



Corridors of Invasiveness: Early Detection of New Invasive Exotic Plants in Biscayne National Park

2021

Importance

Invasive plants are one of the most serious threats to ecosystem integrity in South Florida parks. Once established, invasive exotic plant species can affect park natural resources by altering the natural landscape, reducing habitat for native plants and animals, and changing how the natural ecosystem functions (e.g., altering hydrology or fire patterns). Detecting new exotic plant species with the potential to become invasive, while they are still in small controllable populations, is a successfully proven and cost effective strategy for preventing the establishment of exotic plant species.

Objectives and Approach

The objective is to detect newly emerging invasive plant species in the national parks of South Florida along the most likely routes, or “corridors of invasiveness” (i.e., trails, roadways, campgrounds, and boat launches). Surveys are conducted by an experienced SFCN botanist along with an Invasive Plant Management Team (IPMT) member. Exotics are treated immediately when possible, or reported to park staff and through the Early Detection and Distribution Mapping System (EDDMapS), a multi-agency mapping system for invasive species. Sites are revisited every five years.

2021 Field Season

The 2021 field season was conducted in Biscayne National Park (Figure 1). The 2020 field season in the north region of Big Cypress National Preserve North Region was cancelled due to the COVID pandemic and was scheduled for 2022.

Table 1. Number of infestations and change in infested area from 2016–2021.

Treatment	Number of Infestations (2016–2021)	Change in Infested Area (square meters; 2016–2021)
Treated, still present	14	221
Treated, no longer present	64	-214
Not treated, still present	90	-7,614
Not treated, no longer present	112	-3,000
Totals	280	-10,607

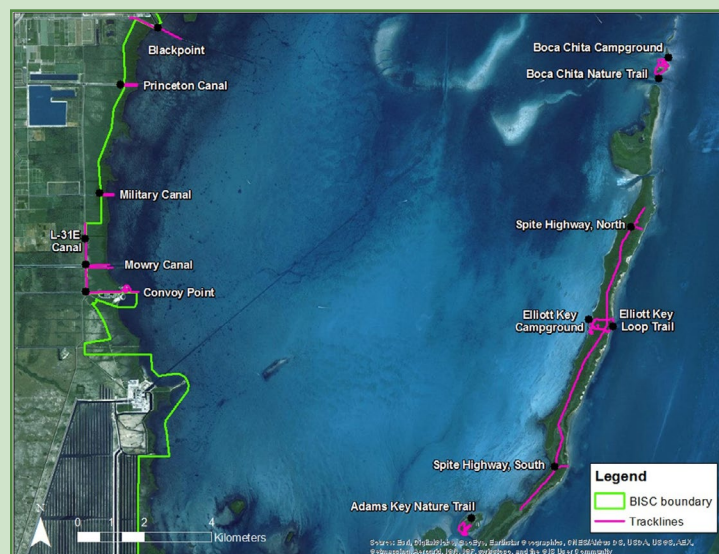


Figure 1. Map of sites surveyed during the 2021 Corridors of Invasiveness project. The 2021 surveys were conducted in Biscayne National Park.

Treatment Results 2016–2021

There were 280 infestations recorded in 2016 that were resurveyed in 2021 and categorized in four different categories (Table 1).

- Treated in 2016 and still present in 2021: 14 (infestations)
- Treated in 2016 and no longer present in 2021: 64
- Not treated in 2016 and still present in 2021: 90
- Not treated in 2016 and no longer present in 2021: 112

Species Results 2016–2021

Forty-six exotic plant species were encountered during the 2016 survey in Biscayne National Park (Table 2). These 46 species comprised 289 infestations and 78 of these were treated in 2016. The 2021 resurvey found 31 species, a reduction in number of species, but a greater infested area (33,330 square meters [8.3 acres]). We believe Hurricane Irma (2017) may have played a role in some exotic plant eradication, especially species located along beaches and low lying campsites such as *Dactyloctenium aegyptium* (crowfoot grass) and *Sphagnetica trilobata* (creeping oxeye).



Table 2. Changes in the number of infestations and infested area (m² = square meters) for the 46 species found in Biscayne National Park from 2016–2021.

Species	Common Name	Infestations in 2016	Infestations Treated in 2016	Number of Infestations in 2021	2016 Infested Area (m ²)	2021 Infested Area (m ²)
<i>Ardisia elliptica</i>	Shoebutton	2	1	3	3	10
<i>Alysicarpus vaginalis</i>	White moneywort	1	0	0	1	0
<i>Asparagus aethiopicus</i>	Sprenger's asparagus fern	1	1	1	2	62
<i>Casuarina equisetifolia</i>	Australian pine	19	13	9	738	763
<i>Catharanthus roseus</i>	Madagascar periwinkle	2	1	0	6	0
<i>Cestrum diurnum</i>	Day jessamine	2	2	0	3	0
<i>Cocos nucifera</i>	Coconut palm	6	0	4	54	6,982
<i>Colubrina asiatica</i>	Latherleaf	37	9	53	11,635	11,845
<i>Dactyloctenium aegyptium</i>	Durban crowfootgrass	4	1	1	702	100
<i>Emilia sonchifolia</i>	Lilac tasselflower	3	0	0	102	0
<i>Eugenia uniflora</i>	Surinam cherry	1	0	3	9	30
<i>Ficus benghalensis</i>	Banyan tree	0	0	1	0	2
<i>Ficus microcarpa</i>	Indian laurel	1	1	0	4	0
<i>Jasminum fluminense</i>	Brazilian jasmine	3	1	3	105	110
<i>Kalanchoe delagoensis</i>	Chandelier plant	1	0	0	2	0
<i>Lantana camara</i>	Lantana	4	3	0	30	0
<i>Macroptilium lathyroides</i>	Wild bushbean	2	2	0	2	0
<i>Manilkara zapota</i>	Sapodilla	15	1	4	104	22
<i>Melinis repens</i>	Rose natalgrass	1	0	0	50	0
<i>Momordica charantia</i>	Balsampear	1	0	0	9	0
<i>Morinda citrifolia</i>	Indian mulberry	1	1	0	1	0
<i>Neyraudia reynaudiana</i>	Burmareed	12	0	10	737	807
<i>Oeceoclades maculata</i>	Monk orchid	11	2	3	173	134
<i>Paspalum pleostachyum</i>	Tropical paspalum	1	0	0	1	0
<i>Phoenix canariensis</i>	Canary Island date palm	2	0	3	29	59
<i>Phoenix reclinata</i>	Senegal date palm	3	0	5	129	163
<i>Pongamia pinnata</i>	Karum tree	4	4	1	4	1
<i>Richardia grandiflora</i>	Largeflower Mexican clover	1	0	1	30	30
<i>Ricinus communis</i>	Castorbean	2	0	2	4	12
<i>Ruellia blechum</i>	Browne's blechum	3	0	0	3	0
<i>Sansevieria hyacinthoides</i>	Bowstring hemp	10	0	9	697	672
<i>Scaevola taccada</i> var. <i>sericea</i>	Beach naupaka	24	8	24	1,671	3,886
<i>Schefflera actinophylla</i>	Umbrella tree	1	1	0	1	0
<i>Schinus terebinthifolius</i>	Brazilian pepper	53	18	44	1,866	5,347
<i>Senna pendula</i>	Valamuerto	1	0	0	2	0
<i>Sophora tomentosa</i> var. <i>occidentalis</i>	Yellow necklacepod	1	0	2	4	24
<i>Sphagneticola trilobata</i>	Creeping oxeye	7	0	5	238	245
<i>Sporobolus indicus</i>	Smutgrass	1	0	3	100	17
<i>Stenotaphrum secundatum</i>	St. Augustine grass	2	0	3	1,200	10,052
<i>Tamarindus indica</i>	Tamarind	1	0	1	12	12
<i>Terminalia catappa</i>	West Indian almond	2	1	2	29	104
<i>Thespesia populnea</i>	Portia tree	28	6	35	533	2,459
<i>Tribulus cistoides</i>	Burrnut	3	0	3	3	110
<i>Turnera ulmifolia</i>	Yellow alder	5	1	4	110	124
<i>Youngia japonica</i>	Oriental false hawksbeard	1	0	0	10	0
<i>Zoysia</i> spp.	Templegrass	3	0	4	902	11,196
Total	–	289	78	247	22,050	55,380

