	Morant Bay	Early 18 th Century	Attractive ruin with tall height walls	
INDUSTRIAL REMAINS				
11 Albion Sugar Mill	West of Yallahs 1km from Morant Bay Rd	Aqueduct (bringing water from Yallahs River) and millhouse	Aqueduct and ruined millhouse survive	
12 Arntully	Northwest of Cedar Valley	19thC Substantial barbecues		

13 Creighton Hall		Sugar works mule and water mills (exceptionally large)	Dramatic complex needing restoration	
14 Easington Bridge-piers	Yallahs River	Suspension bridge built in 1826 used until 1940	Towers only	
15 Llandewey Sugar Mill		Built mid 18thC Massive structure	Good	
16 Bath	Plantain River	Site of first swing bridge		
17 Holland Bridges and Lock ups		Sugar Estate structures	Remain as shown in 18th C prints	
18 Lyssons Sugar Mill		Mid 18C	Tower only	
19 Morant Point Lighthouse	Morant Point	Cast iron tube 100 long, 18' diameter Cast in London 1841 Of industrial technology interest	Good Difficult access Powerful view	National monument
20 Old Pera Sugar Mill	Old Pera	Attractive setting	Base only survives	
21 Prospect Pen Lime Kiln	Prospect Pen	Dates from 1780	Tower roofless but structure good Needs restoration	
22 Green Wall Mule-mill	Prospect Pen			
23 Belvedere	West of Morant Bay	Aqueduct		
DOMESTIC STRUCTURES				
24 Arntully Great House	Northwest of Cedar Valley	Built c 1800 Used by coffee planter Has substantial barbecues		
25 Abbey Green Great House	Near Whitfield Hall on way to Blue Mountain Peak		Remarkable view	
26 Ladyfield Great House	?		Ruins	
27 New Monklands Farmhouse	Trinityville to Cedar Valley Road	Small but charming stone farmhouse with barbecue		
28 Belvedere	West of Morant Bay		In private ownership	
29 Stokes Hall	West of Duckenfield	Interesting history Thought to be the first fortified great house	Walls fortified towers, loopholes remain Fine view	JNHT
30 Amity Hall		Complete great house	Used as farm worker accom & storage	
31 Hordley	Hordley	Complete great house	Used as farm worker accom & storage	

32 Golden Grove	Golden Grove	History unknown	Intact structure with arched stone basement	
33 Golden Grove Barracks		Constructed 1930 by Jamaica Sugar Estates		
34 Hampton Court			?	
35 Leith Hall			?	
OTHERS				
36 Botanical Gardens	Bath	Used for recreational purposes and botanical research Originally a garden of medicinal herbs		
37 Mineral Spring	Bath	Yields 95 litres of water 115 ^o 13 ^{oo} F per minute Water said to have high iodine content		
38 Easington Square	Easington Yallahs River	Capital of St David s parish 1836-7		
39 Judgement Cliff	Easington Yallahs River	Site of a massive landslide that fell across the Yallahs River in the 1692 earthquake burying a plantation and all who lived on it The face of the cliff is 1 000 feet high and the slipped mass is estimated at 86 000,000 cu yds		
40 Jack Mansong Marker	Morant Road east of Bull Bay	Monument to legendary folk hero rebel, outlaw and highwayman, subject of long running London pantomime		JNHT marker
41 1865 Memorial/Bogle Statue	Morant Bay	Sculpture by Edna Manley in front of Courthouse, site of start of Morant Bay rebellion		
42 Site of Bogle Chapel	Stony Gut	Where Paul Bogle lived and preached	site only	
43 Wrecks	in/near Port Morant Bay	Ships wrecked on reefs at the entrance to the harbor		
44 Amityville Settlement				
45 Bachelor's Hall Plantation				
46 Duckenfield Sugar Estate				

Note Names in boldface type within the eastern St Thomas area

2.7 Land Use and Capability

2.7.1 Land Capability

Map 6, Land Capability, indicates that the eastern parish has extensive tracts of Class II soils covering the Plantain Garden River floodplain and a majority of the Morant/Negro River valley below Seaforth and of the Ginger, Wards, Bouchers River and Duppy valleys draining to Bowden Bay. Small areas of Class I soils are found between Belvedere and Seaforth. A majority of the area is in Class V.

Only relatively small areas outside the Blue and John Crow Mountains National Park are in Class VI, which it is recommended not be disturbed in any way. They include Belvedere/Rozelle, the area between Potosi and Hampton Court, the slopes of the John Crow Mountains above Wheelerfield and the coastal slopes of the mountains north of Amity Hall.

2.7.2 Agriculture

As noted, the parish has been used continuously for agriculture since the arrival of the Spanish. Originally sugar manufacturing was dominant. In its heyday, the Jamaica Sugar Estates (now Tropicana) in Duckenfield was one of the most lucrative factories in the Island. Others were Serge Island Sugar Factory in Seaforth and Monklands Estates in Cedar Valley. Products were shipped from the Bowden Wharf, which was then one of the most active wharves in Jamaica. Meanwhile, sugar remains dominant in the eastern parish (see Map 7, Land Use).

Operations at the Duckenfield Sugar Factory have been scaled down and its future is at the present moment unpredictable as its viability is now being assessed. However, given the state of sugar estates throughout the island, it would seem to make sense to seek more specialized alternatives to sugar. Alternatives would take advantage of the fertility of the alluvial soil of the

Plantain River floodplain, the potential for community, heritage, ecological and agri-tourism, and the existence of a willing labor force.

In the west, sugar was replaced by pasture and Serge Island Dairies has been the dominant producer of milk in this section of the Island. Coffee which had sharply declined in quality and quantity due to over cultivation of the steep slopes and competition from Brazil, has seen a resurgence over the past twenty years, together with further loss of forest cover. Cocoa was tried but without sustained success.

Coconuts and mangoes have added diversity. The best mangoes are said to come from St. Thomas and a major coconut plantation at Holland Bay that was badly damaged in Hurricane Gilbert has been replanted.

Smaller areas are for intensive mixed farming and cattle grazing. In addition, in the mountain fringes, small farmers plant a variety of ground provisions. In the Yallahs watershed to the west where the Yallahs Valley Land Authority was formed in 1952 to help the cultivation of escallion, carrots, thyme and other vegetables, along with flowers, in the cool of the mountains.

During the 1980s, a number of agricultural projects including exporting producers received government assistance. During that decade, the parish became the major banana producing parish with the establishment of Eastern Banana Company. However, the ability of bananas to support the local economy is in question as a result of high production costs and the possible ending of European Union preferences. Eastern Bananas is reported to be in the process of replanting with new species. The need for structured development has been met to some degree by the Hillside Agriculture Project and the bath Small Farmers Cooperative, established with the assistance of USAID as a prototype for a local marketing entity. In addition to those mentioned above, other agricultural products and activities that

have been proposed as alternatives to sugar, bananas and coffee include papaya, peppers, ginger, dasheen, breadfruit, ackee, mushrooms, grapes, cocoa, beekeeping, packing and processing, and meat and poultry production and processing

Other productive activities in the sector are fishing, although the relative importance of the inshore and outer bank fisheries is not known, the harvesting of Irish Moss from the floor of the sea, and the cultivation of oysters at Bowden, reportedly by both farmers and the Ministry of Agriculture

2 7 3 Industry

Industrial activity was playing a growing role in the economic development of the parish in the 1980's and earlier 1990's. The downturn in the national economy has left the parish close to destitute. Government-developed factory space at Yallahs, Seaforth and Morant Bay accommodated food processing, leatherworks, and garment manufacturing. One garment operation was planned for Port Morant in the late 1980's but its fate is unknown.

Other activities include block making and quarrying (mainly at Bull Bay in the far west where both high demand and extensive limestone exist). However, the state of the manufacturing sector appears never to have been robust and adequately diversified. Thus the closure in 1996 of the Goodyear factory, which in 1980, generated 3/5 of the employment in the sector, was a major blow.

A wide range of possible economic activities have been considered. However, the effort requires greater focus on the unique character of the parish. The discovery of marble at the Serge Island property is thought by some to point the way to the establishment of a new industry in the parish but needs careful planning to minimize environmental impacts.

On the hillside just beyond the Yallahs Ponds is the JAMINTEL space research station on the grounds of the former Prospect Plantation. This installation may be seen either as somewhat incongruous or a suggestion of future possibilities.

2 7 4 Tourism – Existing and Potential Places of Interest

The southeast coast is Jamaica's least known region and together with Portland, one of the least accessible. Hence, the two parishes receive far fewer tourists than elsewhere. It is generally acknowledged within the parish, as well as in recent guidebooks, that St. Thomas is a region more geared toward the traveler than the tourist.

In Portland, which has fine beaches, resorts and extensive villa developments, very low levels of visitation are the result of limited marketing and limited accessibility. In St. Thomas, the south facing coast is much gentler than that of the northeast. However, although there are several public bathing beaches, recreation and tourism are not significant activities. In contrast with Portland, the beaches, while often appealing, have gray or brown sand and most are badly affected by erosion. White-sand is restricted to the inaccessible, hurricane-damaged east coast. In addition, there is very little supporting infrastructure and training is largely lacking.

With the exception of Morant Bay and the market town of Seaforth, towns are few in St. Thomas and on the coast revolves mostly around small fishing villages. The NRCA's Coastal Reconnaissance study, conducted in 1994, concluded that the St. Thomas coast had recreational and eco-tourism potential east of Yallahs. Table 2 provides a summary of that assessment of beaches updated where appropriate and the designations made in the Beach Policy Green Paper as well as others. The following section, which is illustrated by Figures 13 through 17, provides a rapid assessment of conditions and potential following the coast from the Yallahs Ponds.

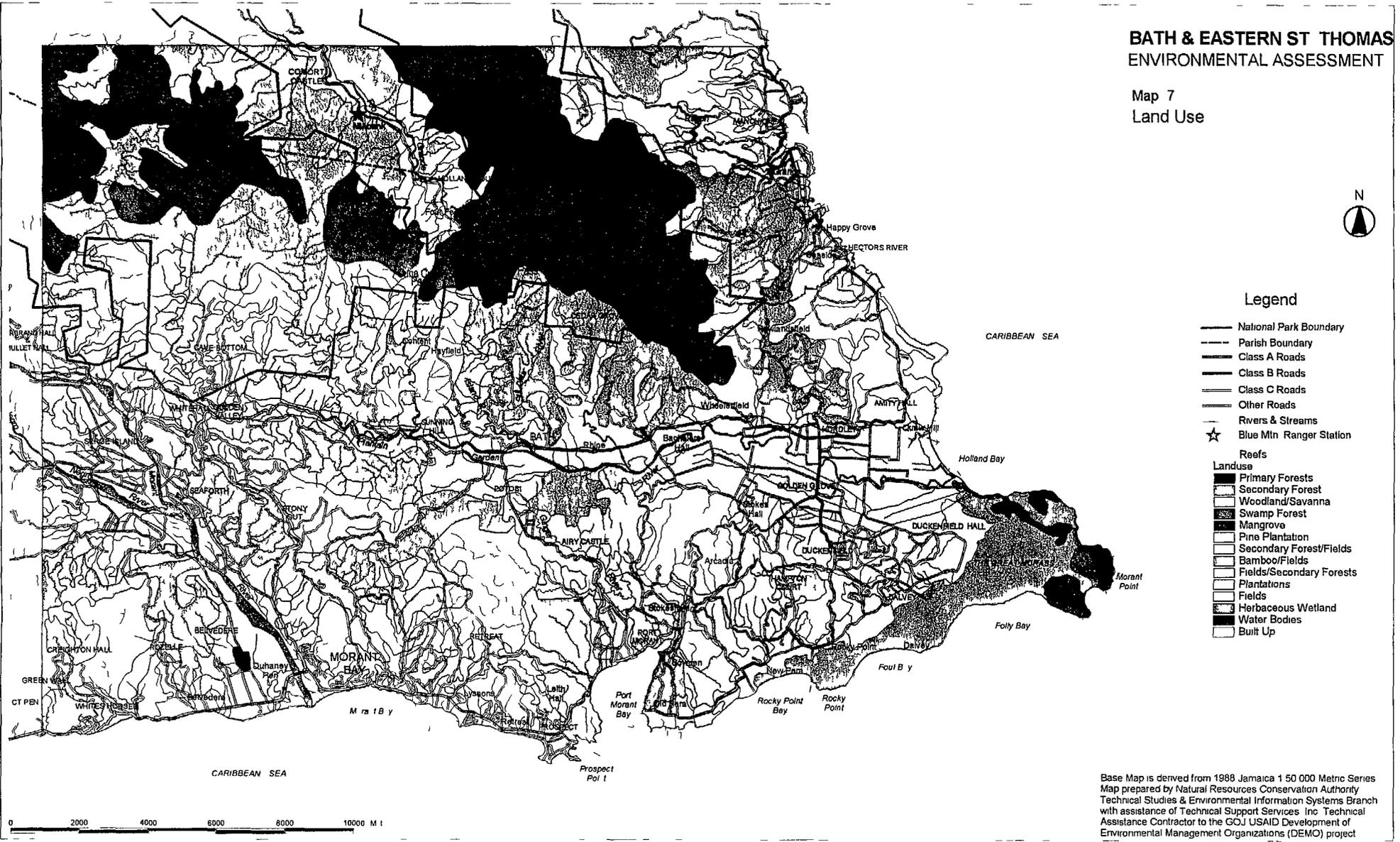
Map 6
Land Capability



B M pl derived from 1998 J mal 150 000 M tr Serl
Map pr p d by N tr I R so es Conservation Authority
Techl al Stud & Envi mental Information System Ene ch
with sal ten f Techl al S pport Serv as Inc. Techl al
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Env onment IM genen O ga ization (DBMO) pr ject

**BATH & EASTERN ST THOMAS
ENVIRONMENTAL ASSESSMENT**

Map 7
Land Use



Base Map is derived from 1988 Jamaica 1 50 000 Metric Series Map prepared by Natural Resources Conservation Authority Technical Studies & Environmental Information Systems Branch with assistance of Technical Support Services Inc Technical Assistance Contractor to the GOJ USAID Development of Environmental Management Organizations (DEMO) project

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- **Greenwall/White Horses** The stretch of coast from Yallahs Ponds includes some attractive stretches of road with open sea views. One guide describes "cliffs with scintillating turquoise waters and a series of dark-gray sand beaches used by fishermen." However, the presence of illegal structures along the White Horses Beach detracts from its potential interest to the traveller. Sand mining at Copacabana Beach is also incompatible with acceptable quality as an attraction to travellers. If the coastal environment were better protected, the area could become part of a notable tour tied in with visits to the Blue Mountains, Rozelle and Belvedere. The Morant River, crossed by Jamaica's longest bridge, is the entry to Morant Bay and the East St. Thomas region.

- **Morant Bay** As noted in a recent guidebook, it is "easy to drive through without noticing Morant Bay." Like many Jamaican towns, congested conditions are a deterrent to visitors as is the fact that the town generally turns its back on the sea and the fact that historic structures have mostly been replaced by concrete. A well-designed tour routed around town to the places of interest and the opportunity to enjoy the extraordinary views from the hills to the east of town would increase its attractiveness. Accommodations are relatively limited.

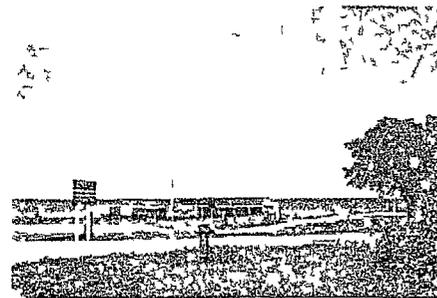
- **Lyssons** This beach was reported in 1994 to be in good condition. However, it is now strewn with tires from the roadside tire repair shop.

- **Oxford** Part of this beautiful stretch of coast is devoted to a University of the West Indies retreat.

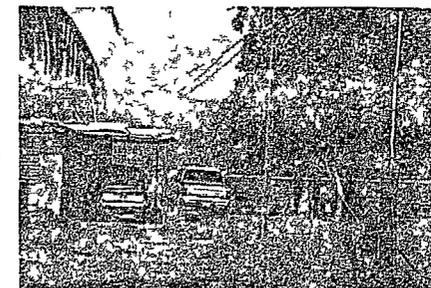
- **Retreat** Some three miles east of Morant Bay is a small beachside residential community located two of the most pleasant beaches along the south coast. Retreat contains the only significant concentration of guesthouses. Unfortunately, a

tendency to close off access to the shore and views to the coast by large villas has begun. Ideally, a revised Development Order would require development to be clustered within the existing communities of Retreat and Prospect.

- **Prospect** Prospect has a public beach on an attractive curving bay. The strip of brownish sand is narrow but long. The quality and obtusive location of the changing and restaurant facilities mar the environment of the beach for travellers seeking a more natural visual environment.

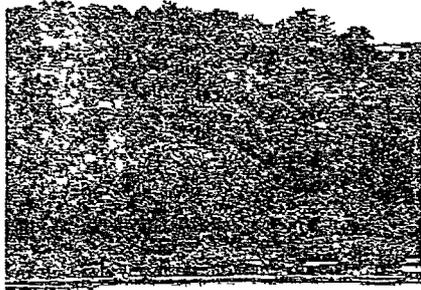


Some of the choicest beaches and views are found around the Prospect peninsula. The site of a number of private villas and guest houses, beaches and rocky shores can only be accessed by venturing onto the parcels as yet unbuilt. Ideally, remaining parcels should be protected in their undeveloped state through the trading of development rights or mandatory clustering. In the current state, they are subject to uncontrolled trespass, dumping on land and in the sea, illegal construction of groynes and erosion. The quality of the water, reefs and seagrass beds is deteriorating and attention to sources of pollution is urgently needed. Spiny sea urchins, *Diadema*, were found in abundance on the consultant's visit. Nevertheless, the quality has declined in recent years, as monitored by a member of STEPA (see Section 2.5.5).

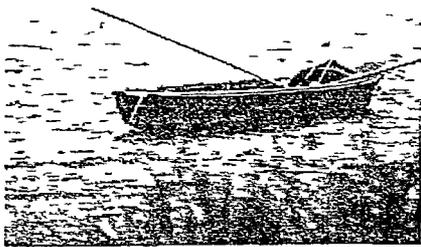


- **Leith Hall** The shoreline of the long, deep Bowden Bay (Port Morant Harbour) along the main road offers spectacularly beautiful vistas. However, here also the views are beginning to be blocked by squatter shacks, some of which are being replaced with concrete. It is critical that this be stopped now.

- **Port Morant** This small town lies at the head of Bowden Bay. According to the Guide, it offers "nothing of interest except a marina equipped with necessities." It was here that



— Captain William Bligh introduced the breadfruit to Jamaica. Forts were built in the 1770s at the entrance to the harbor (William on the west side on the Prospect peninsula and Lindsay on the east side) and ruins remain. The town has the potential to be a very attractive community, both intrinsically and because of the scenic and historically evocative surroundings. Once again, there is no signage to some of the points of historic interest or recognition of the events that have taken place.



Bowden Marina About 1 1/2 miles east of Port Morant, a road leads along the eastern shore of Bowden Bay to Bowden Marina. The oyster farming operation, the marina, the extraordinarily scenic setting and the quality of the views all suggest that local people tend not to think of the impact of the physical environment on the foreign traveller. There is an opportunity to reorganize the oyster farming onshore facilities which currently have a somewhat industrial appearance, and to develop a rest and restaurant area worthy of the site.

The marina is little used and therefore sealed off by a cyclone mesh gate to all but members. The author has therefore not seen the facilities but they are described in the Lonely Planet Guide as follows: "a threadbare marina rimmed by mangroves in the middle of Bowden Bay. Berthing costs US\$0.50 per foot. There are showers and restrooms, plus gasoline, diesel (J\$50 per gallon), and water. I'm not sure why you'd want to anchor here, except by necessity."

Continuing east the main road passes a turn, again poorly signed, to Old and New Pera. This area has pleasant secluded beaches and excellent opportunities for hiking, with fine views. The Old Pera windmill could be the site of some interpretive information.

- **Rocky Point** This is a tiny fishing community with a long attractive beach on the edge of the St. Thomas Great Morass. This would be a great destination for walks, birdwatching and nature observation. However, the experience is marred by high volume music. While this is a feature expected by locals and Jamaican visitors, it is a deterrent to others more interested in enjoying nature and culture in a peaceful setting.

- **Morant Point Lighthouse** This 100-foot-tall, 18-foot-wide cast-iron tube, erected in 1841 by workers from Sierra Leone, is the oldest lighthouse on the island and a national monument. The view from the top is outstanding. However, visitors are rare. It can be reached from Dalvey or Golden Grove. Either way, the route is hard to find and arduous.

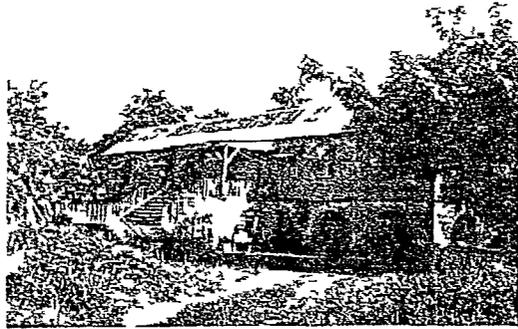
- **Holland Bay** Holland Bay is a long, spectacular white sand beach, fringed by coconuts, at the southernmost point of the windward coast. There have been some problems with robbery and drug dealing at this outstandingly beautiful but isolated and rarely visited beach.

TABLE 2 CONDITION OF CENTRAL-EAST ST THOMAS BEACHES

Beach	Fishing	Public Bathing	Condition
White Horses	x		Untidy, storm damaged and being overrun by squatter structures including some concrete block View from the road being obstructed Parking (to buy fish) narrow and unsafe
Rozelle/ Copacabana			"Still used by fishermen, although it is not as popular as it once was Hardly any beach left as the foreshore is almost completely eroded An old changing room still remains " Sand mined
Grants Pen/ Duhaney Park	x		"Very large and vibrant On the day of inspection thirty fishermen and twenty boats were counted Although this beach is active, there are no facilities except for an old dilapidated gear shed Water and electricity has been disconnected The site is relatively clean with a small settlement growing on the outskirts Remnants of an ice house still stand "
Morant Bay	x		"Quite vibrant but is in a very unhygienic state All the required facilities are place but are not functioning Garbage and animals are present on the beach, and the water appears to be polluted "
Lyssons	x	x	Lyssons is "quite a popular fishing beach and is kept clean On the day of inspection (1994) the beach was in good condition, showing signs of maintenance Apart from two changing rooms and a toilet, there were no other facilities Water and electricity are in place " Now strewn with tires discarded by the roadside tire repair shop
Prospect	x	x	"Reserved property within a residential subdivision Neglected for some time as it is not been used by many fishermen The beach area is presently overgrown with bushes and sections are eroded Nearshore water quality is believed to be poor " Now developed as private beach See text Water quality comment holds
Retreat		x	Well kept, private
Cow Bay			"A large fishing beach used by approximately one hundred fishermen, with an active fisherman's co-operative Except for water, no other amenity is present Although light poles are in close proximity, the compound is not served with electricity The beach area was not clean Fish remains and conch shells, which give off an odour, are dumped on the beach "
Port Morant	x		"A very active fishing beach Facilities such as a gear shed, change rooms, sanitary facility, petrol pump, and individual lockers are in place Some vandalism has occurred The beach is fairly clean but, for some reason, the water is discoloured "
Pera	x		"Presently inactive as the entire beach area is eroded "
Rocky Point	x	x	"An active fishing beach although not equipped with any of the required facilities There is no water or electricity However, the beach is very clean " Still clean but now has food service, electricity and sound system
Dalvey	x		"A roadside beach No facilities Some sections of the beach are overgrown, impeding fishing activity The water quality appears to be very good as not much activity takes place "
Little used			Little used A beautiful natural beach that should remain so

- **Holland Bay** Holland Bay is a long, spectacular white sand beach fringed by coconuts, at the southernmost point of the windward coast. The beach was badly affected by Hurricane Gilbert. There have been some problems with robbery and drug dealing at this outstandingly beautiful but isolated and rarely visited beach.

- **Golden Grove** Golden Grove is a desperately poor hamlet -- of zinc and wood huts on stilts dominated by the plantations of Tropicana Sugar Estates east of the road, and Eastern Bananas to the west. Few dwellings have running water. There are structures with historic interest that



have potential for productive reuse

One mile east of Golden Grove is **Stokes Hall**. The thick-stone-walled house is a building of note with fortified towers at each corner. The ruins are protected by the Jamaica National Heritage Trust. From its hilltop site there is a fine view over the sugar fields and the Tropicana sugar factory at Duckenfield to the south-west. However, it is hard to find as it lies along a dirt road with no signs and is hidden behind thick foliage.

- **Hordley** One mile north of Golden Grove is a crossroads named Hordley where there is an overlooked great house. The road going west leads to Bath through the canefields to Wheelerfield where the banana plantation begins. This road is in an exceptionally poor condition however.



The main road continues east through Amity Hall with another neglected great house and climbs out of the southeastern flatlands.

Quaw Hill offers a spectacular view over Holland Bay and St. Thomas Great Morass. The road returns to the shore at Hector's River.

- **Hector's River**, on the border of Portland, lies six miles north of Hordley. Tropic birds are an attraction here. From Hector's River, the distance to Port Antonio is 25 miles along coast that becomes increasingly dramatic and contains some fine small unspoiled beaches, although much of the shoreline is hidden from view from the road.

- **Reach Falls** North of Manchioneal, these cascades are well outside the present study area. However, they are mentioned in the NIBJ list or "nearby attractions." Until the early 1990's, these cascades remained virtually unvisited. However, their use as the setting for a scene in a popular film brought notice. Now tour buses arrive from Port Antonio and Ocho Rios. Once again, illegal development has occurred and "improvements" could have been more sensitive and less intrusive.

▪ **Interior Destinations** The following chapter examines the historical and environmental potential of Bath. Bath can be reached from Port Morant as a side trip from the coast. In addition to the coastal attractions, the region offers opportunities to enter or leave through the Blue Mountains, via the Morant River, Seaforth, the Negro River, Cedar Valley and Trinityville. The state of the roads makes this a very long but beautiful trip. From Seaforth, it is also possible to access the upper reaches of the Plantain Garden River and follow the river down to Bath. The state of the road has not been observed, however.

Issues The potential exists to regain a pattern of well-maintained, accessible and profitable use of the coastline for fishing, short-stay public use for bathing and coastal/shoreline walks and nature observation. Only the Yallahs Ponds have any type of protected status.

St. Thomas has both advantages and disadvantages as a result of its isolation from development and tourism for so long. It still has undiscovered treasures and a freshness not encountered in some better-known parts of the country. The "off-the-beaten-track" character is a major part of its potential appeal to travellers.

Given that the potential for conventional tourist development is limited, the focus needs to be on developing active alternative forms of travel that can augment income in an equitable manner as possible, among communities and among income groups. However, the underdeveloped state of the parish also means that it suffers from extreme poverty, low levels of education and skills and that it is unprepared for the demands of increased travel and tourism. Thus St. Thomas can only capitalize on the beauty and historical interest of the area with a carefully integrated program of improvements, which it increasingly urgent to initiate.

2.8 Social and Economic Conditions

The long existence of the 'marronage' (French for escaped slave) in eastern Jamaica was supplemented by a significant number of free Africans (especially from Sierra Leone) who came to St. Thomas in particular and settled on the sugar estates in the decades following emancipation. As a result, African roots and culture are particularly strong in the population of the parish. Many of the locals are descended from Africans who. Culturally, St. Thomas is noted for Cumina, an ancestor worship cult which some social scientists claim to be purely African. There are practicing groups in Seaforth, Acadia and Trinityville.

The parish is sparsely settled with an estimated population of 160,000. The sugar and banana estates are the main sources of employment and income, in the historical fashion. The area is one of Jamaica's poorest and living conditions continue to be harsh. Many of the people who work on the estates, especially in the Golden Grove area, live in appalling poverty. In addition, plantation work is regarded as having a demoralizing stigma (Desmond Cameron, pers. comm.).

There was a significant change in the level of education between 1970 and 1991, with the portion of the population receiving secondary education rising from 4% and 5% to 38% and 43% respectively for males and females. However, the percentage of males who were economically active declined from 84% to 70%.

The general feeling is that St. Thomas has always been forgotten in the development process and will continue to be left out. Efforts to improve the standard of living of these communities are urgently needed. The eastern area is generally depressed, undeveloped and oppressed by a sense of hopelessness and futility. The Tropicana Estate was recently put in receivership and the possibility of layoffs could greatly exacerbate the poverty of the area.

2.9 Infrastructure

The area is poorly served with infrastructure and transportation

Roads The road from Kingston has been under repair in several places, adding to the actual and apparent isolation of the eastern portion of the parish. Morant Bay, the capital is approximately (51km) 32 miles from Kingston but takes close to two hours to drive. Other roads in the study area are very poor. The road from Morant Bay to Bath is in an appalling condition. It takes perhaps a half hour to cover the six miles without damage to one's vehicle. The route from Bath east to Hordley and the main coast road is in an even worse state and is reportedly perennially so. Road improvement machinery was seen by the consultant on the day before the local election in November 1998 trimming verges on the Morant Bay to Bath road, apparently in preparation for repairs. However, no further work was done.

Communications Public services are limited in eastern St. Thomas and in some places, such as the Bath/Hordley/Golden Grove triangle, virtually non-existent. With the closure in late 1998 of the Golden Grove Post Office, this part of the country is dependent on Port Morant, to which taxis are the only form of transportation. Telephone lines are scarce and public telephones even fewer and frequently out of service.

Water and Sanitation In 1991, only 19.8% of households in the parish had water piped to the dwelling in 1991. A similar percentage had water piped to the yard but 46.9% of dwellings depended on standpipes. Six percent relied on springs. The supply in the far eastern section of the parish is particularly poor and the NWC trucks water to communities in the Dalvey area. At present there are 5 wells with a daily output of 3.05 million gallons and 2 others with a capacity of 2.1 million gallons per day.

Approximately 77% of dwellings had pit toilets and 16% reported having water closets not linked to sewer.

Lighting and Cooking Fuel Only slightly over 50% of dwellings had electricity in 1991, the remainder relying on kerosene. Approximately 66% of households reported using wood or charcoal for cooking, while 25.6% used gas and 6.9% kerosene. However, there are reports currently that many in the east cannot afford charcoal and have taken to cooking over burning plastic. (W. Courtney, STEPA Peace Corps Volunteer, pers. observation)

Social Services One major resource is the Princess Margaret Hospital at Morant Bay, a facility that was severely damaged in Hurricane Gilbert but rebuilt. Its well-kept appearance is impressive. Other health services are limited to small health centers.

There is a technical high school but no community college. A number of towns and smaller communities have recreation centers operated by the Social Development Commission but Bath lacks one. The main Parish Library is located in Morant Bay with 13 part-time branches, 32 book mobile stops and a special service offered at the Princess Margaret Hospital.

3 BATH – HISTORY AND PRESENT CONDITIONS

At the center of the study area described in the previous chapter stands Bath. This chapter describes the history of the Spa and the Garden. It also describes the existing state of the two major features, the town and the immediate surroundings and to provide the basis for examining current and alternative plans for improvement in Chapter 4.0

3.1 Bath Spa

The town of Bath is the result of the founding of the Bath fountain by a British officer called Colonel Stanton in 1695. Tradition maintains that a runaway slave of Colonel Stanton discovered one of the hot springs that today make up the Bath fountains, using the hot water from the springs to bathe chronic ulcers on his feet.

After several days of bathing, the sores dried up and disappeared. Taking his life into his hands, the slave returned with the story of the “magical” powers of the water to his master who promptly took control of the springs. In 1699 Colonel Stanton sold his right in the spring, along with 1,130 acres of land, to the public for the sum of four hundred pounds.

An act of the Assembly that year vested the land in “The Directors of the Bath of St. Thomas the Apostle,” a corporation to found the town of Bath and administer mineral baths for the sick and infirm. Thirty slaves built the road and the bathhouse (hospital) that offered free treatment and accommodation to the seriously ill. Lots were laid out and slaves purchased to look after the roads and the vegetable gardens that supplied the hospital.

BOX 3A

EARLY USES OF THE SPA WATERS

The waters are high in sulfur, magnesium, lime, and other minerals and have therapeutic value for treating skin ailments and rheumatic problems. In the 17thC, however, it was believed that the waters would cure everything from venereal disease to nervous spasms. According to Dr. Thomas Dancer, author of *A Short Dissertation on the Jamaica Bath Waters* (Kingston, 1789), these waters were a remedy for many diseases, containing ‘a good deal of ‘phlogisto’ [an imaginary chemical of the time]’ (Wright, 1937).

Sir Hans Sloane believed that the waters bathed in and drunk would cure a ‘dry belly-ache,’ caused by overindulgence, with great success. By the mid-18th century the springs had been usurped by

wealthy planters and English gentry seeking this cure, for as Lady Nugent recorded in her famous diaries ‘they ate like cormorants and drank like porpoises.’

Soon the unusual effects of the water had created a new demand, as the historian Edward Long recorded, drinking the water ‘diffuses a thrilling glow over the whole body, and the continued use enlivens the spirits, and sometimes produces the same joyous effects as inebriation. On this account, some notorious toppers have quitted the claret for a while and come hither, merely for the sake of a little variety in their practice of debauch, and to enjoy the singular felicity of getting drunk on water’ (Wright 1937).

During the following century Bath became a seasonal resort for the rich and well to do in the island. Houses were built, a club was organized and the Town of Bath mushroomed, becoming one of the most popular spots in the entire island. The wealthy "brought their amusements with them-music, cards, dancing. Life at the spa ran a giddy pace at times, and so it continued until the middle of the eighteenth century. Then the social set began quarreling, grew tired of the place, and ceased going there. Bath went into a decline as a fashionable Jamaica resort" (Wright, 1937). According to some, the Morant Bay uprising and attendant political disturbances of the late 1700s caused Bath to lose its fashionable image. Whatever the cause, Martyn (1949) claims "it quickly became a ghost town of a mere 10 inhabitants" while Wright (1937) describes it as "merely a botanical garden under the watchful care of Dr. Thomas Dancer."

3.2 Bath Botanic Garden

From the start of colonization, Europeans in the West Indies were fascinated by the flora, Columbus himself enthusiastically misidentifying several species, according to Alan Eyre (196_). As time went by, experiments were made in acclimatizing new plants, not only from Europe, but also from other parts of the tropical world. The temperate plants tended to thrive in high gardens like Matthew Wallen planted out above Newcastle while the tropical ones could be planted out lower down. Towards the end of the eighteenth century, the most extensive of these lowland gardens was set up near what is now Gordon Town under an Assembly statute of 1774 ordering the establishment of a government botanic garden.

The Gordon Town garden was soon regarded as 'too steep,' and about 1779 the site of the government garden was transferred to Bath. Dr. Thomas Clarke arrived with a variety of plants to

guide the venture. Like most botanists of the time Clarke was a medical doctor and he combined the post of garden superintendent with that of physician at the Bath hot springs.

Dr. Clarke's principal interests were not specifically agricultural but scientific. He was an avid collector of medicinal and pharmaceutical herbs and had an extensive knowledge of Chinese and Indian herbalism. His earliest acquisitions included teas, camphor, litchee, the sago 'palm,' (cycas), jujube, clove and the *Dracaena* or Chinese, dragon tree. (According to Eyre, 196_, until a relatively recent reconstruction of the garden there was a large and ancient *Dracaena* near the entrance to the garden that Dr. Clarke himself may have planted.) For a long time, the garden was organized according to the 'medicinal virtue' of plants and 'those qualities useful to the arts' such as dyes, resins, varnishes and cabinet woods, to quote from an early superintendent's instructions.

In 1782 Dr. Thomas Dancer succeeded Clarke as Physician to the Baths. He was appointed Superintendent of the Garden and Island Botanist in 1788. Under Dancer, agriculture and "the desire to beautify yet more an already lovely land" (Eyre, 196_) appear to have attained increasing importance as many now commonplace plants were first established at Bath.

"Some plants were difficult to naturalise, but the fecundity and usefulness of at least two, [the breadfruit from Oceania and the ackee from West Africa] leave no room for complaint. In June 1782 Lord Rodney's man-o'-war HMS *Flora* (how well named) intercepted a French ship on its way to Haiti from the Indian Ocean and the famous admiral provided Dr. Clarke with a most valuable cargo - a collection of plants which included the mango, cinnamon, jack-fruit, pandanus, moringa and oriental ebony. The original pandanus is still a conspicuous if rather untidy inhabitant of the garden." (Eyre, 196_)



Figure 12 Bath Botanical Gardens from Kidd, c 1830

Captain William Bligh, whose first journey in search of plants, including breadfruit, ended disastrously in the famous mutiny on the *Bounty*⁴, survived to make a second successful voyage and in 1795, landed at Port Morant with a cargo of breadfruit and many other plants including the Otaheite apple from Tahiti, crotons and jacaranda

A specimen of the original breadfruit trees planted at the Bath Garden still survives. Bligh was rewarded with fifteen hundred guineas from the Jamaican legislature for the two journeys. Nathaniel Wilson was probably the greatest of the Bath curators. He was an experienced gardener and a very capable horticulturalist who was constantly in touch with Sir Joseph Hooker at Kew. Under his care, beginning in 1847, the garden continued to supply planters and farmers with a constant stream

of new and useful species and had one of world's best collections of fibre plants. Wilson introduced many plants with potential economic value, including the Cavendish banana (1847), the bougainvillea (1849) and the amherstia or Pride of Burma (1849) and in 1851 he experimented with *Cinchona*. The fluctuations in the fortunes of the garden have continued to the present time. The garden seems to have suffered from chronic underfunding (see Box B). It was also prone to flooding by the nearby Sulphur River. "The site of the garden at Bath was (and to a certain extent is still) precarious. It was early recognised as a poor choice. Climatically it was excellent for tropical plants but it was remote from the capital and from most of the country in those days. Moreover, the soil was largely coarse river wash and not particularly rich and the garden was repeatedly inundated" (Eyre, 196_)

In 1856, the Sulphur River flood removed a large section of the garden. Following this disaster the general inconveniences and smallness of the Bath garden were increasingly manifest. The need for a larger and more centrally situated garden was felt and so in 1862 Castleton Garden was established. In addition, the altitude of Bath proved too low for Wilson's *Cinchona* seedlings which were ready for planting out in 1861 as a source of quinine. A *Cinchona* Plantation was therefore started in the Blue Mountains in 1868. (*Cinchona* ultimately proved unprofitable and was abandoned, leaving severely deforested land and occasional *Cinchona* plants in the forest.)

After Castleton, *Cinchona* and, later, Hope Gardens came into being, Bath languished and shrank both in size (to three-quarters of an acre) and importance, although it continued to be maintained for its valuable trees and palms.

4 It is said that part of the reason Bligh's crew mutinied was because he denied them water, using it to keep the breadfruit plants alive.

BOX 3B

EARLY ADMINISTRATIVE HISTORY OF THE BATH BOTANIC GARDEN

Despite the activity during the last quarter of the 18th century with plant introduction Dr Dancer had a hard time to keep the garden going. The provision of funds to maintain the garden and pay his own salary caused him great anxiety. In 1801 he petitioned the House of Assembly for financial assistance for himself and the Garden pointing out that he had been obliged to move to Kingston to practice in order to earn a living. In the same year the Garden's overseer had to be dismissed for negligence and a Dr Jennings who presumably practiced in Bath, was appointed Superintendent. In 1804 a disconsolate Dancer described the Gardens as in ruinate and sale of the Gardens was proposed.

In the early nineteenth century it passed through stressful times and was nearly sold again. In 1810 Dr Stewart West was appointed Island Botanist at Bath and retained the post until 1821. By 1824 when it was rescued by the members for the Eastern Parishes it was in almost total ruin. It was then used for experiments with local plants and in 1826 Dr James Macfayden became Island Botanist and subsequently published *A Flora of Jamaica*. Two years later he was succeeded by Thomas Higson who brought with him a collection of plants from South America. Once again money was in short supply and Higson left in disgust in 1832. In 1833 sale was again proposed but not carried out. Another very lean time followed surviving only under the ministrations of Rev. Thomas Wharton.

In 1847 the new Curator Nathaniel Wilson from Kew, restored the garden and under his care the garden attained its greatest size and fame. He, too, battled with the authorities, complaining of the attitude of some new Board members, many of whom neither knew nor cared about Horticulture. He had to fight for a house to live in as the Curator's official house had been turned over to the Police. He had difficulty persuading the Board that the ancient labourers who cleaned the town streets were not suitable to be let loose with hoes and cutlasses in the closely planted beds. He did receive co-operation in the end and later saw to the foundation of Castleton and Cinchona.

'In 1856 the Sulphur River overflowed for the fifth time in eight years destroying part of the Garden. It was then decided to maintain what remained, sale having been considered once again, and a new garden site chosen.

To conclude, a moral may be drawn from the History of the Botanic Gardens of Jamaica, it is very apparent that such Institutions can only flourish when the right type of individual has their care and future at heart and can influence those who control the purse strings. When left to the care of Public Bodies, with no true friend at Court, they soon pine and waste away."

Summarized from a Brief History of The Botanic Gardens of Jamaica by E. B. Martyn. Natural History Notes of the NHSJ of March 1949. Jill Byles 1996.

3.3 Recent History and Existing Conditions at Bath

The Garden and Town By the time Kidd drew it in the 1830s, the Bathhouse by had been converted into a barracks. On the well-planned rectangular plots near the hospital were other houses. The plan of the town is still discernable and the steps and foundations of the bathhouse are prominent in the Garden. However, the waters of the Sulphur River must now be taken at the Bath Fountain Hotel, a mile (1.7 km) up the valley (Map 2)

Writing in the 1960s, Alan Eyre noted that the Botanical Garden "has been extensively remodeled during the last few years and many original but senile specimens removed." He nevertheless described it as a "rather forlorn remnant of its former self." However, despite being pummeled by Hurricane Gilbert in 1988, the Garden is presently very well kept and Eyre's description (Box 3C) remains true. The trees have lost their labels and there is no printed information but the Ministry of Agriculture's caretaker and gardeners are fairly knowledgeable and anxious to answer questions. The visitor's major impression, however, is that the garden is too small to offer a really satisfying experience.



Figure 13 Inside the Bath Garden looking towards the north

The immediate setting of the garden at the east end of the town is attractive, with a pleasing 19th Century stone church adjacent to it and the royal palms shading the entrance. Although, as noted, only the foundation and steps of the original Bathhouse remain, partly hidden by lush foliage, the impression, arriving



from the east is somewhat reminiscent of that created by Kidd

Figure 14 Looking west along the main road to the church and Bath Garden entrance

Thus it has considerable charm and potential for both practical and tourist-oriented improvement, beyond its intrinsic interest in the Jamaican historical context and its curiosity value as the second oldest existing botanic garden in the western hemisphere (the oldest being in the island of St Vincent)

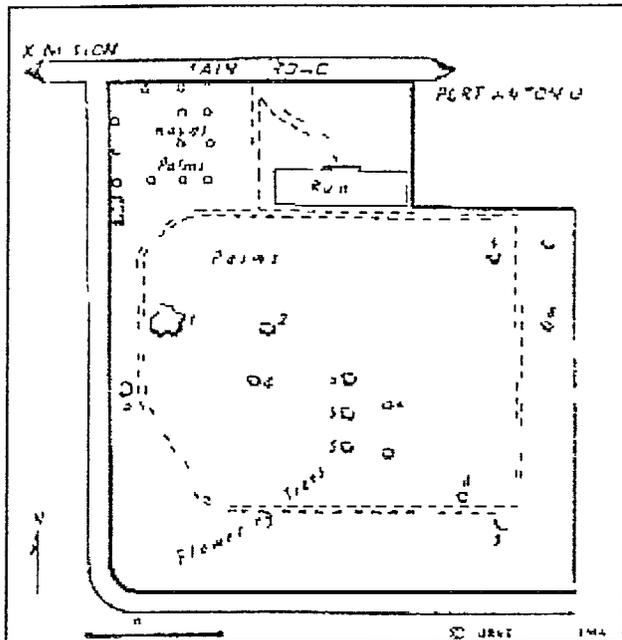
Approaching from the south, however, the visitor receives a rather different impression, so that by the time the Garden is reached, it is hard to recognize its inherent charm. The words of the Lonely Planet Guide (1996) help to place present-day Bath in the overall tourism context, describing it as a "down-at-the-heels village [whose] period of splendor was brief. Today, it's a run-down, melancholy place whose poverty attests to the pitiful wages. The one-street town has a post office, police station, and a gas station." (The Police Station is in temporary quarters, the former police station, once the site of the Garden curator's house, to the south of the garden having been destroyed in Hurricane Gilbert and not rebuilt)

BOX 3C

BOTANICAL CONTENTS OF BATH GARDEN

As the Bath garden is the smallest and least visited of the principal gardens, only a few specimens which are outstanding and of unusual interest are described here

Many of the plants first introduced at Bath now flourish better elsewhere or have otherwise vanished from the garden. The cork oak mulberry and frankincense tree (*Pinus taeda*) are at Cinchona; the cassias, opuntias and yuccas now glorify Hope, while the *Dracaenas* are better seen at Castleton. The humble breadfruit *Artocarpus incisa* at Bath is, however, of special interest and a specimen remains to remind us of Bligh and the South Seas. Nearby is an untidy clump of screw palms (*Pandanus utilis*) with their strange stilt roots. They derive from the plants which HMS *Flora* captured. There was formerly a monument in the garden to Rodney for his service to Jamaica in capturing so much floral loot.



"Near the end of the eastern walkway are two fine specimens of *Lagerstoemia ilosreginae* Queen of Flowers. Sometimes known as the crepe myrtle from the crepe paper appearance of the showy leaves, the tree came from Asia. In the jungles of south India where it is known as the jarul tree, it grows to enormous size and produces valuable timber.

'Between this walkway and the eastern boundary of the garden are several other importations from India, especially members of the *Anacardiaceae* such as the marking-nut tree *Semecarpus anacardium*.

The central section of the garden with its attractive lawn and well spaced large trees contains fine specimens of the cannon-ball tree, *Couroupita guianensis* and several large mature talipot palms. One tree introduced by Dr. Clarke is conspicuous: the litchee. It is a pity that this fruit has not been cultivated more in Jamaica.

The southwest part of the garden contains a variety of shrubs and small trees, the most striking depending on the season. The lovely pink poui *Tabebuia pentaphylla* and the purple jacaranda, introduced by Thomas Higson, should not be missed in their flowering seasons.

'The finest tree in the garden, its outspread limbs and shade covering a large area and intertwining with several others nearby, is the *Barringtonia speciosa*. With a dry fruit of unusual shape—a large kernel surrounded by a fibrous case, this extraordinary tree was originally introduced from Ceylon.

"The northwest section of the garden is chiefly devoted to palms, including the stately, geometrically-arranged group of royal palms, *Roystonea regia* which though now common enough in Jamaica, were originally brought from Cuba."

From *Botanic Gardens of Jamaica* Alan Eyre 196_

Despite now having a population of over 2,000 (1991), the town's condition is a far cry from the Bath that was the Island's first incorporated city, boasted the first general hospital and built the first swing bridge

The dismal impression begins not far from Port Morant, where squatter shacks distract from the grandeur of the natural scenery. It is reinforced at the Plantain Garden River bridge, where cars are typically seen on the river gravels in the middle of the river bed being washed down. Continuing into Bath itself, the visitor is overwhelmed by the evidence of poor living conditions and the neglect and abandonment of numerous old wooden structures that in other communities with different priorities might have been recognized as treasures.

The Spa The structure is in a deep gorge and is constructed of concrete block in a rather severe style that even the pink exterior paint cannot soften. The interior is similarly severe, justifying the fact that it is still referred to locally as the "hospital." Declared National Monument in 1991, the hotel is severely under-occupied, underused and in need of significant repair, refurbishment, improved management and a new approach to its services and marketing.

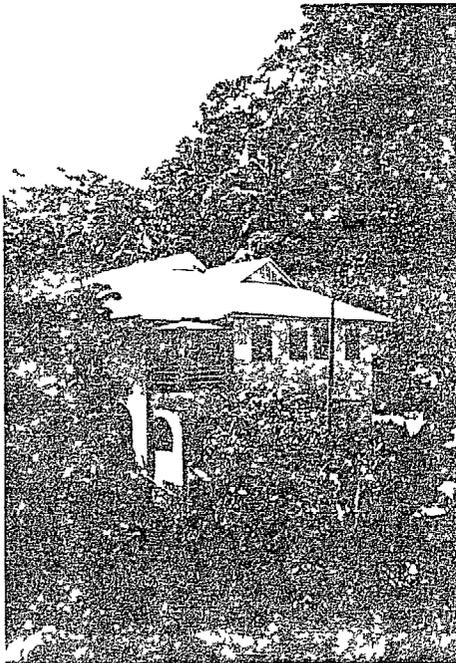


Figure 15 The Hotel from east of the Sulphur River

According to a St. Thomas consultant and STEPA member, "Due to gross neglect by successive governmental groups in maintaining the hotel and fountain, the town slowly declined in attractiveness and general appeal. Eventually, the wealthy in the area moved out, leaving the poorer people. The Bath Fountain and Hotel remains a monument in the community and something of a white elephant." (Blake, 1994) The hotel, spa and surrounding 33 hectares were on the list of the Government's divestment targets for some years. They were formally offered, through the National Investment Bank of Jamaica (NIBJ), closed on October 22, 1998.

The Hotel and Bath Building has three floors and is located on the eastern bank of the Sulphur River. It contains 10 public bathrooms and three guest bathrooms with sunken baths, bedrooms most with adjoining bathrooms, lounge, dining room, kitchen, conference room, visitor and guest bathrooms, reception areas, offices, staff accommodations and storerooms. The developed portion of the property also includes a laundry building and pump house on the eastern bank of the river to the north of the hotel. The generator house and bar on the west side of the river are accessed by a footbridge from the paved parking area at the hotel entrance. Hot and cold mineral water storage tanks with respective capacity of approximately 43.5 cubic meters and 25.4 cubic meters are about 10 meters to the north of the hotel. The area immediately around the various buildings is "improved" with paving and retaining walls. Sections of the river bank also have retaining walls.

The hot and cold mineral springs emerge at various levels above the river approximately 200 meters north of the hotel complex. The hot springs (with temperatures ranging from 46 to 48 degrees Celsius), issue from the eastern banks of the river at approximately four and nine meters above the present level of the river. Five of the springs are entombed and then piped to the

storage tank. The largest cold spring rises in a small gully midway between the hot springs and hotel at an elevation of 18 meters above the hot springs. The water is impounded in a small dam and then piped to the cold water storage tank at the hotel. Cold springs in the immediate vicinity of the hotel are also used in the baths and for domestic purposes.

The 13 bathrooms have a total volume capacity of 220 cubic meters, supplied with a mixture of mineral water from hot and cold springs. Mineral water is also piped to 13 hotel rooms. Visitors to the facility (which is open to the public between 8 00 a.m. to 10 00 p.m.) soak in deep, ceramic-tiled pools (US\$2.50). Each bath lasts for 20 minutes. However, it takes approximately 15 minutes to clean the bath and 30 minutes to fill it. The simple spa also offers massages for US\$25-35.

There appears to be no particular focus on either cosmetic or specialized therapies. However, the Balneological Institute at the University of Freiburg has indicated that the exercise therapy in the Bath Fountain mineral water has potential for treatment of numerous degenerative diseases, neurological disorders, post stroke therapy, vascular diseases, and connective tissue disorders. Moreover, some authorities consider the water superior to that of Baden-Baden (DuCran, pers. comm.).

The Water Resources Authority (WRA) estimates that if the hotel were operating at full capacity, there could be a shortfall in mineral water supply. This is because 27% of the total estimated reliable yield (including 50% of the hot springs flow) discharges to the Sulphur River. The primary reasons are undersized storage tanks that overflow at night or when not in use, tanks and pipes that leak and use of a cold mineral spring for domestic supply. The National Water Commission (NWC) has an intake on the Sulphur River above the hotel to supply the Bath community with domestic water. Service to the hotel would enable the hotel to conserve its mineral water and/or

divert it to lucrative operations.

Conditions Surrounding the Spa The Spa is reached by a Parochial Road that follows the west side of the Sulphur River until a deep loop in the river where the road crosses to the eastern side. The road ends in an asphalted area used for parking. The road is little more than a single lane wide in many areas and the road and parking area are frequently congested. This is especially the case at weekends when large number of visitors arrive from Kingston, not it appears to use the spa but to bathe directly in the pools of the Sulphur River and under the leaking pipes.



Figure 14 Informal use of the river

¹ There is an initialized hot spring flow of 32.2 litres per minute (464 cubic meters per day) which in concert with expanded storage facilities, could supply the demand shortfall [at full capacity] at with a surplus of 26 cubic meters per day. There is also a reliable yield of approximately 29.5 litres per minute in the Sulphur River below a (NWC) domestic water supply take off. This in conjunction with the hot springs will produce an excess available mineral water supply of 68.5 cubic metres. [It is assumed that this would be enough for a small bottling facility.]

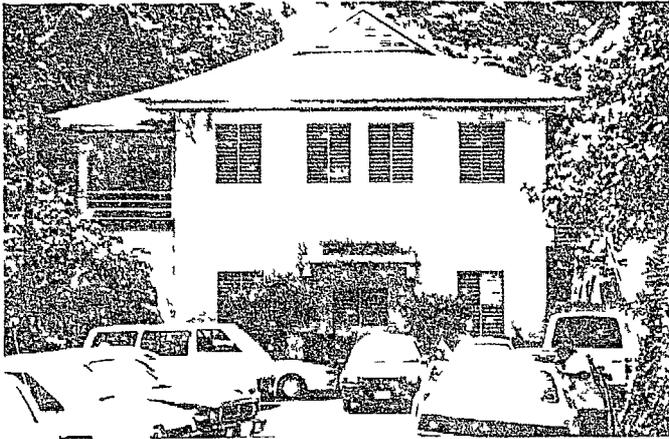
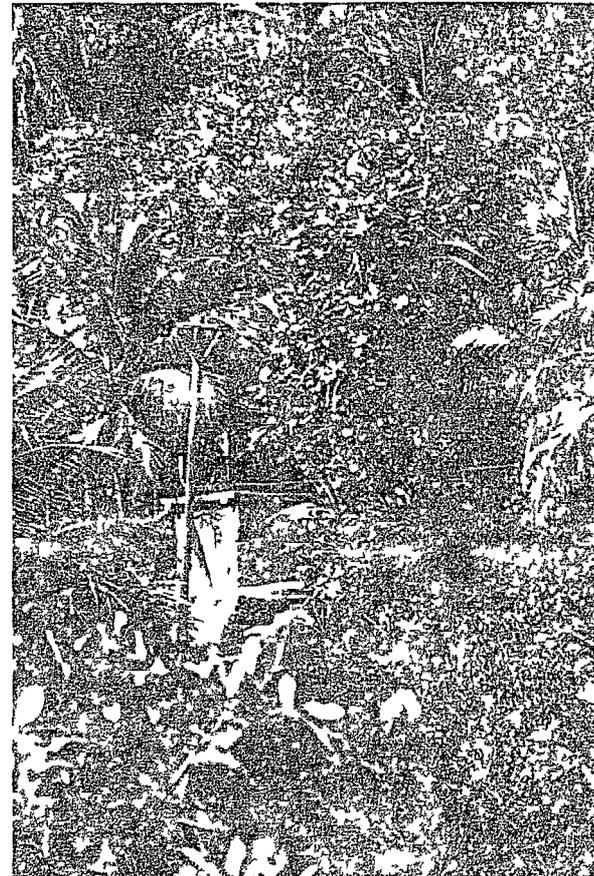


Figure 15
The hotel entrance

The intensity of this informal use has a number of effects

- It provides a critical source of income in the severely impoverished community, supporting a significant number of local residents, including
 - bus and taxi drivers,
 - vendors of crafts and produce, (some farmers carry produce from as far afield as Wheelerfield at weekends on a regular basis),
 - Jamaican "fast food" vendors, and
 - informal "supervisors" who charge for changing in makeshift bamboo shelters and guarding bathers' possessions,
- It leads to harassment which is a deterrent to non-Jamaican visitors and some Jamaican visitors,
- It generates garbage and is likely to be impacting downstream water quality, and
- It produces an atmosphere of noise, disorder and visual confusion that is not compatible with the establishment of a restful spa

The Sulphur River valley is spectacularly beautiful, even though its vegetation has been significantly man-altered (Bamboo and tall grasses provide the main cover on the steeper and exposed slopes. Other types of vegetation include large fruit trees, breadfruit, ackee, avocado pear, tamarind and cocoa, as well as an undergrowth of ferns and shrubs). However, the general neglect of the area by planning, environmental and other authorities has allowed extensive squatting to occur on the valley sides between Bath and the Spa. These were discreetly sited and brightly painted wooden and bamboo houses that,



while illegal, had character. Until recently, these were the only structures. Now they are being joined by much more blatant and objectionable construction in concrete block along the roadsides.

Figure 16 Illegal structure along the roadside

One of the buildings is already open as a 'gift shop' aimed at visitors in an enterprising escalation of the vending activities

In the immediate vicinity of the hotel the river banks are lined with cottons, one of the many plants introduced to the Bath. Immediately above (or behind) the hotel powerhouse is a small pool, the focus of informal bathing, while other pools and falls occur further up the river



Figure 16 The Sulphur River in the vicinity of the Hotel

A narrow trail leads along the eastern side of the valley past the points where the springs enter the pipes that serve the Spa. From this point, visitors have a range of choices, from short walks to (guided) hikes as far as the Cuna Cuna Pass and across into the Rio Grande Valley. Horseback riding could be another option. Section 2.5.2 noted that this part of the Blue and John Crow Mountain National Park is especially interesting as the habitat of the large swallowtail butterfly (very rarely seen), other butterflies, and other unique species of plants and animals. As indicated in Section 2.5.6, the variety of environments represented by the springs, the river and the combination of native and introduced vegetation makes the valley particularly interesting to birders. The variety of birds is of significant interest in addition to the presence of the Black-billed streamertail. However, the leaders of birding tours and the Gosse Bird Club have discontinued tours in the area because of the harassment that is encountered.

The Bath Fountain Hotel and Spa Divestment Plan The NIBJ offering document notes that "The public baths are currently very well patronized and the potential exists for increasing the number of local bathers. The Jamaican public regard the BFHS as an important part of the nation's heritage and it is expected that investors will significantly modernise, expand and upgrade the facilities available for bathers to international standards so that BFHS will be able to provide more entertainment and better therapeutic facilities for the general public. It is expected that hotel facilities will also be significantly modernised, upgraded and expanded in accordance with the recommendations of the balneological evaluation and international standards expected for hotel /spa facilities."

The document acknowledges that the building needs to be remodeled and renovated and there need to be improvements and additions to the facilities (including the storage tanks and pipes). It also states that the hotel is operating, with an Acting

Manager (understood to part-time) and 22 employees, at a 30% average annual occupancy (peak months for baths and hotel guests being July, August and December) The document gives 71,000 as the estimated number of bath sales per year but no figure for overnight stays It notes that "the inability of the management to fund these activities [improvements] has contributed to the low level of operations "

It must be asked to the contrary, however, whether it is not the *intrinsic quality of the facilities*, in addition to the needed improvements, that, in combination with the deteriorated state of the surrounding area and extensive informal use of the river have led to the low level of operations

The latest divestment offer has not yet been successful Some *informants for this study* found that to have been predictable The Bath Needs Assessment predicted that "the potential risk will far outweigh whatever benefits exist for the average investor," and noted further that "it would be wise for the Government to rethink its policy of divestment " (Blake 1994) It would certainly appear that the various conditions described above have proved obstacles to successful divestment and a deterrent to development of an active trade, especially among *foreign tourists* Change and successful divestment can occur but will require extraordinary vision and leadership

4 FUTURE VISIONS – ENVIRONMENTAL PROTECTION AND ECONOMIC IMPROVEMENT

4.1 Published Vision Statement and Objectives The NIBJ's invitation for proposals for the leasing of the Bath Fountain Hotel and Spa states the Government's main objectives with respect of the privatization as follows

- “(i) the development of the property to realize its full potential as a spa,
- (ii) the lease of the assets of BFHS at a fair price which reflects its potential,
- (iii) the development of the property to act as a catalyst to the development of the village of Bath and surrounding neighbourhoods, by providing opportunities for direct employment and generating sustainable activities,
- (iv) adequate financing with significant levels of equity participation,
- (v) reduction/containment in foreign debt through the earning of foreign exchange,
- (vi) the ability of employees to participate in the ownership ”

As suggested in the foregoing discussion, realization of these objectives requires development of a larger vision that addresses the very basic human needs of the surrounding area and builds on the assets of a much larger area. Several documents have been developed under the sponsorship of the local Members of Parliament that address the social, economic and environmental needs and potential of St. Thomas, Bath, Golden Grove, Cedar Valley and other communities prepared by Devon Blake Associates

The common vision expressed in these needs assessments and plans is “establishment of a strong economic base for the development of St. Thomas, by identifying and producing a targeted set of marketable commodities. This will take place through the identification and development of parish infrastructure and natural assets, allied with appropriate training and education,

resulting in a highly skilled and intellectual community, practicing social equality and enjoying a fair and equitable standard of living ”

These documents have drawn on input from a wide range of interests and seek to build on the unique assets of St. Thomas, and particularly Eastern St. Thomas. In almost all cases, they contain very thoughtful recommendations for direction and action in social, agricultural, industrial and infrastructural development. However, because of the size of the challenge, the recommendations are numerous and not always prioritized or sharply focused. The studies have been developed by a member of the St. Thomas Environmental Protection Association (STEPA) and clearly have benefited from the collective knowledge and vision of that organization.

A summary of some of the emerging local thinking about how and where to intervene effectively for social and economic advancement is found in a document entitled Initiatives for the Early Development of a Tourism Product in Saint Thomas (Blake, no date). The document notes that the “strength of Saint Thomas within the tourism sector is in the sub-areas of Ecological and Heritage Tourism” and that “these are the areas most amenable to quick exploitation.” It identifies

- Bath Spa (noting the growth in health tourism among age groups with substantial disposable incomes),
- Bath Botanical Garden,
- the Morant Courthouse (and potential complex including statue, burial plot, etc.),
- Bowden Harbour (sport fishing potential),
- tours of working farms,
- Blue and John Crow Mountain National Park trails, and
- areas of unique ecological, geological and historic interest, including Judgement Cliff and Yallahs Ponds

4.2 STEPA's Vision

The members of STEPA possess an integrated and expansive vision for the protection of the environment and the improvement of social and economic conditions. Key recommendations include the following:

- **Tourism** St. Thomas needs to be marketed as a "package," to take advantage of the array of ecological, recreational and historical assets described in Chapters 2 and 3.
- **Environmental Protection** STEPA wishes to see the establishment of a Coastal and Marine National Park to complement the terrestrial Blue and John Crow Mountains Park. This would include the St. Thomas Great Morass, the Morant Cays, and the reefs, beaches and mangroves of the coast from Yallahs to Holland Bay.

STEPA is not opposed to hotel development but recognizes that the infrastructure is not in place to encourage it or ensure its success. However, it also recognizes the advantages of dispersed tourism in terms of equitable and manageable development. Its members also recognize that the goal of maintaining self-sustaining protected areas cannot be based on the natural areas themselves but must be accompanied by more specific and entertaining attractions and activities. This view is based on one member's observations of tourism and natural area visitation in the United States during a USAID-assisted training. It also builds on other members' views that Jamaicans in particular are "used to trees and birds" and take them for granted. They need magnets to get them out and into natural areas where they can then be stimulated by being given more information.

Recognizing the magnitude of their vision, the members see the need for a sharper focus and a prioritized set of actions.

4.3 Suggestions for Focused Tourism as an Economic Stimulus

The ideas described above coincide closely with the consultant's *initial impressions and independent assessment*. There is a need for a well-considered theme to give St. Thomas a special marketing edge and meet the objective of spreading economic benefits as equitably as possible.

Building on the work and thinking to date and the foregoing assessment, there would appear to be a strong potential to market St. Thomas in terms of its history and Bath's traditional and current role in health tourism, with agriculture, natural areas and health foods as sub-themes.

Bath Mineral Springs and Spa and Bath Botanical Garden offer an important opportunity to provide the focal point for this themed tourism and to promote "Ridge to Reef" environmental protection and visitation in a manner similar to what is developing in Negril and Portland. The effective improvement and development of Bath can also preserve a portion of Jamaica's patrimony, develop a heritage tourism destination of real distinction and generate other forms of income in an impoverished area of Jamaica.

4.4 Bath Garden

Key recommendations for the Garden are to find a means of increasing its size. The Government-owned site of the former police station to the south of the Garden offers the opportunity for expansion, especially in light of the fact that this land once was part of the Garden and contained the Superintendent's house. Returning to interests of the early superintendents, the expansion could focus on herbs and medicinal plants. The concrete slab foundation of the former structure remains and could be used, at least temporarily, as the foundation of a restaurant featuring Jamaican health foods.

Such a restaurant (and others, see subsequent sections) should be able to offer organic produce, offering an outlet for many small farmers who grow a variety of crops without fertilisers and pesticides (This recommendation contrasts sharply with one proposal for Jamaican “fast food” to be sold in the Garden)¹

The basement and steps of the original bathhouse still exist and suggest the desirability of rebuilding the structure. The stone, and it must be assumed, the craftsmanship are available locally and funds could be sought through a web-site appeal to Jamaicans from St. Thomas living abroad. The building could become a museum offering information on the town and its history, on the garden, its history and plants, on medicinal plants and their uses and potential, and on the history, culture and ecology of St. Thomas (or perhaps Eastern Jamaica). This could perhaps be run as a branch of the Institute of Jamaica. It would be central to the recapturing of some of the former attraction and elegance of the town and would greatly strengthen the appeal of Bath as a focal point.

4.5 Bath Spa

Spa Objectives To the objectives for the revitalization of Bath Spa listed in Section 4.1 may be added the following:

- Development of the hotel and mineral water springs as a significant center of both health and recreational tourism,
- Development of and support environmental management skills to protect the watershed surrounding the BFHS complex and protect the volume and quality of the springs and Sulphur River.

- Provision of opportunities for residents of Bath and surrounding communities to benefit in a sustainable manner from changes and increases in tourism (addressing in particular the matter of vending now conducted in the parking lot of the BFHS and other types of informal commerce related to river water bathing),
- Provision of opportunities for Jamaicans to continue to enjoy the use of the river and pools, examining potential conflicts in the use of constrained road access and parking area and the river, pools, falls and springs, and
- Development of the potential for bottling and marketing the water.

Spa Alternatives The NIBJ proposal represents one approach to achieving the stated objectives. However, if the divestment effort is to succeed in the manner described in the offering document, it is probable that the prospective buyers would wish to see better management of the way that the river is used, more orderly transportation and relocation of the vending activity.

An approach to addressing these concerns while meeting the stated objectives would be to develop a craft center and transportation center at the intersection of the Port Morant Road and the parochial Road in space opposite the Botanical Garden. Such a center could serve as the transfer point between taxis and shuttle buses plying the Parochial Road. Parking in front of the hotel would be reserved for overnight guests and day users of the hotel’s facilities only.

Construction of the craft center could add life to the center of historic Bath and could also serve as the gathering place for those taking guided birding, hiking or riding tours in the mountains above the Spa.

¹ The menu might draw on the wealth of traditional creativity embodied in A Collection of 19th Century Jamaican Cookery and Herbal Recipes, John Pringle. Mill Press, Kingston, 1990.

This alternative could have unpopular effects if restrictions were placed on the informal use of the Sulphur River. In addition, leaving the Spa in its present location would not address the essential disadvantage of the isolated location and the lack of level open space around the hotel. The surroundings would require extensive improvement, perhaps involving redesign of the parking area to develop gardens and sunny sitting areas.

A second, more radical but greatly preferable alternative would be to seek a developer to build a new spa resort hotel near the central intersection. Land exists near the intersection to develop a high quality facility with adequate space for the types of recreational facilities expected as part of the spa experience, such as tennis and swimming. The new buildings could be designed in a style combining acknowledgement of Bath's historic image with the best modern interpretation of Jamaican vernacular architecture.

This alternative would fit well with the earlier proposals for the Garden, helping to develop an ensemble of structures, gardens and uses with sufficient interest and weight to act as the desired focal point. The value of the existing Spa facilities is significant. Nevertheless, as noted in Chapter 3, the facilities require extensive repairs, expansions and additions. In light of the noted disadvantages, it might be more cost effective and marketable to relocate, piping the spring water down the valley and using it efficiently, together with NWC water for domestic purposes. According to WRA estimates, this should provide a reliable surplus, even at full capacity, for bottling.

Bringing the spa and accommodations down the hill would make them a more visible source of income, training and employment, from the point of view of the community.

A bottling plant could supply additional employment and, based upon the phenomenal expansion in worldwide demand for bottled water, and especially for mineral water, could be a major additional source of income/revenue.

4.6 Supporting Actions

To add to further depth to the menu of activities and attractions already discussed, construction of a golf course should be considered. Land immediately east of the suggested spa resort location offers reasonable slopes with opportunities for some holes at elevations with views across the river valley to the sea beyond. The possibility exists for a high quality course, perhaps supported by mountain chalets.

The proposed developments would lie within the buffer zone of the Blue and John Crow Mountains National Park which extends to the edge of the Plantain Garden River valley. The concept would therefore require special environmental review. However, given the objectives, the clear economic benefits to the area's residents and the extent to which local vegetation has already been altered by human occupation and activities in the area, this would seem to be a reasonable exception to typical buffer zone activities.

The resort could be developed and marketed as a unique facility combining an eastern "Tryall" with a "Baden-Baden" class spa. Planning of the package planning of new activities in Bath would also help to stimulate the capturing of other opportunities in the surrounding area. These activities, some of which are described below, would simultaneously increase the attraction of Bath, expanding options for both international and local visitors and further help to spread the economic benefits of the plan.

Mountain Trails Bath could become the recognized base for exploring the John Crow Mountains and eastern Blue Mountains, with hikes and horseback rides of varying lengths through the lower slopes and up to the Cuna Cuna Pass. There is an opportunity to develop an organization similar to Valley Hikes in Port Antonio. The consultant has met farmers with the knowledge, personality and apparent ability to take on such a challenge, with support similar to that provided by the Netherlands Aid Agency to develop Valley Hikes. A companion organization would have mutual benefits, allowing both Valley

challenge, with support similar to that provided by the Netherlands Aid Agency to develop Valley Hikes. A companion organization would have mutual benefits, allowing both Valley Hikes and a Bath-based organization to offer longer trips and a greater variety of experiences and attractions.

Establishment of a Marine Park would offer a similar opportunity to develop a cadre of guides, needed especially within the St Thomas Great Morass.

Bowden Bay Bowden Bay is an extraordinarily scenic deep water bay enclosed on three sides, in places reminiscent of Portland's Blue Lagoon but with a unique and varied character. The Tourism Initiatives document proposes investigation of the feasibility of developing a marine sport fishing activity at Bowden Harbor, based on reports of species of large fish in the near and off-shore waters. "This could be an attraction to both Jamaicans and non-Jamaican fishermen and a sport fishing programme, akin to [lucrative] Port Antonio tournament, could be promoted." Regardless of the feasibility of this proposal, Bowden Marina needs to be opened to visitors, at least for enjoyment of the view across the bay to the Blue Mountains. It must be presumed that the greater number of visitors would support the security service needed to allow the gate to be opened to visitors.

At the northern end of the bay, before the entrance to the marina is reached, the site housing facilities supporting the oyster cultivation area offer an opportunity for an attractive outdoor restaurant. Achievement of this opportunity will require a complete rethinking of the way the space is presently used. Realization of the opportunities of Bowden Bay, including improvement of Port Morant and interpretation of its history and investigation of sunken ships, will require immediate attention to removal of illegal structures along the shore of the bay east of Port Morant. Fishermen should be required to cluster structures

in an appropriate location further illegal development and blocking of views should be prevented.²

Tours of Working Farms The Tourism Initiatives document notes that "the parish has farms that produce Blue Mountain coffee, flowers and other exotic crops. Tours could be arranged to these farms, provide tasting and buying opportunities." Ideally, these opportunities would include opportunities to taste and buy the juices and products processed from traditional and less common fruits (an opportunity for diversification from sugar and increased employment). Such opportunities could be marketed with the joint emphasis of natural and healthy produce within the historical context of Bath and Eastern St. Thomas. Eventually, a successful campaign could create opportunities for existing great houses to be renovated for use as restaurants and guesthouses.

Upgrading of Historical Sites - Morant Bay The Tourism Initiatives document referred to above states that the area of the Paul Bogle statue, courthouse and burial plot should be combined into one historical museum. The entire square would be designated as an historic attraction site with a museum dedicated to the topic of Paul Bogle and the Morant Bay Rebellion and the attendant changes which grew out of this action.

Achievement would require relocation of the Parish Council's offices and therefore the proposal would need to be considered by the Parish Council, the Ministry of Local Government and the local business sector. The local proposal suggests that the facilities could continue to be owned by the Council but run by a concessionaire under strict guidelines to preserve and protect the historical legacy of the people.

² Approaching the northern end of the bay, the traveller from the west is greeted by a view of heavily forested hills sloping, uninterrupted by development, down to the deep blue water. A squatter shack and parking area are well sited and could be enhanced.

At present, 250 - 300 visitors per month are brought by tour buses to the Paul Bogle Statue site. However, there is an absence of information. An interim solution would be an information booth in the Morant Bay Square. The *Tourism Initiatives* document notes that this complex is "of interest to internal visitors - schools etc. a part of exposing students and Jamaica natives to our own heritage and visitors - Jamaicans of the diaspora seeking to connect with their heritage." However, appropriately marketed in the broader context of St. Thomas history and with improvements to the appearance of Morant Bay, it would also be of interest to non-Jamaicans.

Local Improvements One of the attractions of eastern St. Thomas is the attractive quality of the roadsides, hedges and

verges along the main road. In some areas, such as Prospect, there are deep set-backs and extensive well-kept open areas along the road. Achieving and maintaining the same or even improved quality in parks, gardens, and roadsides in the towns should be the next. The *Tourism Initiatives* document referred to above calls for "Development and beautification of parks, gardens, lay-bv's, etc." Areas like the Morant Bay roundabout, street verges in Yallahs, Prospect, etc. Gardens and parks in Morant Bay and Bath need to be looked and worked on, so that the national beauty of the parish will be protected and enhanced. This will require action by the Parish Council, NEPM, PAC and the local business sector, who will be asked to adopt specific projects."

**BATH & EASTERN ST THOMAS
ENVIRONMENTAL ASSESSMENT**

**Map 8
Bath Gardens Spa & Environs
Development Opportunities**



Legend

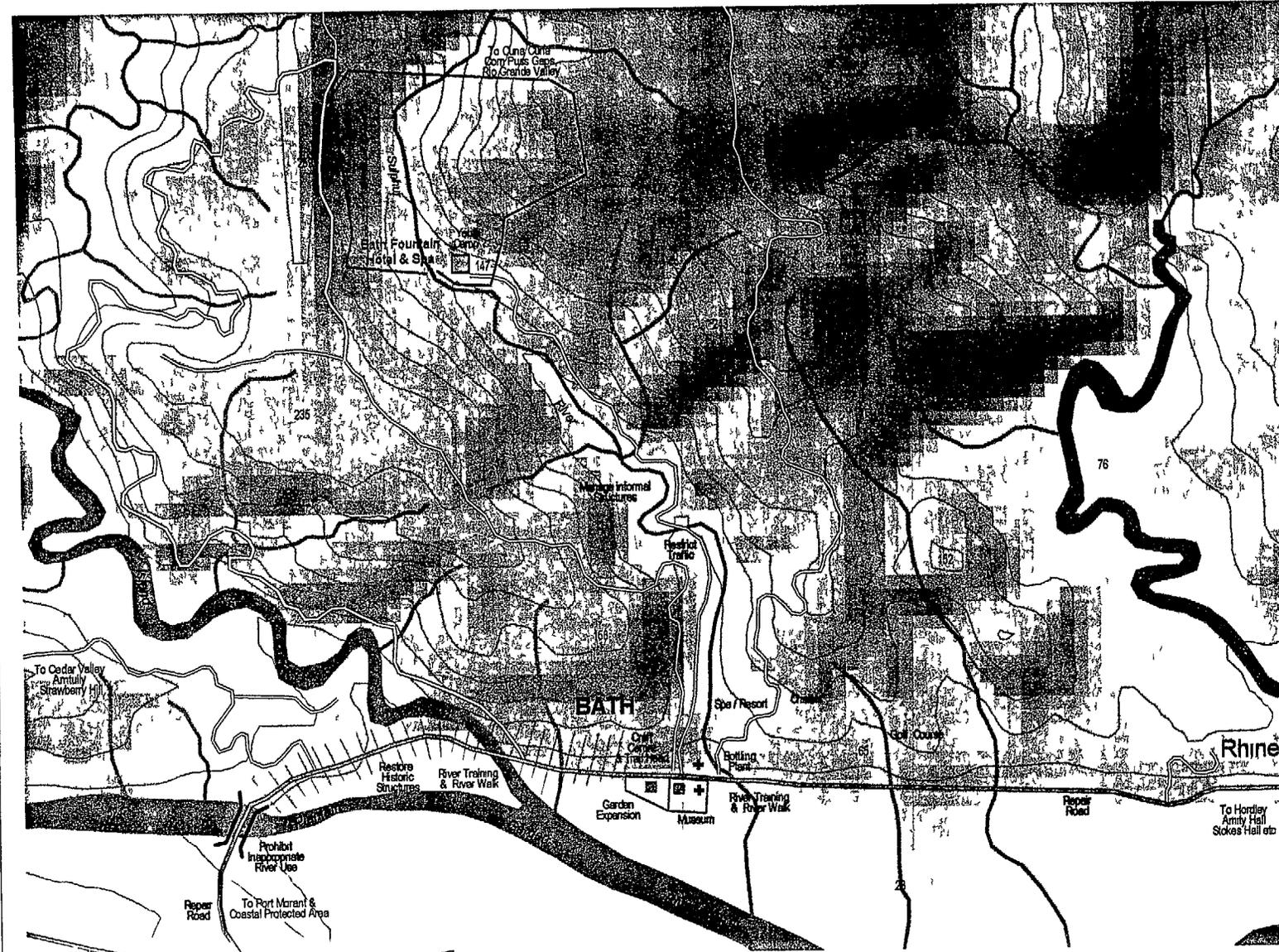
Suggested Development
New & Adapted Use
Needed Improvement
Actions

Topography

0	99
100	199
200	298
299	398
399	498
499	597
598	697

- Class B Roads
- Class C Roads
- Other Roads
- Tracks
- Rivers & Streams
- Contours 25m Interval
- /// Residential Area

0 100 200 300 400 500 M I



Base Map is derived from 1988 Jamaica 1:50,000 Metric Series Map prepared by Natural Resources Conservation Authority Technical Studies & Environmental Information Systems Branch with assistance of Technical Support Services, Inc. Technical Assistance Contractor to the GOJ USAID Development of Environmental Management Organizations (DEMO) project

5 EXISTING ORGANIZATIONAL CAPACITY

Realization of the vision described in the previous chapter will require strong leadership, effective organizations and collaboration among a wide range of interests. In 1992, a report for the development of the Plan for a National System of Parks and Protected Areas stated "a middle class group who might be expected to form the nucleus of community groups that could be involved in development in protected areas, is almost non-existent in this community. Special help would be required to organize community participation."

In fact, during the ensuing six years, an environmental organization and other community groups have emerged to change this picture.

5.1 STEPA

5.1.1 History

The St. Thomas Environmental Protection Association was formed in 1992. It has operated with skeletal resources but demonstrated dedication, the ability to keep going despite outside support and the capacity to identify and carry out effective low-cost campaigns. Over the past six years its strong executive committee has monthly on a consistent basis

The members of the executive committee are mainly professionals and most work as well as live in St. Thomas. They have complementary skills and have all stayed with the organization since its inception.

STEPA received assistance indirectly through training and guidance in strategic planning provided by the National Environmental Societies Trust. With that assistance, it prepared a five-year strategic plan. One member of the committee received USAID assistance to attend a training course in protected area management in Tennessee. Until recently, RADA provided office space. Otherwise, the organization has been entirely self-sufficient.

5.1.2 Current Strength

The members of the executive committee state that STEPA's mission has been fully internalized by all members, despite the strain on time and even personal resources.

STEPA has made impressive progress towards raising environmental consciousness in St. Thomas with virtually no financial assistance. It made a strong statement with its "Keep St. Thomas Clean" signs, noting communities along the main road from Kingston. Significantly, those signs have been in place for five years without being vandalized. Its bumper stickers are also perhaps more in evidence than those of other local environmental NGOs.

STEPA has also undertaken other projects within its overall initiative in the area of solid waste. It has developed an effective anti-litter program and juice box recycling program. It is working on a solid waste separation scheme in pilot communities, with the involvement of Wysinco. It has developed a proposal for a small commercial composting project.

Finally, it has obtained the cooperation of numerous corporations and businesses with sponsorship of litter drums advertising STEP and the sponsor. It has obtained the support of the Green Fund, the Jamaican Government, the Netherlands Aid Agency and Nestle Corporation to undertake an educational program to accompany the installation of the drums and has registered some 40-60 persons in 40 organizations. The program also includes development of a video "St. Thomas Waste Not." It is also developing a website.

STEPA has worked with the Social Development Commission on a constitutional strengthening effort in Cedar Valley. Among its other programs has been an effort to develop a culture of responsibility towards fish and mangroves among fishermen and others through Bushfire and Charcoal workshops.

5 1 3 Future Needs and Plans

STEPSA has reached the point where it needs a full-time Secretariat and its own office base. It sees the need for funding to support salaries, rent and equipment over a two to three year period to achieve sustainability. After trying for nearly five years, it finally received a Peace Corps Volunteer in later 1998 and is seeking a National Youth Commission worker.

It now aims to "move out of Phase I of STEPSA's existence." It plans to follow the Negril model, providing a coordinating and representative function for individual community, resource user and commercial groups. It reports that community organizations are pleased with STEPSA.

Having developed some consciousness in the solid waste, and having worked with Cedar Valley, STEPSA now aims to expand community environmental awareness right across the parish. It also aims for a more organized and structured approach to watershed protection and is designing a coordinated program.¹

Unlike some untried NGO's developed with the continuing assistance of donor funds, STEPSA has demonstrated longevity and organizational capacity that would meet criteria designed to assure effective use of funds, if such criteria were to be applied.

5 2 Other Organizations

STEPSA members note that, because of the limited economy in St Thomas, it has been difficult to "get people to come together and stay together." The following box lists some of the organizations that need to come together to help achieve STEPSA's vision and the vision described in the previous chapter for Bath and the eastern parish.

Community Councils have not been very active. They lack power and do not have the level of leadership needed to develop it.

In addition, the NIBJ Bath Divestment document suggests that the following regulatory organizations be appointed by the Minister of Tourism to a Board to undertake regulatory functions at Bath Spa: TPDCO, NRCA, WRA, ECD and the Occupational Safety Division, Division of Health, and the Town Planning Department. The Bureau of Standards would also be involved if a water bottling operation were to be planned. Notably absent from the recommended board is local representation. It would be desirable for STEP to be represented and for STEP to focus on assisting Bath with the development of a community association or other representative group.

5 3 Other Existing or Proposed Programs

- **Morant Yallahs Agricultural Development Project (MYADP)** Intended to make significant interventions in the Two watersheds in St Thomas. The Yallahs and Morant watershed, the project is a J\$300 Million project for the two watersheds over three (3) years.
- **Centre for the Development of Women and Youth (CEDWAY)** A project designed to utilize available government lands assigned for the use of the community of Yallahs. The project involves the establishment of a multipurpose centre consisting of a mini stadium, twenty (20) Entrepreneurial Shops, a Day Care Centre, a Meeting Hall, Commercial Offices, a Training Centre and a Youth in Agriculture Sub-project. Commissioned by Mr Hylton.
- **Farm Distribution Centres** Development of marketing and procurement centres for farming interest in twelve (12) communities in St Thomas. This is a J\$30 Million project and will develop these centres on a phased basis in five (5) years.

¹ With the assistance of Peter Parchment, a former manager of the Blue and John Crow Mountains National Park

BOX 5

ST THOMAS STAKEHOLDER ORGANIZATIONS

Custos	St Thomas Peoples' Cooperative Bank
Parish Council and Secretary Manager	St Thomas Cooperative Credit Union
Chamber of Commerce	National Insurance Society (for senior citizens)
NRCA	Lyssons Community Development Action Cttee
TPDCo	Community Councils (Cedar Valley)
MIDA	Returning Residents Association
RADA	Bath Farmers Cooperative
Social Development Commission	Eastern Banana Estate Ltd
Eastern Agriculture Committee	Tropicana Estates Ltd
St Thomas Heritage Foundation	Serge Island Dairies Ltd
Paul Bogle Development Trust Fund	F M Jones Ltd
Principals Association	Belvedere Farms Ltd
Ministers Fraternal	4H Advisory Council of St Thomas

- **Western Education Trust Fund** A fund designed to look at the educational needs of Western St Thomas and assisting in the granting of funds and technical expenses relevant institutions and persons. The fund was launched with J\$1.2 Million.
- **Paul Bogle Development Trust Fund** This is the proposed executive fund for the development of St Thomas. It is an NGO with a broad mandate for research and development activities as well as revenue earning capabilities. It will be the executive agency for all the community development plans. Its first project will be the establishment of the UWIDEC Centre in Morant Bay. A sum of \$900,000 has been granted for the centre. The centre will be located at the Paul Bogle Junior High School.

5.4 Additional Needs

To realize the social, economic and environmental benefits of the proposed integrated package will require greater than usual coordination among participants. Private developers, GOJ agencies, such as TPDCo, NGOs and international donors will need to share the overall vision while undertaking individual components of the package.

6 ADDITIONAL RECOMMENDATIONS FOR ENVIRONMENTAL PROTECTION

As indicated in the previous chapter, priorities for environmental protection include establishment of a St Thomas Marine Park, including not only the St Thomas Great Morass but also other important coastal areas and the coastal waters and Morant Cays, and a more coordinated approach to watershed protection

There is no question that the proposed marine park needs attention now. With respect to the watershed focus, there are some specific ways in which STEPA could support both the Blue and John Crow Mountains National Park and the initiatives in Bath described above

6.1 Marine Park

A recommendation at the time of the preparation of the National Parks System Plan (1992) for conduct of a resource assessment of the Morass and preparation of a strategy for sustainable development and conservation as part of a broader coastal zone management plan. "The coastal zone management plan should address and explore the relationship between the St Thomas Great Morass proposed protected area and the Blue Mountains/John Crow Mountains National Park."

STEPA sees the need for such a comprehensive approach and sees the expansion of a park beyond the morass as a way to achieve the necessary integration and efficiency. Like the JCDT, the organization sees the priorities as

- a A resource assessment project in the morass and environs, the mangrove swamps and coastal fringes, and the seagrass beds and reefs, and
- b A strategy for sustainable development and conservation

Management priorities should include

- the conservation of the rare and economically important ecosystems (such as the coastal woodlands and mangroves),
- conservation of rare species (such as crocodiles, tree ducks, if they are present, and invertebrates,

- development of sustainable use projects to reduce the impacts of activities such as charcoal burning

Proposed Objectives The objectives of a coastal/marine park are well, if partially, stated in the study for the 1992 Systems Plan. They should include "increasing the contribution of the morass in its natural state to the local economy, and increase the standard of living of the community. The strategy for the area should provide for public use and for a comprehensive programme of information, education and interpretation. The development of economic activities for the community should be emphasised. The majority of the morass is privately owned and this might be an obstacle if the owners are not sympathetic to conservation. However the relatively low number of conflicting uses and the very great need for a stimulus for development for eastern St Thomas are other factors which make this project attractive" (Haynes-Sutton, 1992)

6.2 Blue and John Crow Mountains

Coordination with Parks in Peril The first goal of the USAID/TNC/JCDT Parks in Peril Programme (PIP) for "Compatible Economic Development" is to "reduce pressure on the park resources from the communities in the buffer zones (TNC/JCDT, 1998)

Objective 1 is "To strengthen and develop alternative forestry, agro-forestry and sustainable agriculture in the buffer zone." The proposed action is to

"Establish one hundred and fifty acres of managed-forestry and agro-forestry at three areas within the buffer zone. Varieties may include hardwoods, fast-growing fuelwoods, fruit trees and "Christmas" trees. The action is intended to reduce local community pressure on other biologically sensitive areas within the park. The actions here will supplement the "Trees for Tomorrow" reforestation and fire prevention project funded by the European Union. It will ensure the production of

educational materials as well as community nurseries. The PiP project will ensure that communities plant and maintain trees in the buffer zone rather than increasing the amount of land farmed illegally within the Park.

The second objective is "To provide assistance to people in the buffer zone in improving the compatibility of resource use with conservation goals." Actions include the conduct of a workshop on management of community resources for LACs (Local Advisory Committees) and two extension campaigns and three training seminars on river- and stream-quality conservation and streambank maintenance.

These would appear to be areas in which STEPA could assist, through the strengthening of community organization in Bath.

Coordination with a Bird Protection Initiative The TNC's Caribbean Region, Wing of the Americas Project, and JCDT have recently launched a migratory, endemic and resident bird protection initiative in the Blue and John Crow Mountains National Park. This project will include "science-based programs, community outreach, training, and the development of innovative revenue-generating programs related to avi-tourism. This project has a set of conservation objectives which will complement PiP objectives:

- (1) Conduct a workshop in the Park with bird experts to further understand the importance of bird conservation, issues related to management and JCDT's role.
- (2) Characterize migrant, endemic, and resident bird communities through an analysis of threats and habitat use of both natural and agricultural ecosystems (such as coffee plantations) in buffer zones around the national park. Develop a subsequent long-term monitoring program that will simultaneously strengthen JCDT as a science-driven organization.
- (3) Develop an avi-tourism program and related training materials with local communities that will enhance on-site protection and management efforts and is exportable to other Caribbean national parks."