

# SANDY CAY British Virgin Islands

## A MANAGEMENT PLAN



*"For the benefit and enjoyment of the people"*

**Dedication Stone, Yellowstone National Park**

**island resources**

FOUNDATION

Road Town, Tortola

British Virgin Islands

September 2001

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## EXECUTIVE SUMMARY

In this management planning document for Sandy Cay, the Island Resources Foundation has sought to distill the record of natural events and human response that characterize more than three-decades of management by the island's current owner. Our intention was to sufficiently assess this record to provide a few clear guidelines about the management process that has informed the building and continuous re-building of this enhanced insular ecosystem—or wilderness area, as the owner has referred to it.

The successful strategy for managing Sandy Cay as a privately owned park that is open to the public is worthy of more than emulation. We strongly recommend as an interim measure continuation of the basic operational framework and extant maintenance strategies that have worked so well in the past. We specifically recommend assignment to the Sandy Cay project of at least two part-time gardeners, as well as continued consultation with the island's longstanding professional horticulturist and continued employment of the caretaker from Jost Van Dyke. These persons should be retained through the initial transitional period not only for convenience but also for three additional purposes:

1. To avoid any possibility of inadvertently damaging Sandy Cay's ecosystem or interrupting its long-term monitoring program and traditional high-quality service to a wide community of users.
2. To provide an opportunity to properly train new staff in the complex nuances of managing Sandy Cay as an ecosystem, while maintaining monitoring schedules and specific services to visiting researchers and other visitors.
3. To further test this management framework as a cost-effective option for managing other small islands that are too modest in size for a resident manager but which nevertheless have a high visitation rate and natural features warranting special protection.

We recommend planning for a transition period with not more than a three-to-five-year horizon—perhaps only two or three. This assumes a relatively comparable and compatible convergence of former and new objectives and standards. We further recognize that in Sandy Cay we have a model ecosystem that could have regional, perhaps international, importance. We therefore recommend that the Sandy Cay experiment be further developed as an educational tool for resource managers. Sandy Cay is envisioned as the starting point for a modest collaboration of interested parties in developing a *Sandy Cay Ecosystem Learning Centre*, drawing lessons learned over time from the hands-on experience of fine tuning the ecosystem model within a relatively benign tourist environment. It has great promise.

## **PREFACE and ACKNOWLEDGEMENTS**

*The world moves into the future as a result of decisions—not plans.*

**Dr. Kenneth Boulding, 1980**  
**Professor Emeritus of Economics, U. of Colorado**

On the eastern end of Puerto Rico, at a distance of about sixty miles, there is a cluster of one hundred or so much smaller islands and cays known as the Virgin Islands—half of which are American and half British. During the last 50 years of the Twentieth Century, both territories went through bumpy stages of development on the largest of the islands within their insular systems. Economic growth during this period was shaped principally by an emerging tourism industry, driven by rising income levels in the continental metropolises that fed the tourism sector of each.

In the period following World War II until well into the 1970s, both territories, but especially the U.S. Virgins, witnessed a frenzy of modern hotel and resort development, much of it blatantly emulating the “Florida model”, which too often was ill suited to small-island social and environmental conditions. Standing apart, as exceptions to this development pattern, were two resorts—Caneel Bay on St. John and Little Dix Bay on Virgin Gorda, in the U.S. and British Virgin Islands, respectively.

Each had links to a nearby environmental conservation initiative and each sought by demonstration to lead the way toward a more sustainable and more environmentally sensitive kind of development. The entrepreneur of these two resorts and the guiding light behind the linked natural area experiment was Laurance Rockefeller, who also at the time was emerging as a primary supporter of conservation philanthropy in the Caribbean.

While overseeing development of his two Virgin Islands resorts, Mr. Rockefeller developed a personal fascination with a tiny, wholly undeveloped cay in the British Virgin Islands called then as now Sandy Cay. There exists a probably apocryphal story about his belief that the gorgeous beaches at his Caneel Bay Resort received some of their white sand from this sandy cay that lay upstream to the northeast of Caneel. Whatever the personal reason, Rockefeller privately acquired the cay and commenced an almost forty-year affair of the heart with this 14-acre, more or less treeless but otherwise heavily vegetated small island.

At some point in time—perhaps from the very beginning—he was able to envision a luxuriously vegetated end point for an enhancement strategy he first launched in the mid-1960s. The result has been astounding and now brings the owner to his current desire to conserve the gains made in the past at Sandy Cay and make them available to another generation and beyond—as a living ecosystem restored to its wilderness splendor, for the benefit and enjoyment of the people.

To this end, Mr. Rockefeller asked the Island Resources Foundation to assist him by, first, developing a profile of the Sandy Cay ecosystem and, secondly, a working resource management plan for the island. The first task was completed in March of 2001 under title of *The Sandy Cay (BVI) Ecosystem: A Resource Characterization*. The second is embodied within this document, which examines in some detail what the future might hold for Sandy Cay from a management perspective.

In preparing this report, the author wishes to extend acknowledgement to the following institutions and persons who have provided support and assistance to development of this Management Plan for Sandy Cay.

**BVI National Parks Trust**

in particular, its director, **Joseph Smith-Abbott**, and **Nancy Woodfield**, program coordinator for the Western Region Parks

**H. Lavity Stoutt Community College**

in particular **Clive Petrovic** for his help on coastal and marine resource issues in the British Virgin Islands

**Island Resources Foundation**

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**Mr. Roy Thomas**, who has for 33 years been the principal horticulturist and director of the development/management project at Sandy Cay, and whose insightful recollections, detailed archival records, common-sense wisdom, and enthusiastic love for this special place have contributed immeasurably to the current two-phased research and planning project

**Dr. Barbara Lausche**, for wise counsel and discerning judgements on difficult legal and legislative issues

**Cassandra Lanns** and **Stanley Hodge** of Tortola, principal enumerators of vessel arrivals at Sandy Cay from March – May 2001

**William Moody** of Rockefeller Brothers Fund and **Clayton (Wes) Frye, Jr.** from Mr. Rockefeller's New York office, both of whom have provided critical guidance, support and oversight for this project from its inception

And lastly, of course, to **Mr. Laurance Rockefeller** for making it all possible.

*Edward L. Towle, Ph.D.*

Chair, Island Resources Foundation

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## **LIST of ACRONYMS**

BMPs	Best Management Practices
BVI	British Virgin Islands
CB	Caneel Bay Hotel
CFD	Conservation and Fisheries Department, Government of the British Virgin Islands
ECNAMP	Eastern Caribbean Natural Area Management Program
HLSCC	H. Lavity Stoutt Community College
IRF	Island Resources Foundation
LDB	Little Dix Bay Hotel
NGO	Non-government organization
NPT	National Parks Trust

# SANDY CAY MANAGEMENT PLAN

## I. INTRODUCTION

According to its tourism marketing, the British Virgin Islands are “*Nature’s Little Secret*”. And best kept of these is Sandy Cay, a tiny island lying off to one side of the Sir Francis Drake Channel that separates the British from the American Virgin Islands. It is, some 500 years later, still comparable to what Columbus and other European explorers first found in the Isles of the Caribbees—an island with its original vegetation in place, no houses, huts, or other visible signs of human habitation, no canoes, no curls of smoke from a charcoal pit, no cleared land—only an island landscape shaped in shades of green with seabirds swirling over easterly windward cliffs and a ribbon of pure white sand stretching to the west as it wraps around the leeward coast and silently disappears, like a road does in the distance, leaving just the sea and the green island to mark its vanishing point. It is truly a “*land of look behind*”—to use a Caribbean expression.

As in real secrets, only a few people know what lies behind this vestigial green wilderness with its luxurious, multi-hued, 14-acre micro-habitat that represents the oldest, privately developed, open-to-the-public, marine wilderness park in the Caribbean.

How did this happen? Who was responsible? How does it work? What does it cost to keep it intact? What are the threats to its survival? How should it be managed?

All around Sandy Cay one can see other still beautiful islands and islets—ranging from Tortola to Jost van Dyke, to Guana, Thatch, and Norman—but they are different. They each reflect the sometimes indelicate touch of humankind, the changes wrought not just by time but also by thousands of large and small Faustian bargains with nature and man’s ingenuity (and occasional carelessness) in shaping his own environment.

Amidst this cluster of neighboring islands lies Sandy Cay, an island that has in fact changed itself, by a different process of development, into a sustainable wildland. In a sense, it has been temporarily cultivated backwards by good husbandry into a new “Garden of Eden”. This remarkable island “garden” (absent only the snake as far as we know) is complete with a steady daily stream of visiting descendants of Adam and Eve (who arrive by boat from worlds unknown), emulating the curiosity of their long-ago forebears by still wearing the briefest of clothing while enjoying the metaphorical fruits of the garden before moving on to more secular unknown environments, pursuits and temptations. It is a moving experience for many and an informative and enjoyable one for all.

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The owner of Sandy Cay for more than three decades has been Laurance S. Rockefeller. Mr. Rockefeller has long been a patron of the conservation arts, in the Caribbean and elsewhere. He was an early practitioner of what is now referred to as “sustainable development,” the artifacts of which lie light on the landscape and honor natural systems while demonstrating the benefits of biodiversity and the practical value of good husbandry. The National Park on St John in the U.S. Virgin Islands is one of those artifacts, originating as it did as a gift to the people of the Virgin Islands and the United States from Mr. Rockefeller. Smaller gifts of land like Sage Mountain Peak and Fallen Jerusalem in the British Virgin Islands helped to launch the BVI National Parks Trust on its long history of natural area protection and conservation activities. But, for Mr. Rockefeller, Sandy Cay was always something special.

In acquiring Sandy Cay (uninhabited as it then was and still is), Mr. Rockefeller saw an opportunity to test the premise that one could “grow a wilderness”, a challenge to make work but a joy to visit, both then and now. The Rockefellers, Laurance and his wife Mary, were quite convinced that by lending a little horticultural help to nature, this small-island landscape could serve as an instructive living vehicle for enhancing human perceptions about the inter-relationship of its insular elements. And, to make it work, he opened his private paradise to the public.

The primary attraction of this eponymous island has always been its accessible beach with gorgeous white sand. By shaping a trail with tree canopies and coastal vistas and by opening up lines of sight to key elements, Rockefeller could also feature the island’s flowering plants and trees, its seasonal changes of colors and shapes, its differing backdrops of clouds and sky and sea colors, and its complete population of seabirds wheeling in the air, nesting on the cliffs and or resting in clusters on the shoreline. The island becomes a kind of window through which one can feel as well as see the balancing intricacies and complexities of man’s natural inheritance, the island ecosystem, taken as an interactive whole, principally driven by time and the natural order.

In a way, the venture was an attempt to tease or tune the senses into celebrating the graceful harmonies demonstrated by a natural landscape. The same principle of visual harmony and balance is often used by artists whose paintings present a single landscape at different seasons of the year, each with its own integrity of color, form, and spatial balance but each interesting and pleasing in its own right. At the very least, Rockefeller’s vision for Sandy Cay would create a pleasant walk along the sinuous path that, while circumnavigating the island, periodically opens to vistas of the sea and nearby islands—each spaced at harmonious distances, almost like rocks in a Japanese sand garden.

Mr. Rockefeller first referred to Sandy Cay’s potential as a “wilderness island” in 1970 in conversation with Roy Thomas. When it was subsequently used as a management objective and influenced field management practices at the island, the concept carried a double meaning, either

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(1) *“as in the style of ... ”*

OR

(2) *“be easily perceived as ... ”*

Management practices at Sandy Cay used both—whether in opening up the understory vegetation in order to improve sight lines “into the wilderness” or clearing obstructions like termite nests near the trail or removing adjacent poisonous plants, sharp cacti, and dead palm fronds from the trail area. It was never used to imply a true wildland or nature unchallenged by any deliberate human intervention or as a retroactive restoration. Neither was it a reconstruction.

Today, Sandy Cay stands as a perfect example of the “managed wildland” landscaping concept that has begun to replace the *laissez faire* philosophy of letting Mother Nature take her course with wilderness areas. This concept, as best articulated by ecologist Daniel Janzen of the University of Pennsylvania, persuasively argues that all wildlands, regardless of type or size, require active management, which includes direct intervention and an avoidance of puristic naturalism.<sup>1</sup> And this was how Mr. Rockefeller would create his own wilderness island at Sandy Cay.

It was the ultimate tool for adult environmental education, as well as a horticultural experiment on a grand scale. Mr. Rockefeller’s good fortune was in being able to co-opt a Kew Garden-trained horticulturist with solid tropical experience as the Sandy Cay project director. That person was Mr. Roy Thomas, who, on a very part time basis and although often busy with other tasks for his employer Rockresorts, squeezed in sufficient hours to make the plan work. He also developed sufficient enthusiasm for the concept to stick with it over the long haul.

Roy Thomas’s role in the successful development of Sandy Cay is inestimable. He provided the glue that held it together in the face of a half dozen hurricanes, a widely dispersed management team, an uneven performance by one of the semi-resident caretakers (out of four who held the job over more than 30 years), and despite often marginal oversight by the Caneel Bay Resort in St. John (which hired out labor for Sandy Cay from its gardening crew, sometimes with less-than-reliable “junior” horticulturists in charge).

It is almost impossible, and fortunately unnecessary, to develop here a detailed history of those management activities that shaped the Sandy Cay experiment and created an insular wilderness landscape over the last three decades. There are, nevertheless, some instructive lessons reducible from the ostensibly boring, *i.e.*, repetitive, quality of the evolving experiences of the Sandy Cay management team.

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<sup>1</sup> Daniel Janzen, 2000. “How to grow a wildland: the gardenification of nature,” in: *Nature and Human Society*, P.H. Raven and T. Williams, eds., National Academy Press, Washington, DC, pp. 521-29.

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These start with never-ending cycles of drought and then rain, a succession of heavy ground seas followed by placid flat calm, the regularity of the Christmas winds and the irregularity (*i.e.*, unpredictability) of hurricanes and tropical storms. ... The discouraging surprise of unexpected Sahara-driven dust clouds and the contrasting monotony of trimming back a veritable tidal wave of green plant material undergoing a frenzy of growth in good weather. It never ends, it only gets interrupted when hurricanes rip open canopies, taking out whole groves of trees and creating voids in coastal vegetation. ... Which then again require reshaping and filling through planting and replanting.

Then there is the less pleasant natural calendar of events called insect infestation—wood-boring beetles chewing on the nothing nut trees, caterpillars lunching on lilies, wax scale attacking the palms, and ants carrying the scale—all determined to make trouble for the would-be wilderness builder. Each insect has its own dietary preferences, nesting instincts, and plan for community development. Each requires a suitable and effective control strategy. To sort it all out is a challenge—as a famous musical king once sang, “It’s a puzzlement!”

Yet, out of the repetition and the boredom, the surprises and variety, and from this 30-year cycle of management choices and decision making for this particular wilderness garden, a few lessons and guideposts can be found to instruct and challenge a new generation of Sandy Cay resource managers. That is what this Management Plan is all about.

## **II. PURPOSE OF THE MANAGEMENT PLAN: TO FACILITATE A TRANSITIONAL PROGRAM FOR SANDY CAY**

### **PRELIMINARIES**

The owner of Sandy Cay generally visited the island once or twice a year to monitor its management, often spending a full day on the island, especially during the Christmas season when he was joined by his wife Mary. In the course of these visits, Mr. Rockefeller often gave specific instructions to his horticulturist, Roy Thomas, about future planting and pruning strategies as he sought to shape sight lines through vistas or gaps in the shoreline vegetation. Together, Rockefeller and Thomas sought to enhance the visual perspectives arising from the spatial context of the canopy effect that had been created through careful pruning of trees and undergrowth near to or within sight of the trail as it wound its way along the western, more luxurious half of the island.

Young coconut palms or sprouted nuts (which grow rapidly if properly watered and fertilized) were carefully planted adjacent to seagrape and nothing nut trees in company with other shorter flowering shrubs and bushes, fronted by prolific lilies, and with some attention paid to keeping vines from obscuring the overall effect. The objective was to use the multiple, overlapping vertical and horizontal layers of green vegetation, with different shades and textures, to present to the viewer walking the sinuous trail with a varying sense of harmonious space—nature at its best, always changing in subtle ways.

Despite, and indeed perhaps because of, the early success with this larger task, concerns about “who will look after this beautiful place when we are no longer here” began to surface in the late 1980s and early 1990s. In 1991 Mr. Rockefeller inquired of his horticulturist whether Thomas thought the BVI National Parks Trust might have an interest in eventually taking over custody of Sandy Cay. Mr. Thomas mentioned as an alternative the newer BVI Botanic Society, which had been established to assist the National Trust’s Botanic Garden in Road Town. There the matter rested.

Sandy Cay’s possible selection as a national park site had in fact been mentioned earlier in documents generated under a long-term BVI technical assistance project managed in the 1980s by a regional NGO, the Eastern Caribbean Natural Area Management Program (ECNAMP). The project was funded in part by the Rockefeller Brothers Fund. At the time, ECNAMP was assisting the BVI Parks Trust in developing a site selection process for a formal system of parks and protected areas in the British Virgin Islands. Sandy Cay was designated in the first draft (1980) of an evolving “Systems Plan” as a desirable site for inclusion in the territorial park system. The island continued to be included in the Systems Plan when the Plan was revised in 1986, when it was approved by Government in 1987, and also when it was revised and updated in 2000.

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It was initially presented as a high priority acquisition site along with nearby Green Cay and Sandy Spit (all key sea bird nesting areas). In more recent versions of Trust planning documents, Diamond Cay, Great Tobago, and Little Tobago have been added to this cluster of smaller islands and cays, which is now proposed as a special grouping of protected areas at the western end of Tortola (see Figure 1). The six sites will be linked as a mini-park, tied in turn to a prospective ecotourism "headquarters" on neighboring Great Thatch Island, which was acquired by the BVI Government in late 1999. There is no doubt that an official BVI interest in acquiring Sandy Cay has existed for nearly two decades.

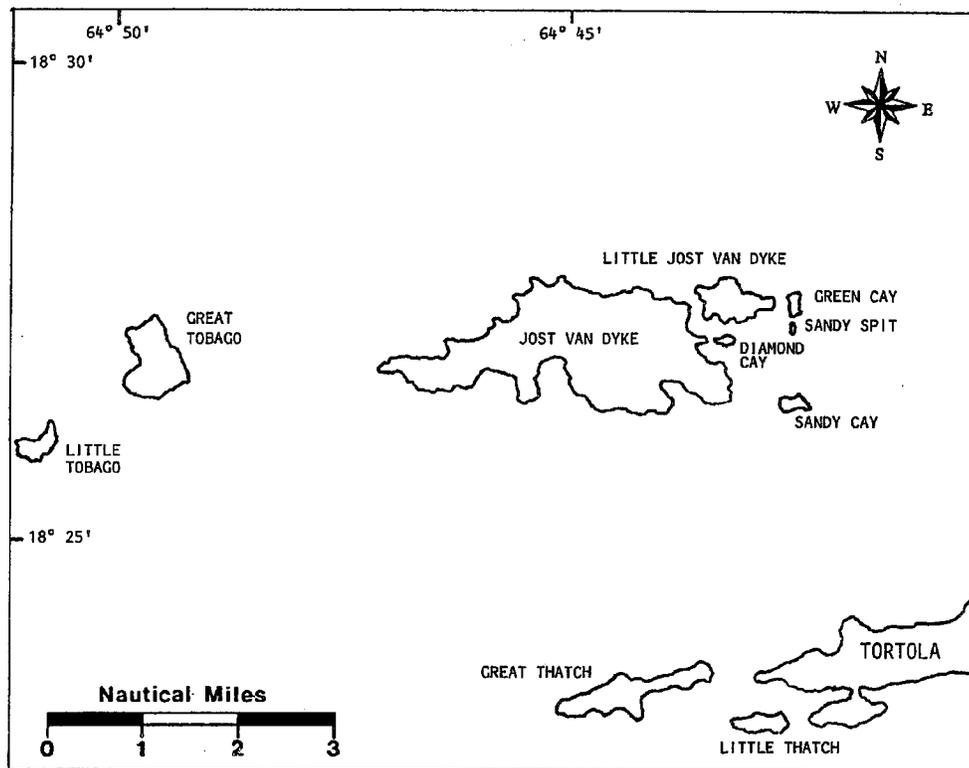


Figure 1. Location of Sandy Cay, Sandy Spit, Green Cay, Diamond Cay, Great Tobago, Little Tobago, and Great Thatch, proposed by the National Parks Trust as a "mini-park" unit at the western end of Tortola.

From the perspective of Sandy Cay's owner, the obvious success of the National Parks Trust in incrementally adding to its inventory of protected sites was a mixed blessing (see Table 1 for a list of NPT sites). Such rapid expansion brought added responsibilities, while at the same time compounding the need for baseline studies and natural resource assessments, as well as expanded planning, staffing and funding. Increasingly, the Trust faced ever more complex tasks of multiple-site management expanded over an ever-larger geographical area within the BVI archipelago.

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**Table 1. Existing BVI national parks as of December 1999, identified in NPT's most recent "Parks and Protected Areas Systems Plan for the British Virgin Islands".**

NATIONAL PARKS	TERRESTRIAL (ACRES)	MARINE (ACRES)	OWNED BY	DECLARED	% OF TOTAL ACREAGE
Sage Mountain	86.00		NPT	1964	4.84%
Spring Bay	5.50	*	NPT	1964	0.31%
Devil's Bay	58.00	*	NPT	1964	3.27%
Queen Elizabeth II Park	0.70		NPT	1974	0.04%
Virgin Gorda Peak	260.00		NPT	1974	14.65%
West Dog Island	24.00		NPT	1974	1.35%
Fallen Jerusalem	48.00		NPT	1974	2.70%
Dead Chest	34.00		NPT	1977	1.92%
Little Fort Point	36.00	*	NPT	1978	2.03%
Botanical Gardens	2.87		NPT	1979	0.16%
Wreck of the MS Rhone	766.00		NPT/Crown	1980	43.25%
Mount Healthy	1.00		NPT	1983	0.06%
Prickly Pear	180.00		NPT	1988	10.14%
The Baths	6.91	*	NPT	1990	0.39%
Diamond Cay	1.25		NPT	1991	0.07%
Great Tobago	210.00		NPT	1995	11.83%
Little Tobago	55.00		NPT	1998	3.10%
Cam Bay	49.00 (19.6 actual acres)	297	Private	1999	1.87%
Shark Bay	18.40		NPT	1999	1.3%
<b>Total Acreage:</b>	<b>1,775.23</b>				
<b>PROPOSED SITES</b>					
Anegada Nature Reserve and Horseshoe Reef	1,109 (?)		Crown		
Bar Bay	28.10		Mid-ocean		
Copper Mine Point	18.36		Crown		
Great Thatch	288.00		Crown		
Great Dog, Seal Dogs, and Cockroach Island	155.00		Private/Crown		
North Sound	395.00	7,500	Mixed		
The Bight: The Caves (the Indians and Pelican Island)	10.00	910	Crown		
Green Cay, Sandy Cay, Sandy Spit	30.00	660	Private		
Beef Island/Hans Creek Lagoon	359.00		Private		
Round Rock	---		Private		
<b>MARINE ELEMENTS OF DECLARED AREAS TO BE AMALGAMATED INTO A NATIONAL PARK</b>					
* The Baths Area	---	810			
The Dogs	---	4,080			
Tobagos		1,704	NPT		

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On balance, the BVI National Parks Trust—especially in the last decade—has become increasingly professional, consistently watchful, and generally successful in its role as guardian of the Territory’s primary natural treasures.<sup>2</sup> As it has matured, the Parks Trust has upgraded (or is currently upgrading) the quality of several park facilities under its management, such as The Baths and Sage Mountain on Virgin Gorda. (An exception is the Prickly Pear National Park site, which unfortunately came to the Trust with a grandfathered concessionaire enterprise that was ill suited for any park location.)

As previously noted, the possibility of converting Sandy Cay to public ownership is not new. However, more recently it has resurfaced with somewhat more immediacy and with serious concerns about the institutional capacity of any new custodial entity. The Trust is the most obvious candidate for properly and effectively protecting the Cay and for managing its living resources “in the manner to which they have become accustomed”—a customary, if not explicit, requirement.

In the late 1990s, Mr. Rockefeller asked his horticulturist to examine and evaluate management practices at several Trust-controlled sites in the BVI Territory. Shortly thereafter, the Island Resources Foundation was invited by Mr. Rockefeller’s New York office to offer suggestions about the future disposition of Sandy Cay. In turn, the Foundation recommended that a Sandy Cay ecosystem assessment be prepared as a quasi needs assessment for use by any future management entity called upon to care for the island. The Foundation further suggested that both the Trust and the H. Lavity Stoutt Community College (the Territory’s leading higher education institution) be involved in the assessment process.

At the request of Sandy Cay’s owner, this task was ultimately undertaken by the Foundation utilizing an interdisciplinary team of island specialists led by Dr. Edward Towle. The final report documenting their work was completed in March of 2001<sup>3</sup> and approved by the owner in April.

As scheduled, the second part of the Foundation’s assignment for Mr. Rockefeller is preparation of a management plan for Sandy Cay, which could be incorporated as an integral part of any future transfer of the island to new ownership. Considerable deliberation took place early on as the Foundation’s project team considered various possible structures for the Sandy Cay management-planning document. It was eventually determined that the primary focus of the plan would be on preparations needed for, and the early years of, a transition period, *i.e.*, one, two or even three years. This transition

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<sup>2</sup> Its track record in protecting archival resources and historic sites is less adequate but beyond the purview of this study and planning exercise. There is no question that the Trust has demonstrated to date a preferential emphasis on natural systems, natural history and the threats to the natural environment, which is especially important to the local tourism industry with its emphasis on promoting the BVI as “nature’s little secret”. However, as “heritage tourism” increasingly becomes a growth sub-sector, the Trust will have to fill this void aggressively in order to catch up.

<sup>3</sup> See: *The Sandy Cay (BVI) Ecosystem: a Resource Characterization*, prepared by Island Resources Foundation, March 2001, 101 pp.

period has been structured to include a time *leading up* to and then *following* divestiture of the island by its current owner.<sup>4</sup>

## ASSUMPTIONS AT THE OUTSET

In preparing this Management Plan for Sandy Cay, Island Resources Foundation has proceeded along the lines of certain “lessons learned” that were extracted from our extensive study of the Sandy Cay ecosystem and then reinforced by our review of the management practices employed at the island since the late 1960s (see also Annex A). These lessons learned were subsequently translated into a select number of informed conclusions that are now carried forward into this study as assumptions. They are as follows:

1. Sandy Cay has a previously unacknowledged, but intrinsic developmental value, specifically,
  - To the British Virgin Islands Territory and its National Parks Trust as a virtually intact (slightly restored) insular ecosystem (dry tropical coastal forest) suitable for use as a baseline study site in comparative assessments of ecological changes within the National Park System and elsewhere in the Territory.
  - To the BVI Ministry of Natural Resources and Labour as a biodiversity training site for its staff, in conjunction with the H. Lavity Stoutt Community College.
  - To the H. Lavity Stoutt Community College as a unique ecosystem study site for both student and faculty use.
  - To scientists and natural resource managers in the eastern Caribbean insular sub-region and particularly to the staff at and visitors to the UNESCO-designated Virgin Islands Biosphere Reserve on St. John in the American Virgin Islands.
  - To nesting seabirds as an existing and future protected site.
2. Sandy Cay will most likely be transferred to a yet-to-be-determined entity for long-term natural area protection.

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<sup>4</sup> See Annex E for a discussion of the institutional- and legislative-strengthening components of the proposed transitional period. Additionally, Annex B provides an overview of legal issues and public-sector institutional considerations pertaining to the management of Sandy Cay’s future. In the private sector, there are only two BVI non-governmental organizations with a conservation or environmental focus—the Botanic Society and the Association of Reef Keepers (ARK). Both organizations are very single-issue in focus (the J. R. O’Neal Botanic Garden for the Botanic Society and the protection of coral reefs for ARK). Neither organization has professional staff; both carry out their program agendas with the use of volunteers. Quite recently, the Botanic Society has taken steps to discontinue its activities and dissolve as an organizational entity.

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3. Sandy Cay's intrinsic value is significantly enhanced by its associated assembly of longer-term environmental information data sets, some going back for more than 30 years.
4. Sandy Cay should be viewed as a work in progress, and its value as a model archetypal ecosystem will be enhanced by continuation of the systematic monitoring that has produced the data sets referred to above; this should be accepted as an imperative task in any future management strategy.
5. Sandy Cay urgently needs a coastal/marine buffer zone and properly defined external marine boundary to complete the ecosystem model; this area should include the sea surface, the water column and benthic biota, and the seabed.
6. Sandy Cay is sufficiently specialized as a wilderness ecosystem and restoration model so as to require an extremely sensitive and cautious transitional planning agenda and schedule, especially with reference to the replacement of existing staff, in particular the horticulturist and caretaker who are vital for the maintenance of continuity and as prospective instructors for eventual replacement personnel.

### THE NEED FOR A TRANSITIONAL FRAMEWORK

Within the Caribbean, the donation of privately owned property to a government agency for management—even if the gift is clearly earmarked for use as a public park or nature reserve—has not been *prima facie* a risk-free tactic for long-term protection. There are numerous examples of gross mismanagement of land destined for park or protected area status, or of such lands being quietly and sometimes blatantly converted to private use through subterfuge, nepotism and other nefarious schemes. Sites such as English Harbour in Antigua and Moule à Chique in St. Lucia come to mind. Even the mill at Mt. Healthy in the British Virgin Islands, within a designated national park, almost fell into private hands before it was rescued by the Trust.

It is therefore understandable that the owner of Sandy Cay, who has lavished nearly forty years of focused landscape management on the island, is now a bit cautious about its future custodial care under any jurisdiction other than his own. Additionally, it is clear that Sandy Cay is substantially different from any other “protected property” in the BVI, all of which are currently under the management authority of the National Parks Trust.

From the perspective of Island Resources Foundation, speaking *ex cathedra*, Sandy Cay's conversion to public ownership is not as worrisome in the longer term as it is in the more immediate term. *It is the initial, getting-there-without-a-mishap term that carries the greater risk.*

It is the **transition process** that will be fraught with troublesome issues, the central one being how to carry out a transfer (actually a transition) without it becoming a transformation, without a change in direction, and without damage to the island's peculiar management framework.

What is it about Sandy Cay's existing management strategy that makes the transition period so critical?

### ***Customized Staffing Arrangement***

In the first place, *we suggest that Sandy Cay's apparent simplicity is not a reason to assume its small size justifies casual informality in structuring a conversion process.* At first glance, Sandy Cay gives the impression of being "no big ting," with no infrastructure, no facilities, no resident manager or visible employees—in fact, not a single *full-time* staff person anywhere in sight or involved at any level of management. This assumption is misleading.

For its entire history as a Rockefeller property, Sandy Cay has been undergoing a development process at the hands of a small core group of part-time persons who somewhat uniquely function as a low-cost but efficient "*virtual team*". Strangely enough, the members of the team have been drawn from such disparate locations as Woodstock in Vermont, New York City, Jost Van Dyke and Virgin Gorda in the British Virgin Islands and St. John in the U.S. Virgin Islands. All have been part time, and have occasionally been supplemented by small teams of casual laborers, consisting of two-to-five-day "gardeners" recruited from nearby islands.

Why this unusual arrangement has worked so well can be easily appreciated by review of the monthly and annual work logs for Sandy Cay that have been summarized in Annex A of this report. It becomes apparent that this part-time staff framework has not prevented (and perhaps has encouraged):

- an efficient division of effort,
- an effective partitioning of functions,
- a simple internal communications system,
- a modicum of flexibility to adapt to crises, and
- a margin of slack to buffer and absorb the effects of human foibles and occasional bad weather.

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The project team established and maintained a hard core of tight standards and professional horticultural practices that were rooted in good science and agricultural methodology. Well-informed decision making and hard work on targeted tasks characterized all primary labor inputs. Efficiency was pervasive.

For example, consider the caretakers—four employed sequentially over nearly forty years. Each was hired as a self-employed contractor, deliberately selected as residents of nearby Jost Van Dyke Island and because they could provide their own boat transport and tools and could function well within a self-imposed work schedule. Their work tasks assumed a time expenditure of two-to-three days a month to keep the beach clear of trash and the round-the-island walking trail open and clear of vegetation (especially fallen palm fronds that had to be dragged out of sight into the interior of the island).

These were very important tasks if the island was to be an enjoyable experience for visitors. The sequential caretakers were also charged with generally keeping an eye on things, as they passed the island to or from Cane Garden Bay or West End. Generally, the caretaker's random but regular presence and oversight without any *obvious* supervision worked well. The current rate of compensation (which began in the 1960s at \$50/month) is \$150 per month, paid quarterly. Bonuses have been paid when earned.

### **Leadership Style**

At the top of the virtual team was Mr. Rockefeller, who applied an especially gentle management style of query, suggestion and request rather than order or demand. He has been a patient and thoughtful leader of his Sandy Cay team, visiting the island only infrequently—usually once, sometimes twice, a year.

During his visits the owner was almost always joined by the Roy Thomas, a British, Kew Gardens-trained horticulturist. After a half decade of tropical landscape experience in Bermuda in the 1960s, Thomas moved to St. John's Caneel Bay Hotel (operated by Rockresorts); he later joined the parent firm of Rockresorts as its senior full-time horticulturist. It was in this later capacity that he provided oversight and advisory services to more junior horticulturists at the Caneel and Little Dix (Virgin Gorda) hotels for the ongoing maintenance of Sandy Cay. It was during Thomas's tenure at Caneel as its resident horticulturist that Mr. Rockefeller first invited him to take on principal responsibility as *de facto*, if not *de jure*, project director for the development of Sandy Cay as a wilderness garden. Together, over the decades, Rockefeller and Thomas worked out the details.

It was Thomas who selected, trained, supervised and interpreted the owner's intentions to a succession of caretakers. He also, from time to time, marshaled and sometimes headed work crews from Caneel (later from Little Dix) for larger scale activities that focused on the planting, watering and fertilizing of palms, insect control, canopy pruning,

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storm damage recovery, and trail maintenance. After Thomas moved from the Caribbean to Woodstock, Vermont, he frequently made special visits to the Virgin Islands, principally to provide advisory services to the Rockresorts hotels but always with a stop for an inspection of work at Sandy Cay. On these visits, he was sometimes accompanied by the caretaker, sometimes by *ad hoc* work crews who visited the island on average of two-to-four times a year.

Occasionally when Thomas was committed elsewhere, he arranged for the work crews to be led by the resident horticulturist at Caneel or Little Dix, depending on which hotel property the gardeners were borrowed from. Instructions from Thomas were always written and explicit. These crews of experienced local gardeners and their horticulturist leader were “rented” for such work sessions as Mr. Rockefeller insisted that all Sandy Cay expenses be billed out and charged directly to his personal account in New York.<sup>5</sup>

### **Role of Science**

One quite different aspect of the site management work at Sandy Cay required a very special kind of input—not dollars or more gardeners, but scientific expertise to assist in a never-ending series of risk assessment decisions. Virtually every significant “intervention” into the island’s ecosystem had a hidden Achilles Heel of some kind, whether the problem was periodic insect infestations, waste disposal practices, dead tree trunk removal and disposition, shoreline erosion and trail washouts, vine removal, or bird feeding after hurricanes. Each of these brought its own basic query: what remedy or response, if any, would least harm the ecosystem? Responses could not be general, but had to be customized.

For example, what kind of insecticide and at what level, how frequently and for how long? How should trail waste (especially tree trimmings, palm fronds, vines) be disposed of? Should they be burned and, if so, where? Should stumps or whole trees felled by storms or insects be removed or left to the slow, smokeless burning of decay, thereby feeding the beetles?

Embedded in each such query there resides a technical and scientific dilemma, some manageable by research, some only through expert consultation. An illustrative example of this is provided in one of the documents found in Annex D to this report, a longish letter from the Senior Research Biologist at the U.S. Virgin Islands National Park, Alan Robinson, to Roy Thomas in October 1970. Robinson had been invited by Roy Thomas to visit Sandy Cay and provide guidance with several management problems. The complexity of one of seven issues presented by Thomas—the application of insecticides—is apparent in Robinson’s response, illustrated by the following excerpt:

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<sup>5</sup> Costs for work crew personnel have been documented and summarized in Annex A.

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*I agree it makes little sense to sit by and watch the entire flora of a tiny cay altered for a long time span in the belief that this may be a natural invasion. Neither, however would I think it desirable to have to continue even localized spraying indefinitely.*

An obvious derivative question is: when does the first condition become the second? Or, alternatively, what monitoring strategy would tell us when enough is too much?

Furthermore, there were underlying subtleties of “managing back” to a pre-determined target like a wilderness. Back to when? Pre-Columbian? Pre-historic? To the BVI’s first colonial occupation? To 1900? And, whatever the choice, what are the limitations of enhancement? On defining invasives? And what are the effects of either of these actions on the ecosystem, especially its fauna including invertebrates? What are the Best Management Practices (BMPs) for any given intervention and what are its presumed secondary effects—in order to optimize the first and marginalize the second?

Could the Sandy Cay team accept the risk of a simple trial-and-error test case (at what scale)? Could it be assumed that the project team could then scale up (at what rate) to some desired or feasible level of input to achieve the desired induced change? And then, of course, how to know when that desired level of improvement had been achieved? Another continuing “puzzlement”!

Lastly, and as previously noted, at first glance “growing a wilderness” looked simple. (The same thing could be projected about a transfer to new ownership and management.) But it was not and is not simple. Meanwhile, time is slipping by, and the transition has already begun, itself triggered by a plethora of hurricanes and the passage of time.

Managing the transitional phase for Sandy Cay is really an essential survival task for sustaining the original momentum, for protecting, *i.e.*, conserving, the progress already made, and for ensuring that Sandy Cay will experience a seamless, constructive conversion and an orderly passage of leadership, **at the lowest possible risk.**

## GOALS AND OBJECTIVES

In the normal scheme of things, and as used in this document, the term “goal” generally covers a wide range of lofty, even largely unattainable purposes or intentions. Goals, as generalized herein, are portraits of ideal and desired ends or conditions. They suggest or even define the range of prospective objectives for doing something and are useful as statements of intent.

“Objectives” on the other hand are statements of specific conditions to be achieved. As descriptors of specific conditions desired, objectives serve as criteria for identifying the policies and actions required to achieve the sought after conditions. Objectives are obviously more specific than goals.

Finally, “management strategies and practices” are collective terms referring to policies, programs, actions and standards that are essentially administrative or procedural tools applied in ways that are appropriate to achieving an objective or cluster of objectives.

With specific reference to the Sandy Cay Management Plan, we need to be concerned with:

- (a) The general goals and objectives of the only agency in the BVI that currently manages protected areas, the National Parks Trust, and, more specifically, the goals of the Trust’s system of parks and protected areas, as these have been articulated in its “Systems Plan” both for the institution and for prospective new elements
- (b) The goals and objectives of Sandy Cay’s owner and of his Sandy Cay project as it has evolved and exists today.
- (c) The priority management objectives for Sandy Cay’s future as articulated in this Management Plan.

### **Goals and Objectives of the National Parks Trust**

The stated overall development goal of the British Virgin Islands Government as stated in the Trust’s *System Plan* is:

*... to improve the quality of life for all British Virgin Islanders, as well as those who may choose to live here.*

It follows on this broader goal that the goal of the National Trust, also articulated in the *Systems Plan*, is:

*... to manage important natural areas in ways that will contribute to the improvement of the quality of life of BVI residents.*

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The stated objectives of the NPT's *Systems Plan* are as follows (note that words or sections below that directly pertain to Sandy Cay and its resources and features have been underlined):

1. To manage selected natural areas that are vital to:
  - (a) the productivity of wildlife, mangroves, coral reefs and forests;
  - (b) the protection of endangered species;
  - (c) retaining unaltered examples of the Territory's natural [ecosystems];
  - (d) continued economic development, particularly tourism ...;
  - (e) [maximizing] the study and interpretation of the BVI's natural ... heritage.
2. Encourage public understanding and awareness of conservation issues and needs, as well as enjoyment of the natural environment.

Special (selected) objectives for the Trust in the new Millennium (again, as appearing in the updated *Systems Plan*) include:

- (a) to acquire properties of natural and cultural significance;
- (b) to strengthen conservation legislation;
- (c) to design and implement strategies for the sustainable management of biological ... resources within proposed and existing protected areas;
- (d) to design and implement strategies for the rehabilitation of selected species and habitats;
- (e) to promote appropriate recreational activities within the National Parks.

### ***Goals and Objectives of Sandy Cay's Owner***

#### ***Owner Goal (Early Period):***

To practice island conservation and experiment with improving the visual perceptions and aesthetic effects of restorative improvement of selected landscape features.

#### ***Owner Objective #1:***

To own and improve an otherwise historically uninhabited tropical island that was also convenient to Caneel Bay on St. John.

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### ***Owner Objective #2:***

To reinforce the perception of and to facilitate an understanding of the wilderness qualities of Sandy Cay through selected horticultural practices, the clearing of underbrush, increasing the number of coastal coconut palm trees on the island and making it accessible by developing and maintaining a simple walking trail around the island, open to the public.

### ***Owner Objective #3:***

To maintain and encourage the island's use by visiting yachtsmen and boaters, while continuing to plant palms, control insects, improve vistas, monitor wildlife, practice good husbandry, and address hurricane damage recovery.

### ***Owner Objective #4:***

To assess options for next-generation ownership by supporting studies leading to a transition management planning initiative.

### ***Priority Management Objectives for Sandy Cay As Identified in This Management Plan***

1. To preserve the unique natural wilderness habitat of Sandy Cay as described in *The Sandy Cay (BVI) Ecosystem: A Resource Characterization* (March 2001).
2. To develop a marine area buffer zone and protective outer boundary for Sandy Cay.
3. To institute an expanded land and coastal monitoring regime (including current data strings designed to assist management).
4. To conduct an expanded program of visitor impact management (treating boats, people, fauna, and hurricanes all as visitors).
5. To develop Sandy Cay as the nucleus of an Ecosystem Learning Centre, including a Sandy Cay Archive within an associated Research and Documentation Centre.

### III. IMPLEMENTING FIRST-LEVEL MANAGEMENT OBJECTIVES

This section presents a framework for addressing the central and overarching objective of managing Sandy Cay's current status and segueing subsequently into a transitional program that leads gracefully to alternative ownership while assuring continuous protection and refinement of the "wilderness ecosystem" concept. As noted in the concluding paragraph of the preceding section, we have identified five priority management objectives.

However, the study team experienced some difficulty in finding a useful way to combine

- (a) a hierarchy of these five priority objectives for transitional program planning with
- (b) the more obvious requirement that we also be responsive to the current and projected needs of the island's ecosystem as previously described in the *Sandy Cay Ecosystem* report.

We experimented with several standard models, but this proved only marginally workable. We eventually determined that we could effectively combine the two concepts by portraying each management objective (and its subordinate objectives as displayed in Table 2) in terms of conventional Pressure-Status-Impact-Response categories used to assess system functions and conditions.

Table 2 below presents this framework, which enables us to display:

- the current conditions (*Status*),
- of the driving forces (*Pressures*),
- the immediate *Impacts*, and
- our proposed management solutions (*Response*)

in an integrated, comparative fashion. The analytical process of building this matrix also demonstrated some new factors that we had not fully appreciated before, such as the centrality of the proposed Ecosystem Learning and Documentation Centre to all of the other management processes.

Following Table 2 is a more detailed discussion of each of the priority management objectives defined for the Sandy Cay Management Plan.

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**Table 2. Sandy Cay priority management issues.**

	① PROTECT THE ECOSYSTEM	② ADD MARINE BUFFER AND SET BOUNDARY	③ ESTABLISH MONITORING PROGRAM	④ MANAGE VISITOR IMPACT	⑤ PROVIDE EDUCATIONAL & DOCUMENTATION SERVICES
<b>STATUS</b>	<ul style="list-style-type: none"> <li>• See <i>Sandy Cay Ecosystem Characterization</i> by Island Resources Foundation (March 2001)</li> <li>• Intermittent visits by a caretaker, horticulturist, work crews</li> <li>• Ongoing trail maintenance, pruning, insect control, waste management, storm damage repair</li> <li>• No study aids</li> </ul>	<ul style="list-style-type: none"> <li>• Absence of defined marine area and boundary</li> <li>• Divided jurisdiction</li> <li>• No zoning</li> <li>• No advance boat reservations</li> <li>• No limits on visitors</li> <li>• Insufficient separation of boats in water (at anchorage)</li> <li>• No moorings</li> <li>• No instructional literature</li> </ul>	<ul style="list-style-type: none"> <li>• See <i>Sandy Cay Ecosystem Characterization</i> by Island Resources Foundation (March 2001)</li> <li>• Current monitoring (<i>frequency/duration</i>):               <ol style="list-style-type: none"> <li>1. Seabird inventory (<i>seasonal/30 years</i>)</li> <li>2. Landbird inventory (<i>seasonal/30 years</i>)</li> <li>3. Palms (<i>biannual/30 years</i>)</li> <li>4. Insects (<i>biannual/30 years</i>)</li> <li>5. Vegetation (<i>biannual/30 years</i>)</li> <li>6. Beaches (<i>biannual/30 years</i>)</li> <li>7. Salt pond (<i>annual / ?</i>)</li> <li>8. Invertebrates (<i>annual / ?</i>)</li> <li>9. Boats (<i>intermittent/30 years</i>)</li> </ol> </li> </ul>	<ul style="list-style-type: none"> <li>• Classes of visitation include:               <ol style="list-style-type: none"> <li>1. Boats</li> <li>2. Tourists</li> <li>3. BVI residents</li> <li>4. Researchers and students</li> <li>5. Hurricanes and storms</li> <li>6. Invasive species (plants, insects, campers)</li> </ol> </li> <li>• All classes of visitation convey carrying capacity concerns</li> <li>• Moorings proposed by NPT (southeast coast)</li> </ul>	<ul style="list-style-type: none"> <li>• Ecosystem baseline characterization completed</li> <li>• Island's prior history as an open ecosystem attraction</li> <li>• Value of the choreographed path (canopy effect)</li> <li>• Potential link to Botanic Garden, CFD, VI National Park (St. John), Coral World (St. Thomas)</li> <li>• Potential as a living laboratory for HLSCC</li> <li>• De facto ecosystem document centre already in place (IRF/HLSSCC) plus Sandy Cay archives and data string</li> </ul>
<b>PRESSURES</b>	<ul style="list-style-type: none"> <li>• Land visitors at an average of 10 boats/day and 40+ people/day</li> <li>• Damage to the marine environment from anchor and chain use, scuba divers</li> <li>• Hurricane and storm damage</li> <li>• Drought</li> <li>• Rats, insect infestation</li> <li>• Plant theft</li> <li>• Trash</li> </ul>	<ul style="list-style-type: none"> <li>• Increasing # of boats</li> <li>• Increasing visitor arrivals</li> <li>• Increasing group arrivals on large boat charters</li> <li>• Land/coastal/sea ecotones undefined</li> <li>• Enforcement confusion regarding fishing, anchoring, scuba diving, overnight stays, lobstering, use of beach</li> <li>• Marine/terrestrial ecosystem interaction</li> </ul>	<ul style="list-style-type: none"> <li>• Cost escalation and lack of adequate funding</li> <li>• Difficulties of transport and logistics</li> <li>• Without adequate monitoring, bird population threatened by rats, chance of beetle infestations, lilies at risk from caterpillars</li> <li>• Increased # of larger boats/groups without guides</li> <li>• Hurricane interruptions</li> </ul>	<ul style="list-style-type: none"> <li>• Unpredictability</li> <li>• Advertising effects</li> <li>• Commercial vessels</li> <li>• Cruise ship tour groups</li> <li>• Waste loads</li> <li>• Crowded trail</li> <li>• Crowded anchorage</li> <li>• Domestic/feral animals?</li> </ul>	<ul style="list-style-type: none"> <li>• Competition</li> <li>• Unrealized value</li> <li>• Lack of illustrated flora and fauna checklists and guidebooks</li> <li>• Hurricane risk</li> </ul>
<b>IMPACTS</b>	<ul style="list-style-type: none"> <li>• Coral and beach damage by boats</li> <li>• Storm damage</li> <li>• Loss of tree canopy</li> <li>• Seagrape, palm tree, nothing nut tree and other vegetation loss</li> <li>• Disturbance of nesting birds</li> <li>• Wax scale insects</li> </ul>	<ul style="list-style-type: none"> <li>• Unresolved user conflicts</li> <li>• Crowding</li> <li>• Diminished value of visit</li> <li>• Noise</li> <li>• Bird disturbance</li> <li>• Benthic biota damage</li> <li>• Retarded recovery of damaged areas</li> </ul>	<ul style="list-style-type: none"> <li>• Loss of nesting seabirds</li> <li>• Caterpillar damage to lily plants</li> <li>• Damage to palms and other trees</li> <li>• Effects on indicator species</li> </ul>	<ul style="list-style-type: none"> <li>• Crowding/noise</li> <li>• Damage to vegetation</li> <li>• "Sampling" of flowers and plants</li> <li>• Ecosystem disturbance</li> <li>• Clutter</li> <li>• Plant theft</li> <li>• Human wastes ?</li> </ul>	<ul style="list-style-type: none"> <li>• Visitor conflicts</li> <li>• Island's popularity as a tourist destination</li> <li>• Loss of information for management</li> <li>• Failure to capitalize on ecosystem model</li> </ul>

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**Table 2 (continued). Sandy Cay priority management issues.**

	① PROTECT THE ECOSYSTEM	② ADD MARINE BUFFER AND SET BOUNDARY	③ ESTABLISH MONITORING PROGRAM	④ MANAGE VISITOR IMPACT	⑤ PROVIDE EDUCATIONAL & DOCUMENTATION SERVICES
<b>RESPONSES</b>	<ul style="list-style-type: none"> <li>• Monitor and map damage</li> <li>• Formal designation of the islands as a Protected Area</li> <li>• Establish link to Botanic Garden</li> <li>• Establish link to HLSCC</li> <li>• Periodic assessment</li> <li>• Restrict or prohibit anchoring ?</li> <li>• Guidelines for visitors <i>before</i> their visits to the island</li> <li>• Education/awareness program for BVI charter companies</li> <li>• Tour guides for large groups</li> </ul>	<ul style="list-style-type: none"> <li>• Select and confirm new ecosystem marine boundary (not same as "park" boundary)</li> <li>• Map with GPS coordinates for key locations</li> <li>• Zone marine underwater area</li> <li>• Set marker buoys</li> <li>• Inventory benthic communities and map</li> <li>• Monitor recovery of damaged areas</li> <li>• Trash clean up</li> </ul>	<ul style="list-style-type: none"> <li>• See also indicators of response</li> <li>• Monitor bareboat fleets</li> <li>• Recruit volunteers</li> <li>• Recruit HLSCC faculty and students</li> <li>• Develop shared programs with CFD</li> </ul>	<ul style="list-style-type: none"> <li>• Restrict or prohibit anchoring ?</li> <li>• Assigned anchorage areas only ?</li> <li>• Require advance notice of visitation by boats?</li> <li>• Restrict land visits by season or area ?</li> <li>• Require tour group managers or guides ?</li> </ul>	<ul style="list-style-type: none"> <li>• Provide brochure for visiting yachts</li> <li>• Prepare school module</li> <li>• More organized tours</li> <li>• Train/provide tour guides</li> <li>• Promote Sandy Cay as an international study site</li> <li>• Tie to Virgin Islands Biosphere Reserve (St. John)</li> <li>• Investigate role of Sandy Cay in potential American/British Virgin Islands Transboundary Project</li> </ul>
<b>INDICATORS OF RESPONSE EFFECT</b>	<ul style="list-style-type: none"> <li>• Coral regrowth</li> <li>• Bird counts</li> <li>• Reduced insect damage</li> <li>• Boat and people arrival numbers</li> <li>• Biodiversity recovery data</li> </ul>	<ul style="list-style-type: none"> <li>• Feedback from visitors</li> <li>• Change in # of nesting birds (especially fledglings)</li> <li>• % cover of corals</li> <li>• Evidence of new coral growth</li> <li>• Reduced bottom (seabed) trash</li> </ul>	<ul style="list-style-type: none"> <li>• Palm tree loss</li> <li>• Fluctuations in rat, insect bird populations</li> <li>• Use levels by boats and visitors</li> <li>• System overload signals</li> </ul>	<ul style="list-style-type: none"> <li>• Optimize flow of visitors</li> <li>• Fewer serious insect infestations</li> <li>• Reduced trail and vegetation damage</li> </ul>	<ul style="list-style-type: none"> <li>• Role of HLSCC defined</li> <li>• Volunteers organized</li> <li>• Internships, fellowships identified</li> </ul>

## AN AGENDA FOR DECISIONS

### Priority Management Objective One:

#### ***Protect the Ecosystem*** (see Table 2, Column 1)

Four classes of action are needed to protect Sandy Cay's core resource—its ecosystem. Success signals will derive from a continuing record of the ecosystem's biodiversity, sustainability, and resiliency, as well as a routine analysis of continuing visitor satisfaction. The four action classes are as follows:

1. **Status quo (holding action)**                      Current staff, funding, and management practices continue, including trail maintenance

#### *Actions That Constitute A Response to Pressures and Impacts:*

2. **Defensive (i.e., firewalls)**
  - a. Develop on-going research program
  - b. Develop monitoring program, useful data strings
  - c. Develop linkages with ecosystem researchers
  - d. Develop linkages/partnerships with HLSCC or equivalent
  - e. Provide formal designation for the island as a protected area
3. **Constructive (i.e., programs)**
  - a. Provide publications, media outreach
  - b. Develop web site (with NPT, HLSCC, IRF?)
  - c. Promote risk assessment and reduction strategies
  - d. Establish "buffers" of friends, supporters ("circle the wagons" strategy)
  - e. Require tour guides, develop ecosystem handouts for large groups of visitors
  - f. Develop system of moorings
  - g. Prohibit anchoring (limiting device)
4. **Administrative (i.e., internal)**
  - a. Incorporate as a non-profit entity, with independent board for management, endowment for research and other ongoing expenses (*option*)
  - b. Owner selects and deploys negotiation team to work with the Trust or the BVI

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- Government or new patron as a recipient  
(*option*)
- c. Expand planning, preparation for transition
- d. Develop schedule and budget for “c” above
- e. Link to BVI Botanic Garden via the Trust  
(*option*)
- f. Develop boat reservation system and  
take-away ecosystem handouts for visitors
- g. Develop education programs

NB. *The Sandy Cay Ecosystem* report contains preliminary recommendations for research activities (pp. 16-20) and conservation and protection strategies (pp. 24-28). Additional response actions may also be found under the discussion sections below for the next four priority management objectives. All have the potential of contributing to a strengthening of Sandy Cay’s ecosystem resiliency under stress and its sustainability under various management and ecosystem fine-tuning scenarios in the future.

The most important thing to remember is that any judgement call as to which actions will most likely be effective should not be made without first consulting persons with Sandy Cay experience.

### **Priority Management Objective Two:**

#### ***Add Marine Buffer Area and Set Its Boundary* (see Table 2, Column 2)**

Treating the existing Sandy Cay “land” boundary, which is basically a cadastral definition, as the island’s ecosystem boundary is unsatisfactory. *The Sandy Cay Ecosystem* study unilaterally (and temporarily!) extended the outer ecosystem “conceptual” boundary into the sea to incorporate the coastal inshore marine area and its organisms and the water column into a wet zone that has a high degree of interaction with the dry (terrestrial) zone.<sup>6</sup> This “buffer zone”—especially the anchorage and proposed mooring areas, and the recovering elkhorn coral (*Acropora palmata*) zone to the north and the gorgonian (soft) coral underwater gardens to the northeast, east and southeast of the island—represents an integral part of the Sandy Cay ecosystem. It too needs protection and management oversight, and therefore an outer boundary that reflects this ecological reality should be established.

<sup>6</sup> This “wet zone” is described in detail in the section entitled “Marine Communities” of the Technical Annex to *The Sandy Cay Ecosystem* report.

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In order to accomplish this, a rationale for location of a seabed boundary must be identified and accepted. Various options exist for setting the outer boundary line, the most common being a set distance from the shoreline (*i.e.*, 500 meters) or a set bathymetric limit or depth contour line (*i.e.*, 20 meters). Additional options include selecting and placing an overlay of a geometric shape sufficient to include an underwater feature such as a coral reef or geological and geomorphologic feature such as the entire submerged hill of which Sandy Cay is simply the emergent peak. The Sandy Cay marine area boundary then needs to be established in law, and subsequently reflected on official maps and in any ensuing jurisdictional dialogue relating to fishing, ship traffic or management authority.

After the outer boundary is established, lesser or subordinate boundaries between benthic biotic zones, proposed use zones, and proposed special conservation zones, as well as markers for jurisdictional ecotones and study areas, can be properly set and coordinates transferred for entering this information on existing or new maps.

Next-stage tasks of primary importance include:

- upgraded and finer-scale benthic resource inventory and mapping,
- tighter, more accurate monitoring coverage,
- more precise reporting on resource damage, loss and recovery, and
- on-site monitoring and revisiting of trouble spots and interesting underwater features.

Appropriate marine boundaries for Sandy Cay will enable future management authorities to develop a tighter, more site-specific program of visiting vessel control. This will be accomplished by establishing and enforcing delimited benthic recovery zones and by controlling traffic within the proposed anchorage and/or mooring areas (see Figure 2).

Lastly the luxurious quality of Sandy Cay's vegetation on land is matched by an equally luxurious, but relatively unstudied gorgonian garden at the foot of the cliffs on the eastern side of the island. This too warrants more serious investigation and mapping and will be well served in the future by the presence of a corresponding protective boundary.

# SANDY CAY MANAGEMENT PLAN

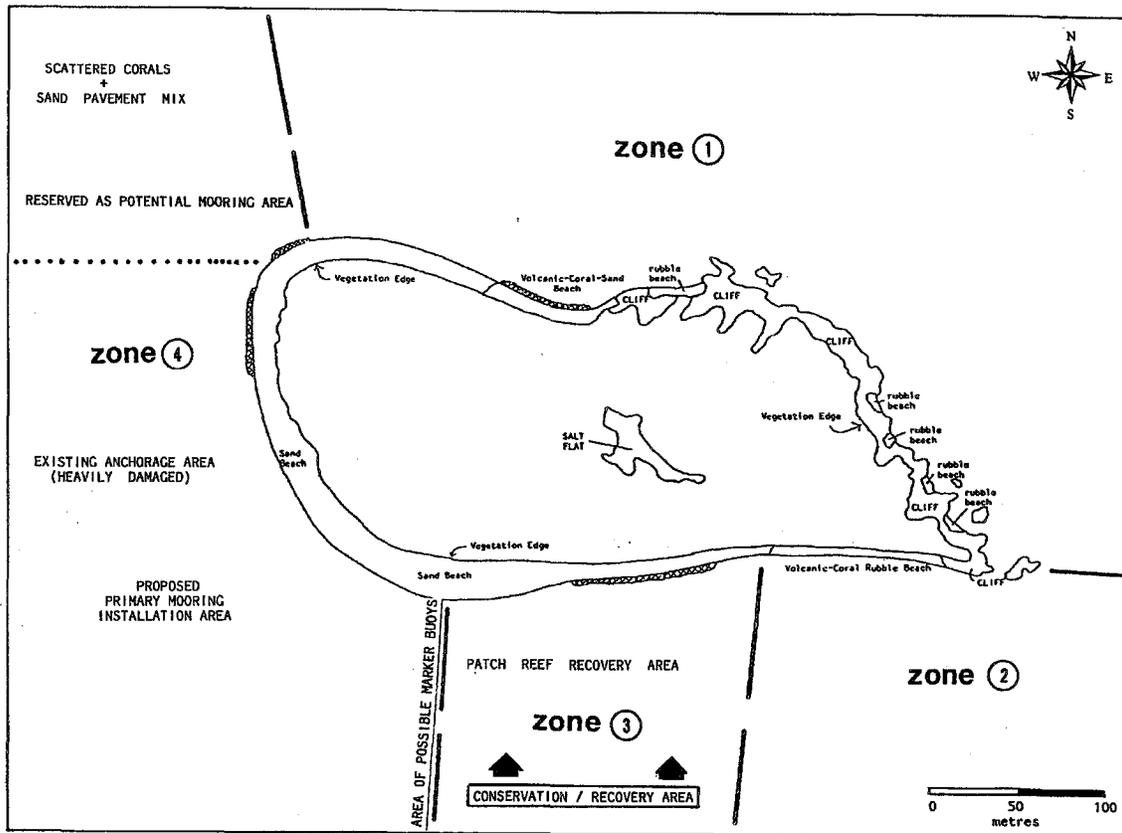


Figure 2. Identification of areas recommended for preferred mooring installation, potential mooring installation, and "no anchoring" at Sandy Cay. (This Figure first appeared in *The Sandy Cay Ecosystem* report [page 25], where the reader will find a fuller discussion of the four marine systems zones that are depicted above.)

## **Priority Management Objective Three: Develop and Implement An Environmental Monitoring Program (see Table 2, Column 3)**

There is an old saying, "if it's not broken, don't fix it", which aptly applies to the extant, somewhat modest but longstanding monitoring program carried out informally at Sandy Cay. It has focussed principally on land and seabirds, insects, visiting boats and people. The value of almost any environmental monitoring program arises more from its longevity than from its breadth or scope. Therefore, the first priority of a future monitoring strategy at Sandy Cay is to sustain the process already in place and simply

## SANDY CAY MANAGEMENT PLAN

extend it through time, perhaps improving only the reporting function by aiming at a wider audience of potential data users.

Having done this, the next step is to enlarge on the more intensive monitoring begun in 2000 during the course of fieldwork carried out for the Sandy Cay ecosystem inventory. Island Resources Foundation and the HLS Community College have already undertaken early discussion about this, but no firm arrangements or funding for a modest expansion of Sandy Cay ecosystem monitoring is yet in place. A preliminary plan has been developed, focusing in particular on the salt pond habitat, beach dynamics and beach erosion, the elkhorn coral recovery site, and the recovery process at restricted anchorage areas once new moorings are installed.

In addition, a first survey of the invertebrate population (especially beetles) *in the wetter season* is needed to compare with a previous dry-season survey carried out last year by Dr. Michael Ivie, senior scientist on the IRF Sandy Cay study team. The reader is also referred to the series of monitoring recommendations in *The Sandy Cay Ecosystem* report (pp. 21-23).

Beyond this, and in light of a prospective change in status of Sandy Cay, a small group of applied environmental scientists and protected area managers who are familiar with the BVI environment should be assembled. This group—perhaps not more than eight to ten in number—could address the general issue of optimum monitoring data inputs for ecosystem management (*NOT* research needs) in the Territory, using Sandy Cay as a case study or model. Such deliberations might have the added benefit of focussing some international attention on the value of Sandy Cay's micro-ecosystem as a model study site, demonstration site, and controlled pilot-scale test site. An additional by-product that might emerge from the workshop would be a testable and optimum monitoring-for-management regime that could be put in place for a trial period, perhaps using external grant funds, with the objective being to acquire the most useful information for the least investment or cost. (See also Priority Management Objective 5 below regarding the Documentation Centre.)

One final point on monitoring concerns the coral reef systems within Sandy Cay's coastal waters. These have traditionally fallen outside the sphere of interest and concern of the island's current management. This has been due primarily to the fact that the legal boundary has stopped at the high water mark, although the conceptual boundary has reached to the water's edge and included the beach areas. In the future, however, the island's coastal areas, coral reefs and associated biotic systems should be added to the routine monitoring agenda. Preliminary guidelines follow for corals.

### ***Special Case: Coral Monitoring***

Sandy Cay will best be served by a somewhat customized monitoring regime for the island's corals and its overall coral reef system. Coral reef growth *per se* should *not* be

## SANDY CAY MANAGEMENT PLAN

used as a reliable indicator of reef system health. Furthermore, coral diversity by itself is not generally a useful measurement because species numbers and species abundance decline simultaneously and there will be no change in a diversity index. It is probably more effective to monitor and report on both parameters individually.

A geographically broad (extensive) plus a geographically narrow (intensive), two-tiered monitoring system is therefore recommended. Intensive monitoring at a limited number of specific sites will not necessarily capture coral bleaching events, while more divers (often volunteers) inspecting larger areas can reach a broader spectrum of possible bleaching events. The same holds true for capturing evidence of other coral disease events like white-band and black-band disease.

Geo-referenced, high-resolution video data can substantially enhance efforts to map changes and especially recovery information. The video system tested in the first phase of the Sandy Cay ecosystem survey of the island's marine environment was quite adequate, but it needed the addition of a compatibly linked GPS unit with a laptop computer for recording fixes *au courant*.

As for the primary question—what information is most useful for measuring coral health?—it is suggested that the “relative change in coral cover” data will be the most helpful.<sup>7</sup> Basic monitoring targets should be:

- algal turf
- encrusting corals
- fleshy algae
- other corals (except branching)
- sponges
- coral bleaching (frequency)
- diadema (sea urchins).

For more detailed information, the reader is referred to the *Coral Reef Monitoring Manual for the Caribbean and Western Atlantic*, published by the U.S. National Park Service and the Virgin Islands National Park in 1994. This popular and useful publication has been out of print for some time, but is currently being reissued, in both Spanish and English, and should be available for distribution by the summer of 2001.

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<sup>7</sup> This excludes elkhorn coral (*Acropora palmata*) monitoring-for-management recovery, for which close-up, still macro-photography (color/electronic or film) is preferred.

**Priority Management Objective Four:**

***Visitor Impact Management (see Table 2, Column 4)***

One feature of functional ecosystems is that their stability arises in a major way from the neat manner in which their inputs and outputs, in an accounting sense, are reasonably balanced. Their degree of resiliency is an index of how well they deal with exceptions to this input-output-flow balancing process. Because we are concerned in this management plan with the continued health and resiliency of the Sandy Cay ecosystem, we have elected to put together under one heading some unlikely “visitors” that—along with boats and people—fall into this broadly defined category (see below). Too many can be a problem in each case and how they behave (that is, what they do while visiting) is also important to the maintenance of a healthy ecosystem.

***(1) Visitors to Sandy Cay: Boats***

As the marina and yacht charter industry developed in the British Virgin Islands in the 1960s, so did a tradition amongst some of the sailors of stopping mid-day for a swim at a small uninhabited cay with a great white beach just off the eastern tip of Jost Van Dyke. The snorkeling was fair at Sandy Cay and there was a rough walking trail, but the anchorage was not really protected enough for an overnight stay. At lunch time, while some swam, others would take a meal on the vessel at anchor, not going ashore because the often heavy ground seas made landing ashore in a dingy, with the all makings of a picnic, very risky business. Taking a meal aboard one’s boat was far more pleasant and much safer, and the view—virtually surrounded by other islands close by and in the distance—was spectacular.

Fortunately for boat visitors, when Laurance Rockefeller acquired Sandy Cay, he elected to continue the previous open-door policy at Sandy Cay and even encouraged visitors once he had improved the trail and begun the ecosystem upgrade. This informal policy remains in place to this day.

Some indication of the number of boats calling at Sandy Cay over time can be discerned from Figure 3, which presents incidental and occasional data on boat arrivals from the 1970s through the end of the last century, with more regular figures for the current year. At first glance, these snapshots of boat visitation over time indicate:

- (1) there has not been a consequential increase in boat numbers from the 1970s to the present time, and
- (2) based on more recent data, boat numbers seem to peak somewhat on weekends and holidays.

## SANDY CAY MANAGEMENT PLAN

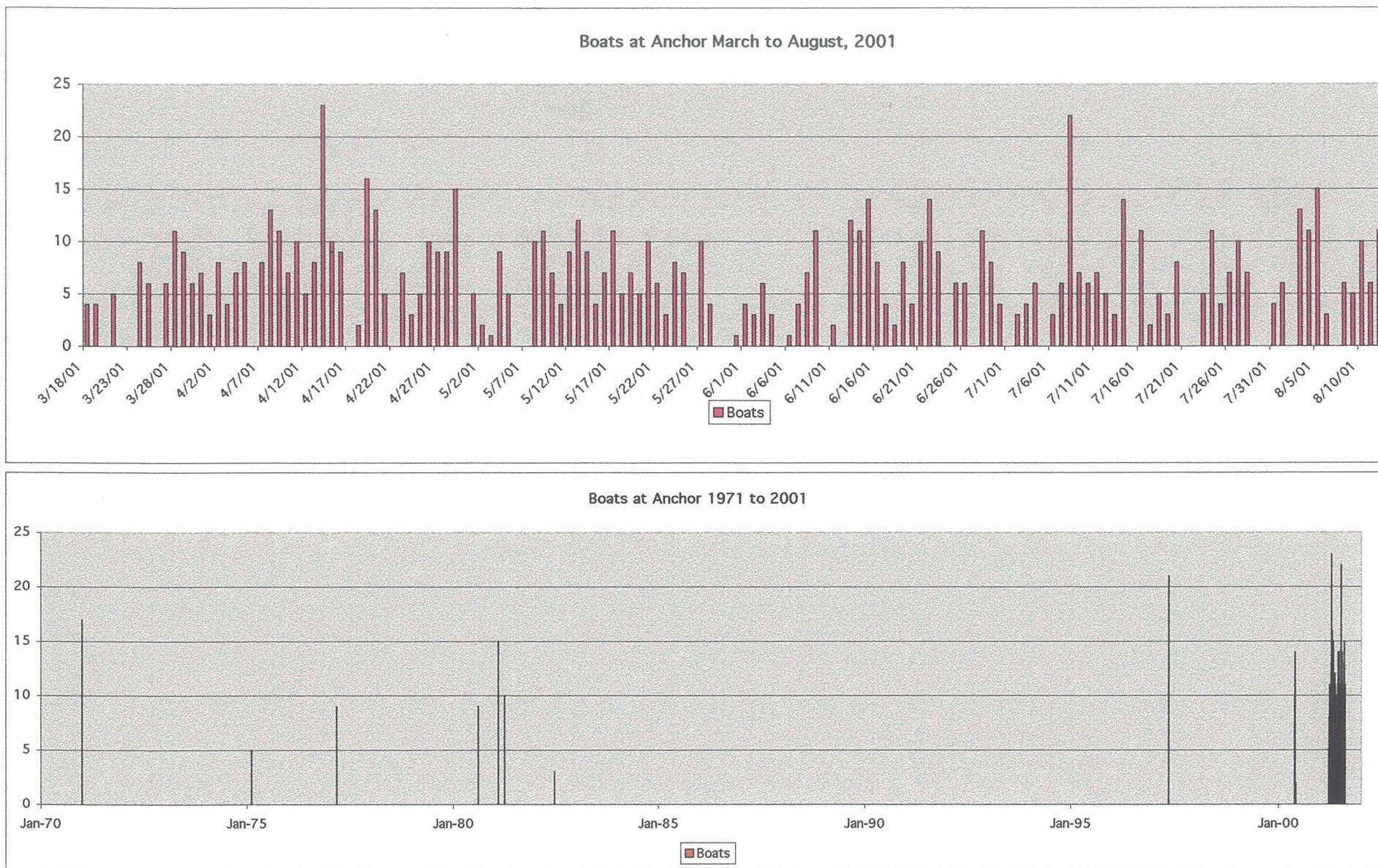


Figure 3. Periodic boat counts at Sandy Cay, BVI. (Prior to 2000, data based on records from the Sandy Cay archives; boat counts in 2000 and 2001 provided by the Sandy Cay project team; blanks in the data record means "no data available", not "no boats present".)

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While useful as an index of visiting boats to the island, these data do not present a completely accurate picture. For example, over the last four decades the size of boats in the BVI charter fleet has nearly doubled, and larger boats mean not only more passengers per boat but much larger anchors and the likelier use of much heavier steel anchor chain, handled and retrieved with power driven winches. This in turn has resulted in a frequent and serious crowding situation at the relatively small area near Sandy Cay that is suitable for laying at anchor in the lee of the island. The island is only 14 acres in size, and the shallow submerged areas around the island are quite narrow.

But crowding aside, even more serious is the damage caused by anchors and anchor chains to Sandy Cay's surrounding marine habit. This fact was confirmed by direct examination, mapping and videotaping of the customary anchorage and adjacent zones by the IRF marine survey team in May of 2000. Most of the corals in this small anchorage area to the southwest of the island have been completely destroyed, and the area is a barren wasteland of dead and broken coral and other associated benthic organisms. (See pp. 26-34 of the Technical Annex to *The Sandy Cay Ecosystem* report, including photos of anchor and anchor chain damage as found in Plates 1 and 8 of that report.<sup>8</sup>)

A remedial zoning and recovery strategy is provided in some detail in the previous *Sandy Cay Ecosystem* report (pp. 24-26), and in associated Figure 3 in the same document (p. 25). However, these recommended steps to protect the ecosystem from further damage cannot be taken until the marine boundaries are clearly established and formal jurisdictional responsibility for this marine protected area is established. This is not something the present owner can do and can only be accomplished by BVI Government action.

Protection of the coral reefs and seabed surrounding Sandy Cay should be a high priority for any future management authority, and this can best be accomplished by a public sector entity, perhaps in collaboration with the private sector.

<sup>8</sup> A videotape entitled *The Underwater World of Sandy Cay* was prepared during the fieldwork at Sandy Cay in May of 2000. It aptly depicts the damage to Sandy Cay's marine environment from anchors and anchor chains. Copies are available for viewing at Island Resources Foundation's Road Town, Tortola office and at the headquarters of the BVI National Parks Trust.

## **(2) Visitors to Sandy Cay: People**

The people who arrive at and use Sandy Cay for whatever purpose have no choice in the matter of their mode of transport—they must arrive by boat. This marine transport constant—whether the boat is single hull, multi-hull, sail or power—is *the primary controlling and controllable element in visitor management at Sandy Cay*. Thus, visitor management begins with the manipulation of boat traffic, which, as in the case of automobiles, requires a “parking lot” at either end of any journey. In this case, it is a wet parking lot that emerges as the primary management tool for regulating the number of visitors who come to Sandy Cay.

Limiting the anchorage size and/or the number and placement of boat moorings is an effective way to manage vessel and visitor arrivals. How is this best done? The process begins usually with a simple survey of the characteristics of the inshore seabed antecedent to demarcating functional zones based principally on a “best and highest use” principle. The presence of coral gardens, fishing areas, sites too deep or too shallow, on an exposed windward shoreline or an open roadstead, all are simply unsatisfactory for the anchoring of boats. This negative selection process (best done with some serious mapping) points the way to identifying the best site or sites for anchoring boats near a selected landing point.

Next, after zeroing in on those sites that will not be set aside for conservation and therefore apparently suitable for use as an anchorage, a quick evaluation of each prospective site is required. This is to determine the sea bottom’s anchor-holding characteristics, likely sea and swell conditions, and predominant wind direction for various times of the year. All of these factors, when taken together, help the resource manager select the optimum site or sites convenient to the desired landing point.

Of course, a practical alternative to this more systematic site-survey approach is to employ a common sense assessment of where boat skippers have traditionally and safely anchored by independent choice. However, management decisions that rely solely on experiential site confirmation are likely to ignore the damage being done to seabed habitats and organisms by anchoring vessels. Furthermore, such a strategy is not likely to provide much help when it becomes necessary to expand the anchorage area beyond the confines of a traditional site.

In implementing the first phases of this “wet parking lot” visitor-control strategy for Sandy Cay, consideration should also be given to whether conditions like maximum vessel length, size, or number of passengers should be set for boats visiting the Cay. Additionally, limits might be set on the duration of visits to the island, including a prohibition against overnight anchoring, if deemed necessary. These determinants will function as an indirect screening and limiting device on the number of people who actually come ashore within any given time frame. Any such anchoring or mooring guidelines or regulations will need to be circulated to marinas, charter boat companies, and vessel owners and/or captains before arrival of passengers at Sandy Cay.

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An effective special-case alternative approach is to require advance reservations and permits for groups of boats or for larger-than-"X"-size charter boats and their passengers. There may be added advantages with larger groups of visitors to requiring accompanying tour guides who are familiar with the Sandy Cay ecosystem and who could be trained and even licensed.<sup>9</sup> Under certain conditions, and especially for very large groups, it might prove useful to require the charter boat company or boat captain not only to make advance reservations but to certify that passengers have been briefed on the natural area status of the island and expected behavior of visitors.

Since most visiting charter yachts have barbecue grills on board, skippers should be informed that all such devices are not to be taken ashore but used only at the anchorage or mooring area on the western side of the island. Any special exceptions to this rule should be evaluated at a later date and permitted only on rare occasions for formal or official functions ashore and during specially permitted overnight stays of scientists engaged in night sampling and collecting.

On a more positive note, there might be an advantage to reinforcing the perception of Sandy Cay as a special place by providing each permitted charter boat or private vessel with a colorful Sandy Cay visitor's pennant (flag), to fly while at the anchorage and even to take home as a souvenir. The flag could in fact be the equivalent of (or supplemental to) a Sandy Cay permit issued by the charter company, the National Trust or whoever is to control or issue visitor permits. Perhaps there should be a small fee attached. With this option, which has a cachet quality to it, visitors could receive, in advance of their stay, a copy of Sandy Cay rules and guidelines as well as educational material on the island's ecosystem, including illustrated bird and plant checklists and perhaps even a coloring book for the very young. BVI residents, as a special class, should be asked to make reservations by telephone or electronic mail (if a reservation system is put in place), but they would not be required to pay fees.

By procedures such as these, the Sandy Cay management authority could to a certain extent pre-select visitors who value an uncrowded, educational experience and are willing to pay for the reasonable costs of a unique, well-managed and well-interpreted setting. This cachet feature should be reinforced by the quality and utility of educational materials.

<sup>9</sup> For an instructive example from the eastern Caribbean of another country's effort to educate and work with marine tour operators as guides to natural area offshore sites, see the report prepared by Antigua's Environmental Awareness (EAG) of an "Offshore Island Workshop for Tour Operators," held on September 27, 1999, under the aegis of EAG.

## SANDY CAY MANAGEMENT PLAN

Management strategies such as those outlined above are clearly the most effective and generally preferred among park managers. Scientist Craig MacFarland, former president of the Charles Darwin Foundation, has written that park officials and scientists

*... have independently found the same thing: that about 90 percent of visitor management is not controlling numbers per se, it's controlling what behaviors, activities, and equipment you allow and the time of day or time of the year you allow them in a particular place.<sup>10</sup>*

Which brings us to the likely necessity of limiting seasonally the number of people allowed into the bird nesting area on the island's easternmost cliffs. The area should probably be cordoned off during the peak seabird nesting season, and the easterly loop trail re-routed below the ridge, thereby placing the top of the ridge out of bounds. This would seasonally shorten the loop slightly but would still include the impressive panoramic views from the top of the rocky southeastern point.

Special permits should be required for all visiting researchers for whom customized collection permits are required along the lines of those used in the U.S. Virgin Islands National Park and Biosphere Reserve on neighboring St. John. Similar permitting procedures should be developed and put in place for:

- media visitors,
- photographers,
- monitoring personnel, and
- student groups.

### **(3) Visitors to Sandy Cay: Birds**

It is not necessary to replicate herein our review of the "airborne visitors" (and even residents) at Sandy Cay as this information can be found in *The Sandy Cay Ecosystem* study (pp. 60-62 of the Technical Annex). That information did not include an avian conservation or management plan, which would have been premature, especially so because subsequent to completion of the ecosystem review in March 2001, additional historical data on bird counts were identified. We have inserted that information in a revised table of bird counts at Sandy Cay, which can be found among the background documentation in Annex D of this report.

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<sup>10</sup> MacFarland quoted in: Martha Honey, 1999. *Ecotourism and Sustainable Development: Who Owns Paradise?* Island Press, Washington, DC, p. 89.

All available avian data serve as reminders that the birds of Sandy Cay are its most significant wildlife group and deserve special attention within any future management planning scenarios for the island.

Development of a full-fledged wildlife conservation and management plan must not be delayed too long and needs to take advantage of input from Mr. Rowan Roy, the BVI's foremost bird naturalist. Mr. Roy's decades of study of the birds of the British Virgin Islands archipelago and his wise counsel on this subject will be invaluable to any future planning effort for Sandy's Cay's bird population.

#### **(4) Unwelcome Visitors to Sandy Cay: Hurricanes and Tropical Storms**

As another type of visitor, these ephemeral, seasonal weather features also visit Sandy Cay and in recent decades have inflicted a significant amount of damage, much of which is not preventable. Nevertheless, formal hurricane mitigation planning should be undertaken with an emphasis on accelerated recovery including, for example, emergency feeding for landbirds after any major hurricane to prevent their retreat to larger, possibly less damaged nearby islands in search of food. This has been a documented problem in the region following Hurricanes Hugo and Marilyn, among others. The birds have not yet, in some cases, returned to their original habitats.

Post-hurricane clean-up strategies on an island as small as Sandy Cay are made especially difficult by the contrasting high volume of waste material generated in comparison to the limited space in which to gather and process vegetational wastes and the floatable trash that will arrive by non-traditional means of transport and litter the beaches. Advance logistic planning for managing these waste materials is recommended.

Recovery efforts following storms should not be delayed as the Territory customarily makes a concerted effort to get its tourism industry back on track following such events, and the chartering piece of the industry is no exception. After both Hugo and Marilyn, there were visiting tourist boats calling at Sandy Cay within ten days. The trail, at the very least, should be cleared within this period of time. Other natural amenities in the Territory, including steep forested trails, usually take much longer than ten days to get back into service and therefore site options are narrowed for the returning tourists. Sandy Cay can and should be responsive to this situation and be reopened for visitors as rapidly as possible following storms.

### **(5) Unwelcome Visitors to Sandy Cay: Invasive Species**

Even a cursory examination of the fieldwork reports summarized in Annex A to this report reveals that a considerable amount of time and effort was periodically devoted to the issue of invasive species as these affected or threatened various plants and trees already growing at Sandy Cay. This complex task begins with the need to watch carefully for evidence of any outbreak or invasion. Knowing the stress “indicators” for each plant or tree is essential but takes experience.

Next follows the task of identifying the threatening organism sufficiently well to make an informed judgement about the appropriate insecticide type, dosage, frequency, timing and method of application. Available literature also has to be reviewed periodically for news about alternative treatments, possible long-term adverse effects, and any contraindicated effects on wildlife and the biota in the pond, wetlands, and coastal waters. In most cases during the last 30 years, backpack sprayers had to be borrowed or purchased and then tested on the island. Chemicals ordered were often available only outside the Territory, with incumbent delays. The application process itself can be time consuming because it is labor intensive. For example, it normally required two-person days to complete one round for the over 100 palm trees.

Some concern about the long-term effects of insecticides in use at Sandy Cay has been voiced and debated periodically. The issue has not been resolved to date except on a case-by-case basis. See for example the letter response by Alan Robinson to Roy Thomas, the first document in Annex D. The scope of issues involved in this discussion of long-term vs. short-term effects is well illustrated.

Yet another invasive, Guinea Grass, is not native to the island, but an aggressively growing cluster can be found on the south end of the eastern ridge (on the side facing west just below the trail). Should the clumpy grass be eradicated, *i.e.*, pulled and replaced? But replaced by what? Obtained from where? In plug or seed form? If the invasive grass is removed, would a soil fixative or stabilizer to prevent erosion of the bare dirt be required? Watered how? Matted temporarily?

This issue of the Guinea Grass surfaced during a recent (March 2001) visit to Sandy Cay of Dr. Colin Clubbe of the Royal Botanic Gardens at Kew. But the option or obligation to remove it remains unresolved and pending. It will require a substantial investment of labor and time—and perhaps material and a nursery for the replacement, depending on what is selected. The task of removing the Guinea Grass will probably not be addressed in the immediate future, but an effort to limit its expansion would most likely be both defensible and practical.

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At this time, it is recommended that a small working group of experts<sup>11</sup> review this matter, identify the advantages and the risks of various options and make appropriate recommendations. But the eventual decision should arise out of the overall objective of maintaining the basic integrity of an insular ecosystem within feasible and reasonable parameters.

### **Priority Management Objective Five:**

#### **Provide for Educational and Documentation Services**

(see Table 2, Column 5)

Sandy Cay offers the promise, *if properly developed and managed as a model small-island ecosystem*, of becoming the focal point of a territorially and regionally significant educational venture. Specifically, Sandy Cay should be positioned as a key element in the establishment of the proposed *Ecosystem Learning and Documentation Centre*. As such, the island serves as a superb study site and living model for the *Ecosystem Centre's* training program and for its service role with BVI environmental agencies and institutions.

The Centre would be the first of its kind in the British Virgin Islands and in the wider Caribbean basin (as is the emerging Centre for Applied Marine Science Studies currently being developed by the HLS Community College at its Paraquita Bay campus). The proposed *Ecosystem Learning Centre* could embrace Sandy Cay as its living laboratory for implementation of educational, monitoring and research functions. Its organizational structure would rely on a unique collaborative framework that links three BVI institutions—the National Parks Trust, the H. Lavity Stoutt Community College, and the Island Resources Foundation, all collaborating institutions in the current Sandy Cay research and planning studies.

Such a collaborative would likely provide a degree of confidence regarding Sandy Cay's long-term future and its continued management as a functional "instructive" ecosystem. It further offers the prospect of providing some level of quality control for monitoring and oversight functions for Sandy Cay, along with the added benefit of furnishing direction for practical advances in the new art of "ecosystem management".

<sup>11</sup> The group might include Roy Thomas, Dr. Roy Woodbury from the University of Puerto Rico (a grass specialist), Dr. Colin Clubbe from Kew, Dr. Barry Devine from the University of the Virgin Islands, Joseph Smith-Abbott director of the National Parks Trust, and possibly Dr. William Gregg, the head of the invasive species section of the international office of the U.S. National Park Service in Washington, D.C. We note that some other invasive species issues relating to both Sandy Cay and the shared USVI and BVI boundary could be discussed at the same meeting.

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Within this context, an extraordinary opportunity is available to the collaborative partnership to build on the solid foundation of experience and information resulting from Mr. Rockefeller's longstanding commitment to and investment in Sandy Cay. Furthermore, this hypothetical collaborative program, and any concomitant variation focussing on a search for improved ecosystem management guidelines and BMP principles within a protected area framework, offer the prospect of providing a significant service to the BVI Government and its Ministry of Natural Resources.

Such benefit flows will, of course, begin in a small way, drawn largely from dissemination of the lessons learned to date and from the emerging codification of the Sandy Cay experience. This is the kind of information, along with the background research on Sandy Cay accumulated to date, which needs to be expanded upon and maintained as an intact reference collection. It is temporarily housed at the *Island Systems Environmental Information Library* of the Island Resources Foundation and H. Lavity Stoutt Community College located at 123 Main Street in Road Town. The Sandy Cay documentation could form the nucleus of the proposed *Sandy Cay Ecosystem Learning and Documentation Centre*, which will most likely become a stand-alone and specialized reference collection within the larger IRF/HLSCC *Island Systems Library*. The inclusion of an ecosystem prototype focus will enhance the standing of the *Island Systems Library*, which is already recognized as the best reference collection of its kind in the eastern Caribbean.

Ecosystem management is a relatively new "discipline" in the Caribbean. Before the current Sandy Cay project, even the existing IRF/HLSCC reference library reflected a paucity of practical literature on the subject. However, the current Sandy Cay project alone has added to and resulted in the assembly of over 100 new titles on the subject of ecosystems and their management, and these are now available at the IRF/HLSCC library. It is a significant beginning!

The proposed collaborative would have Sandy Cay as its catalyst or focal point. With the development of monitoring and educational programs by the National Parks Trust and the Community College and related research activities by the College and Island Resources Foundation, the proposed collaborative would eventually undergo some kind of institutionalization, in a yet-to-be-determined form. *More importantly, Sandy Cay's future as an experimental ecosystem dedicated to both learning and the enjoyment of visitors, almost as originally conceived by Laurance Rockefeller, would be assured.*

Presumed benefits resulting from this proposed extension of the present Sandy Cay management objectives and framework—in both form and substance albeit under a new owner—can be classified as follows:

- Opportunity for the field-testing of BMPs for insular ecosystems.
- Opportunity to design and test integrated habitat use and conservation objectives for insular ecosystems.

## SANDY CAY MANAGEMENT PLAN

- Opportunity to develop carrying capacity guidelines for “open” small-island ecosystems.
- Opportunity to define margins of error in ecosystem management decisions.

While each of these could lead to management applications elsewhere in the BVI or in the eastern Caribbean, none of them are the kind of customary direct products expected of protected area management, especially where tourism is a major industry. There are simply too many distractions in operating a park when there is a daily influx of clients called tourists. Private or public sector ownership makes no difference.

For example, let us first imagine Sandy Cay as a living laboratory (and testing site). Then observe that day-to-day operations will produce over time both negative and positive examples to validate (or not validate) prior planning and decision making (sometimes called feedback loops). Finally, the sum total of these observations will constitute, when evaluated and summarized, a new set of lessons learned. But who has time for this? A partner or collaborator, that’s who! By joining forces with other interested parties, the output of useful information can be appreciably enhanced. The collaborative arrangement outlined above can carry out these tasks and in turn provide useful support services for the Sandy Cay ecosystem.

The following outline highlights the steps necessary to move towards improving the efficiencies of information flows and strengthening the support base for the Sandy Cay ecosystem during and after a transitional period. There should, however, be as short a gap as possible between the acceptance of this Management Plan and the launching of a more formally targeted set of transitional initiatives, which would include moving forward with the collaborative arrangement and setting an action agenda.

### **Recommended Primary Actions (*first four months*):**

1. Discuss the Sandy Cay Ecosystem Collaborative with:
  - a. National Parks Trust senior staff and governing board.
  - b. Senior administration officials and key science faculty at the HLS Community College.
  - c. Senior environmental planning staff at Island Resources Foundation.
2. Seek advice and input from:
  - a. The BVI Minister of Natural Resources and appropriate staff from within the Ministry, in particular the head of the Conservation and Fisheries Department.
  - b. Science staff at the Virgin Islands National Park and Biosphere Reserve.
  - c. Vice President for Research at the University of the Virgin Islands and appropriate staff at the University’s Conservation Data Center.

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3. Arrange for one of the institutions identified in "1" above to host a planning meeting regarding the Collaborative.
4. Arrange for a representative of one of the institutions identified in "1" above to serve as interim chairperson of the Collaborative.
5. Develop and circulate for review *pro forma* goals, objectives, administrative procedures, project design framework, and interim agenda.
6. Draft and exchange a preliminary "Memorandum of Understanding" for the three institutional members of the Collaborative.

### **Second Four-month Planning Period:**

1. Island Resources Foundation to host a meeting of the Sandy Cay Ecosystem Collaborative partners to:
  - a. Finalize the MOU.
  - b. Agree to an interim agenda for formalizing the Sandy Cay Ecosystem Learning and Documentation Centre.
2. Point of No Return: the Collaborative is functional.

*NB.* In the event the above scenario is delayed or fails to achieve a consensus, the educational program items listed in column 5 of Table 2 can become agenda items for consideration by those institutions with an individual or independent ongoing stake in the future of Sandy Cay. Island Resources Foundation will call a meeting to discuss a voluntary work program focussed principally on the task list in Table 2, column 5.

## IV. SECONDARY MANAGEMENT CONSIDERATIONS

### RESEARCH REQUIREMENTS FOR THE NEAR TERM

The following research tasks, while not urgent, are nevertheless important. They represent unfinished or previously unaddressed research projects that surfaced during the Sandy Cay ecosystem characterization study and should be completed or at least started before any attempt is made to put a longer-term, integrated research program in place or prior to shaping cooperative projects with collaborative institutions.

This cautious approach will ensure that Sandy Cay or BVI investigators will be able to select *in advance*:

- (a) those projects that should be kept at home, under domestic control,
- (b) those projects for which the BVI needs and will likely benefit from participation by outside institutions and/or investigators, who might assist or even take the lead, and
- (c) those projects which, because of their complexity, scope, cost or need for special expertise, require a customized team of collaborators including at least one BVI institutional sponsor or investigator.

These differentiations cannot be made without a modicum of background document review and preliminary research. It will also require a site evaluation sufficient to establish the scope and complexity of the research and the approximate range of project cost (*i.e.*, not at the level of a standard full proposal but serious enough to prepare a preliminary concept paper). This is the preferred approach but it requires good planning, local initiative, local funding, and local staffing sufficient to meet external standards and produce credible findings for local decision making.

These cautions notwithstanding, the practical Sandy Cay or BVI research administrator would be well advised to respond positively to any inquiry from outside the Territory from a senior scientist or qualified graduate student to undertake or start work on any one of the research projects listed below. The reason for this open-door policy is that the name of the game in resource management is information, and the need for field-based management information should generally override most other concerns. It is of much greater value than insisting on internal control of a research study. Such control will take time, effort and professional skill—all three of which are usually in short supply.

It is therefore more expedient to set the terms of the inquiry locally and then identify the most effective and timely means for accomplishing the tasks required, taking advantage of targets of opportunity as they present themselves. Small contributions of

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local co-sponsorship, co-funding or in-kind services are extremely helpful when seeking external support or funding. The overriding objective, however, is the need to get started (on even just a piece of the projected research tasks below), at the earliest possible date and using investigators who are both competent and available.

The following list is neither ranked by degree of scientific importance or management priority. Nor is it presented in any order suggesting level of difficulty or complexity.

### **Group One: Unfinished agenda from the Sandy Cay Ecosystem study**

(see also pp. 16-20, "Research Activities", *The Sandy Cay Ecosystem* report)

1. Complete the Sandy Cay baseline assessment and mapping tasks:
  - a. Invertebrate wet-season survey to finish dry-season survey done in May 2000 (the dry-season survey produced more than 30 Coleoptera; a wet-season survey should confirm more than 180 additional—see pages 52-57 of the Technical Annex to *The Sandy Cay Ecosystem* report).
  - b. Enhance previously identified vegetational associations with quantitative assessment and GPS fixes.
  - c. Undertake benthic marine mapping with GPS fix accuracy.
  - d. Set underwater markers for easy site location by volunteer monitoring divers.
  - e. Document the status and map stands of recovering *Acropora palmata* on the north side of Sandy Cay (see Figure 6, marine features of Sandy Cay, in *The Sandy Cay Ecosystem* report). Establish a coral health monitoring program, recruit volunteer divers, develop reporting form using a data storage and retrieval system. Compare with other sites studied in the BVI, e.g., the Nail Bay elkhorn site on the west side of Virgin Gorda. Report findings to the BVI Government.
2. In order to confirm (or not confirm) the presence of animals other than rats, complete the night-watch investigation to identify the mystery rodent or shrew on Sandy Cay, using live traps and following the "do no harm" principle.
3. Plan and carry out a Sandy Cay rat eradication program similar to the successful Bird Island program in Antigua, which was implemented by a coalition of conservation organizations from Antigua, the Caribbean, the U.S. and the U.K.

### **Group Two: New Agenda**

1. Examine salt pond core samples for palynologic inferences to reconstruct the island's sedimentation history and an expanded profile of original vegetation. Examine the same core samples for the island's flood history, overwash periods, and sedimentation rates. (For an example of this methodology, see Maynard Nichols, *Man's Long-term Impact on Sedimentation: Evidence from Salt Pond Deposits*, published

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in 1988 by Island Resources Foundation on behalf of the Virgin Islands Resource Management Cooperative).

2. Evaluate the advisability of removing the clumps of aggressively expanding Guinea Grass at the southern end of the eastern ridge, on the westerly slope near the eroding gorge. Assess the feasibility of replacing it with a soil-stabilizing alternative already on the island (must be adaptable to the dry, windy environment on the hill top, with maximum sun exposure).
3. Devise, test and promulgate a visiting research protocol and permit form with special, more flexible provisions for HLSCC faculty, researchers from NPT, CFD and IRF, and all Sandy Cay monitoring personnel.
4. Evaluate possible placement of a small (hidden) water catchment and cistern (pillow tank?) in the "inaccessible" out-of-sight pond area (eastern side), similar to the one planned for a different location by Mr. Rockefeller and Roy Thomas in April 1971 (see Annex A).
5. Begin to investigate and obtain profiles of other ecosystem-linked research activity currently underway or anticipated in the eastern Caribbean island archipelago, including Guadeloupe and Martinique.

## **MAINTENANCE, STAFFING AND CONTINUITY**

In the Sandy Cay archives, presently in the temporary custody of Island Resources Foundation, can be found a sequence of 21 fairly detailed letter reports from Roy Thomas to Mr. Rockefeller during the decade of the 1990s. Taken together, they present a composite overview of those functional tasks necessary for managing an island ecosystem in an enhancement mode.

In Appendix A of this document, only the briefest of summaries of these reports have been provided. Nevertheless, the reader can appreciate the broad scope of labor, skills, dedication, human ingenuity and, of course, matériel required to keep the Sandy Cay ecosystem humming at a reasonably efficient and satisfactory level—despite consistently high levels of visitors and a repetitive surfeit of damaging hurricanes and tropical storms.

Given this successful management framework of long standing, any extreme or abrupt changes in the basic staffing framework would be both risky and unnecessary, particularly in the near-term transition period of two-to-three years. This conclusion is reinforced by a careful review of the operational costs for the last decade (Table 3 in the next section). These figures clearly confirm a management strategy characterized by uniformly low-costs in return for highly efficient work outputs.

A too-hasty conversion of Sandy Cay's current management staff to, for example, Civil Service status carries a potentially unacceptable risk of losing forever the accumulated wisdom and experience base of Sandy Cay's current core team. It would be a mistake to miss an opportunity to head start and foreshorten the customary training period that will ultimately be required for new Sandy Cay operational staff.

The effect of not fully appreciating the value of past lessons learned, and forfeiting these as an instructive tool for new staff, would be extraordinarily costly to Sandy Cay's future—regardless of the internal personnel policies of any new management entity.

As has been noted elsewhere in this document, Sandy Cay needs to be seen and treated as a special case. It is as if the ecosystem has a socio-economic—almost a human—side for which it is advisable to keep nature's "cautionary principle" in mind. Fortunately, there are steps that will help to ensure that any such "conservative" strategy for Sandy Cay's management can be implemented expeditiously.

For example, a commitment in advance by any new management entity to an efficient transfer process of Sandy Cay's "living information base" (during the transitional

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phase) might ease some of the current owner's concerns regarding the island's future protective framework and the ecosystem's continued health. It will take time to bring a new team up to speed on the complexities and components of Sandy Cay's ecosystem—ecologic, hydrologic, edaphic, oceanographic, micro-biologic, palynologic and sociologic (the users and stakeholders).

In some ways, the island and its ecosystem are like a museum, thinly staffed but filled with layered complexity. As hinted at above, it is important to appreciate the breadth and scope of all the functional tasks that comprise the operational side of Sandy Cay's management, particularly as regards staffing and costing issues in forward planning. The remainder of this section and the one that follows are designed to begin this task.

### ***The Caretaker***

The current caretaker is Mr. Junior Coakley, who is paid at an annual rate of \$1,800.

The nearest thing Sandy Cay has had to a full-time employee has been its part resident site manager and part security guard, otherwise known as the island's caretaker. Since the island is too small an ecosystem for staff housing, the caretaker (who works about 2.5 days per month at \$150 per month) lives next door on Jost Van Dyke and commutes to Sandy Cay by boat. This is a long-standing position that dates back to the early 1960s. There have been only four incumbents.

A functional replacement will need to be able to do the following, *on a regular basis*:

- (1) Work alone as an independent contractor of services (as listed below) without any regular supervision or schedule, using his own tools and boat, paid quarterly with bonuses when appropriate.
- (2) Drop in periodically or pass by the island for a quick look, reporting any adverse findings or untoward events, ideally keeping a log.
- (3) See himself as "keeper of the trail", by keeping the entire walking path around the island (circa 2,000 feet) clean, clear of palm fronds, dead and fallen branches, and human trash. Fronds are hauled by hand to the interior of island (out of site) and all trash is bagged and removed from the island. This is a first order of business to be carried out on each site visit.
- (4) Remove, along the trail edges, lower vegetation and vines obstructing the view to the nearest larger vegetational features (trees and flowering shrubs).
- (5) Remove, along the trail, all in-growing grass, vines and lilies. Remove from the beaches all flotsam and jetsam plus any trash discarded or left by visitors. All such trash to be bagged and removed from the island.

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- (6) Report emergencies and problems by telephone phone (eventually boat radio or cell phone).

### ***The Horticulturist***

The current part-time Sandy Cay horticulturist is Roy Thomas, who averages two site visits per year at an average of five billable days per year for the Sandy Cay project.

Essentially this position is a composite of:

- general manager (for the project)
- chief engineer (for the ecosystem)
- horticulturist
- bird monitor
- natural area planner
- archivist.

It is quite unlikely that these functions could all be accomplished by a single “new” person *de novo*.

Mr. Thomas’s functional replacement would be required to supervise or undertake:

- (1) All horticultural work including any ongoing “design” aspects of plant placement (siting), corridor/canopy and vista shaping, and periodic pruning.
- (2) Pest identification and control (especially borers, scale, and parasitic insect).
- (3) Invasive species management (plant, insect, microbial, other).
- (4) Health care of over 100 mature palms (coconut).
- (5) Supervision of caretaker and work crews of gardeners and other laborers, administrative correspondence and maintenance of records, liaison with consultants and scientists.

As the marine buffer and boundary concept (recommended above in Section III, Priority Management Objective Two) becomes a reality, the horticulturist’s duties will expand to include several new marine-related elements of the ecosystem. Quite possibly these new tasks would be better handled by an external contractor during the transition period until a new site manager gets up to speed. What is important is that there be no

slippage, and that there should be a seamless integration of the marine and terrestrial objectives and programs that emerge.

### ***Other Ongoing Functions and Roles***

The following activities and/or functions will need to be dealt with in a transitional context, as they will undoubtedly be affected by any change from individual to institutional ownership.

**(1) Leadership.** It is clear from the document files that Mr. Rockefeller was neither an absentee owner nor a passive participant in the creation of a “wilderness island ecosystem”. He visited the site regularly (but not intrusively), suggesting the wilderness idea in the first place and then elaborating upon and refining his original concept with the passage of time. He was an active and persuasive participant in the team effort, but clearly in charge, the principal quality-control person in terms of overall strategy and design. He will be a hard act to follow. *However, it is a role and function that has been and will continue to be crucial in an ecosystem experiment such as Sandy Cay.*

**(2) Park Unit and Park System Planning.** Sandy Cay has been a hybrid “park”, albeit privately owned, but always open to the public. It has also been a horticultural experiment that happened to be situated in the middle of a yachting center, accessible only by boat. It is well protected by a system of fierce night security guards called sand flies (no-see-ums) and mosquitoes (with heat-sensing weapons). Its photogenic qualities have made it popular from the beginning—all by itself.

But the transfer of Sandy Cay to any new land management agency opens up the possibility of different options, possibly a new kind of park status that could make Sandy Cay one among many (“*E Pluribus Unum*”). The island could become but one of a number of park units or land management units within an existing system with pre-established, uniform rules designed perhaps more for management convenience than as creative guidelines for optimum development and enhancement of natural features at unlike sites.

Is there a fundamental incompatibility in transferring Sandy Cay to a larger management entity that already includes units that are unlike the special-case Sandy Cay ecosystem? Can there be flexibility, some “wobble room”, or a back door for a non-conformer like Sandy Cay? Can a case be made (no matter who the receiving agency might be) for a new unit that is more like an academic “research park” at a university with visiting students but no resident faculty? Metaphors like this one can only help us understand in the face of complexity, not decide what to do.

In the specific case of the BVI National Parks Trust, could Sandy Cay fit gracefully and constructively into the framework already in place, as shaped by a planning process under the leadership of its current director Joseph Smith-Abbott? Could it be done with the Botanic Garden as the only “square peg” in the NPT system? Can it be done with-

out a “personality change” or “plastic surgery” on the part of Sandy Cay and its ecosystem or with its experiment with the ecosystem? These are, one is reminded, not all the same thing.

**(3) The Challenge of A Sandy Cay Ecosystem Learning Centre.** The pursuit of this unusual target of opportunity (as discussed in more detail in Section III above as Priority Management Objective Five) presents a grand challenge for the future. It is also a challenge for the three potential institutional sponsors (NPT, HLSCC, and IRF), with their differing yet parallel and mutually reinforcing interests in improving tropical resource management of whole ecosystems. The proposed partners will need a different kind of marriage of convenience, better perhaps referred to as a coalition, wherein in Island Resources Foundation is willing to accept responsibility for initiating the collaborative process “on behalf Sandy Cay”.

The Ecosystem Learning Centre would provide Sandy Cay with a more visible, more central and more focussed secondary *raison d'être* from the very beginning.

But this will only work in a collaborative mode that is constructed around the separate but combined strengths, skill and vision of the three prospective partners—one a protected area manager, one an academic institution, and one an environmental planning NGO. Achievement of this secondary agenda can do nothing but buttress Sandy Cay’s primary agenda, which is, of course, to provide for the protection, enhancement and human enjoyment of this unique insular ecosystem within a wilderness format.

## MANAGING COSTS: A RETROSPECTIVE VIEW AND MORE

From the archival material available on Sandy Cay, which is summarized in more detailed form in Annex A, we have additionally extracted and assembled an annual listing of expense figures presented here as Table 3, developed in two segments. The first page of the Table covers the period from 1969 to 1989 and the second includes the more recent decade, 1990 to 2000.

First a word regarding information in the Table that requires additional explanation:

1. This Table does not pretend to display inclusive expenditures for the Sandy Cay project during this 32-year period. Rather we have extracted as much information as possible from the Sandy Cay records, made estimates of some work trip costs when such information was not available, and in other cases have ignored the gaps in the information base.

For example, because Roy Thomas generally billed Mr. Rockefeller directly for his time and travel costs, these expenditure figures were not readily available in the Sandy Cay files. Therefore, the column for Thomas-related costs associated with his work at Sandy Cay (column 5) are very slim on page one of the Table (1969-1989), but very complete for the second page (1990-2000) because Mr. Thomas graciously provided billing information to us for these more recent years.

2. The two pages of the Table have slightly different column heads. The second page has boat charters costs separated out under its own column head, while on the first page these costs are generally incorporated under the column 4 entries of invoiced work trip costs.
3. Slightly different columns for “# of work trips” are used in the Table. First, for the years 1969-1989 (first page of Table 3), the second column (# of work trips recorded) tabulates two categories of work trips:
  - (i) Site visits by Roy Thomas, customarily—but not always—including a crew of two-to-five gardeners/laborers. For some site inspection trips Thomas was by himself or joined by the caretaker. On other occasions, he met on the island with the owner for a review and planning visit.
  - (ii) Site visits that did *not* include Thomas but a work-trip leader who was recruited *ad hoc* fashion from either the Caneel Bay or Little Dix Bay hotels. The work crews were also recruited from either the Caneel or Little Dix grounds staff. When Thomas was not present, the work schedules and priorities were specified in advance, generally in writing by Thomas.

Secondly, for the years 1990-2000 (second page of Table 3), the # of work trips column includes:

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- (i) The same information as appears in this column for page one of the Table, *i.e.*, number of site visits by Thomas, with or without crew, plus number of site visits of a work crew but not led by Thomas.
  - (ii) But, for this more recent decade, we have also included (as the number in parenthesis following the number of site visits) the number of roundtrip trips by Roy Thomas to the Caribbean during that year from his home base in Vermont.
4. The years in the mid-1970s show heavy annual expenditures (by comparison). These resulted from the extensive palm planting scheme implemented during that period, which required watering, annual nourishment with fertilizers and protective spraying against insect infestation and damage.
  5. The 1976 total operating cost of \$18,285 included a one-time-only capital cost for a rubberized fabric, 6,000-gallon water storage tank and an associated buried PVC pipe distribution system. Water costs do not appear to have been accounted for systematically although some invoices for the purchase of water and even for rental of a water tank truck for hauling water to the island have surfaced.

Not everything always went smoothly with this decentralized arrangement of staffing/billing/equipment support. In the beginning it was simpler because Roy Thomas was based at the Caneel Bay Hotel as resident horticulturist. However, over time his responsibilities expanded as an employee of Rockresorts to include sites in Puerto Rico, in North America and even in Hawaii. Eventually, he moved his family and home base from the Caribbean to a more central location in Woodstock, Vermont, where Rockresorts had another facility with which Thomas was to become involved, the Woodstock Inn.

It was logical that in working out a maintenance plan for Sandy Cay Mr. Rockefeller should turn to Roy Thomas for technical guidance and to the Caneel Bay Resort as a source of short-term labor, boat support and equipment. In the early years, Caneel became the logistic support unit for Sandy Cay, an arrangement that worked very well for almost a decade. But as time went by, personnel at Caneel Bay fluctuated, projects like the irrigation system were delayed, and immigration and customs issues with the BVI Government occasionally emerged.

The switch to the Little Dix Bay Hotel in the British Virgin Islands as a source of work crews, boat support and crew leaders was inevitable and had a positive effect on the Sandy Cay project. It did not, however, completely eliminate all logistical problems associated with Sandy Cay's isolation and difficult access along with the more sophisticated challenge of managing a tropical ecosystem from afar. After Little Dix was sold by Rockresorts, the working relationship that Roy Thomas had established with management at the hotel proved enduring, and the services provided by the hotel to Sandy Cay (and paid for by Mr. Rockefeller) have continued unabated.

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**Table 3. Sandy Cay operational expenses, 1969 - 2000.**

YEAR	# of WORK TRIPS RECORDED	ESTIMATED PERSON DAYS for WORK TRIPS	INVOICED WORK TRIP COSTS (some estimated)	ESTIMATED COSTS for ROY THOMAS WORK TRIPS	CARETAKER COSTS	ANNUAL TOTAL COSTS	ANNUAL TOTAL COSTS IN CONSTANT 2001 DOLLARS
1969	3	12	\$ 755	\$ 300	\$ 600	\$1,655	\$8,078
1970	6	43	\$1,468	\$ 600	\$ 600	\$2,668	\$12,306
1971	4	25	\$ 829	\$ 100	\$ 600	\$1,529	\$6,735
1972	3	21	\$ 854		\$ 600	\$1,454	\$6,188
1973	6	36	\$3,796	\$ 200	\$ 600	\$4,596	\$18,702
1974	6	34	\$3,565		\$ 600	\$4,165	\$15,353
1975	3	16	\$1,714		\$ 600	\$2,314	\$7,737
1976	10	30	\$5,000	\$1,250	\$ 600	\$18,285 *	\$57,635 *
1977	6	20	\$2,052	\$ 130	\$ 600	\$2,782	\$8,238
1978	6	22	\$2,316	\$ 130	\$ 600	\$3,046	\$8,465
1979	3			\$ 390	\$ 600	\$ 990	\$2,499
1980	6	30	\$2,989		\$ 900	\$3,889	\$8,555
1981	3	9	\$1,600	\$ 130	\$ 900	\$2,630	\$5,236
1982	5	19	\$2,250	\$ 130	\$ 900	\$3,280	\$6,116
1983	2	10	\$1,246	\$ 150	\$ 675	\$2,071	\$3,727
1984	3	19	\$2,526		\$ 900	\$3,426	\$5,884
1985	3	23	\$3,183		\$ 900	\$4,083	\$6,762
1986	1	9	\$ 950		\$1,050	\$2,000	\$3,239
1987	4	29	\$3,100	\$ 150	\$1,200	\$4,450	\$6,995
1988	1	6	\$1,200		\$1,200	\$2,400	\$3,630
1989	1		\$3,250 **	\$ 150	\$1,300	\$4,700	\$6,771
TOTALS 1969-1989	85	413	\$44,643	\$3,810	\$16,525	\$76,413	\$208,851

\* Added to the 1976 total is a one-time only cost of \$11,435 (\$36,044 in constant dollars) for installation of the irrigation system.

\*\* The only invoiced work costs recorded for this column in 1989 were for post hurricane Hugo damage repair.

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**Table 3 (continued). Sandy Cay operational expenses, 1969 - 2000.**

YEAR	# of WORK TRIPS RECORDED *	ESTIMATED PERSON DAYS for WORK TRIPS	INVOICED WORK TRIP COSTS (some estimated)	ESTIMATED COSTS for ROY THOMAS WORK TRIPS **	BOAT CHARTER COSTS by CB or LDB ***	CARETAKER COSTS	ANNUAL TOTAL COSTS	ANNUAL TOTAL COSTS IN CONSTANT 2001 DOLLARS
1990	1 (1)	1		\$ 557		\$1,200	\$1,757	\$2,405
1991	1 (1)	1		\$ 325		\$1,200	\$1,525	\$1,990
1992	6 (4)	24	\$8,974	\$3,908	\$2,000	\$1,200	\$16,082	\$20,342
1993	3 (2)	8	\$4,182	\$ 680	\$1,500	\$1,500	\$7,862	\$9,647
1994	2 (1)	6	\$3,000	\$ 641		\$1,500	\$5,141	\$6,154
1995	3 (2)	5	\$1,600	\$2,703	\$1,500	\$ 900	\$6,703	\$7,801
1996	4 (2)	4	\$1,890	\$4,511	\$2,000	\$ 900	\$9,301	\$10,526
1997	6 (3)	7	\$2,000	\$5,787	\$3,000	\$1,800	\$12,587	\$13,861
1998	3 (2)	3	\$1,000	\$3,029	\$1,000	\$1,800	\$6,829	\$7,418
1999	1 (1)	3	\$1,000	\$2,028	\$ 500	\$1,800	\$5,328	\$5,690
2000	1 (1)	3	\$1,500	\$ 816	\$ 500	\$1,800	\$4,616	\$4,751
<b>TOTALS 1990-2000</b>	<b>31 (20)</b>	<b>478</b>	<b>\$25,146</b>	<b>\$24,985</b>	<b>\$12,000</b>	<b>\$15,600</b>	<b>\$77,731</b>	<b>\$90,585</b>

\* The first number shown is the total number of work trips to Sandy Cay for the year, as derived from available records; the second number in parenthesis represents the number of trips by Roy Thomas to the Caribbean during that year.

\*\* Much more complete records for the costs associated with Roy Thomas's site and work visits to Sandy Cay are available from the early 1990s onward. Prior to this time, most of Mr. Thomas's expenses (professional fee, travel and other costs) were billed directly to the New York office and are not evident in the available Sandy Cay archival records. Therefore, the costs appearing in this column on the prior page, 1969-1989, are estimates that undoubtedly are well under the actual costs billed to Mr. Rockefeller. The figures appearing in this column for the years 1990-2000 were provided directly by Mr. Thomas and therefore reflect actual expenses during this time frame.

\*\*\* What is not reflected in the figures in the prior column (*i.e.*, Thomas billed expenses) is the boat transport cost for Thomas's trips to Sandy Cay. These were billed separately by the Caneel Bay (CB) or Little Dix Bay (LDB) Hotels at \$500/day. On those rare occasion when Thomas rented a smaller boat because he was not taking a work crew with him, the cost of the small-boat rental is reflected in the figures in previous column for the years 1990-2000.

**NB. All Sandy Cay project expenses recorded in Table 3 were paid personally by the island's owner, Laurance Rockefeller.**

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The ongoing relationship of the Sandy Cay project to the Little Dix Bay Hotel represents not an impediment but an opportunity for any new owner of the island.

A new management regime for Sandy Cay could seek to make use of this locus of experienced labor and might also explore *pro bono* possibilities for ongoing sponsorship and support through Little Dix as a means of reducing recurring maintenance costs.

There are additional useful generalizations that can be extracted from Table 3, almost without effort. For example:

1. For the first two decades (1969-1989), the average annual operating cost for Sandy Cay (rounded) was \$3,600/annum. The aggregate cost for the 21-year period was \$76,000.
2. For the third decade (1990-2000), the picture changes with a move away from development and a focus on maintenance (but with the added costs of clean up and recovery from two major and two lesser hurricanes). Average spending on Sandy Cay operations rose to \$7,000 per annum. Aggregate costs for the third decade were \$77,731.
3. Recorded expenses for the third decade were *twice* those of the first two decades.
4. One could then hypothesize, as a beginning point in projecting costs for Sandy Cay's fourth decade, that it is likely the average annual cost will double in the fourth decade from \$7,000 to \$14,000 per year. It should be noted that these figures *solely* address the matter of *routine maintenance costs* with no allowance for expanded monitoring, research, or educational programs designed to broaden and enhance the use and value of the island to its host institution and to the BVI Territory. *Each of these will require a separate budget or line items in a consolidated Sandy Cay management budget.*

Some caveats are important here. As noted above, the base figures used for these somewhat simple projections are most likely underestimates, and not only because full expenditure data were not always available for this analysis. There were also several small but hidden subsidies that remain quantitatively elusive. For example, for a number of years neither Caneel nor Little Dix charged any administrative overhead on crew labor, tools and materials, although of course the owner paid regularly when invoiced for direct costs. Additionally, some informal consultants appear to have donated their time, and even the Virgin Islands National Park Service in St. John at the very beginning donated the use of its work barge.

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Nevertheless, based on the expense analysis presented in Table 3, a tentative budget for a formally structured transitional program for Sandy Cay has been developed and is presented below. It is recommended that the current owner consider this support for a period of up to three years.

### **Transition Period Annual Estimated Minimum Operational Costs**

Roy Thomas, Senior Advisor/Horticulturist (fees and expenses for 2-3 visits)	\$7,000
Caretaker (J. Coakley or equivalent from Jost Van Dyke)	\$1,800
Gardeners/labor (from Little Dix or Botanic Garden) 4 trips (2 with Roy Thomas, 2 with Botanic Garden Curator)	\$1,600
Botanic Garden Curator (as trainee and crew leader) 4 visits (2 with Roy Thomas, 2 as crew head)	\$1,600
Boat Support 4 @ \$500 (for visits with crew), 4 @ \$250	\$3,000
Miscellaneous Costs and Services	\$2,000
	<hr/>
	<b>\$17,000</b>

### **Transition Period: Estimated Minimum Ecosystem Management Costs**

As the number of yachts and visitors continues to rise, the loading factor and effects will also mount slowly but inexorably in the direction of some yet-to-be-determined carrying capacity. Watchful application of the cautionary principle is a critical task. Furthermore, on at least four occasions in the past, Sandy Cay has needed special inputs over and above routine maintenance:

- (1) an extended drought required instillation of an irrigation system and implementation of a watering program;
- (2) a serious beetle infestation required an extensive pesticide application strategy;
- (3) two destructive hurricanes, Hugo and Marilyn, required extensive damage clean-up, which in turn required special funding to support ecosystem upgrade and recovery.

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Based on the findings of *The Sandy Cay Ecosystem Characterization*, the following tasks (with estimated costs) are considered the minimum requirements for responsible *ecosystem management* over the next three years.

<b>Year 1</b>	<ul style="list-style-type: none"><li>* Invasive Species Evaluation Workshop and Intervention</li><li>* Completion of the Characterization Assessment (wet season survey)</li><li>* Monitoring (collaborative effort with HLSCC)</li></ul>	<hr/> <b>\$10,000</b>
<b>Year 2</b>	<ul style="list-style-type: none"><li>* Coral Recovery Workshop and Protection Plan</li><li>* Invasive Rat Eradication</li><li>* Training and Monitoring (HLSCC, NPT, CFD)</li><li>* Instructional Materials Development</li></ul>	<hr/> <b>\$10,000</b>
<b>Year 3</b>	To be identified at a later date but to include: <ul style="list-style-type: none"><li>* Limited Specialized Monitoring Support</li><li>* Ongoing Training and Planning</li><li>* Some Publication, antecedent to launching the <i>Sandy Cay Ecosystem Learning Centre</i></li></ul>	<hr/> <b>\$10,000</b>

### ***Recommended Tactical Options***

There are at present three options that could be pursued, concurrently or sequentially, to ensure the continued availability of a labor pool for maintenance work at Sandy Cay during the transition period.

**(1) Relationship with Little Dix Bay Hotel.** The general manager of the Little Dix Bay Hotel should be approached by appropriate persons (to include Roy Thomas) to make early inquiries about continuing support as a “patron” of Sandy Cay and its ecosystem management project. What is needed is a discussion of continuing services on a *pro bono* basis, with perhaps—in return—a good will gesture on the part of Sandy Cay’s new management in the form of guided tours for select LDB guests or illustrated science lectures for LDB guests. A corporate link such as this could be beneficial to both entities. Mr. Thomas’s longstanding relationship with LDB is a strong basis for at least the beginning of a frank discussion about mutual interests in the future of Sandy Cay.

**(2) Relationship with the J.R. O’Neal Botanic Garden.** Both the J.R. O’Neal Botanic Garden in Road Town (a component of the BVI National Parks Trust) and Sandy Cay are “gardens”. Early consideration should be given to the possibility of involving Botanic Garden staff in the future maintenance of Sandy Cay. Both “gardens” require “gardeners” who have credible experience with horticulture and science, with

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insect control in semi-enclosed small land areas, with visitor impact mitigation, with educational outreach programs and with the management of invasive plants. These commonalities prevail although each “garden” comes at them from very different, virtually opposite perspectives. Sandy Cay, unlike the Botanic Garden in Road Town, is a “marine garden” of terrestrial halophytes and an “underwater garden” of plants and corals.

Involving selected Botanic Garden staff in ongoing maintenance tasks at Sandy Cay could be a valuable and broadening educational experience for Garden staff. Training, of course, would be available in the form of an experienced horticulturist, Roy Thomas, who could work with the Botanic Garden’s Curator to develop a suitable curriculum.

A small group of Sandy Cay community and student volunteers is also envisioned, which could contribute some limited labor and thus reduce the demand on the Garden or other designated agency for short-term use of gardeners. A supplemental volunteer core for Sandy Cay horticultural work might possibly be identified from among individuals long active in the programs of the BVI Botanic Society.

Together, the Sandy Cay “garden” and the J.R. O’Neal Botanic Garden in Road Town present an opportunity to demonstrate to visitors three levels of plant interrelationships: (1) at the island ecosystem level, (2) at the plant association level, and (3) at the plant species level under semi-controlled conditions. It could be a new educational exhibit and research opportunity for both.

Finally, the newly appointed Curator at the Botanic Garden, if only as an interim, shorter-term strategy, is clearly the most likely candidate to take up a supporting role similar to that Roy Thomas has played to date with Sandy Cay, including providing supervision of the short-term labor crews assigned to the island. Serious consideration should be given to this option, in consultation with the National Parks Trust under whose management the Botanic Garden falls.

**(3) Relationship with Island Resources Foundation.** Interim management staff for ongoing oversight of Sandy Cay, for a two-to-three-year transition period, could be provided under contract by the Island Resources Foundation. This arrangement could facilitate the completion of the Sandy Cay Ecosystem Characterization by reexamining the ecosystem under “wet season” conditions, as well as permitting more extended development of the monitoring, research and educational functions outlined for Sandy Cay elsewhere in this Management Plan. This tactical option offers the prospect of more time for BVI government and non-government stakeholders in Sandy Cay to review and optimize the island’s long-range potential to the Territory’s management of its natural resources. It would also permit more time to complete long-discussed improvements and modifications to the legislative framework for protected area management and for private-sector participation in the process of managing ecosystems in the British Virgin Islands.

## ANNEX A

### A CHRONOLOGY OF SANDY CAY MANAGEMENT STRATEGIES AND PRACTICES <sup>12</sup>

Using the carefully maintained archival records on the Rockefeller management program for Sandy Cay, which date back to 1968, Island Resources Foundation has reconstructed a chronology of key events at the island over a thirty-year period. Additionally, we have examined the routine maintenance and less routine intervention steps taken to protect, enhance and interpret the island's ecosystem for the visiting public.

Our annotated chronology, as presented below in this Annex, summarizes technical management inputs, along with associated personnel, matériel and miscellaneous service costs, using a month-by-month accounting with task descriptions and excerpts from occasional reports to the owner. We have also extracted information on time and effort (in person days); types, volume and timing of various fertilizer applications; treatments for insect infestations; and deployment strategies for short-term-hire work crews. The tasks carried out by contract laborers included the planting and maintenance of nearly two hundred coconut palm trees, along with the building of a unique 6,000-gallon irrigation system (served by 1,100 feet of buried (underground piping) to nurture the palms during their early years.

Cost figures are summarized in tabular form in Table 3 (see Section IV of this report). This table provides staffing, monitoring and costing guidelines sufficient to support any future program-planning period with not more than a three-to-five-year horizon. The analysis assumes that relatively similar objectives and standards for the management of Sandy Cay would continue to be applied as they have been in the past.

The summarized data represent an extraordinarily valuable base of practical experience about how Sandy Cay has been managed by a small "virtual team" without a single full-time project person on staff, no resident guard or warden, and no entrance gate or fence—but with a consistently high rate of use by a visiting public averaging 40-50 persons per day for more than 30 years.

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<sup>12</sup> Compiled by Dr. Edward Towle from extant manuscript records.

## 1968

During the mid-to-late 1960s, a first attempt was made to enhance the vegetational cover of Sandy Cay by introducing palm seedlings. This effort produced early evidence that the seedlings could not be left to their own devices in the exposed and moderately harsh, sandy coastal environment in which they were being planted.

**June:** When Dave Brewer, then manager of the Little Dix Bay Hotel in Virgin Gorda, takes horticulturist Roy Thomas with him on the latter's first visit to Sandy Cay, Thomas's professional evaluation of the palms planted earlier in the 1960s is both candid and grim: use fertilizer and an insecticide or lose them. Brewer admits that in his previous four years of visiting the Cay the "... palms had not grown very much" even though earlier that year they had been given a first dose of milorganite, which seemed to help a little. At the time, the primary on-site supervisor of Sandy Cay was Mr. Euan McFarlane, Laurance Rockefeller's personal conservation representative in the region, living on St. Croix. McFarlane, however, was not a horticultural professional.

**July:** When apprised of the sorry state of the palms on the cay, McFarlane promptly asked Mr. Thomas for advice regarding the best strategy and best fertilizer to employ, as well as preferred dosages and methods of application. As the unfortunate Sandy Cay palms also were experiencing an infestation of scale exacerbated by ants, there was a parallel need for advice on an effective, low-risk insecticide.

**August:** In short order, Roy Thomas found himself co-opted and assigned a collateral duty of assisting McFarlane with managing Sandy Cay's insular environment and subsequently, in 1978, assuming full responsibility for this 14-acre island when Euan McFarlane retired. Thus began a thirty-year experiment in island husbandry, using a management strategy worthy of emulation. It consisted of an owner who cared (Laurance Rockefeller), a part-time, hands-on horticulturist (Roy Thomas), a series of part-time caretakers who lived on the nearby island of Jost Van Dyke, and occasional day laborers borrowed from the Caneel Bay (St. John) and Little Dix Bay (Virgin Gorda) hotels, both operated at this time by Rockresorts, a resort management company.

## 1969

As stated above, during the 1960s Sandy Cay fell within the jurisdictional custody of Euan McFarlane who, although not a horticulturist, undertook a palm planting (and watering) program on behalf of the island's owner. McFarlane was not a Rockresorts employee but worked directly for Laurance Rockefeller, principally serving as his agent for conservation institutions in the region. By 1969, a walking trail had been cut and nearly 100 young palm trees had been planted under McFarlane's direction, with some additional effort made to keep them watered by hauling water to the island in 50-gallon drums and then hand watering the trees. Eventually Mr. McFarlane would employ a

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caretaker, Mr. Anthony George from Jost Van Dyke, to assist with these tasks. But, by 1969, it was obvious more help was need.

**January 24:** The Rockresorts horticulturist at the Caneel Bay Hotel in St. John, Roy Thomas, is asked to meet with Mr. McFarlane and Mr. George at Sandy Cay to assess the maintenance work needed at Sandy Cay and "review a possible plan for improvement".

Following this visit, Mr. Thomas completes a work list with cost estimates, which are approved by the Rockresorts office in New York. A new program is put in place under Roy Thomas, with a transfer of some responsibilities from McFarlane.

**February 6:** A work plan and budget are proposed for the year. The budget for 1969 was set to cover 6 visits, boat charters, transplanting of 48 coconuts, peat and fertilizer applications and spraying for each visit, at an estimated cost of \$1,500 per visit. Anthony George of Jost Van Dyke is formally appointed as caretaker. (NB. The caretaker is paid by Mr. Rockefeller from a separate budget.) Management issues formulated by Roy Thomas that are to be addressed during the year, with corresponding budget figures for implementation, follow:

Task A. Existing trees (seagrapes, nothing nuts, buttonwood) are riddled with insects (caterpillars, borers, scales) and need four sprayings per year. Additionally, existing trail edge vegetation needs thinning, pruning.

*Budget Estimate: \$2,400*

Task B. Of the young coconut palms, 83 remain but 16 are in bad shape and were incorrectly planted in mounds rather than in depressions to catch rainfall. Need spraying with Malathion and Chlordane six times in the first year. Replanting will be required.

*Budget Estimate: \$1,280*

Task C. Future plantings of fifty (sprouted) palms at \$6.00 each.

*Budget Estimate: \$300*

Logistic Support (six round trips)

Horticulturist, 6 days @ \$100	\$600
Labor	\$360
Materials and lunches	\$212
Boat @ \$50 per trip	<u>\$300</u>

*Budget Estimate: \$1,472*

**1969 Total Budget Estimate** ..... \$5,452

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**March 18:** Budget approved and project start ordered.

**April 1:** Mr. Rockefeller is reported to be “. . . quite anxious to move forward promptly and fully on the landscaping program at Sandy Cay.” *He wants to do “. . . everything recommended by Roy Thomas on whatever expeditious schedule is recommended” for the landscaping program at Sandy Cay [emphasis added].*

**April 8:** Trip by Roy Thomas with five laborers on Caneel Bay boat, taking with them Malathion and sprayer. Eight sprouted coconuts are planted, all young palms are fertilized, and infested nothing nuts southeast of the salt pond are sprayed.

Cost: \$308

**June 6:** Trip to Sandy Cay to plant eight palms. Water used from a shallow well previously dug by Euan McFarlane on the northern edge of the salt pond. Thomas reports the water is reasonably fresh due to recent heavy rains in May.

Cost: \$247

**September 15:** Trip to Sandy Cay for fertilizing and insect spraying. Sea condition is rough, and sprouted coconuts could not be unloaded.

Cost: \$200

**November 6:** Message from Mr. Rockefeller via Dick Erb, the manager of Caneel Bay, to remove dead palms and investigate options for on-island water storage for use during dry periods.

## 1970

**January 30:** Trip to Sandy Cay to plant eight palms and remove two dead palms. It is noted that the infestation of scale insects continues. A long report is provided by Roy Thomas regarding problems with the boat size (too small and requires two trips) and the need for a larger sprayer and 400 gallons of water for insecticide application.

Cost: \$115

**March 12:** Visit by the owner, who indicates he hoped to create a “wilderness island”. Discussions with Roy Thomas center on water needs, feasibility of a dock and storage building, and strategies to care for vegetation other than the palm trees.

**March 17:** Roy Thomas reports on progress at Sandy Cay.

**April :** Trip to Sandy Cay with 600 gallons of water (twelve 50-gallon drums), Malathion and sprayers for the “heavy infestation of scale insects”; also transport 30 young palm trees, which are planted. A site for a water tank is selected. (NB. Fee for

## SANDY CAY MANAGEMENT PLAN

*Roy Thomas's services is not included in the total provided here and in later totals. A barge newly provided by the U.S. National Park Service carried 14 workers.)*

Cost: \$612

**June 2:** Twenty-four palms are planted in the grassy area south of the pond using 6.6.6 fertilizer, but bad ground swells prevent unloading back-pack sprayers.

Cost: \$317

**August 29:** Report on the effects of a hurricane near miss by Alan Robinson, U.S. National Park Service, and Gary Mack of Davey Tree Service; also, an evaluation of insecticide spraying. It is noted that hundreds of Gull-billed Terns were massed on the new beach areas in the southwest; also, Laughing Gulls reported over the northeastern ridge, while Pelicans and Noddy Terns are abundant along with adult and young Brown Boobies.

**October 31:** Violent cross seas. Sea surges make landing equipment and material absolutely impossible—lost day.

Cost: \$61

**November 18:** Visit to Sandy Cay by a small team focussing on Malathion spraying of coconut palms and nothing nut trees.

Cost: \$145

**December 29:** A large work crew, using liquid fertilizer and Malathion, treat all the young palms and beachfront vegetation. In several areas, the trails are very overgrown. Roy Thomas wrote in his report on the visit, "We cut back the undergrowth and re-opened the trail along the ridge. There was a strong surge from the southeast, our dinghy overturned and we lost a number of personal items." Seventeen boats and 60 people reported as having visited Sandy Cay on that day.

Cost: \$218

**December 31:** Day trip to Sandy Cay for Laurance Rockefeller, Roy Thomas and Dick Erb, general manager of Caneel Bay Resort. Mr. Thomas reports in his trip memo that the owner very much " . . . *wanted to see the island used.*" [emphasis added].

## 1971

**April 25:** Visit by Rockefeller and Thomas to approve the cistern site. Mr. Rockefeller determines that enough palms have been planted and the time has come to focus on cutting back the "shrubby" from around the new palms and removing all dead branches on other major trees.

## SANDY CAY MANAGEMENT PLAN

**May 27:** New grounds manager at Caneel Bay, P. Alan Ketley, is taken by Roy Thomas to Sandy Cay for a familiarization tour so that Ketley can continue work at Sandy Cay while Thomas is working at other Rockresorts sites for the rest of the year. During this site visit, sea turtle nesting tracks are noted on the beach. A bird survey by Mr. Ketley identifies 17 species. (NB. Transport is provided by the U.S. National Park Service barge; Thomas bills the owner separately for his fee, and Ketley is charged out against a Rockefeller account @ \$100/day.)

Cost: \$300

**August 9:** Site visit focuses on proliferating colonies of borers in the seagrapes and nothing nut trees, accompanied by a scale problem. All are sprayed. Another bird count by P. Alan Ketley (17 species observed).

Cost: \$241

**September:** An 8-man work crew under the supervision of Alan Ketley visit Sandy Cay to spray the palms and spider lilies (seasonally afflicted by a caterpillar). [NB. Transport by U.S. National Park Service boat.]

Cost: \$288

### 1972

**January 24:** Ketley repeats bird count (observed 10 species). Also spraying with Malathion. An amazing number of yellow warblers is noted.

Cost: \$282

**June:** Despite a drought, the young palms are not affected. Spraying and fertilizing carried out. The Frangipani are in full bloom. Report of five boats present.

Cost: \$291

**August 7:** Routine visit by Ketley and crew for spraying of nothing nut trees.

Cost: \$281

### 1973

**February 8:** Alan Ketley makes routine inspection, meeting with Roy Thomas on site. Work going well. Will now move to clear vines that are crowding other vegetation.

Cost: \$626

## SANDY CAY MANAGEMENT PLAN

**May:** U.S. National Park Service barge is out of commission, and the chartering of a private vessel for Sandy Cay visits is expected to result in more elaborate clearance procedures with both U.S. and British Virgin Islands Customs. Preparations are underway for a visit by the owner in June. By this time a total of 189 palms had been planted with a loss of six, principally due to drought and the absence of a reliable alternative supply of water.

**June 1:** Laurance Rockefeller visits Sandy Cay.

**June 13:** The barge *P'ti Bleu* is chartered by Ketley to transport a water truck with 1,200 gallons of water to the island. A 1,000-gallon tank is placed ashore and filled to be used for palm watering.

Cost: \$683

**June 26:** Water truck again taken by barge to Sandy Cay by Ketley and crew. Palms watered and hand sprayed.

Cost: \$668

**July 24:** Another water-hauling trip to Sandy Cay with 6-person crew.

Cost: \$598

**August 7:** Another water-hauling trip to Sandy Cay, with 5-person crew plus Roy Thomas to supervise.

Cost: \$568

**November 15:** Routine maintenance visit to the island to spray and apply fertilizer, 5-person crew under Alan Ketley.

Cost: \$653

## 1974

**January 14:** The barge customarily chartered for Sandy Cay work will be down for repairs and modifications required by the U.S. Coast Guard until February, if not longer.

**April 16:** Euan McFarlane reports significant rainfall has left Sandy Cay very green and healthy looking. Fronds need trimming.

**April 19:** Roy Thomas asks Alan Ketley to schedule a trip to Sandy Cay in the near future and to use Agriform plant fertilizer on all palms. In tablet form, the dosage is good for one year. Barge not yet available so the use of a small crew and a small boat is advised.

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**August 5:** Ketley makes a regular work visit with five workers and fertilizes all palms with Agriform. Only two dead palms found. Malathion spraying carried out to control wax scale. Also measured for piping for irrigation system. The barge is back in use.

Cost: \$609

**August 19:** Ketley and crew of five visit the island to begin installation of water tank requested by Mr. Rockefeller.

Cost: \$536

**September 9:** Unsuccessful trip by Ketley and crew who return to Caneel after several hours of torrential rainfall

Cost: \$594

**September 16:** Return visit by Ketley with five-man crew to continue installation of water tank and prune beachfront vegetation. Serious problems with BVI Customs encountered.

Cost: \$599

**November 18:** Ketley and work crew of four men finish site preparation and lay 200 feet of PVC pipe. More pipe on order.

Cost: \$603

**December 9:** Materials for irrigation project (#293) did not arrive. Work focuses on pruning, clearing around palms, applying Malathion, and laying of 200 feet of irrigation pipe.

Cost: \$624

**December 19:** McFarlane makes a surprise check-up visit to Sandy Cay on December 8<sup>th</sup>, noting in his December 19<sup>th</sup> report that the palms seem healthy and are growing but had poor color. Complains to the caretaker that the trails are overgrown. Caretaker agrees to "start work on them that week." *[Separate billing by caretaker.]*

## 1975

**February 10:** Standard maintenance visit. Oil is observed on the windward side of the island (also reported on the beaches of St. John). Five visiting boats are noted.

Cost: \$624

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**March:** The owner visits Sandy Cay with Richard Erb, manager of Caneel Bay. Erb reports that the owner wants the loop trail on the eastern end of the island "... cleared on a modest basis to allow the passage of a single person without too much difficulty". Prickly cacti in particular are to be removed for comfortable passage. He also asks that the 1,000-gallon sealed water tank then in use be kept to augment the new 6,000-gallon pillow tank being ordered for the irrigation system. In the meanwhile, Mr. Rockefeller expresses a desire that the palms be watered "... as much as possible to encourage their rapid growth".

**April 2:** Continued work on the new water tank by Ketley and four-person crew.

*Cost: \$595*

**April 18:** Visit to the island of work party of five men who continue to lay pipe for irrigation system.

*Cost: \$495*

### 1976

**June 2, 3, 4, 5, 7, 8, 9, 10, 11 and 12:** With a crew from Caneel headed by Roy Thomas, a concentrated effort is carried out from June 2<sup>nd</sup> to 10<sup>th</sup> to complete final-phase construction of the irrigation system. Some landscape titivation also undertaken. On the 11<sup>th</sup> and 12<sup>th</sup> Raymond Dorway, also from Caneel, leads a three-person team to Sandy Cay and fills the new irrigation system's pillow tank with water. The crew also completes the fertilizing and spraying of palm trees.

*Estimated Cost: \$5,000*

**June 14:** Irrigation system completed with a rubberized, 6,000-gallon pillow tank, 5 hp pump, piping and fencing, and an intake pipe through the berm on the south shore of Sandy Cay. [*Final installed cost: \$11,435.*]

**July 28:** In a memo to Roy Thomas dated July 28<sup>th</sup>, Euan McFarlane reports on an inspection trip to Sandy Cay to review the newly installed irrigation system and the state of the island. His findings conclude "...the spider lilies were flourishing, the palm trees apparently healthy and happy and the whole island had a sense of well being."

### 1977

**March 11:** Mr. Rockefeller visits the island and expresses an interest in having the tops of the taller seagrapes along the coastline trimmed so the growing coconuts behind the seagrape are visible from offshore. Roy Thomas's memo on the owner's visit notes that work trips to the island have become infrequent due to staff turnover at Caneel during the previous 20 months. He further observes that the new Caneel horticulturist (Chris Kirk) should visit Sandy Cay at least once a month and have a work crew on the

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island on a regular basis (every two months), planting perhaps 50 more palm trees, among other more routine tasks. Nine boats and 40 people observed at the island this day.

**May:** Visit of Roy Woodbury, botanist from the University of Puerto Rico, who does a walk-around inventory with Roy Thomas (who takes notes). Using a tape recorder, Woodbury lists tree and plant species. Thomas later completes a plant list for the cay to go along with his carefully maintained bird listings.

*Estimated Cost: \$500*

**May 6:** Irrigation consultant, D.L. Yarnton from Puerto Rico, evaluates and approves the system installed on Sandy Cay. Yarnton suggests only a few minor changes, including the need for a tote box of key repair tools and spare parts for site visits.

*Estimated Cost: \$352*

**June 28, July 15, August 4, October 6:** Work crews appear to have visited Sandy Cay but the trip reports apparently were not submitted.

*Estimated Cost: \$1,200*

**October 27:** Roy Thomas passes the following advice on to Chris Kirk, grounds manager at Caneel Bay, whose newness was wearing thin and who was clearly not as diligent as his predecessor (Alan Ketley) had been:

Sandy Cay, although small and remote, means a great deal to Mr. Rockefeller. He always visits the island during his visits to Caneel Bay. We have become deeply involved in the maintenance of the vegetation and in planting additional coconuts/palms. It is therefore a very important place that must be kept up through frequent visits with a small labor crew to plant, prune, spray, water, and fertilize the coconut trees.

In a final telling remark, Thomas suggests, "You have been very quiet concerning this area of work." Thomas's concern is obvious, and he pointedly encloses without comment a detailed checklist of 26 items needed for a six-man work crew (including task assignments). He also encloses a two-page set of detailed instructions regarding the procedures for preparing and making a visit to Sandy Cay by boat or barge.

## 1978

**January:** Work crew from Caneel, under direction of Chris Kirk, visit Sandy Cay to apply Magnesium Sulphate (Epsom Salts) to the roots of palms along the beach. This helps the palms retain a rich green color and avoid a yellowish tinge to the fronds.

*Estimated Cost: \$350*

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**May:** Euan McFarlane retires. He had served Mr. Rockefeller for nearly two decades, first as supervisor for the construction of the Caneel Bay and Little Dix Bay resorts, and subsequently as a spokesperson for Rockefeller's conservation interests in the Caribbean. McFarlane had arranged for Mr. Rockefeller's donation of several BVI properties to the BVI National Parks Trust, and he helped launch both the Caribbean Conservation Association and the Island Resources Foundation on their first regional programs. Almost collaterally, he functioned as the first site manager of the Sandy Cay property, an assignment shared with Roy Thomas after 1968. For his constructive role in support of early conservation initiatives in the British Virgin Islands, he was subsequently named an honorary "Belonger" by the BVI Government.

**June 15:** Using the *M/V Cinnamon Bay*, Roy Thomas and crew visit Sandy Cay to continue the application of magnesium sulfate to coastal palms in the northwest section. Dead palm fronds are removed.

*Estimated Cost: \$400*

**June 23:** Roy Thomas reports to Mr. Rockefeller's New York office that he has "... written to Chris [Kirk] requesting that he get back into the routine of making monthly work visits to Sandy Cay [and that he] report on these visits". On the same day Thomas writes directly to Kirk thanking him for arranging for a barge and helping to keep the water tank full. But, almost with tongue in cheek, his next sentence reads, "Mr. Rockefeller is now interested to know when we are we going over to water the palms?"

These remarks are followed by detailed work lists about pruning, fertilizing, pest control, record keeping and operational procedures for taking care of Sandy Cay, treating it as if it were a garden—some twenty years ahead of Dr. Daniel Janzen's "gardenification of nature" concept<sup>13</sup>. Purchase of 24 25-pound bags of NUTREX fertilizer costs \$276.

**August 2:** Four-man crew is led by Chris Kirk. They water and fertilize the palms, clear trails of downed branches, remove hanging fronds, install new (#7) turf valve in the irrigation line, measure new pillow tank (12 x 26 by Goodyear), sever the base of larger parasitic vines (so that they can be cleared later from the vegetation when they turn brown), and carry out other routine maintenance.

*Cost: \$523*

**October 4:** Maintenance trip by Kirk plus four workers. Using *M/V Virgo*, Kirk and his crew water and spray palms, widen the understory vegetation along the trails (to give a greater feeling of depth), prune the large Ficus tree by the beach trail entrance, and use the new Atlantic Palm Tree Fertilizer (7-2-7) on 82 palms. The salt grass area was wet, suggesting significant rain. They also spray 103 palms to control the ants. The Coffee Colubrina (*Colubrina aborescens*) is cut back hard, near the trail entrance, to add to

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<sup>13</sup> Daniel Janzen, 2000, "How to grow a wildland: the gardenification of nature," in: *Nature and Human Society*, P.H. Raven and T. Williams, eds., National Academy Press, Washington, DC, pp. 521-29.

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the feeling of airiness, and in the southwestern portion of the island the wild sage (*Lantana involutana*) is trimmed to improve the trail. Vines cut on the previous trip are removed from the palms and seagrapes.

Cost: \$243

**November:** Work trip, using two weed eaters, a power saw for tree trunk removal and 50 pounds of fertilizer. Date and cost not in the files.

Estimated Cost: \$400

**December:** General maintenance trip with two-person crew.

Estimated Cost: \$400

### 1979

**February 8:** Roy Thomas makes an end-of-year inspection trip to Sandy Cay, principally to confirm progress described by Chris Kirk in his end-of-1978, unusually detailed reporting. Work crews had visited Sandy Cay in January, June, August, October, November and December. Kirk's accomplishments were acknowledged in a letter sent directly to Mr. Rockefeller in New York.

**July ?** (report dated August 16): Visit by Roy Thomas, who is disappointed to find damaged plants on the trail, apparently due to careless cutlass trimming along the trail edge. He suggests having the caretaker (the presumed culprit) join the periodic work parties each time they visit the island, working together under their direction.

In the same report, and as previously noted, Thomas emphasizes to Mr. Kirk that "... a clearer view of the palm trees from offshore is possible if certain areas of seagrapes are topped . . . . Proceed with this work so that it will be completed well before Mr. Rockefeller's next visit to the island."

**August 29:** Hurricane David with winds up to 150 mph and three inches of rain.

**September 4:** Hurricane Frederick with winds of 125 mph and 9.3 inches of rain.

**September 26:** Roy Thomas makes a post-hurricane inspection trip to see how the island has weathered the two back-to-back hurricanes. His conclusion is that despite high wind the cay has suffered very little significant damage. He theorizes that a constantly exposed ecosystem like Sandy Cay is better prepared for (or conditioned to) higher-than-average wind forces than are the more customarily protected areas on the larger islands. A brief inspection of Sandy Spit and Green Cay to the north also found little serious erosion or visible damage, perhaps further confirmation of Thomas's theory. Mr. Hendricks, the caretaker since 1972, asks for a raise in pay from \$50 to \$75 a month. Roy Thomas recommends the raise, and Mr. Rockefeller's office in New York agrees to the increase in December.

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### 1980

**February 25:** Mr. Rockefeller's New York office advises Roy Thomas that the owner will visit Sandy Cay on Sunday, March 9<sup>th</sup>. This message is forwarded to Chris Kirk at Caneel with the following request: "... take whatever action you feel advisable to insure this jewel is glowing with maximum beauty." (NB. Kirk is about to be replaced by Thomas Hicks.)

**March 9:** Visit by owner to the island; no documentation of that visit is available.

**April 14:** Tom Hicks receives a brief set of instructions regarding his responsibilities and required tasks for Sandy Cay maintenance work and oversight (this two-page document is primarily a re-write of Roy Thomas's previous instructions to Chris Kirk). It appears that Hicks and Kirk never visit the island together, which was unfortunate.

**May 1:** Tom Hicks makes his first trip to Sandy Cay. Reports planting six new coconut palms, as per Thomas's meticulous instructions and using Davey's Arbor Green tree fertilizer (30-10-7) at a rate of 4.5 oz/gal. His crew tests all irrigation heads, clears debris from trails and collects 15 spider lilies to be transplanted to Cottage 7 at Caneel (as per recommendation of Chris Kirk). Total labor time is 24 hours.

*Cost: \$489*

**August 7:** Inspection trip by Hicks to Sandy Cay following hurricane Allen. Beach areas are greatly reduced, leaving a four-to-five-foot drop off, a common occurrence for Sandy Cay following heavy seas. There is not much damage to the interior of the island. Nine boats are counted at the island.

*Estimated Cost: \$500*

**September 8:** Work trip by Hicks with five-man crew for pest control and lily planting near the Ficus tree. Low brush is cleared to enhance the landscape by highlighting larger trees which "adds a different texture to the ground cover area". Mr. Drooker, Caneel Bay's new resident manager, accompanies Hicks on this trip. He walks the trails and, according to Hicks, is "impressed with the whole set up".

*Estimated Cost: \$500*

*[In a February 1981 memo to Mr. Rockefeller, Roy Thomas mentions six working visits to the island in 1980. Some files are therefore missing as only three trips are noted in the records.]*

*Estimated Cost for three trips (missing reports): \$1,500*

### 1981

**February 4:** Working trip by Roy Thomas, joined by Tom Hicks. They are in turn joined during the day by 15 visiting yachts and over 100 persons walking the trails. The

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island is green, all in order, no trash, no storm damage of significance. Flowering vegetation includes Turks Head Cactus (*Melocactus intortus*), Sage [purple] (*Lantana involucrata*), Aculatum ["Choc Choc"] (*Clerodendrum aculeatum*), and Maran (*Croton* spp).

The three accompanying workers spray a ring of anti-ant chlordane on all palms, remove all dead leaf/frond detritus from palm bases, and trim additional seagrape tops to expose palms tops. It is noted that the northwest trail has a washed-out section and that the caretaker, Jonathan Hendricks, joined the crew.

*Estimated Cost: \$700*

**February 26:** Roy Thomas prepares an overview report to the owner regarding the increasing popularity of Sandy Cay among boaters and the interesting phenomenon of "no significant trash", suggesting that visitors, who mostly stop for a snorkeling adventure or trail hiking, take their lunch break aboard the anchored boats. The frequent swells and heavy surf and the difficulty of landing make it risky to transport containers of food and refreshments to the beach in dinghies. Secondly, Sandy Cay is a risky overnight anchorage, and visitors usually leave by late afternoon to get to a good anchorage by nightfall (thereby foregoing an evening meal or picnic ashore). Thomas also observes that late afternoon and early evening sand flies and mosquitoes are not very hospitable and more or less eliminate use of the island as a party site.

**March 19:** Roy Thomas in a letter to Dave Brewer, now general manager at Caneel Bay, succinctly lays out the general work strategy for Sandy Cay, suggesting that eight (not six) work trips a year will be required to complete the tasks now requested by the owner. New elements added to routine maintenance efforts include:

- Judiciously topping, or even removing, selected areas of (coastal) vegetation other than seagrapes. (This work is to expose more of the groups of palms, as viewed from offshore.)
- Encouraging palm growth by restraining competing vegetation.
- Planting additional groups of young palms between the seagrapes along the southeast side of the Cay.

**April 1:** This inspection trip is reported in an April 13<sup>th</sup> memo from Tom Hicks to Roy Thomas. On arrival at the island, ten boats are found anchored offshore, including the large, chartered square-rigger, *Flying Cloud*, with crew and guests numbering 70-80 persons. The entire beach was filled with people, with preparations for a barbecue in full progress. Coconuts are watered, debris collected, and trails inspected and cleared of debris and overhanging limbs.

Hicks casually mentions that Roy Thomas's memo of March 19<sup>th</sup> was *reviewed on site and tentative plans for future trips were made*. "There are several areas where existing coconuts

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can be highlighted with cautious pruning of foreground vegetation along the southern shoreline. *Further discussion with you can help to finalize plans*" [emphasis added].

*Estimated Cost: \$450*

**December 16:** Maintenance work trip by Hicks and three workers. Report to Roy Thomas dated December 28<sup>th</sup>.

*Estimated Cost: \$450*

### 1982

**March:** Hicks reports that no trip was possible in January or February but that two trips were made in March. Roy Thomas accompanies the group (Hicks and three men) on one of the trips ". . . to help establish future goals and aid in some vista [pruning] work." The latter involved topping seagrape trees in the southwestern quadrant of the island to enhance the effect of the maturing coconuts further inland.

*Cost: \$815*

**June 20:** Inspection/maintenance work trip by Hicks and two workers using a charter of *M/V Pirates Penny* out of Red Hook, St. Thomas. There is evidence of a recent visit by Mr. Hendricks, the caretaker, as grass clumps have been pulled from trail sites. Three charter boats are anchored offshore.

*Estimated Cost: \$400*

**October 14:** Routine working trip of Hicks and three men.

*Cost: \$585*

**December 21:** Routine working trip of Hicks and three men.

*Estimated Cost: \$450*

### 1983

**June 5:** Roy Thomas visits Sandy Cay and is very disturbed to find the island had not been cared for in some time. The trail is overgrown, rocks washed out by the rain on the steep sections of the trail had not been cleared, dead palm fronds had not been removed, and a full bag of trash is collected—all clear evidence that the caretaker has been derelict in the performance of his work tasks. On the 13<sup>th</sup>, Thomas writes Mr. Hendricks canceling his payment for the current three-month period and indicating that he had to improve if he wanted to ". . . qualify for future payments".

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**December 10:** Working trip by Roger Ditmer from Caneel Bay Hotel to Sandy Cay with crew of nine men using the Caneel boat, *Turtle Bay*, accompanied by Roy Thomas. Work tasks include moving palm frond piles further inland away from the trail, removal of dead fronds hanging from trees, fertilization of palms using spikes, repair of rough sections of the trail, and destruction of the termite nests on or near the trail. Thomas also meets with Jonathan Hendricks and emphasizes the need to inspect the island for trash on December 26<sup>th</sup> (the day before the owner's scheduled visit).

Cost: \$1,246

### 1984

**March 2:** Roger Ditmer and six workers make a general maintenance visit to Sandy Cay, delivering at the same time two quarterly checks to caretaker Jonathan Hendricks on Jost Van Dyke. Reports conditions are satisfactory on the island. [*Boat charter at \$400, Ditmer at \$150/day*]

Cost: \$976

**July 17:** Ditmer and three men visit Sandy Cay for routine maintenance.

Cost: \$493

**October 25:** Ditmer and seven-person crew visit island for routine maintenance (no sign of Hendricks).

Cost: \$1,057

**November:** Tropical storm Klaus.

### 1985

**January 17:** Regular maintenance trip by Ditmer and seven men with extra effort to clean up detritus and repair damage from tropical storm Klaus.

Cost: \$1,060

**January 19:** Thomas notifies Ditmer at Caneel that the mini-cruise ship *Nantucket Clipper* would visit Sandy Cay February 12<sup>th</sup> and 18<sup>th</sup> and also on March 12<sup>th</sup> and 19<sup>th</sup>.

**May 30:** Ditmer and nine workers are at the island for intensive weeding, fertilizing and clean-up activity. [*Charter increases to \$420, fertilizer at \$385.*]

Cost: \$1,578

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**December 11:** Kevin Campbell, head of grounds at Caneel Bay, and four men are at the island for a routine maintenance trip.

*Cost: \$545*

**December 28:** Laurance Rockefeller visits Sandy Cay.

### 1986

**July 16:** Kevin Campbell, grounds superintendent at Caneel Bay, with eight workers carry out a general clean-up at Sandy Cay. Reports that the performance of the caretaker (Hendricks) has improved and is quite satisfactory.

*Estimated Cost: \$950*

### 1987

**January 16:** Visit by Kevin Campbell and an unknown number of workers for routine maintenance.

*Estimated Cost: \$950*

**March 18:** Campbell plus a crew of ten workers visit Sandy Cay for pruning, clearing of fronds, trash clean up, raking. Excessive trash noted.

*Estimated Cost: \$1,200*

**August 20:** Roy Thomas visits the island and reports to owner, noting increase in trash following summer flow of Puerto Rican-based boats. Also notes four new termite nests that need removal, palm debris that needs to be moved back out of sight into the bush, and scale on Black Torch (*Erithalis fruticosa*) that needs to be sprayed with Malathion. Points out that the scarlet berries of the *Jacquinia aborea* look great against the deep green foliage.

**December 24:** Kevin Campbell visits the island for routine maintenance prior to arrival of Mr. Rockefeller.

*Estimated Cost: \$950*

**December 28:** The owner visits the island.

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### 1988

**March 10:** Kevin Campbell with five laborers from the grounds unit at Caneel Bay make a routine maintenance visit to the island. Report that the trash collected is primarily from Puerto Rico-based visiting boats and that some seagrapes have borers.

*Estimated Cost: \$1,200*

*[The remainder of the 1988 records are missing.]*

### 1989

**September:** Roy Thomas visits Sandy Cay with Houston Holder, grounds manager at Caneel. Thomas provides instructions to Holder for management of the maintenance program at the island.

**September 17-18:** Hurricane Hugo devastates the Virgin Islands.

The 1989 records are missing except for documents reporting on the change of caretaker and a *pro forma* invoice from Bartlett Tree Experts dated 10/17/89 for hurricane Hugo damage repair at Sandy Cay in the amount of \$3,250.

Jonathan Hendricks resigns on January 9, 1989, as Sandy Cay's caretaker due to ill health. He had first been engaged in May 1973 at \$50 per month. This fee was later increased to \$75 in January of 1980 and again in June of 1986 to \$100/month. He is replaced by his nephew, Nehemiah "Nippy" Hendricks, who is to be paid, as before, directly by the owner through Caneel Bay. The caretaker is instructed to refer questions to Caneel's superintendent of grounds in the absence of Roy Thomas. "Nippy's" appointment commences in September of 1989, which coincides with hurricane Hugo's arrival.

### 1990

Operational records not found except for explicit instructions dated August 9<sup>th</sup> to Nippy Hendricks regarding his responsibilities and a copy of a July 26<sup>th</sup> Sandy Cay site visit invoice from Roy Thomas.

*Cost: \$557*

**Administrative Note:** At about this time, Roy Thomas apparently ceases to be an employee of Rockresorts (the company that manages Mr. Rockefeller's hotel properties), where he had acted as senior horticulturist serving various Rockresorts properties. He becomes a private consultant using stationary for his own firm called Resorsscapes, a landscape and horticultural services entity based in Woodstock, Vermont, the site of another Rockefeller property, the Woodstock Inn. Obviously, some linkages to Rockre-

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sorts continue but on a contractual basis. The exact timing of these changes is not completely clear from the Sandy Cay records.

### 1991

**August 14:** Roy Thomas visits Sandy Cay for an inspection. Despite his earlier careful and detailed instruction to the new caretaker, Nippy Hendricks, and to the grounds staff at Caneel Bay, Roy Thomas is taken aback by the messy condition of the island. Once again, in a letter dated September 10<sup>th</sup>, he lays out instructions to the caretaker and indicates he will be back for a return visit to the island in December.

*Estimated Cost: \$365*

On the same date (September 10<sup>th</sup>), Thomas writes to Wes Frye, Mr. Rockefeller's primary aide in New York, with two queries that hint he has sensed a change in perspective if not policy at the New York office. He first remarks that the very ingenious and effective irrigation system he had developed (and the owner had endorsed and funded) was growing old and was "... in need of repairs—the fittings have corroded and are unusable" (although the pipe and tank are still ok). He notes that the coconut palms are now well established and no longer really needed watering. In light of this, he goes on to write, "... I hesitate to refurbish the system without specific authorization."

He then moves to another quite different, but not unrelated, topic, the overall future of Sandy Cay. "Some time ago," he writes, "Laurance spoke of his desire to see the island become public property . . . [and] the Botanical Society of the BVI, which is a subsidiary of the National Trust, . . . in my opinion would make an excellent custodian of Sandy Cay. They are looking for ecosystems to enable the expansion of the activities of the gardens. Is this something you would like to pursue?" His letter ends at this point.

**December:** Mr. Rockefeller visits Sandy Cay during his Christmas holiday, stopping briefly at Caneel Bay and then moving on to Little Dix Bay where he has meetings with Roy Thomas about Sandy Cay. He is deeply upset about the messy state of the island and the delays in addressing various issues previously identified and agreed to as action items. The previous system of regular visits, quick decisions and staffing up for new interventions is breaking down and—since hurricane Hugo in 1989—is less responsive.

Caneel Bay's management oversight had become a weak link in the chain connecting Woodstock, Vermont (where Roy Thomas was based), the owner's New York office, the grounds crew of laborers at Caneel Bay on St John, Jost Van Dyke where the caretaker resided, and Sandy Cay. Additionally, the new Hendricks caretaker had let Roy down. Rockefeller apparently identifies the root causes of the problem and, with Thomas, works out a new strategy that reduces the role of the Caneel Bay staff and increases the role of Dave Brewer (now back in Virgin Gorda) and the Little Dix Bay staff. Better still, Rockefeller gives Thomas some maneuvering room with funds and priorities, asking

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him “. . .to put a crew onto the cay for as long as it takes to complete the . . . work”! [emphasis added].

### 1992

The Little Dix meeting of Laurance Rockefeller and Roy Thomas produces a serious agenda of work to be accomplished as soon as possible.

**January 29:** Visit to Sandy Cay by Roy Thomas and Jerry Brown (horticulturist at Little Dix Bay Resort) to determine work required.

*Cost: \$732*

**January 30:** Roy Thomas visits the island with a work crew of five laborers, also meets with Hendricks at Sandy Cay.

*Cost: \$1,676*

**February 1:** Jerry Brown with five-person work crew to the island, plus caretaker Hendricks. [*Cost figure includes Little Dix administration fee of \$427.*]

*Cost: \$3,272*

**March 4:** Jerry Brown with five-person work crew to the island, plus caretaker Hendricks. [*Cost figure includes Little Dix administration fee of \$175.*]

*Cost: \$1,344*

**September 11:** In a note dated September 11<sup>th</sup>, Roy Thomas reports that the passing of tropical storm Andrew had prevented a scheduled inspection visit to the cay. Although he could not land because of the heavy swells, Thomas counts 123 healthy-looking palms while circling the island in a small boat.

*Estimated Cost: \$350*

**October 31:** A return visit by Roy Thomas is successfully made with a work crew from Little Dix Bay. Provides follow-up treatment for termite nests in trail areas, fertilizes all palm trees (at four pounds per tree or 650 pounds of fertilizer), clears all fallen and hanging palm fronds (which were burned) and prunes all the seagrapes and branches hanging over the trail.

*Estimated Cost: \$1,600*

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### 1993

**February 10:** Full team of Brown and six men (at 9.5 hours each!) plus Nippy Hendricks for a full day's work on Sandy Cay, where they use \$1,600 worth of Lutz Magnesium and Manganese fertilizer spikes. They complete micronutrient and fertilizer applications for all palms. [NB. The boat charter fee was \$550; administration fee from Little Dix was \$448.]

Cost: \$3,432

**July 27:** Roy Thomas visits Sandy Cay and reports the vegetation has responded well to the intensified maintenance program and the caretaker, Nehemiah "Nippy" Hendricks, is obviously keeping up with his clearing and clean-up work tasks. Thomas suggests to Jerry Brown that because of these favorable circumstances the next visit should be held off until November when the trail will need weeding prior to the owner's annual visit. There is no record of a November visit by Brown and crew.

Estimated Cost: \$750

### 1994

Records are found for only a single inspection visit by Roy Thomas and a single maintenance visit by Jerry Brown and crew for this year. No cost invoices are available.

Estimated Cost: \$3,000

### 1995

With a change in ownership of both the Caneel Bay and Little Dix Bay hotels (for which Roy Thomas had been providing horticultural consulting services unconnected with Sandy Cay), modifications were required in ongoing procedures for the care and maintenance of Sandy Cay. At the end of May, Roy Thomas met with Mr. Rockefeller to discuss his working relationship with Sandy Cay in light of the fact that he no longer had a reason to visit the Virgin Islands (Rockresorts having divested itself of its properties in the American and British Virgin Islands). Sandy Cay's owner agreed to cover travel costs; additionally, the manager of Little Dix, no longer a Rockefeller property, extended an offer to provide, as before, grounds crew, equipment, tools and boat for Sandy Cay (on a cost reimbursable basis). As a result of these arrangements, plans went forward for a July 7<sup>th</sup> work visit to Sandy Cay.

**July 7:** Roy Thomas, with a crew from Little Dix, visits the island. He finds it very dry (due to 18 months of low rainfall), and the pond area is totally without water. A few of the palms along the interior edge of the pond have died, but all those along the beach perimeter are thriving. Half the palm population is fertilized, several termite nests are destroyed, and any die-back in the seagrapes is cut. The team intends to re-

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turn in the early fall to complete the fertilizing work, but in this case good intentions were not enough.

*Estimated Cost: \$1,600*

**August 20-24:** Hurricane Iris arrives without much warning (with winds of 100 mph).

**September 4:** Hurricane Luis arrives (140 mph winds), distance to center 75 m.

**September 15:** Hurricane Marilyn impacts the island (145 mph winds), distance to center 50 m.

**October 16:** Memo to Roy Thomas: "LSR wants to know if there are any palms left on the Cay."

There are no additional trip reports in the file for the year, although there are photos and a short memo from Roy Thomas dated 10/19/95 indicating that at least one post-hurricane visit had been made to the island. Hurricane-recovery efforts everywhere take priority.

## 1996

**February 8:** Laurance Rockefeller inquires (via Wes Frye at Rockefeller's New York office) if it is possible to relocate healthy surviving palms from less damaged areas on the cay to allow re-spacing to fill gaps where palms have been destroyed and thus to avoid importing new ones.

**February 16:** Only eight days later Thomas tells Brown at Little Dix to hold off on planting new trees.

**April 5:** New York headquarters decides to hold on moving or replanting palms until Roy Thomas can evaluate the whole scene. (Thomas has been very busy with resort horticultural damage assessment work, done for insurance purposes, following hurricane Marilyn.)

**June 28:** Roy Thomas with crew of two from Little Dix Bay makes site visit to Sandy Cay.

*Estimated Cost: \$945*

**July:** Junior Coakley from Jost Van Dyke is engaged by Roy Thomas as the new caretaker of Sandy Cay at \$150/month. Nehemiah Hendricks resigned in mid-1995 and had not worked at the island since helping with the post-hurricane clean-up in November of 1995.

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**November 14:** Second visit of the year by Roy Thomas, who borrows two Little Dix workers for rehabilitation work at Sandy Cay.

*Cost: \$945*

### 1997

**May 8:** Roy Thomas visits Sandy Cay with three Little Dix Bay gardeners and the new caretaker, Junior Coakley (who started July 1, 1996). Major objectives of the trip are to fertilize all palms, meet and pay the new caretaker, and review the condition of the cay. These tasks are accomplished.

*Estimated Cost: \$1,000*

**May 9:** Roy Thomas prepares a report on the previous day's work and findings, a copy of which is in the files. He reports 104 palm trees remaining. All have been fertilized with Lesco's Professional 20-6-12 plus 18-40% sulfur coating fertilizer. This slow-acting, acid-base fertilizer is applied at about 1.5 pounds per tree.

The new caretaker has done well and the trail is in excellent shape, having been cleared of plants debris and loose stones. (His pay has been raised to \$150/month.) The trail section leading up the easterly rise has been recut to make the ascent easier and to allow the old trail bed to recover. Drought conditions still prevail, but tree and shrub seedlings are growing everywhere, mainly as an understory to hurricane wind-killed plants. Most of the regrowth is Jaquinia, Nothing Nut and Seagrape, all very desirable species that can form the new forest canopy shading the trail.

A pair of Red-billed Tropicbirds is again nesting in a hole on the vertical face of the cliff. A return trip in November is to be scheduled. Twenty-one boats at the anchorage with 60 people ashore.

**August:** Roy Thomas is enlisted for the task of carrying out a first-stage assessment of the track record and institutional capacity of the BVI National Parks Trust as a potential party to a future management arrangement for Sandy Cay. His mission is to review the activities of the Trust on Virgin Gorda, where he meets with Peter Shaindlin, general manager of Little Dix Bay Hotel. He travels to Tortola where he subsequently meets with Ed Childs of Smiths Gore, the firm engaged by Sandy Cay's owner to carry out a market value appraisal of the island. He also examines various Trust-managed properties including Virgin Gorda Peak, Prickly Pear Island, Copper Mine Point and the Baths. He was especially concerned about the visible lack of controls and standards in the service facility developed privately on Prickly Pear by the concessionaire. His photographs were very telling regarding the failure to manage wastes, the pollution of the salt pond and the overall ugliness of the facility.

This report reflects concerns that similar development, even if small, would destroy the ambiance, beauty and intrinsic value of an island like Sandy Cay, essentially squan-

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dering a unique resource and more than thirty years of investment in maintaining the integrity of its ecosystem. It was hardly an encouraging example. Thomas's report to New York headquarters is dated September 8, 1997.

**November 17:** Roy Thomas visits the island with same support arrangements from Little Dix Bay Hotel. The principal objectives are to fell the remaining trunks of hurricane-beheaded palms, cut out dead seagrape branches and remove new termite nests from the trail. The latter are proliferating in every direction as a delayed consequence of recent hurricanes and tropical storms and their sequential destructive blow-down effects on what had been lush vegetation.

*Estimated Cost: \$1,000*

### 1998

**July:** Island inspection visit by Roy Thomas (missing document but referred to in an April 2000 report).

*Estimated Cost: \$1,000*

### 1998-1999

Much of the routine maintenance during this period is tended to by the caretaker, who obviously could not undertake the major damage repair still not fully addressed after the combined effects of a sequence of hurricane and tropical storms that had roared through the northeastern Caribbean beginning a decade earlier with Hugo in 1989 and including thereafter Luis and Marilyn in 1995, Georges in 1998 followed by Jose in 1999 and most curious of all Lenny, which blew in by surprise from the southwest late in the season in November of 1999.

### 1999

**August 6:** Reliable as ever, Roy Thomas visits the island in the late summer reporting an absence of untoward conditions and pleasure at finding clear evidence of caretaker diligence. Dead palm fronds have been collected and deposited in the interior of the island according to preferred practice, and encroaching vegetation on the trail has been effectively cut back. Heavy day-visitor usage of the island was evident, and bird life was abundant.

He closed his unusually brief but positive report with an almost wistful, even poetic observation regarding the ". . . Jaquinia bushes covered in clusters of bright red berries—a very unusual but beautiful sight against the deep green Rhododendron like leaves."

*Estimated Cost: \$1,000*

## 2000

**March 14:** Never one to overlook the routine but essential task, Thomas's first Sandy Cay action for the millennial year is to make arrangements for obtaining the necessary payment for Junior Coakley, the resolute caretaker, covering a nine-month period from October 1, 1999 to June 30, 2000 in the sum of \$1,350. He indicates to the New York office that he will hand deliver the check to Mr. Coakley.

**April 5:** Thomas visits Sandy Cay with a work crew from Little Dix, meeting the caretaker there to see how "their" island is recovering and to eradicate termite nests along the trail. He finds the nests have increased in number from three in July 1998 to 17 at this time, probably due, he thought, to the abundance of hurricane-torn branches.

*Estimated Cost: \$1,500*

The remainder of Thomas's report on this trip is almost nostalgic. It is as if he is speaking for the owner when he writes:

The caretaker continues to do his work. The trail is kept free of debris and encroaching vegetation but the Cay has lost much of its ambiance due to the frequent hurricanes of the past five years. Much of the vegetation has been crushed creating an unsightly mass of broken and down trees throughout the center of the island.

Sections of the trail that formerly passed beneath specimen sea grapes are now open to sunlight . . . . The openness has also allowed vines to proliferate, a situation we hope will correct itself as new trees become established. Most of this damage was caused by Hurricane Lenny; the evidence is in the lean of the tress from the southwest, all other hurricanes have come from the southeast.

*Seen from offshore the Cay is beautiful and lush thanks to the coconut palms that have survived. Ninety-eight palms were counted, they more than fulfill Laurance's vision for the island—a great beach backed up by waving palms (emphasis added).*

## ANNEX B

### LEGAL AND INSTITUTIONAL CONSIDERATIONS PERTAINING TO THE MANAGEMENT OF SANDY CAY'S FUTURE

During the past four decades the British Virgin Islands has successfully made an orderly transition from agriculture to tourism and offshore financial services as the mainstays of its economy. It has been successful at this task for several not unrelated reasons:

- a steady capital flow of modest infrastructure subsidies from the UK leading to the establishment of quality public utilities;
- early development of a functional physical planning program (initially assisted by the United Nations Development Programme);
- the cautious and selective assembly of external investment capital for up-scale tourism infrastructure, including marinas and other facilities to support the Territory's world-renowned charter boat fleet;
- perceptive leadership attracting offshore banking and re-insurance industries; and
- creative use of multi-island ecosystem diversity and tangible conservation initiatives as a tourism marketing tool resulting in the very effective encapsulating metaphor that defines the character of the British Virgin Islands — *"nature's little secrets"*.

It is noteworthy that as early as 1961 a National Parks Ordinance established the British Virgin Islands National Parks Trust, the first, and now the oldest, in the Lesser Antilles. Jose R. O'Neal, after whom the Botanic Garden is named, was the principal protagonist behind this forward-looking initiative by Government. It is likely that the conservation implications of the then-new Virgin Islands National Park on neighboring St. John in the U.S. Virgin Islands also lent encouragement to BVI leaders who saw value in setting aside unique landscape features as protected areas. The principal land holdings forming the new national park on St. John were donated by a single individual, Laurance Rockefeller, who at the time was also occupied with innovative resort developments in both the U.S. and British Virgin Islands.

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It therefore came as no surprise when, in less than three years after establishment of the BVI National Parks Trust, Mr. Rockefeller acquired and donated to the Government three major parcels of land needing protection in the British Virgin Islands:

- Spring Bay and Devils Bay (55 and 20 acres, respectively) on Virgin Gorda and
- Sage Mountain (86 acres) on Tortola.

These were followed by three substantial parcels from the same donor in 1974:

- Virgin Gorda peak (260 acres),
- the island of Fallen Jerusalem (48 acres), and
- West Dog island (24 acres).

All eventually came under the aegis of the BVI National Parks Trust.

Other Trust sites followed either by donation, purchase or conversion from Crown Land by Government declaration. With the addition of Cam Bay on Great Camanoe Island in late 1999, the number of BVI national park holdings now stands at 19 (see Table 1 of this Management Plan). Over the years, the notion of a donation of the privately owned Sandy Cay to the Trust has frequently been discussed and, for an equally long period, assumed by BVI officials to be a likely and very desirable possibility.

The BVI National Parks Trust has reason to be proud of its impressive record of growth and public services in this small Caribbean territory. It has an excellent acquisition record, but its commendable success has come with a broad set of custodial responsibilities. Badly needed revisions to the basic National Parks Trust enabling legislation were drafted in 1987 but have not yet been approved and gazetted by the BVI Government. The implications of this and the broader legal/institutional framework affecting the Trust and its ability to manage well the various sites under its protective custody will be discussed below in this Annex and in Annex E.

## LEGISLATIVE FRAMEWORK

The British Virgin Islands National Parks Trust, a statutory body under the Ministry of Natural Resources and Labour, was created by enactment of the *National Parks Ordinance* (Chapter 29) in 1961, later amended by Chapter 243 in the 1991 Revised Edition of the Laws of the Virgin Islands. The enabling Ordinance charged the Trust with preserving the Territory's national parks and encouraging their use by visitors. While the Ordinance provides for the establishment of national parks by Proclamation of the Executive Council, it includes no guidelines for the selection or management of national parks or other protected areas. The Ordinance does authorize the Trust to make bylaws "for the preservation and control of Parks", but no bylaws have been completed to date.

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The Trust is further governed by the *Marine Parks and Protected Areas Ordinance* (Chapter 8), 1979 (as amended by Chapter 85, 1991 Revised Edition of the Laws of the Virgin Islands). This Ordinance provides for expansion of the national parks system to include marine parks and protected areas, under the management authority of the National Parks Trust.

The Trust regulates activities within designated marine areas through implementation of the regulations contained in the *Marine Parks and Protected Areas Regulations* (Statutory Instrument No. 21 of 1991). However, the Regulations do not cover all functions and powers included in the Ordinance. Specifically, while the Regulations address the issue of anchor control within a Marine Park and the collection of revenue through a permitting system, they do not address:

- Removal of artifacts, fauna and flora,
- Anchoring in Marine Protected Areas (as opposed to Marine Parks),
- Seizure or confiscation of illegally acquired materials within such areas, and
- Imposition of meaningful fines and penalties.<sup>14</sup>

In addition to addressing deficiencies in the Regulations, the Trust has proposed that a third management category be added to the Regulations, that of Marine Managed Area. The Trust believes this added designation would help to ameliorate some of the problems associated with the existing Regulations and could provide for zoning of compatible activities or exclusion of incompatible activities in the managed areas.

According to the Trust's most recent Systems Plan (*A Parks and Protected Areas Systems Plan for the British Virgin Islands*, 2000), the first National Parks in the BVI date to 1964, the most recent to 1999. Six parks and protected areas have been established under the *National Parks Ordinance*, two under the *Marine Parks and Protected Areas Ordinance* and 11 under both Ordinances. Only one Marine Park has been designated to date, the Wreck of the Rhone.

Ancillary legislation impacting the work of the Trust includes:

1. *The Protected Areas Order*, made April 26, 1990 under Section 4 of the *Fisheries Ordinance Order*, Statutory Instrument No. 14 of 1990.
2. *The Fisheries Ordinance*, Chapter 84, 1979, as amended by *The Fisheries Act*, No. 4, 1997.

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<sup>14</sup> See Joseph C. Smith Abbott, "Enforcement powers of the British Virgin Islands National Parks Trust under the Ordinances governing our activities and emergent related issues associated with deficiencies in relevant legislation." Paper presented at the Seminar of Enforcement Powers of Government Departments and Other Public Bodies, 26 April, 2000, British Virgin Islands.

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3. The *Wild Birds Protection Ordinance*, Chapter 96, 1991, Revised Edition of the Laws of the Virgin Islands, as well as the *Bird Sanctuaries Order* made under Section 12 of *The Wild Birds Protection Ordinance*, Chapter 96, 1991 Revised Edition.
4. The *Endangered Animals and Plants Ordinance*, Chapter 89, 1991 Revised Edition of the Laws of the Virgin Islands.
5. The *Receivers of the Wreck Ordinance*, Chapter 263, 1991 Revised Edition of the Laws of the Virgin Islands.

Since the mid-1980s, the BVI Government has intermittently engaged in a sequence of initiatives to modernize sections of its legal code dealing with natural resource management. Often such revision and upgrading activities were driven by the external programs of organizations like the Organization of American States, the UK Foreign Office, and the Organization of Eastern Caribbean States. Examples include the *Beach Protection Ordinance* (Chapter 233) of 1985, the *Marine Pollution Environmental Protection Order* (Chapter 48) of 1988, and the new *Fisheries Act*, No. 4 in 1997.

There have been two failed efforts, the first, to enact a Coastal Areas Management Act and, the second, to strengthen the National Parks Trust through a new Nature Conservation Act. The latter unfulfilled initiative had its beginnings in 1986 when Barbara Lausche, then directing the legal technical assistance program of the World Wildlife Fund in the United States, was contracted to make four visits to the British Virgin Islands at the request of Government. The visit was facilitated through the Organization of Eastern Caribbean States/Natural Resources Management Project (OECS/NRMP) in St. Lucia, with funding from the German GTZ. The purpose of the project was to undertake an inventory and analysis of the legal and institutional framework for natural resources management in the Territory, and to identify issues, gaps, measures and a timeframe for strengthening, as appropriate.

Pursuant to a follow-up request from Government, Lausche was asked to focus specifically on protected areas and wildlife conservation, and to prepare a draft act on Nature Conservation for the Virgin Islands, which she submitted in August 1987. That draft was prepared in close consultation with another project consultant, Dr. Gillian Cambers, who developed the framework for a draft coastal conservation act.

According to inquiries made by Lausche during a return visit to the BVI in March of 2001, there has been no follow up on either draft conservation act, although it is unclear why. What is encouraging, however, is that quite recently new initiatives have been undertaken to revise and update these earlier attempts to strengthen the Territory's conservation legislation and to bring them—this time—to full enactment. This has been a two-pronged effort.

First, since the late 1990s and with encouragement from the British Foreign and Commonwealth Office, the BVI Government has revisited its earlier intention to strengthen

## SANDY CAY MANAGEMENT PLAN

the legal framework for more integrated and effective management of the environmental aspects of development. This is a difficult task, if only because environmental affairs and oversight functions are spread across Government. A preliminary document entitled *Conceptual Framework for Incorporation of Environmental Issues into the Integrated Development Plan of the British Virgin Islands* provides a beginning agenda.

Additionally, in 2000, the UK's Foreign and Commonwealth Office was asked by the BVI Government to assign (*i.e.*, provide funds for) a legal draughtsperson to look at biodiversity issues in the Territory. This request was largely related to the international Convention on Biological Diversity, under which the British Virgin Islands has obligations by virtue of its status as a British Overseas Territory.

At about the same time, the National Parks Trust, at the behest of its director Joseph Smith Abbott, began to explore opportunities to take advantage of the Government's recent interest in updating conservation legislation. The Trust therefore made inquiries to the Foreign and Commonwealth Office for legal assistance, and also to the Island Resources Foundation, which fortuitously was also looking at protected area legal issues, albeit with a specific focus on Sandy Cay. The larger goal of this initiative is not only to update but also to strengthen the Territory's legislative framework for protected area conservation, with particular focus on the National Parks Trust's enabling Act and substantive protected areas legislation. This is a work in progress.

### **INSTITUTIONAL FRAMEWORK**

The National Parks Trust continues to be the main entity charged with responsibility for national parks and protected areas in the BVI. It has legal custody of all declared National Parks and exercises management authority over legally designated areas.

The Trust receives an annual subvention from Government to carry out its mandated responsibilities (the most recent figure available shows the subvention at a little more than \$400,000). Additional funding is secured from mooring fees, contributions, and externally funded conservation projects. The Trust's Board is comprised of a chairperson, a vice-chairperson, and other members (number varies) chosen by Government, and two ex-officio members, who are the Chief Planner and the Chief Agricultural Officer. Several sub-committees of the Board have been established, including committees for:

- Finance
- Budget
- Botanic Society
- Copper Mine (see *Systems Plan*, 2000).

## SANDY CAY MANAGEMENT PLAN

The Trust's mandate and functions are closely linked to the Government's Conservation and Fisheries Department (CFD), a Government department within the Ministry of Natural Resources and Labour. The two are often viewed as sister agencies for conservation in the Territory. At the moment, however, the Department has a stronger legal base from which to work, given the enactment of an updated and comprehensive *Fisheries Act* in 1997, with regulations now being finalized.

The institutional difference between the two entities—the Trust being a statutory body governed by a Minister-appointed Board and the Conservation Department being a governmental entity answerable to the same Minister—has not affected the good working relations that seem to exist between the two units, especially the heads. They practice ongoing formal and informal coordination and collaboration both at the policy/planning level and with specific site monitoring. For example, the directors of both units participated actively in the development of the environmental components of the new National Integrated Development Strategy and are part of a public/private sector environment subcommittee set up to look at national environmental issues. Whenever either unit is doing environmental monitoring, the staffs share information, with Conservation officers normally taking the lead in enforcement because Trust officers do not have clear arrest powers. (B. Lausche, *pers. comm.*.)

There is one significant difference between the Trust and the Conservation and Fisheries Department in that the latter has not only a conservation mandate but also a strong resource development goal in the area of fisheries—and the lobby of fishing stakeholders in the Territory is a strong one. The Trust on the other hand has no such “developmental” goal or “client”. It is perhaps not without significance that an updated Fisheries Act has been implemented but the proposed natural area conservation act has languished in draft form for more than a decade. In addition, the Conservation Department's staff is twice the size of the Parks Trust staff, in part because of its broader mandate.

The Trust relies, almost inevitably given its lack of enforcement powers, on three Government units for assistance in enforcing Marine Regulations: the Conservation and Fisheries Department, the Marine Police Unit and, to a lesser extent, the Custom's Department. It further relies on the Customs Department to assist in the collection of revenues from the issuance of Marine Conservation Permits for the use of moorings. The Trust also works with the Town and Country Planning Department when it is appropriate to take advantage of that department's long-term physical planning perspectives and expertise.

It is evident to most informed observers that the National Parks Trust needs a strengthened legal and policy framework within which to operate. This is even more true today than it was in 1987 when such strengthening was first attempted, for the BVI Territory today—at the turn of the twenty-first century—is confronting unprecedented development pressures, infrastructure growth and tourism expansion. Most of the observations and recommendations in the legislative overview reports prepared by Barbara Lausche

## SANDY CAY MANAGEMENT PLAN

in 1986-87<sup>15</sup> still apply today, *i.e.*, the need to strengthen substantive provisions of the enabling legislation, develop bylaws for the Trust's governing board, and enact regulations. In addition, there is a need for legislative updating to comply with international obligations incurred in the last decade through international conventions extended to the BVI, and to incorporate international conservation principles as appropriate, *e.g.*, on biodiversity conservation (B. Lausche, *pers. comm.*).

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<sup>15</sup> See Barbara Lausche's two reports prepared for the BVI Government and the Organization of Eastern Caribbean States-Natural Resources Management Project in Castries, St. Lucia. The first report was issued in 1986 under title of *British Virgin Islands inventory of national legislation for natural resources management and environmental protection: country legal report no. 1* (48 pp.). The second was issued the next year in 1987 as *BVI: Plan for updating legislation* (20 pp.).

## ANNEX C

### A PHOTOGRAPHIC OVERVIEW OF SANDY CAY



Plate 1. Work crew planting young palm trees in the vicinity of the trail along the southwest side of Sandy Cay (July 1977).



Plate 2. Turks cap (*Melocactus intortus*) is plentiful along the exposed dry conditions of the northeast rock ridge (June 1976).



Plate 3. View from the rock ridge trail looking toward the southwest. Large prickly pear cacti (*Opuntia dillenii*) are common. Guinea grass (*Panicum maximum*) in the foreground (June 1976).



Plate 4.  
Dildo cactus (*Philosocereus royenii*) surrounded by guinea grass, along the rock ridge trail (June 1976).



Plate 5. The trail cuts through a large patch of guinea grass along the northeast rock ridge. Tall prickly pear cacti are common (May 1977).



Plate 6. Typical pocket beach, consisting of volcanic rocks and coral fragments along the northeast "cliffed" coast (June 1976).



Plate 7. Northern coastline composed of coral fragments and volcanic rocks. Windswept coastal hedges line the beach. A view of the northeast rock ridge is in the background (date unknown).



Plate 8. Southeast coastline looking west. Beach consisting of coral rubble and dark volcanic rocks. Top of storm berm is covered with sea purslane (*Sesuvium portulacastrum*) (1996).



Plate 9. A view of the southwest side of Sandy Cay showing extensive damage to palm trees following hurricane Marilyn (October 1995).



Plate 10. Broken and damaged tree tops due to hurricane Marilyn damage (October 1995).



Plate 11.  
West side of the island.  
Trail crosses dense undercover of  
spider lilies (*Hymenocallis  
caribaea*) (May 1993).

Plate 12.  
Spider lilies  
encroaching the trail  
in many areas  
(1996).





Plate 13. Erosion along the western and northwestern coastline, probably due to a recent event of high-energy waves or possibly winter swell activity (1996).



Plate 14. Exposed roots along beach bluff, evidence of ongoing seasonal erosion (November 1997).

## **ANNEX D**

### **MISCELLANEOUS DOCUMENTS**

1. Letter from Alan Robinson, [US] National Park Service Research Biologist to Roy Thomas, dated October 10, 1970.
2. "Check-list of Items Needed for Six Man Work Crew" plus "Procedures to Visit Sandy Cay" (prepared by Roy Thomas, October 27, 1977).
3. Sandy Cay "General Information" Statement, prepared by Roy Thomas in August 1997 (revised).
4. Table 4. Sandy Cay Bird Counts by Species and Date of Observation.  
[Updated and revised from Island Resources Foundation's report entitled *The Sandy Cay (BVI) Ecosystem: A Resource Characterization*, where it first appeared on page 62 as Table 5.]



UNITED STATES  
DEPARTMENT OF THE INTERIOR  
NATIONAL PARK SERVICE

VI National Park  
Cruz Bay  
St John 00830

IN REPLY REFER TO:

October 10, 1970

Mr Roy Thomas  
Chief Horticulturalist  
c/o Caneel Bay Plantation  
St John 00830

Dear Roy:

I must apologize for not having written down for you my impressions of the situation at Sandy Cay, which we so pleasantly visited on August 29th.

The work which you and your predecessors have already done on Sandy Cay is impressive, and it seems very carefully and sensitively done. At least on a day such as we had, without sandflies, a few hours on the island provide an accurate and rewarding glimpse of undisturbed island ecology.

Several items come to my mind now, many of which you may already be taking into account:

- 1) I agree with your suggestion that a permanent resident caretaker is not appropriate; too much space would necessarily be lost to living space, and the corollary problems of waste disposal, power production, recreation, boat anchorage seem to outweigh the occasional benefits of discouraging turtle egg thefts or other destructive uses. I see no practical way then of making the cay 'private' and forbidding access, although *accessible* I do think that you ought to consider how much more ~~attractive~~ the island would be if plans are continued to put in a dock, making it relatively simple to get ashore.
- 2) As you pointed out, the sand flies are also an effective caretaker and I very strongly hope you can continue the policy of not attempting to control them; to effectively control them might well require the alteration or destruction of the salt pond/marsh habitat and perhaps massive, frequent insecticide applications, with consequent unpredictable effects on the rest of the ecosystem.
- 3) Perhaps you are considering posting some informative signs on the beach and along the trail, explaining such things as the ownership of the island, its uniqueness as an undisturbed cay, and some of the biological aspects. This (if not considered too formal for the intended desire to keep the cay undisturbed) might serve the dual purpose of passing on factual information as well as establishing an atmosphere which would discourage destructive or careless usage.

- 4) I am not very competent to judge the consequences of the limited spraying program you are presently undertaking. I do not see however that local specific uses of non-residual degradable insecticides in the areas you pointed out will have serious side effects. It does seem important however to positively identify the wood borer (?) and to attempt to trace its introduction, and to learn something of its ecology from sources in the literature, I agree it makes little sense to sit by and watch the entire flora of a tiny cay altered in for a long time span in the belief that this may be a natural invasion. Neither, however, would I think it desirable to have to continue even localized spraying indefinitely.
- 5) If any planting is to be done on the island, I should think there would be a priority on re-establishing a balanced holding flora on the southeast beach berm. Do I recall that mancheneel has been selectively removed in the past? Perhaps Sea Grape could be encouraged in its place; perhaps (as luck would have it) the previous trees in that area served as adequate houses for the wood boreas and kept them out of the other vegetation!
- 6) Establishing a pleasant tropical appearance with coconut palm plantings does not seem to me to be a compelling reason for the introduction of a species, which, although now native in the area, apparently did not occur on Sandy Cay. This is probably a purist viewpoint, and not meant critically. One might wonder however what the long term (say 100 year) effects of the coconut plantings; might the other vegetation balance be altered and a 'plantation' effect be produced if the coconuts are left uncontrolled? Are previously missing insect pests (e.g. the present problem species) being introduced during the planting?
- 7) I had the opportunity of discussing my visit to Sandy Cay and your progress there with Mr Richard Philibosian, Department of Zoology, University of California at Riverside, who is the herpetologist interested in releasing specimens of the endangered endemic Anegada iguana on Sandy Cay. Fertile eggs have been laid by the captive pair here at Lameshur Bay, and I understand the project can be continued as soon as funds are found to finance the actual capture of individuals from Anegada and their transfer to Sandy Cay. Mr Philibosian was pleased to hear of your commitment to retaining the island undisturbed; I believe he has received previous assurances from Mr Rockefeller through the Caribbean Research Institute that this policy is a long term one. Mr Philibosian will be making another visit to St John this December, and I hope that you can meet with him then.

Please let me know if I can be of assistance in your future planning. Conservation of undisturbed habitat of this type is obviously in the best interests of Virgin Islands National Park, and I trust we can provide at least moral support.

*Alan Robinson*

Alan H. Robinson  
NPS Research Biologist

SANDY CAY

Check-list of Items Needed for Six Man Work Crew

1. General (All Trips)

Boat plus dingy  
Documents - passports, green cards, letter of employ-  
ment guarantee  
Refreshments - lunches, ice water  
Miscellaneous - trash bags, towels, First Aid Kit

2. Watering (2 men all day)

Water  
4 x 50 Ft. Length Hose  
2, Keys to fit turf valves  
1 Pump  
1 Gal Gas  
2 Wrenches (2")  
1 Screwdriver (Large)  
1 Pipe Repair Kit plus/Cement Cleaner and Rag

3. Planting (4 man crew half day)

Palms (Ten plants from containers)  
Fertilizer  
Peat  
2 Shovels (Pointed)  
2 Picks

4. Pruning (Work for five men all day)

1 Power Saw - Gas/Oil  
2 Handsaw  
Tree Paint  
4 Machettes

5. Spraying (Scale-Termites) (1 man all day)

Insecticide - Malathion, Chloradane, White Oil/Sticker  
3 Gal Sprayer

6. Fertilizing (Job for four men in two teams all day)

2 Boxes plant tabs or 12 bags palm fertilizer.  
2 Picks  
2 Buckets

## PROCEDURES TO VISIT SANDY CAY

Start making the following arrangements to visit the island about one week in advance of departure day.

### 1. Arrange for a Work Boat

- a. Check with the C.M. to see if a Caneel Boat is available.
- b. Failing a Caneel boat hire a boat e.g. Capt. Hulky.

NOTE: Work force should be kept to a total of six men to have the use of a small, but fast boat.

### 2. Supplies

See that all supplies are on hand necessary for the jobs to be undertaken.

### 3. Personnel

Two days prior to the scheduled departure, select the employees who will be working on the island. Non U.S. citizens need to follow this procedure:

1. Visit the Personnel Office, collect passport and a letter certifying their continuing employment at C.S.P.
2. The individual should visit the Immigration Office in Cruz Bay and present these documents to the duty officer for his/her inspection. (At this stage, you would know the boat you will be using.)

### 4. Final Arrangements

The day prior to the trip:

- a. If using a Caneel boat, give the list of names to the activities desk of the people in the work party. The list should also include the individual's nationality, Green card or passport number. This will enable the boat to preclear customs/immigration in Cruz Bay prior to arriving at Caneel.

b. Order lunches and drinks from the kitchen (see Cheff).

c. Put out tools and supplies needed for the work.

#### Departure Day

Time your departure so as not to be using the dock at the same time as the guest boats. Personally, check to see the items required for work are put on the boat. The selection of tools will obviously depend upon the jobs you are planning to do - but the attached check list will indicate your needs. The quantity will depend upon the number of people in the work party.

NOTES: Sandy Cay is not maintained at the expense of C.B.P. All costs including labor, materials, lunches, boat hire etc., should be itemized in a bill and submitted to the Comptroller at Caneel, with copies to our office in N.Y. and to Mr. McFarlane in St. Croix.

## SANDY CAY

### General Information - Revised August, 1997

Sandy Cay is a 14.73 acre island between the north shore of Tortola and the southeastern end of Jose Van Dyke in the British Virgin Islands. The cay is owned by Laurance S. Rockefeller.

Sandy Cay remains essentially undeveloped. A study by T.A.M.S. in 1960 showed a dock of conventional construction would not withstand the seasonal ground seas and storms. A specially engineered and constructed dock on the west end would cost \$60,000 and have very limited use due to the cross currents and surges of the sea around the cay.

The cay is composed of an extremely fine beach, which is its most attractive feature, a seasonal pond and grassy area, and a ridge of igneous, conglomerate rock. The beach is on the southwest corner, and because of the vast deposits of sand the beach will migrate around to the southern shore and back to the west according to the strength and direction of the ground seas.

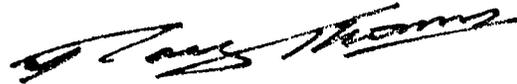
A walking trail has been built behind the beach berm, around the seasonal pond and up onto the ridge. This is maintained through the activities of a caretaker who is contracted for this work.

Originally five Coconut palms grew on Sandy Cay. A program to plant palm seedlings started in 1960 and was carried on through late 1970. Of 184 coconuts established by 1988, only 104 have survived the hurricanes of 1989 and 1995. To assist in planting new coconuts a 6000 gallon pillow tank and irrigation system was installed in 1970. Water was delivered to the tank via barge and pumped back into the irrigation system by a portable gasoline pump. This was removed after use and stored at Caneel Bay. Water was taken from the charged irrigation pipes via one of seven turf valves set out along its length, and then delivered to the palms via hose pipes.

The pillow tank and irrigation system are still in place, although the tank has perished and the metal fittings rusted. The system has not been used since about 1986.

Sandy Cay (continued)

Mr. Rockefeller has been keenly involved in the care and maintenance of Sandy Cay and always visited there during his stays at Caneel. The cay is still maintained; Junior Coakley of Little Harbour, Jose Van Dyke, phone (284) 495-9460 is the current caretaker. A supervised work crew is recruited twice yearly from Little Dix Bay to prune and fertilize the coconut palms, control the termite population, and cut out dead wood from along the trails. Clean-up crews were also sent out after Hurricane Hugo in 1989 and Hurricanes Louis and Marilyn in 1995. They removed the fallen trees and beheaded palms. The original custodian was the late Mr. Euin MacFarlane until 1969 when I succeeded to the position. A listing of plants and bird life for the cay is on record. A complete file of all correspondence and reports is in my office.



Roy G. Thomas, Custodian  
Phone: (802) 457-3990

August 22, 1997

**Table 4. Sandy Cay bird counts, by species and date of observation (updated from *The Sandy Cay Ecosystem* report).**

	Jan. 30, 1970	Feb. 6, 1970	Apr. 17, 1970	Aug. 1970	Aug. 29, 1970	Dec. 1970	Apr. 9, 1971	Apr. 25, 1971	May 28, 1971	Aug. 9, 1971	Oct. 5, 1971
Antillean-crested Hummingbird ( <i>Orthorhynchus cristatus</i> )											
Bananaquit ( <i>Coereba flaveola</i> )	✓	✓	✓	2		✓	9*	✓	Several*	✓	✓
Belted Kingfisher ( <i>Ceryle alcyon</i> )	✓										
Black-bellied Plover ( <i>Squaterola squaterola</i> )							1				
Black-faced Grassquit ( <i>Tiaris bicolor</i> )										✓	
Bridled Tern ( <i>Sterna anaethetus</i> )											
Brown Booby ( <i>Sula leucogaster</i> )	✓	2	✓	✓	Numerous	✓	2	✓	Several	✓	✓
Brown Pelican ( <i>Pelecanus occidentalis</i> )	✓	✓	✓	✓	Numerous	✓	1	✓	Numerous	✓	✓
Caribbean Elaenia ( <i>Elaenia martinica</i> )										✓	
Common Tern ( <i>Sterna hirundo</i> )									✓	✓	
Frigatebird ( <i>Fregata magnificens</i> )	✓	✓	✓	✓		✓	1	✓	✓	✓	
Gray Kingbird ( <i>Tyrannus dominicensis</i> )	✓	✓	✓			3	10	✓	5	✓	
Great Egret ( <i>Ardea alba</i> )			3								
Greater Shearwater ( <i>Puffinus gravis</i> )											
Green-throated Carib ( <i>Sericotes holosericeus</i> )		3	✓	3		2	12	✓		✓	✓
Ground Dove ( <i>Columbina passerina</i> )	✓	4	✓	2		3	✓	✓	7	✓	✓
Gull-billed Tern ( <i>Sterna nilotica</i> )		✓		✓	100+						
Laughing Gull ( <i>Larus atricilla</i> )		✓	✓	✓	100+			✓	Numerous	✓*	
Least Tern ( <i>Sterna antillarum</i> )		3									
Little Blue Heron ( <i>Egretta caerulea</i> )											
Mangrove Cuckoo ( <i>Coccyzus minor</i> )						✓	3	✓			
Masked Booby ( <i>Sula dactylatra</i> )											
Noddy Tern ( <i>Anous stolidus</i> )		✓		✓	Numerous			✓	✓	✓	✓
Northern Waterthrush ( <i>seirus noveboracensis</i> )											
Pearly-eyed Thrasher ( <i>Margarops fuscatus</i> )	✓	✓	✓								
Pigeon Hawk ( <i>Falco columbarius</i> )			1	✓		1				✓	
Red-billed Tropicbird ( <i>Phaethon aethereus</i> )						✓	4		1		
Roseate Tern ( <i>Sterna dougalli</i> )		✓	✓					✓	✓		
Royal Tern ( <i>sterna maxima</i> )	✓	✓	✓	✓		2	17	✓	✓		✓
Sandwich Tern ( <i>Sterna sandwicensis</i> )									✓	✓	
Scaly-naped Pigeon ( <i>Columba squamosa</i> )**		7	✓	✓		✓	4	✓	Numerous*	✓	✓
Sooty Tern ( <i>Sterna fuscata</i> )		✓		✓							
Sparrow Hawk ( <i>Falco sparverius</i> )			✓	1							
White-cheeked Pintail ( <i>Anas bahamensis</i> )		3							6*		
White-crowned Pigeon ( <i>Columba leucocephala</i> )											
White-tailed Tropicbird ( <i>Phaethon-aethereus</i> )											
Yellow Warbler ( <i>Dendroica petechia</i> )	✓	✓	✓	✓		6	8	✓	Numerous	✓	✓
Zenaida Dove ( <i>Zenaida aurita</i> )	✓	✓	✓	✓		3	5*	✓	9	✓	✓

\* nesting reported

\*\* First referred to as Red-necked Pigeon by James Bond

Observer in 1970: Roy Thomas  
Observer 4/9/71: Herbert Raffaele

Observer 4/25/71: Roy Thomas  
Observer 5/28/71: P. Alan Ketley

Observer 8/9/71: P. Alan Ketley  
Observer 10/5/71: P. Alan Ketley

**Table 4 (continued). Sandy Cay bird counts, by species and date of observation (updated from *The Sandy Cay Ecosystem* report).**

	Jan 24, 1972	Jun 22, 1972	Aug. 6, 1974	June 1983	Aug 20, 1987	June 1996	May 24, 2000	May 25, 2000	May 26, 2000	May 31, 2000	Mar. 24, 2001
Antillean-crested Hummingbird ( <i>Orthorhynchus cristatus</i> )			✓	✓							1
Bananaquit ( <i>Coereba flaveola</i> )	4	✓	✓		✓*	1	Numerous	1	3*	13*	5
Belted Kingfisher ( <i>Ceryle alcyon</i> )						✓					2
Black-bellied Plover ( <i>Squaterola squaterola</i> )											
Bridled Tern ( <i>Sterna anaethetus</i> )										6	
Brown Booby ( <i>Sula leucogaster</i> )											11
Brown Booby ( <i>Sula leucogaster</i> )	2	✓	✓		✓	4					14
Brown Pelican ( <i>Pelecanus occidentalis</i> )	4	✓	✓	✓	✓	3	2	1	2	2	
Caribbean Elaenia ( <i>Elaenia martinica</i> )	1										
Common Tern ( <i>Sterna hirundo</i> )		✓			✓	✓					
Frigatebird ( <i>Fregata magnificens</i> )		✓	✓		✓	2				1	1
Gray Kingbird ( <i>Tyrannus dominicensis</i> )		✓	✓			4		1	3	3	
Great Egret ( <i>Ardea alba</i> )											
Greater Shearwater ( <i>Puffinus gravis</i> )					✓						
Green-throated Carib ( <i>Sericotetes holosericeus</i> )						✓			1		
Ground Dove ( <i>Columbina passerina</i> )	1	✓	✓	✓		2					
Gull-billed Tern ( <i>Sterna nilotica</i> )			✓								
Laughing Gull ( <i>Larus atricilla</i> )		Common*	✓	✓	✓	✓	125+*	15+*	1*	15*	
Least Tern ( <i>Sterna antillarum</i> )			✓			✓	4		1		
Little Blue Heron ( <i>Egretta caerulea</i> )		✓									
Mangrove Cuckoo ( <i>Coccyzus minor</i> )						✓					
Masked Booby ( <i>Sula dactylatra</i> )						1					
Noddy Tern ( <i>Anous stolidus</i> )			✓		✓	✓					
Northern Waterthrush ( <i>seirus noveboracensis</i> )	3										
Pearly-eyed Thrasher ( <i>Margarops fuscatus</i> )					✓						
Pigeon Hawk ( <i>Falco columbarius</i> )											
Red-billed Tropicbird ( <i>Phaethon aethereus</i> )					✓	4	1		1?	2*	
Roseate Tern ( <i>Sterna dougalli</i> )			✓	✓		✓			1	42	
Royal Tern ( <i>sterna maxima</i> )	2	✓	✓	✓	✓	✓					8
Sandwich Tern ( <i>Sterna sandvicensis</i> )			✓			✓				40	
Scaly-naped Pigeon ( <i>Columba squamosa</i> )**	Common	✓	✓		✓	3	4	2	15	16	9
Sooty Tern ( <i>Sterna fuscata</i> )			✓				4				
Sparrow Hawk ( <i>Falco sparverius</i> )											
White-cheeked Pintail ( <i>Anas bahamensis</i> )	1*		✓							4	
White-crowned Pigeon ( <i>Columba leucocephala</i> )				✓*							
White-tailed Tropicbird ( <i>Phaethon-aethereus</i> )											1
Yellow Warbler ( <i>Dendroica petechia</i> )	Common	✓	✓		✓	6	1	3	50+	17	18
Zenaida Dove ( <i>Zenaida aurita</i> )		✓	✓	✓	✓	✓	3		4	11	2

OBSERVERS: 1972: P. Alan Ketley  
 8/6/74: Roy Thomas  
 June 1983: Robert Tordrud

8/20/87: Kevin Campbell  
 June 1996: Roy Thomas  
 5/24-25/00: JP Bacle, W. Dressler

5/26/00: Rowan Roy, JP Bacle, W. Dressler  
 5/31/00: Judy Pierce, Clive Petrovic  
 3/24/01: Roy Thomas

## **ANNEX E**

### **SPECIAL CONCERNS**

#### **AGENDA FOR FACILITATING AND MANAGING THE TRANSITION**

Having recently concluded a preliminary ecosystem characterization study of Sandy Cay, followed by a careful analysis of the management history of this privately run small island, Island Resources Foundation also undertook a serious sidelong look at BVI Government institutions and practices linked to natural resource development, management and conservation. We looked critically at operational scope, efficiency, focus and staffing, as well as planning, training, and fiduciary performance levels. Within this context, we not only completed the antecedent draft Management Plan (May 2001) but also reached the conclusions that follow, which in turn had played a role in shaping the Plan itself and its proposed schedule for implementation, including a potential role for BVI government institutions.

#### **PRIMARY CONCERNS and RESPONSIBILITY for CHANGE**

- Weakness of existing legislative framework protecting natural resources

RESPONSIBILITY OF: NATIONAL PARKS TRUST  
ATTORNEY GENERAL'S OFFICE  
MINISTRY OF NATURAL RESOURCES AND LABOUR  
ASSISTED BY LEGAL CONSULTANT, ISLAND RESOURCES  
FOUNDATION

- Work overload and understaffing of the National Parks Trust

RESPONSIBILITY OF: NATIONAL PARKS TRUST  
MINISTRY OF NATURAL RESOURCES AND LABOUR  
TRUST GOVERNING BOARD

- Lack of By Laws for the National Trust Board's operational guidance

RESPONSIBILITY OF: NATIONAL PARKS TRUST  
ASSISTED BY LEGAL CONSULTANT, ISLAND RESOURCES  
FOUNDATION

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- Need to enhance confidence in the fiduciary performance of the National Parks Trust (*specifically through the update and completion of annual audited Financial Statements*)

RESPONSIBILITY OF: NATIONAL PARKS TRUST  
GOVERNMENT AUDIT OFFICE  
INDEPENDENT AUDIT FIRM

- Need for drafting "site management plans" and a corresponding peer review process for all BVI protected areas

RESPONSIBILITY OF: NATIONAL PARKS TRUST  
PARTNER INSTITUTIONS IDENTIFIED BY THE TRUST

- Need for Sandy Cay ecosystem monitoring and research program

RESPONSIBILITY OF: H. LAVITY STOUTT COMMUNITY COLLEGE SCIENCE FACULTY  
ASSISTED BY —  
NATIONAL PARKS TRUST  
ISLAND RESOURCES FOUNDATION

- Need to establish working link between Sandy Cay and the Conservation and Fisheries Department

RESPONSIBILITY OF: ISLAND RESOURCES FOUNDATION  
MINISTRY OF NATURAL RESOURCES AND LABOUR

### PROPOSED SOLUTIONS

#### **1. Transition period of 36 months, allowing time to address the above-identified concerns.**

Island Resources Foundation will utilize key personnel from its experienced Sandy Cay team in a 36- month facilitating role on behalf of Sandy Cay.

*The objective is to improve the technical, institutional and intellectual operating context of Sandy Cay and its unique ecosystem, with a view to enhancing the security of its future as a protected area and as a potential educational site serving both the tourism industry (as it has done in the past) and the Community College 's emergent ecological research program over time.*

Island Resources Foundation will assume responsibility for organizing this collaborative local initiative and will establish a management framework that marshals technical assistance as needed and monitors progress along the way.

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Furthermore, it is proposed that over the same 36-month timeframe an adjunct program be carried forward that builds a constituency for Sandy Cay by expanding its mission and community service role. Linked to the Community College's science programs, we will build upon Priority Management Objectives 3, 4, and 5 of this Management Plan (as introduced on page 17 and expanded upon in detail in Section III).

As discussed above (pp. 35-38), it is proposed to use Sandy Cay as a focusing device and instructional tool in launching a small-island *Ecosystem Learning Centre* under the aegis of the emerging Applied Marine Science Centre at the Community College. The latter is a promising new program that is designed to serve not only the British Virgin Islands but the entire archipelago of smaller islands in the Eastern Caribbean.

The proposed three-year interim or transitional period prior to making any change in custody of Sandy Cay will permit a more realistic review of the feasibility for developing a significant educational role for Sandy Cay's ecosystem as a unique private/public park partnership. It will also provide a time for testing a collaborative research and monitoring strategy with scientists from the Community College as an independent quality control/quality assurance mechanism for work on the island.

Lessons learned by virtue of carrying forward experimental ecosystem management practices can be transmitted efficiently to other resource managers in the insular Caribbean by use of Island Resources Foundation's web site and more than 25 Caribbean-focused electronic mail lists on which Sandy Cay's new *Ecosystem Learning Centre* and living laboratory can be featured. Thus, we will re-cast the old saying about a "watched pot never boiling" to read "a "watched cay never spoiling"!

### **2. Addressing the weakness of existing legislative framework.**

Background on the legislative foundation for the BVI National Parks Trust is reviewed in Annex B (see pages 81 to 86, where ancillary legislative code issues bearing on wildlife, marine systems, fisheries, and endangered species are also discussed). As noted in that annex, there are serious defects and omissions in the enabling act that established the National Parks Trust in 1961. Therefore, following a review of natural resource legislation in the Territory in the 1980s, a new draft act or "framework law" was prepared for the BVI Government in 1987 by a legal consultant. It covered the following elements:

1. Coverage of natural and historic sites, marine and terrestrial.
2. Authority to declare different types of "conservation areas".
3. Administration by the Minister of Natural Resources with power to delegate.
4. Requirement for management plans for designated protected sites (with regulations).

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5. Authority to declare any wildlife protected (absorbing older legislation to protect avian wildlife).
6. Full enforcement powers, including search, seizure, arrest.
7. Legal proceedings including power of forfeiture and confiscation.
8. Power to make regulations.

This 1987 draft act was vetted by the Attorney General's office but never enacted by the Legislative Council. Interest in its revival is growing, and preliminary analysis suggests that the 1987 draft is essentially sound, needing primarily an updating to incorporate more recent international conventions such as RAMSAR, SPAW, CITES, and Biological Diversity. It will also require revision to properly mesh its provisions with the new BVI Fisheries Act and one or two lesser acts in order to be ready for resubmission to Government for consideration. Additionally, a constituency in support of the new legislation will need to be carefully cultivated, including community educational initiatives to influence public understanding and endorsement.

In March of 2001, following a request from the director of the National Parks Trust, the Sandy Cay Project sponsored a return visit to the Territory of Barbara Lausche, the legal consultant who had drafted the earlier proposed legislative revisions. Following that visit, and building on Dr. Lausche's post-visit recommendations, during the summer of 2001 an intern from the Vermont Law School was supported jointly by Island Resources Foundation and the National Parks Trust. Her work assignment was to continue work on defining the first phases of a strategy for updating BVI environmental legislation.

The BVI Government has tentatively committed funding to proceed with the task of revising and upgrading the basic 1987 text. Current estimates indicate that the first of three rounds of draft re-write/local review activities can be completed before the end of 2001. It is further conservatively estimated that enactment of the required legislation could take place by the end of 2002, or 15 months from the date of this report. While limited funding for preliminary legal drafting work has been identified, this will need to be supplemented in order to complete the task.

**BENCHMARKS:**                      **Revised and updated protected areas legislation prepared and presented to Government by the end of 2002.**

Develop synthesis based on current laws, international conventions and policy discussions regarding future approaches.

Further analysis of revised draft document in consultation with stakeholders.

New Act submitted to Government for approval.

**Approval of new Fee Schedule for NPT services and sites.**

**Identify other needed legislative initiatives, if any, during the revising and updating process.**

**3. Addressing the work overload and understaffing of the National Parks Trust.**

To outside observers, the National Parks Trust (and even its parent Ministry) may give the impression of being less efficient than might be assumed would be the case for a three-decade-old institution. Such critics may assume that given the smallness of the BVI, the operations of its resource management agencies should also reflect the simplicity of smallness, that without the large-scale problems arising from urbanized, continental complexity, island systems should be paragons of efficiency and cutting-edge public policy. Why, it is asked, since the BVI has no large polluting industry to offer opposition, is it so difficult to get those things done in the environmental sector that would enable Government to manage natural resources effectively and in a timely manner. In this analysis, the Parks Trust is no exception.

These, however, are faulty assumptions that fly in the face of the insular condition and of a small civil society in modern times with burgeoning, externally driven demands. While they may be isolated geographically, small offshore islands like the BVI are far more "open systems" than generally realized. They tend to be susceptible to a host of externalities that, unknowingly, overwhelm, distract and sometimes lead astray even the most dedicated and talented of island leadership. At the same time, domestic limitations lie in wait in every direction.

For example, in the case of the British Virgin Islands, with a population base just under 20,000 residents, workable solutions must be identified for an array of issues and problems, just a few of which follow to illustrate the point:

- The need to prepare for the risks associated with and the actual event of periodic hurricanes, storm flooding, intermittent droughts, and other natural hazards.
- The need to confront a tourism-focused employment base often funded by outside investors with externally derived standards, management staff, and short-term commitments to the Territory.
- The need to fund and staff an international airport with proper security, cargo handling, air traffic controllers, rescue forces, and infrastructure.
- The need to maintain a full-service health system and hospitals, clinics and medical facilities on three different islands.

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- The need to fund and staff a full customs and immigration service, a land-based and marine-based police service, and a marine search-and-rescue operation to serve this multi-island, spread-out Territory.
- The need to participate in Caribbean regional affairs as if it was an independent state.
- The need to be responsive to a wide spectrum of international agendas, standards, programs and initiatives dealing with fisheries and marine resources, the environment, and sustainable development.

Within this context, it is not without significance, and is indeed quite illustrative, that the Minister of Natural Resources is also, simultaneously, the Minister of Labour. Or that the National Parks Trust in this small British Territory is managing a parks system consisting of 19 separate sites, comprising both marine and terrestrial components spread among eight different islands—and is doing so with a staff of only 20 people and one boat!

For a public agency such as the National Parks Trust, and similarly for its sister institution, the Conservation and Fisheries Department, it is a genuine struggle to recruit, and then retain, technically skilled personnel. When compared to other islands in the Lesser Antilles archipelago, the BVI does rather better than most, having the slight advantage of a strong financial services sector to add to Government revenues. Yet the issue of recruiting, training and retaining adequately educated and experienced personnel is an issue that continues to challenge the National Parks Trust. It is a particularly daunting challenge because of the difficulty of finding in such a small community persons with the kind of specialized “park management” training that a larger society would more readily have access to.

The Trust’s board perhaps needs to stand a little closer to operational circumstances and, after observing conditions, needs to take signals from the director and affirmatively address staffing issues that could, in time, place existing or contemplated sites in the park system at real risk.

To this end, the Trust should consider undertaking an inventory of personnel needs for *specialist skills* and then, in consultation with the Minister, work with the Conservation and Fisheries Department and/or the Community College to explore joint recruiting and appointment policies and practices. Based on the observations of the Sandy Cay study team during the last 18 months, a compelling case could be made for assigning the following categories of personnel to ongoing Trust operations (whether as permanent staff, joint appointments, consultants, volunteers): park resource planners, zoologist (invertebrate specialist), forester, marine ecologist, avian biologist, herpetologist and geographer/cartographer with GIS competency. The early addition of a professionally trained park planner and resident scientist to work with the planner would substantially add to the Trust’s competencies and capabilities.

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Training programs such as those currently being carried out with the assistance of the Darwin Initiative and UK-based scientists could be enhanced through employment of longer timeframes and perhaps more detailed curriculum, even a more academic approach. Attachment training opportunities would further enhance these efforts.

The scheduling and scoping of such initiatives of course will be determined and set by the Trust, its board and the Minister. To this end, it is encouraging to note that the Conservation and Fisheries Department, within the same Ministry of Government, has recently seen a significant increase in its staff structure and size.

### **4. Addressing the lack of by laws for the National Trust Board.**

The absence of by laws severely constrains the management options of the National Trust's board. In the 1987 "Draft Legislation on Protected Areas and Wildlife", Section 7 of Part II identifies the areas in which the Trust may make by laws. Enactment of the proposed new legislation would therefore carry the means for this institution-strengthening mandate. As discussed in Annex B, the initiative to revise natural resource legislation apparently has support from the Office of the Governor and the Attorney General's Office in the BVI and from the Foreign and Commonwealth Office in London. This support substantially enhances the likelihood of successful enactment, although considerable responsibility for "shepherding" the proposed Act through the legislative process will fall on the Trust and its board.

**BENCHMARK:** Revised and updated protected areas legislation (including the section providing for Trust by laws) prepared and presented to Government by the end of 2002.

### **5. Addressing the need to improve fiduciary performance of the National Parks Trust.**

Traditionally, the Trust, as a statutory body, relied upon Government to provide its audited Financial Statements. This often led to delays over which the Trust had little control. Quite recently, the Trust has elected to solicit independent, external audits including preparation of its annual Financial Statements (letter of engagement signed July 11, 2001 with Deloitte & Touche). At the present time, audited Financial Statements are outstanding for Fiscal Years 1995-2000.

**BENCHMARKS:** Audits and Financial Statements for Fiscal Years 1995 and 1996 to be completed by the Government Auditor [by yet-to-be determined date].

Audits and Financial Statements for Fiscal Years 1997, 1998, 1999, and 2000 to be completed by Deloitte & Touche, Tortola [by yet-to-be-determined date].

**6. Addressing the need to expand inventory and improve utility of site management plans for BVI parks and protected areas.**

The proposed new protected areas legislation includes an explicit provision that requires preparation of site-specific resource management plans for each terrestrial or marine component of the BVI Park System. NPT management has been well aware of the utility of such planning documents, representing as they do both tangible and targeted operational guides. It has prepared a limited number of draft plans but none are complete or comprehensive, nor have they been disseminated for peer review or stakeholder discussion. Thus, there is an obvious need for:

- (a) Developing a planning "office", program, process and schedule within the Trust for the production and evaluation of site-specific resource management plans.
- (b) Completing the existing draft plans.
- (c) Putting a process in place, with an approximate three-year deadline, for completion of draft plans for all sites within the Park System.
- (d) Establishing a schedule for the review and periodic update of all site management plans.

More comprehensive Management Plans should include detailed graphics and be text driven. The Sandy Cay planning framework and documents offer a different standard and approach for the Trust to consider. Island Resources Foundation could host one or more workshops/seminars on site planning for Trust staff (including the Botanic Garden).

**7. Addressing the need for a Sandy Cay Ecosystem Research and Monitoring Program.**

The future security of Sandy Cay and its ecosystem depends in part on *which local institutions develop vested interests in the ecological integrity of the island*. Those same institutions need to have a stake in helping Sandy Cay sustain and even expand its service to the BVI economy and community as a popular recreational and educational attraction. *This functional, symbiotic relationship can be Sandy Cay's best insurance policy against misuse, mismanagement or mistakes.*

It was largely for this reason that Island Resources Foundation proposed at the outset of the current Sandy Cay project to bring together in a common effort the National Parks Trust (a statutory body with a resource protection mandate), the H. Laverty Stoutt Community College (an academic centre with a teaching and research mandate), and the Island Resources Foundation (an independent non-governmental organization with an environmental planning mission).

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This institutional partnership had just the right mixture of skills, talent, interests and self-directed momentum to become a triumvirate leadership group worthy of Sandy Cay's challenge. Each needs the other to capitalize on Laurance Rockefeller's grand experiment. Together they can conceptualize and bring to life a *Sandy Cay Ecosystem Learning Centre*, which advances the cause of ecosystem protection and best management practices.

How to get started? With the practicalities of several simple tasks left over from the ecosystem characterization phase of the Sandy Cay project.

- (a) As part of its regular curriculum, involve selected HLSCC science students in the following functions needed for Sandy Cay:
  - monitoring (for management feedback);
  - research (for management input);
  - ecosystem guides (for visiting tour groups).
- (b) Consider ways to use Sandy Cay as a teaching laboratory for in situ "system" instruction for public-sector resource planners, managers, and inspectors.
- (c) Involve HLSCC science faculty in the more technical monitoring tasks.
- (d) Use this same group of researchers to complete or follow-up ecosystem characterization tasks such as seasonal gaps, detailed marine system mapping, rat eradication, invasive species assessment, and erosion control.

For more details on the subject of the *Sandy Cay Ecosystem Learning Centre*, see Priority Management Objectives on page 17 of this document and the educational and training program components as outlined in Column 5 on pages 19 and 20.

### **8. Establishing a collaborative working linkage with the Government's Conservation and Fisheries Department.**

Sandy Cay and the various proposed and ongoing activities outlined in this Management Plan present a significantly undervalued instructional opportunity for promising natural resources-focused staff and equivalent technical personnel within the Government's largest environmental department—the Conservation and Fisheries Department. Furthermore, both the NPT and the CFD have a periodic need for specialists not generally available in the Territory. The occasional availability of individual scientists working with Island Resources Foundation and the Community College on Sandy Cay monitoring and research tasks will potentially open up new opportunities for assisting the Conservation Department with its broad-based and demanding training tasks. Additionally, assuming new natural resources legislation is enacted in the Territory, with its proposed upgrading in the status and conservation role of the Trust, there will be

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even more opportunities for joint collaborative initiatives between these two agencies, both housed within the Ministry of Natural Resources. The Sandy Cay transitional program serves as an opening to highlight such new opportunities.