

## **Upland Invasive Exotic Plant Control Program Fiscal Year 2016-2017 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 climbing ferns. However, invasive alien plants respect no boundaries and millions of acres of agricultural and private land are also been affected. Florida's nearly 11 million acres of public conservation land support a nature-based tourism economy valued at \$10 billion annually (total tourism spending in 2015 equaled \$89 billion).

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 like 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 2017. Nearly fifty percent (686,120 acres) of the affected area is currently under maintenance control. \$16 million was spent during fiscal year 2017 to control 225,125 acres of invasive plants on 160 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 20 years of operation, the Uplands Program has spent \$169 million on 2,700 invasive plant control operations targeting 3 million<sup>1</sup> acres of conservation land. The program has assisted land managers on more than 700 federal, state, county and city natural areas that comprise over 9 million acres. Cooperating agencies contributed \$50 million in matching funds toward these projects. Another \$11 million was spent on invasive plant surveys, research, outreach, and other program support activities.

<sup>1</sup>Annual 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. During FY 2016-2017, the Uplands Invasive Exotic Plant Management Subsection (Uplands Program) spent \$16 million for control of terrestrial invasive plants on public conservation land managed by various agencies, as shown in the table below.

MANAGER	COST	ACRES
Cities	\$325,250	607
Counties	\$3,322,593	52,370
<b>Local Total</b>	<b>\$3,647,843</b>	<b>52,977</b>
Department of Environmental Protection <sup>1</sup>	\$203,279	1,235
Florida Forest Service	\$1,133,499	19,258
Florida Park Service	\$2,846,857	20,599
Fish & Wildlife Conservation Commission <sup>2</sup>	\$1,112,587	35,037
Universities <sup>3</sup>	\$52,360	140
Water Management Districts <sup>4</sup>	\$2,263,053	57,063
<b>State Total</b>	<b>\$7,611,635</b>	<b>133,332</b>
Department of Defense	\$273,692	1,043
National Park Service	\$1,105,427	12,565
US Department of Agriculture <sup>5</sup>	\$27,140	17
US Forest Service	\$310,138	2,720
US Fish & Wildlife Service	\$3,023,127	22,470
<b>Federal Total</b>	<b>\$4,739,524</b>	<b>38,815</b>
<b>Grand Total</b>	<b>\$15,999,002</b>	<b>225,125</b>

<sup>1</sup>DEP other than the Division of Recreation and Parks (Florida Park Service). Includes Bureau of Mine Reclamation and Florida Coastal Office managed areas.

<sup>2</sup>Wildlife Management Areas, Wildlife Environmental Areas, and Public Small Game Hunting Areas. IPMS transferred an allocation of \$2,000,000 to the Wildlife Habitat Management Section for invasive plant management on an additional 10,960 acres of FWC managed land.

<sup>3</sup>Conservation lands managed by Florida's state universities.

<sup>4</sup>Includes \$1 million Melaleuca Program, as required by §206.606(1)(a), Florida Statutes.

<sup>5</sup>The US Department of Agriculture, other than the Forest Service; in this case, one of their research stations.

## Projects Listed by Managing Agency (MGR)

The table on the following pages lists all of the individual projects completed during the year. The regional working group is identified by the first two letters in the task assignment number, 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 task assignment (i.e., work order) numbers are sequential; thus, EC-137 is the 137<sup>th</sup> operational project (contracted work as opposed to Herbicide Bank projects) completed by the program in that working group over the past twenty years of the program.

Acres controlled are divided between initial, generally sites where no work was previously conducted, and maintenance, where prior work was done by the program or by the managing agency.

The Herbicide Bank provides chemicals at no cost to land managers for ongoing maintenance, or for current year projects to reduce the total cost to the program.

TASK#	PROJECT NAME	MGR	Initial	Maint.	IPMS Cost
EC-134	City of Casselberry Properties	City		48	\$30,576
EC-135	Oakland Nature Preserve	City		55	\$23,815
ECONP	Oakland NP Herbicide Bank	City		44	\$880
MCCPB	City of Palm Bay Herbicide Bank	City		67	\$5,556
PH-158	Governors Park	City	57		\$48,942
PH-159	Tom Brown Park	City	85		\$50,608
PH-160	San Luis Mission Park	City	46		\$52,854
PH-161	Dr. Charles Billings Greenway	City	16		\$17,146
SE-256	Coral Pine Park	City	3		\$11,948
TC-226	Heart of Haney Creek	City	13		\$8,320
WC-170	MacKay Gardens and Lakeside Preserve	City		24	\$11,930
WR-196	Cofrin Nature Park	City		29	\$13,699
WR-197	Hogtown Creek Headwaters Nature Park	City	40	32	\$25,665
WR-198	Loblolly Woods	City		49	\$23,311
<b>Cities Total</b>			<b>259</b>	<b>348</b>	<b>\$325,250</b>
EC-130	Orange County Properties	CTY		341	\$54,470
EC-131	Seminole County Properties-Chuluota	CTY	84	42	\$43,050
EC-132	Seminole County Properties-Black Hammock	CTY		118	\$27,376
EC-133	Seminole County Properties-Lake Jesup	CTY		481	\$83,694
ECSCNL	Seminole County Herbicide Bank	CTY		425	\$5,698
FK-139	Monroe County Managed Areas	CTY	5		\$70,000
FK-142	Monroe County Managed Areas	CTY		200	\$70,000
MC-136	Pine Island Herbicide Bank	CTY		74	\$1,492
MC-172	Pine Island Conservation Area	CTY		249	\$43,905
MCBREV	Brevard County Herbicide Bank	CTY		265	\$1,453
MC-175	Volusia County Properties	CTY		233	\$25,602
MC-176	Thousand Islands Conservation Area	CTY	25		\$57,125
SC-158	Manatee County Herbicide Bank	CTY		410	\$11,580
SC-171	Duette Preserve	CTY		758	\$119,385
SC-172	T. Mabry Carlton, Jr. Memorial Reserve	CTY		1,584	\$94,977
SC-173	Boyd Hill Nature Park	CTY		176	\$54,395
SC-174	Headwaters at Duette Preserve	CTY		299	\$60,327
SC-176	Lower Green Swamp Preserve	CTY		68	\$39,499
SC-178	Balm Scrub	CTY		532	\$107,375
SC-179	Fred and Ida Schultz Preserve	CTY		156	\$46,020
SC-180	Culverhouse Nature Park	CTY	21		\$47,847
SC-181	Philippe Park	CTY	12		\$11,280
SC-182	Walsingham Park	CTY		164	\$38,899
SC-183	English Creek	CTY		50	\$34,209
SCHILL	Hillsborough County Herbicide Bank	CTY		1,904	\$9,730
SCSARA	Sarasota County Herbicide Bank	CTY		41	\$4,142
SE-238	Mikania EDRR FY16	CTY	*		\$44,482
SE-258	Pond Apple Slough Melaleuca	CTY		152	\$36,135
SE-263	Deering Estate at Cutler	CTY		147	\$50,000
SE-264	R. Hardy Matheson Preserve	CTY		18	\$30,000

SEMDC	Miami-Dade County Herbicide Bank	CTY		2,795	\$38,365
SE-265	Broward County - Tradewinds Park	CTY		176	\$72,560
SE-266	Castellow Hammock Preserve	CTY	10	50	\$50,000
SE-268	Broward County - Long Key NA	CTY	83		\$39,120
SE-269	Kendall Indian Hammocks Park	CTY		32	\$49,600
SE-270	Crystal Lake Sand Pine Scrub	CTY	23		\$12,285
SE-271	Woodmont Natural Area	CTY	17		\$17,986
SE-272	Mikania EDRR FY17	CTY	29		\$39,417
SEPBC	Palm Beach County Herbicide Bank	CTY		31,796	\$95,871
SW-232	Six Mile Cypress MU 1	CTY	13	327	\$125,241
SW-244	Six Mile Cypress North	CTY	132		\$29,510
SW-245	Farmworkers Village Herbicide Bank	CTY		10	\$5,542
SW-249	Bob Janes Preserve	CTY	459		\$33,929
SW-251	Pepper Ranch Preserve	CTY		722	\$145,850
SW-255	Caloosahatchee Regional Park	CTY		46	\$29,394
SW-258	Gordon River Greenway Preserve	CTY	7	38	\$20,432
SW-259	Shell Island Preserve	CTY		72	\$27,936
SW-260	Tippecanoe Environmental Park	CTY	23	12	\$14,022
SWCCL	Collier County Herbicide Bank	CTY		290	\$1,101
TC-207	Culpepper Ranch	CTY		1,291	\$187,033
TC-211	Culpepper Ranch	CTY		842	\$92,938
TC-212	Martin County Properties	CTY		127	\$50,950
TC-213	St. Lucie County Properties	CTY	130	2,084	\$255,768
TC-213	Bluefield-Cypress Herbicide Bank	CTY	*	*	\$11,437
TC-215	St. Lucie County Properties	CTY	27	158	\$114,175
TC-220	St. Lucie County Properties	CTY		75	\$26,250
TC-222	Steven J. Fousek Preserve	CTY	415	85	\$158,985
TC-224	Oslo Riverfront Conservation Area	CTY	7	64	\$56,455
TC-227	Savannas Recreation Area	CTY	167		\$80,995
TCIRCL	Indian River County Herbicide Bank	CTY		398	\$22,833
WC-163	The Sun N Lake Preserve	CTY		166	\$90,648
WRLCPT	Lake County Parks Herbicide Bank	CTY		140	\$1,819
<b>Counties Total</b>			<b>1,688</b>	<b>50,682</b>	<b>\$3,322,593</b>
SW-250	Rookery Bay NERR	DEP		508	\$148,370
WC-168	Homeland	DEP		462	\$46,431
WCTHMA	Homeland Herbicide Bank	DEP		265	\$8,478
<b>Department of Environmental Protection Total</b>				<b>1,235</b>	<b>\$203,279</b>
FK-144	Naval Air Station Key West	DOD		21	\$21,638
WC-164	Avon Park Air Force Range	DOD	460		\$186,300
WC-166	Avon Park Air Force Range	DOD	562		\$65,754
<b>US Department of Defense Total</b>			<b>1,022</b>	<b>21</b>	<b>\$273,692</b>
ECFS12	Forest District 12 Herbicide Bank	FFS		20	\$858
MCFS10	Bunnell Forest District Herbicide bank	FFS		66	\$4,198
NE-104	Matanzas State Forest	FFS		471	\$74,183
PH-155	Blackwater River State Forest	FFS		713	\$137,206
PHBSF	Blackwater State Forest Herbicide Bank	FFS		765	\$25,034

PHFCFC	Chipola Forest District Herbicide Bank	FFS		30	\$2,264
PHFS31	Tate's Hell Forest District Herbicide Bank	FFS		154	\$2,475
SC-177	Myakka State Forest	FFS	38	228	\$92,670
SCFS21	Myakka Forest District Herbicide Bank	FFS		1,510	\$7,690
SW-217	Babcock Ranch OWCF	FFS	1,583	3,044	\$350,270
SW-217	Babcock Ranch Herbicide Bank	FFS		4,627	\$63,228
WC-161	Lake Wales Ridge State Forest	FFS		49	\$34,877
WC-162	Okaloacoochee Slough State Forest	FFS	83		\$20,626
WC-171	Peace River State Forest	FFS	48		\$18,870
WCFS17	Caloosahatchee Forest District Herbicide Bank	FFS		3,190	\$25,628
WR-186	Withlacoochee State Forest	FFS		813	\$200,811
WR-189	Newnans Lake State Forest	FFS	83		\$35,885
WR-193	Indian Lake State Forest	FFS		81	\$24,674
WRFS8	Waccasassa Forest District Herbicide Bank	FFS		24	\$857
WRFS11	Withlacoochee Forest District Herbicide Bank	FFS		1,638	\$11,197
<b>Florida Forest Service Total</b>			<b>1,835</b>	<b>17,423</b>	<b>\$1,133,499</b>
D3SSRP	Parks District 3 S Herbicide Bank	FPS		1,455	\$60,048
D3WSSP	Parks District 3 N Herbicide Bank	FPS		895	\$40,783
D4OSSP	Parks District 4 Herbicide Bank	FPS		1,050	\$11,192
FK-131	Key Largo DOT Strip	FPS	35		\$6,073
FK-138	Long Key State Park	FPS	18		\$15,845
FK-140	Key Largo Hammock Botanical State Park	FPS		502	\$71,284
FK-141	Lignumvitae Key Botanical State Park	FPS		21	\$28,350
FK-143	John Pennekamp Coral Reef State Park	FPS	4	90	\$125,400
FK-145	John Pennekamp SP - Palo Alto Key	FPS	15	81	\$33,600
MC-169	St. Sebastian River Preserve State Park	FPS	97		\$75,466
MC-173	Bulow Creek State Park	FPS	97		\$23,149
MC-174	Indian River Lagoon Preserve State Park	FPS	110		\$194,453
NE-105	Palatka-to-Lake Butler State Trail	FPS		280	\$47,040
NE-107	Peacock Springs SP	FPS	81		\$14,195
SC-170	Terra Ceia Preserve State Park	FPS		286	\$84,405
SC-175	Alafia River State Park	FPS		574	\$96,330
SC-184	Little Manatee River State Park	FPS	7	90	\$43,951
SW-247	Estero Bay Preserve State Park	FPS		447	\$116,871
SW-248	Charlotte Harbor Preserve State Park	FPS		95	\$15,295
SW-252	Gasparilla Island State Park	FPS		85	\$32,300
SW-253	Charlotte Harbor Preserve State Park	FPS		1,340	\$152,760
SW-254	Charlotte Harbor Preserve State Park	FPS		505	\$30,553
SW-264	Collier-Seminole State Park	FPS		75	\$26,141
SW-267	Fakahatchee Strand Preserve State Park	FPS		2,149	\$172,028
SW-268	Charlotte Harbor Preserve State Park	FPS		1,121	\$211,669
SW-268	Charlotte Harbor Herbicide Bank	FPS		*	\$49,188
TC-206	Jonathan Dickinson State Park	FPS		1,587	\$227,890
TC-214	Savannas Preserve State Park	FPS		642	\$199,662
TC-216	Atlantic Ridge Preserve State Park	FPS		1,355	\$132,790
TCFPS5	Parks District 5 Herbicide Bank	FPS		4,000	\$16,815

WC-160	Highlands Hammock State Park	FPS	377		\$176,813
WR-170	Paynes Prairie PSP	FPS		130	\$55,120
WR-174	San Felasco Hammock Preserve State Park	FPS		194	\$61,110
WR-184	Crystal River Preserve State Park	FPS		49	\$23,520
WRCRP	Crystal River Herbicide Bank	FPS		8	\$1,033
WR-187	Werner-Boyce Salt Springs State Park	FPS	213		\$83,020
WR-190	San Felasco Hammock Preserve State Park	FPS		284	\$56,516
WR-191	Silver River State Park	FPS	78	78	\$34,200
<b>Florida Park Service Total</b>			<b>1,131</b>	<b>19,468</b>	<b>\$2,846,857</b>
EC-137	Tosohatchee WMA	FWC	333		\$113,254
ECTOSO	Tosohatchee Region Herbicide Bank	FWC		406	\$45,313
EDRR	Statewide Strike Team	FWC	182		\$93,188
MLMEC	Mosquito Lagoon Marine Enhancement Center	FWC		6	\$249
NEONFW	Osceola Region Herbicide Bank	FWC		12	\$442
SE-259	Mimosa Pigra Project	FWC		4,697	\$264,845
SW-001	Babcock-Webb Herbicide Bank	FWC		2,078	\$32,958
TC-002	Bull Creek Herbicide Bank	FWC		2,085	\$7,740
TC-003	Triple N Ranch Herbicide Bank	FWC		2,413	\$17,221
TCJWC	Corbett Region Herbicide Bank	FWC		*	\$381,378
WC-007	Fisheating Creek Region Herbicide Bank	FWC		11,600	\$52,593
WC-151	Dinner Island Region Herbicide Bank	FWC		11,023	\$72,286
WC-153	Hilochee WMA	FWC	188		\$31,020
WRWRIL	FWRI Herbicide Bank	FWC		15	\$101
<b>Fish &amp; Wildlife Conservation Commission Total</b>			<b>703</b>	<b>34,334</b>	<b>\$1,112,587</b>
MC-168	Merritt Island National Wildlife Refuge	FWS		688	\$182,320
MC-168	MINWR Herbicide Bank	FWS		*	\$80,574
MC-171	Archie Carr National Wildlife Refuge	FWS	156	296	\$96,180
SE-261	Loxahatchee National Wildlife Refuge	FWS		16,824	\$1,996,350
SW-246	Florida Panther National Wildlife Refuge	FWS		2,631	\$313,725
SW-257	Florida Panther National Wildlife Refuge	FWS		1,229	\$124,530
TC-217	Hobe Sound National Wildlife Refuge	FWS		102	\$36,924
TC-221	Pelican Island National Wildlife Refuge	FWS		366	\$126,820
WC-165	Lake Wales Ridge National Wildlife Refuge	FWS		76	\$45,220
WC-167	Everglades Headwaters NWR/Conservation Area	FWS		102	\$20,484
<b>US Fish and Wildlife Service Total</b>			<b>156</b>	<b>22,314</b>	<b>\$3,023,127</b>
PH-154	Apalachicola National Forest	NFS		2,274	\$251,968
PH-154	Apalachicola NF Herbicide Bank	NFS		*	\$5,866
WR-185	Ocala National Forest	NFS	310	20	\$50,300
WRONF	Ocala NF Herbicide Bank	NFS		116	\$2,004
<b>US Forest Service Total</b>			<b>310</b>	<b>2,410</b>	<b>\$310,138</b>
MC-170	Canaveral National Seashore	NPS		729	\$193,185
MCCNS	Canaveral NS Herbicide bank	NPS		1,000	\$6,683
SE-237	Everglades National Park	NPS		5,153	\$388,025
SENPS	Everglades NP Herbicide Bank	NPS		*	\$15,965
SW-212	Big Cypress National Preserve	NPS		5,683	\$482,768
SW-197	BICY-Corndance Herbicide Bank	NPS		*	\$18,802

<b>National Park Service Total</b>				<b>12,565</b>	<b>\$1,105,427</b>
SE-267	Pine Jog Environmental Education Center	UNV		140	\$52,360
<b>Universities Total</b>				<b>140</b>	<b>\$52,360</b>
SE-228	USDA Research Station	USDA	12	5	\$27,140
<b>US Department of Agriculture Total</b>			<b>12</b>	<b>5</b>	<b>\$27,140</b>
NE-106	Graham CA-Lake Rowell	WMD		59	\$17,877
SE-260	SFWMD Melaleuca Program	WMD		20,832	\$999,444
SW-220	Corkscrew Regional Ecosystem Watershed	WMD		400	\$60,000
SW-220	CREW Herbicide Bank	WMD		4,271	\$51,279
TC-208	Dupuis Reserve	WMD		9,342	\$99,963
TC-209	Allapattah Flats	WMD		7,634	\$227,808
TC-209b	Allapattah Flats	WMD		4,068	\$173,415
TC-210	Dupuis Reserve	WMD		6,409	\$198,614
TC-218	Kissimmee River	WMD		2,930	\$187,520
TC-219	Kissimmee River/Chain of Lakes	WMD		1,119	\$247,134
<b>Water Management Districts Total</b>				<b>57,063</b>	<b>\$2,263,053</b>
<b>Public Conservation Lands Grand Total</b>			<b>7,116</b>	<b>218,009</b>	<b>\$15,999,002</b>