Removal of the Invasive Brazilian Pepper Plant

Javier Gonzalez, Sophomore, Business Administration | Jason Young, Sophomore, Aeronautics
Ariele Sizemore, Freshman, Homeland Security | Wyatt Plyler, Freshman, Human Factors
Jelani Speede, Sophomore, Air Traffic Management | Jason Chan, Junior, Aeronautics
PS142 – Introduction to Environmental Science | Dr. Emily Faulconer | Spring 2016

EMBRY-RIDDLE Aeronautical University
DAYTONA BEACH, FLORIDA

Figure 1: Areas cleared from Brazilian Pepper Plant at Spruce Creek Park.

Abstract

- The Brazilian Pepper Plant is an invasive species, meaning that it steals nutrients and water from its surrounding native plants causing them to die.
- The team's goal was to eradicate the plant form some parts of Spruce Creek Park.
- Procedures for this project included identification, removal, and disposal of the Brazilian Pepper Plant.
- The removal process consists of cutting down the plant with a bow saw and trimming them enough to fit into a garbage bag and disposing of them into a waste management bin.
- Our group has successfully put in 22 hours of removal and have cleared about two thirds of an acre located in Spruce Creek Park near 29°05'50.8"N 80°58'24.4"W (See **Figure 1**).

Figure 3: Florida Holly

Conclusions

- Group members are now able to identify the Brazilian Pepper Plant and know information about where it comes from, how it grows, and how it affects surrounding native species.
- By removing the Brazilian Pepper Plant, the group has increased the biodiversity in the areas marked on **Figure 1**.
- Going forward, to ensure the elimination of the Brazilian Pepper Plant, we must find a way to lessen the spread of the seeds, which are usually carried by birds.
- Continuous physical removal of the plants will be required until a way to completely eradicate the invasive plant is discovered.
- Future environmentally aware groups may take on this challenge, and continue the important job of preventing the native plant species of Florida from suffering from this tyrant any longer.

Learning Objectives

- By going out to physically remove the plants, the students will be able to gather information that relates to class lectures and gain a better understanding to the materials learned in class.
- By the end of the project, the students will be able to distinguish the Brazilian Pepper Plant(See **Figure 2**) from the Florida Holly (See **Figure 3**) with no error in judgement.
- By removing the Brazilian Pepper Plant from Spruce Creek Park, the students will improve biodiversity in the park and will be able to explain how biodiversity is improved when invasive species are removed from the area without error.

Figure 2: Brazilian Pepper Plant

Reflections

- We have learned how invasive species impacted the native life forms.
- We are able to distinguish the Brazilian Pepper Plant from similar native plants such as the Florida Holly.
- We realize the importance to contain the invasive species in order to avoid spread.
- Everyone should go out and help remove the Brazilian Pepper Plant to realize the difficulties on physical removal.
- We observed first-hand how the Brazilian Pepper Plant has affected taking nutrients from its surroundings

Acknowledgements

- Harris, Richard Environmental Specialist. Participating in the last leg of the process by spraying the Herbicides over the marked trunks. This ensures that all remnants are exterminated.
- Baylie, Tim Director of Operations (Spruce Creek). Gave our team vehicle access to county trails; allowing us to remove almost double the amount of trees.
- Chapman, Louise Environmental STEM TOA. Providing our team with the credentials necessary to carry out our work.
- Dr. Faulconer, Emily Physical Science Professor. By proofreading all our paperwork prior to requesting county involvement.

Let's Get Peppered Gantt Chart

Physical Removal Date:	PLANNED DURATION	Start TIME: hours	TIME DURATION	AMOUNT COMPLETE
Select Teams	1	1	1	100%
Select Project	1	1	2	100%
First Checkpoint	2	1	2	100%
Proposal	2	2	1	100%
Service Plan	3	2	4	100%
Extraction 1	4	2	6	100%
Second Checkpoint	4	2	4	100%
Extraction 2	5	2	7	100%
Extraction 3	6	2	9	100%
Mid-Term Report	6	2	5	100%
Poster Concept	8	2		50%
Poster Rough Draft	7	3	2	100%
Discovery Day	7	1		0%
Results	8	3	1	100%
Third Checkpoint	9	4		80%
Final Report	9	9		80%
Gannt chart	6	6		80%
Final Deliverable				

Group Participants	Jason Young	Javier Gonzales	Jelani Speede	Wyatt Polyer	Jason Chan	Ariele Sizemore
Date:	Coordinator	Physical	Disposal	Cutting	Cutting	Misc.
1/18/2016	All involved					
1/26/2016	Meeting Prof. Faulconer	Planning Dates: schedule conflict				
1/28/2016	All involved					
2/9/2016	Meeting Chapman	Gathering Materials				Plan Extraction
2/16/2016	Misc	Misc	12 Barrels	18 trees	18 trees*	(PR) Chapman
19-Feb	All involved					
27-Feb	20 trees *	14 Bags		20 trees *	15 trees	Misc.
5-Mar	23 Bags		30 Trees		Coordination with park	
23-Feb	All involved					
TBD						
TBD	Submitted Abstract			Creative element		
13-Apr						
13-Mar	Documentation		Course Relevence		Reviewed guidelines	
7-Apr						
29-Mar						
N/A						
26-Apr						

Figure 4: Gantt Chart

Let's Get Peppered!