

Upland Invasive Exotic Plant Control Program Fiscal Year 2018-2019 Summary

Over one-and-one-half million acres of Florida's public conservation land have been invaded by alien (exotic, nonnative, nonindigenous) plants such as melaleuca, Brazilian pepper, cogon grass, and Asian climbing ferns. However, invasive alien plants respect no boundaries; millions of acres of agricultural and other private properties are also affected. Florida's nearly 11 million acres of public conservation land support an outdoor recreation and nature tourism economy valued at over \$58 billion annually.

The Fish and Wildlife Conservation Commission's Invasive Plant Management Section (IPMS) is the designated lead entity in Florida responsible for coordinating and funding the statewide control of invasive aquatic and upland plants in public waterways and on public conservation land. The Upland Invasive Exotic Plant Management Program (a subsection of IPMS) was established in 1997 to address the need for a statewide coordinated approach to the terrestrial (vs. aquatic) invasive exotic plant problem. The "Uplands Program" incorporates place-based management concepts, bringing together regionally diverse interests to develop flexible, innovative strategies to address weed management issues at the local level. The program funds individual exotic plant removal projects statewide on public conservation land. Projects are considered for funding based upon recommendations from eleven Regional Invasive Plant Working Groups.

The mission of the Uplands Program is to achieve maintenance control of invasive exotic plants such as cogon grass (*Imperata cylindrica*), melaleuca (*Melaleuca quinquenervia*), Brazilian pepper (*Schinus terebinthifolius*), Old World climbing fern (*Lygodium microphyllum*), and Japanese climbing fern (*L. japonicum*) on public conservation land. Once invasive plants become established in native habitats, eradication is difficult, if not impossible to achieve. Thus, continuous maintenance of invasive plants must occur to preserve native plant communities, sustain wildlife habitat, and provide outdoor recreational opportunities.

Invasive plants infested fifteen percent of public conservation land statewide in 2019. Nearly fifty percent (727,960 acres) of the affected area is currently under maintenance control. \$13 million was spent during fiscal year 2019 to control 342,000 acres of invasive plants on 131 publicly managed areas. Funding for the program derives from the Land Acquisition Trust Fund, as set forth in Section 369.252(4), Florida Statutes, which reads: "A minimum of 20 percent of the amount appropriated by the Legislature for invasive plant control from the Land Acquisition Trust Fund shall be used for the purpose of controlling nonnative, upland, invasive plant species on public lands."

During its 22 years of operation, the Uplands Program has spent \$202 million on 3,100 invasive plant control operations targeting 3.7 million¹ acres of conservation land. The program has assisted land managers on more than 700 federal, state, county and city natural areas that comprise over 10 million acres. Cooperating agencies contributed \$55 million in matching funds toward these projects. Another \$12 million was spent on invasive plant surveys, research, outreach, and other program support activities.

¹Annual maintenance figures include areas that were re-treated in previous years, so the cumulative acreage is greater than the estimated total area infested.

Statewide Invasive Plant Management Activities

Although the Invasive Plant Management Section (IPMS) is housed within the Florida Fish and Wildlife Conservation Commission (FWC), the section's programs direct significant staff and monetary resources to controlling and eradicating invasive exotic plants on lands and waters managed by other public agencies. In FY2018-2019, IPMS spent the following for management of terrestrial invasive exotic plants on public conservation land:

MANAGER	COST	ACRES
Cities	\$227,217	620
Counties	\$2,335,738	21,067
Local Total	\$2,562,919	21,687
DEP ²	\$142,036	1,580
FFS	\$1,279,536	10,341
FPS	\$2,317,335	16,227
FWC ³	\$932,067	10,042
Universities ⁴	\$69,261	559
WMD ⁵	\$3,452,034	198,885
State Total	\$8,217,841	233,717
BLM ⁶	\$383,750	1,490
DOD ⁷	\$151,699	675
NPS	\$1,100,870	14,582
USDA ⁸	\$53,043	132
USFS ⁹	\$67,094	321
USFWS ¹⁰	\$732,314	5,894
Federal Total	\$2,463,198	22,844
Grand Total	\$13,243,958	278,248

Projects Listed by Working Group

The following table lists all the individual projects completed during the year. The regional working group is identified by the first two letters in the task assignment number (TA#), abbreviated as follows: EC - East Coast; FK - Florida Keys; MC - Mosquito Coast; NE - Northeast; PH - Panhandle; SC - Sun Coast; SE - Southeast; SW - Southwest; TC - Treasure Coast; WC - West Central; WR - Withlacoochee River.

The Herbicide Bank provides chemicals at no cost to land managers for ongoing in-house maintenance, or for current year projects to reduce the total cost to the program. Acres and costs for Herbicide Bank projects are tracked separately by managed area or managing agency. Total project acres including the Herbicide Bank equal 341,708 acres for fiscal year 2019.

² Department of Environmental Protection, other than the Division of Recreation and Parks (Florida Park Service). Includes Bureau of Mine Reclamation and Florida Coastal Office managed areas.

³ Wildlife Management Areas, Wildlife Environmental Areas, and Public Small Game Hunting Areas; primarily assisting with herbicide for operations. The Wildlife Habitat Management Section has its own funding for invasive plant management on FWC managed land.

⁴ Conservation lands managed by Florida's state universities.

⁵ Florida's Water Management Districts (WMD), including the annual one-million-dollar Melaleuca Program and Loxahatchee NWR (aka WCA 1). This refuge is managed by the US Fish & Wildlife Service, except for invasive plant management. The South Florida WMD owns this property and manages invasive plants with cooperative funding from FWC and FWS.

⁶ The US Department of the Interior, Bureau of Land Management.

⁷ The US Department of Defense, conservation land managed on military installations.

⁸ The US Department of Agriculture, other than the Forest Service; in this case, one of their research stations.

⁹ The US Department of Agriculture, Forest Service; Apalachicola and Ocala National Forests.

¹⁰ The US Department of the Interior, Fish and Wildlife Service; National Wildlife Refuges other than Loxahatchee NWR.

TA#	Public Conservation Land Name	Managing Agency	Cost	Acres
EC-146	Chuluota Wilderness Area	Seminole County	\$37,648.04	255
EC-147	Wilson's Landing	Seminole County	\$10,350.00	58
EC-148	Isle of Pine Preserve	Orange County	\$33,598.00	157
EC-149	Black Bear Wilderness Area	Seminole County	\$3,132.00	12
EC-150	Spring Hammock Preserve	Seminole County	\$23,564.34	103
EC-151	Shingle Creek	South Florida WMD	\$48,746.25	158
EC-152	City of Casselberry Properties	City of Casselberry	\$23,712.00	48
EC-153	Twin Oaks Conservation Area	Osceola County	\$50,681.00	430
FK-153	Naval Air Station Key West	US Navy (DOD)	\$40,698.00	57
FK-154	Monroe County Initial Control	Monroe County	\$70,000.00	8
FK-155	Lignumvitae Key Botanical State Park	Florida Park Service	\$29,741.50	9
FK-156	Key Largo Hammock Botanical State Park	Florida Park Service	\$102,237.50	601
FK-157	Monroe County Maintenance Control	Monroe County	\$80,000.00	239
FK-158	John Pennekamp Coral Reef State Park	Florida Park Service	\$89,055.50	360
MC-179	Canaveral National Seashore	National Park Service	\$131,247.00	465
MC-181	Archie Carr National Wildlife Refuge	US Fish and Wildlife Service	\$74,214.00	266
MC-187	Merritt Island National Wildlife Refuge	US Fish and Wildlife Service	\$132,192.00	459
MC-188	St. Johns National Wildlife Refuge	US Fish and Wildlife Service	\$123,851.00	681
MC-189	Pine Island Conservation Area	Brevard County	\$77,076.00	265
MC-190	Canaveral National Seashore	National Park Service	\$87,822.00	369
MC-191	Thousand Islands Conservation Area	Brevard County	\$29,970.00	68
MC-192	St. Sebastian River Preserve State Park	Florida Park Service	\$53,903.10	198
MC-193	Enchanted Forest Sanctuary	Brevard County	\$28,869.50	91
MC-194	Indian River Lagoon Preserve State Park	Florida Park Service	\$43,935.00	152
MC-195	Merritt Island National Wildlife Refuge	US Fish and Wildlife Service	\$62,980.00	235
NE-110	Butler Park	St. Johns County	\$26,710.00	29
NE-111	Four Creeks State Forest	Florida Forest Service	\$69,838.96	440
NE-112	Twin Rivers State Forest	Florida Forest Service	\$61,050.00	1,018
NE-113	Twin Rivers State Forest	Florida Forest Service	\$28,084.00	100
NE-114	Egans Creek Greenway	City of Fernandina Beach	\$95,370.40	246
NE-115	Stephen Foster Folk Culture Center	Florida Park Service	\$29,070.00	102
NE-117	Edwards Bottomland	City of Starke	\$9,472.70	33
PH-174	Apalachicola National Forest	USDA, Forest Service	\$25,572.00	250
PH-175	Tyndall Air Force Base	US Air Force (DOD)	\$7,040.00	180
PH-176	Choctawhatchee River Management Area	NW Florida WMD	\$71,863.00	517
PH-177	Blackwater River State Forest	Florida Forest Service	\$49,791.18	269
PH-178	Tom Brown Park	City of Tallahassee	\$26,202.00	98
PH-179	Governors Park	City of Tallahassee	\$24,252.00	70
PH-180	San Luis Mission Park	City of Tallahassee	\$18,433.80	46
SC-209	Myakka River State Park	Florida Park Service	\$153,150.00	1,670
SC-210	Terra Ceia Preserve State Park	Florida Park Service	\$99,434.70	219
SC-211	Headwaters at Duette Preserve	Manatee County	\$25,228.00	130
SC-212	Little Manatee River State Park	Florida Park Service	\$27,037.86	246
SC-213	Duette Preserve	Manatee County	\$46,272.75	298
SC-214	Lower Green Swamp Preserve	Hillsborough County	\$15,374.70	50
SC-215	Myakka State Forest	Florida Forest Service	\$24,160.40	95
SC-216	Alafia River State Park	Florida Park Service	\$50,175.90	504
SC-217	Upper Little Manatee River	Hillsborough County	\$43,310.00	610
SC-218	T. Mabry Carlton, Jr. Memorial Reserve	Sarasota County	\$106,903.40	1,304
SC-219	Rye Preserve	Manatee County	\$27,141.59	189
SC-220	Deer Prairie Creek Preserve	Sarasota County	\$130,109.76	132

TA#	Public Conservation Land Name	Managing Agency	Cost	Acres
SC-221	Caspersen Beach County Park	Sarasota County	\$12,829.94	153
SC-227	Manasota Scrub Preserve	Sarasota County	\$8,260.00	7
SC-228	Alligator Creek Conservation Area	Sarasota County	\$57,655.90	178
SC-229	Lemon Bay Park and Environmental Center	Sarasota County	\$16,328.00	31
SE-237	Everglades National Park	National Park Service	\$448,449.45	6,193
SE-284	Fern Forest	Broward County	\$135,450.00	151
SE-286	Bill Baggs Cape Florida State Park	Florida Park Service	\$32,081.50	160
SE-287	R. Hardy Matheson Preserve	Miami-Dade County	\$40,000.00	22
SE-288	SWA Greenway Trail System	Palm Beach County	\$38,720.00	228
SE-289	John U. Lloyd Beach State Park	Florida Park Service	\$40,446.00	114
SE-290	Coral Reef Park	Village of Palmetto Bay	\$3,674.00	6
SE-292	Highland Scrub Natural Area	Broward County	\$9,223.50	22
SE-291	Castello Hammock Preserve	Miami-Dade County	\$50,000.00	60
SE-297	Loxahatchee National Wildlife Refuge	South Florida WMD	\$999,988.51	6,505
SE-298	Melaleuca Maintenance Program	South Florida WMD	\$998,409.92	250,796
SW-197	Big Cypress National Preserve	National Park Service	\$399,399.00	2,088
SW-217	Babcock Ranch Preserve	Florida Forest Service	\$759,140.00	2,217
SW-275	Picayune Strand State Forest	Florida Forest Service	\$5,670.00	41
SW-294	Florida Panther National Wildlife Refuge	US Fish and Wildlife Service	\$101,270.00	1,333
SW-295	Charlotte Harbor Preserve State Park	Florida Park Service	\$243,067.52	1,068
SW-296	Picayune Strand State Forest	Florida Forest Service	\$63,086.76	537
SW-297	Cayo Costa State Park	Florida Park Service	\$60,637.50	248
SW-298	Corkscrew Regional Ecosystem Watershed	South Florida WMD	\$195,517.00	633
SW-299	Collier-Seminole State Park	Florida Park Service	\$50,350.00	190
SW-300	Rookery Bay Estuarine Research Reserve	Florida DEP	\$51,232.50	250
SW-301	Don Pedro Island State Park	Florida Park Service	\$51,205.00	133
SW-302	Pepper Ranch Preserve	Collier County	\$106,568.75	723
SW-303	Estero Bay Preserve State Park	Florida Park Service	\$114,375.00	366
SW-304	Charlotte Flatwoods Environmental Park	Charlotte County	\$75,265.00	494
SW-305	Big Cypress Seminole Reservation	DOI, Bureau of Indian Affairs	\$383,749.50	1,490
SW-306	Rookery Bay Estuarine Research Reserve	Florida DEP	\$89,296.50	505
SW-307	Florida Panther National Wildlife Refuge	US Fish and Wildlife Service	\$147,292.00	664
SW-313	Red Maple Swamp Preserve	Collier County	\$38,912.00	76
SW-314	Flag Pond Preserve	Lee County	\$18,358.00	69
SW-315	Randell Research Center	University of Florida	\$20,173.92	48
SW-317	Edison Farms	Lee County	\$187,180.00	669
TC-246	North Sebastian Conservation Area	Indian River County	\$24,280.00	139
TC-247	Kissimmee River	South Florida WMD	\$87,796.00	995
TC-248	Dupuis Reserve	South Florida WMD	\$188,922.00	1,369
TC-249	Dupuis Reserve	South Florida WMD	\$155,306.00	1,273
TC-250	Martin County Properties	Martin County	\$51,228.00	127
TC-251	Savannas Preserve State Park	Florida Park Service	\$188,539.18	346
TC-252	Jonathan Dickinson State Park	Florida Park Service	\$87,472.00	781
TC-253	Kissimmee River	South Florida WMD	\$198,313.58	200
TC-254	St. Lucie County Properties	St. Lucie County	\$51,900.00	171
TC-255	St. Lucie County Properties	St. Lucie County	\$32,959.50	148
TC-257	St. Lucie County Properties	St. Lucie County	\$63,145.00	217
TC-258	Kissimmee River	South Florida WMD	\$78,507.00	671
TC-259	Culpepper Ranch	Martin County	\$92,568.00	406
TC-263	Delaplane Peninsula Blueway Preserve	Martin County	\$54,000.00	5
TC-264	Ancient Oaks Natural Area	St. Lucie County	\$15,877.50	37

TA#	Public Conservation Land Name	Managing Agency	Cost	Acres
TC-265	Flinn Tract Conservation Area	Indian River County	\$14,703.00	39
TC-268	Savannas Outdoor Recreation Area	St. Lucie County	\$100,573.00	451
WC-182	Kissimmee Chain of Lakes	South Florida WMD	\$100,000.00	1,298
WC-183	Highlands Hammock State Park	Florida Park Service	\$148,044.17	549
WC-184	Sun 'n Lake Preserve	Highlands County	\$57,815.20	386
WC-185	Lake Kissimmee State Park	Florida Park Service	\$93,960.00	494
WC-186	Avon Park Air Force Range	US Air Force (DOD)	\$103,961.20	438
WC-187	SUMICA	Polk County	\$46,470.53	500
WC-188	Peace River State Forest	Florida Forest Service	\$30,549.00	51
WC-189	Paynes Creek Historic State Park	Florida Park Service	\$31,368.75	195
WC-190	Colt Creek State Park	Florida Park Service	\$17,561.54	110
WC-192	Everglades Headwaters NWR	US Fish and Wildlife Service	\$20,550.00	274
WC-193	MacKay Gardens and Lakeside Preserve	City of Lake Alfred	\$17,849.70	60
WC-194	Okaloacoochee Slough State Forest	Florida Forest Service	\$8,770.00	20
WR-208	Withlacoochee State Forest	Florida Forest Service	\$40,499.55	315
WR-209	Crystal River Preserve State Park	Florida Park Service	\$37,003.50	137
WR-210	Paynes Prairie Preserve State Park	Florida Park Service	\$89,304.00	366
WR-211	Ocala National Forest	USDA, Forest Service	\$41,522.40	71
WR-212	Newnans Lake State Forest	Florida Forest Service	\$9,175.00	40
WR-213	San Felasco Hammock Preserve State Park	Florida Park Service	\$58,509.00	297
WR-214	Werner-Boyce Salt Springs State Park	Florida Park Service	\$130,276.75	420
WR-215	Peck Sink Preserve	Hernando County	\$42,184.00	109
WR-216	Silver Springs State Park	Florida Park Service	\$37,355.00	241
WR-217	Rainbow Springs State Park	Florida Park Service	\$59,572.30	205
WR-218	Indian Lake State Forest	Florida Forest Service	\$15,857.00	20
WR-222	Lake Townsend Preserve	Hernando County	\$21,705.65	48
WR-223	Colclough Pond Nature Park	City of Gainesville	\$8,250.50	15
WR-224	Sweetwater Preserve	Alachua County	\$27,094.50	112
WR-225	Brooksville Plant Materials Center	USDA (unspecified)	\$53,042.60	132
WR-226	FAMU Brooksville Research Station	Florida A&M University	\$49,086.72	511