

**PRELIMINARY DRAFT**  
**SCOPE OF WORK**  
**VIRGINIA KEY HABITAT RESTORATION**

**I. PROPERTY DESCRIPTION**

Virginia Key is a barrier island containing a variety of upland, and wetland plant communities including seagrass beds and intertidal sand/mud flats, mangrove and herbaceous wetlands, beach dune communities, and coastal maritime hammock. The island is located in Biscayne Bay, Township 54 Range 42, sections 16 and 17, south of Fisher Island, north of Key Biscayne, bordering the Atlantic Ocean to the east and Biscayne Bay to the west. The City of Miami owns approximately \_\_\_ acres of Virginia Key. Other agencies control the remainder of the island; for example Miami-Dade Parks (35 acres), WASA (115 acres), DCPS (\_\_\_ acres), and the Marine Stadium (18 acres).

This property is a natural barrier island that prior to the creation of Government Cut was contiguous to Miami Beach. Beginning in the late 1940's through the 1980's significant dredging and filling projects that included the construction of the Rickenbacker Causeway, the dredging of the Marine Stadium basin and Fisherman's channel transformed Virginia Key into its present form. Many areas of the island have been cleared of native vegetation for human uses such as a marine stadium, sewage treatment facility, a municipal landfill, parking lots for these uses as well as docks and buildings for several restaurants, marinas and commercial fishing operations.

**II. SCOPE OF RESTORATION**

**Maritime Hammock**

Approximately 15.7 acres of maritime hammock have been identified on Virginia Key. Maritime hammock is one of the rarest plant communities in the County due to coastal development. This plant community contains plant species including Spanish stopper (*Eugenia foetida*), Simpson stopper (*Myrcianthes fragrans*), seagrape (*Coccoloba uvifera*), strangler fig (*Ficus aurea*), saw palmetto (*Serenoa repens*), cocoplum (*Chrysobalanus icaco*), pigeon plum (*Coccoloba diversifolia*), mastic (*Mastichodendron foetidissimum*), indigo berry (*Randia aculeata*), wild coffee (*Psychotria nervosa*), wild lime (*Zanthoxylum fagara*), Florida privet (*Foresteria segregata*), seven year apple (*Cassia chusiifolia*), torchwood (*Amyris elemifera*).

Of particular importance is the presence of Biscayne prickly ash (*Zanthoxylum coriaceum*), a State-listed endangered plant. This plant is found primarily within a 3-acre portion of the maritime hammock that is in very good condition. The remainder of the 15.7-acre hammock is more disturbed and will require more intensive restoration.

Proposed restoration in the 15.7 acre hammock would include exotic plant control and replanting to augment the growth and expansion of hammock vegetation. No planting would be required in the 3-acre "highest quality" portion of this area. Problematic exotic plants in this area include Brazilian Pepper (*Schinus terebinthifolius*), Asiatic Colubrina (*Colubrina asiatica*), Burma Reed (*Neyraudia reynaudiana*), and Australian Pine (*Casuarina* spp.).

To the south of the above-described hammock there exists two disturbed upland areas that were formerly maritime hammock. The "cleared upland" area is 4.1 acres. This area was dominated by exotic plants including Brazilian Pepper (*Schinus terebinthifolius*) and Asiatic Colubrina (*Colubrina asiatica*) before it was hand-cleared in the mid-1990's. There are patches of remnant hammock in this clearing. The second area is 2.8 acres and described as "Colubrina-dominated". This area contains some remnant hammock trees but Colubrina is the most abundant plant. Restoration of these two disturbed areas would include the hand removal and herbicide treatment of exotic plants, followed by replanting of appropriate hammock species.

### Beach

The beach and dune communities occupy approximately 17.6 acres of the eastern and southern edges of the island. Virginia Key beach is an essential sea-turtle nesting beach and contains several protected plant species including Beach star (*Remirea maritima*) which is considered an endangered species by the State of Florida. Other endangered species found within the include Bay cedar (*Suriana maritima*) and Beach peanut (*Okenia hypogaeae*). State threatened species include Inkberry (*Scaevola plumieri*), Beach creeper (*Ernodea littoralis*), and Sea oats (*Uniola paniculata*) which are protected by law. The dunes within these areas are small to non-existent and the beach area is relatively narrow. The most problematic exotic plants affecting the beach are Seaside Mahoe and Australian Pines which occur landward the dunes and near the mangrove area surrounding Shrimper's Lagoon. Restoration would involve the removal of Australian pines and the creation of dunes. Dunes would need to be stabilized with plantings of native beach species.

### Mangrove Communities

The island contains more than 300 acres of mangroves, 248 acres of high quality mangrove forest occur on City property. The largest remaining portion of unaltered mangrove forest on Virginia Key exist north of the main road. This mangrove wetland is typical of a coastal band mangrove estuarine community with a dense, mature mangrove forest inland dominated by red mangroves, gradually becoming less dense with younger trees bayward, until the mangroves become more scattered as "mangrove islands". This area is a portion of and wildlife protection area consisting of approximately 460 acres of mangroves, seagrass beds, mud flats, and marsh habitat. In 1990, the Florida Game and Freshwater Fish Commission designated the wetlands along the northwest portion of Virginia Key as well as the flats and spoil islands located waterward of the mangrove

fringe as a Critical Wildlife Area (CWA), one of only 19 areas so designated by the State. Restoration within the mangrove areas north and west of the main road would include the removal or treatment of exotic plants. Australian pine is the most problematic plant in the CWA, occupying filled upland areas near the Marine Stadium and on the two mangrove islands. If feasible, some portions of the fill could be removed and replanted with mangroves. Accessibility to these areas is the limiting factor to determining the restoration end product. Australian pines could be treated in place and maritime hammock could be planted on these filled areas if scrapedown was determined to be impractical.

A remnant of a natural creek (Wilson's Lost River) and lagoon are present in this area. This creek once extended across the island, connecting the Atlantic Ocean with Biscayne Bay. The tidal creek is still visible and is indicated as "spill-over" on the attached GIS map. The mangrove areas on the south side of the main road are more disturbed. Brazilian pepper, Australian pine, Burma reed, and Colubrina are the most prevalent exotic plants in this area. The attached map depicts a series of ditches in this area that are lined with mangroves. There are approximately 30 acres of "Mangroves with Heavy Exotics". The exotics occur on the mosaic of disturbed uplands that occur in this area of the key. Restoration options here include the scrapedown of the exotic-dominated uplands and creation of coastal wetlands. The spill-over could be enhanced to permit tidal flow into the wetlands. The feasibility of this would have to be studied. Another possibility would be the creation of an inland fresh-brackish marsh. This would include scrapedown and planting of herbaceous marsh plants that could tolerate a broad range of salinities.

The mangrove area surrounding Shrimper's Lagoon is in good condition, however it is surrounded by disturbed uplands that are dominated by Australian pine. There are several options for the restoration of these areas. The exotics could be physically removed and dune or hammock communities could be planted. Alternatively, the areas could be scraped down to tidal wetland elevations, and replanted with mangroves.

Similar options exist for the 17.7-acre "Disturbed Mangrove" area to the west of the Treatment Plant. The exotics could be physically removed and hammock communities could be planted. Alternatively, the areas could be scraped down to tidal wetland elevations, and replanted with mangroves.