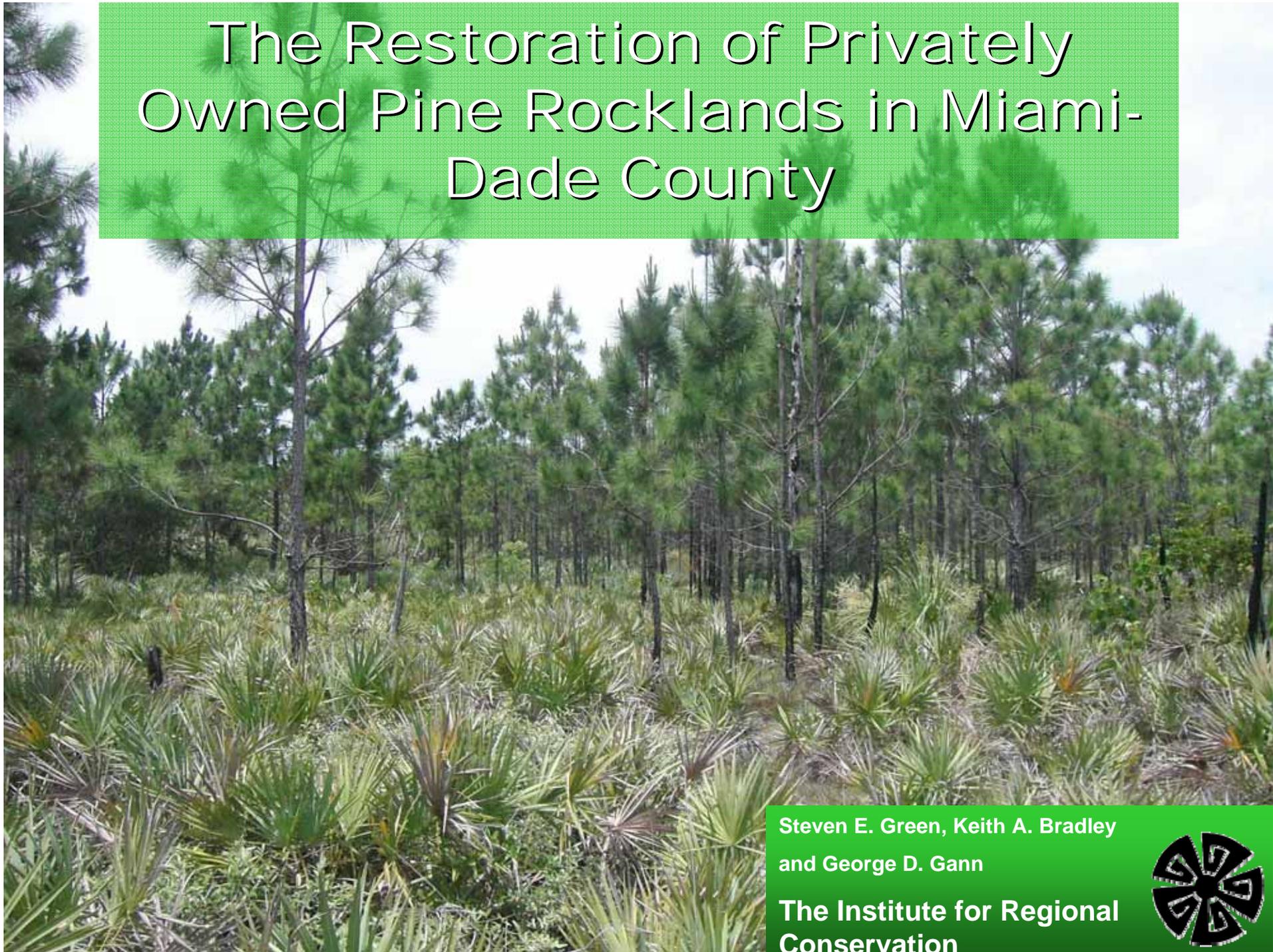


The Restoration of Privately Owned Pine Rocklands in Miami-Dade County



Steven E. Green, Keith A. Bradley
and George D. Gann

The Institute for Regional
Conservation



Introduction

- Over 80% of pine rocklands in Miami-Dade County have been lost to development
- Only two percent of pine rocklands remain in urban Miami-Dade County

Introduction (Ctd.)

- These pine rockland fragments provide habitat for...
 - Six federally endangered plant species
 - Eight plant species that are candidates for federal listing
 - Five of these species are endemic to these fragments

The Six Federally Endangered Plant Species

- Carter's pinelandcress - *Warea carteri*
- Crenulate lead plant - *Amorpha herbacea* var. *crenulata**
- Deltoid spurge - *Chamaesyce deltoidea* subsp. *deltoidea**
- Goulds wedge sandmat - *Chamaesyce deltoidea* subsp. *adhaerens**
- Small's milkpea - *Galactia smallii*
- Small's milkwort - *Polygala smallii*

*Endemic to urban pine rockland fragments



The Eight Candidate Plant Species

- Blodgett's wild-mercury – *Argythamnia blodgetti*
- Carter's flax – *Linum carteri* var. *carteri**
- Everglades bully – *Sideroxylon reclinatum* subsp. *austrofloridense*
- Florida prairie clover – *Dalea carthagenensis* var. *floridana*
- Mosier's false boneset – *Brickellia mosieri**
- Pineland deltoid spurge – *Chamaesyce deltoidea* subsp. *pinetorum*
- Sand flax – *Linum arenicola*
- Twospike crabgrass – *Digitaria pauciflora*

*Endemic to urban pine rockland fragments



What's Wrong With Our Pine Rocklands?

- Fragmentation
- Fire Suppression
- Exotic Plant Infestations
- Illegal Dumping
- Managing these problems can be expensive and time consuming, especially for private land owners.



Fragmentation



Fire Suppression



Fire Suppression



Exotic Plant Invasions



Exotic Plant Invasions



Exotic Plant Invasions

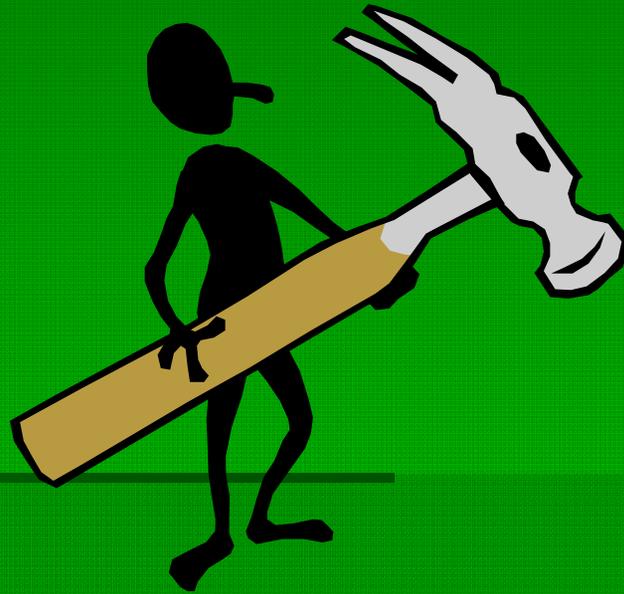


Illegal Dumping



Illegal Dumping

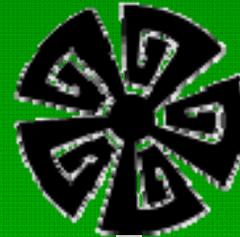
How Do We Fix Our Pine Rocklands?



Solution

- IRC received a grant from the USFWS to restore privately owned pine rocklands in Miami-Dade County, and assist land owners in managing their pine rockland forests.
- To date IRC has seven properties under its management, totaling approximately 27 acres.
- IRC has partnered with various government, non-profit, and community based organizations to restore roughly 20 of these 27 acres.

Partnerships



Vegetation Monitoring

- Three 25 m transects, radiating from a center point at random bearings, were installed at all sites prior to restoration.
 - Vegetation tangent to the transect was recorded every meter.
 - One m_2 plots were set up every 5 m, and dominant herbaceous and shrubby vegetation were recorded.
- Photographs were taken at all four cardinal directions from the center point.



Exotic Plant Removal



Exotic Plant Removal



Exotic Plant Removal



Exotic Plant Removal



Exotic Plant Removal



Exotic Plant Removal



Exotic Plant Removal



Exotic Plant Removal



Rubbish Removal



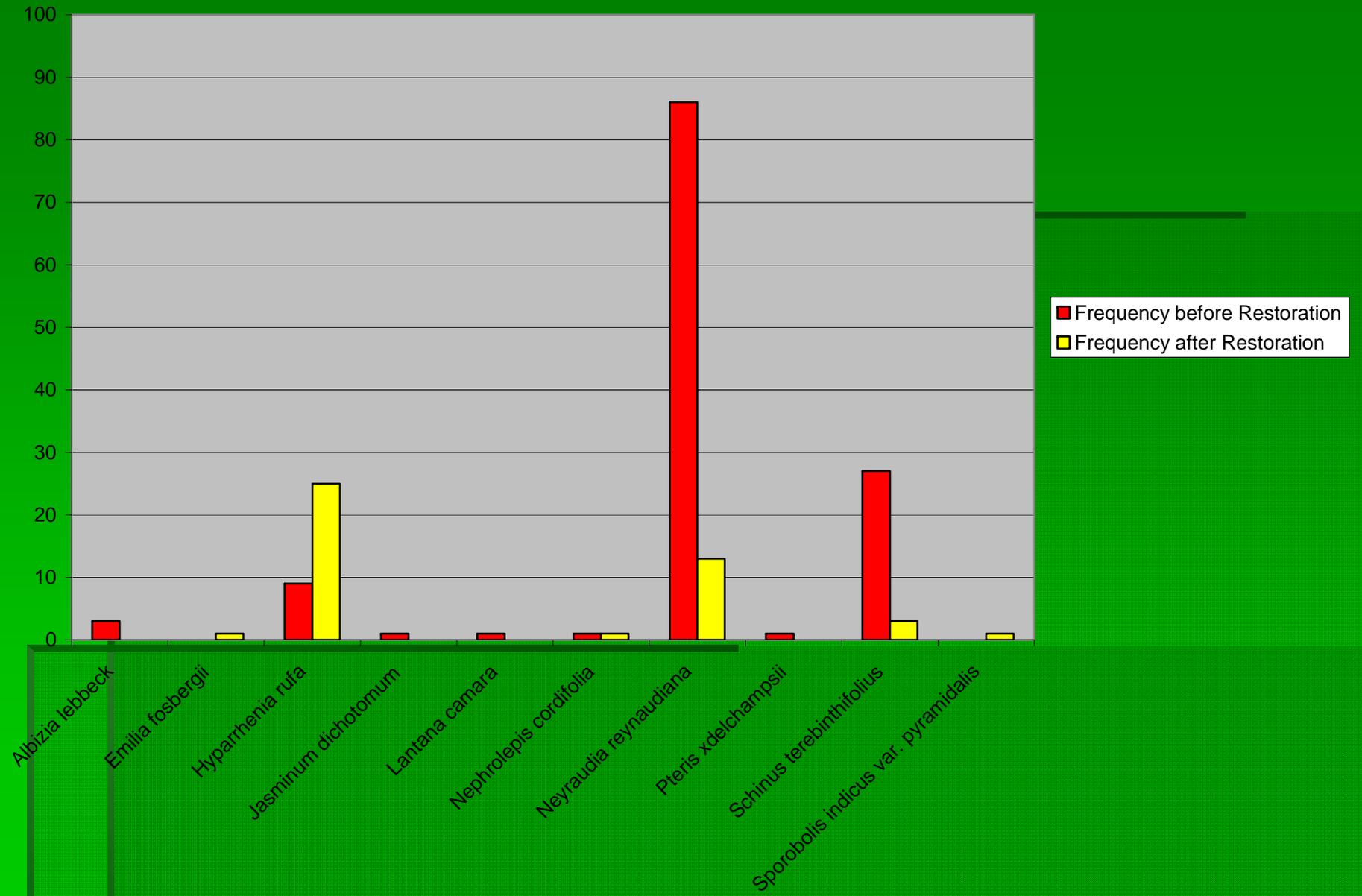
Rubbish Removal



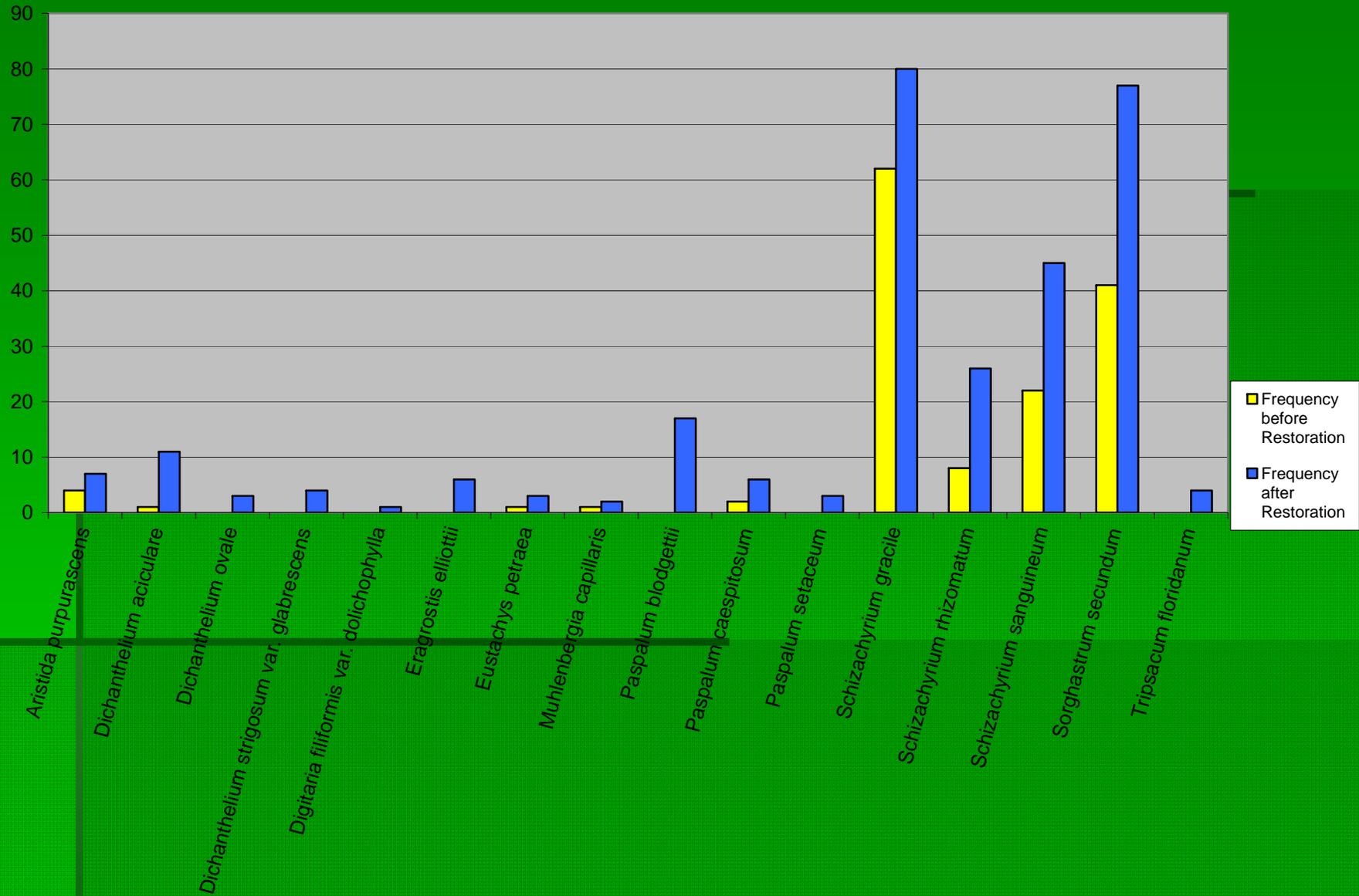
Fire Breaks

Results

Frequency of Exotic Plant Species Before and After Restoration



Frequency of Native Grasses Before and After Restoration





Before



After



Before



After



Before



After

Acknowledgements

- Florida Division of Forestry
- Florida International University
- Friends of IRC
- Hands on Miami
- Joseph and Frieda Ross Foundation
- Miami-Dade County NAM & DERM
- The Nature Conservancy
- Tropical Audubon Society
- Tropical Girl Scout Council
- US Fish and Wildlife Service
- USDA Natural Resources Conservation Service
- Roger Hammer and Jesse Hoffman for providing plant photos
- Eric Fleites, Paula Garcia, Debbie Lada, and Kate Samelson, for their efforts with IRC's restoration crew

