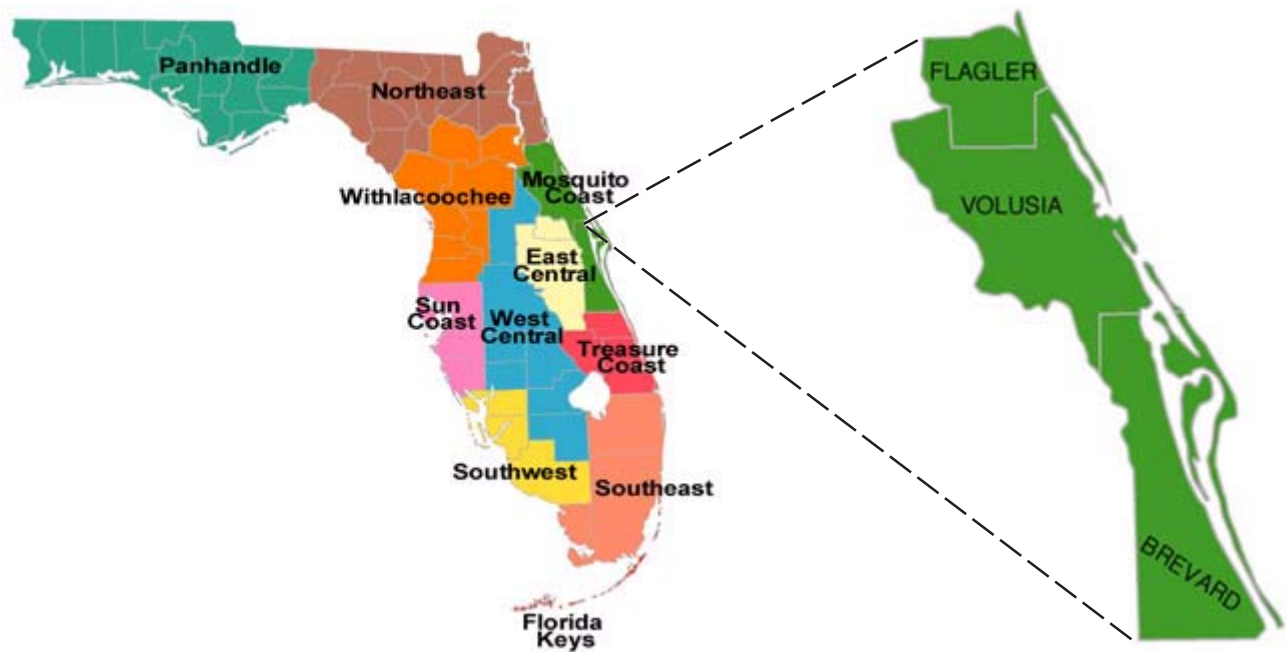


Mosquito Coast Regional Working Group



The Mosquito Coast Regional Working Group liaison is Chris Koepfel, Brevard County Natural Areas Management, 2725 Judge Fran Jamieson Way, Building A, Viera, Florida 32940, phone: 321-633-2016, fax: 321-633-2029, e-mail: chris.koepfel@brevardcounty.us

Merritt Island National Wildlife Refuge

County: Brevard

PCL Size: 139,174 acres

Project ID: MC-048 8,000 acres \$40,926.26

Project Manager: U.S. Fish and Wildlife Service

Ron Hight, Refuge Manager

P.O. Box 6504, Titusville, Florida 32782

Phone: 321-861-0667, Fax: 321-861-1276

E-mail: ron_hight@fws.gov

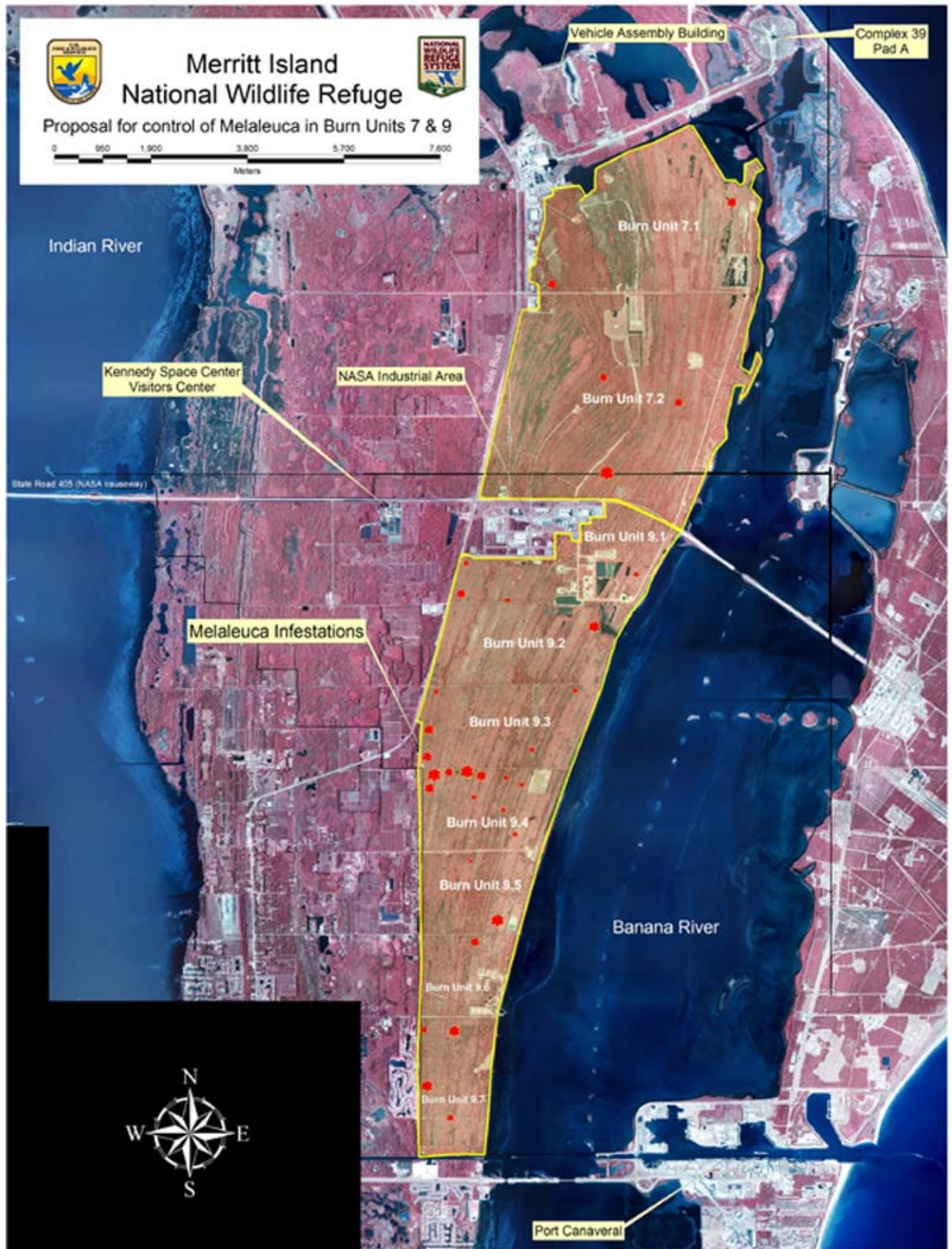
In the early 1960s, NASA began to acquire the land that is now John F. Kennedy Space Center. In 1963, the acquisition was complete and NASA turned those lands not vital to the space program over to the U.S. Fish and Wildlife Service. Today, the Department of the Interior manages the 43-mile long barrier island as Merritt Island National Wildlife Refuge and Canaveral National Seashore. The Refuge is adjacent to the Indian River and Banana Rivers, and Mosquito Lagoon.

Approximately one-half of the refuge consists of brackish estuaries and marshes. The remaining land consists of coastal dunes, scrub oaks, pine forest, pine flatwoods, and palm and oak hammocks. Numerous rare plants and animals live on the refuge. These include seventeen state-endangered plants, such as satinleaf (*Chrysophyllum oliviforme*), crested coralroot (*Hexalectris spicata*), Florida peperomia (*Peperomia obtusifolia*), beach star (*Remirea maritima*), bay cedar (*Suriana maritima*), coastal hoary pea (*Tephrosia angustissima*), and sea lavender (*Tournefortia gnaphalodes*).

Early homesteaders that occupied the land before it became a refuge first introduced melaleuca. They planted the tree as an ornamental, as well as for shade, and it later escaped into the natural wetlands of the area. This project controlled primarily melaleuca scattered within eleven Burn Units totaling 8,000 acres. Melaleuca trees lightly to moderately infested swales that run north to south through the marshes in the Refuge. Most trees were saplings found in small stands.

BIPM also provided herbicide for maintenance control on 1,194 acres treated in the previous fiscal year. Total cost was \$7,385.75 with the herbicide provided by the bureau's Herbicide Bank.

Target Plants	Common Name	FLEPPC Rank	Treatment	Herbicide
<i>Casuarina equisetifolia</i>	Australian pine	Category I	cut stump	Garlon 4
<i>Melaleuca quinquenervia</i>	melaleuca	Category I	cut stump	Arsenal



Archie Carr National Wildlife Refuge

County: Brevard

PCL Size: 162.4 acres

Project ID: MC-054 147.4 acres \$47,201.02

Project Manager: Brevard County Parks & Recreation

Raymond Mojica, EEL Land Manager

5560 North US Highway 1, Melbourne, Florida 32940

Phone: 321-255-4466, Fax: 321-255-4499

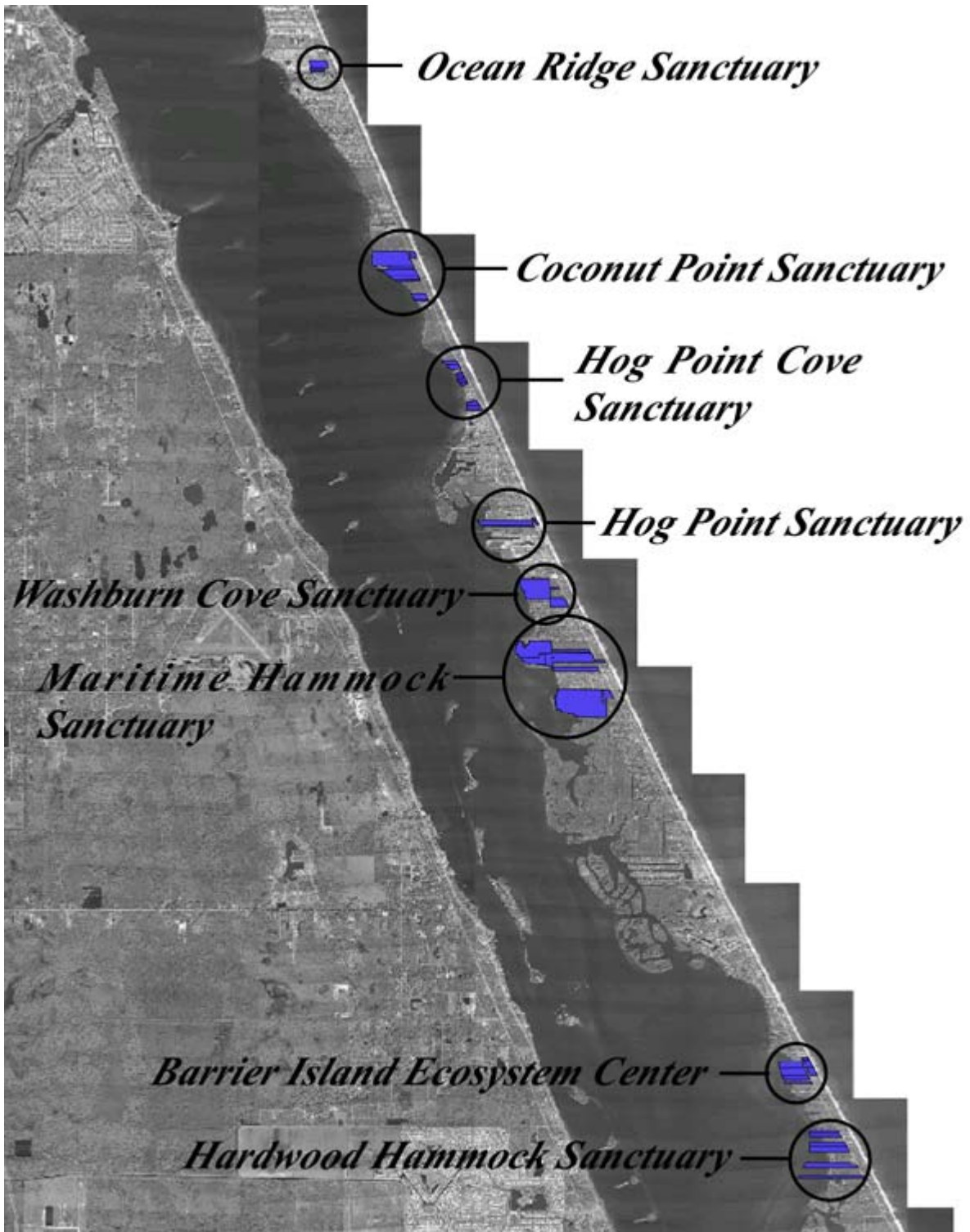
E-mail: rmojica@brevardparks.com

The South Beaches project is a cooperative effort between several partners, including federal, state, and local agencies. The project includes several parcels of publicly owned conservation lands on the South Beaches of Brevard County. All of the property is located within the boundary of the Archie Carr National Wildlife Refuge. The Refuge, designated by Congress in 1990, is recognized as one of the most important areas in the world for nesting loggerhead turtles and the most significant area in North America for nesting green turtles. Natural communities within the project area include coastal strand, maritime hammock, beach dune, and mangrove forest.

This project completed the fifth phase of an aggressive program to remove Brazilian pepper and Australian pine from publicly held lands on the south beaches of Brevard County. The project consisted of controlling Brazilian pepper with an average coverage of thirty percent on four sites: Ocean Ridge Sanctuary, Hog Point Cove Sanctuary, Maritime Hammock Sanctuary, and Hardwood Hammock Sanctuary. In addition to the ground work conducted by crews, a Brontosaurus™ mower removed 14.5 acres of dense Brazilian pepper.

Target Plants	Common Name	FLEPPC Rank	Treatment	Herbicide
<i>Schinus terebinthifolius</i>	Brazilian pepper	Category I	basal	Garlon 4
<i>Schinus terebinthifolius</i>	Brazilian pepper	Category I	mechanical	n/a

Archie Carr National Wildlife Refuge



Pine Island Conservation Area

County: Brevard

PCL Size: 879 acres

Project ID: MC-049 190 acres \$238,000

Project Manager: Brevard County Parks & Recreation

D. Scott Taylor, Ph.D., EEL Central Region Land Manager

5560 North US Highway 1, Melbourne, Florida 32940

Phone: 321-255-4466, Fax: 321-255-4499

E-mail: staylor@brevardparks.com

The mesic pine flatwoods "island" for which this conservation land is historically named is regionally unique in that large areas grade directly into the Indian River Lagoon and other areas exhibit rapid transitions to isolated freshwater marshes and impounded estuarine marsh and mangrove forest habitats that fringe the Lagoon. Development activities on Pine Island during the 1960s in support of sand mining and mosquito control operations significantly altered the hydrologic regime and structural integrity of the expansive estuarine marsh system historically characterizing this property. Invasive exotic pest plants, primarily Brazilian pepper, exploited the conditions provided by these land disturbances.

This project, the fourth and final phase of ongoing work, targeted removal of Brazilian pepper from primarily hydric hammock and impounded freshwater marsh natural community types located in three management units of the conservation property. Brazilian pepper occurred throughout the project area in varying degrees of coverage, with the majority of the project exhibiting dense coverage.

Target Plants	Common Name	FLEPPC Rank	Treatment	Herbicide
<i>Schinus terebinthifolius</i>	Brazilian pepper	Category I	basal	Garlon 4






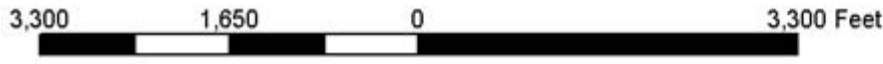
Legend

-  PICA
-  Restoration
-  Phase1
-  Phase2
-  Phase3

Phase 4

Unit

-  1
-  2
-  3



Brevard County Lands Maintenance

County: Brevard

PCL Size: *various*

Project ID: MC-052 136 acres \$50,000

Project Manager: Brevard County Parks & Recreation

Raymond Mojica, EEL Land Manager

5560 North US Highway 1, Melbourne, Florida 32940

Phone: 321-255-4466, Fax: 321-255-4499

E-mail: rmojica@brevardparks.com

Numerous agencies within Brevard County have utilized funds from the DEP Bureau of Invasive Plant Management (BIPM) to treat invasive exotic plants on conservation lands over the past 5 years. These agencies, including several departments of the Brevard County Government and the Sebastian Inlet State Park, have treated several hundred acres within two primary target areas. The two target areas are properties within the Archie Carr National Wildlife Refuge and several properties located on North Merritt Island including the Pine Island Conservation Area, the Kabboord Sanctuary, and Kings Park/Sykes Creek. These projects received initial treatment under thirteen different BIPM Task Assignments.

Approximately sixty percent of the proposed acreage of this project is within the boundaries of the Archie Carr National Wildlife Refuge. The Refuge is a globally significant sea turtle nesting habitat. The beach dune, coastal strand, salt marsh and maritime hammock communities found on the sites are considered imperiled and vulnerable to extinction within Florida.

Running adjacent to the Refuge, the Indian River Lagoon, an "Estuary of National Significance," is North America's most diverse estuary. The Lagoon is located on the Atlantic Flyway, an important waterfowl migratory route. Seagrass beds and mangrove forest located at the shoreline are nursery areas for juvenile fish and other estuarine species.

Target Plants	Common Name	FLEPPC Rank	Treatment	Herbicide
<i>Casuarina equisetifolia</i>	Australian pine	Category I	cut stump	Garlon 4
<i>Schinus terebinthifolius</i>	Brazilian pepper	Category I	basal	Garlon 4

Thousand Islands Conservation Area

County: Brevard

PCL Size: 550 acres

Project ID: MC-055 31 acres \$64,850

Project Manager: Cocoa Beach Stormwater Utility

Joanie Regan, Stormwater Manager

1600 Minutemen Causeway, Cocoa Beach, Florida 32931

Phone: 321-868-3292, Fax: 321-868-3379

E-mail: jregan@cityofcocoa beach.com

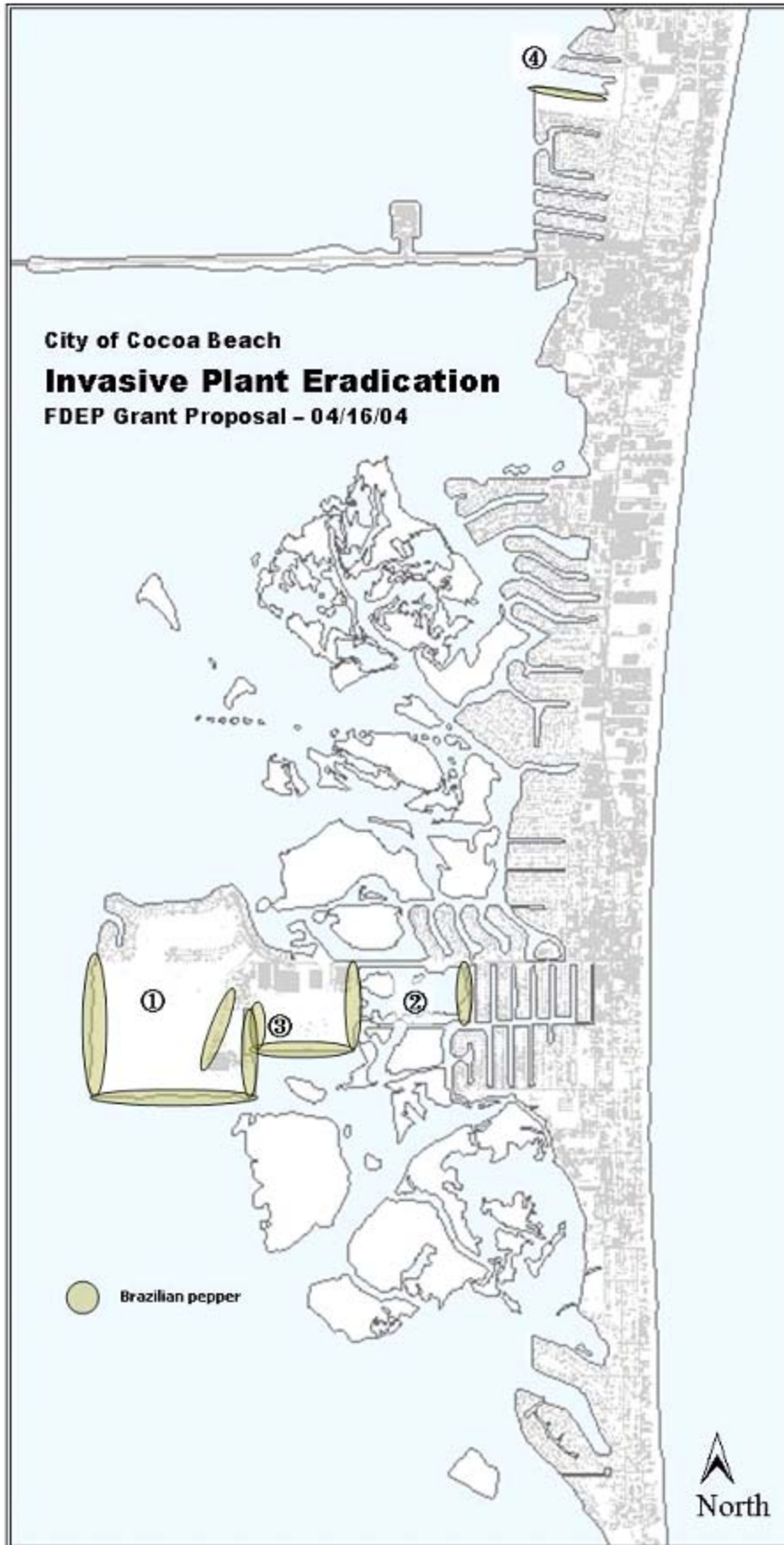
The project area lies within the Thousand Islands, a 550-acre tract of submerged lands, mangrove forest, and approximately 30 acres of uplands created by dredge spoil. Maritime hammock and salt marsh were the dominant natural communities before the wetlands were filled around 1960. The current habitat comprises disturbed uplands, predominantly Brazilian pepper monoculture, with a thin density of native species such as buttonwood (*Conocarpus erecta*), red cedar (*Juniperus virginiana*), wax myrtle (*Myrica cerifera*), and Florida privet (*Forestiera segregata*). A fringe of mangrove lies along the shoreline. The site is contiguous with the Indian River Lagoon—a National Estuary Program area and an Outstanding Florida Water—and is part of the Banana River Aquatic Preserve.

Brazilian pepper dominated the project area, with small areas of Australian pine and lead tree. Some older pepper stands had trunks one to two feet thick, but most trees were young or regrowth clusters with average trunk sizes of three to four inches. Density was consistent throughout the project area at an estimated 60 stems per 100 square feet. A Brontosaurus™ mower was used to clear some areas of Australian pine.

The Maritime Hammock Preserve, a 5.4-acre parcel recently purchased by the City, was also included in the project area. The property is planned as a habitat preserve and stormwater treatment area to improve water quality in the Banana River Aquatic Preserve. The parcel, previously cleared at some time in the past, included zones of natural canopy mixed with Brazilian pepper. Brazilian pepper covered just less than one acre of the parcel.

Target Plants	Common Name	FLEPPC Rank	Treatment	Herbicide
<i>Casuarina</i> spp.	Australian pine	Category I	basal	Tahoe 4
<i>Eugenia uniflora</i>	Surinam cherry	Category I	foliar	Arsenal+glyphosate
<i>Leucaena leucocephala</i>	lead tree	Category I	basal	Tahoe 4
<i>Schinus terebinthifolius</i>	Brazilian pepper	Category I	basal	Tahoe 4
<i>Panicum maximum</i>	Guinea grass	Category II	foliar	Arsenal+glyphosate
<i>Wedelia trilobata</i>	wedelia	Category II	foliar	Arsenal+glyphosate

Thousand Islands Conservation Area



Indian River Lagoon Preserve State Park

County: Brevard

PCL Size: 870 acres

Project ID: MC-051 10 acres \$58,900

Project ID: MC-056 9.3 acres \$95,400

Project Manager: Florida Park Service (DEP)

Ron Johns, Park Manager

9700 South A1A, Melbourne Beach, Florida 32951

Phone: 321-984-4853, Fax: 321-984-4854

E-mail: ronald.n.johns@dep.state.fl.us

Indian River Lagoon Preserve is situated on an Atlantic coast barrier island. Natural communities include maritime hammock, beach dune, and mangrove forest. These projects targeted Australian pine for removal along 1.2 miles of the eastern park boundary.

Target Plants	Common Name	FLEPPC Rank	Treatment	Herbicide
<i>Casuarina equisetifolia</i>	Australian pine	Category I	mechanical	n/a
<i>Casuarina equisetifolia</i>	Australian pine	Category I	cut stump	Garlon 4

Lake Monroe Conservation Area

County: Volusia, Seminole

PCL Size: 7,390 acres

Project ID: MC-050 114 acres \$5,495

Project Manager: St Johns River Water Management District

Randal S. Snyder, Invasive Plant Program Supervisor

PO Box 1429, 4049 Reid Street, Palatka, Florida 32178

Phone: 321-409-2168, Fax: 386-329-4310

E-mail: rsnyder@sjrwmd.com

The Lake Monroe Conservation Area contains ninety percent of the floodplain of Lake Monroe. Wetlands make up ninety-four percent of the conservation area and provide protection of water quality for more than three miles of Lake Monroe and St. Johns River shoreline. The area ranges from recently planted longleaf pine along Reed Ellis Road to a small strip of palmetto oak hammocks, before the elevation quickly drops into a cypress dominated swamp. Beyond the cypress strand lies a drainage slough predominantly populated with buttonbush, swamp hibiscus, *Sagittaria*, *Spartina*, and sawgrass. Between the slough and the river shoreline are scattered small islands of red maple, cabbage palm, cypress, and wax myrtle lying among marshes of maidencane, *Eleocharis*, and the dominant species, *Spartina bakeri*.

The project area encompassed the western portion of the property, known as the Kratzert Tract. This tract is a 114-acre cabbage palm island hammock that lies within a *Spartina* marsh. Chinese tallow occurred with varying degree of coverage throughout the project area.

Target Plants	Common Name	FLEPPC Rank	Treatment	Herbicide
<i>Triadica sebifera</i>	Chinese tallow	Category I	basal	Garlon 4



Freshly cut tallow stumps waiting for their Garlon.



Photo #1 - before



Photo #2 - after



Pepper Sweep '05

County: Volusia

Doris Leeper Spruce Creek Preserve

PCL Size: 915 acres

Canaveral National Seashore

PCL Size: 57,661.69 acres

Project ID: MC-047 118 acres \$54,985.64

Project Manager: East Volusia Mosquito Control District

David Farr

801 South Street, New Smyrna Beach, Florida 32168

Phone: 386-424-2920, Fax: 386-424-2924

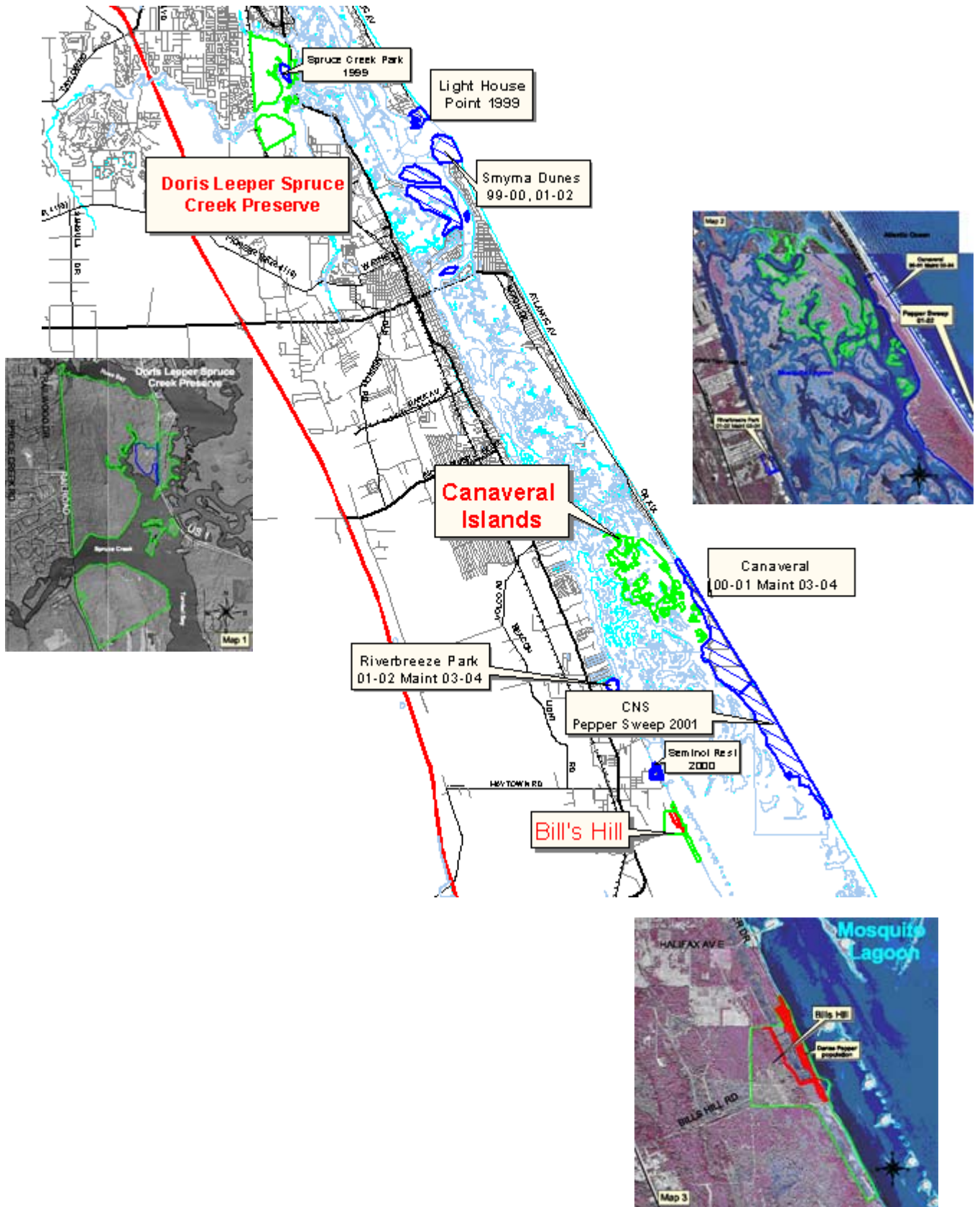
E-mail: dfarr@co.volusia.fl.us

This project encompassed one federal property, Canaveral National Seashore, and one county property, Doris Leeper Spruce Creek Preserve. Much of the project area consists of cabbage palm and live oak hammocks interspersed amidst tidal salt marsh and fringing mangrove forest. Spruce Creek Preserve contained approximately 0.75 acres of Australian pine and 45 acres of Brazilian pepper that were located mainly along the tree line in the marsh area. Some dense stands of pepper also grew along a canal in the area by Turnbull Bay. The County provided \$40,000 in matching funds for a total project cost of \$94,985.64

The project area also included two sites within the boundaries of the Canaveral National Seashore. The CNS Islands site is approximately 810 acres in size and contained approximately 35 acres of sparse to densely populated pepper. A large portion of this site consists of marsh areas with sparsely distributed stands of pepper that sat on small islands, some as small as a few square feet in size. Most of the dense pepper communities were located on the larger island known as Shipyard Island. Bill's Hill, a 175-acre site, is located on the western portion of Mosquito Lagoon and contained approximately 35 acres of pepper. Most of the pepper was located in the northeast portion of the site in an area between Mosquito Lagoon to the east and the marsh area/impoundment to the west. There were also dense stands along the west side of the marsh area.

Target Plants	Common Name	FLEPPC Rank	Treatment	Herbicide
<i>Schinus terebinthifolius</i>	Brazilian pepper	Category I	basal, cut stump	Garlon 4

Pepper Sweep '05



Pepper Sweep Maintenance

County: Volusia

Smyrna Dunes Park

PCL Size: 250 acres

North Peninsula State Park

PCL Size: 522.26 acres

Canaveral National Seashore

PCL Size: 57,661.69 acres

Project ID: MC-053 260.0 acres \$38,952.44

Project ID: MC-024 114.5 acres \$13,898.50

Project Manager: East Volusia Mosquito Control District

David Farr

801 South Street, New Smyrna Beach, Florida 32168

Phone: 386-424-2920, Fax: 386-424-2924

E-mail: dfarr@co.volusia.fl.us

The first project encompassed a county park, a state park, and a federal park; Smyrna Dunes Park, North Peninsula State Park, and Canaveral National Seashore, respectively. Natural communities found on these conservation areas include coastal dune, coastal strand, maritime hammock, coastal strand, oak scrub, live oak hammock, mangrove swamp, and tidal marsh. These parks were the subject of initial control work under four previous “Pepper Sweeps” (2000-2004). Volusia County provided in-kind contributions valued at \$3,500 to this project.

The second project was a continuation of maintenance control on the above three parks as well as Bulow Creek State Park and four other county parks. BIPM provided the herbicide only for this project through its Herbicide Bank.

Target Plants	Common Name	FLEPPC Rank	Treatment	Herbicide
<i>Schinus terebinthifolius</i>	Brazilian pepper	Category I	basal, cut stump	Garlon 4



The pepper trees may be dead and brown, but a healthy seed bank means a few years of watchful maintenance to come.