

APPENDIX K

**UM Richmond Campus Year Thirteen Management Report
prepared by Biscayne Environmental, Inc.**

Biscayne Environmental, Inc.

YEAR THIRTEEN MANAGEMENT REPORT



**UNIVERSITY OF MIAMI, RSMAS CAMPUS
AT
RICHMOND PINELANDS**

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YEAR THIRTEEN MANAGEMENT REPORT
UNIVERSITY OF MIAMI, RSMAS CAMPUS
AT
RICHMOND PINELANDS

Prepared for:
University of Miami

May 12, 2014

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Project No. 2001-18

BACKGROUND

During the 2013-2014 site management year, Biscayne Environmental Inc. (BEI) performed a thirteenth year of oversight and vegetation management activities at the University of Miami (UM) Navy Observatory Property at the Richmond Campus. These vegetation management and exotic treatment activities were required for a total of ±76 acres consisting primarily of a pineland natural forest community (Figure 1). The main goal of the site management program is to control the spread and growth of nuisance exotic plant species using accepted management techniques in order to maintain the integrity of the pineland.

Year Thirteen site management activities were conducted from June 2013 through May 2014. Year Thirteen vegetation management activities were essentially a continuation of the activities of Year Twelve, and involved physical removal and chemical treatment of nuisance exotic vegetation on a regular schedule as well as maintenance of firebreaks and fire roads.

SUMMARY OF YEAR THIRTEEN ACTIVITIES

The site was re-evaluated in June 2013 to assess the success the Year Twelve vegetation management activities and to identify areas requiring additional prioritized treatment for Year Thirteen. Overall, the site conditions reflected that the program of cutting and spraying of exotic species including Burma reed,

Brazilian pepper, earleaf acacia, umbrella tree, Australian pine, lead tree, and mother-in-law tongue had reduced the presence of these species to minimal numbers throughout the site.

In Year Thirteen, spot control of exotics was continued, with Lake and Wetland Management, Inc. acting as the exotic management subcontractor. Lake and Wetland Management personnel followed an accepted management technique for management of exotic grass species by cutting and then spraying new growth with the herbicide glyphosate. For exotic woody species such as bishofia (bishopwood, *Bischofia javanica*) and Brazilian pepper (*Schinus terebinthifolius*), stems were cut and stubs treated with triclopyr (Garlon). Maintenance visits were performed throughout the management year to control exotics.

Fire break maintenance was performed by Unico on an as-needed basis.

As of the start of Year Thirteen, prescribed burning had been conducted in fire control cells 1-4 on the eastern end of the preserve (October - December 2009), cells 7 & 8 (June 2003), and cells 15 & 16 (August 2003). Fuel loads were reduced in fire control cells 9-13 by a wildfire that occurred during August 2004, and again in fire control cell 15 by a wildfire that occurred in September 2006. No prescribed burns were conducted during Year Thirteen.

MANAGEMENT RESULTS

The site was regularly inspected during Year Thirteen to assess the effectiveness of the management activities. Overall, the first thirteen years of exotic treatment have been highly successful. Very few clumps of Burma reed continued to persist on the property. Occurrences of exotics such as lead tree, Brazilian pepper, lantana, woman's tongue, and Burma reed were located throughout the site and treated appropriately.

The controlled burn conducted in early October 2009 in fire control cell 4 on the eastern portion of the property impacted the pine canopy, resulting in the loss of several smaller trees soon after the burn. Some canopy mortality also occurred in subsequent years, but during Year Thirteen, no additional mortality was observed.

The canopy in the eastern portion of cell 1 exhibits substantial mortality as a consequence of the hot controlled burn in December, 2009 and the subsequent pine bark beetle infestation. However, no active bark beetle infestations were observed in this area during Year Thirteen. The shrubby vegetation on the forest floor appears to have recovered from the controlled burn and is growing vigorously. The situation in this area will continue to be monitored closely during Year Fourteen.

Cells 2 and 3 appear to have suffered limited overall impact from the controlled burns of late 2009.

No active pine bark beetle infestations were found during Year Thirteen.

The on-site inspections once again revealed that pines are reproducing successfully, as evidenced by numerous saplings growing through the ground cover in some of the western cells.

RECOMMENDATIONS

The following are recommendations and suggestions for Year Fourteen of management:

- Continue fire break maintenance on a bi-annual basis or more frequently as needed.
- Continue exotic plant management as needed.
- Evaluate Fire Control Cells 5-8 for prescribed burning.
- Monitor for pine bark beetle activity; manage any infestations as appropriate.

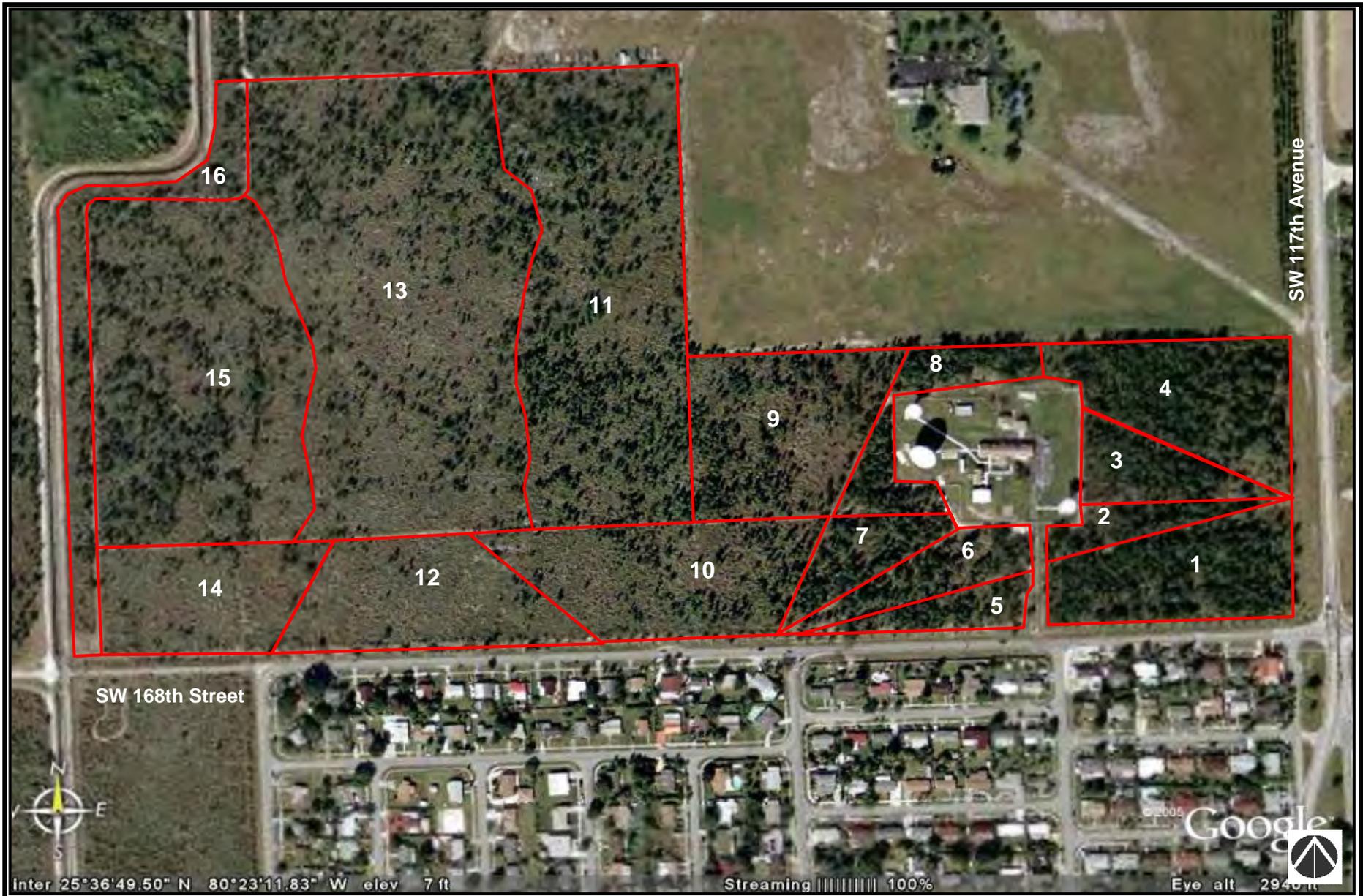
FIGURES



Biscayne Environmental, Inc.

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Project:	UM RSMAS Campus at Richmond Pinelands		
Sheet Name:	Aerial Photograph	2013 image courtesy CSTARS	
Prepared For:	University of Miami		
STR/County:	SW 117th Avenue & 168th Street		
Project No.:	2001-18	Date:	1/16/2013
	Scale:	NTS	Figure 1



Biscayne Environmental, Inc. 9999 NE 2nd Avenue, Suite 313 Miami Shores, Florida 33181 Tel. 305-759-0077 Fax 305-759-1799	Project: UM RSMAS Campus at Richmond Pinelands		
	Sheet Name: Fire Control Cells	image 2004 courtesy Google Earth	
	Prepared For: University of Miami		
	STR/County: SW 117th Avenue & 168th Street		
	Project No.: 2001-18	Date: 11/27/2007	Scale: NTS

SITE PHOTOGRAPHS



Photo 1 View looking north showing vegetation in Cell 9 (right) and Cell 11 (left) approximately 2 years after the August 2004 fire.



Photo 2 Current view looking north showing vegetation in Cell 9 (right) and Cell 11 (left).

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Project:	UM RSMAS Campus at Richmond Pinelands				
Sheet Name:	Site Photographs				
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					Sheet 1



April 2007

Photo 3 View showing recovering burn area 7 months after September 2006 wildfire in fire control cell 15.



May 2014

Photo 4 Current view showing Sep 2006 burn area in fire control cell 15.

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Photo 5 View looking southeast between Cell 10 and Cell 12 showing ground vegetation free of invasive exotic species.



Photo 6 View looking west showing Cell 8 on the north side of the antenna enclosure. This area was burned in 2005.

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Photo 7 View looking southwest at Cell 4 showing bracken fern sprouting approximately 3 weeks after the October 5, 2009 controlled burn.



Photo 8 Current view looking southwest at Cell 4. Some canopy tree mortality was experienced due to the October 5, 2009 controlled burn.

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Photo 9 View looking southwest at Cell 1 eight months after the December 2009 controlled burn. Some fire-related canopy mortality is evident.



Photo 10 View looking southwest at Cell 1. No additional canopy tree mortality has occurred since 2011.

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