



Waterbird Conservation for the Americas
Conservación de las Aves Acuáticas para las Américas

REPORT

WATERBIRDS IN UNITED STATES VIRGIN ISLANDS



Photo: U.S. Virgin Islands Division of Fish & Wildlife

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1. GENERAL INTRODUCTION

The U.S. Virgin Islands (USVI) are at the eastern end of the Greater Antillean chain of islands in the northern Caribbean Sea and are comprised of 3 major islands and more than 50 offshore cays with a total land area of about 353 km². The 2 northern islands are St. Thomas (74 km²) and St. John (50 km²) are very hilly (high points of 477 m and 387 m respectively) with limited flat areas. About 64 km to the south is St. Croix (217 km²), a much flatter and drier island, with fewer bays and offshore cays. Offshore cays collectively comprise about 3% of the territory's area (12 km²).

The territorial latitude is from 17°30' to 18°30' N. The USVI are categorized as subtropical. Precipitation averages 750 mm/year in coastal areas and up to 1400 mm/year at the higher elevations. Precipitation patterns are erratic. However, over a 30-year average, there are two wet seasons and two dry seasons annually. Peak rainfall periods are September through December and a brief wet season in May or June. The long dry season runs from January through April, and precipitation tapers off by mid-summer. The USVI are subject to periodic major storms, such as hurricanes Hugo in 1989 and Marilyn in 1995.

The current population of over 106,000 is growing and has resulted in extensive loss and degradation of natural habitats, most severely on densely populated St. Thomas. Residential and commercial development is destroying and fragmenting native forest. Residential development, hotels, resorts, and marinas have been constructed on coastal wetlands, and marine recreational activities have damaged vital mangrove swamps, coral reefs, and seagrass beds. Human development has increased air and water pollution and encouraged the introduction of exotic plants (landscaping) and animal pests (especially domestic cats, dogs, and chickens that roam or become feral). Many domestic septic systems are not maintained or functional and contaminate bays with sewage.

The habitats of the islands and cays are primarily dry forests. These communities may be broadly classified as closed-canopied forests, woodlands, shrublands and grasslands, wetlands, beaches and rocky shorelines. All have been subject to human disturbance or development as well as natural effects of tropical storms. Historically from the times of pre-ceramic aboriginal settlement to present the ecosystems have been in a constant state of regeneration and succession.

Virtually no primary forest exists on the islands. It has been replaced with secondary "new forests" that have regenerated following the discontinuation of plantation agriculture. Subtropical dry forests dominate the U.S. Virgin Islands, while subtropical moist compose 10-15% of the land base. Moist forests have primarily broad-leaved trees of which most species are evergreen. These forests are found in uplands receiving over 1,200 mm of rainfall, along drainage guts or streams, and in some coastal basin areas. Habitat conditions include tall continuous canopies with an understorey of abundant herbaceous vegetation.



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In contrast, the various dry forest types tend to be comprised of a blend of semi-deciduous and small leaved evergreen species found on lower slopes that receive less than 1,000 mm of rainfall per year. This habitat is highly variable, usually has slightly lower canopy heights, tend to be seasonally open vegetation during dry spells. Human disturbance has created areas with broken (open) canopies referred to as “woodlands”.

Shrubland habitats are common throughout the islands and offshore cays and often occur in a mixed community. Natural grasslands are only found on the cays. They may be natural due to low rainfall, shallow soils, and high evapotranspiration rates caused by winds or human created for pastures and landscaping. Primary shrub vegetation includes cactus, succulents, and tangled thorny bushes.

Wetlands are found throughout the islands and are described as: salt ponds, salt flats, mangrove wetlands, mixed swamp, and freshwater ponds. Despite their extremely high value to both humans and wildlife, many of the natural wetlands have been destroyed or lost due to extensive development. Salt ponds are entrapments of water near the shoreline that receive influxes of freshwaters from the land runoff or sea water from high tides, storms, or seepage. Ponds tend to become hypersaline during dry spells creating fertile habitats for invertebrates, bacteria and algae that serve as food for many species. They are often ringed by mangroves that provide protection and habitat as well. Mangrove wetlands in the USVI are populated by four species of mangroves (red, black, white, and buttonwood) each playing a distinctive ecological role in making these highly important habitats. Mangroves are the only habitat that is legally protected in the USVI. Freshwater ponds are apparently all human creations for livestock or landscaping but provide habitat for a variety of wildlife and birds.

Bird species found in association with wetland habitats are listed in Table 1.

Table 1. Birds of the wetlands	
<i>Dendrocygna arborea</i>	West Indian Whistling-Duck
<i>Anas discors</i>	Blue-winged Teal
<i>Anas bahamensis</i>	White-cheeked Pintail
<i>Tachybaptus dominicus</i>	Least Grebe
<i>Podilymbus podiceps</i>	Pied-billed Grebe
<i>Ardea herodias</i>	Great Blue Heron
<i>Ardea alba</i>	Great Egret
<i>Egretta caerulea</i>	Little Blue Heron
<i>Bubulcus ibis</i>	Cattle Egret
<i>Nycticorax nycticorax</i>	Black-crowned Night-Heron
<i>Nyctanassa violacea</i>	Yellow-crowned Night-Heron



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<i>Rallus longirostris</i>	Clapper Rail
<i>Gallinula chloropus</i>	Common Moorhen
<i>Fulica americana</i>	American Coot
<i>Fulica caribaea</i>	Caribbean Coot
<i>Coccyzus minor</i>	Mangrove Cuckoo

Shorelines made of beaches and rocky coasts are the epitome of an island environment and everywhere are subject to the great disturbance, development, and exploitation. The dynamics of the shoreline is critical to the protection of an island and the production of vital habitat for numerous species. The USVI has extensive sandy beaches (approx. 79 km) and rocky coastline (297 km) on the main islands and cays. Despite the apparent lack of biological productivity, shorelines function as the edge between terrestrial and marine environments and provide essential habitat for feeding, roosting, nesting, and shelter for many avian species.

Bird species found in association with shoreline habitats are listed in Table 2.

<i>Pelecanus occidentalis</i>	Brown Pelican
<i>Sterna antillarum</i>	Least Tern
<i>Pluvialis squatarola</i>	Black-bellied Plover
<i>Pluvialis dominica</i>	American Golden Plover
<i>Charadrius semipalmatus</i>	Semipalmated Plover
<i>Charadrius wilsonia</i>	Wilson's Plover
<i>Haematopus palliatus</i>	American Oystercatcher
<i>Tringa melanoleuca</i>	Greater Yellowlegs
<i>Tringa flavipes</i>	Lesser Yellowlegs
<i>Catoptrophorus semipalmatus</i>	Willet
<i>Actitis macularia</i>	Spotted Sandpiper
<i>Calidris pusilla</i>	Semipalmated Sandpiper
<i>Calidris minutilla</i>	Least Sandpiper
<i>Calidris himantopus</i>	Stilt Sandpiper
<i>Limnodromus griseus</i>	Short-billed Dowitcher

At least 50 small islands or cays surround the USVI and are considered major seabird nesting habitat because of their natural protection from land predators and human disturbance. Several have received legal protection through access restrictions and there are periodic management projects to eliminate rats, invasive plants, and goats. The habitats are predominately dry forest, shrublands, grasslands, salt ponds with associated mangroves, as well as rocky and beach



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shorelines. Sea turtles nest on the beaches of several cays and other reptiles are found on the cays, including the federally endangered St. Croix Ground Lizard (*Ameiva polops*) and Virgin Islands Tree Boa (*Epicrates monensis granti*).

Bird species on the offshore cays as residents or seasonal nesters are listed in Table 3.

Table 3. **Birds of the Cays**

<i>Zenaida aurita</i>	Zenaida Dove
<i>Columba leucocephala</i>	White-crowned Pigeon
<i>Anas bahamensis</i>	White-cheeked Pintail
<i>Haematopus palliatus</i>	American Oystercatcher
<i>Himantopus mexicanus</i>	Black-necked Stilt
<i>Nyctanassa violacea</i>	Yellow-crowned Night Heron
<i>Pandion haliaetus</i>	Osprey
<i>Buteo jamaicensis</i>	Red-tailed Hawk
<i>Falco peregrinus</i>	Peregrine Falcon
<i>Falco sparverius</i>	American Kestrel
<i>Crotophaga ani</i>	Smooth-billed Ani
<i>Dendroica petechia</i>	Yellow Warbler
<i>Puffinus iherminieri</i>	Audubon's Shearwater
<i>Phaethon aethereus</i>	Red-billed Tropicbird
<i>Phaethon lepturus</i>	White-tailed Tropicbird
<i>Pelecanus occidentalis</i>	Brown Pelican
<i>Sula dactylatra</i>	Masked Booby
<i>Sula leucogaster</i>	Brown Booby
<i>Sula sula</i>	Red-footed Booby
<i>Fregata magnificens</i>	Magnificent Frigatebird
<i>Larus atricilla</i>	Laughing Gull
<i>Sterna fuscata</i>	Sooty Tern
<i>Sterna anaethetus</i>	Bridled Tern
<i>Anous stolidus</i>	Brown Noddy
<i>Sterna dougallii</i>	Roseate Tern
<i>Sterna sandvicensis</i>	Sandwich Tern
<i>Sterna maxima</i>	Royal Tern
<i>Sterna a. antillarum</i>	Least Tern
<i>Tringa melanoleuca</i>	Greater Yellowlegs
<i>Tringa flavipes</i>	Lesser Yellowlegs
<i>Actitis macularius</i>	Spotted Sandpiper
<i>Arenaria interpres</i>	Ruddy Turnstone
<i>Calidris pusilla</i>	Semipalmated Sandpiper



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2. ORNITHOLOGICAL IMPORTANCE

Much of the following information is taken from the “Comprehensive Wildlife Conservation Strategy for the U.S. Virgin Islands”, 2005.

WATERBIRDS

At least 39 species of seabirds have been recorded in the USVI and 15 breed in the islands, mostly on the offshore cays. Two are considered threatened or endangered by the USFWS (Brown Pelican *Pelecanus occidentalis*, Roseate Tern *Sterna dougallii*.) and two more are currently listed as territorially protected (Audubon’s Shearwater *Puffinus lherminieri*, White-tailed Tropicbird *Phaethon lepturus*). Boobies (Sulidae), pelicans (Pelecanidae), and frigatebirds (Fregatidae) are present year-round. In contrast, most petrels, shearwaters (Procellariidae), storm-petrels (Hydrobatidae), tropicbirds (Phaethontidae), jaegers, gulls, and terns (Laridae) are present only during the migratory or breeding seasons.

Nesting varies in accordance with species and habitat conditions. Saba Island and Flat Cay have active rookeries during the summer months (April-October) with nesting gulls and terns, while Cockroach Cay is used by winter-nesting boobies and tropicbirds. The following table describes known seabird nesting sites and breeding pair estimates:

Species	Nesting sites	Breeding prs.
Masked Booby (<i>Sula dactylatra</i>)	Cockroach Cay, Sula Cay	25 - 70
Red-footed Booby (<i>Sula sula</i>)	Dutchcap Cay	75 - 125
Brown Booby (<i>Sula leucogaster</i>)	At least 4 cays	> 1,000
Brown Pelican (<i>Pelecanus o. occidentalis</i>)	Dutchcap Cay, Congo Cay, Whistling Cay, Mary’s Point, East End, Buck Island, Green Cay	300 - 350
Magnificent Frigatebird (<i>Fregata magnificens</i>)	Tobago Island, BVI	600
Audubon’s Shearwater (<i>Puffinus lherminieri</i>)	Cockroach Cay, Flat Cay, Saba Island, Sula Cay, Frenchcap Cay	50
White-tailed Tropicbird (<i>Phaethon lepturus</i>)	Congo Cay, Hans Lollick Island, Water Island	< 50
Red-billed Tropicbird (<i>Phaethon aethereus</i>)	At least 14 cays	225 - 300
Laughing Gull (<i>Larus atricilla</i>)	Many cays	2,000 - 3,000
Sooty Tern (<i>S. fuscata</i>)	Saba Isl., Turtledove Cay, Flat Cay, Frenchcap Cay	> 30,000
Bridled Tern (<i>S. anaethetus</i>)	Saba Island, Frenchcap Cay	400 - 1,000
Roseate Tern (<i>Sterna dougallii</i>)	Leduck Isl., Rata Cay, Shark Isl.	773 - 2258
Brown Noddy (<i>Anous stolidus</i>)	Saba Island, Frenchcap Cay	600 - 800



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Royal Tern (<i>Sterna maxima</i>)	Dog Island, Turtledove, Pelican Cay	65 - 160
Sandwich Tern (<i>Sterna sandvicensis</i>)	Dog Island, Turtledove, Pelican Cay	50 - 700
Least Tern (<i>Sterna antillarum</i>)	St. Croix (numerous sites), St. John	300 - 325

Direct threats to the seabird populations include predation by introduced rats, trampling by goats, human disturbance and illegal eggging. Some indirect causes of population declines include depletion of fish stocks by over fishing, bird entanglements in fishing lines, invasive species (plants), and habitat loss. The VI Department of Fish & Wildlife (DPW) has eradicated rats from five cays (Saba Island, Dutchcap Cay, Congo Cay, Buck Island and Capella Island) and continues to monitor the presence of rats. Based on the report DPW, the following is the current ranking for seabird species of concern.

Species of Greatest Concern

Audubon's Shearwater	<i>Puffinus lherminieri</i>
White-tailed Tropicbird	<i>Phaethon lepturus</i>
Masked Booby	<i>Sula dactylatra</i>
Red-footed Booby	<i>Sula sula</i>
Magnificent Frigatebird	<i>Fregata magnificens</i>

Species of Concern

Red-billed Tropicbird	<i>Phaethon aethereus</i>
Brown Pelican	<i>Pelecanus occidentalis</i>
Roseate Tern	<i>Sterna dougallii</i>
Least Tern	<i>Sterna antillarum</i>
Gull-billed Tern	<i>Sterna nilotica</i>

There are 23 species of waterfowl (**Anatidae**) recorded in the USVI, but only three have been confirmed to breed in the islands. Two species of grebes (**Podicipedidae**), 15 species of waders (**Ardeidae**, **Threskiornithidae**, and **Poenicopteridae**), and six species of rallids (**Rallidae**) have been documented in the USVI. At least 37 species of shorebirds (**Charadriidae**, **Haematopidae**, **Recurvirostridae**, and **Scolopacidae**) have been recorded and five are known to breed in the islands.

The breeding waterfowl are the White-cheeked Pintail (*Anas bahamensis*), West Indian Whistling-Duck (*Dendrocygna arborea*), and the Ruddy Duck (*Oxyura jamaicensis*). The Least (*Tachybaptus dominicus*) and Pied-billed (*Podilymbus podiceps*) grebes breed in freshwater ponds and a few salt ponds in the islands. It is not known but is believed that most marshbirds (waders) breed throughout the islands' wetlands. The breeding rallids are the Clapper Rail (*Rallus longirostris*), Common Moorhen (*Gallinula chloropus*), American Coot (*Fulica americana*), and Caribbean Coot (*F. caribaea*). Shorebirds that breed in the USVI are Wilson's Plover (*Charadrius wilsonia*), Killdeer (*C. vociferus*), Black-necked Stilt (*Himantopus*



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mexicanus), American Oystercatcher (*Haematopus palliatus*), and Willet (*Catoptrophorus semipalmatus*).

Species of Greatest Concern

West Indian Whistling-Duck	<i>Dendrocygna arborea</i>
Least Grebe	<i>Tachybaptus dominicus</i>
Least Bittern	<i>Ixobrychus exilis</i>
Greater Flamingo	<i>Phoenicopterus ruber</i>
Clapper Rail	<i>Rallus longirostris</i>
American Coot	<i>Fulica americana</i>
Caribbean Coot	<i>Fulica caribaea</i>
American Oystercatcher	<i>Haematopus palliatus</i>
Snowy Plover	<i>Charadrius alexandrinus</i>
Red Knot	<i>Calidris canutus</i>
Whimbrel	<i>Numenius phaeopus</i>
Willet	<i>Catoptrophorus semipalmatus</i>

Species of Concern

White-cheeked Pintail	<i>Anas bahamensis</i>
Ruddy Duck	<i>Oxyura jamaicensis</i>
Snowy Egret	<i>Egretta thula</i>
Black-crowned Night Heron	<i>Nycticorax nycticorax</i>
Tricolored Heron	<i>Egretta tricolor</i>
Great Blue Heron	<i>Ardea herodias</i>
Wilson’s Plover	<i>Charadrius wilsonia</i>
Least Sandpiper	<i>Calidris minutilla</i>
Short-billed Dowitcher	<i>Limnodromus griseus</i>

3. PROTECTED AREAS AND CONSERVATION SYSTEMS

Although the only wildlife habitat that is legally protected in the USVI is mangroves, there are numerous protected areas provided by territorial, federal, and private organizations. The following table of protected terrestrial sites is taken from the “Comprehensive Wildlife Conservation Strategy”:

Preserve	Ownership	Size(ha)
St. Thomas		
Little St. Thomas	TNC	2.4



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Magen's Bay Preserve	TNC, VI, MBA	129.1
Total St. Thomas	131.5	
St. John		
VI National Park	NPS	5944.6
Coral Bay Preserve	TNC	8.8
Nancy Spire Nature Preserve	IRF	17.9
Total St. John	5971.3	
St. Croix		
Butler Bay Nature Preserve	LS	91.0
Caledonia Gut	VI	39.1
Creque Dam	VI	2.3
East Bay and Point Udall	VI	54.4
Estate Adventure Nature Trail	VI	2.5
Estate Barren Spot	SEA	0.2
Estate Barren Spot Wetlands	UVI	19.0
Estate Great Pond	VI	5.9
Estate Little La Grange	LS	?
Estate Little Princess	TNC	10.0
Estate Mount Washington Bird Sanctuary	LS	8.8
Estate Prosperity Beachfront	SEA	0.1
Estate Thomas	USFS	59.6
Estate Whim	LS	4.8
Herman Hill	TNC	6.6
Jack & Isaacs Bays Preserve, East End Marine Park	TNC	110.8
Long Point	TNC	20.2
Long Point and Cotton Garden	VI	69.6
Salt River Bay National Historic Park and Ecological Preserve	VI, NPS	410.8
Salt River, Estate Montpelier	TNC	0.2
Sandy Point National Wildlife Refuge	USFWS-NWR	145.7
Sion Ridge	NPS	9.0
Southgate Pond	SEA	40.1
Spring Garden	VI	28.7
Total St. Croix	1188.2	

All federally owned cays are protected within the Virgin Islands National Park, Hassel Island National Monument, Buck Island National Monument, or as National Wildlife Refuges. The



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territorial government has designated Flat Cay, Little Flat Cay, Saba Island, and Turtledove Cay as wildlife reserves. More recently, legislation has been promulgated to designate all 33 cays owned by the territorial government as wildlife sanctuaries. The 18 privately owned cays are not protected and more vulnerable to development and disturbance.

There are two laws that apply to protection of wildlife species in the USVI. At the territorial level the Virgin Islands Indigenous and Endangered Species Act (1990) and the U.S. Federal Endangered Species Act of 1972 applies within the territory. In 2005 an update of the original statutory list was proposed.

The following is a table of the statutory list of protected species under federal (USFWS Endangered Species Act 1973):

Federally Endangered (E) or Threatened (T)

<i>Pelecanus occidentalis</i>	Brown Pelican (E)
<i>Charadrius molodus</i>	Piping Plover (T)
<i>Sterna dougallii</i>	Roseate Tern (T)

Proposed modification of territorial legislation (VI Endangered and Indigenous Species Act of 1990) is presented in the “Comprehensive Wildlife Conservation Strategy” along with a detailed definition of each category.

Endangered

<i>Dendrocygna arborea</i>	West Indian Whistling-Duck
<i>Tachybaptus dominicus</i>	Least Grebe
<i>Puffinus iherminieri</i>	Audubon’s Shearwater
<i>Sula dactylatra</i>	Masked Booby
<i>Fregata magnificens</i>	Magnificent Frigatebird
<i>Ixobrychus exilis</i>	Least Bittern
<i>Phoenicopterus rubber</i>	Greater Flamingo
<i>Rallus longirostris</i>	Clapper Rail
<i>Fulica caribaea</i>	Caribbean Coot
<i>Charadrius alexandrinus</i>	Snowy Plover
<i>Calidris canutus</i>	Red Knot

Threatened

<i>Phaethon lepturus</i>	White-tailed Tropicbird
<i>Sula sula</i>	Red-footed Booby
<i>Fulica americana</i>	American Coot
<i>Haematopus palliatus</i>	American Oystercatcher
<i>Catoptrophorus semipalmatus</i>	Willet
<i>Numenius phaeopus</i>	Whimbrel



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Special Concern

Pelecanus occidentalis

Phaethon aethereus

Anas bahamensis

Oxyura jamaicensis

Egretta thula

Charadrius wilsonia

Calidris minutilla

Limnodromus griseus

Sterna dougallii

Sterna antillarum

Brown Pelican

Red-billed Tropicbird

White-cheeked Pintail

Ruddy Duck

Snowy Egret

Wilson's Plover

Least Sandpiper

Short-billed Dowitcher

Roseate Tern

Least Tern

4. CONSERVATION INITIATIVES

The Division of Fish and Wildlife has traditionally been the key public agency for research and monitoring of all avian fauna and habitats in the USVI. They have directed or collaborated in extensive studies on all the islands that have well documented the status of principally seabirds and of other species to a lesser extent. DFW has enlisted the expertise of the US Dept. of Agriculture to undertake eradication of rats and goats from important seabird breeding colonies on DFW-managed cays. A Caribbean Exotic Plant Management Team proposal was funded for 2006 and DFW will coordinate with the NPS to achieve the objectives of this project. DFW has initiated a collaborative project to assess the status of Least Tern populations on St. Croix and produce management recommendations. The DFW continues to conduct this work as budgets permit but are limited in human resources to maintain the needed long-term studies. DFW collaborates with the U.S. Coast Guard, USFWS, USGS, NPS, NOAA, TNC, and local environmental consultants when possible. Funding for the DPW depends upon federal grants from several programs within the U.S. Fish & Wildlife Service (USFWS).

The National Park Service (NPS) is responsible for all land and marine areas within the St. John Park and has completed numerous biological inventories and regularly monitors resources.

The University of the Virgin Islands (UVI) provides local logistics for a number of offshore projects, plus GIS and data management expertise as well as technical advice for ecological communities outside the expertise of DFW biologists. Landbird surveys were established using numerous point counts by UVI faculty. A public website (www.ebird.org/usvi) has been established for researchers and birders to submit observations and retrieve data regarding birds of the USVI.

Island Resources Foundation (IRF), has coordinated projects and provides DFW with survey data and results.

The Virgin Islands Environmental Resource Station (VIERS), located in Lameshur Bay at the eastern end of St. John, is a field station facility that provides (for a fee) accommodations and



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basic research facilities for student and research groups. The station is managed by the Clean Islands International.

The Audubon Society of St. John conducts the regular Christmas Bird Count and has done Breeding Bird Surveys (BBS) on St. John. The Society has also created a small bird sanctuary and sponsored bird viewing platforms. The “Audubon Club” of St. Thomas sponsors regular educational birding trips for school groups and the general public.

The Environment Association of St. Thomas (EAST) and the St. Croix Environmental Association (SEA) assist with conducting on-the-ground conservation activities, providing ecotourism opportunities, and disseminating educational materials. Waterbird surveys on St. Croix are now a cooperative endeavor between DFW, SEA, and Feathered Friends, a local birding group.

5. INTERNATIONAL CONSERVATION AGREEMENTS

All international conservation agreements are directed by the U.S. federal government, however, the USVI does participate in regional initiatives such as the Caribbean Regional Response Team, providing technical guidance as the trustee of wildlife resources. WIMARCS is coordinating sea turtle monitoring in the USVI as well as BVI and Puerto Rico.

- ❖ Ramsar Convention: Convention on Wetlands of International Importance = *Signed and ratified*
- ❖ SPAW Protocol to the Cartagena Convention: Protocol Concerning Specially Protected Areas and Wildlife to the Convention for the Protection and Development of the Marine Environment of the Wider Caribbean Region = *Signed and ratified*
- ❖ Convention on Biological Diversity (CBD) = *Signed but not ratified*
- ❖ World Heritage Convention (WHC) = *Signed and ratified*
- ❖ Convention on International Trade in Endangered Species of Fauna and Flora (CITES) = *Signed and ratified*

6. CONSERVATION NEEDS

- Land/habitat protection from development is of vital importance in the islands where land surface is very limited and developmental pressures are growing.
- Education and awareness campaigns for VI government and NPS decision makers about the ecological and economic values of native habitats, especially closed canopy forests.
- Research to assess current population trends among resident and overwintering forest species.
- Establish long-term monitoring of bird populations (upland and waterbird) to identify conservation issues and support land use decisions.
- Develop a collaborative public education and awareness program to strengthen support and participation in habitat conservation throughout the islands.



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- Develop strong collaboration projects with national, regional and international bird conservation initiatives to enhance institutional resources and capabilities.

The following recommendations are taken from the “Comprehensive Wildlife Conservation Strategy” report’s Priorities for Conservation Action for waterbirds

- Identify key habitats for breeding waterfowl, marshbirds, and shorebirds.
 - Locate breeding sites of White-cheeked Pintail, Ruddy Duck, Least Bitterns, and Clapper Rails to pinpoint source populations in habitats that need protection or management to enhance the habitat.
 - Conduct nest surveys of breeding shorebirds, especially Wilson’s Plover and American Oystercatcher, to identify key sites and habitats for protection, enhancement, and management.
 - Document sites with major or moderate concentrations of migratory shorebirds to identify key habitats for protection, enhancement, and management.
 - Capture, band, and color-mark American and Caribbean coots to examine their intra- and inter-island movements among wetlands.
 - Reduce human disturbance of nesting areas by posting signs that prohibit foot traffic and explain why it is necessary.
- Assess long-term population trends for each waterfowl, marshbird, and shorebird species.
 - Assess population trends for each species based on available data from International Shorebird Surveys (ISS), Christmas Bird Counts (CBC), unpublished field data of DFW, and published accounts.
 - Assess population size, survivorship, and movements of White-cheeked Pintails throughout the USVI. If a significant decrease in the long-term population status is detected, develop a conservation plan.
 - Study the population ecology of color-banded Wilson’s Plovers and Black-necked Stilts to assess the proportion of breeding and non-breeding individuals, annual survivorship, movements among wetlands sites, and the impact of human and natural disturbances on movements of individual birds.
- Develop and implement a feasibility plan for reintroducing the West Indian Whistling-Duck at selected sites in the USVI.
- Initiate control of Cattle Egret populations.
 - Destroy the nests, eggs, and young of Cattle Egret at Protestant Cay, St. Croix, where they may prey on the endangered St. Croix Ground Lizard (*Ameiva polops*), and at any other site where they may prey on any species of conservation concern.
 - Control Cattle Egret populations on St. Croix at the Anguilla Landfill and Henry E. Rohlsen Airport where they remain a bird-aircraft strike hazard.



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- Conduct behavioral, morphological, and genetic studies of American and Caribbean coots and Clapper Rail to evaluate their taxonomic status.
- Implement other priorities in the U. S. Shorebird Conservation Plan for the region.
- Evaluate methods for discouraging White-cheeked Pintails from visiting restaurants and swimming pools at resorts where they are fed by tourists, creating a nuisance and potential health hazard.

7. Monitoring Needs

- Monitor West Indian Whistling-Ducks during and after reintroduction to St. Croix.
- Conduct long-term monitoring of nest-site selection and reproductive success (egg and brood fates) of the White-cheeked Pintail in salt- and freshwater sites to identify which habitats represent population sources or sinks.
- Develop a monitoring program to census waterfowl and marshbird populations at 5 year intervals.
- Monitor the effectiveness of habitat management for Least Grebes and American and Caribbean coots at freshwater ponds and seasonal salt ponds such as Southgate Pond on St. Croix.
- Monitor shorebird populations at five-year intervals.
- Establish a feedback mechanism for altering response to impacts where current actions are determined ineffective based on monitoring results.

8. GLOSSARY

BVI: British Virgin Islands

DFW: Division of Fish & Wildlife of the VI Dept. of Planning & Natural Resources

Ghaut or gut: small drainage ditch or channel, usually for seasonal water flow.

NPS: National Park Service

USFWS: United States Fish & Wildlife Service

USNPS: United States National Park Service

VIERS: Virgin Islands Environmental Resource Station

WIMARCS: West Indies Marine Animal Research and Conservation Service



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9. SITES

A. Great Pond, St Croix (64^o 39.40' West 17^o 43.60' North)

This site includes Great Pond to the limits of its wetland delineation and the adjoining baymouth bar on its southern edge. Great Pond is a 50 ha mangrove-fringed, saline lagoon situated on the southeastern shore of St. Croix, U.S. Virgin Islands (USVI).

Great Pond is contained on the south by a vegetated baymouth bar. The baymouth bar, approximately 1,100 m long with a maximum width of 105 m, separates Great Pond from Great Pond Bay. Pond level and area fluctuate as a result of rainfall and tidal flow. Ground water discharge and runoff from the 470 ha of hills and pastures in the upland watershed result in a large influx of fresh water into Great Pond during and following heavy rainfall. A narrow channel with a maximum depth of 1.5 m connects the pond to Great Pond Bay at the pond's southeast corner. Salinity varies from 20 ppt, after heavy rainfall events, to more than 40 ppt (Sladen, 1992). At low water levels, mudflats are exposed around much of the pond, particularly along the western border, and extend outward 30 - 100 m from the pond edge.

Mudflats are surrounded on the west and north sides by gently sloping, fallow pastures of dry grassland with mixed thorny scrub. In some areas, rainfall runoff amplified by former cattle grazing has left shallow eroded gullies and ledges where the pasture meets the mudflats. A failing barbed wire fence intersects the mudflats on the north and west sides. A Boy Scout Camp is located to the southwest.

A paved public road (Rt. 60) flanked by an electrical transmission line is separated from the east side of the pond mudflats by a narrow row of black mangroves (*Avicennia germinans*). Approximately 100 houses have been built in the upland watershed, primarily to the northeast.

An open fishermen's shanty or camping kitchen and an outhouse built on the beach berm have been in use for years. When the western mudflats are not submerged, the beach and camp site are accessed by way of a temporary track along the pond's western edge and a well worn road along the western end of the baymouth bar. A track through the southeast mudflats is used by fishermen launching small fishing boats from the shore into Great Pond Bay. Occasionally blue crabs (*Callinectes sapidus*) are taken from Great Pond for food. Likewise land crabs (*Cardisoma guanhumii*) are trapped on the baymouth bar and wetland fringes.

Like all lagoons in the U.S. Virgin Islands, Great Pond is owned by the Government of the U.S. Virgin Islands. The land surrounding the pond is currently owned by Golden Resorts, LLLP.

Waterbirds information:

Surveys by D. B. McNair, L. D. Yntema, C. Cramer-Burke and S. L. Fromer from 2002 to 2007 have confirmed 72 species of birds at Great Pond, including 39 migrants and 33 resident species.



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This includes 18 species of migrant shorebirds. 19 nesting species including 3 resident shorebirds have been recorded at Great Pond.

Least Terns are listed as Endangered in the U.S. Virgin Islands. In 2006 the northwest mudflats of Great Pond supported the third largest nesting colony (134 pairs) of Least Terns on St. Croix (Lombard, 2007). In 2007, approximately 30 pairs nested on the northwest and southeast mudflats. High water levels inundated the northwestern nesting area in June 2007, destroying all 20 nests and rendering the area inappropriate for re-nesting for the remainder of the season. Some pairs in the southeastern nesting area produced fledged young in 2007. Every August from 2002 – 2007 more than 200 Least Terns have congregated at Great Pond in preparation for post-breeding migration, even though birds did not breed from 2002 - 2005.

Wilson’s Plovers have nested annually from 2002 to 2007 on the dry mudflats on all sides of the pond. A 2002-2003 island wide survey by DBM confirmed Great Pond, with 20% of the island’s population, as the best breeding site for Wilson’s Plover on St. Croix. V.I. Fish and Wildlife has proposed that Wilson’s Plover be listed as a Species of Special Concern in the U.S. Virgin Islands. Another resident shorebird, the Black-necked Stilt regularly nests on the silt surrounding some interior red mangrove manglars and along the western pond edge. The shallow pond edges and mudflats provide feeding and roosting grounds for hundreds of migrant shorebirds including Black-bellied and Semipalmated Plovers, Greater and Lesser Yellowlegs, Whimbrels, Ruddy Turnstone, Semipalmated, Least and Stilt Sandpipers, Short-billed Dowitchers and others

Great Blue Heron, Snowy Egret, Black-crowned Night-Heron, and Willet all occur regularly at Great Pond and are considered Species of Special Concern in the USVI. Nests of Snowy Egret, Little Blue Heron, Tricolored Heron, Cattle Egret, Green Heron and Yellow-crowned Night-Heron have been confirmed in the interior red mangroves in recent years (McNair et al., 2005; McNair and Sladen 2007; LDY and CCB, unpubl. data).

Key species	Season	Year	Min-Max
Least Tern <i>Sterna antillarum</i>	breeding	2002	210 - 275

Protected Areas

Caribbean Barrier Resource System: Great Pond is part of Unit # VI-07 of the Caribbean Barrier Resource System (CBRS) as set forth in the Federal Coastal Barrier Improvement Act of 1990. CBRS VI-07 includes all of Great Pond and extends south into the ocean past the barrier reef of Great Pond Bay.

Area of Particular Concern: In 1991 Great Pond was designated an Area of Particular Concern (APC), a Significant Natural Area and an Area of Preservation and Restoration by the Coastal Zone Management Commission, V.I. Department of Planning and Natural Resources. The boundaries of the APC include all of Great Pond and extend further to the east and west. The APC boundaries extend south from the eastern and western boundaries, out to sea to the “outer



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shelf ledge or the three mile limit (whichever is closer).”

St. Croix East End Marine Park: The St. Croix East End Marine Park (STXEEMP), established in 2003 by the V.I. Department of Planning and Natural Resources, encompasses approximately 60 square miles of ocean, beaches and submerged land on the eastern end of St. Croix. In the STXEEMP, Great Pond is classified as a “no-take” area, prohibiting commercial and recreational fishing.

Threats

There are six major threats to Great Pond and its avifauna, four are anthropogenic and two due to natural events.

1. Development: Since 2003, Golden Resorts, LLLP has been working towards developing a 500 room resort with a 25,000 square-foot casino, a 1,200 seat convention center and a 294 acre golf course on the land directly adjacent to the west side of Great Pond. Construction and resort activity and noise, light pollution, multi-storied structures and increased contaminated runoff from heavy rains would have a negative impact on the bird life in the nearby pond. In spite of protective designations given to the area by the Virgin Islands and the U.S Governments (see above under Protected Areas), Golden Resorts has received tremendous support and encouragement from the V.I. Government which hopes for an economic revival. This development process has been stymied by three separate lawsuits including one brought by the V.I. Conservation Society. The chances of the Golden Gaming development coming to fruition have diminished with time and with a recent mortgage foreclosure action against the owner. Nonetheless, the site remains under threat of development. Lack of an adequate and enforceable buffer zone around Great Pond compounds its susceptibility to any nearby development.

2. Human disturbance of feeding, roosting and nesting areas: The wide bare mudflats, especially on the southeastern and northern sides of the pond, are frequently churned up by vehicles. Vehicles are driven on the mudflats to access the shore, to illegally dump waste and for recreation. 4-wheel drive vehicles are driven fast, in circles on the dried or muddy flats. All of these activities disturb the birds which feed, nest and loaf on the mudflats or in the nearby shallows.

3. Illegal dumping: Dumping of old vehicles, household appliances, tires, construction debris, household garbage and yard refuse in and around the wetlands is common. Leaching of petroleum products and other contaminants has occurred. Excessive garbage has diminished the use of some mudflat nesting areas, particularly on the southeast. Periodically these areas are cleared using heavy equipment, removing the debris but damaging the mudflats.

4. Exotic species: Mongoose and rats are numerous at Great Pond. Mongoose primarily affect birds on the dry mudflats, especially the ground nesting birds. Rat nests have been detected in the interior red mangroves. These two exotic species have negatively affected some native birds



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at Great Pond, but critical studies are lacking.

5. Rainfall run-off: Heavy rains can produce sheet flow of water across the mudflats. When such rainfall occurs in the spring and early summer months, Least Tern and Wilson’s Plover nests are often inundated and destroyed by the runoff or the associated pond level rise. Rainfall run-off has caused erosion in the mudflats and carries silt into the pond. Increased silt will result in a shallower pond basin, facilitating invasion by red mangroves.

6. Hurricanes: St. Croix lies in the hurricane zone that extends from the eastern Atlantic Ocean to the Americas. St. Croix was seriously impacted by four major hurricanes between 1987 and 1999. Extensive damage to tall mangroves occurs during such storms with wind speeds greater than 100 mph. This destruction initially limited bird nesting and roosting areas in the mangroves of Great Pond. Young mangroves, especially red mangrove, are less susceptible to hurricane damage and have thrived in recent years. The overall increase in red mangroves in Great Pond has resulted in more nesting area for birds such as the White-crowned Pigeon, Green Heron and other ardeids that use these manglars.

B. NW Cays: Cockroach, Sula and Dutchcap Cays (65° 2.32' West 18° 21.85' North)

Cockroach and Sula are located approximately 5 miles off the northwest coast of St. Thomas. Dutchcap Cay is closer to the main island, about 2 miles off Botany Point, the westernmost end of St. Thomas. The total area is approximately 21.3 hectares. There are steep cliffs on all sides of the islands except the northeast corner of Cockroach where a flat shield slopes into the sea. On the east end of Cockroach, the tip of the islands tilts into the sea leaving smaller Sula Cay separated by a large crevice. Dutchcap is dome-shaped with steep cliffs on the north and east faces. There are no sandy beaches or coastal plain on any of the cays. No stream or permanent water is found on the islands, nevertheless, water collects in small rock crevices on Dutchcap where doves and goats (recently eradicated) come to drink. Offshore of the cays are modest sized coral reefs.



Photo: Judy Pierce, Rugged cliffs of Cockroach Cay

Waterbirds information

Audubon’s Shearwater, Red-billed Tropicbird, Masked Booby, Brown Booby, Red-footed Booby, Brown Pelican, Bridled Tern, Brown Noddy, Zenaida Dove. Cockroach and Sula Cays are the only breeding colony for Masked Boobies in the VI. Cockroach harbors the largest Red-billed Tropicbird nesting colony in the Virgin Islands. Dutchcap Cay is the only nesting site for Red-footed Boobies in the USVI. The endangered Brown Pelican nests at Dutchcap.

Species	Season	Year	Min-Max
Red-billed Tropicbird <i>Phaethon aethereus</i>	breeding	2006	100



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Brown Pelican <i>Pelecanus occidentalis</i>	breeding	2006	100 - 200
Masked Booby <i>Sula dactylatra</i>	breeding	2006	100
Brown Booby <i>Sula leucogaster</i>	breeding	2006	250 - 400

Protection Status

The site is publicly owned by the Territorial government and subject to management and protection by the USVI Dept. of Planning and Natural Resources (DPNR) Division of Fish and Wildlife. Current use is very limited to diving/snorkeling the coral areas. Fishermen put goats on Dutchcap where they are periodically harvested. Access to the islands is difficult and there are no protected anchorages.

Threats

The DFW has maintained sanctuary signs on the important seabird cays to limit foot traffic into the seabird colonies and to inform the public of the conservation restrictions, but their effectiveness is questionable. Enforcement of environmental laws has been lax and remains a major impediment to effective management and conservation of wildlife resources. Routine patrols at the important breeding sites when colonies are most vulnerable are needed.

The effect of predation by other birds such as the Laughing Gull and Peregrine Falcon may pose a serious threat to reproductive success and should be evaluated. Fire ants are found on all of the offshore cays and can enter pipped eggs or kill newly hatched chicks. The threat of introduced plants and animals to the cays is ever present.

The entanglement of seabirds in fishing line, especially on the breeding grounds, is another threat that often goes undetected because the breeding areas are not visited on a regular basis.

Periodic hurricanes and tropical storms pose a threat to the cays by damaging or destroy trees, including nest sites for seabirds, and by increasing erosion. Catastrophic storms alter nesting habitat in the colonies by uprooting trees and ground cover, destroying nests, and killing adult and immature birds.

C. Saba Island & Cays (65° 0.00' West 18° 18.34' North)



The site is located just off the south central coast of St. Thomas and includes Saba Island plus the smaller Turtledove Cay and Flat Cays, a total area of approximately 14 hectares. The islands are about 2 km S-SW of the western end of the Cyril King airport runway extension. Saba has 2 salt ponds (east and west) with coral rubble shoreline on the northern side and rocky cliffs on the seaward south. The Saba terrain rises to about 80 m while

Photo: Jim Corven, Saba Island and Turtledove Cay



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the other cays have very low and flat terrain. A shallow sandbar reaches north to Turtledove Cay.

There is a protected cove on the northwestern side of Saba with a small sandy beach. Behind the beach is a relative open, flat area adjacent to the west pond. A nature trail was developed some years ago but has mostly grown over. A bird observation blind is located near the east pond shore and overlooks the pond and vicinity. Offshore of both Saba and Flat Cay are modest sized coral reefs.

Waterbirds information

Islands & surrounding waters Audubon’s Shearwater, Red-billed Tropicbird, White-tailed Tropicbird, Brown Pelican, Brown Booby, Magnificent Frigatebird, White-cheeked Pintail, Lesser Yellowlegs, Laughing Gull, Sandwich Tern, Royal Tern, Roseate Tern, Sooty Tern, Bridled Tern, Brown Noddy, American Oystercatcher and Black-necked Stilt.

Key Species	Season	Year	Min-Max (breeding pairs)	Notes
Laughing Gull <i>Larus atricilla</i>	breeding	2007	800 - 1000	Summer breeder (May - August). Nests on Saba, Turtledove and Flat.
Royal Tern <i>Sterna maxima</i>	breeding	2007	20 - 80	Summer breeder (May - August). Nests in small numbers on Turtledove, occasionally on Flat.
Sandwich Tern <i>Sterna sandvicensis</i>	breeding	2007	50 - 250	Summer breeder (May - August). Nests in dense colony on Turtledove, occasionally on Flat.
Roseate Tern <i>Sterna dougallii</i>	breeding	2007	20 - 600	Summer breeder (May - August). Nests occasionally on Saba and Flat.
Bridled Tern <i>Sterna anaethetus</i>	breeding	2000	50 - 200	Summer breeder (May - August). Nest on Saba, Turtledove and Flat.
Sooty Tern <i>Sterna fuscata</i>	breeding	2000	30000 - 40000	Summer breeder (April - August). Nest on Saba, Turtledove and Flat.
Brown Noddy <i>Anous stolidus</i>	breeding	2007	100 - 300	Summer breeder (May - August). Nest on Saba, Turtledove and Flat.

Protection Status

Saba Island and Cays are designated as wildlife sanctuaries by the territorial government of the U.S. Virgin Islands and are managed by the Department of Planning and Natural Resources (DPNR) Division of Fish and Wildlife (DFW). Entry beyond the beach and bird blind is by special use permit only.



Photo: Jim Corven

Threats

The site is publicly owned by the Territorial government and subject to management and protection by the DPNR. Current use is very limited to diving/snorkeling the coral areas and



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occasional visitors to the beach. There has been an attempt to develop a birding/nature trail and observation blind but that activity has been abandoned.

The municipal sewage outfall that extends southward from the vicinity of the airport releases waste that can flow towards the island, cays, and coral reefs.

Saba Island and the cays are fully exposed to the sea to the south and east so there is a natural threat from tropical storms that could damage the coastline and salt ponds. The threat of establishment of exotic plants and animals to the cays is ever present. Boats may run aground during storms, potentially introducing rats. At least one large sailboat has been marooned and abandoned on the shore of Saba Cay causing concern about leaking fuels and oil onto the beach.

D. Southgate Coastal Reserve-Green Cay, St Croix (64^o 39.98' West 17^o 45.80' North)

Southgate Coastal Reserve (SCR) and Green Cay National Wildlife Refuge (GCNWR) are located in the northeastern sector of St. Croix, U.S. Virgin Islands (USVI). The Caribbean Sea surrounds Green Cay NWR and separates it from Southgate Coastal Reserve.

Southgate Coastal Reserve, established by the St. Croix Environmental Association (SEA) in 2000, consists of 41.5 ha that encompasses a 13 ha salt pond (Southgate Pond), 7.7 ha of associated wetlands, 5.8 ha of littoral deciduous woodland along a beach berm, and 15 ha of upland grassland. Two intermittent watercourses (guts) cross the property. East gut runs near the eastern boundary line and empties into the Caribbean Sea. West gut runs through the center of the property and into the salt pond basin. A man-made causeway contains Southgate Pond (hereafter SP) on the western side and a beach berm on its northern side separates it from the sea. The salinity and depth of the pond fluctuate with rainfall and associated run off from 311 ha of the upland watershed. Except when overflowing, the maximum pond depth is about 1.4 m. A dirt track traversing the property from south to north just east of the pond is used to access the beach. One derelict condominium structure is located within the delineated wetland. SEA intends to demolish the condo structure and build an interpretive center and field station at a suitable location on the upland portion of the property.

Green Cay Marina, which formerly comprised part of SP, is located just west of SCR and south of Green Cay. A gated community and Tamarind Reef Hotel are adjacent to the marina. Chenay Bay Beach Resort adjoins SCR to the east. Route 83, a desalinization company, a small organic farm and pastureland border SCR on the south. Low density residential housing occurs in this area.

Green Cay, an uninhabited 5.7 ha cay, lies off the north coast approximately 400 m from SCR and Green Cay Marina. Green Cay is of volcanic origin and prominent geological features include lava outcrops, tuffs, and breccias. Green Cay is saddle-shaped, with high points at the northern (12 m) and southern (21 m) ends connected by a narrow valley eight meters above sea level. The cay is mostly surrounded by steep cliffs. A small beach is found on the southern tip



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of the cay and narrow stretches of cobble beaches are found along the eastern and western shorelines.

Green Cay was designated a National Wildlife Refuge in 1977 to protect the largest remaining population of the critically endangered St. Croix Ground Lizard (*Ameiva polops*), as well as to protect important bird nesting habitat. Green Cay is administered under the Caribbean Islands National Wildlife Refuge Complex.

Waterbirds information

Surveys conducted by D. B. McNair, C. Cramer-Burke, L. D. Yntema and C. D. Lombard from 2002 to 2007 have confirmed 98 species of birds at SCR and GCNWR. Of these, 24 species have nested.

The Brown Pelican was listed as a federally Endangered Species in 1970 and the Caribbean population remains listed today. During 2003 and 2004 Brown Pelicans nested on the western side of Green Cay. 54 nests were documented in 2003 and 64 nests in 2004. Newly fledged young are guided by adults to SP where as many as 76 juveniles have been observed feeding. Brown Pelicans and Magnificent Frigatebirds roost year-round in the trees, cliffs, and beaches of GCNWR and in the mangroves on the north side of SP.

Least Terns, listed as territorially Endangered in the USVI, breed on exposed, unvegetated mud flats at SCR when the pond bed is dry. In 2003, a large breeding colony produced 357 nests (Lombard, 2007). These nests were destroyed by feral dogs. In the following years when the pond bed was not completely dry, nesting did not occur at SP until 2006 when 7 nests were documented on dry mudflats (Lombard, 2007). Seven Least Tern nests were also recorded on the south beach of Green Cay in 2006. Each year in August and early September, congregations of as many as 215 Least Terns feed and loaf at SP in preparation for fall migration.

Caribbean Coots are listed as Near Threatened on the IUCN Red List and as Endangered in the USVI (U.S. Virgin Islands Endangered and Indigenous Species Act of 1990). Some Caribbean and American Coots breed in mixed pairs at SCR. A maximum number of four Caribbean Coot pairs have been identified during a nesting cycle. The maximum number of active nests of both coots has been 13, when about 9 breeding individuals were Caribbean Coots. The maximum population of Caribbean Coots present at SCR since 2002 is estimated to be 34 individuals. SCR has been identified as the most important site for Caribbean and American Coots in the USVI (McNair, 2006a).

One pair of American Oystercatchers, considered Threatened in the USVI, has nested annually on the shore of GCNWR. A maximum of 8 pairs of Wilson's Plovers have nested annually from 2002-2007 on the dry mud flats, pond bed, and beach at SCR and along the shores of GC. Wilson's Plover is considered a Species of Special Concern in the USVI. Twenty species of migrant shorebirds have been recorded on the beaches, mud flats, and pond fringes including



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Black-bellied and Semipalmated Plover, Greater and Lesser Yellowlegs, Spotted Sandpiper, Whimbrel, Ruddy Turnstone, Semipalmated, Least and Stilt Sandpipers, Short-billed Dowitchers, Wilson’s Snipe, and others.

Ruddy Ducks, considered a Species of Special Concern in the USVI, nested at SCR in 2005-2007 (McNair et al., 2006; C. Cramer-Burke, unpubl. data). Before 2005, the only documented nesting of Ruddy Ducks on St. Croix was during the first half of the 20th century (McNair et al., 2006). Other species confirmed nesting at SCR and GCNWR since 2002 have included White-cheeked Pintail, Pied-billed Grebe, Little Blue Heron, Green Heron, Common Moorhen, Killdeer and Black-necked Stilt.

Great Blue Heron, Tricolored Heron and Black-Crowned Night-Heron, all considered Species of Special Concern in the USVI, are frequently seen at SCR or GCNWR. In early 2006 it was documented that over 100 Cattle Egrets were roosting nocturnally at GCNWR for the first time since 2001. Large groups of Great Egret (max 76), Snowy Egret (max 140), Little Blue Heron (max 47), Black-necked Stilt (max 170), Laughing Gull (max 250), and Royal Tern (max 28) feed at Southgate Pond when water levels are low and food is concentrated.

Species	Season	Year	Min-Max (individuals)
Brown Pelican <i>Pelecanus occidentalis</i>	resident	2002	25 - 150
Caribbean Coot <i>Fulica caribaea</i>	resident	2002	1 - 34
Laughing Gull <i>Larus atricilla</i>	non-breeding	2002	1 - 250
Royal Tern <i>Sterna maxima</i>	non-breeding	2002	2 - 28
Least Tern <i>Sterna antillarum</i>	breeding	2002	70 - 215

Protected Areas

Southgate Coastal Reserve (SCR): St. Croix Environmental Association is planning to manage SCR as a wildlife reserve and build a Reserve Center with paths and bird blinds to facilitate environmental education and research programs. This project is currently in the permitting stage. SCR encompasses the entire onshore portion of this IBA.

Green Cay National Wildlife Refuge (GCNWR): Green Cay is an uninhabited 5.7 ha cay that is closed to the public. GCNWR comprises the offshore island included in this IBA.

Caribbean Barrier Resource System: Southgate Pond is part of Unit # VI-04 of the Caribbean Barrier Resource System (CBRS) as set forth in the Federal Coastal Barrier Improvement Act of 1990. CBRS VI-04 includes all of Southgate Pond and associated wetlands and extends north into the ocean. Green Cay is not included in this unit, but is classified by CBRS as an “otherwise protected area”.

Area of Particular Concern: In 1991 Southgate Pond/Chenay Bay was designated an Area of Particular Concern (APC) and an Area of Preservation and Restoration (APR) by the Coastal



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Zone Management Commission, V.I. Department of Planning and Natural Resources. The APC boundaries extend east of SCR to Pull Point, west to Punnett Point, south to Route 82 and north to the three mile limit.

St. Croix East End Marine Park: The St. Croix East End Marine Park (STXEEMP), established in 2003 by the V.I. Department of Planning and Natural Resources, encompasses approximately 60 square miles of ocean, beaches and submerged land on the eastern end of St. Croix. A no-take protected area surrounds Green Cay and the shoreline of SCR. Protected areas extend from just west of Green Cay around the east end of the island to the west end of Great Pond.

Threats

There are five major threats to Southgate Coastal Reserve-Green Cay and its avifauna, four are anthropogenic and one is due to natural events.

Invasive exotic animal species: Rats are known to have a variety of detrimental effects on native ecosystems. Rats greatly suppress natural vegetative growth by eating fresh shoots, fruits, and seeds. Rats can deter bird nesting as well as predate eggs and chicks of ground and tree nesting species. Mongoose and feral dogs primarily affect ground nesting birds; cats affect ground and tree nesting birds.

Invasive exotic vegetation: Three exotic plant species, *Tecoma stans*, *Andropogon pertusus*, and *Panicum maximum* are becoming more abundant on Green Cay and can outcompete native species. The three exotic species do not provide suitable habitat for nesting birds or the St. Croix Ground Lizard.

Human disturbance of nesting, roosting, and feeding areas: With three nearby hotels, Green Cay is a destination for tourists using hotel kayaks. Visitors often pull their boats out on the south beach and walk the island's perimeter, which is illegal and poses a threat to foraging, roosting, and ground-nesting birds. A jet-ski / wave runner rental business opened in 2007 in the nearby town of Christiansted. Traffic from these motorcraft appears to be causing noise pollution that may disturb birds on Green Cay. At SCR, vehicles driving through wetlands and on the dry pond bed or drying mudflats have disturbed and destroyed nests of the ground nesting Least Tern and Wilson's Plover, among others.

Littering: Beach users and campers often leave garbage on the beach berm. Trash attracts mongoose which are known to predate the eggs and young of ground nesting birds and sea turtle nests.

Hurricanes: St. Croix lies in the hurricane zone that extends from the eastern Atlantic Ocean to the Americas. St. Croix was seriously impacted by four major hurricanes between 1987 and 1999. Extensive damage to vegetation occurs when wind





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speeds are greater than 100 mph. This destruction may limit bird nesting and roosting areas at SCR and GCNWR. The remnants of mangroves on the northern and eastern sides of SP still provide roosting areas for pelicans, herons, egrets, ducks, and rallids.

E. St. John, USVI (64° 44.74' West 18° 19.91' North)

St. John is the smallest of the U.S. Virgin Islands with 28 square miles, 53% (7,000 acres) of which is the Virgin Islands National Park. Most of the landscape is second growth with relatively few introduced plant and bird species. Diverse habitats include rocky and sandy coastlines, semi-arid thorn-cactus communities, a comprehensive assortment of tropical dry forest formations from coastal hedge to shrublands and canopied upland forests, moist forests, mangrove wetlands, freshwater and saltwater ponds, small agricultural/pasture lands, and small towns. The island receives an average of 44 inches of rainfall annually, but is highly seasonal, with the heaviest precipitation occurring from August to November, augmented by a late-spring wet period. The winter-spring dry season normally lasts 3 months or more.

Waterbirds information

A total of 120 bird species have been confirmed on St. John.

Key Species	Season	Year	Min-Max (breeding pairs)
Brown Pelican <i>Pelecanus occidentalis</i>	resident	2006	300

Protected Areas

The Virgin Islands National Park, including nearshore coral reefs, is legally protected and managed by the U.S. National Park Service (NPS). The Nature Conservancy (TNC) has about 9 hectares in its Coral Bay Preserve and Island Resources Foundation (IRF) has the Nancy Spire Nature Preserve consisting of approximately 17 hectares. All mangroves in the U.S. Virgin Islands are legally protected.

Threats

Most current land use and development outside the National Park is oriented towards tourism, public recreation, and resort development rather than conservation or restoration. Development outside the Park boundaries has been intense and continues to threaten valuable habitats.

Introduction of exotic landscaping pests, mostly invertebrates, but including fungal and viral pathogens, are attacking native plant species and they are becoming a significant concern to conservationists. Imported nursery stock of plants native to the islands are a rising genetic threat. Also, some invasive exotic plants are included in the international nursery trade in recent



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years, causing habitat decline locally. Disturbance of soil stabilizing vegetation on slopes above the nearshore sea grass beds and coral reefs has resulted in erosion and sedimentation. Coral reefs have been negatively affected by this sedimentation. Reefs show signs of bleaching as well. Coastal mangroves are critical to the shoreline stabilization and filtering of slope runoff and are under growing threat from invasive plants (Sweet Lime, etc.) where disturbance and openings have occurred.

Introduced terrestrial pest species of major concern that are subject to controls include mongoose (*Herpestes javanicus*), domestic cats, donkeys, key deer, pigs, goats, sheep, and rats. The Park has had some success with reducing the feral donkey population.

St. John is exposed to the sea so there is a natural threat from tropical storms and tsunamis that could damage the beach, mangroves, or forests. Maintenance and increased restoration of the mangrove wetlands, coral reefs, and beach area vegetation is vital to stabilizing and protecting these areas for both human enjoyment and wildlife habitat.

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