



2021 EVERGLADES INVASIVE SPECIES SUMMIT:

PLANT OPERATIONS UPDATES

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Definitions:

Priority Species: exotic invasive species that are currently a major focus of management by the agency/tribe.

Newly Detected Species: new species reports by the agency/tribe for a given management unit-- not necessarily a new record for the region

For time period of July 1, 2020-June 30, 2021

MIAMI-DADE COUNTY

Newly detected species: *Rousselia humilis*

Boystown

Species treated:

Neyraudia reynaudiana

Schinus terebinthefolius

Pennisetum purpureum

Schefflera actinophylla

Sesbania punicea

Cupaniopsis anacardioides (added by IPMS)

Acacia auriculiformis (added by IPMS)

Miami-Dade Navy Preserve #23

Species treated:

Neyraudia reynaudiana

Schinus terebinthefolius

Bischofia javanica

Dioscorea bulbifera

Jasminum fluminense

Ardisia elliptica

Cassurina spp.



Plant Species	Infested Acres (Acres Treated)	Treatment Cost
Air potato (<i>Dioscorea bulbifera</i>)	29.4	\$5,240.00
American evergreen (<i>Syngonium podophyllum</i>)	30.4	
Asian sword fern (<i>Nephrolepis brownii</i>)	5	
Australian pine (<i>Casuarina</i> spp.)	5.5	
Bishop's wood (<i>Bischofia javanica</i>)	11	
Brazilian pepper (<i>Schinus terebinthifolius</i>)	23	
Burma reed (<i>Neyraudia reynaudiana</i>)	46	\$370.00
Carrot wood (<i>Cupaniopsis anacardioides</i>)	20.4	
Castor Bean (<i>Ricinus communis</i>)	7	
Deviltree (<i>Alstonia macrophylla</i>)	10	
Earleaf acacia (<i>Acacia auriculiformis</i>)	20.5	
Exotic black mangrove (<i>Lumnitzera racemosa</i>)	1	\$1,060.00
Golden pothos (<i>Epipremnum pinnatum</i>)	10	
Japanese climbing fern (<i>Lygodium japonicum</i>)	65	
Jaragua (<i>Hyparrhenia rufa</i>)	---	\$380.00
Jasmine (<i>Jasminum</i> spp.)	17	
Javanese glorybower (<i>Clerodendreum speciosissimum</i>)	20.4	
Jeweled maiden fern (<i>Thelypteris opulenta</i>)	67	\$840.00
Melaleuca (<i>Melaleuca quinquenervia</i>)	640	
Mile-a-minute vine (<i>Mikania micrantha</i>)	16	
Napier grass (<i>Pennisetum purpureum</i>)	45	
Old World climbing fern (<i>L. microphyllum</i>)	1280	
Possum Grape (<i>Cissus verticillata</i>)	10	
Redwing (<i>Heteropterys brachiata</i>)	67	\$1,030.00
Rosary pea (<i>Abrus precatorius</i>)	12	
Rose Natalgrass (<i>Melinis repens</i>)	7	
Sewer vine (<i>Paederia cruddasiana</i>)	40	
Shoebuttan ardisia (<i>Ardisia elliptica</i>)	115.4	
Jeweled maiden fern (<i>Thelyptis opulenta</i>)	31.3	
Tuberous sword fern (<i>Nephrolepis cordifolia</i>)	15	
Umbrella tree (<i>Schefflera actinophylla</i>)	17	
Wart fern (<i>Phymatosorus grossus</i>)	67	
Woman's tongue (<i>Albizia lebeck</i>)	4.5	

*** For more information on Miami-Dade's treatment program, please email: eel@miamidade.gov



FLORIDA FISH & WILDLIFE CONSERVATION COMMISSION

Priority Species

- Old World climbing fern (*Lygodium microphyllum*)
- Brazilian pepper (*Schinus terebinthifolius*)
- Napier grass (*Pennisetum purpureum*)
- Day jessamine (*Cestrum diurnum*)
- Arrowhead vine (*Syngonium podophyllum*)
- Java plum (*Syzygium cumini*)
- West Indian marsh grass (*Hymenachne amplexicaulis*)
- Para grass (*Urochloa mutica*)
- Primrose willow (*Ludwigia peruviana*)
- Melaleuca (*Melaleuca quinquenervia*)
- Torpedograss (*Panicum repens*)
- Cogongrass (*Imperata cylindrica*)
- Wild taro (*Colocasia esculenta*)
- Lantana (*Lantana strigocamara*)
- Cuban bulrush (*Oxycaryum cubense*)
- Castor bean (*Ricinus communis*)
- Wright's nutrush (*Scleria lacustris*)

Completed Treatments July 2020– July 2021

Everglades and Francis S. Taylor Wildlife Management Area (EWMA)

WCA 3A North

Exotic Plant Control:

- 988 acres chemically treated @ \$169,153.05
 - 886 acres of tree islands, levees, and Miami Canal spoil islands @ \$148/acre
 - 83 acres of tree islands, levees, and Miami Canal spoil islands @ \$250/acre treated a second time for Napier grass only
 - 18.73 acres of tree islands and adjacent marsh @ \$922.32/acre treated for para grass, torpedograss, and West Indian marsh grass
- 0.36 acres of additional tree islands and marsh chemically treated in house for Brazilian pepper, melaleuca, and bishopwood

Tree Island Restoration:

- 8,372 native tree and shrub cages maintained @ \$67,813.20

WCA 3A South

Exotic Plant Control:

- 574 acres chemically treated @ \$86,279.28
 - 572 acres of tree islands @ \$148/acre
 - 1.76 acres of tree islands and adjacent marsh @ \$922.32/acre; treated for para grass, torpedograss, and West Indian marsh grass
- 4,128 acres surveyed for Lygodium/chemically treated @ \$139,605.09



- 4,128 acres of marsh (3,999 acres @ \$34.91/acre, and 129 acres @ \$0/acre)

- 0.53 acres of additional tree islands chemically treated in house for Brazilian pepper, royal poinciana and bishopwood

WCA 3B

Exotic Plant Control:

- 0.54 acres of tree islands chemically treated in house for Brazilian pepper

WCA 2A

Exotic Plant Control:

- 109 acres chemically treated @ \$18,003.02
 - 106 acres of tree islands, levees, and adjacent marsh @ \$148/acre
 - 2.51 acres of tree islands and adjacent marsh @ \$922.32/acre treated for para grass, torpedograss, and West Indian marsh grass

Tree Island Restoration:

- 214 native tree and shrub cages maintained @ \$1,733.40
- 217 trees and shrubs planted @ \$7,180.00

WCA 2B

Exotic Plant Control:

- 0.0009 acres of marsh chemically treated in house for Lygodium and earleaf acacia

Tree Island Restoration:

- 66 native tree and shrub cages maintained @ \$534.60

Holey Land Wildlife Management Area (HWMA)

Exotic Plant Control:

- 3,886 acres chemically treated @ \$498,475.00
 - 1,635 acres of marsh (1,403 acres @ \$148.00/acre, and 232 acres @ \$302.00/acre)
 - 2,061 acres of levee forest (924 acres @ \$58.50/acre, and 1,137 acres @ \$99.00/acre)
 - 190 acres of tree islands @ \$285.00/acre
- 7 acres of additional marsh chemically treated in house for Scleria

Tree Island and Marsh Restoration:

683 native tree and shrub cages maintained @ \$4,098.00

Rotenberger Wildlife Management Area (RWMA)

Exotic Plant Treatment:

- 920 acres chemically treated @ \$191,382.00



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- 542 acres of marsh (70 acres @ \$285.00/acre and 472 acres @ \$156.00/acre)
 - 230 acres of levees @ \$200.00/acre
 - 148 acres of tree islands @ \$350.00/acre
- 1 acre of additional marsh chemically treated in house for water lettuce

Tree Island Restoration:

- 5,077 native tree and shrub cages maintained @ \$33,508.20
- 340 native trees and shrubs and 1608 native aquatic plants planted @ \$23,831

Planned Treatments 2021/2022

For FY 21/22, we will re-treat most areas (tree islands, levees, levee forests, marsh areas, and Miami Canal spoil mounds) across Everglades, Holey Land, and Rotenberger from 20/21. Most will be routine maintenance for Brazilian pepper and Lygodium; exotic grasses will be re-treated two times. A total of 3,999 acres of marsh in WCA 3AS and 900 acres in Holey Land will be surveyed and treated for Lygodium.



Everglades & Francis S. Taylor Wildlife Management Area

Species	Gross Ac (Acres covered)	Infested Ac (Acres Treated)	Treatment Cost
Brazilian Pepper	1564 (1565 incl. in house)		\$231,472.00
Melaleuca	<1		In House
OWCF	5692		\$371,077.09
Australian Pine			
All Species (including but not limited to the 4 species above)	5798 (5799 incl. in house)		\$413,040.45

Holey Land Wildlife Management Area

Species	Gross Ac (Acres covered)	Infested Ac (Acres Treated)	Treatment Cost
Brazilian Pepper	3851		\$493,295
Melaleuca			
OWCF	3851		\$493,295
Australian Pine			
All Species (including but not limited to the 4 species above)	3886 (3893 incl. in house)		\$498,475

Rotenberger Wildlife Management Area

Species	Gross Ac (Acres covered)	Infested Ac (Acres Treated)	Treatment Cost
Brazilian Pepper	850		\$171,432
Melaleuca			
OWCF	850		\$171,432
Australian Pine			
All Species (including but not limited to the 4 species above)	920 (921 incl. in house)		\$191,382



BROWARD COUNTY

Priority Species

- | | |
|--|---|
| <p>Brazilian pepper (<i>Schinus terebinthifolia</i>)
 Australian pine (<i>Casuarina equisetifolia</i>)
 Old World climbing fern (<i>Lygodium microphyllum</i>)
 Bishopwood (<i>Bischofia javanica</i>)
 Shoebuttan ardisia (<i>Ardisia elliptica</i>)
 Java plum (<i>Syzygium cumini</i>)
 Earleaf acacia (<i>Acacia auriculiformis</i>)
 Arrowhead vine (<i>Syngonium podophyllum</i>)
 Golden pothos (<i>Epipremnum pinnatum</i>)
 Catclaw vine (<i>Dolichandra unguis-cati</i>)
 Winged yam (<i>Dioscorea alata</i>)
 Air potato (<i>Dioscorea bulbifera</i>)</p> | <p>Mother in-law's tongue (<i>Sansevieria trifasciata</i>)
 Oyster plant (<i>Tradescantia spathacea</i>)
 Areca palm (<i>Dypsis lutescens</i>)
 Surinam cherry (<i>Eugenia uniflora</i>)
 Inch plant (<i>Tradescantia zebrina</i>)
 Kalanchoe (<i>Kalanchoe</i> spp.)
 Carrotwood (<i>Cupaniopsis anacardioides</i>)
 Umbrella tree (<i>Schefflera actinophylla</i>)
 Sewer vine (<i>Paederia cruddasiana</i>)
 Rosary pea (<i>Abrus precatorius</i>)
 Jasmine (<i>Jasminum</i> spp.)
 Black sage (<i>Varronia curassavica</i>)
 Spurge creeper (<i>Dalechampia scandens</i>)</p> |
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Newly Detected Species

Species	Park/area	Location/description	Notes
Neem tree (<i>Azadirachta indica</i> A. Juss)	Shooster Nature Preserve	20-30 young recruits escaping from adjacent yards into disturbed wetland edge. Treated, but monitor for future recruitment.	Widely introduced, sometimes becoming invasive. Thrives in poor, well-drained soils. The fruits, seeds, and foliage of <i>A. indica</i> contain several compounds that repel or kill insects, inhibit the growth and development of fungi, and limit the infective ability of plant viruses.
<i>Eugenia coronata</i> Vahl ex. DC.	Shooster Nature Preserve	Scandent shrub in pond apple/maple swamp in muck. Likely escaped from cultivation. Not yet treated.	Native to west Africa. Uncommon, but cultivated by hobbyists for edible fruit. Dispersed by wildlife. Specimens at FTBG.
Golden Trumpet Tree (<i>Handroanthus chrysotrichus</i> (Mart. ex A. DC.) Mattos)	Central Broward Regional Park	Sterile, ~5 ft tall. Volunteer in fire-suppressed scrubby flatwood. No adults observed in vicinity.	Ornamental tree. Close relative of <i>Tabebuia</i> . Native from Brazil to Argentina. Wind-dispersed seeds.
Deep-rooted flatsedge (<i>Cyperus entrianus</i> Boeck.)	Tradewinds Park	Wet ditches north of horse trails. Needs voucher.	“ <i>Cyperus entrianus</i> can invade wet undisturbed natural habitats as well as disturbed areas such as highway ditches and field margins. It can form monocultures, displacing native vegetation in habitats it invades. It is tolerant of a wide range of soil types from sand to clay. <i>Cyperus entrianus</i> is native to South America and was accidentally introduced into the United States around 1990. It invades disturbed areas through-out the southeastern United States” (invasive.org).



Broward County has been treating *Dalechampia scandens* at four of its parks monthly for the past year, with eradication in mind. Previously, it was treated on a slightly longer rotation.

Dalechampia was first found at Anne Kolb Nature Center in 2000, most likely originating from Tradewinds Park, where it was found to have spread throughout the park from equipment and through horse trails.

Dalechampia has spread to two other parks, most likely through equipment, although the most recent infestation at Saw Palmetto seems to be a mystery. We have been unable to eradicate even the smallest new infestations of the plant. It is easily treated but the seeds persist. Some new infestations have been considered eradicated only to have them pop up again. Recently, it has been confirmed that the seeds persist through fire.



Completed Treatments 2020-2021

Contracted Treatments

Natural Area	Species Treated in order of prevalence	Funding Source	Contractor	Acres	% of area infested	Amount
Hillsboro Pineland	<i>Brazilian pepper, rosary pea, shoebutton ardisia, air potato, earleaf acacia, schefflera, bischofia, carrotwood, areca palm, Java plum, Surinam cherry... Over 42 species total</i>	FWC IPMS	Environmental Quality, Inc.	55	Maintenance, 5% - 30%	\$43,717.28
Total				55		\$43,717.28

In-House Restoration Crew Treatments Total: 354.7 acres @ \$182,055.83

Natural Area	Acres	Notes
Long Key Nature Center	5.4	Treated wetland for lygodium and other species
Markham Park	17.6	All priority species
Shooster Preserve	19.0	All priority species, park was opened to public in October 2020
Fern Forest Nature Center	1.1	Manual removal of incised halberd fern (<i>Tectaria incisa</i>) from sensitive habitat along the boardwalk
Tradewinds Park * See map	66.3	Treated <i>Dalechampia scandens</i> monthly
Tall Cypress Natural Area	28.5	All priority species
Holmberg Road Site	26.4	All priority species
West Creek Pineland Natural Area	1.8	All priority species
Helene Klein Pineland Preserve	0.9	Follow up treatment after mechanical treatment. All priority species
Kristen Jacobs Natural Area	2.0	(Formerly Hillsboro Pineland) Treated wetland for water sprite
Saw Palmetto Natural Area	5.2	All priority species. New infestation of <i>Dalechampia scandens</i> , source of spread unknown. Small population, treated monthly
Military Trail Natural Area	17.7	Follow up treatments after a prescribed burn including extensive ladder fuel removal and spraying of grapevine. All priority species. Burned area contained a population of <i>Dalechampia scandens</i> and the fire did not destroy the seed source. Treated monthly for <i>Dalechampia</i>
Crystal Lake Sand Pine Scrub	14.6	Follow up treatments after a wildfire and extensive vine removal. All priority species
Highlands Scrub Natural Area	16.6	Follow up treatments after a wildfire and extensive vine removal. All priority species

Planned Treatments 2021-2022

Contracted Treatments

Fern Forest 247.1 acres

Treatment area – 235 acres

Priority Plant Species – All priority species, additionally some landscaping palms and plants, and some cultivated food plants and trees.



* Fern Forest was slated to be treated this year. While funding was secured, Broward was unable to hire a contractor for various reasons, both internal and external.

Military Trail Natural Area 19.9 acres (IPMS)

Treatment area – 18.4 acres

Priority Plant Species – Earleaf acacia, shoebutton ardisia, asparagus-fern bischofia, carrotwood, sword fern, Brazilian pepper, schefflera

Tall Cypress Natural Area 66.0 acres (IPMS)

Treatment area – 32 acres

Priority Plant Species – Earleaf acacia, schefflerea, bischofia, carrotwood, Brazilian pepper, lygodium

Hollywood North Beach Park 62.0 Acres (IPMS)

Treatment area – 32 acres

Priority Plant Species – Australian pine, air-potato, Brazilian jasmine, scaevola, tropical almond, lantana, schefflera, bischofia, carrotwood, Brazilian pepper, lygodium, Senegal date palm

In-House Restoration Crew Treatments

In-house crew to continue working in the same areas:

Hillsboro Pineland 56.34 acres – (Follow up on grasses and vines post IPMS)
Willow Pond 9.9 acres
Saw Palmetto 11.1 acres (Dalechampia)
Anne Kolb 1,500 acres (Dalechampia)
West Creek Pineland 7.4 acres
Helene Klein 13.0 acres
Crescent Trail 7.1 acres
Coconut Creek Maple Swamp 9.7 acres
Tall Cypress 66.1 acres

Tradewinds 626.7 acres (Dalechampia)
Military Trail 19.9 acres (post burn and Dalechampia)
Highlands Scrub 34.0 acres
Fern Forest 247.1 acres
Woodmont 21.1 acres
Miramar Pineland 156.7 acres
Pine Island Ridge 102.2 acres
Long Key 164.8 acres (Lygodium)

US FISH & WILDLIFE SERVICE

Arthur R. Marshall Loxahatchee National Wildlife Refuge

Priority Species

Melaleuca (*Melaleuca quinquenervia*)
Old World Climbing Fern (*Lygodium microphyllum*)
Brazilian pepper (*Schinus terebinthifolius*)

Shoebuttan ardisia (*Ardisia elliptica*)
Earleaf acacia (*Acacia auriculiformis*)



Newly Detected Species

N/A

FY20 USFWS Funds to SFWMD - \$2,000,000

Funds transferred to SFWMD for invasive plant treatment in accordance with the License Agreement signed in 2018.

Completed Treatments 2020-2021

Project: FY20 Aerial Impoundment Treatments

Description: This project aerially treated approximately 294 acres of invasive aquatics and native invasives to reduce encroachment within the Refuge impoundments.

Species Treated: Cuban bulrush, water lettuce, cattail, and willow

Start/stop date: September 2020

Status: Completed

Project: FY20 Strazzulla

Description: Following initial treatments of large, heavily infested portions in 2018 and 2019, this project completed re-treatments on the north and eastern forested areas of Strazzulla totaling 1,220 acres.

Species Treated: Melaleuca, Lygodium, Brazilian pepper, Australian pine, java plum, bishopwood, shoebutton ardisia, carrotwood, earleaf acacia, climbing cassia, giant brake fern, Senegal date palm, guava

Start/stop date: December 2020 – January 2021

Status: Completed

Fire Operations 2020-2021 – 4 prescribed burns were successfully completed totaling 19,732 acres

Planned Treatments 2021-2022

Estimated 4,008 acres total

- 2,754 acres of Category I and II species for maintenance treatments in Strazzulla Marsh (Fee Title)
- 1,254 acres of Category I and II species for maintenance treatments in the wetland impoundments around Headquarters (Fee Title)

Prescribed burns planned:

- 17,325 acres in the southeastern portion of the Refuge
- 20,811 acres in the eastern-central portion of the Refuge
- 2,600 acres in Strazzulla



Biscayne National Park

Priority Species

Latherleaf (*Colubrina asiatica*)
Seaside Mahoe (*Thespesia populnea*)
Brazilian Pepper (*Schinus terebinthifolius*)
Hawaiian Half-flower (*Scaevola sericea*)
Australain pine (*Casuarina equisetifolia*)

Newly Detected Plant Species

Banyan Tree (*Ficus benghalensis*)

All funding for contracted projects is provided by the National Park Service Florida and Caribbean Exotic Plant Management Team

Contracted Project: Re-treatment of Exotic Plants on Boca Chita, Adam's and Porgy Key
Treatment cost: \$52,550/ 749.00 per acre covered

Contractor: Earth Balance, Inc.

Planned Treatments 2021-2022

Re-treatment of Exotic Plants Along Corridors within Biscayne National Park. Treatment areas will cover Spite Highway along Elliott Key, University Dock South Beach also on Elliott Key and Black Point Jetty. The cost is estimated to at \$66,000 for 87 gross infested acres.

The NPS South Florida and Caribbean (SFCN) Inventory and Monitoring Network is also currently conducting their Corridors of Invasive surveys which are completed every 5 years. The Park hopes to use the updated data to have the contractors concentrate in heavy infestation areas and in the meantime Park staff are accompanying the SFCN team to treat smaller infestations as well.





Big Cypress National Preserve

Priority Species- 2020/2021 *Lygodium*, *Melaleuca*

Newly Detected Species- None

2021 Invasive Plant Removal Contracts					
Name	Method	Species	Cost	Acres Gross/Treated	Cost/acre
2020 N of I-75 Lygodium	Aerial, spot spray	Lygodium	\$100k	20k/ 10.9	\$9174 acre
2020 Cowbell BAR	Aerial, spot spray	Lygodium	\$160k	21k/ 29.7	\$5387 acre
2019 Avian BAR	Ground crews	Melaleuca	\$200k This period	3300/ 125	\$1600 acre
2020 Loop Extra	Aerial, spot spray	Melaleuca	\$50k	21k/ 11.4	\$4385 acre
2020 Irma Loop	Aerial, boom and spot	Melaleuca	\$515k	36k/ 312	\$1422 acre + \$71.2k survey
2021 FWC Aerial	Aerial, boom	Melaleuca	\$400k	41k/ 1562	\$256 acre



Species	Gross Acres Covered	Infested Acres Treated	Treatment Cost
Brazilian Pepper	0	0	0
Melaleuca	101,300	2010.4	\$1,165,000
Lygodium OWCF	41,000	40.6	\$260,000
Austrailian Pine	0	0	0

EVERGLADES NATIONAL PARK

Priority plant species -

Melaleuca quinquenervia, *Casuarina equisetifolia*, *Lygodium microphyllum*, *Schinus terebinthifolius*, and *Ardisia elliptica*.

Newly detected plant species – One non-native and two native plant species were found.

Alternanthera pungens (khakiweed)- Not Native- Flamingo (Considered Early Detection Rapid Response)

Eleocharis baldwinii (Baldwin’s spike grass) *Native- Old Tamiami Trail restoration site

Rhynchospora nitens (shortbeak beaksedge) *Native- Old Tamiami Trail restoration site

Control areas for priority plant species –

See table 1 and figure 1 for summary of treatments that occurred between July 1, 2020 and June 30, 2021 in Everglades National Park.

Table 1. Summary of Invasive plant treatment projects in Everglades National Park between July 1, 2020 and June 30, 2021.							
Project Name	Major Species Treated	Funding Source	Treatment Type	Gross Acres swept	Canopy Acres Treated	% of area infested	Amount
NPS_EVER_SFCIPMT_FY2020	<i>Melaleuca</i>	NPS_FLCIMPT & EVER (140P5420F0049)	Initial	639	234	37%	\$ 197,451.00
FWC_EVER_DryAccess_2021_S of Richmond	<i>Melaleuca</i> <i>Schinus</i>	FWC (SE-237) B7DC7D	Re-treatment	2,575	227	9%	Labor=\$373,375 Herbicide=\$2,268.68 Total= \$375,643.68
FWC_EVER_DryAccess_2021_L31N	<i>Melaleuca</i> <i>Casuarina</i> <i>Schinus</i> <i>Ardisia</i>	FWC (SE-237) B7DC7D	Re-treatment	731	112	15%	Labor=\$105,995 Herbicide=\$4,693.57 Total=\$110,688.57
Aerial treatment EEA	<i>Melaleuca</i>	FWC/SFWMD (WO40CAS21)	Initial	67	66	99%	\$9,081.53
EVER_In-house projects NPS	Many	NPS_EVER	Re-treatment	19	1		Part of budget
Total				4,031	640		\$692,864.78



Funding Sources

EVER - (Everglades National Park)
SFCIPMT- (Florida and Caribbean-Invasive Plant Management Team)
FWC - (Florida Fish and Wildlife Conservation Commission)
NPS - (National Park Service)
SFWMD- (South Florida Water Management District)

Gross acres - An estimate of the total land area swept by treatment crews.

Canopy acres - An estimate of the percent of ground covered by a particular invasive species. For example, 200 acres swept at a cover range of 0.1-5%, invasive species cover would have the mid-point of 3% and have the estimated canopy acres of 6 acres (200 acres x 0.03=6).

Treatment Projects

A.) NPS EVER_SFCIPMT FY2020

Description: Initial treatment of *Melaleuca quinquenervia*, and *Schinus terebinthifolia*

Objective: Initial treatment in East Everglades District.

Partners: National Park Service-Everglades National Park and Florida and Caribbean Invasive Plant Management Team

Start/End Date: August 31, 2020 – April 15, 2021.

Status: Completed; subject to retreatment.

Accomplishments: Acres swept = 639; Canopy acres = 234

B.) FWC EVER_DryAccess_2021_S of Richmond

Description: Re-treatment of *Melaleuca quinquenervia*, *Schinus terebinthifolia*, and *Ardisia elliptica*

Objective: Re-treatment in East Everglades District

Partner: Florida Fish and Wildlife Conservation Commission (SE-237)

Start/End Date: April 12,2021 – May 3, 2021

Status: Completed; subject to retreatment.

Accomplishments: Acres swept = 2,575; Canopy acres = 227

C.) FWC EVER_DryAccess_2021_L31N

Description: Re-treatment of *Melaleuca quinquenervia*, *Casuarina equisetifolia*, *Schinus terebinthifolia*,

Objective: Re-treatment in East Everglades District.

Partner: Florida Fish and Wildlife Conservation Commission (SE-237)

Start/End Date: May 2, 2021-June 2, 2021

Status: Ongoing; subject to retreatment.

Accomplishments: Acres swept = 731; Canopy acres = 112

D.) Aerial treatment EEA

Description: Initial treatment of *Melaleuca quinquenervia*

Objective: Re-treatment in East Everglades District.

Partner: Florida Fish and Wildlife Conservation Commission and South Florida Water Management District

Start/End Date: June 6, 2021-June 6, 2021

Status: Ongoing; subject to retreatment.

Accomplishments: Acres swept = 67; Canopy acres = 66



E.) Everglades National Park

Description: In-house projects completed by National Park Service staff, interns and volunteers.

Objective: Treatment of invasive plants in high priority areas, as staff, intern and volunteer time allows.

Partner: Everglades National Park and South Florida Caribbean Network

Start/End Date: July 1, 2019 and June 30, 2020

Status: Completed; subject to retreatment.

Accomplishments: Gross acres = 19; Canopy acres = 1

Species	Gross Ac (Acres covered)	Infested Ac (Acres Treated)	Treatment Cost
Brazilian Pepper	125	7	~\$21,474.99
Melaleuca	3,781	628	~\$650,494.56
Lygodium (OWCF)	0	0	~\$0.00
Australian Pine	82	2	~\$14,077.53
Other Species	43	3	~\$6,817.70
All Species (including but not limited to the 4 species above)	4,031	640	\$692,864.78

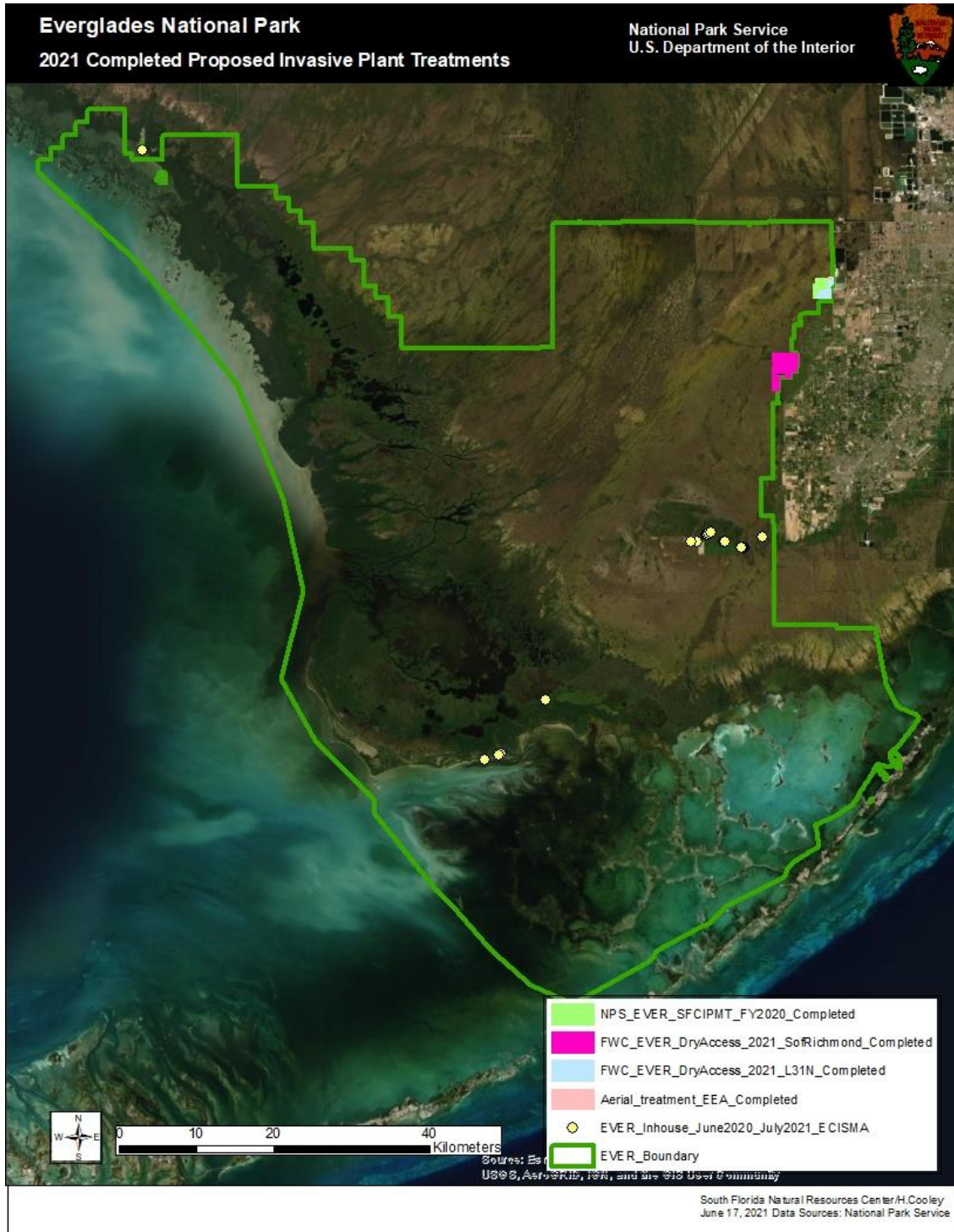


Figure 1: Map of contracted and in-house invasive plant treatment within Everglades National Park completed between July 1, 2020-June 30, 2021. In-house work is work completed by National Park Service staff, interns and volunteers.



Planned between July 1, 2021-June 30, 2022

A.) FWC, NPS, National Park Foundation and other partners

Description: Re-treatment and initial treatment of *Melaleuca quinquenervia*, *Casuarina equisetifolia*, *Schinus terebinthifolia*, *Lygodium microphyllum* and other species.

Objective: Re-treatment and initial treatment of *Melaleuca quinquenervia*, *Casuarina equisetifolia*, *Schinus terebinthifolia*, *Lygodium microphyllum* and other species.

Partners: Florida Fish and Wildlife Conservation Commission, National Park Service's Florida and Caribbean Invasive Plant Management Team, National Park Foundation, and Everglades National Park

Start/End Date: July 1, 2021 - June 30, 2022.

Status: Planned for 2022.

Accomplishments: Will update next year.

B.) In-house

Description: In-house work is planned to be conducted by Park Service employees, interns and volunteers through-out the year in all districts of Everglades National Park and Dry Tortugas National Parks.

Objective: Treatment of invasive plants in high priority areas, as staff, intern and volunteer time allows.

Partners: Everglades National Park.

Start/End Date: July 1, 2021 - June 30, 2022.

Status: Ongoing

Accomplishments: Will update next year.

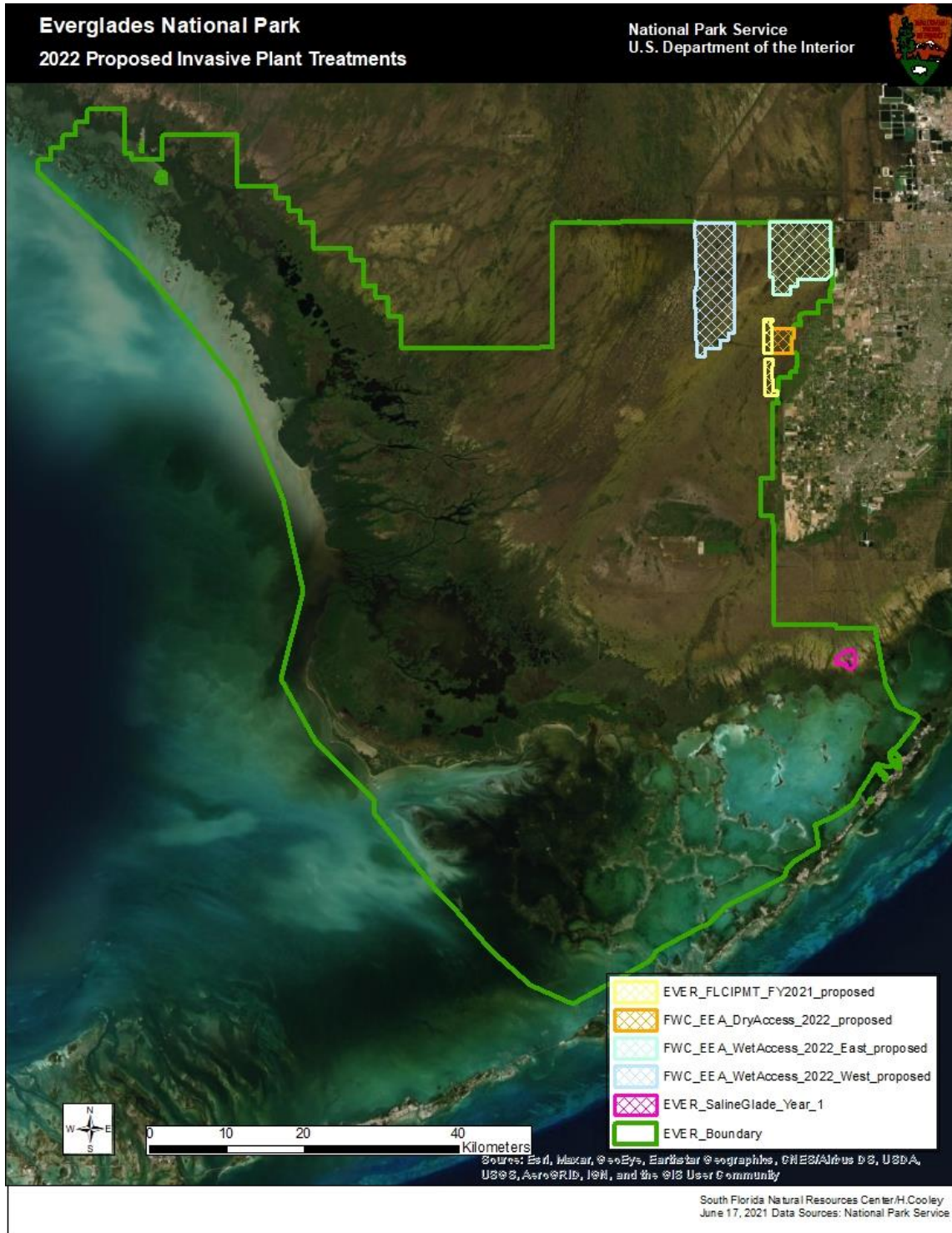


Figure 2. Map of contracted invasive plant treatments within Everglades National Park planned for treatment from July 1, 2021-June 30, 2022.



SOUTH FLORIDA WATER MANAGEMENT DISTRICT

Priority plant species: FLEPPC Cat 1&2 and EDRR species

New plant species: None to report

WCA 3A

Melaleuca: 36,748 acres; \$45,554;

\$1.24/acre

WCA 3B

Melaleuca: 98257 acres; \$121,922;

\$1.24/ac

Lygodium: 287 acres; \$54,836; \$191/ac

Brazilian pepper: 270 acres; \$20,184;

75/acre

Other plants: 10 acres; \$428; \$43/ac

Other plants treated: Peruvian primrose willow

ECB:

Melaleuca: 709 acres; \$220,000;

\$310.30/acre Other plants: 709 acres;

\$226,320; \$319.21/acre

Other plants treated: Brazilian pepper, Lygodium, Australian pine, Black olive, Bishopwood,

Syngonium, Lead tree, Java plum

L-40 strip:

Melaleuca: 75 acres; \$25,000 spent;

\$333/acre

Other plants: 162 acres; \$100,000 spent;

\$617/acre

Other plants treated: Areca palm, Bischofia, carrotwood, Senna, earleaf acacia, Java plum, lead tree, primrose willow, Schefflera, date palm, shoebuttion ardisia



8.5 SMA:

Acres treated: 703

Treatment cost: \$234/acre

Plants treated: Brazilian pepper, primrose, melaleuca, napiergrass, ardisia, Australian pine, Old World climbing fern

BBCW:

Acres treated: 436

Treatment cost: \$314/acre

Plants treated: lygodium, Brazilian pepper, ardisia, leadtree, primrose willow, torpedograss, typha, Australian pine

Frog Pond:

Acres treated: 1,006

Treatment cost: \$102/acre

Plants treated: Brazilian pepper, napiergrass, guava, leadtree, typha, primrose willow

Rocky Glades:

Acres treated: 1,578

Treatment cost: \$449/acre

Plants treated: primrose willow, torpedograss, melaleuca, Brazilian pepper, ardisia, Australian pine, napiergrass, Burmared

Pennsuco:

Melaleuca: 1,288 acres; \$444,081 spent; \$344/acre

Other plants treated: lygodium, Brazilian pepper, Australian pine, lead tree

S. Glades:

Acres treated: 4,008

Treatment cost: \$47/acre

Plants treated: lygodium, melaleuca, ardisia, Australian pine, Brazilian pepper, napiergrass, bishopwood



Site 1:

Melaleuca: 495 acres; \$100,000 spent;

\$202/acre

Other plants: 506 acres; \$124,000 spent; \$245/acre

Other Plants treated: Lygodium, Java plum, pepper, Australian pine, carrotwood, cestrum, Senna, black olive, bishopswood, shoebutton ardisia

Strazulla:

Melaleuca: 77 acres; \$75,000 spent; \$974/acre

Lygodium: 77 acres; \$75,000 spent; \$974/acre

Other plants: <1 acre

Other plants treated: Earleaf acacia