

Wetlands

Habitat Description

Wetlands refer to areas sufficiently inundated or saturated by water to support a prevalence of vegetation adapted for life in saturated soils. Wetlands are vital habitats for wildlife and fisheries, providing an array of goods and services including food, shelter from predators, protective nurseries, and filters of sediments and pollutants between landward human disturbances and sensitive coastal habitats including mangroves, coral reefs, and sea grass beds. Many wildlife species are dependent upon wetlands for their survival. Humans benefit from wetlands which slow down runoff, recharge freshwater aquifers, stabilize soils, offer a buffer protecting the land from storm surges, provide “hurricane shelters” for boaters, and afford aesthetic areas for recreation.

Wetlands occur throughout the major islands and offshore cays of the USVI. Based on a series of 1:9600 scale aerial photographs provided by the U.S. ACoE, a recent GIS analysis identified 636 man-made and natural wetlands (with a minimum area of 1600 square feet) in the USVI (Island Resources Foundation 2002). This analysis does not include the numerous wetlands, especially mangroves, already lost to development. Older topographic maps depict numerous salt ponds that no longer exist or have been severely altered by development. Of these extant wetlands identified, 371 are in St. Croix, 151 in St. Thomas, and 114 in St. John (including cays adjacent to each island). These have been grouped into five categories: salt ponds, salt flats, mangrove wetlands, mixed swamp, and freshwater ponds. Appendix 6 lists the wetlands types and available area for each island.

Salt ponds are the dominant form of wetland found throughout the USVI (Stengel 1998). These are small bodies of saltwater that form into intertidal basins. Originally open to the sea as bays or inlets, they become isolated from the sea over time as storm-deposited materials form a berm. The resulting ponds may maintain an influx



Photo: Renata Platenberg

Salt pond on Capella Cay

of salt water either through tidal seepage or periodic breaching of the berm by the sea. Water salinity, oxygen content, and temperature are highly variable and dependent on rainfall and evaporative processes, and influence the fauna of these wetlands (Dammann and Nellis 1992). Salt ponds contain invertebrates that form an important prey base for shorebirds and other waterbirds. These ponds also act as catchment basins for runoff, debris, and pollutants, thus protecting coral and seagrass beds in the marine environment.

Salt flats are low-lying estuarine areas that are periodically submerged by tidal waters. These areas are muddy and non-vegetated, and provide valuable feeding grounds for shorebirds.

Mangrove wetlands are coastal, periodically flooded forests. Mangroves are unrelated trees (four species in the USVI) that have converged in their adaptations for colonizing quiet, shallow coastal habitats with a broad range of salinities and relatively anoxic soils. **Mangroves** are the dominant tree species in such habitats. **Mangrove forest** is dominated



Photo: Renata Platenberg

Red Mangrove (*Rhizophora mangle*)

by the Red Mangrove (*Rhizophora mangle*), and to a lesser extent by Black Mangrove (*Avicennia germinans*), White Mangrove (*Laguncularia recemosa*) and Buttonwood (*Conocarpus erectus*), forming a closed canopy. **Mangrove woodland** is similar but with a more open canopy and dominated by mangrove species other than the Red Mangrove. **Mangrove shrubland** occurs in stressful, nontidal areas where sparse thickets dominated by Red Mangrove are less than 5 meters tall and usually 0.5-2 meters tall. **Fringing mangrove** occurs along semipermanent, tidally flooded shorelines and salt ponds. Mangroves wetlands provide nursery grounds for reef fishes and invertebrates, while mangrove roots trap sediment washed from

upland areas. Trapped soil eventually causes the shoreline to grow seaward over time, as terrestrial vegetation fills in the land created behind the mangrove stand. The mangrove communities described are based on the classification system of Gibney et al. (2000).

Mixed swamp refers to semipermanent and tidally flooded vegetation communities comprised of a mixture of mangroves and wetland trees and shrubs. Mangroves yield to dry forest, shrublands, or grasslands on higher ground.

Freshwater ponds (ponds and a few semi-perennial streams) harbor algae and emergent reeds and water lilies. A variety of herbs and woody shrubs and trees grow along the edges and tolerate occasional inundation. Most freshwater ponds are man-made and provide water for livestock or crops, yet also provide an important habitat for many species dependent on freshwater including amphibians and birds that prefer smaller ponds, such as the territorially endangered Least Grebe (*Tachybaptus dominicus*). A few semi-perennial streams are supplemented from gray water drainage in residential communities.

Habitat Condition and Issues



Photo: Renata Platenberg

Saba Island Salt Ponds

Because most wetlands occur along coveted coasts, the major threat to wetlands is filling, drainage, or alteration (e.g., opening to sea, dredging) for development. Many have already been destroyed or severely altered by development. Other major threats include pollution, sedimentation, and disturbance by human visitors. The introduction of exotic plants, fish (e.g., *Tilapia* spp.), Cane Toads (*Bufo marinus*), and Red-eared Sliders (*Trachemys scripta*) may threaten native species of wildlife. Given the prospect of rising sea levels, the consequences of wetland loss may become more severe as coral reefs die and mangroves drown, thus exposing shores to the

more frequent coastal storms predicted by current climate change models.

Previous research on wetlands in the USVI has focused on: inventories of important saltwater wetlands (Norton 1986, Knowles 1997, Stengel 1998, Boulon and Griffin 1999, Island Resources Foundation 2004); the impact of sedimentation on salt ponds (Nichols and Brush 1988); a survey of fishes to assess the importance of mangroves as nurseries for recreational fisheries (Boulon 1990); the use of saltwater wetlands by wildlife, especially birds (Norton et al. 1985, 1986a, 1986b, Knowles and Amrani 1991, Sladen 1992, Wauer and Sladen 1992, Knowles 1994, 1996); environmental studies of Mangrove Lagoon/Benner Bay, St. Thomas (Grigg et al. 1971, Island Resources Foundation 1977, 1993; Nichols and Towle 1977, Nichols et al. 1979); a survey of freshwater ectoprotects (Smith 1993); and a survey of freshwater molluscs (Smith and Brousseau 1996). Current efforts are underway to create wetlands conservation management plans for St. Croix (Pittmann-Roberston Grant W15) and the northern USVI (Pittmann-Robertson Grant W16).

Associated Species

The following is a list of species commonly associated with this habitat type. The list includes resident, migrant, and introduced species, and is not limited to species of conservation or management concern. See Appendix 1 for species of concern.

Group	Scientific Name	Common Name
Birds	<i>Tachybaptus dominicus</i>	Least Grebe
	<i>Podilymbus podiceps</i>	Pied-billed Grebe
	<i>Oxobrychus exilis</i>	Least Bittern
	<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
	<i>Dendrocygna arborea</i>	West Indian Whistling-Duck
	<i>Anas discors</i>	Blue-winged Teal
	<i>Anas bahamensis</i>	White-cheeked Pintail
	<i>Oxyura jamaicensis</i>	Ruddy Duck
	<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
Mammals	<i>Stenoderma rufum</i>	Red Fruit Bat
	<i>Brachyphylla cavernarum</i>	Cave Bat

Mammals	<i>Odocoileus virginianus</i>	White-tailed Deer (I)
	<i>Herpestes javanicus</i>	Small Indian Mongoose (I)
	<i>Equus asinus</i>	Donkey
Reptiles	<i>Iguana iguana</i>	Green Iguana
	<i>Trachemys scripta</i>	Red-eared Slider (I)
Amphibians	<i>Leptodactylus albilabris</i>	White-lipped Frog
	<i>Bufo marinus</i>	Marine Toad (I)
	<i>Osteopilus septentrionalis</i>	Cuban Treefrog (I)
Invertebrates	<i>Callinectes sapidus</i>	Blue Crab
	<i>Aratus pisonii</i>	Mangrove Crab
	<i>Cardisoma guanhumi</i>	Great Land Crab
	<i>Uca</i> spp.	Fiddler Crab

Priorities for Conservation Action

- Support measures introduced to the Legislature of the USVI that reduces or eliminates land taxes in lieu of conservation easements for private property owners who conserve or restore wetlands on their property.
- Implement priority conservation measures as presented in the wetlands conservation plans for the USVI.
- Acquire data on breeding sites of wetland-dependent species of birds to identify population sources, especially for endangered or sensitive species.
- Identify potential threats from development for the large saline wetlands and freshwater ponds that are most important for priority species.
- Support efforts to acquire, maintain, or restore high priority wetlands, and to create new wetlands to replace historic losses or degraded wetlands.
- Modify the USVI Indigenous and Endangered Species Act (1990) to change the current wetlands policy to prevent a net loss of wetlands to the maximum extent possible.

Monitoring Needs

- Establish a consistent breeding bird monitoring program across all of the islands and cays.
- Monitor land use changes in the vicinity of wetlands to predict potential threats to habitat viability.
- Monitor changes to water quality over time at important wetland sites.

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Freshwater Pond on St. Thomas