SOUTH FLORIDA WATER MANAGEMENT DISTRICT

The Legacy Program at DuPuis Management Area

Presented by: Clark Advanced Learning Center High School Students

August 27, 2010 – April 29, 2011

sfwmd.gov

Leaving a "Legacy" means…

"Ensuring an abundance of sustainable natural resources and ecosystems. The Dupuis project is the catalyst that puts a cycle of preservation and education in motion."

Ariana Martinez, Clark Student

What is SFWMD's Legacy Program?

Partnerships

IRSC
Clark Advanced
Learning Center

South
Florida
Water
Management
District

Florida
Atlantic
University

Service Learning Through Dual Enrollment

- Combines academic study with service in the community
- Involves students in real world decision-making process
- Promotes civic responsibility
- Connects students with STEM experiences

What is SFWMD's Legacy Program?

Legacy is a hands-on environmental stewardship program promoting environmental education on public lands

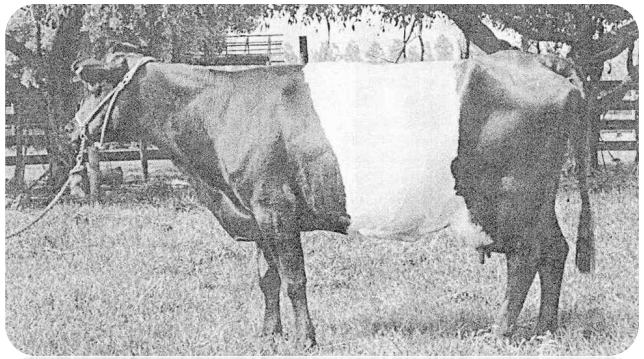
- **Partners with local schools with nearby public lands owned by the SFWMD**
- **Shares our expertise in land management, water resource and environmental science**
- **Provides outdoor learning activities for students and instills a sense of stewardship for the environment**

DuPuis Management Area
MARTIN COUNTY

- 21,875 acres of natural area with ponds, wet prairies, cypress domes, pine flatwoods and remnant Everglades marsh
- 400-foot boardwalk trail provides a path through a cypress swamp
- 22 miles of hiking trails and 40 miles of horseback trails
- Legacy activities:
  - GPS and photo documentation of pine flatwoods understory restoration.

Our Purpose

Dupuis was once a cattle ranch.



Dupuis is Primarily Pine Flatwoods

Restoring habitat to original condition.

Methods:

- Collect all materials
- Take the smallest pole, hammer in hand and drive the 12" pole into the ground fully, just enough to see the colored top of it from the ground floor.
- Mark your coordinates: (example: 1) N 26d 57.244, W 080d 33.893, 2)N 26d 57.235 W 080d 33.890)
- Walk at least 3 feet in either direction, so as to warn mowers to be careful of your transect, take the lager pole and also drive it into the ground…

Methods continued…

- … After it is fully secured into the soil take one of the PVC pipes and slide it over the larger pole then take neon spray paint to mark the top so it is also more easily noticed by mowers.
- Then, in the opposite direction from the location just marked, walk 15 meters and repeat steps 2, 3 and 4.

Methods continued…

- In each quadrat measure the tallest Saw Palmetto and the tallest Shrub. Also measure and record the approximate saw palmetto, woody shrub, vine and grass coverage.

Methods continued…

- We also identified and recorded all plant species found in each quadrat
- This procedure was repeated for all three visits- before shredding, immediately after shredding and a month after shredding.

Analysis

- For each visit, data was analyzed;
  - Plant height- the measurements for tallest palmetto and shrub were averaged across the entire transect for each date. The results were recorded on a table and graph

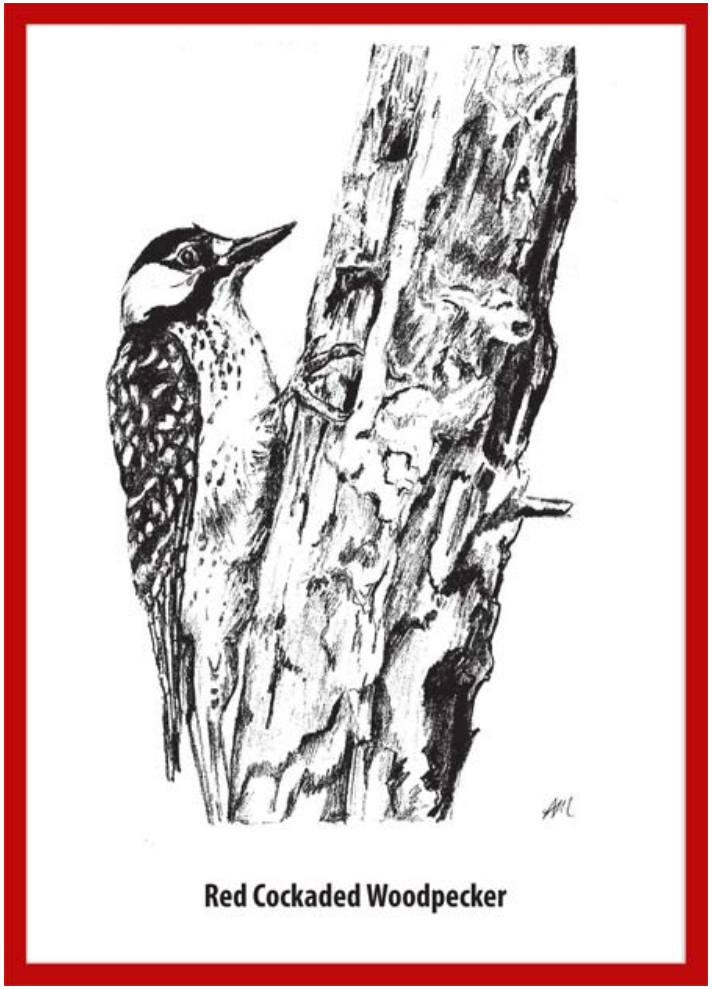
Analysis

- For percent coverage- the median coverage for each quadrat, for each plant type was calculated. The medians for each type were averaged across the transect for each date. Data from all teams were also calculated and confidence levels were determined.

Analysis continued…

- Numbers of species- counted for each quadrat and averaged for each date. The averages for all teams were averaged again to produce over-all species data. This data was also a graphed and put in a table format.

The Clark DuPuis Teams



Red Cockaded Woodpecker

A Team

Trey Bomeisler
Sean Ashley

Transect:
26° 57’ 14.95”N, 80° 33’ 51.98”W
26° 57’ 15.35”N, 80° 33’ 51.65”W

B Team

Tara Moran
Shailah Steck
Brayton Bass
Ashley Gonzalez

Transect:
26° 57’ 15.88” N, 80° 33’ 53.64” W
26° 57’ 15.50”N, 80° 33’ 53.67”W

Pirates

Nicole Ouellette
Brianne Mozingo

Transect:
26° 57’ 15.55 N, 80o 33’ 51.67”W
26° 57’ 15.53” N, 80° 33’ 52.04” W

Swallowtails

Sarah Steele
Carissa Nichols
Ariana Martinez

Transect:
26°57’14.10”N, 80° 33’ 53.40”W
26°57’14.62”N, 80° 33’ 53.58”W

DuPuis Management Area
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- 21,875 acres of natural area with ponds, wet prairies, cypress domes, pine flatwoods and remnant Everglades marsh
- 400-foot boardwalk trail provides a path through a cypress swamp
- 22 miles of hiking trails and 40 miles of horseback trails

Tallest Palmettos & Shrubs

November Data

Tallest Palmettos and Shrubs					
Team	Transect Side	Date	Quadrat	Tallest Saw Palmetto Height (ft)	Tallest Shrub Height (ft)
B	Left	11/19/2010	1	3.46	1.29
B	Left	11/19/2010	2	4.1	4.3
B	Left	11/19/2010	3	5.5	0
B	Left	11/19/2010	4	4.67	3
B	Left	11/19/2010	5	4.5	4.5
A	Right	11/19/2010	1	5.67	0
A	Right	11/19/2010	2	5.25	0
A	Right	11/19/2010	3	4.92	0
A	Right	11/19/2010	4	4.83	0
A	Right	11/19/2010	5	2.17	0
Swallowtails	Left	11/19/2010	1	2.58	0
Swallowtails	Left	11/19/2010	2	4.25	0
Swallowtails	Left	11/19/2010	3	7.17	0
Swallowtails	Left	11/19/2010	4	3.58	0
Swallowtails	Left	11/19/2010	5	4.446	0
Pirates	Right	11/19/2010	1	4.25	0
Pirates	Right	11/19/2010	2	4.13	7.33
Pirates	Right	11/19/2010	3	1.54	0
Pirates	Right	11/19/2010	4	4.15	6.13
Pirates	Right	11/19/2010	5	5.17	0
			Aver	4.3168	1.3275

January Data

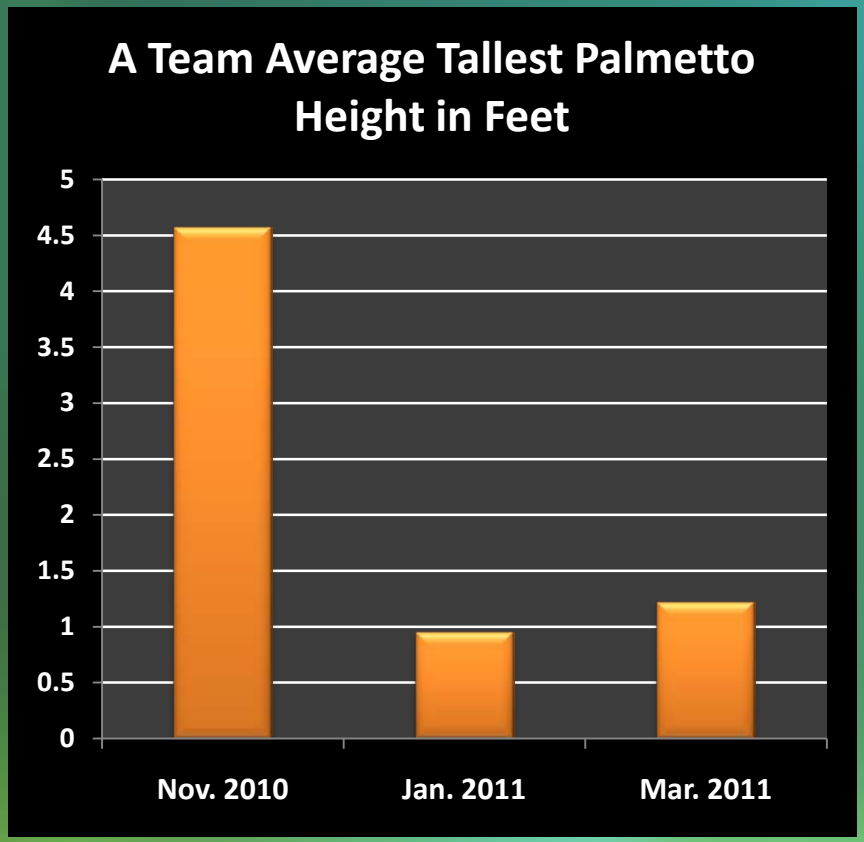
Tallest Palmettos and Shrubs					
Team	Transect Side	Date	Quadrat	Tallest Saw Palmetto Height (ft)	Tallest Shrub Height (ft)
B	Left	1/28/2011	1	0	0
B	Left	1/28/2011	2	4.08	4.25
B	Left	1/28/2011	3	5.42	0
B	Left	1/28/2011	4	0	0
B	Left	1/28/2011	5	4.5	4.6
A	Right	1/28/2011	1	0	0
A	Right	1/28/2011	2	2	0
A	Right	1/28/2011	3	1.33	0
A	Right	1/28/2011	4	1.42	0
A	Right	1/28/2011	5	0	0
Swallowtails	Left	1/28/2011	1	1.08	0
Swallowtails	Left	1/28/2011	2	1.92	0
Swallowtails	Left	1/28/2011	3	1	0
Swallowtails	Left	1/28/2011	4	1	0
Swallowtails	Left	1/28/2011	5	0	0
Pirates	Right	1/28/2011	1	0	0
Pirates	Right	1/28/2011	2	0	0
Pirates	Right	1/28/2011	3	0	0
Pirates	Right	1/28/2011	4	0	0
Pirates	Right	1/28/2011	5	1.25	0

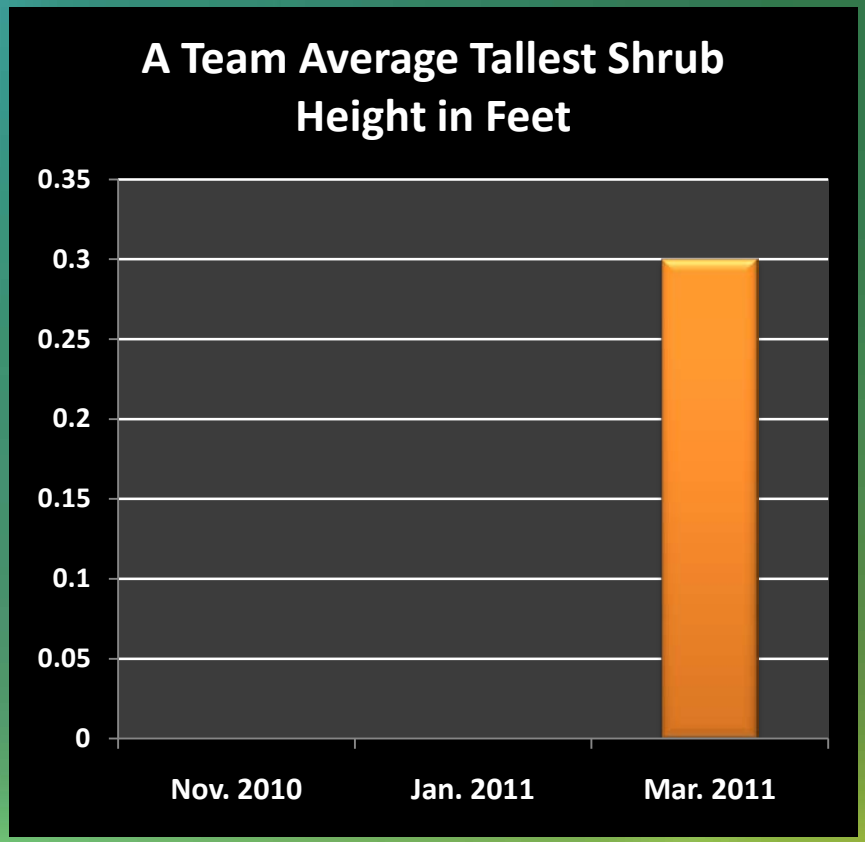
March Data

Tallest Palmettos and Shrubs

Date	Transect Side	Date	Quadrat	Tallest Saw Palmetto Height (ft)	Tallest Shrub Height (ft)
B	Left	3/18/2011	1	1.08	1.41
B	Left	3/18/2011	2	2.75	0
B	Left	3/18/2011	3	2.75	0
B	Left	3/18/2011	4	0	1.67
B	Left	3/18/2011	5	2.58	0
A	Right	3/18/2011	1	0	0
A	Right	3/18/2011	2	1.75	0
A	Right	3/18/2011	3	1.92	0
A	Right	3/18/2011	4	1	1.58
A	Right	3/18/2011	5	1.42	0
Swallowtails	Left	3/18/2011	1	1.38	0
Swallowtails	Left	3/18/2011	2	2.46	0
Swallowtails	Left	3/18/2011	3	1	0
Swallowtails	Left	3/18/2011	4	1	0
Swallowtails	Left	3/18/2011	5	0	0
Pirates	Right	3/18/2011	1	0	0
Pirates	Right	3/18/2011	2	0	0
Pirates	Right	3/18/2011	3	0	0
Pirates	Right	3/18/2011	4	0	0.79
Pirates	Right	3/18/2011	5	2	0
			Aver	1.1545	0.2725

A Team





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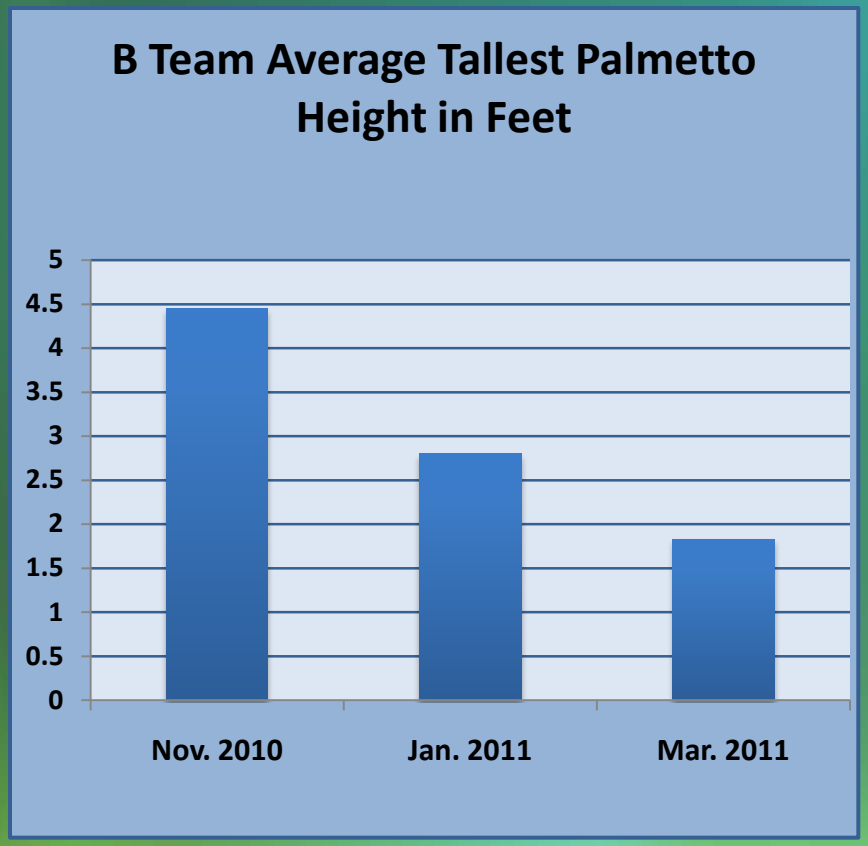
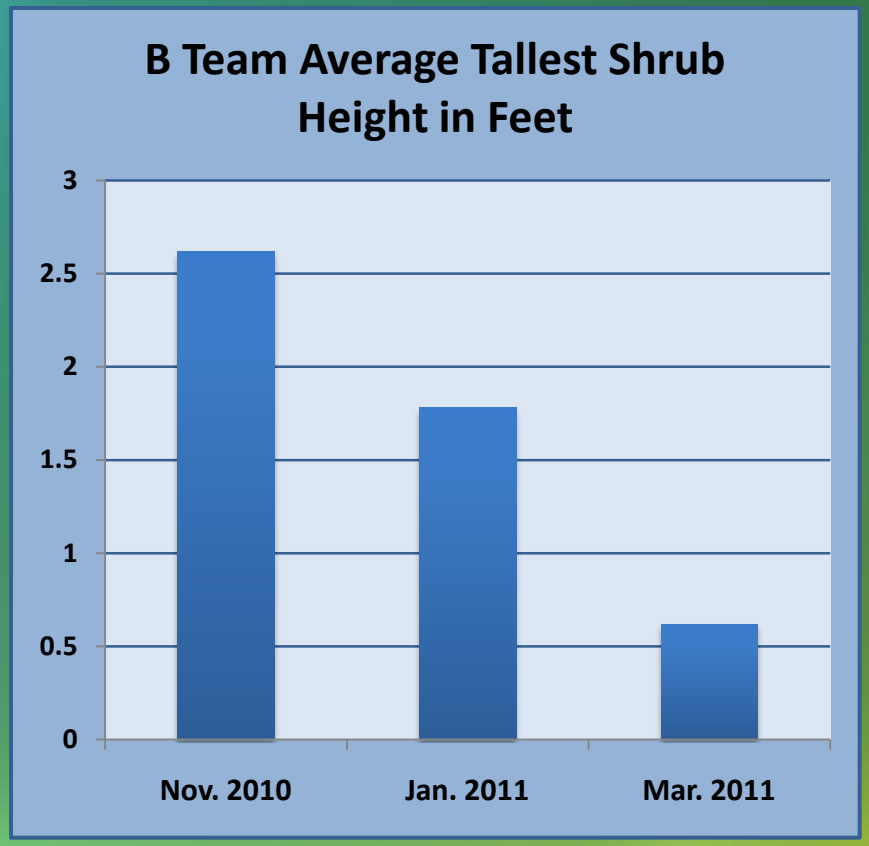
B Team





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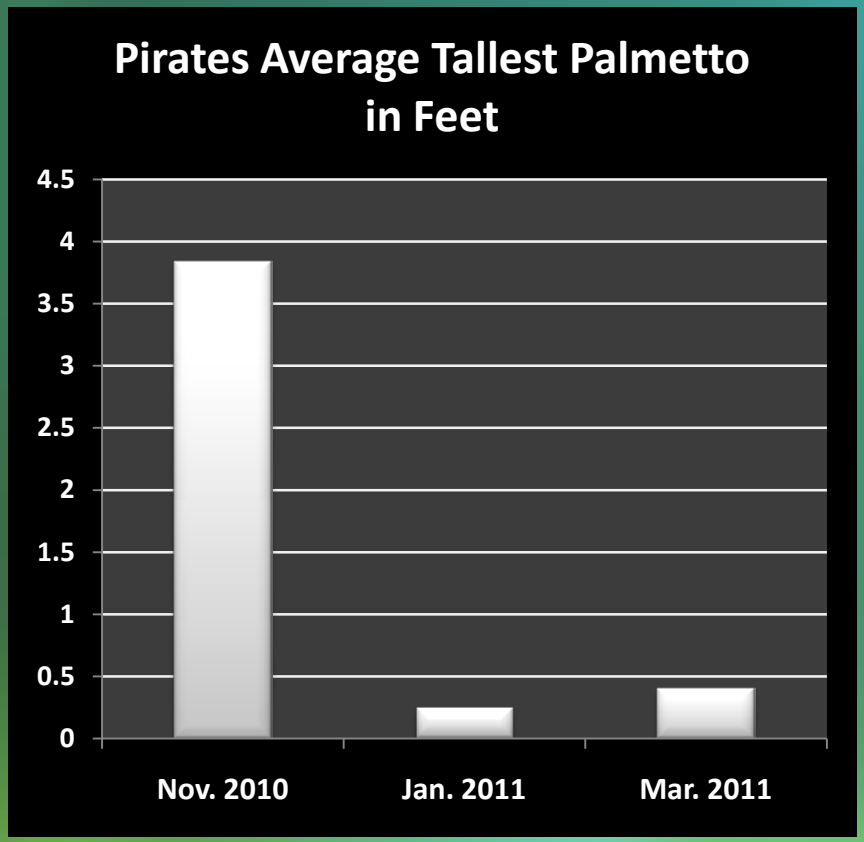
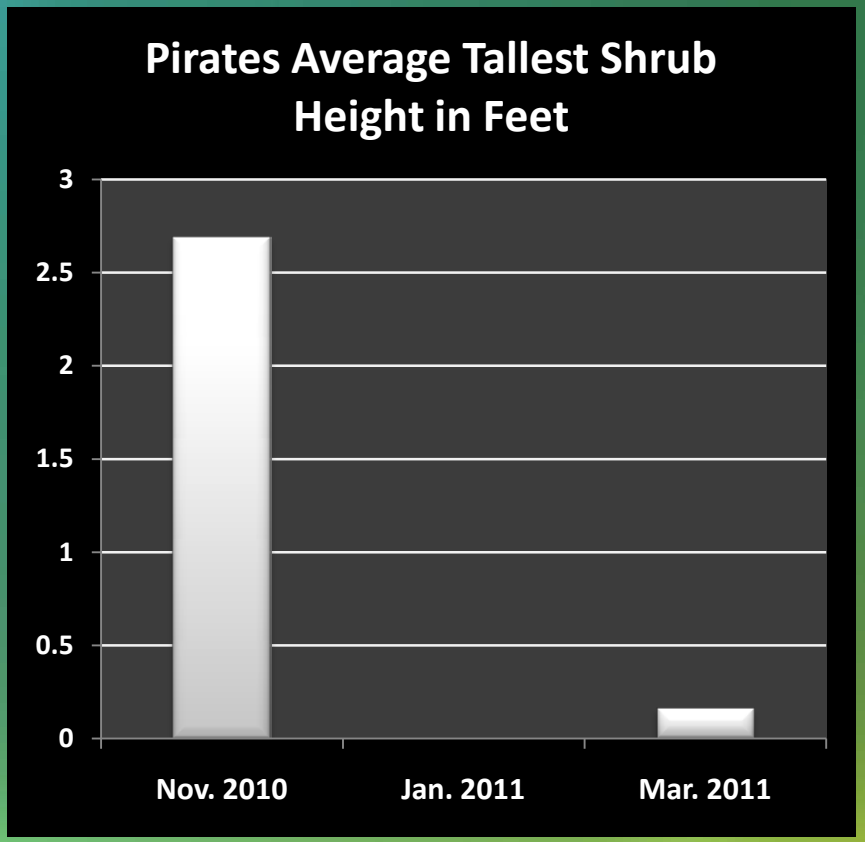
Pirates





Transect:
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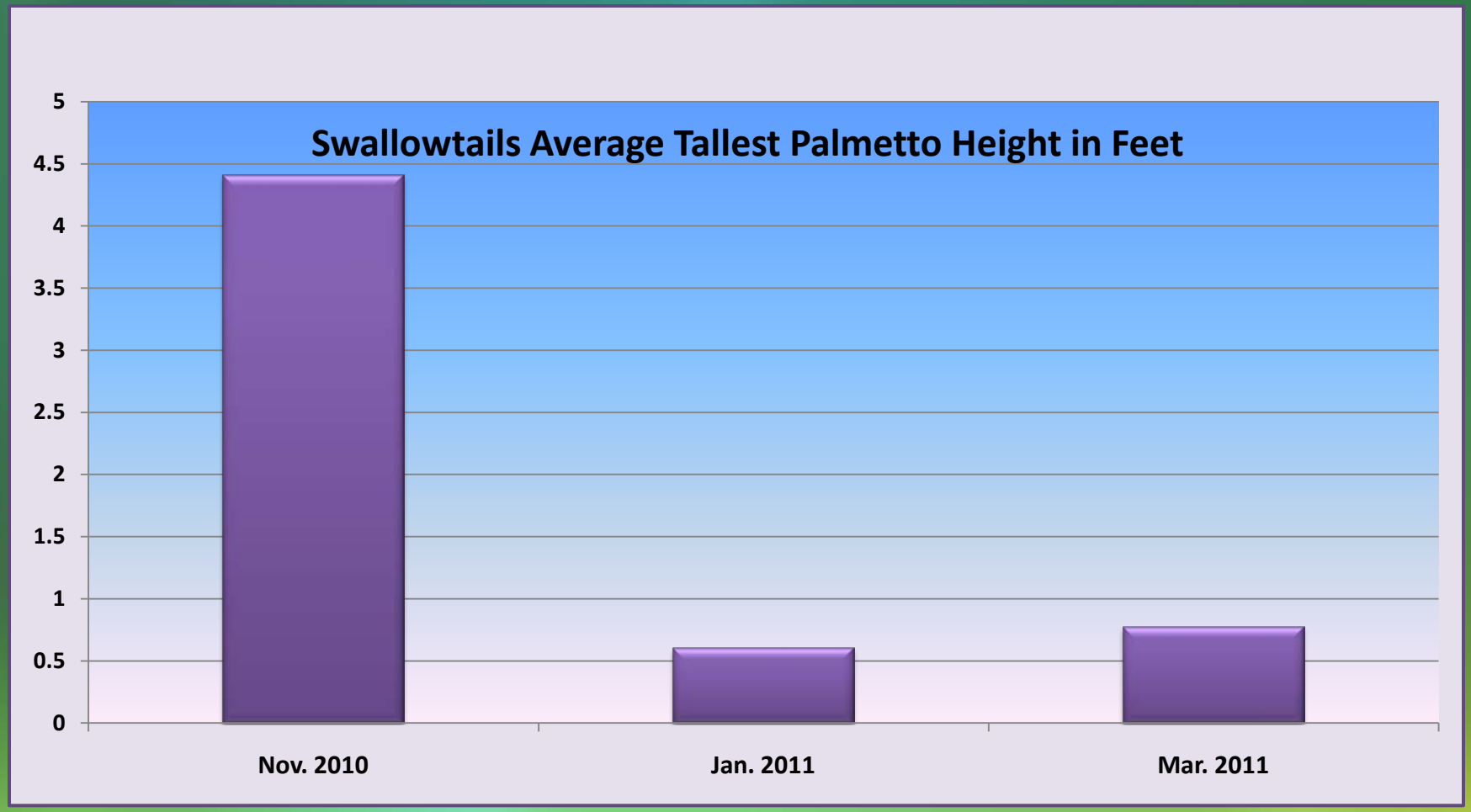
Swallowtails



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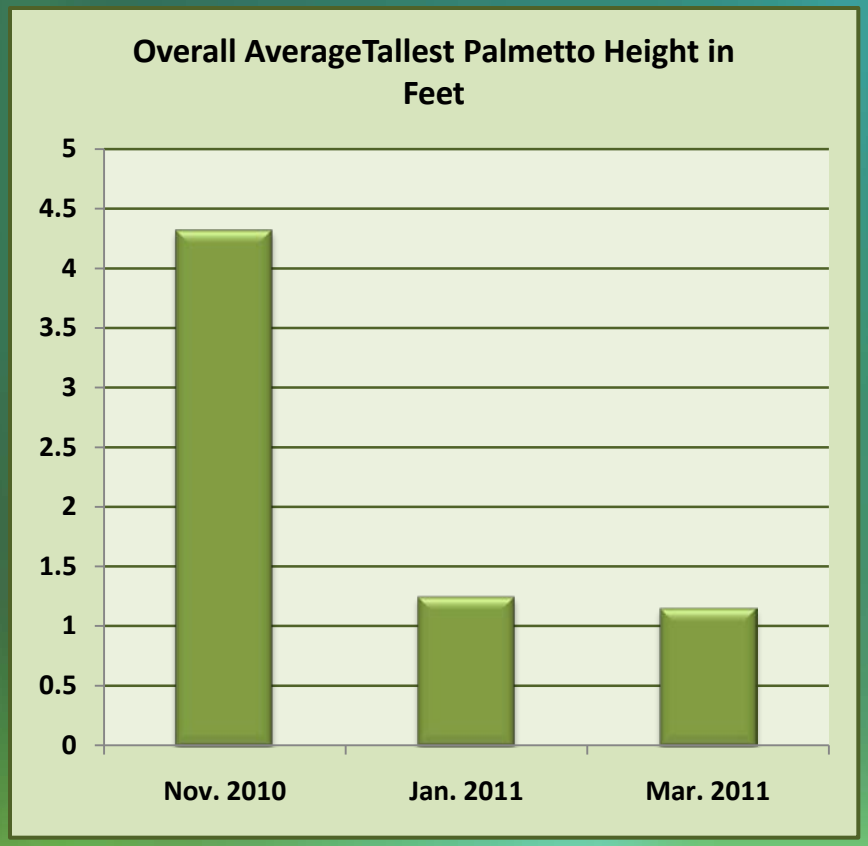
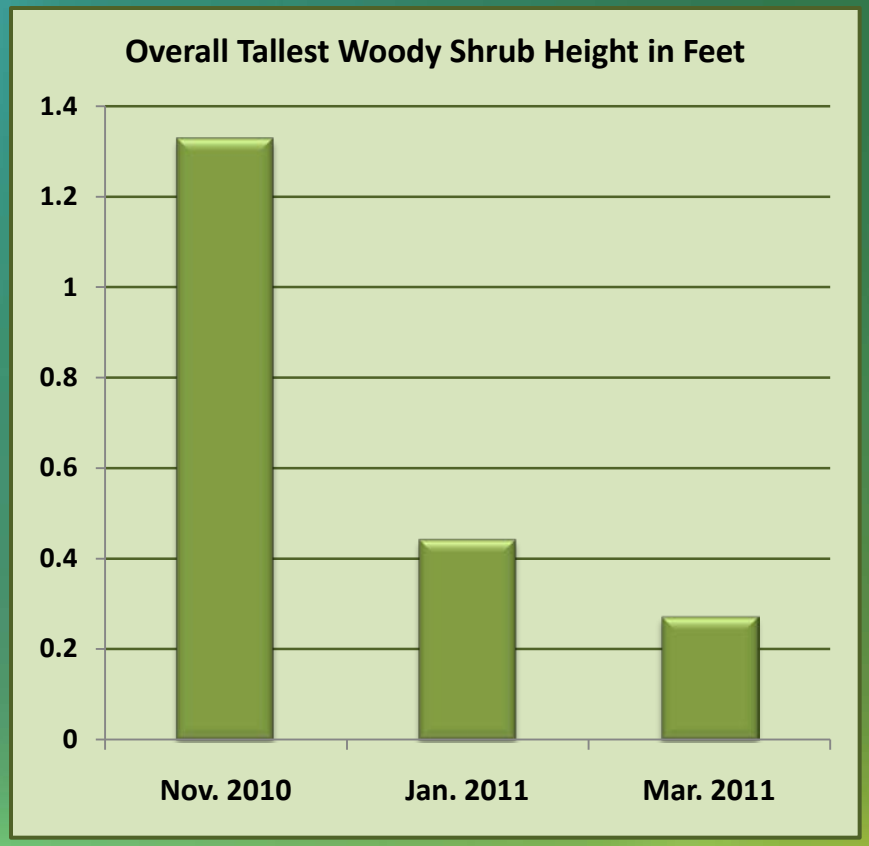
Overall Height Data



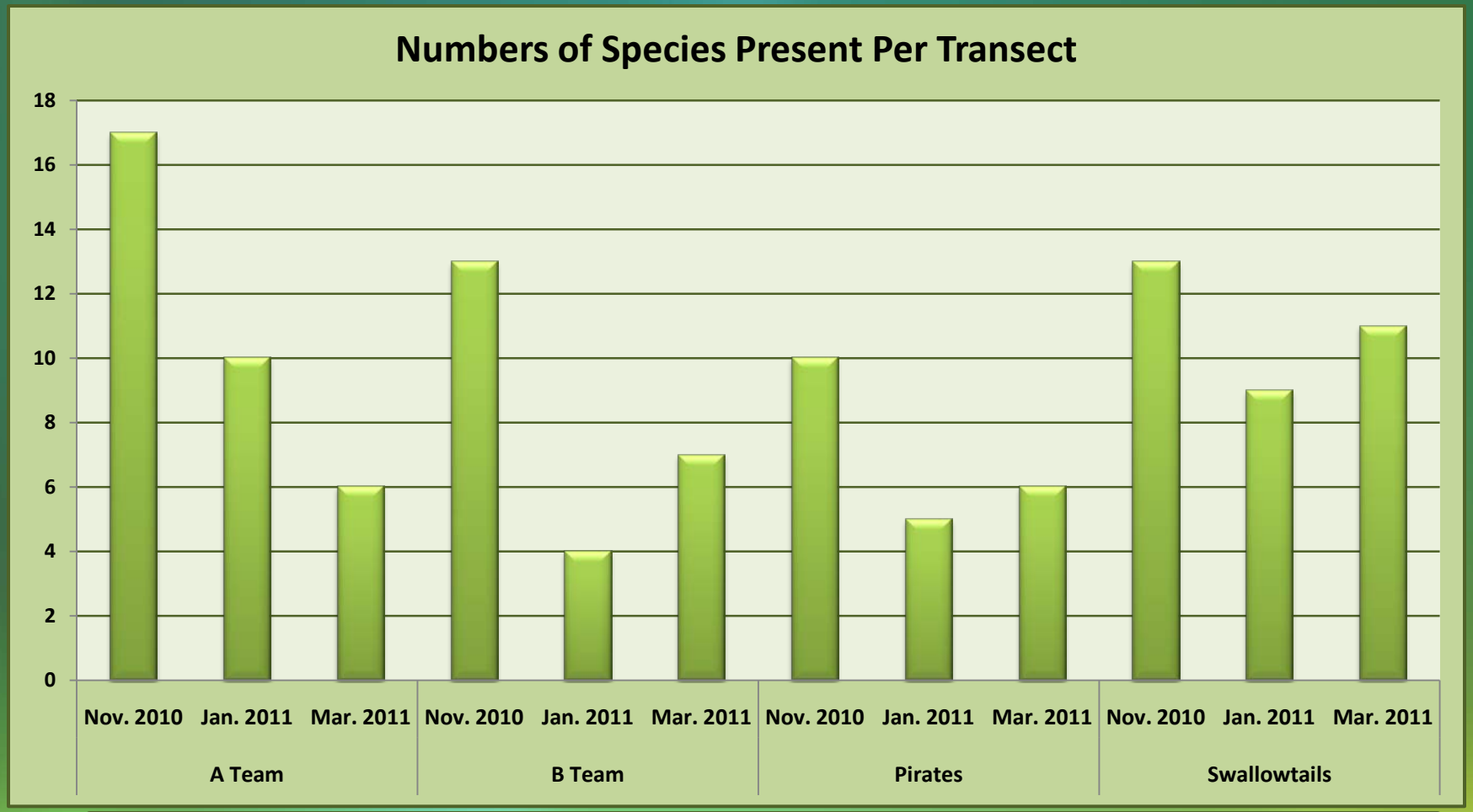


Species Diversity

Team Numbers by Date

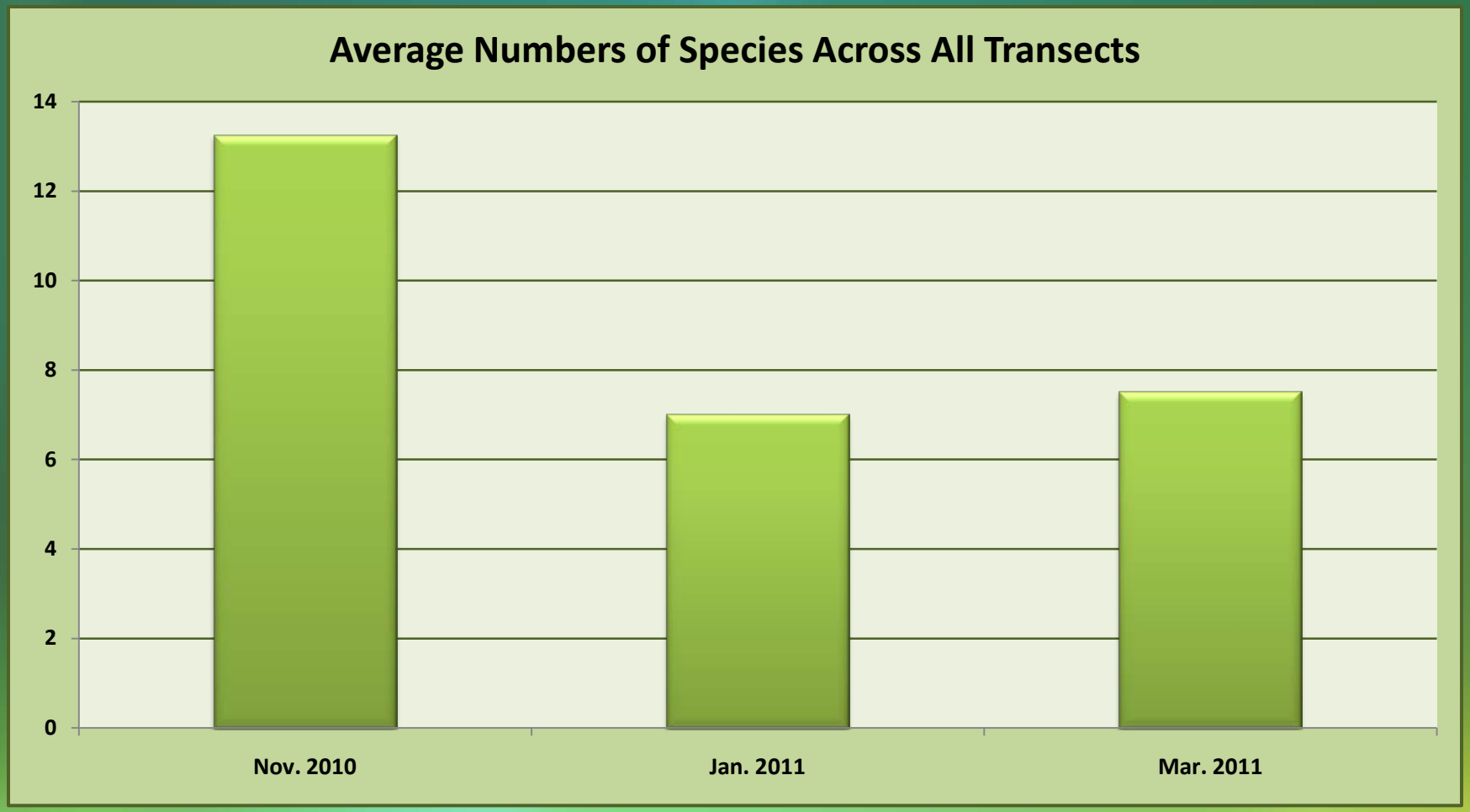
Number of Species Present Per Transect			Average Number of Species Across All Transects	
Team	Date	Number of Species		
A Team	Nov. 2010	17	Nov. 2010	13.25
	Jan. 2011	10	Jan. 2011	7
	Mar. 2011	6	Mar. 2011	7.5
B Team	Nov. 2010	13		
	Jan. 2011	4		
	Mar. 2011	7		
Pirates	Nov. 2010	10		
	Jan. 2011	5		
	Mar. 2011	6		
Swallowtails	Nov. 2010	13		
	Jan. 2011	9		
	Mar. 2011	11		

Team Species Data



Transect: 26º 57' 14.95"N, 80º 33' 51.98"W 26º 57' 15.35"N, 80º 33' 51.65"W	Transect: 26º 57' 15.88" N, 80º 33' 53.64" W 26º 57' 15.50"N, 80º 33' 53.67"W	Transect: 26º 57' 15.55 N, 80o 33' 51.67"W 26º 57' 15.53" N, 80º 33' 52.04" W	Transect: 26º57'14.10"N, 80º 33' 53.40"W 26º57'14.62"N, 80º 33' 53.58"W

Overall Species Data



Plant Categories - November

November 2010 Species Occurrence

Cover Values		*% Cover*			Overall Coverage				
Class	*Cover*	Species	Team	Species Mean (across quadrats)	Species	Mean (across all teams)	n	Std. Dev.	95% Confidence Interval
0	***0***	Forb	A	4.5	**Saw Palmetto**	41.18	4	7.94	7.78
<5	***2.5***	Forb	B	1.5	**Woody Shrub**	0.75	4	0.96	0.94
5-25	***15***	Forb	Pirates	3.5	**Vine**	6.25	4	4.91	4.81
25-50	***37.5***	Forb	Swallowtails	12	**Forb**	5.38	4	4.59	4.50
50-75	***62.5***	Grass	A	12	**Grass**	33.94	4	37.96	37.2
75-100	***87.5***	Grass	B	2.75					
		Grass	Pirates	33.5					
		Grass	Swallowtails	87.5					
		Saw Palmetto	A	48					
		Saw Palmetto	B	48					
		Saw Palmetto	Pirates	35.5					
		Saw Palmetto	Swallowtails	33.2					
		Vine	A	12					
		Vine	B	6.5					
		Vine	Pirates	6.5					
		Vine	Swallowtails	0					
		Woody Shrub	A	0					
		Woody Shrub	B	2					
		Woody Shrub	Pirates	1					
		Woody Shrub	Swallowtails	0					

Plant Categories - January

January 2011 Species Occurrence

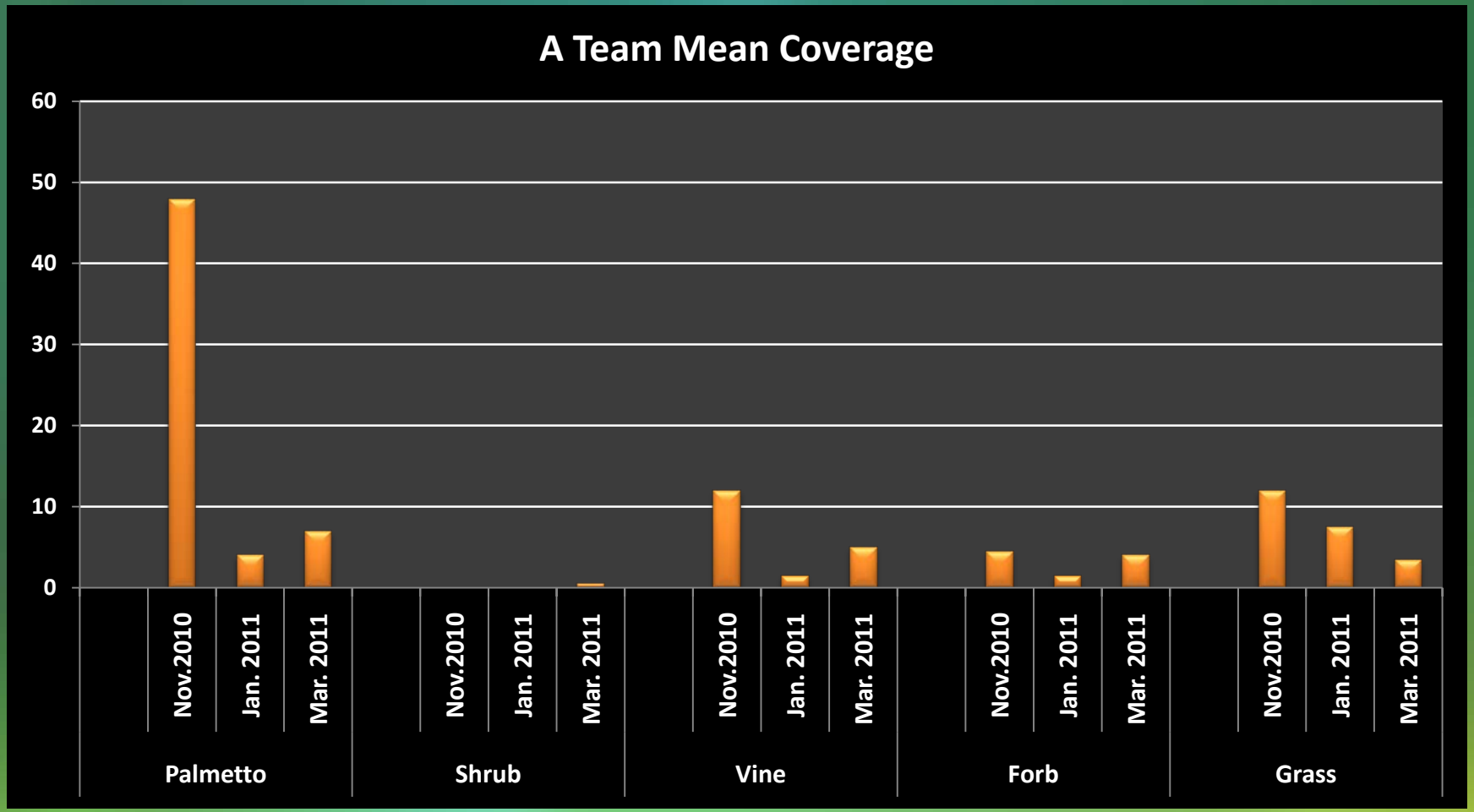
Cover Values		*% Cover*			Overall Coverage				
Class	*Cover*	Species	Team	Species Mean (across quadrats)	Species	Mean (across all teams)	n	Std. Dev.	95% Confidence Interval
0	***0***	Forb	A	1.5	**Saw Palmetto**	5.88	4	2.78	2.34
<5	***2.5***	Forb	B	3.5	**Woody Shrub**	0.00	4	0.00	0.00
5-25	***15***	Forb	Pirates	0.5	**Vine**	0.88	4	0.47	0.46
25-50	***37.5***	Forb	Swallowtails	2.5	**Forb**	2.00	4	1.27	1.24
50-75	***62.5***	Grass	A	7.5	**Grass**	26.63	4	39.79	40.46
75-100	***87.5***	Grass	B	4.5					
		Grass	Pirates	7					
		Grass	Swallowtails	87.5					
		Saw Palmetto	A	4					
		Saw Palmetto	B	7.5					
		Saw Palmetto	Pirates	3					
		Saw Palmetto	Swallowtails	9					
		Vine	A	1.5					
		Vine	B	1					
		Vine	Pirates	0.5					
		Vine	Swallowtails	0.5					
		Woody Shrub	A	0					
		Woody Shrub	B	0					
		Woody Shrub	Pirates	0					
		Woody Shrub	Swallowtails	0					

Plant Categories - March

March 2011 Species Occurrence

Cover Values		*% Cover*			overal Coverage				
Class	*Cover*	Species	Team	Species Mean (across quadrats)	Species	Mean (across all teams)	n	Std. Dev.	95% Confidence Interval
0	***0***	Forb	A	4	**Saw Palmetto**	6.40	4	2.39	2.34
<5	***2.5***	Forb	B	2.5	**Woody Shrub**	0.38	4	0.25	0.00
5-25	***15***	Forb	Pirates	4	**Vine**	2.88	4	2.46	2.41
25-50	***37.5***	Forb	Swallowtails	2.5	**Forb**	3.25	4	0.87	0.85
50-75	***62.5***	Grass	A	3.5	**Grass**	25.88	4	41.29	40.46
75-100	***87.5***	Grass	B	1.5					
		Grass	Pirates	11					
		Grass	Swallowtails	87.5					
		Saw Palmetto	A	7					
		Saw Palmetto	B	7					
		Saw Palmetto	Pirates	3					
		Saw Palmetto	Swallowtails	8.6					
		Vine	A	5					
		Vine	B	0.5					
		Vine	Pirates	5					
		Vine	Swallowtails	1					
		Woody Shrub	A	0.5					
		Woody Shrub	B	0.5					
		Woody Shrub	Pirates	0.5					
		Woody Shrub	Swallowtails	0					

A Team



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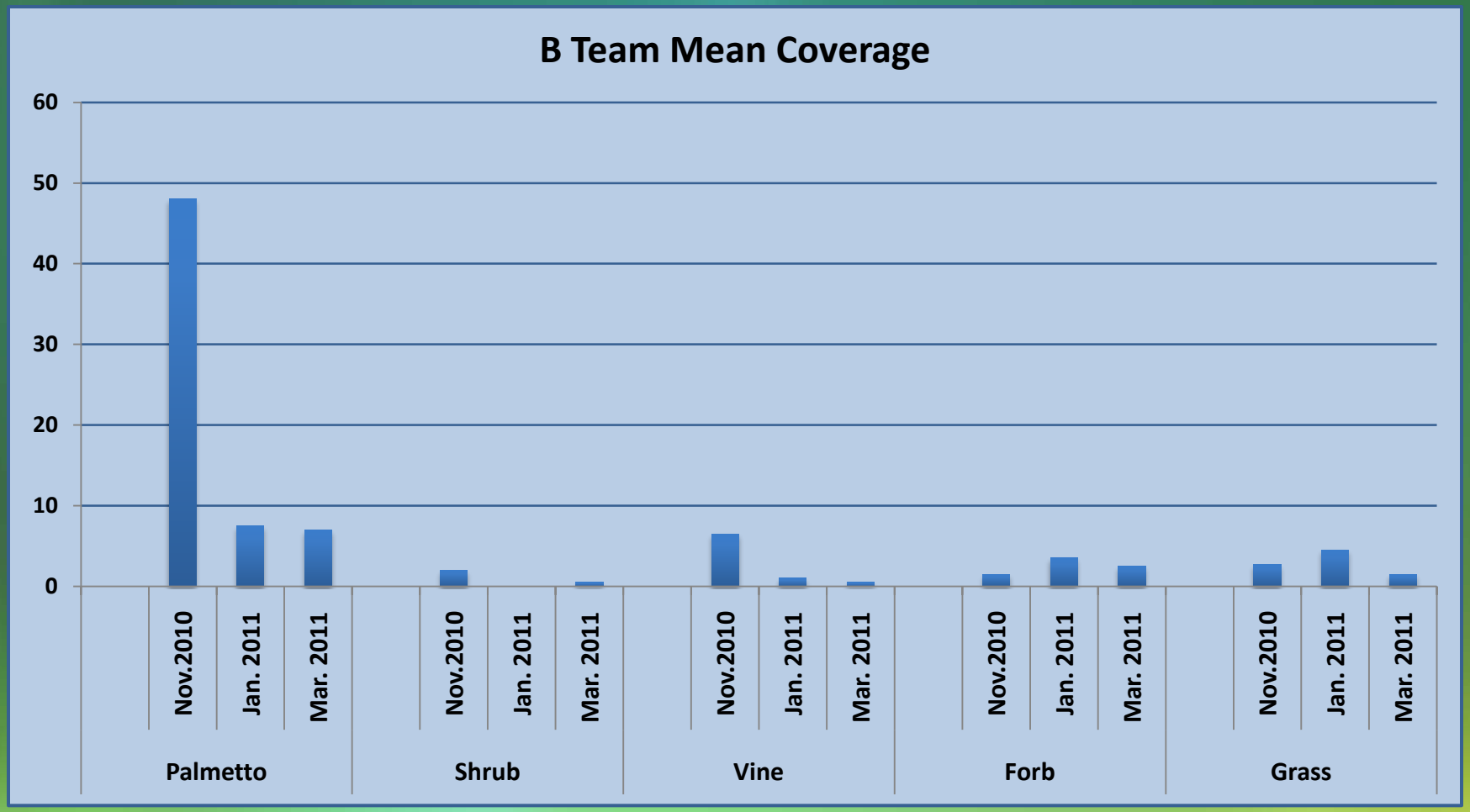

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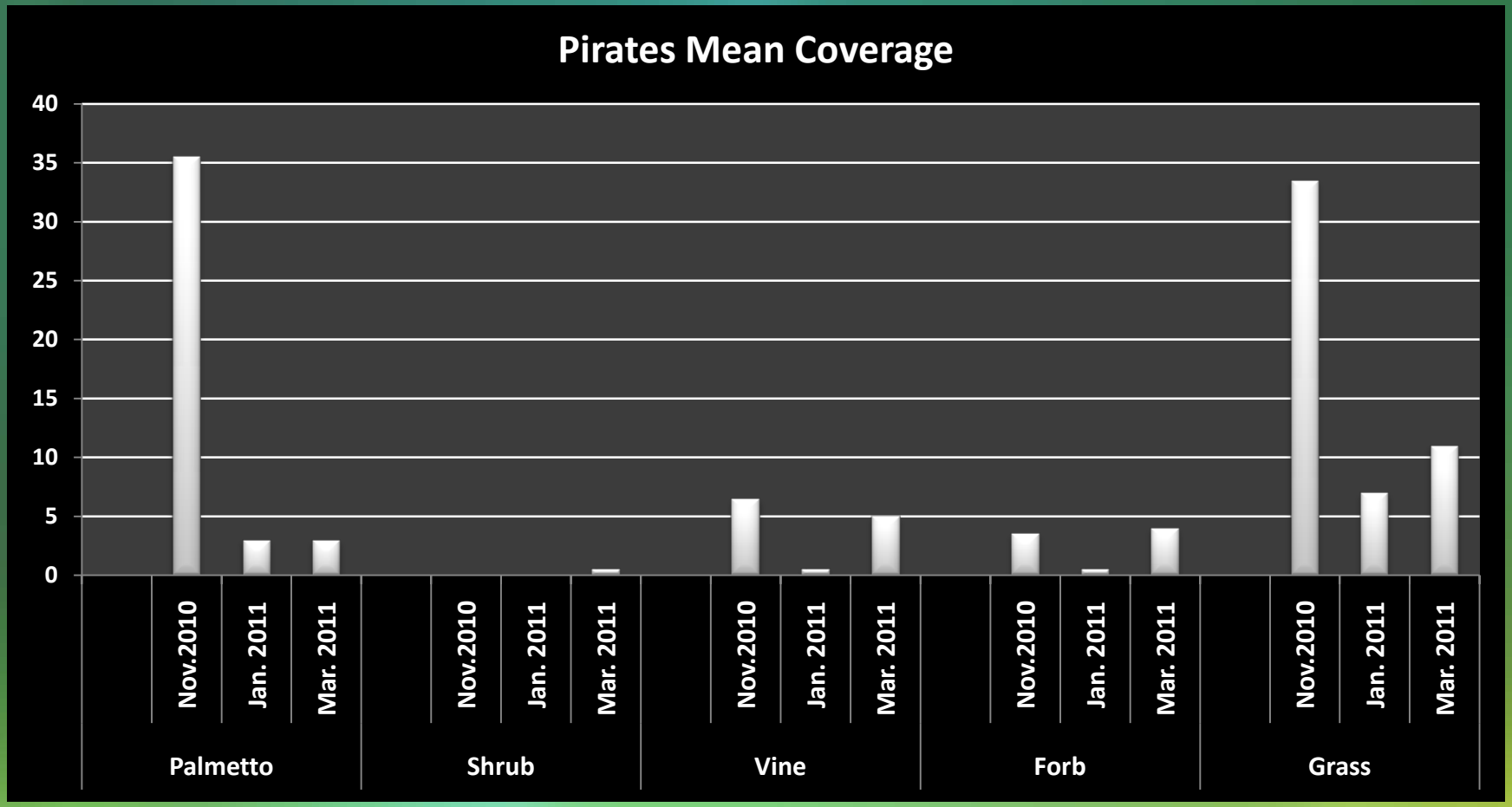

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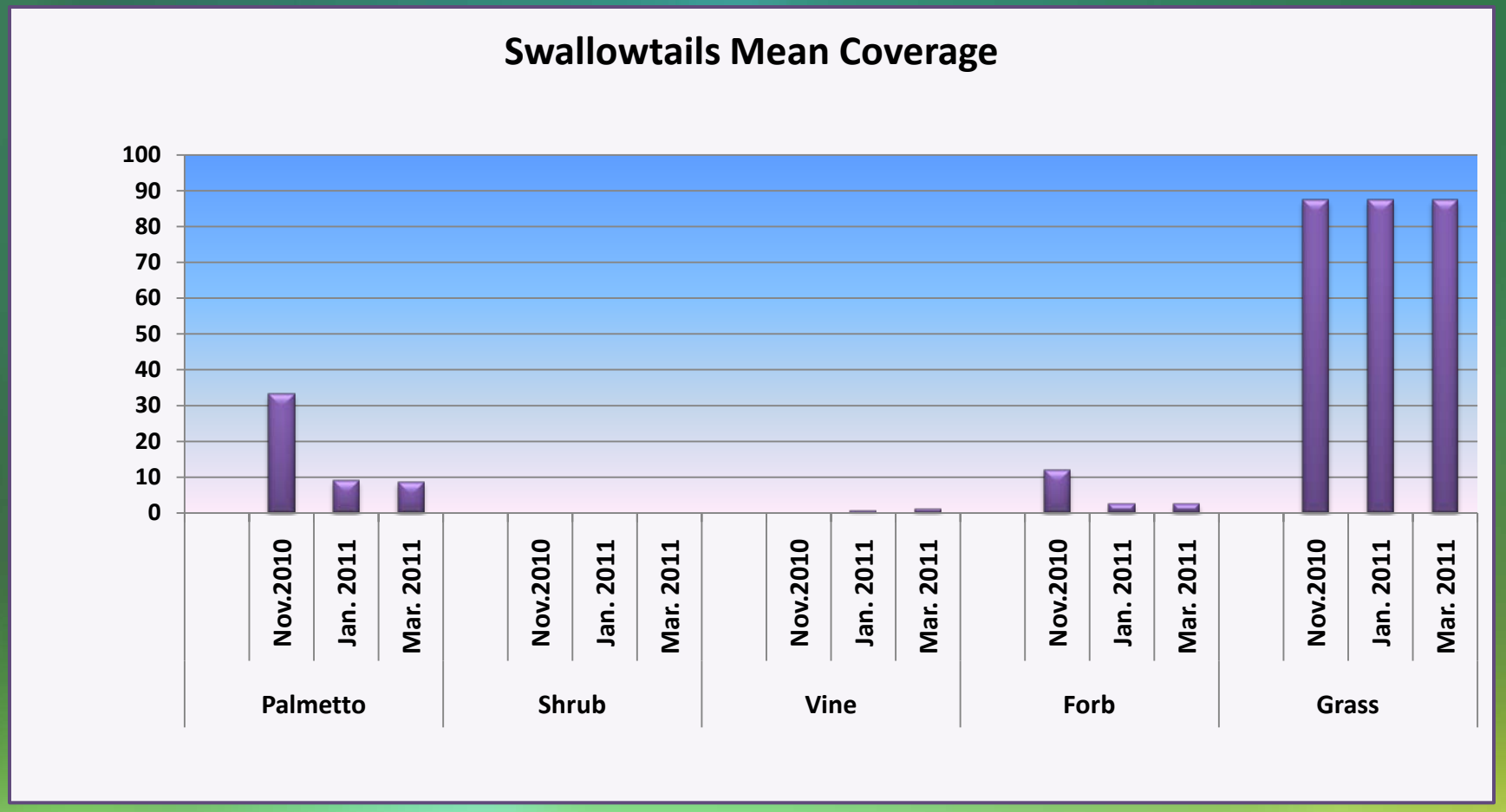

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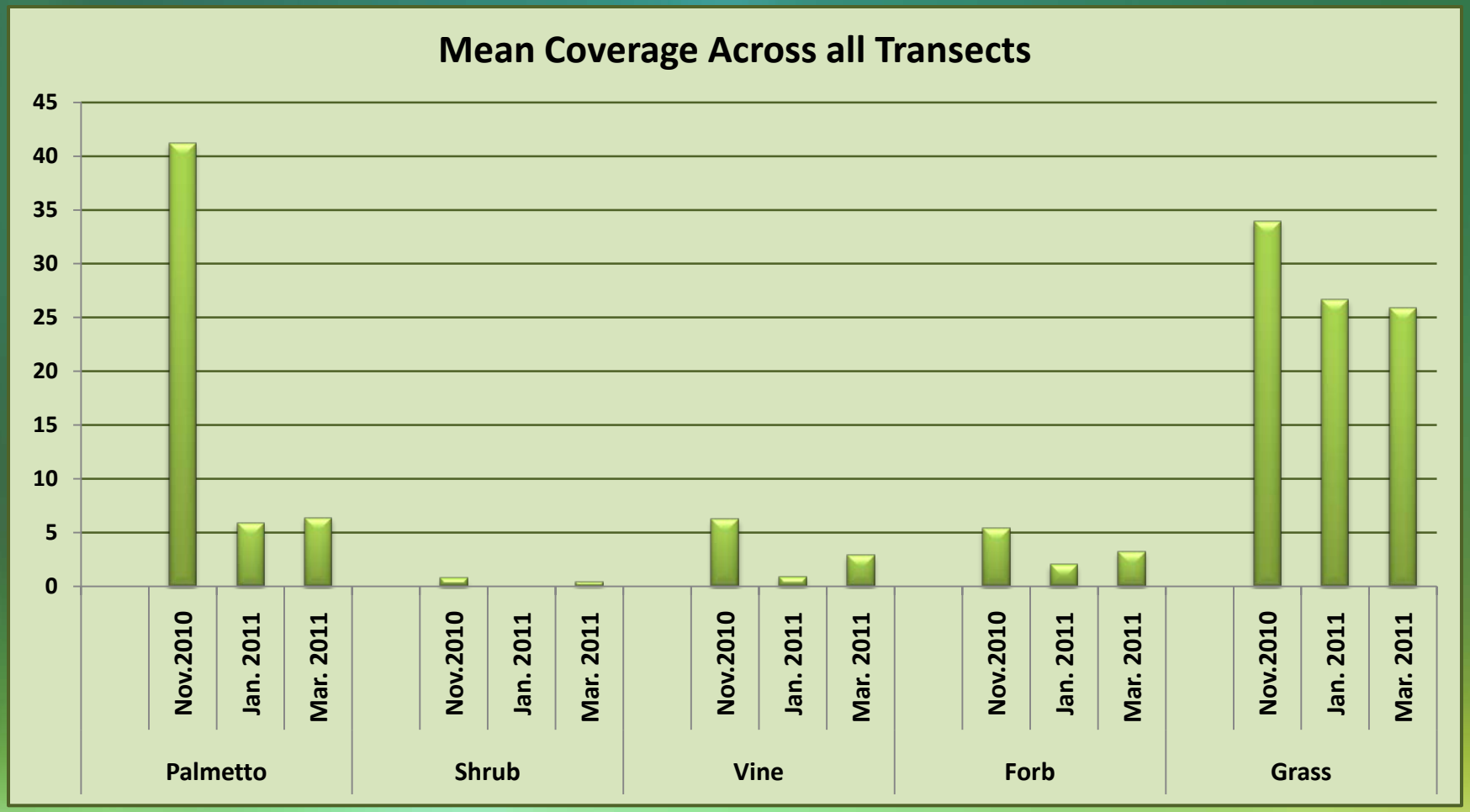
Overall Coverage Data



Closing Statements: A Lasting Legacy

- **“We are indebted to our progeny, and more importantly, to our planet.” (Ariana Martinez)**
  - **Leaving a “legacy” refers to reviving and maintaining the Earth’s natural habitats and ensuring the abundance of sustainable natural resources and ecosystems.**

Closing Statements: A Lasting Legacy

- **Through the DuPuis project we have created a cycle of preservation and education. Our efforts have helped revive one of Florida's most important natural habitats and have informed a new generation of learners of its importance.**

Closing Statements (Continued)

- **“The legacy that the DuPuis project leaves behind will be beautiful because of its simplicity, because of its genuine return to nature, because of the minds it will enrich, and because of the creatures it wills serve.”**

Closing Statements (Continued)

- This is projected to be a continuing project, one that many of us speaking with you today will be involved in again in the coming year.
- We would like to extend our thanks to the researchers, educators, guides, and organizations that have made this DuPuis legacy a reality.