

**APPENDIX A: CONSULTATION AND COORDINATION**

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United States Department of the Interior



National Park Service  
Virgin Islands National Park  
1300 Cruz Bay Creek  
St. John, Virgin Islands 00830

August 10, 2012

Mr. Edgar Garcia  
USACE – Antilles Regulatory Office  
Project Manager – Virgin Islands  
400 Ave Fernandez Juncos  
San Juan, PR 00901-3223

Dear Mr. Garcia:

Pursuant to the National Environmental Policy Act (NEPA) of 1969, the Council on Environmental Quality NEPA regulations (40 Code of Federal Regulations 1500 to 1508), and the National Park Service (NPS) NEPA compliance guidelines (Director's Order-12), the NPS is preparing an ~~Environmental Assessment (EA) for the proposed conversion to a long term lease of the Caneel Bay Resort located in Virgin Islands National Park, St. John, U.S. Virgin Islands.~~

Virgin Islands National Park is located on the island of St. John, the smallest of the three main inhabited U.S. Virgin Islands. The 7,650 acre park comprises over half of St. John's twenty square mile land area (Figure 1). The park provides a global opportunity for scientists, students, and the public to learn more about tropical marine and terrestrial ecosystems and the continuum of Caribbean history.

Caneel Bay Resort is located on a 150-acre peninsula on the northwest side of the island and was originally developed by Laurance Rockefeller beginning in 1956 (Figure 1). Initially, Rockefeller donated over 5000 acres of land to NPS and reserved the 150 acres that is now Caneel Bay Resort, for the Jackson Hole Preserve, a Rockefeller family land trust. In 1983 Jackson Hole Preserve donated the 150 acres of land to the U.S. government for inclusion within the Virgin Islands National Park. The preserved land was transferred to the NPS by a 40-year retained use estate (RUE). Since 1983, the resort under the RUE has been owned and/or managed by different companies. Since 1992, Caneel Bay Resort has been operated by Rosewood Hotels on behalf of the owners, CBI Acquisitions. The RUE is scheduled to expire on September 30, 2023.

In 2006, NPS commenced consideration of the future management of the Caneel Bay Resort property. In 2010, Public Law 111-261 was enacted. This law authorizes the NPS, subject to several limiting conditions, to enter into a long-term lease with the owner of the RUE for continued resort operations upon relinquishment of the remaining term of the RUE.

The proposed project includes the conversion of the RUE to a long term lease under NPS purview. In addition to the 150-acre Caneel Bay Resort, three additional parcels of land totaling 3.01 acres outside of the RUE (owned by the owner of the RUE) are being considered as part of the lease negotiations.

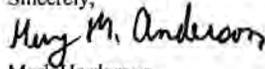


These parcels include a 1.01 acre area utilized for three executive homes, 1.69 acre area utilized for an apartment building containing 24 units for employee housing, and 0.31 acre marina used for ferry docking and maintenance, as well as fuel sales. The EA will analyze the environmental and human impacts of entering into a long term lease under the terms of Public Law 111-261.

Please identify any resources within your purview that may experience potential impacts from the proposed project. Please provide any comments or information within 30 days of receipt of this letter. Send responses to:

Superintendent  
Virgin Islands National Park  
1300 Cruz Bay Creek  
St. John, VI 00830

Sincerely,



Mark Hardgrove  
Superintendent  
Virgin Islands National Park

*Acting*



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09/27/2012 04:34 PM

From: Lisamarie Carrubba <[lisamarie.carrubba@noaa.gov](mailto:lisamarie.carrubba@noaa.gov)>

To: Rafe Boulon <[rafe\\_boulon@nps.gov](mailto:rafe_boulon@nps.gov)>

Cc: Anabel Padilla <[Anabel.Padilla@noaa.gov](mailto:Anabel.Padilla@noaa.gov)>

Subject : Caneel Bay Resort Environmental Assessment

Saludos, Rafe:

We received a letter dated August 10, 2012, from National Park Service

(NPS) requesting information on resources under our purview that may be affected by the proposed conversion to a long-term lease of the Caneel Bay Resort in the Virgin Islands National Park, St. John, U.S. Virgin Islands as part of the future management of the resort by NPS. NPS is preparing an Environmental Assessment (EA) as part of the management planning for the conversion of the 40-year retained use estate to a long-term lease under NPS purview.

I don't have the e-mail of the person who is acting superintendent so I hope that sending this to you is adequate for our response and I apologize for the delayed reply, but I was out of the office for personal reasons for some time and am just catching up on responses to requests for comments.

In terms of resources under our purview that could be affected by the continued use of the Caneel Bay Resort, the resort is within the range of ESA-listed sea turtles and corals and coral critical habitat. The EA should discuss impacts of the continued operation of the resort on these resources based on information from resort operation, including based on any changes in management of the facilities and use of the beach and nearshore marine areas by visitors over time.

Let me know if you need any additional information from me at this time.

Thanks!

Lee

--

Dr. Lisamarie Carrubba

NOAA Fisheries

Caribbean Field Office, PRD

P.O. Box 1310

Boquerón, PR 00622

787-851-3700

787-851-5588 (fax)

## **APPENDIX B: PUBLIC INVOLVEMENT**

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## NEPA Process

The NPS must follow the National Environmental Policy Act of 1969 (NEPA) to ensure consideration of important environmental issues. The conversion of the RUE to a long term lease under NPS purview will be analyzed during the NEPA process.

The environmental effects resulting from the proposed projects will be evaluated in an Environmental Assessment (EA). The analysis will consider impacts to topics such as water resources, wildlife, vegetation, special status species, cultural resources, socioeconomics, and park operations.

The document will analyze both short-term and long-term, as well as, cumulative effects of the proposed lease acquisition, along with the "no action alternative". The No Action Alternative assumes resort operation as it is today. By comparing the proposed action alternatives with the no action alternative, and identifying mitigation measures that would minimize adverse effects, the Environmental Assessment will assist stakeholders in the decision-making process.

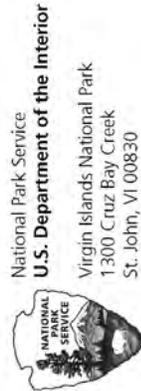
## Public Scoping Period

At this time, the Superintendent is announcing a 30-day public scoping period to solicit public comments on the proposed lease acquisition. During this period, the public is invited to identify issues or concerns they might have with the proposed project so that the NPS can appropriately consider them in the EA. You may submit your comments electronically at the NPS's Planning, Environment, and Public Comment website (<https://parkplanning.nps.gov>). If you are unable to access this website, please submit written comments to:

Superintendent  
Virgin Islands National Park  
1300 Cruz Bay Creek  
St. John, VI 00830

Please submit comments by September 13, 2012. Once the EA is developed, it will be made available for public review for a 30-day period. If you wish to be added to the park's mailing list, please be sure to indicate that in your response.

It is NPS practice to make all comments, including names and addresses of respondents who provide that information, available for public review. Individuals may request that the NPS withhold their name and/or address from public disclosure. If you wish to do this, correspondents using the website can make such a request by checking the box "keep my contact information private." If submitting written comments please state this request at the beginning of your comment. The NPS will honor such requests to the extent allowable by law.



Virgin Islands National Park  
St. John, U.S. Virgin Islands

National Park Service  
U.S. Department of the Interior



## Environmental Assessment for the Caneel Bay Resort Lease

Scoping Newsletter  
August 2012

## Park Background

The Virgin Islands National Park is located near the Tropic of Cancer in a group of small islands known as the Lesser Antilles. The Lesser Antilles separate the Caribbean Sea to the south and west from the Atlantic Ocean to the north and east. The park is located on the island of St. John, the smallest of the three main inhabited U.S. Virgin Islands. The 7,650 acre park comprises over half of St. John's twenty square mile land area. The park was originally established in December 1956 and expanded to include 8.7 square miles of the surrounding waters in 1962. In 1978, Congress authorized an additional 135 acres on Hassel Island in the Charlotte Amalie Harbor near St. Thomas.

The mission of Virgin Islands National Park, an International Biosphere Reserve, is to protect, manage, interpret, and preserve the park's unique natural and scenic resources and nationally significant cultural resources and values unimpaired for the education, enjoyment, and inspiration of present and future generations. The park provides a global opportunity for scientists, students, and the public to learn more about tropical marine and terrestrial ecosystems and the continuum of Caribbean history.



EXPERIENCE YOUR AMERICA

**Project Background**

Caneel Bay Resort is located on a 150-acre peninsula on the northwest side of the island and was originally developed by Laurance Rockefeller beginning in 1956. Initially, Rockefeller donated over 5,000 acres of land to the National Park Service (NPS) and reserved the 150 acres, that is now Caneel Bay Resort, for the Jackson Hole Preserve, a Rockefeller family land trust. In 1983 Jackson Hole Preserve donated the 150 acres of land to the U.S. government for inclusion within the Virgin Islands National Park. The preserved land was transferred to the NPS with a 40-year retained use estate (RUE). Since 1983, the resort under the RUE has been owned and/or managed by different companies. Since 1992, Caneel Bay Resort has been operated by Rosewood Hotels on behalf of the owners, CBI Acquisitions. The RUE is scheduled to expire on September 30, 2023.

Caneel Bay Resort is a 165-room resort hotel that caters to a clientele who on average stay at the resort for 7 days and 6 nights. The resort has approximately 450 employees and serves as one of the primary economic engines for St. John and the U.S Virgin Islands. A large number of employees travel daily to St. John from their residences on neighboring St. Thomas. Caneel Bay is a unique combination of naturally and culturally significant resources. The importance of its natural resources stem from the pristine setting, abundant native plants and trees and numerous unspoiled beaches. Culturally, Caneel Bay contains historic resources from pre-Columbian Taino Indian sites to Plantation-era sugar mill ruins and it reflects Rockefeller's vision of a close community of man and nature.



**Proposed Project**

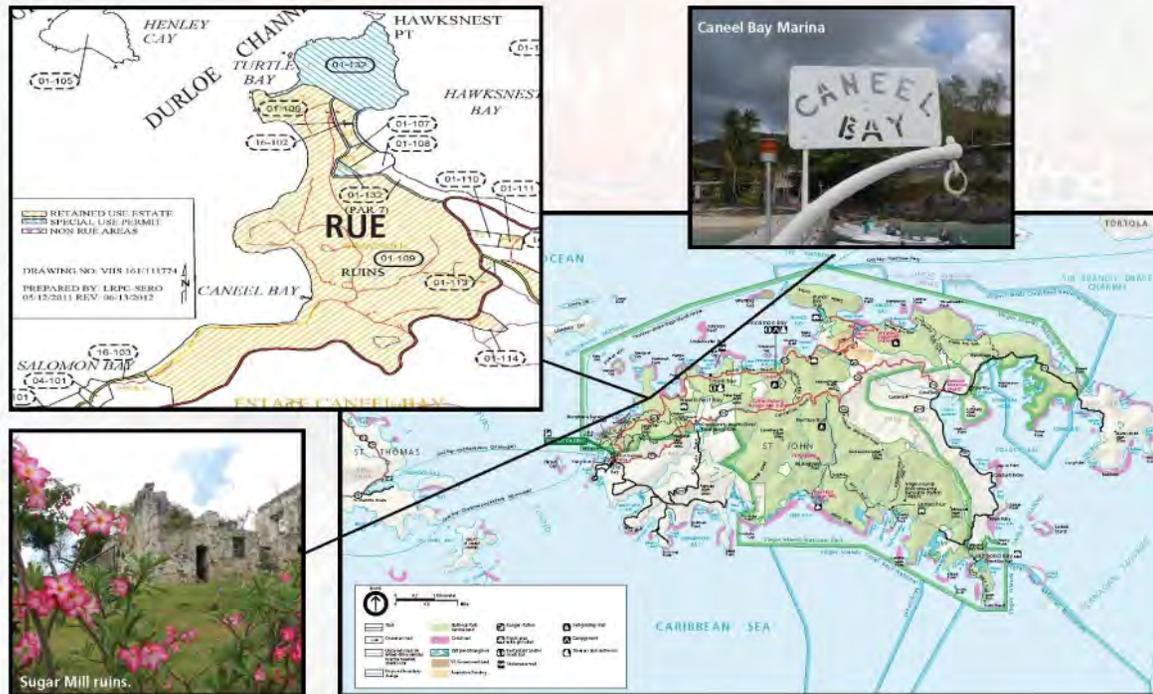
In 2006, NPS commenced consideration of the future management of the Caneel Bay Resort property. In 2010, Public Law 111-261 was enacted. This law authorized the NPS, subject to several limiting conditions, to enter into a long-term lease with the owner of the RUE for continued resort operations upon relinquishment of the remaining term of the RUE. The conditions include the requirement that the NPS may only enter into such a lease if it:

*“...determines that the long-term benefit to the Park would be greater by entering into a lease with the owner of the retained use estate than by authorizing a concession contract upon the termination of the retained use estate....”*

In addition, the law requires that such a lease must:

1. Ensure that the general character of the resort property remains unchanged, including a prohibition against any increase in the overall size of the resort and any increase in the number of guest accommodations available at the resort; and
2. Ensure the protection of the natural, cultural, and historic features of the resort consistent with the laws and policies applicable to property managed by NPS.

The proposed project includes the conversion of the RUE to a long term lease under NPS purview. In addition to the 150-acre Caneel Bay Resort, three additional parcels of land totaling 3.01 acres outside of the RUE (owned by the owner of the RUE) are being considered as part of the lease negotiations. These parcels include a 1.01 acre area utilized for three executive homes, 1.69 acre area utilized for an apartment building containing 24 units for employee housing, and 0.31 acre marina used for ferry docking and maintenance, as well as fuel sales. The Environmental Assessment (EA) will analyze the environmental and human impacts of entering into a long term lease under the terms of Public Law 111-261.



## **APPENDIX C: VEGETATION AND WILDLIFE ASSESSMENTS**

**VEGETATION AND WILDLIFE ASSESSMENTS  
FOR  
THE CANEEL BAY RESORT LEASE ENVIRONMENTAL ASSESSMENT AT VIRGIN  
ISLANDS NATIONAL PARK  
ST. JOHN, U.S. VIRGIN ISLANDS**



**Prepared for:**

**National Park Service  
Southeast Regional Office  
Atlanta, Georgia**

**March 2013**

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## **1.0 INTRODUCTION AND HISTORY**

### **1.1 Introduction**

Virgin Islands National Park (“the park”) was founded in 1956, and comprises 10 square miles (roughly 56 percent of the island) of St. John in the U.S. Virgin Islands, as well as 8.7 square miles of offshore waters. The park is proposing to terminate the remaining term of a retained use estate (RUE) on the Caneel Bay Resort, and convert this RUE to a long-term lease under National Park Service (NPS) purview. The Caneel Bay Resort is located on a 150-acre peninsula on the northwest side of the island, and was originally developed by Laurance Rockefeller. The land was donated to NPS in 1983 by the Jackson Hole Preserve for inclusion within the Virgin Islands National Park, but was transferred to the NPS by a 40-year RUE. An Environmental Assessment (EA) is being completed to determine the impacts of the No Action Alternative and the Action Alternative, the conversion of the RUE to a long-term lease within the Caneel Bay Resort and the park.

NPS determined the need for baseline biological surveys within the Caneel Bay Resort to provide NPS with greater knowledge of the biological resources present at the site. A qualitative assessment of the project area was undertaken to assess and catalog the dominant vegetation and wildlife species present within the 150-acre Caneel Bay Resort, and on three additional parcels under consideration as part of the lease agreements. These parcels include a 1.01 acre area used for three executive homes, a 1.69 acre area used for an apartment building containing 24 units for employee housing, and a 0.31 acre marina used for ferry docking and maintenance, as well as fuel sales. Figure 1 presents locations of all surveyed areas, including the RUE areas, the three non-RUE areas, and the Special Use Permit (SUP) areas currently managed by NPS. The field assessment of the Caneel Bay Resort and three additional properties under consideration was conducted on 7, 8, and 9 August 2012 to identify plant and wildlife species present within the project area.

### **1.2 History**

In 1694, the Danish took possession of St. John and they established the first permanent European settlement on the island near Coral Bay. By 1733, there were 109 cane and cotton plantations covering the island. Sugar production continued for more than a century, ending in 1848. In 1917, the United States purchased the Virgin Islands from Denmark. The main occupations on the island at this time were bay rum production, cattle farming, and subsistence farming until tourism discovered St. John in the 1930s. In 1956, Laurance Rockefeller bought land and gave it to the federal government for a National Park, forming Virgin Islands National Park, under the condition that it must be protected from future development.

As described above and in numerous documents, the first 130 years of colonization were particularly harsh on St. John's natural resources (Acevedo-Rodríguez et al. 1996). As a result, some of the native and endemic plant species have become extinct, or nearly extinct, with their populations reduced to a few individuals. Examples of these include the woolly nipple cactus (*Mammillaria nivosa*), which is a territorially endangered species (DPNR n.d.). The invasion by aggressive exotic plants may have also contributed to the demise of some of St. John's native plants. Today the most immediate threat to the regeneration of natural vegetation is caused by development and by the growing population of feral pigs, goats, and donkeys. Goats and donkeys are imposing selective changes on regeneration by grazing on palatable species (Acevedo-Rodríguez et al. 1996). With the exception of bats, the Virgin Islands National Park is

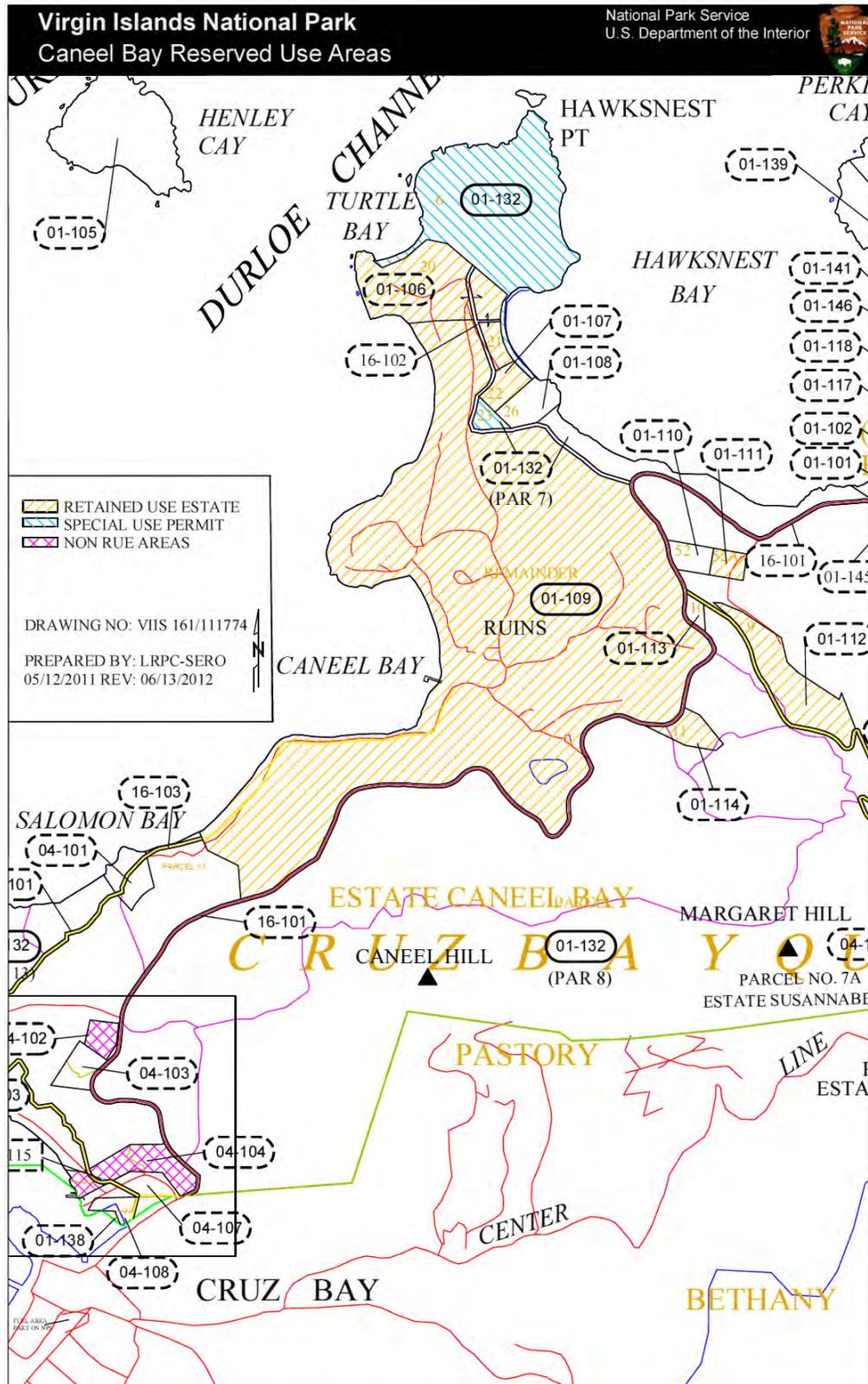
presently inhabited by numerous species of non-native mammals that have produced severe impacts on many indigenous species of plants and animals and threats to visitor safety (NPS 2003). Feral or wild mammals include the white-tail deer, donkey, wild hog, domestic goat, domestic cow, domestic sheep, European boar, West Indian mongoose, tree rat, Norway rat and domestic cat, domestic dog and house mouse (NPS 2003). The main threat to reptiles on St. John is likely the presence of mammalian predators (USGS 2005). The USGS noted that a reduction of cats and mongoose would benefit the amphibians and reptiles at the park (USGS 2005). Some feral or invasive species also threaten visitor experience and safety and increasing populations of these species are seriously affecting native species of plants and animals (NPS 2003). In addition to mammals, the Taino Indians may have brought the reptilian species known as the green iguana (*Iguana iguana*) to the Virgin Islands from South America as food sources. This species does not appear to be a threat to the native flora or fauna (USGS 2005), but is considered by some sources a nuisance species on the island of St. John.

Exotic and invasive plants as well as noxious weeds present an issue to native plant species on St. John. As a result of threats to native habitats by exotic plants, NPS finalized the *South Florida and Caribbean Parks Exotic Plant Management Plan and Environmental Impact Statement* (NPS 2010) in August of 2010. This document described management and control of exotic plants and restoration of native plant communities in nine parks, including Virgin Islands National Park. In addition to exotic plant species described in the *Exotic Plant Management Plan* (NPS 2010), some plant species observed at the site are included on the *Federal Noxious Weed List* (USDA 2010) and are noted when applicable. The following list includes exotic plants present in the Virgin Islands described in the *Exotic Plant Management Plan* (NPS 2010) that are priority species for treatment at the park. Species denoted with an asterisk (\*) were observed during the August 2012 site surveys:

- Tan tan (*Leucaena leucocephala*)\*
- Mother-in-law's tongue (*Sansevieria hyacinthoides*)\*
- Australian pine (*Casuarina equisetifolia*)
- Guinea grass (*Panicum maximum*)\*
- Lime berry, or sweet lime (*Triphasia trifolia*)\*
- Genip (*Melicoccus bijugatus*)\*
- Pinguin (*Bromelia pinguin*)\*
- Monk orchid (*Oeceoclades maculata*)
- Spiderling (*Boerhavia*)
- Ginger Thomas (*Tecoma stans*)\*
- Tamarind (*Tamarindus indica*) \*
- Starvation apple, painkiller, or noni (*Morinda citrifolia*)\*
- Aloe vera (*Aloe barbadensis*)
- Guinea henweed (*Petiveria alliacea*)
- Brazilian peppertree (*Schinus terebinthifolius*)

\*Species observed during site assessments

**Figure 1. Location of Caneel Bay Resort and Areas included in Vegetation and Wildlife Assessment, August 2012**



## 2.0 METHODOLOGY

A field assessment of the project area was conducted on 7, 8, and 9 August 2012 to identify plant and wildlife species. The project area was divided into dominant habitat types and locations for a total of 15 different survey sites (Figures 2 and 3). Within each of these survey sites, data were collected by thoroughly walking the site and identifying plant and wildlife species found within the area. At each of the survey sites, the type of habitat was recorded along with dominant vegetation and any encountered wildlife species. Habitat conditions such as site attributes, wildlife presence, noteworthy features, and conditions of habitat corridor were recorded. Additionally, aquatic resources were also recorded, when applicable. Vegetation notes regarding dominant canopy species such as height and diameter at breast height (DBH) were also recorded. The condition and type of understory species, including thickness and type of duff layer were also noted. The survey considered and recorded invasive plant species when observed, noting that two invasive plant species, Brazilian peppertree and sweet lime, have been previously treated within the RUE and considering that at least 15 additional plant species that occur on the island are considered exotic and may require management (NPS 2010).

Samples of unknown plant species were collected for later identification, and unknown observed wildlife species were photographed when possible for later identification. Meetings with a local plant expert and former head horticulturalist at Caneel Bay Resort, Eleanor Gibney, were conducted on-site on 8 and 9 September 2012 to assist in plant identification. Appropriate plant identification resources such as taxonomic keys and field guides were also used to identify vegetation at the survey sites, which included the following: *Vines and Climbing Plants of Puerto Rico and the Virgin Islands* (Acevedo-Rodríguez 2005), *Monocotyledons and Gymnosperms of Puerto Rico and the Virgin Islands* (Acevedo-Rodríguez and Strong 2005), *A Field Guide to Native Trees and Plants of East End, St. John U.S. Virgin Islands* (Gibney 2004), *Trees of the Caribbean* (Seddon and Lennox 1980), *Caribbean Wild Plants and their Uses* (Honychurch 1980), and *Fruit Trees of the Caribbean* (Hewitt 1980). Incidental wildlife observations were also recorded, including non-native mammal and reptile species as described previously. Representative photographs were taken at each site within the study area to document conditions at the time of the field assessment. Photographic records are included in Attachment A.

Figure 2. Northern Assessment Area



**Legend**

- Road
- Areas Included in Biological Survey

Virgin Islands National Park  
Caneel Bay Resort Lease Biological Survey  
St. John, USVI

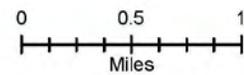


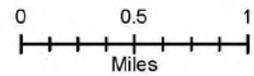
Figure 3. Southern Assessment Area



**Legend**

- Road
- - - Areas Included in Biological Survey

Virgin Islands National Park  
Caneel Bay Resort Lease Biological Survey  
St. John, USVI



## **3.0 RESULTS**

### **3.1 Vegetation**

The vegetation communities observed were described by the following vegetation categories: developed, shrubland, beach/dune, upland dry/mesic forest, and pond shoreline. When applicable, these vegetation categories have been defined to be consistent with previously described communities of vegetation in other NPS reports for St. John, such as the *Exotic Plant Management Plan* (NPS 2010). A general description of the vegetation communities is included below and a detailed description of each of the survey sites and dominant plant species are included in the paragraphs that follow. A table of all vegetation species observed follows the description of each survey site. Finally, a summary of all vegetation species observed (compiled list for all habitat types) is included in Table B-1 of Attachment B.

Shrubland – This category describes areas in dry locations at low elevations. Vegetation is usually 3 to 15 feet tall, multi-stemmed, and bushy. Many shrublands include thorny shrubs, cacti, and succulents that can tolerate thin, rocky soils; strong winds; and dry substrate.

Beach – Beaches are characterized as unconsolidated substrate comprised of sand and coarse calcareous detritus (remains of various organisms) that has been deposited by currents, waves, and wind. The vegetation categories start with the tidally influenced halophytic, xerophytic, pioneering species such as grasses and forbs. In addition, herbs and mature trees are found in this habitat, although many of the trees were likely planted as shade for resort visitors.

Upland Dry/Mesic Forest - This category includes drought-deciduous forests, semi-deciduous forests, semi-evergreen forests, drought-deciduous woodlands, upland moist forests, and gallery moist forests. Dry/mesic forests and woodlands are the predominant land cover at the site. Woodlands are distinguished from forests by having a more open canopy of fewer trees. Many of the forests and woodlands grow on similar soils, but the vegetation composition is influenced by wind patterns, topography, aspect, rainfall, and length of dry season.

Developed – This category includes areas that are currently affected by human disturbance, including impervious (paved) surfaces such as roads; cleared areas such as the dump site; development such as buildings or shoreline rip rap; manicured areas of vegetation such as mowed/maintained grass or cultivated ornamental plantings.

### **3.2 Wildlife**

Wildlife species were identified during vegetation studies within most of the sites in the study area. While wildlife species were recorded when observed, no additional measures or surveys were completed beyond those outlined for the vegetation surveys. When possible, species were also identified through vocalizations and scat. Habitat types were described as part of the vegetation surveys. No wildlife was identified at the Fuel Dock or the Caneel Trail. A summary of all wildlife species observed (compiled list for all habitat types) is included in Table B-2 of Attachment B.

### 3.3 Vegetation Communities and Wildlife by Site

#### 3.3.1 Developed Area 1

##### *Vegetation*

Developed Area 1 encompasses most of the maintained grounds within the Caneel Bay Resort that are not within the maintenance area. The majority of the area is comprised of lawn, ornamental species, and developed trees. This vegetation is currently maintained through mowing, trimming, raking, etc. to retain a manicured look at the resort for visitors. There is a high diversity of cultivated plant species within this site, including two native, territorially listed plant species, the woolly nipple cactus and Jost Van Dyke's Indian mallow (*Bastardiopsis eggersii*, synonyms include *Sida eggersi*). Both of these species were previously planted on the resort and still persist at the site. Both the woolly nipple cactus and the Jost Van Dyke's Indian mallow are territorially endangered plant species of the U.S. Virgin Islands (USVI) (DPNR n.d.). The woolly nipple cactus is a small, low-growing gray-green cactus with yellow-brown spines and red, egg-shaped fruits (GVI 2007, 6). This cactus is found growing along rocky shorelines and cliffs such as offshore small cays of the Virgin Islands, Puerto Rico, Antigua and the Bahamas (GVI 2007, 6). This species is listed as a result of habitat loss due to development and over-collection by plant collectors (GVI 2007, 6). The Jost Van Dyke's Indian mallow is a perennial tree in the mallow family with small, white-yellow flowers and inhabits small, offshore cays (GVI 2007; USDA NRCS 2012). A third species, the lignum vitae (*Guaiacum officinale*) is also listed as territorially endangered (DPNR n.d.). Lignum vitae is a small, spreading tree that produces blue flowers and a flat, orange fruit. The wood of the species is hard and heavy, making it a very valuable species economically (Gibney 2004, 24-25). Overharvesting is a major threat to this species because of its economic value (GVI 2007, 9).

Some of the common dominant ornamental tree species found within this area include the flamboyant tree (*Delonix regia*), mahogany (*Swietenia mahagoni*), and genip. Several dominant shrub species were found, including bougainvillea (*Bougainvillea sp.*), wild frangipani (*Plumeria alba*), and oleanader (*Nerium oleander*). This area also includes a small grove of remnant/historic white mangroves (*Laguncularia racemosa*) inland from the area near Hawksnest Beach. Plant species observed at the site that have been characterized as either exotic or invasive by other sources include genip, painkiller (*Morinda citrifolia*), Indian tamarind, and ginger Thomas (NPS 2010). Because the resort area has been developed in the areas surrounding the white mangroves, they appear to persist at this site due to the runoff from nearby impervious surfaces such as the sidewalks and parking areas. Large trees have been removed through mechanical methods immediately along the shoreline, possibly to create viewing areas for the resort visitors. Evidence of herbicide use and recent mowing was also observed in the areas immediately along the shoreline. Table 1 below presents plant species observed at Developed Area 1.

##### *Wildlife*

Bird species identified in the developed area included some shorebird species, including the brown pelican (*Pelecanus occidentalis*), laughing gull (*Leucophaeus atricilla*), and a tern species. The brown pelican was formerly listed as a federally endangered species, but has been delisted since 2009. It is likely that these species use this area mainly for foraging and resting. No nesting was observed during field studies. Other bird species in this area include the scaly-naped pigeon (*Patagioenas squamosa*), mourning dove (*Zenaida macroura*), and mockingbird

(*Mimus polyglottos*). Three introduced mammal species, the white-tailed deer (*Odocoileus virginianus*), donkey (*Equus asinus*), and mongoose (*Herpestes javanicus*) were observed during studies in this area. Another common introduced species found in this area is the iguana. As stated previously, green iguanas are an introduced species on St. John and can act as nuisance species, but the iguana does not appear to be a threat to the native flora or fauna (USGS 2005). However, feral donkeys, another introduced species are threats to vegetation on St. John and are imposing selective changes on regeneration by grazing on palatable species (Acevedo-Rodríguez et al. 1996). Additionally, the mongoose is another introduced mammal species that has significantly affected the native species (particularly reptile and amphibian) on the island. Wildlife species found at Developed Area 1 are presented in Table 1 below.

Table 1. Plant and Wildlife Species Observed at Developed Area 1	
Scientific Name	Common Name
<b>Plants</b>	
<i>Agave missionum</i>	Century plant
<i>Azadiracta indica</i>	Miracle tree, neem
<i>Bastardiopsis (Sida) eggersii**</i>	Jost Van Dyke's Indian mallow
<i>Bauhinia monandra</i>	Napoleon's plume
<i>Bougainvillea sp.</i>	Bougainvillea species
<i>Brya ebenus</i>	Jamaican ebony
<i>Caryota spp.</i>	Fishtail palm
<i>Cleome viscosa</i>	Asian spiderflower
<i>Clusia rosea</i>	Scotch attorney, autograph tree
<i>Coccoloba uvifera</i>	Seagrape
<i>Cocos nucifera</i>	Coconut palm
<i>Colvillea racemosa</i>	Colville's Glory Tree, Whip Tree
<i>Commelina erecta</i>	Whitemouth dayflower
<i>Cryptostegia grandiflora</i>	Rubbervine
<i>Delonix regia</i>	Flamboyant tree
<i>Enterolobium cyclocarpum</i>	Guanacaste tree
<i>Ficus citrifolia</i>	Wild banyantree
<i>Fimbristylis spathacea</i>	Hurricanegrass
<i>Guaiacum officinale**</i>	Lignum vitae
<i>Hymanea courbaril</i>	West Indian locust
<i>Ixora sp.</i>	Ixora
<i>Ixora macrothyrsa</i>	Garden ixora
<i>Krugiodendron ferreum</i>	Leadwood, black ironwood
<i>Lagerstroemia indica</i>	Crape myrtle
<i>Laguncularia racemosa</i>	White mangrove
<i>Mammillaria nivosa**</i>	Woolly nipple cactus
<i>Mangifera indica</i>	Mango
<i>Melicoccus bijugatus*</i>	Genip
<i>Morinda citrifolia*</i>	Indian Mulberry, Painkiller, Noni
<i>Mycianthes fragrans</i>	Cinnamon myrtle
<i>Nerium oleander</i>	Oleander
<i>Pandanus utilis</i>	Screw pine
<i>Peltophorum pterocarpum</i>	Yellow poinciana
<i>Phoenix roebelenii</i>	Pygmy date palm
<i>Pilosocereus royenii</i>	Pipe-organ cactus
<i>Philodendron giganteum</i>	Giant philodendron
<i>Pithecellobium unguis-cati</i>	Bread-and-cheese

Table 1. Plant and Wildlife Species Observed at Developed Area 1	
Scientific Name	Common Name
<i>Plumeria alba</i>	Wild frangipani, white
<i>Plumeria rosa</i>	Wild frangipani, pink
<i>Roystonea borinquena</i>	Puerto Rico royal palm
<i>Sabal causiarum</i>	Sable palm, Puerto Rican palmetto
<i>Sterculia foetida</i>	Stinky tree
<i>Swietenia mahagoni</i>	Mahogany
<i>Tabebuia caribea</i>	Yellow poui, yellow tabebuia
<i>Tabebuia heterophylla</i>	White cedar
<i>Tamarindus indica</i> *	Indian tamarind
<i>Tecoma stans</i> *	Ginger thomas
<i>Terminalia catappa</i>	Tropical or Indian almond
<i>Thevetia peruviana</i>	Luckynut
<b>Birds</b>	
<i>Pelecanus occidentalis</i>	Brown pelican
<i>Leucophaeus atricilla</i>	Laughing gull
<i>Sternidae</i>	Tern
<i>Patagioenas squamosa</i>	Scaly-naped pigeon
<i>Zenaida macroura</i>	Mourning dove
<i>Mimus polyglottos</i>	Mockingbird
<b>Mammals</b>	
<i>Odocoileus virginianus</i>	White-tailed deer
<i>Equus asinus</i>	Donkey
<i>Herpestes javanicus</i>	Mongoose
<b>Reptiles</b>	
<i>Iguana iguana</i>	Iguana

\*Denotes a plant species characterized as either exotic or invasive

\*\*Denotes a listed plant species

### **3.3.2 Developed Area 2**

#### ***Vegetation***

Developed Area 2 includes the maintained and cultivated area found within the secure maintenance area on the resort. This maintenance complex includes the security offices, water desalinization plant, laundry, and other support systems for the resort. Species within Developed Area 2 are similar to Developed Area 1; however, more of the land is developed or paved, resulting in less species diversity. This area is also not as manicured as Developed Area 1 and less mowing, trimming, raking, etc. occurs because these areas are generally inaccessible to resort visitors. Dominant tree species observed include flamboyant tree, genip, sweet almond (*Prunus dulcis*), and coconut palms (*Cocos nucifera*). Other plant species, particularly fruit trees, were noted, such as key lime (*Citrus aurantifolia*), banana (*Musa acuminata*), and guava (*Psidium guajava*). Plant species observed at the site that have been characterized as either exotic, invasive, or a noxious weed by other sources include tan tan, genip, painkiller, guinea grass, Indian tamarind, and coatbuttons (*Tridax procumbens*) (NPS 2010; USDA 2010). Table 2 below presents plant species observed at Developed Area 2.

#### ***Wildlife***

Green iguanas were the only species observed within Developed Area 2. Although fewer species were observed at this site, it is likely that species found at Developed Area 1 would also occur, as both sites contain similar habitat consisting of developed areas with mowed/maintained lawn and

cultivated ornamentals. The guarded fence and more developed nature of this area may preclude some species. Wildlife species found at Developed Area 2 are presented in Table 2 below.

Table 2. Plant and Wildlife Species Observed at Developed Area 2	
Scientific Name	Common Name
<b>Plants</b>	
<i>Bursera simaruba</i>	Gumbo-limbo
<i>Caryota</i> spp.	Fishtail palm species
<i>Ceiba pentandra</i>	Kapok tree
<i>Citrus aurantifolia</i>	Key lime
<i>Coccoloba uvifera</i>	Seagrape
<i>Cocos nucifera</i>	Coconut palm
<i>Cordia rickseckeri</i>	Orange manjack
<i>Delonix regia</i>	Flamboyant tree
<i>Eugenia ligustrina</i>	Privet stopper
<i>Ficus citrifolia</i>	Wild banyantree
<i>Ixora</i> spp.	Ixora species
<i>Leucaena leucocephala</i> *	Tan tan
<i>Melicoccus bijugatus</i> *	Genip
<i>Momordica charantia</i>	Bitter melon
<i>Morinda citrifolia</i> *	Painkiller, Noni
<i>Musa acuminata</i>	Banana
<i>Myrciaria floribunda</i>	Guavaberry
<i>Nerium oleander</i>	Oleander
<i>Panicum maximum</i> *	Guinea grass
<i>Passiflora foetida</i>	Fetid passionflower
<i>Pithecellobium unguis-cati</i>	Bread-and-cheese
<i>Prunus dulcis</i>	Sweet almond
<i>Psidium guajava</i>	Guava
<i>Spigelia</i> sp.	Pinkroot species
<i>Swietenia mahagoni</i>	Mahogany
<i>Tabebuia caribea</i>	Yellow poui, yellow tabebuia
<i>Tabebuia heterophylla</i>	White cedar
<i>Tamarindus indica</i> *	Indian tamarind
<i>Tillandsia utriculata</i>	Airplant
<i>Tridax procumbens</i> *	Coatbuttons
<b>Reptiles</b>	
<i>Iguana iguana</i>	Iguana

\*Denotes a plant species characterized as either exotic, invasive, or a noxious weed

### 3.3.3 Transitional Forest 1

#### Vegetation

This area is characterized as an upland dry/mesic forest that is transitional along North Shore Drive on the southwestern side of the property. This area is rocky with a steep elevation change up toward the road. Species found were predominantly shrubby species and small trees. The dominant tree species in the forest are gumbo-limbo (*Bursera simaruba*), wild frangipani, amarant (*Acacia muricata*), and casha bush (*Acacia tortuosa*). Many of the trees in the canopy are less than 20 feet in height, though some trees were between 20 and 40 feet. The DBH for trees in Transitional Forest 1 is less than 2 inches.

The shrub understory is thin and rocky, with a thin duff layer (1-2 inches). Species found in the understory include privet stopper (*Eugenia ligustrina*), guavaberry (*Myrciaria floribunda*), sweet lime, and rodwood (*Eugenia biflora*). There are a few patches of mother-in-law's tongue, queen of the night cactus (*Selenicereus grandiflorus*), and scalloped laceleaf (*Anthurium crenatum*) scattered throughout Transitional Forest 1. Plant species observed at the site that have been characterized as either exotic, invasive, or a noxious weed by other sources include pinguin, genip, mother-in-law's tongue, and sweet lime (NPS 2010; USDA 2010). Table 3 below presents plant species observed at Transitional Forest 1.

### Wildlife

Bird species observed within Transitional Forest 1 included the bridled quail dove (*Geotrygon mystacea*), pearly-eyed thrasher (*Margarops fuscatus*), and bananaquit (*Coereba flaveola*). Several species of lizards were found at the site, including the green iguana, big scale least gecko (*Sphaerodactylus macrolepis*), Puerto Rican crested anole (*Anolis cristatellus cristatellus*), and Puerto Rican anole (*Anolis pulchellus*). The bridled quail-dove is territorially listed as endangered (DPNR n.d.). Nest predation by cats and mongoose, as well as human disturbance in crucial habitats are the main threats to this species (GVI 2007, 26). The terrestrial hermit crab, known as soldier crab (*Coenobita clypeatus*) was abundant at the site; a zebra heliconian butterfly (*Heliconius charithonia*) was also observed. Wildlife species found at Transitional Forest 1 are presented in Table 3 below.

Table 3. Plant and Wildlife Species Observed at Transitional Forest 1	
Scientific Name	Common Name
<b>Plants</b>	
<i>Anthurium crenatum</i>	Scalloped laceleaf
<i>Bromelia pinguin</i> *	Pinguin
<i>Bursera simaruba</i>	Gumbo-limbo
<i>Coccothrinax alta</i>	Teyer palm
<i>Comocladia dodonaea</i>	Poison ash
<i>Eugenia biflora</i>	Rodwood
<i>Eugenia ligustrina</i>	Privet stopper
<i>Guettarda scabra</i>	Velvet berry
<i>Jacquinia berteroi</i>	Jacquinea
<i>Lasiacis divaricata</i>	Trailing bamboo, smallcane
<i>Maytenus laevigata</i>	White cinnamon
<i>Melicoccus bijugatus</i> *	Genip
<i>Myrciaria floribunda</i>	Guavaberry
<i>Pisonia subcordata</i>	Water mampoo
<i>Psychotria nervosa</i>	Wild coffee
<i>Randia aculeata</i>	Inkberry
<i>Sansevieria trifasciata</i> *	Mother-in-law's tongue
<i>Selenicereus grandiflorus</i>	Queen of the night cactus
<i>Tabebuia heterophylla</i>	White cedar
<i>Tillandsia utriculata</i>	Airplant
<i>Tradescantia spathacea</i>	Boatlily
<i>Triphasia trifolia</i> *	Sweet lime
<b>Birds</b>	
<i>Geotrygon mystacea</i> **	Bridled quail-dove
<i>Margarops fuscatus</i>	Pearly-eyed thrasher
<i>Coereba flaveola</i>	Bananaquit

Table 3. Plant and Wildlife Species Observed at Transitional Forest 1	
<b>Reptiles</b>	
<i>Iguana iguana</i>	Iguana
<i>Sphaerodactylus macrolepis</i>	Big scale least gecko
<i>Anolis cristatellus cristatellus</i>	Puerto Rican crested anole
<i>Anolis pulchellus</i>	Puerto Rican anole
<b>Crustaceans</b>	
<i>Coenobita clypeatus</i>	Soldier crab
<b>Invertebrates</b>	
<i>Heliconius charithonia</i>	Zebra heliconian

\*Denotes a plant species characterized as either exotic, invasive, or a noxious weed

\*\*Denotes species that are either federally or territorially listed

### 3.3.4 Transitional Forest 2

#### Vegetation

This area is characterized as an upland dry/mesic forest that is transitional on the eastern boundary of the main Caneel Bay property, from the Hawksnest Beach area to the boundary of Caneel Bay within NPS property. This area is bordered on the western edge by Developed Area 1. There is a slight elevation change, but the ground is less rocky and the elevation change is less pronounced than Transitional Forest 1. While the species are similar to those found in Transitional Forest 1, the dominant tree species found within the canopy are gumbo-limbo, genip, and black mampoo (*Guapira fragrans*). These dominant species are 20 to 40 feet in height, and had an average DBH less than 2 inches, with some trees between 2 and 6 inches.

The understory of Transitional Forest 2 is thin, with a thin duff layer. The dominant understory species are inkberry (*Randia aculeata*), rodwood, sweet lime, trailing bamboo (*Lasiacis divaricata*), and tan tan seedlings. Other species found at the site include guinea grass, penguin, Jamaican caper (*Capparis cynophallophora*), and boatlily (*Tradescantia spathacea*). Plant species observed at the site that have been characterized as either exotic, invasive, or a noxious weed by other sources include penguin, tan tan, genip, guinea grass, and sweet lime (NPS 2010; USDA 2010). Table 4 below presents plant species observed at Transitional Forest 2.

#### Wildlife

Two species of birds were observed at Transitional Forest 2, the Antillean crested hummingbird (*Orthorhyncus cristatus*) and pearly-eyed thrasher. White-tailed deer and mongoose were also observed within Transitional Forest 2. Similar to Transitional Forest 1, soldier crabs were common at the site. Wildlife species found at Transitional Forest 2 are presented in Table 4 below.

Table 4. Plant and Wildlife Species Observed at Transitional Forest 2	
Scientific Name	Common Name
<b>Plants</b>	
<i>Bromelia pinguin</i> *	Penguin
<i>Bursera simaruba</i>	Gumbo-limbo
<i>Capparis cynophallophora</i>	Black caper, Jamaican caper
<i>Capparis flexuosa</i>	Limber caper
<i>Capparis indica</i>	White caper
<i>Coccoloba uvifera</i>	Seagrape
<i>Croton flavens var. rigidus</i>	Soldier whip
<i>Erithalis fruticosa</i>	Black torch
<i>Erythroxylum brevipes</i>	Brisselet

Table 4. Plant and Wildlife Species Observed at Transitional Forest 2	
Scientific Name	Common Name
<i>Eugenia biflora</i>	Rodwood
<i>Eugenia monticola</i>	Birdcherry
<i>Guapira fragrans</i>	Black mampoo
<i>Euphorbia petiolaris</i>	Black manchineel
<i>Jacquemontia pentanthos</i>	Wild morning glory
<i>Lasiacis divaricata</i>	Trailing bamboo, smallcane
<i>Leucaena leucocephala</i> *	Tan tan
<i>Melicococcus bijugatus</i> *	Genip
<i>Panicum maximum</i> *	Guinea grass
<i>Pilosocereus royenii</i>	Pipe-organ cactus
<i>Pithecellobium unguis-cati</i>	Bread-and-cheese
<i>Randia aculeata</i>	Inkberry
<i>Solanum polygamum</i>	Cakalaka berry
<i>Tabebuia heterophylla</i>	White cedar
<i>Tradescantia spathacea</i>	Boatlily
<i>Triphasia trifolia</i> *	Sweet lime
<b>Birds</b>	
<i>Orthorhyncus cristatus</i>	Antillean crested hummingbird
<i>Margarops fuscatus</i>	Pearly-eyed thrasher
<b>Mammals</b>	
<i>Odocoileus virginianus</i>	White-tailed deer
<i>Herpestes javanicus</i>	Mongoose
<b>Reptiles</b>	
<i>Anolis cristatellus cristatellus</i>	Puerto Rican crested anole
<b>Crustaceans</b>	
<i>Coenobita clypeatus</i>	Soldier crab

\*Denotes a plant species characterized as either exotic, invasive, or a noxious weed

### 3.3.5 Transitional Forest 3

#### Vegetation

This area is characterized as an upland dry/mesic forest that is transitional and includes a small isolated plot of land found south of North Shore Drive, to the east of the Water Catchment sites (see below). The area is comprised of dry and rocky deciduous forest. The site has a steep elevation change, with little understory. The trees at the site have a larger DBH than the sites noted above, which indicates that the forested plot is slightly older than the other transitional forests found on the site (Transitional Forests 1 and 2). Genip is the dominant tree species at the site, and many of the genip tree species are between 20 and 40 feet tall. The DBH of the dominant genip trees is 2 to 6 inches, but several larger specimens of genip were observed to have a DBH of 24 inches. The understory is dominated by sweet lime and privet stopper. Similar to the other transitional forest areas, the understory is thin, with a thin duff layer 1 to 2 inches thick. Other plant species identified at the site include teyer palm (*Coccothrinax alta*), inkberry, scalloped laceleaf, and pepper cillament (*Ocotea coriacea*). Plant species observed at the site that have been characterized as either exotic, invasive, or a noxious weed by other sources include genip and sweet lime (NPS 2010; USDA 2010). Table 5 below presents plant species observed at Transitional Forest 3. An overhead powerline runs along the site, but no vegetation has been cleared for the right-of-way. The site also contains old remnants of stone walls that may have been former property boundaries.

## Wildlife

No bird, mammal, or reptile species were observed during the field survey at Transitional Forest 3; however, it is likely that species at the site would be similar to those in the transitional forests of Transitional Forests 1 and 2 because similar habitat exists. Birds were heard within the forest during the surveys, but were not identified. Soldier crabs were common at the site. Wildlife species found at Transitional Forest 3 are presented in Table 5 below.

Table 5. Plant and Wildlife Species Observed at Transitional Forest 3	
Scientific Name	Common Name
<b>Plants</b>	
<i>Anthurium crenatum</i>	Scalloped laceleaf
<i>Ardisia obovata</i>	Guadeloupe marlberry
<i>Coccothrinax alta</i>	Teyer palm
<i>Eugenia biflora</i>	Rodwood
<i>Eugenia ligustrina</i>	Privet stopper
<i>Melicococcus bijugatus</i> *	Genip
<i>Ocotea coriacea</i>	Pepper cillament
<i>Pharus lappulaceus</i>	Cape Francais stalkgrass
<i>Poitea florida</i>	Wattapama
<i>Randia aculeata</i>	Inkberry
<i>Triphasia trifolia</i> *	Sweet lime
<b>Reptiles</b>	
<i>Anolis cristatellus cristatellus</i>	Puerto Rican crested anole
<b>Crustaceans</b>	
<i>Coenobita clypeatus</i>	Soldier crab

\*Denotes a plant species characterized as either exotic, invasive, or a noxious weed

### 3.3.6 Pond / Shoreline 1

#### Vegetation

This area is characterized as an upland dry/mesic forest that surrounds an open-water pond. To the west of the Developed Area 2, and within the forest described under Transitional Forest 1, there is a “brownwater” pond used for holding treated wastewater for irrigation purposes. Vegetation along the shoreline of the pond was surveyed separately from the surrounding forested area, though many species within the area are similar to those described under the Transitional Forest 1 area. Along the shoreline, common species are genip, sweet lime, and cakalaka berry (*Solanum polygamum*). A dense stand of common bamboo (*Bambusa vulgaris*) is present on the eastern side of the pond, and the northern end of the pond is dominated by guinea grass. Plant species observed at the site that have been characterized as either exotic, invasive, or a noxious weed by other sources include the following: genip, guinea grass, and sweet lime (NPS 2010; USDA 2010). Table 6 below presents plant species observed at Pond Shoreline 1.

#### Wildlife

Several bird species were observed at the pond. The freshwater pond with fish provides good habitat for many wading birds, including great egret (*Ardea alba*), black-crowned night heron (*Nycticorax nycticorax*), tricolored heron (*Egretta tricolor*), and an unknown duck species. The great egret and black-crowned night heron are listed as territorially endangered (DPNR n.d.). The major threat to the great egret is a loss of habitat (GVI 2007, 19). The black-crowned night heron has been threatened due to the loss of freshwater habitat, and human disturbance (GVI 2007, 20).

Brown pelicans were also observed at the site. The brown pelican was formerly listed as a federally endangered species, but has been delisted since 2009 (DPNR n.d.). It is likely that these species use the Pond Shoreline mainly for foraging and resting. No nesting was observed during field studies. The introduced mongoose and green iguanas were seen by the pond. Both of these species are considered nuisance species. Previous fish surveys at the pond indicated the presence of tilapia (*Oreochromis mossambicus*), though these species were not observed during field surveys. Wildlife species found at the Pond Shoreline are presented in Table 6 below.

Table 6. Plant and Wildlife Species Observed at Pond / Shoreline 1	
Scientific Name	Common Name
<b>Plants</b>	
<i>Bambusa vulgaris</i>	Common bamboo
<i>Cayaponia americana</i>	American melonleaf
<i>Cryptostegia grandiflora</i>	Rubbervine
<i>Melicoccus bijugatus</i> *	Genip
<i>Panicum maximum</i> *	Guinea grass
<i>Solanum polygamum</i>	Cakalaka berry
<i>Triphasia trifolia</i> *	Sweet lime
<b>Birds</b>	
<i>Anatidae</i>	Duck spp.
<i>Pelecanus Occidentalis</i>	Brown pelican
<i>Ardea alba</i> **	Great egret
<i>Nycticorax nycticorax</i> **	Black-crowned night heron
<i>Egretta tricolor</i>	Tricolored heron
<b>Mammals</b>	
<i>Herpestes javanicus</i>	Mongoose
<b>Reptiles</b>	
<i>Iguana iguana</i>	Iguana
<i>Anolis cristatellus cristatellus</i>	Puerto Rican crested anole
<b>Fish</b>	
<i>Oreochromis mossambicus</i>	Mozambique tilapia

\*Denotes a plant species characterized as either exotic, invasive, or a noxious weed

\*\*Denotes a species that is either federally or territorially listed

### **3.3.7 Beach 1 - Honeymoon Beach**

#### ***Vegetation***

This area is characterized as a beach and sits along the northwestern edge of the Caneel Bay property; the site is a popular beach for use by guests and visitors. The beach is within NPS property and can be accessed via the Lind Point Trail and a small gravel road, but the area immediately inland of the beach is part of the Caneel Bay property. Seagrape (*Coccoloba uvifera*), coconut palm, and maho tree (*Thespesia populnea*) comprise the dominant tree canopy. Tree heights are between 20-40 feet, with a diameter at breast height (DBH) between 2 and 6 inches. . Other species include pigeonberry (*Bourreria succulenta*), and false nutmeg (*Cassine xylocarpa*). On the eastern end of the site, there is a patch of mother-in-law's tongue in a small depression near the gravel road. There are no understory species present, and the site substrate was beach sand. Plant species observed at the site that have been characterized as either exotic, invasive, or a noxious weed by other sources include mother-in-law's tongue (NPS 2010; USDA 2010). Table 7 below presents plant species observed at Beach 1.

## Wildlife

Waterbird species observed at Honeymoon Beach included the double-crested cormorant (*Phalacrocorax auritus*) and laughing gull. It is likely that these species use the beach area mainly for foraging and resting. No nesting was observed during field studies. The pearly-eyed thrasher was also observed in the trees inland from the beach. Feral donkeys were also observed during the field survey. Wildlife species found at the Beach 1/Honeymoon Beach site are presented in Table 7 below.

Table 7. Plant and Wildlife Species Observed at Beach 1	
Scientific Name	Common Name
<b>Plants</b>	
<i>Bouyeria succulenta</i>	Pigeonberry
<i>Cassine xylocarpa</i>	Marble tree, false nutmeg
<i>Coccoloba uvifera</i>	Seagrape
<i>Cocos nucifera</i>	Coconut palm
<i>Randia aculeata</i>	Inkberry
<i>Sansevieria trifasciata</i> *	Mother-in-law's tongue
<i>Thespesia populnea</i>	Maho tree
<b>Birds</b>	
<i>Phalacrocorax auritus</i>	Double-crested cormorant
<i>Leucophaeus atricilla</i>	Laughing gull
<i>Margarops fuscatus</i>	Pearly-eyed thrasher
<b>Mammals</b>	
<i>Equus asinus</i>	Donkey

\*Denotes a plant species characterized as either exotic, invasive, or a noxious weed

### 3.3.8 Dump 1

#### Vegetation

This area is characterized as developed due to historic site clearing and is located on a hill above the Beach 1 site, which also borders the Transitional Forest 1 site. This site is located on the northwestern portion of the Caneel Bay property in an area somewhat unseen by visitors, but can be accessed via the gravel road that leads to the Beach 1 site. The dump is an area that was originally cleared of vegetation and where the resort composts organic material from landscaping and other operations. The site has a large excavated depression that contains standing water as a result of rain events and from the adjacent hillside runoff. Although the site was cleared in the past and open areas remain, vegetation has since been established in the less active portions of the dumping area. Many of the species observed at the site were herbaceous, pioneering and introduced species, such as Asian spiderflower (*Cleome viscosa*), pricklyburr (*Datura inoxia*), little ironweed (*Cyanthillium cinereum*), and guinea grass, although numerous native herbaceous species were also observed, including swollen fingergrass (*Chloris barbata*), light-blue snakeweed (*Stachytarpheta jamaicensis*) and prostrate sandmat (*Euphorbia prostrata*). Some tree specimens were observed in the central and peripheral portions of the site, including banana, mango (*Mangifera indica*), coconut palm, white cedar (*Tabebuia heterophylla*), flamboyant tree and custard apple (*Annona reticulata*). Plant species observed at the site that have been characterized as either exotic, invasive, or a noxious weed by other sources include guinea grass (NPS 2010; USDA 2010). Table 8 presents plant species observed at Dump 1.

## Wildlife

No bird species were observed at the dump; however, it is likely that bird species similar to those found in the developed area and within the Transitional Forest 1 and Developed Area 1 and 2 (see above), would occur at the site due to proximity and similar habitat, such as the mockingbird, pearly-eyed thrasher, and mourning dove. Several feral donkeys were observed at the site. Wildlife species found at the Dump 1 site are presented in Table 8 below.

Table 8. Plant and Wildlife Species Observed at Dump 1	
Scientific Name	Common Name
<b>Plants</b>	
<i>Annona reticulata</i>	Custard apple
<i>Boufferea succulenta</i>	Pigeonberry
<i>Chloris barbata</i>	Swollen fingergrass
<i>Cleome viscosa</i>	Asian spiderflower
<i>Cocos nucifera</i>	Coconut palm
<i>Cyanthillium cinereum</i>	Little ironweed
<i>Cyperus rotundus</i>	Nutgrass
<i>Datura innoxia</i>	Pricklyburr
<i>Euphorbia prostrata</i>	Prostrate sandmat
<i>Delonix regia</i>	Flamboyant tree
<i>Mangifera indica</i>	Mango
<i>Musa acuminata</i>	Banana
<i>Panicum maximum*</i>	Guinea grass
<i>Selenicereus grandiflorus</i>	Queen of the night cactus
<i>Stachytarpheta jamaicensis</i>	Light-blue snakeweed
<i>Tabebuia heterophylla</i>	White cedar
<b>Mammals</b>	
<i>Equus asinus</i>	Donkey
<b>Reptiles</b>	
<i>Anolis cristatellus cristatellus</i>	Puerto Rican crested anole

\*Denotes a plant species characterized as either exotic, invasive, or a noxious weed

### 3.3.9 Caneel Trail

#### Vegetation

The Caneel Trail is characterized as an upland dry/mesic forest that is transitional and is located across North Shore Drive from the main resort property. The site contains an artificially created water retention area that was originally used to control stormwater runoff during rain events from the hills above the resort, and is locally referred to as an “air dam.” The site includes a large depression with a berm and a culvert runs down an open channel from this area and flows to the drainage along North Shore Drive. The depression did not contain water at the time of observation and is dominated with low-growing herbaceous vegetation. Observed herbaceous plant species included light-blue snakeweed, Indian heliotrope (*Heliotropium indicum*), and crabgrass species (*Digitaria* sp.).

The canopy within the forested area is dominated by genip and white cedar ranging from 20 and 40 feet tall with a DBH of 2 to 6 inches. The understory is thin and mainly comprised of sweet lime, and privet stopper. The duff layer is also thin, between 1 and 2 inches. Other tree species observed in the forested portion of the site include Teyer palm, flamboyant tree, and gumbo-limbo. Plant species observed at the site that have been characterized as either exotic, invasive,

or a noxious weed by other sources include tan tan, genip, guinea grass, mother-in-law's tongue, and sweet lime (NPS 2010; USDA 2010). Table 9 presents plant species observed at Caneel Trail.

### **Wildlife**

No wildlife was observed at the Caneel Trail during field surveys.

Scientific Name	Common Name
<i>Albizia lebeck</i>	Mimosa, woman's tongue
<i>Ardisia obovata</i>	Guadeloupe marlberry
<i>Bursera simaruba</i>	Gumbo-limbo
<i>Ceiba pentandra</i>	Kapok tree
<i>Coccothrinax alta</i>	Teyer palm
<i>Crotalaria lotifolia</i>	Rattlebox
<i>Delonix regia</i>	Flamboyant tree
<i>Eugenia ligustrina</i>	Privet stopper
<i>Digitaria</i> sp.	Crabgrass species
<i>Heliotropium indicum</i>	Indian heliotrope
<i>Lasiacis divaricata</i>	Trailing bamboo, smallcane
<i>Leucaena leucocephala</i> *	Tan tan
<i>Maytenus laevigata</i>	White cinnamon
<i>Melicoccus bijugatus</i> *	Genip
<i>Myrciaria floribunda</i>	Guavaberry
<i>Panicum maximum</i> *	Guinea grass
<i>Pharus lappulaceus</i>	Cape Francais stalkgrass
<i>Psychotria nervosa</i>	Wild coffee
<i>Sansevieria trifasciata</i> *	Mother-in-law's tongue
<i>Stachytarpheta jamaicensis</i>	Light-blue snakeweed
<i>Tabebuia heterophylla</i>	White cedar
<i>Triphasia trifolia</i> *	Sweet lime

\*Denotes a plant species characterized as either exotic, invasive, or a noxious weed

### **3.3.10 Hawksnest Point**

#### **Vegetation**

This area is characterized as both shrubland and upland dry/mesic forest that is transitional on a peninsula, this area is bounded by the Caneel Bay Resort property. Hawksnest Point is located on the northeast portion of the property between Hawksnest Beach and Turtle Bay. Caneel Bay maintains a trail that follows the perimeter of the point, and has benches at several viewpoints along the trail. The point is a young and dry deciduous forest, with some larger tree specimens. The dominant canopy species are black mampoo, water mampoo (*Pisonia subcordata*), black olive or gre-gre (*Bucida buceras*), and Jamaican caper. Gumbo-limbo is a sub-dominant species in the tree canopy. Trees are between 20 and 40 feet, and have an average DBH of 2 to 6 inches, though several larger specimens of black olive are also present.

The understory is dominated by inkberry, guinea grass, pinguin, and black machineel (*Euphorbia petiolaris*). Trailing bamboo is also dominant within open areas, but remarkably the invasive understory species sweet lime was not observed at this site. The understory is patchy, but thicker than at the previously discussed forested sites. The duff layer is thin, between 1 and 2 inches

thick. Other species found at the site include rodwood, pipe-organ cactus (*Pilosocereus royenii*), guavaberry, wild frangipani, and soldier whip (*Croton flavens var. rigidus*). Although Egger's cockspur (*Erythrina eggersii*), an endangered species in the U.S.V.I., is known to occur on the point, this species was not observed during field studies. Plant species observed at the site that have been characterized as either exotic, invasive, or a noxious weed by other sources include pinguin, tan tan, and guinea grass (NPS 2010; USDA 2010). This site was the only area surveyed where the exotic plant sweet lime was not observed. Table 10 presents plant species observed at Hawksnest Point.

### **Wildlife**

Mourning doves, magnolia warbler (*Setophaga magnolia*), yellow warbler (*Setophaga petechia*), and bananquit were observed within Hawksnest Point. Introduced donkeys were also observed in the area. The Puerto Rican anole and several soldier crabs were also identified. Wildlife species found at Hawksnest Point are presented in Table 10 below.

Table 10. Plant and Wildlife Species Observed at Hawksnest Point	
Scientific Name	Common Name
<b>Plants</b>	
<i>Acacia muricata</i>	Spineless wattle, amarat
<i>Acacia tortuosa</i>	Casha bush, poponax
<i>Acacia retusa</i>	Catch-and-keep
<i>Adelia ricinella</i>	Adelia
<i>Agave missionum</i>	Century plant
<i>Albizia lebbek</i>	Mimosa, woman's tongue
<i>Bromelia pinguin*</i>	Pinguin
<i>Bursera simaruba</i>	Gumbo-limbo
<i>Bucida buceras</i>	Black olive, gre-gre
<i>Capparis cynophallophora</i>	Black caper, Jamaican caper
<i>Capparis flexuosa</i>	Limber caper
<i>Coccoloba uvifera</i>	Seagrape
<i>Coccothrinax alta</i>	Teyer palm
<i>Croton betulinus</i>	Pistarckle bush
<i>Croton flavens var. rigidus</i>	Soldier whip
<i>Eugenia biflora</i>	Rodwood
<i>Eugenia sessiliflora</i>	Sessileleaf stopper
<i>Euphorbia petiolaris</i>	Black manchineel
<i>Guapira fragrans</i>	Black mampoo
<i>Jacquinia berteroi</i>	Jacquinia
<i>Lasiacis divaricata</i>	Trailing bamboo, smallcane
<i>Leucaena leucocephala*</i>	Tan tan
<i>Maytenus laevigata</i>	White cinnamon
<i>Myrciaria floribunda</i>	Guavaberry
<i>Opuntia repens</i>	Roving pricklypear
<i>Panicum maximum*</i>	Guinea grass
<i>Pilosocereus royenii</i>	Pipe-organ cactus
<i>Piscidia carthagenensis</i>	Stinkwood
<i>Pisonia subcordata</i>	Water mampoo
<i>Plumeria alba</i>	Wild frangipani
<i>Randia aculeata</i>	Inkberry
<i>Solanum torvum</i>	Turkey berry
<i>Tabebuia heterophylla</i>	White cedar

Table 10. Plant and Wildlife Species Observed at Hawksnest Point	
Scientific Name	Common Name
<i>Tillandsia utriculata</i>	Airplant
<b>Birds</b>	
<i>Zenaida macroura</i>	Mourning dove
<i>Setophaga magnolia</i>	Magnolia warbler
<i>Setophaga petechia</i>	Yellow warbler
<i>Coereba flaveola</i>	Bananaquit
<b>Mammals</b>	
<i>Equus asinus</i>	Donkey
<b>Reptiles</b>	
<i>Anolis cristatellus cristatellus</i>	Puerto Rican crested anole
<i>Anolis pulchellus</i>	Puerto Rican anole
<b>Crustacean</b>	
<i>Coenobita clypeatus</i>	Soldier crab

\*Denotes a plant species characterized as either exotic, invasive, or a noxious weed

### 3.3.11 Water Catchment - Quarry

#### *Vegetation*

This area is characterized as developed and is located south of the main Caneel Bay Resort parcel, and sits uphill of the resort. The water catchment basin is a large paved area used to collect rainwater from the hillside to provide water for use at Caneel Bay. The Quarry site is located in the storage area beneath the basin, and is sometimes used to obtain rock material. The side of the site includes a rocky drop-off that is extremely steep, with a nearly vertical. The Quarry area is disturbed, and contains weedy vegetation. Some species identified at the site are casha bush, penguin, soldier whip, flamboyant tree, bellyache bush (*Jatropha gossypifolia*), pyramid flower (*Melochia pyramidata*), and light-blue snakeweed. Plant species observed at the site that have been characterized as either exotic, invasive, or a noxious weed by other sources include penguin, tan tan, and guinea grass (NPS 2010; USDA 2010). This site was one of the only areas surveyed where the exotic plant sweet lime was not observed. Table 11 presents plant species observed at Water Catchment - Quarry.

#### *Wildlife*

Several species of birds were identified within the scrubby areas within the Water Catchment – Quarry site, including the Antillean crested hummingbird, mourning dove, gray kingbird (*Tyrannus dominicensis*), and lesser Antillean bullfinch (*Loxigilla noctis*). A zebra heliconian butterfly was also observed. Wildlife species found the Water Catchment- Quarry are presented in Table 11 below.

Table 11. Plant and Wildlife Species Observed at Water Catchment - Quarry	
Scientific Name	Common Name
<b>Plants</b>	
<i>Acacia tortuosa</i>	Casha bush, poponax
<i>Barleria lupulina</i>	Hophead Philippine violet
<i>Bromelia pinguin</i> *	Penguin
<i>Bursera simaruba</i>	Gumbo-limbo
<i>Chloris barbata</i>	Swollen fingergrass
<i>Cleome viscosa</i>	Asian spiderflower

Table 11. Plant and Wildlife Species Observed at Water Catchment - Quarry	
Scientific Name	Common Name
<i>Coccoloba uvifera</i>	Seagrape
<i>Commelina erecta</i>	Whitemouth dayflower
<i>Comocladia dodonaea</i>	Poison ash
<i>Croton flavens var. rigidus</i>	Soldier whip
<i>Delonix regia</i>	Flamboyant tree
<i>Euphorbia prostrata</i>	Prostrate sandmat
<i>Jacquemontia pentanthos</i>	Wild morning glory
<i>Jatropha gossypifolia</i>	Bellyache bush
<i>Kalanchoe pinnata</i>	Cathedral bells
<i>Melicoccus bijugatus*</i>	Genip
<i>Melochia pyramidata</i>	Pyramid flower
<i>Panicum maximum*</i>	Guinea grass
<i>Pisonia subcordata</i>	Water mampoo
<i>Plumeria alba</i>	Wild frangipani
<i>Randia aculeata</i>	Inkberry
<i>Ricinus communis</i>	Castorbean
<i>Rondeletia pilosa</i>	Cordobancillo peludo
<i>Sansevieria trifasciata*</i>	Mother-in-law's tongue
<i>Stachytarpheta jamaicensis</i>	Light-blue snakeweed
<i>Tillandsia utriculata</i>	Airplant
<i>Triphasia trifolia*</i>	Sweet lime
<b>Birds</b>	
<i>Zenaida macroura</i>	Mourning dove
<i>Orthorhyncus cristatus</i>	Antillean crested hummingbird
<i>Tyrannus dominicensis</i>	Gray kingbird
<i>Loxigilla noctis</i>	Lesser Antillean bullfinch
<b>Reptiles</b>	
<i>Anolis cristatellus cristatellus</i>	Puerto Rican crested anole
<b>Invertebrates</b>	
<i>Heliconius charithonia</i>	Zebra heliconian

\*Denotes a plant species characterized as either exotic, invasive, or a noxious weed

### **3.3.12 Water Catchment - Forest**

#### ***Vegetation***

This area is characterized as an upland dry/mesic forest that is transitional and located above the concrete water basin. This site consists of a transitional dry deciduous forest with rocky terrain and steep topography similar to other upland dry/mesic forest areas at the resort. Genip and yellow mombin (*Spondias mombine*) are the dominant tree species in the canopy. The trees were between 20 and 40 feet tall, with a DBH of 2-6 inches. There are a few larger tree specimens with a greater DBH.

The understory is sparse, with a thin duff layer of 1-2 inches. The dominant understory species are trailing bamboo, sweet lime, scalloped laceleaf, and privet stopper. Other plant species noted at the site include white cedar, several large teyer palms, gumbo-limbo, tan tan, bread-and-cheese (*Pithecellobium unguis-cati*), and Cape Francois stalkgrass (*Pharus lappulaceus*). Plant species observed at the site that have been characterized as either exotic, invasive, or a noxious weed by other sources include tan tan and sweet lime (NPS 2010; USDA 2010). Table 12 presents plant species observed at Water Catchment - Forest.

## Wildlife

The mourning dove was the only bird species identified within the forest at the Water Catchment – Forest site. Soldier crabs were common at the site. Wildlife species found the Water Catchment- Forest are presented in Table 12 below. Although not observed during field studies in August 2012, other wildlife bird species that could be present at the site include the mockingbird, pearly-eyed thrasher, bananaquit, and lesser Antillean bullfinch. It is also possible that mongoose, white-tailed deer, Puerto Rican crested anoles, and Puerto Rican anoles could be present at the site.

Table 12. Plant and Wildlife Species Observed at Water Catchment-Forest	
Scientific Name	Common Name
<b>Plants</b>	
<i>Acacia tortuosa</i>	Casha bush, poponax
<i>Anthurium crenatum</i>	Scalloped laceleaf
<i>Bursera simaruba</i>	Gumbo-limbo
<i>Capparis indica</i>	White caper
<i>Coccothrinax alta</i>	Teyer palm
<i>Eugenia ligustrina</i>	Privet stopper
<i>Ipomoea repanda</i>	Bejuco colorado
<i>Lasiacis divaricata</i>	Trailing bamboo, smallcane
<i>Leucaena leucocephala</i> *	Tan tan
<i>Maytenus laevigata</i>	White cinnamon
<i>Ocotea coriacea</i>	Pepper cillament
<i>Pharus lappulaceus</i>	Cape Francais stalkgrass
<i>Pithecellobium unguis-cati</i>	Bread-and-cheese
<i>Spondias mombine</i>	Hogplum; yellow mombin
<i>Psychotria brownei</i>	Browne's wild coffee
<i>Tabebuia heterophylla</i>	White cedar
<i>Triphasia trifolia</i> *	Sweet lime
<b>Birds</b>	
<i>Zenaida macroura</i>	Mourning dove
<b>Reptiles</b>	
<i>Anolis cristatellus cristatellus</i>	Puerto Rican crested anole
<b>Crustaceans</b>	
<i>Coenobita clypeatus</i>	Soldier crab

\*Denotes a plant species characterized as either exotic, invasive, or a noxious weed

### 3.3.13 Fuel Dock

#### Vegetation

This area is considered developed and includes the areas surrounding a fuel dock that Caneel Bay Resort runs in Cruz Bay, located adjacent to the NPS Visitor Center. This property is one of the three additional parcels under consideration as part of the lease agreement. The site is almost entirely concrete and developed, housing large fuel tanks and a pump for boat fuel. A locked fence and security prevented access to the site, so surveys of vegetation were completed from outside the fence. Some of the species observed at the site included tan tan, guinea grass, sea purslane (*Sesuvium portulacastrum*), and light-blue snakeweed. Plant species observed at the site that have been characterized as either exotic, invasive, or a noxious weed by other sources

include tan tan, guinea grass, and coatbuttons (NPS 2010; USDA 2010). Table 13 presents plant species observed at the Fuel Dock.

**Wildlife**

No wildlife was observed at the fuel dock during field surveys.

Table 13. Plant Species Observed at Fuel Dock	
Scientific Name	Common Name
<i>Leucaena leucocephala</i> *	Tan tan
<i>Panicum maximum</i> *	Guinea grass
<i>Sesuvium portulacastrum</i>	Sea purslane
<i>Stachytarpheta jamaicensis</i>	Light-blue snakeweed
<i>Tradescantia spathacea</i>	Boatlily
<i>Tridax procumbens</i> *	Coatbuttons

\*Denotes a plant species characterized as either exotic, invasive, or a noxious weed

**3.3.14 Apartment Building 1**

**Vegetation**

This area is characterized as developed and is a second property for consideration within the long-term lease. The property is located near the NPS Visitor Center and currently includes two small apartment buildings. A majority of this area is maintained cultivated vegetation, with a maintained lawn area. A stormwater culvert runs along the property where it borders North Shore Drive, and the site has a double-culvert for stormwater runoff. Plant species observed at the site include flamboyant tree, orange manjack (*Cordia rickseckeri*), coconut palm, genip, banana, oleander, and coatbuttons (included on the 2010 *Federal Noxious Weed List*, USDA 2012). Plant species observed at the site that have been characterized as either exotic, invasive, or a noxious weed by other sources include American dodder (*Cuscuta americana*), tan tan, genip, coatbuttons, and sweet lime (NPS 2010; USDA 2010). Table 14 presents plant species observed at Apartment Buildings 1.

**Wildlife**

The green iguana was the only wildlife species observed at this location (Table 14). Although not observed during field studies in August 2012, other wildlife bird species that could be present at the site include the mockingbird, mourning dove, pearly-eyed thrasher. Mongoose, donkeys, Puerto Rican crested anoles, and Puerto Rican anoles could also be present at the site.

Table 14. Plant and Wildlife Species Observed at Apartment Building 1	
Scientific Name	Common Name
<b>Plants</b>	
<i>Bucida buceras</i>	Black olive, gre-gre
<i>Coccoloba uvifera</i>	Seagrape
<i>Cocos nucifera</i>	Coconut palm
<i>Cordia rickseckeri</i>	Orange manjack
<i>Cuscuta americana</i> *	American dodder
<i>Delonix regia</i>	Flamboyant tree
<i>Leucaena leucocephala</i> *	Tan tan
<i>Melicoccus bijugatus</i> *	Genip

Scientific Name	Common Name
<i>Musa acuminata</i>	Banana
<i>Nerium oleander</i>	Oleander
<i>Tabebuia heterophylla</i>	White cedar
<i>Tillandsia utriculata</i>	Airplant
<i>Tridax procumbens</i> *	Coatbuttons
<i>Triphasia trifolia</i> *	Sweet lime
<b>Reptiles</b>	
<i>Iguana iguana</i>	Iguana

\*Denotes a plant species characterized as either exotic, invasive, or a noxious weed

### **3.3.15 Housing 1**

#### ***Vegetation***

This area is characterized as developed and is the third property under consideration for the long-term lease. It overlooks Cruz Bay off of North Shore Drive (Route 20). This property currently serves as executive housing for employees. The property was fenced with a locked gate which prevented access, so surveys were completed from outside the fence. The area is largely mowed/maintained lawn with cultivated ornamental plant species. Observed species at the site include century plant (*Agave missionum*), flamboyant tree, bougainvillea, mango, wild banyantree (*Ficus citrifolia*), oleander, and guinea grass. Plant species observed at the site that have been characterized as either exotic, invasive, or a noxious weed by other sources include tan tan, guinea grass, and Indian tamarind (NPS 2010; USDA 2010). Table 15 presents plant species observed at Housing 1.

#### ***Wildlife***

Mourning doves were the only species recorded at the Housing 1 site were mourning doves (Table 15). Although not observed during field studies in August 2012, other wildlife bird species that could be present at the site include the mockingbird, pearly-eyed thrasher. Mongooses, Puerto Rican crested anoles, iguanas, and soldier crabs could be present at the site.

Table 15. Plant and Wildlife Species Observed at Housing 1	
Scientific Name	Common Name
<b>Plants</b>	
<i>Agave missionum</i>	Century plant
<i>Bauhinia monandra</i>	Napoleon's plume
<i>Bougainvillea sp.</i>	Bougainvillea species
<i>Centrosema virginianum</i>	Spurred butterfly pea
<i>Crescentia cujete</i>	Common calabash tree
<i>Coccoloba uvifera</i>	Seagrape
<i>Cocos nucifera</i>	Coconut palm
<i>Commelina erecta</i>	Whitemouth dayflower
<i>Croton flavens var. rigidus</i>	Soldier whip
<i>Delonix regia</i>	Flamboyant tree
<i>Ficus citrifolia</i>	Wild banyantree
<i>Leucaena leucocephala*</i>	Tan tan
<i>Mangifera indica</i>	Mango
<i>Nerium oleander</i>	Oleander
<i>Panicum maximum*</i>	Guinea grass
<i>Tamarindus indica*</i>	Indian tamarind
<b>Birds</b>	
<i>Zenaida macroura</i>	Mourning dove

\*Denotes a plant species characterized as either exotic, invasive, or a noxious weed

#### 4.0 SUMMARY AND CONCLUSIONS

Field assessments of plant and wildlife species were conducted on 7, 8, and 9 August 2012 at the Caneel Bay Resort and the three additional parcels being considered for the long-term lease. The study area was divided into 15 areas based on habitat. Each site was surveyed to determine the plant and wildlife species present at the sites.

The developed and/or disturbed sites (Developed 1 & 2, Dump, Water Catchment – Quarry, Fuel Dock, Apartment Buildings, and Housing off Rt. 20, Honeymoon Beach) presented a range of vegetation, from the fuel dock, which was almost entirely paved, to the Water Catchment – Quarry site or Dump site, which contained scrubby habitat. The two developed areas at the resort, the apartment building, and the housing all were largely mowed/maintained lawn with cultivated ornamental plant species. These areas provided habitat for wildlife species, including several introduced species, particularly the mongoose, donkey, and green iguana. Several common bird species were present in these sites such as the mourning dove and mockingbird.

The forested sites (Transitional Forests 1, 2, & 3, Caneel Trail, NPS Hawksnest Point, and Water Catchment – Forest) contained dry, rocky transitional forests. Many of these tracts contained similar species, and had trees of DBH of either less than 2 inches for some of the sites, and 2-6 inches for most of the sites. All sites included individual specimens with larger DBH. Many of the forests were dominated in the understory by sweet lime, an invasive species. Other invasive plant species were also present at the sites, including genip, bromeliad pinguin, tan tan, and guinea grass.

Many of the wildlife species noted within the forested areas were similar to those noted at the developed sites, such as the pearly-eyed thrasher and mourning dove. Bananaquits, the Puerto Rican anole, and soldier crabs were other commonly found species in forested areas. Several species observed during field studies were only found in forested areas, including the bananaquit, the yellow warbler, and the magnolia warbler. The territorially endangered bridled quail-dove was also only found within a forested area.

The Pond Shoreline site had similar vegetation to many of the forested areas, but provided habitat to a high number of bird species that used the freshwater resource. Several species of wading birds, including great egret, black-crowned night heron, tricolored heron, and an unknown duck species, were found along the pond shoreline. The black-crowned night heron and the great egret are listed as territorially endangered.

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**ATTACHMENT A**  
**PHOTOGRAPHIC RECORD**

# Photographic Record

Vegetation and Wildlife Assessments  
Caneel Bay Resort, USVI  
Field Surveys (August 2012)



1. Landscaping typical of Developed Area 1



2. Iguana sunning on the rocks in Developed Area 1



3. Woolly nipple cactus (*Mammillaria nivosa*) in Developed Area 1



4. View of Developed Area 2 and typical landscaping

# Photographic Record

Vegetation and Wildlife Assessments  
Caneel Bay Resort, USVI  
Field Surveys (August 2012)



5. Channel flowing from pond, Developed Area 2



6. Patch of mother-in-law's tongue, Transect 1



7. Rocky, transitional forest typical of Transect 1



8. Big scale least gecko (*Sphaerodactylus macrolepis*) in Transect 1

# Photographic Record

Vegetation and Wildlife Assessments  
Caneel Bay Resort, USVI  
Field Surveys (August 2012)



9. White-tailed deer (*Odocoileus virginianus*) in representative habitat for Transect 2



10. Dry, rocky area found in Transect 2



11. Dry transitional forest representative of Transect 3



12. View of pond from the shoreline

# Photographic Record

Vegetation and Wildlife Assessments  
Caneel Bay Resort, USVI  
Field Surveys (August 2012)



13. Stand of common bamboo (*Bambusa vulgaris*) at Pond



14. Honeymoon Beach/Beach 1



15. Honeymoon Beach/Beach 1



16. View of the Dump

# Photographic Record

Vegetation and Wildlife Assessments  
Caneel Bay Resort, USVI  
Field Surveys (August 2012)



17. Donkeys (*Equus asinus*) at the Dump 1



18. Stone channel in forest, Caneel Trail



19. Large depression and bermed area, Caneel Trail



20. Berm and dammed area (air dam) Caneel Trail

# Photographic Record

Vegetation and Wildlife Assessments  
Caneel Bay Resort, USVI  
Field Surveys (August 2012)



21. View of trail, Hawksnest Point



22. View of Ocean from trail, Hawksnest Point



23. Yellow warbler (*Setophaga petechia*) at Hawksnest Point



24. Donkeys along trail, Hawksnest Point

# Photographic Record

Vegetation and Wildlife Assessments  
Caneel Bay Resort, USVI  
Field Surveys (August 2012)



25. View of quarry area, Water Catchment- Quarry



26. Typical vegetation growing alongside debris, Water Catchment- Quarry



27. Road leading to quarry, Water Catchment- Quarry



28. Water catchment basin

# Photographic Record

Vegetation and Wildlife Assessments  
Caneel Bay Resort, USVI  
Field Surveys (August 2012)



29. Drainage/trail, Water Catchment- Forest



30. Representative vegetation, Water Catchment- Forest



30. Representative vegetation, Water Catchment- Forest



32. Fuel Dock

# Photographic Record

## Vegetation and Wildlife Assessments Caneel Bay Resort, USVI Field Surveys (August 2012)



33. View of Apartment Building and surrounding vegetation



34. American dodder (*Cuscuta Americana*) growing at the Apartment Building



35. Storm drainage and vegetation between road and Apartment Building



36. View of ocean from Housing Off Rt. 20

# Photographic Record

**Vegetation and Wildlife Assessments  
Caneel Bay Resort, USVI  
Field Surveys (August 2012)**



37. View of yard, Housing Off Rt. 20

**ATTACHMENT B**

**PLANT AND WILDLIFE SPECIES TABLES**

**Table B-1. All Plant Species Observed During August 2012 Assessments**

All Sites Combined	
Scientific Name	Common Name
<i>Acacia muricata</i>	Spineless wattle, amarat
<i>Acacia tortuosa</i>	Casha bush, poponax
<i>Acacia retusa</i>	Catch-and-keep
<i>Adelia ricinella</i>	Adelia
<i>Agave missionum</i>	Century plant
<i>Albizia lebeck</i>	Mimosa, woman's tongue
<i>Annona reticulata</i>	Custard apple
<i>Annona squarrosa</i>	Sugar apple
<i>Annona muricata</i>	Soursop
<i>Anthurium crenatum</i>	Scalloped laceleaf
<i>Ardisia obovata</i>	Guadeloupe marlberry
<i>Azadiracta indica</i>	Miracle tree, neem
<i>Bambusa vulgaris</i>	Common bamboo
<i>Barleria lupulina</i>	Hophead Philippine violet
<i>Bastardiopsis (Sida) eggersii</i> <sup>†</sup>	Jost Van Dyke's Indian mallow
<i>Bauhinia monandra</i>	Napoleon's plume
<i>Bougainvillea sp.</i>	Bougainvillea species
<i>Bourreria succulenta</i>	Pigeonberry
<i>Bromelia pinguin</i>	Pinguin
<i>Brya ebenus</i>	Jamaican ebony
<i>Bucida buceras</i>	Florida black olive
<i>Bursera simaruba</i>	Gumbo-limbo
<i>Capparis cynophallophora</i>	Black caper, Jamaican caper
<i>Capparis flexuosa</i>	Limber caper
<i>Capparis indica</i>	White caper
<i>Caryota spp.</i>	Fishtail palm
<i>Cassine xylocarpa</i>	Marble tree, false nutmeg
<i>Cayaponia americana</i>	American melonleaf
<i>Ceiba pentandra</i>	Kapok tree
<i>Centrosema virginianum</i>	Spurred butterfly pea
<i>Chloris barbata</i>	Swollen fingergrass
<i>Citrus aurantifolia</i>	Key lime
<i>Cleome viscosa</i>	Asian spiderflower
<i>Clusia rosea</i>	Scotch attorney, autograph tree
<i>Coccoloba microstachya</i>	Puckout
<i>Coccoloba uvifera</i>	Seagrape
<i>Coccothrinax alta</i>	Teyer palm
<i>Cocos nucifera</i>	Coconut palm
<i>Colvillea racemosa</i>	Colville's GloryTree, Whip Tree
<i>Commelina erecta</i>	Whitemouth dayflower
<i>Comocladia dodonaea</i>	Poison ash
<i>Crescentia cujete</i>	Common calabash tree
<i>Crotalaria lotifolia</i>	Rattlebox
<i>Croton betulinus</i>	Pistarckle bush
<i>Croton flavens var. rigidus</i>	Soldier whip
<i>Cryptostegia grandiflora</i>	Rubbervine
<i>Cuscuta americana</i>	American dodder
<i>Cyanthillium cinereum</i>	Little ironweed
<i>Cyperus rotundus</i>	Nutgrass
<i>Datura inoxia</i>	Pricklyburr
<i>Delonix regia</i>	Flamboyant tree

All Sites Combined	
Scientific Name	Common Name
<i>Enterolobium cyclocarpum</i>	Guanacaste tree
<i>Erithalis fruticosa</i>	Black torch
<i>Erythroxylum brevipes</i>	Brisselet
<i>Eugenia biflora</i>	Rodwood
<i>Eugenia ligustrina</i>	Privet stopper
<i>Eugenia monticola</i>	Birdcherry
<i>Eugenia sessiliflora</i>	Sessileleaf stopper
<i>Euphorbia petiolaris</i>	Black manchineel
<i>Euphorbia prostrata</i>	Prostrate sandmat
<i>Ficus citrifolia</i>	Wild banyantree
<i>Fimbristylis spathacea</i>	Hurricanegrass
<i>Guaiacum officinale</i> <sup>†</sup>	Lignum vitae
<i>Guapira fragrans</i>	Black mampoo
<i>Guettarda scabra</i>	Velvet berry
<i>Heliotropium indicum</i>	Indian heliotrope
<i>Hymanea courbaril</i>	West Indian locust
<i>Ipomoea sp.</i>	Morning glory species
<i>Ipomoea repanda</i>	Bejuco colorado
<i>Ixora sp.</i>	Ixora
<i>Ixora macrothyrsa</i>	Garden ixora
<i>Jacquemontia pentanthos</i>	Wild morning glory
<i>Jacquinia berteroi</i>	Jacquinea
<i>Jatropha gossypifolia</i>	Bellyache bush
<i>Krugiodendron ferreum</i>	Leadwood, black ironwood
<i>Lagerstroemia indica</i>	Crape myrtle
<i>Laguncularia racemosa</i>	White mangrove
<i>Lasiacis divaricata</i>	Trailing bamboo, smallcane
<i>Leucaena leucocephala</i>	Tan tan
<i>Mammillaria nivosa</i> <sup>†</sup>	Woolly nipple cactus
<i>Mangifera indica</i>	Mango
<i>Maytenus laevigata</i>	White cinnamon
<i>Melicoccus bijugatus</i>	Genip
<i>Melochia pyramidata</i>	Pyramid flower
<i>Mimosa ceratonia</i>	Black ambret
<i>Momordica charantia</i>	Bitter melon
<i>Morinda citrifolia</i>	Indian Mulberry, Painkiller, Noni
<i>Musa acuminata</i>	Banana
<i>Mycianthes fragrans</i>	Cinnamon myrtle
<i>Myrciaria floribunda</i>	Guavaberry
<i>Nerium oleander</i>	Oleander
<i>Ocotea coriacea</i>	Pepper cillament
<i>Opuntia repens</i>	Roving pricklypear
<i>Pandanus utilis</i>	Screw pine
<i>Panicum maximum</i>	Guinea grass
<i>Passiflora foetida</i>	Fetid passionflower
<i>Passiflora suberosa</i>	Corksystem passionflower
<i>Peltophorum pterocarpum</i>	Yellow poinciana
<i>Pharus lappulaceus</i>	Cape Francais stalkgrass
<i>Phoenix roebelenii</i>	Pygmy date palm
<i>Pilosocereus royenii</i>	Pipe-organ cactus
<i>Piscidia carthagenensis</i>	Stinkwood
<i>Pisonia subcordata</i>	Water mampoo
<i>Philodendron giganteum</i>	Giant philodendron

All Sites Combined	
Scientific Name	Common Name
<i>Pithecellobium unguis-cati</i>	Bread-and-cheese
<i>Plumeria alba</i>	Wild frangipani
<i>Plumeria rosa</i>	Wild frangipani
<i>Poitea florida</i>	Wattapama
<i>Prunus dulcis</i>	Sweet almond
<i>Psidium guajava</i>	Guava
<i>Psychotria nervosa</i>	Wild coffee
<i>Psychotria brownei</i>	Browne's wild coffee
<i>Randia aculeata</i>	Inkberry
<i>Reynosia guama</i>	Guamaberry
<i>Ricinus communis</i>	Castorbean
<i>Rondeletia pilosa</i>	Cordobancillo peludo
<i>Roystonea borinquena</i>	Puerto Rico royal palm
<i>Sabal causiarum</i>	Sable palm, Puerto Rican palmetto
<i>Sansevieria trifasciata</i>	Mother-in-law's tongue
<i>Selenicereus grandiflorus</i>	Queen of the night cactus
<i>Sesuvium portulacastrum</i>	Sea purslane
<i>Solanum polygamum</i>	Cakalaka berry
<i>Solanum torvum</i>	Turkey berry
<i>Spigelia sp.</i>	Pinkroot
<i>Spondias mombine</i>	Hogplum; yellow mombin
<i>Stachytarpheta jamaicensis</i>	Light-blue snakeweed
<i>Sterculia foetida</i>	Stinky tree
<i>Swietenia mahagoni</i>	Mahogany
<i>Tabebuia caribea</i>	Yellow poui, yellow tabebuia
<i>Tabebuia heterophylla</i>	White cedar
<i>Tamarindus indica</i>	Indian tamarind
<i>Tecoma stans</i>	Ginger thomas
<i>Terminalia catappa</i>	Tropical or Indian almond
<i>Thespesia populnea</i>	Maho tree
<i>Thevetia peruviana</i>	Luckynut
<i>Tillandsia utriculata</i>	Airplant
<i>Tradescantia spathacea</i>	Boatlily
<i>Tragia volubilis</i>	Fireman
<i>Tridax procumbens</i>	Coatbuttons
<i>Triphasia trifolia</i>	Sweet lime

<sup>†</sup>Indicates species that are federally or territorially listed

**Table B-2. All Wildlife Species Observed During August 2012 Assessments**

All Sites Combined	
Scientific Name	Common Name
<b>Birds</b>	
<i>Anatidae</i>	Duck spp.
<i>Phalacrocorax auritus</i>	Double-crested cormorant
<i>Pelecanus occidentalis</i>	Brown pelican
<i>Ardea alba</i> <sup>†</sup>	Great egret
<i>Nycticorax nycticorax</i> <sup>†</sup>	Black-crowned night heron
<i>Egretta tricolor</i>	Tricolored heron
<i>Leucophaeus atricilla</i>	Laughing gull
<i>Sternidae</i>	Tern spp.
<i>Patagioenas squamosa</i>	Scaly-naped pigeon
<i>Zenaida macroura</i>	Mourning dove
<i>Geotrygon mystacea</i> <sup>†</sup>	Bridled quail-dove
<i>Orthorhynchus cristatus</i>	Antillean crested hummingbird
<i>Tyrannus dominicensis</i>	Gray kingbird
<i>Setophaga magnolia</i>	Magnolia warbler
<i>Setophaga petechia</i>	Yellow warbler
<i>Mimus polyglottos</i>	Mockingbird
<i>Margarops fuscatus</i>	Pearly-eyed thrasher
<i>Coereba flaveola</i>	Bananaquit
<i>Loxigilla noctis</i>	Lesser Antillean bullfinch
<b>Mammals</b>	
<i>Odocoileus virginianus</i>	White-tailed deer
<i>Equus asinus</i>	Donkey
<i>Herpestes javanicus</i>	Mongoose
<b>Lizards</b>	
<i>Iguana iguana</i>	Iguana
<i>Sphaerodactylus macrolepis</i>	Big scale least gecko
<i>Anolis cristatellus cristatellus</i>	Puerto Rican crested anole
<i>Anolis pulchellus</i>	Puerto Rican anole
<b>Fish</b>	
<i>Oreochromis mossambicus</i>	Mozambique tilapia
<b>Crustaceans</b>	
<i>Coenobita clypeatus</i>	Soldier crab
<b>Invertebrates</b>	
<i>Heliconius charithonia</i>	Zebra heliconian

<sup>†</sup>Indicates species that are federally or territorially listed

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**APPENDIX D: TERRITORIALY LISTED SPECIES OF THE  
VIRGIN ISLANDS**

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**D-1: Territorially Listed Species in the USVI**

<b>Scientific Name</b>	<b>Common Name</b>	<b>Status</b>
<b>Wildlife</b>		
<i>Mabuya mabouya</i>	Slipperyback Skink	Endangered
<i>Megascops nudipes</i>	Puerto Rican Screech Owl	Endangered
<i>Chordeiles gundlachii</i>	Antillean Nighthawk	Endangered
<i>Anthracothorax dominicus</i>	Antillean Mango	Endangered
<i>Tachybaptus dominicus</i>	Least Grebe	Endangered
<i>Sterna antillarum</i>	Least Tern	Endangered
<i>Phaethon lepturus</i>	White-tailed Tropicbird	Endangered
<i>Ardea herodias</i>	Great Blue Heron	Endangered
<i>Ardea alba</i>	Great Egret	Endangered
<i>Egretta thula</i>	Snowy Egret	Endangered
<i>Nycticorax nycticorax</i>	Black-crowned Night-Heron	Endangered
<i>Ixobrychus exilis</i>	Least Bittern	Endangered
<i>Anas bahamensis</i>	White-cheeked Pintail	Endangered
<i>Oxyura jamaicensis</i>	Ruddy Duck	Endangered
<i>Rallus longirostris</i>	Clapper Rail	Endangered
<i>Fulica caribaea</i>	Caribbean Coot	Endangered
<i>Charadrius alexandrinus</i>	Snowy Plover	Endangered
<i>Catoptrophorus semipalmatus</i>	Willet	Endangered
<i>Puffinus lherminieri</i>	Audubon's Shearwater	Endangered
<i>Aratinga pertinax</i>	Brown-throated Parakeet	Endangered
<i>Patagioenas leucocephala</i>	White-crowned Pigeon	Endangered
<i>Geotrygon mystacea</i>	Bridled Quail-Dove	Endangered
<i>Myiarchus antillarum</i>	Puerto Rican Flycatcher	Endangered
<i>Noctilio leporinus</i>	Fisherman Bat	Endangered
<i>Stenoderma rufum</i>	Red Fruit Bat	Endangered
<i>Brachyphylla cavernarum</i>	Antillean Fruit-eating Bat	Endangered
<i>Epinephelus itajara</i>	Jewfish	Endangered
	Black Coral	Endangered
<b>Plants</b>		
<i>Agave eggersiana</i>	Egger's Agave	Endangered
<i>Cypselea humifusa</i>	Panal	Endangered
<i>Ilex sideroxyloides</i>	Gongolin	Endangered
<i>Ilex urbiana</i>	Urban's Holly	Endangered
<i>Tillandsia lineatispica</i>	Pinon	Endangered
<i>Mammillaria nivosa</i>	Wooly Nipple	Endangered
<i>Opuntia triacantha</i>	Spanish Lady	Endangered
<i>Maytenus cymosa</i>	Caribbean Mayten	Endangered
<i>Operculina triquetra</i>		Endangered
<i>Croton fishlockii</i>		Endangered

Scientific Name	Common Name	Status
<i>Erythrina eggersii</i>	Egger's Cockspur	Endangered
<i>Galactia eggersii</i>	Egger's Galactia	Endangered
<i>Brysonima sp.</i>		Endangered
<i>Malpighia infestissima</i>	Stinging Bush	Endangered
<i>Malpighia linearis</i>	Bastard Cherry	Endangered
<i>Malpighia sp.</i>		Endangered
<i>Malpighia woodburyana</i>	Cowage Cherry	Endangered
<i>Psidium amplexicaule</i>	Mountain Guava	Endangered
<i>Psidium sp.</i>	Guava	Endangered
<i>Sida eggersi</i>		Endangered
<i>Calyptanthus thomasiana</i>	St. Thomas Lidflower	Endangered
<i>Eugenia sp.</i>		Endangered
<i>Schoepfia schreberi</i>		Endangered
<i>Brassavola cucullata</i>		Endangered
<i>Epidendrum bifidum</i>		Endangered
<i>Epidendrum ciliare</i>	Fringed Star Orchid	Endangered
<i>Epidendrum cochleatum</i>		Endangered
<i>Habenaria alata</i>	Winged Bog Orchid	Endangered
<i>Oncidium prionochilum</i>	Yellow Dancing Lady Orchid	Endangered
<i>Oncidium variegatum</i>	White Dancing Lady Orchid	Endangered
<i>Polystachya concreta</i>		Endangered
<i>Ponthieva racemosa</i>		Endangered
<i>Prescottia oligantha</i>		Endangered
<i>Prescottia stachyoides</i>		Endangered
<i>Spiranthes elata</i>		Endangered
<i>Tetramicra canaliculata</i>		Endangered
<i>Tetramicra canaliculata alba</i>		Endangered
<i>Vanilla barbellata</i>	Vanilla Orchid	Endangered
<i>Peperomia myrtifolia</i>	Myrtle-leaved Pepermonia	Endangered
<i>Coccoloba rugosa</i>		Endangered
<i>Catesbaea melanocarpa</i>		Endangered
<i>Machaonia woodburyana</i>		Endangered
<i>Manilkara bidentata</i>	Bulletwood	Endangered
<i>Solanum conocarpum</i>		Endangered
<i>Solanum mucronatum</i>		Endangered
<i>Pilea richardii</i>	Richard's Clearwood	Endangered
<i>Callicarpa ampla</i>	Capa Rosa	Endangered
<i>Nashia inaguensis</i>		Endangered
<i>Guaiacum officinale</i>	Lignum Vitae	Endangered

Source: DPNR n.d.