



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 maintaining ecosystem integrity in South Florida parks. Once established, invasive 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 invasive plant species while they are still in small controllable populations, has proven to be a successful and cost-effective strategy for preventing the establishment of new invasive 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 South Florida Caribbean Network (SFCN) botanist along with Invasive Plant Management Team (IPMT) members. Invasives are treated immediately when possible or reported to park staff and through the Early Detection and Distribution Mapping System (EDDMapS), a multi-agency web-based mapping system for invasive species. Sites are revisited every five years.



Figure 1. Corridors (tracklines) surveyed for invasive plant species in Biscayne National Park (BISC) in 2021. Black dots mark the survey sites beginning points.

Table 1. There were 293 infestations recorded in 2016 that were resurveyed in 2021 and categorized in five different categories. 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	91	-7,579
Not treated, no longer present	115	-3,000
Not checked, outside the park	9	–
Totals	293	-10,572

2021 Field Season

The 2021 field season was conducted in Biscayne National Park (Figure 1). Surveys were conducted on the mainland and offshore islands of the park. One new species was identified during the survey, Banyan tree (*Ficus benghalensis*; Figure 2), found along the main park road to Convoys Point. The invasive plant was eradicated.



Figure 2. The Banyan tree (*Ficus benghalensis*) was a new invasive species found along the main park road to Convoys Point.

Species Results 2016–2021

Forty-six invasive plant species were encountered during the 2016 survey in Biscayne National Park (see Table 2 on page 2). These 46 species comprised 293 infestations and 78 of these were treated in 2016 (Table 1). The 2021 resurvey found 30 species, a reduction in number of species, but a greater infested area (25,364.8 square meters [6.3 acres]). We believe Hurricane Irma (2017) may have played a role in some invasive plant eradication, especially species located along beaches and low lying campsites such as *Dactyloctenium aegyptium* (crowfoot grass) and *Sphagneticola trilobata* (creeping oxeye).



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

Species	Infestations in 2016	Infestations Treated in 2016	Infestations in 2021	2016 Infested Area (m ²)	2021 Infested Area (m ²)	Change in Infested Area (m ²)
<i>Ardisia elliptica</i>	1	0	0	1	0.0	-1.0
<i>Alysicarpus vaginalis</i>	2	1	3	3	10.0	7.0
<i>Asparagus aethiopicus</i>	1	1	1	2	5.0	3.0
<i>Casuarina equisetifolia</i>	19	13	9	738	763.0	25.0
<i>Catharanthus roseus</i>	2	1	0	6	0.0	-6.0
<i>Cestrum diurnum</i>	2	2	0	3	0.0	-3.0
<i>Cocos nucifera</i>	6	0	4	54	6,981.8	6,927.8
<i>Colubrina asiatica</i>	39	9	53	12,060	7,654.0	-4,406.0
<i>Dactyloctenium aegyptium</i>	4	1	1	702	100.0	-602.0
<i>Emilia sonchifolia</i>	3	0	0	102	0.0	-102.0
<i>Eugenia uniflora</i>	1	0	3	9	30.0	21.0
<i>Ficus benghalensis</i>	0	0	1	0	2.0	2.0
<i>Ficus microcarpa</i>	1	1	0	4	0.0	-4.0
<i>Jasminum fluminense</i>	3	1	3	105	110.0	5.0
<i>Kalanchoe delagoensis</i>	1	0	0	2	0.0	-2.0
<i>Lantana camara</i>	4	3	0	30	0.0	-30.0
<i>Macroptilium lathyroides</i>	2	2	0	2	0.0	-2.0
<i>Manilkara zapota</i>	15	1	4	104	22.0	-82.0
<i>Melinis repens</i>	1	0	0	50	0.0	-50.0
<i>Momordica charantia</i>	1	0	0	9	0.0	-9.0
<i>Morinda citrifolia</i>	1	1	0	1	0.0	-1.0
<i>Neyraudia reynaudiana</i>	12	0	10	737	739.0	2.0
<i>Oeceoclades maculata</i>	11	2	3	173	12.0	-161.0
<i>Paspalum pleostachyum</i>	1	0	0	1	0.0	-1.0
<i>Phoenix canariensis</i>	4	0	3	36	59.0	23.0
<i>Phoenix reclinata</i>	3	0	5	129	163.0	34.0
<i>Pongamia pinnata</i>	4	4	1	4	1.0	-3.0
<i>Richardia grandiflora</i>	1	0	1	30	30.0	0.0
<i>Ricinus communis</i>	2	0	2	4	12.0	8.0
<i>Ruellia blechum</i>	3	0	0	3	0.0	-3.0
<i>Sansevieria hyacinthoides</i>	10	0	9	697	672.0	-25.0
<i>Scaevola taccada</i> var. <i>sericea</i>	24	8	24	1,671	4,271.0	2,600.0
<i>Schefflera actinophylla</i>	1	1	0	1	0.0	-1.0
<i>Schinus terebinthifolia</i>	53	18	44	1,866	2,257.0	391.0
<i>Senna pendula</i>	1	0	0	2	0.0	-2.0
<i>Sophora tomentosa</i> var. <i>occidentalis</i>	1	0	2	4	24.0	20.0
<i>Sphagneticola trilobata</i>	7	0	5	238	245.0	7.0
<i>Sporobolus indicus</i>	1	0	3	100	17.0	-83.0
<i>Stenotaphrum secundatum</i>	2	0	3	1,200	10,052.2	8,852.2
<i>Tamarindus indica</i>	1	0	1	12	12.0	0.0
<i>Terminalia catappa</i>	2	1	2	29	104.0	75.0
<i>Thespesia populnea</i>	28	6	35	533	2,069.0	1,536.0
<i>Tribulus cistoides</i>	3	0	3	3	110.0	107.0
<i>Turnera ulmifolia</i>	5	1	4	110	124.0	14.0
<i>Youngia japonica</i>	1	0	0	10	0.0	-10.0
<i>Zoysia</i> spp.	3	0	4	902	11,195.8	10,293.8
Total	293	78	246	22,482	47,846.8	25,364.8

