EVALUATION OF CURRICULUM-BASED EDUCATION PROGRAMS AT EVERGLADES NATIONAL PARK

Project Report

for

Everglades National Park

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CONTENTS

EXECUTIVE SUMMARY

Currently Everglades National Park (EVER) provides a range of curriculum-based educational opportunities that serve thousands of students in the South Florida region. These EVER programs provide students with opportunities to experience Everglades National Park firsthand and their curriculum are linked to state and national standards. These programs are thought to be of high quality, but to date no formal evaluation has been conducted to assess the performance of these programs.

Project Objectives

This study investigated the immediate impacts of the EVER day (Shark Valley and Royal Palm) and residential/camping (Loop Road and Hidden Lake) programs. Specifically this study surveyed over 900 4th, 5th, and 6th grade students from 33 Schools before and after attending programs to gauge the influence of these education programs on a wide range of potential outcomes.

The EVER program outcomes reflect the goals and mission of the National Park Service and Everglades National Park as well as state and national educational standards. To develop measures that reflect these goals, Everglades staff and a professional evaluation team collaboratively developed indexes, or a series of related questions that pertain to a particular goal or concept, that were used to measure the influence of the programs on students. The student outcomes of interest were multi-item indexes (the responses to items within each scale were averaged to get a composite index score) and include:

- Objective Learning: *Knowledge of EVER and its natural and cultural resources (15 items)*
- Subjective Learning: *Student's self-reported knowledge gain regarding EVER and its natural and cultural resources (9items)*
- Interest in Learning: *Interest in learning about EVER and its natural resources (6 items)*
- Comfort with Experiencing Nature: *Willingness to experience the usual discomforts when exploring EVER (5 items)*
- Environmental Stewardship: *Environmental responsibility and community respect (8 items)*
- Park Stewardship: *Environmental responsibility and respect for the resources of EVER (5 items)*
- Appreciation for Everglades National Park: *Appreciation, attachment, and caring for the resources of EVER (6 items)*
- Stewardship Behaviors: *Intentions to perform personal behaviors that conserve natural resources at home (9 items)*

To corroborate the student results, this evaluation also examined teacher's perceptions regarding the impact of the EVER program on their students. In addition, the study investigated the influence of teacher training and teacher participation in the program on teacher's preparation and attitudes. The teacher outcomes of interest included questions related to:

- Meeting State and National curriculum standards: *Rating of whether the EVER program helped students meet relevant Florida NGSSS (Next Generation Sunshine State Standards) benchmarks and National STEM (Science, Technology, Engineering, and Mathematics) education standards for disciplinary knowledge and abilities.*
- General Academic Influence: *Perceptions of the general impacts on students and ability of the EVER program to deliver appropriate curriculum.*

- Impact on students: *Impact of the EVER programs on students' appreciation, stewardship, knowledge, understanding, and interest in a range of topics relevant to learning about the natural environment and the Everglades.*
- Teaching behaviors and intentions: *Teachers' pre trip behaviors and post trip intentions to incorporate environmental themes, outdoor activities, and inquiry-based, hands-on activities into their teaching.*
- Teacher confidence in environmental education teaching skills: *Whether confidence in teaching environmental education in outdoor settings, such as the Everglades, improved as a result of participation in the EVER teacher training program and school visit.*
- Appreciation for Everglades National Park: *Teachers' appreciation, attachment, and caring for the resources of EVER (same measurement index as for students)*

Student Outcomes

Everglades National Park's day and camping programs serve a very diverse student audience (51% Hispanic, 20% Black, 13% two or more races, 11% White, 1% American Indian or Alaskan Native, 1% Asian, 3% Other). Many of the students (43.8%) in the study were visiting EVER for the first time. Immediately after attending Everglades National Park's day and camping programs, students had statistically significant gains in ALL program outcomes.

- Students indicated their knowledge of facts and concepts related to the natural resources of Everglades National Park had increased.
- Students had significantly higher test scores pertaining to facts and concepts related to the natural resources of Everglades National Park.
- Students had enhanced interest in learning about Everglades National Park and its resources.
- Students reported having a much higher comfort level with being outdoors and exploring parks like Everglades National Park.
- Students reported having significantly more positive Environmental Stewardship attitudes.
- Students reported having significantly more positive Park Stewardship attitudes.
- Students intended to perform more actions that would support the sustainability of South Florida and Everglades National Park.
- Students had an enhanced appreciation, care, and attachment to Everglades National Park and its natural and cultural resources.

Teacher's Perceptions of Student Outcomes

Ten days after attending the EVER programs, teachers reported very positive student outcomes:

- Over 90% of teachers rated the influence of the Everglades program on student academic performance as very high.
- Teachers strongly believed that the EVER program is valuable for helping their students meet the selected Florida NGSSS benchmarks (science and social studies).
- Almost all teachers indicated that the EVER program helped students meet the selected National STEM Framework standards (for scientific practices and crosscutting concepts) and the selected STEM Disciplinary Core benchmarks (for Life Science and Earth and Space Science).
- Teachers indicated that the EVER program increased their students environmental stewardship and appreciations of EVER and the natural environment.

Teacher Outcomes

As a result of attending the teacher training workshop and the EVER curriculum-based program, teachers also reported feeling very prepared and more confident in teaching environmental education, and intending to perform positive stewardship actions.

- All teachers felt they were very prepared for their trip with students to EVER.
- Almost all teachers indicated their confidence in teaching environmental education, particularly in EVER, improved a moderate amount or a great deal.
- Most teachers (80%) used pre-trip materials, and a majority of teachers (60%) used post trip materials.
- Although many teachers engaged in environmental education competencies prior to the EVER trip, almost all intend to engage in these behaviors more frequently as a result of participating in the EVER program.
- Teachers had a strong level of attachment and appreciation for EVER.

Program Comparison

- Students involved in Day programs had a significantly greater amount of change in their Total Test score (26%) than Camp program participants (14%).
- Students participating in the Camp programs had a significantly greater amount of change (from pre-visit to post-visit) in their Interest in Learning and Attachment to EVER than Day program participants.

INTRODUCTION

The Everglades National Park (EVER) has been providing curriculum-based environmental education in South Florida since 1971. Currently the EVER program provides a range of curriculum-based educational opportunities that serve thousands of students in the South Florida region. These EVER programs and their curriculum are linked to state and national standards and focus on promoting appreciation and environmental stewardship in association with EVER. These programs also focus on developing teachers' capacity. Before a teacher can bring a group of students to the Park they must complete a teacher workshop. This training introduces teachers to different teaching techniques and content related to their upcoming student program and is designed to build teachers' confidence and capacity to guide their group through exercises during the visit to the Park. The park also provides pre-visit and post-visit materials to augment the EVER site visit.

While these EVER programs are thought to be of high quality, to date no formal evaluation has been conducted to assess the performance of these programs. Therefore, this study investigated the immediate impacts of the EVER Day (Shark Valley and Royal Palm) and Camp (Loop Road and Hidden Lake) programs. Specifically this study sought to gauge the influence of these education programs on a wide range of student and teacher outcomes. The student outcomes of interest included:

- Objective Learning: *Knowledge of EVER and its natural and cultural resources. (15 items)*
- Subjective Learning: *Student's self-reported knowledge gain regarding EVER and its natural and cultural resources. (9 items)*
- Interest in Learning: *Interest in learning about EVER and its natural resources. (6 items)*
- Comfort Experiencing Nature: *Willingness to experience the usual discomforts when exploring EVER. (5 items)*
- Environmental Stewardship: *Environmental responsibility and community respect (8 items)*
- Park Stewardship: *Environmental responsibility and respect for the resources of EVER (5 items)*
- Appreciation for Everglades National Park: *Appreciation, attachment, and caring for the resources of EVER (6 items)*
- Home Stewardship Behaviors: *Personal behaviors that conserve natural resources at home (9 items)*

The teacher outcomes of interest included:

- Meeting State and National curriculum standards: *Rating of whether the EVER program helped students meet relevant Florida NGSSS (Next Generation Sunshine State Standards) benchmarks and National STEM (Science, Technology, Engineering, and Mathematics) education standards for disciplinary knowledge and abilities.*
- General Academic Influence: *Perceptions of the general impacts on students and ability of the EVER program to deliver appropriate curriculum.*
- Impact on students: *Impact of the EVER programs on students' appreciation, stewardship, knowledge, understanding, and interest in a range of topics relevant to learning about the natural environment and the Everglades.*
- Teaching behaviors and intentions: *Teachers' pre trip behaviors and post trip intentions to incorporate environmental themes, outdoor activities, and inquiry-based, hands-on activities into their teaching.*

- Teacher confidence in environmental education teaching skills: *Whether confidence in teaching environmental education in outdoor settings, such as the Everglades, improved as a result of participation in the EVER teacher training program and school visit.*
- Appreciation for Everglades National Park: *Teachers' appreciation, attachment, and caring for the resources of EVER (same measurement scale as for students)*

Methods Summary

The evaluation was developed through a participatory process following steps laid out in the Sustainable Evaluation Framework (Powell, Stern, & Ardoin, 2006). As an initial step, a focus group was held on September 22, 2011, with the intent of having park staff clearly define the goals of the educational programs. Data collection occurred during Spring, 2012 (February and March). School groups (n=50) were systematically selected to develop a representative sample at each program site (Royal Palm Day program, Shark Valley Day program, Loop Road Camp program, and Hidden Lake Camp program). Teachers of selected school groups were contacted and asked to participate in the study. Teachers were asked to administer a pre-visit survey to students 3-5 days prior to the beginning of the program and then a post-visit survey 1-2 days after attending the program. Each survey took approximately 10-15 minutes to complete. All participating teachers were also asked to complete a short online post-visit survey 10 days after they returned from the EVER educational program.

Survey Response

Fifty school groups were asked to participate in the study during February and March, 2012. Thirty-three school groups (66%) successfully returned both pre-visit and post-visit surveys. 929 students completed both pre-visit and post-visit surveys. Forty-seven teachers completed an online survey 10 days after attending an EVER program (Table 1).

Table 1. School and Student Participation

Program	Participating School Groups*	# of Participating Students**	# of Participating Teachers
Royal Palm DAY	10	355	17
Shark Valley DAY	10	377	14
Loop Road CAMP	6	89	9
Hidden Lake CAMP	7	108	7
TOTAL	33	929	47

*Schools that participated by returning both pre and post student surveys.
**Students that completed pre and post surveys.

Student Results

Demographics & Prior Visits

Approximately 52% of responding students were female (Table 2). Over half (51.4%) of the respondents indicated they were Hispanic. The Day programs had a higher portion (56%) of Hispanic students than the Camp programs (34.4%). The next most common ethnicity/race was Black, not of Hispanic descent (19.6%). The Day programs had a slightly higher portion (20.1%) of Black students than the Camp programs (17.7%). Overall, the majority of responding students were 4th (41%) or 5th (50.1%) graders, but there were some 6th graders (8.9%). The average age for Day program respondents was 9.75 years and for Camp program respondents was 11.05 years.

Table 2. Demographics by Day vs. Camp and for entire sample

Demographic	Day		Camp		Total	
	N	%	N	%	N	%
Gender						
Female	353	50.8	107	56.0	460	51.9
Male	342	49.2	84	44.0	426	48.1
Racial/Ethnic Background						
White, not of Hispanic descent	43	6.1	55	28.6	98	10.9
Black, not of Hispanic descent	142	20.1	34	17.7	176	19.6
Hispanic	396	56.0	66	34.4	462	51.4
Asian	3	0.4	1	0.5	4	0.4
Mixed (two or more races)	94	13.3	28	14.6	122	13.6
American Indian or Alaskan Native	4	0.6	3	1.6	7	0.8
Other	25	3.5	5	2.6	30	3.3
Grade						
4	368	52.0	0	0.0	368	41.0
5	340	48.0	110	57.9	450	50.1
6	0		80	42.1	80	8.9
Average Age	9.75			11.05		10.02

Student visitation

Overall, 43.8% of student respondents had never visited EVER, prior to this study. The Camp programs had a significantly higher portion of respondents (52.4%) than the Day programs (41.5%) that had never previously visited EVER.

Also, 60.6% of students had never visited EVER with their school (Table 3). The Camp programs (69.9%) had more respondents than Day programs (58.1%) for whom this trip to EVER was their first visit with school. Also, over 60% of students in Day and Camp programs had never visited with family, friends or others.

Table 3. Prior visit information for students responding to EVER survey

	Day		Camp		Total	
Demographic	**N**	**%**	**N**	**%**	**N**	**%**
How many times have you visited EVER with your school (entire life)?						
0	413	58.1	135	69.9	548	60.6
1	210	29.5	38	19.7	248	27.4
2 to 5	85	12.0	19	9.8	104	11.5
More than 5	3	0.4	1	0.5	4	0.4
TOTAL	711		193		904	
Mean (SD)	0.67 (1.18)		0.53 (1.07)		0.64 (1.16)	
How many times have you visited EVER with your family, friends or other groups (entire life)?						
0	434	60.8	117	60.0	551	60.6
1	138	19.3	37	19.0	175	19.3
2 to 5	109	15.3	32	16.4	141	15.5
More than 5	33	4.6	9	4.6	42	4.6
TOTAL	714		195		909	
Mean (SD)	1.14 (2.67)		1.21 (3.09)		1.15 (2.76)	

Immediate impacts of programs on student outcomes

This study sought to gauge the immediate influence of EVER curriculum-based programs on the following students' outcomes, each comprised of a set of multiple survey questions: objective learning, subjective learning, interest in learning, comfort experiencing nature, environmental stewardship, park stewardship, appreciation for EVER, and intentions to perform home stewardship behaviors.

We measured changes in the composite mean scores of each outcome (also known as an index) by averaging the responses to items within an index before and after the programs. Each item within an index was measured on a 5 point scale, where 5 was the most positive response (see Appendix A for more information). A summary of the results (Tables 4 and 5) follows:

Objective Learning: The day and camping programs had a significantly positive influence on learning. Students participating in the camping programs had a 14% increase in scores and students participating in the day programs had a 26% increase.

Subjective Learning: Across 9 learning outcomes 83% of students reported learning a moderate amount or great deal. Learning outcomes included knowledge of Everglades National Park; Plants, animals and how they interact; Issues and threats to EVER; the importance of biological diversity; and the mission of the NPS.

Interest in Learning: The day and camping programs had a significantly positive influence on interest in learning about EVER and its natural resources. Students participating in the camping programs had a 5% increase in scores and students participating in the day programs had a 1.7% increase.

Comfort Experiencing Nature: Overall, the day and camping programs had a significantly positive influence on students' comfort level experiencing nature and EVER. Students participating in the camping programs had a 4.4% increase in scores and students participating in the day programs had a 3% increase. Students participating in the Royal Palm day program and Hidden Lake camping program did not have a significant increase in their comfort experiencing nature.

Environmental Stewardship: The day and camping programs had a significantly positive influence on students' attitudes toward environmental stewardship. Students participating in the camping programs had a 4.2% increase in scores and students participating in the day programs had a 3.5% increase.

Park Stewardship: The day and camping programs had a significantly positive influence on students' attitudes toward park stewardship behaviors that protect EVER resources. Students participating in the camping programs had a 9% increase in scores and students participating in the day programs had an 11% increase.

Appreciation for Everglades National Park: The day and camping programs had a significantly positive influence on students' appreciation for EVER resources. Students participating in the camping programs had a 5% increase in scores and students participating in the day programs had about a 3% increase.

Home Stewardship Behaviors: On average, the day and camping programs had a significantly positive influence on students' intentions to perform home stewardship behaviors that protect the environment, conserve resources, or mitigate impacts on the natural environment. Students participating in the camping programs had approximately a 4% increase in scores and students participating in the day programs had about a 3% increase. However, students participating in the Royal Palm day program and the Hidden Lake camping program did not have a significant increase in their intentions to perform home stewardship behaviors.

Table 4. Composite Mean (Standard Deviation) score student outcomes for pre-visit and post-visit[1]

OUTCOME	SURVEY	MEAN (SD)						Conclusion
		DAY	CAMP	Royal Palm	Shark Valley	Loop Road	Hidden Lake	
Objective Learning (# correct out of 15 items)	pre	7.93 (2.50)	8.98 (2.59)	7.84 (2.43)	8.00 (2.56)	9.46 (2.62)	8.60 (2.51)	All subgroups had significant change
	post	9.99 (2.78)	10.24 (2.67)	9.85 (2.90)	10.11 (2.67)	11.12 (2.58)	9.54 (2.54)	
Subjective Learning (9 items)	pre	N/A	N/A	N/A	N/A	N/A	N/A	
	post	4.35 (0.68)	4.45 (0.60)	4.30 (0.73)	4.40 (0.63)	4.49 (0.62)	4.42 (0.58)	
Interest in Learning (6 items)	pre	4.17 (0.66)	3.95 (0.75)	4.18 (0.67)	4.16 (0.65)	3.83 (0.84)	4.04 (0.66)	All subgroups had significant change
	post	4.24 (0.71)	4.15 (0.72)	4.25 (0.69)	4.22 (0.72)	4.12 (0.75)	4.17 (0.68)	
Comfort Experiencing Nature (5 items)	pre	3.53 (1.06)	4.13 (0.85)	3.60 (1.07)	3.47 (1.05)	4.27 (0.87)	4.01 (0.81)	RP and HL subgroups did not have a significant change
	post	3.63 (1.10)	4.31 (0.79)	3.64 (1.13)	3.63 (1.07)	4.57 (0.57)	4.10 (0.89)	
Environmental Stewardship (8 items)	pre	4.26 (0.53)	4.25 (0.45)	4.25 (0.54)	4.28 (0.52)	4.30 (0.47)	4.21 (0.43)	All subgroups had significant change
	post	4.41 (0.53)	4.43 (0.53)	4.41 (0.53)	4.41 (0.53)	4.50 (0.54)	4.38 (0.53)	
Park Stewardship (6 items)	pre	3.97 (0.73)	4.08 (0.69)	4.01 (0.70)	3.94 (0.76)	4.17 (0.60)	4.02 (0.76)	All subgroups had significant change
	post	4.41 (0.64)	4.44 (0.59)	4.47 (0.55)	4.34 (0.71)	4.53 (0.57)	4.37 (0.60)	
Appreciation for EVER (6 items)	pre	4.52 (0.48)	4.44 (0.51)	4.55 (0.46)	4.48 (0.49)	4.43 (0.54)	4.47 (0.48)	All subgroups had significant change
	post	4.65 (0.47)	4.66 (0.43)	4.63 (0.46)	4.66 (0.48)	4.66 (0.47)	4.67 (0.39)	
Home Stewardship Behaviors (9 items)	pre	3.90 (0.80)	3.93 (0.70)	3.98 (0.82)	3.84 (0.78)	4.04 (0.60)	3.84 (0.76)	RP and HL subgroups did not have a significant change
	post	4.01 (0.85)	4.08 (0.69)	4.01 (0.88)	4.00 (0.82)	4.26 (0.65)	3.93 (0.69)	

[1] *Shaded cells indicate a positive and statistically significant difference ($p \leq .05$) between pre-visit and post-visit composite scores (paired T-test within program) on the outcome for the specific program.*

Table 5. Student Outcomes: Percent change[1] and positive significance[2]

OUTCOME	% Change in mean					
	DAY	CAMP	Royal Palm	Shark Valley	Loop Road	Hidden Lake
Objective Learning (15 items)	26%	14%	25.6%	26.4%	17.6%	10.9%
Subjective Learning (9 items)	N/A	N/A	N/A	N/A	N/A	N/A
Interest in Learning (6 items)	1.7%	5.1%	1.7%	1.4%	7.6%	3.2%
Comfort with Experiencing Nature (5 items)	2.8%	4.4%	1.1%	4.6%	7.0%	2.2%
Environmental Stewardship (8 items)	3.5%	4.2%	3.8%	3.0%	4.7%	4.0%
Park Stewardship (6 items)	11.1%	8.8%	11.5%	10.2%	8.6%	8.7%
Appreciation for EVER (6 items)	2.9%	5%	1.8%	4.0%	5.2%	4.5%
Home Stewardship Behaviors (9 items)	2.9%	3.8%	0.8%	4.2%	5.5%	2.3%

[1]% Change = (post-visit mean minus pre-visit mean)/pre-visit mean x 100; [2]Shaded cells indicate a positive and statistically significant difference (p≤.05) between pre-visit and post-visit composite scores (paired T-test within program) on the outcome for the specific program.

Program Comparisons

For adaptive management purposes, we compared outcomes between Day and Camp programs and across each individual program.

Camp vs. Day Programs (Tables 6.1and 6.2)

- Students involved in Day programs had a significantly greater amount of change in their Total Test score (26%) than Camp program participants (14%) (Tables 6.1 and 6.2).
- Students participating in the Camp programs had a significantly greater amount of change (from pre-visit to post-visit) in their Interest in Learning and Attachment to EVER than Day program participants (Table 6.2).

Table 6.1. T-Test for Total Test score within program (0= no correct answers, 15 =all correct)

ITEM		MEAN (SD)	t	df	SIG	% CHANGE[1]
DAY	pre	7.93 (2.50)	-17.613	585	.000	25.98
	post	9.99 (2.78)				
CAMP	pre	8.98 (2.59)	-6.841	147	.000	14.03
	post	10.24 (2.67)				
ALL	pre	8.14 (2.55)	-18.773	733	.000	23.34
	post	10.04 (2.76)				

[1]% Change = (post-visit mean minus pre-visit mean)/pre-visit mean x 100

Table 6.2. Comparison of Day and Camp programs on change (post-visit minus pre-visit) in attitudes and total score on objective test

Outcome	ΔMean[1] (SD)		T-test			Conclusion
	Day	Camp	t	df	SIG	
Objective Learning (15 items)	2.06 (2.83)	1.26 (2.23)	3.694	732	.000	Day>Camp
Subjective Learning (post-visit mean, not change)(9 items)	4.35 (0.68)	4.45 (0.60)	-1.871	859	.062	
Interest in Learning (6 items)	0.07 (0.56)	0.20 (0.62)	-2.780	852	.006	Camp > Day
Comfort with Experiencing Nature (5 items)	0.10 (0.76)	0.18 (0.69)	-1.296	865	.195	
Environmental Stewardship (8 items)	0.14 (0.51)	0.18 (0.45)	-.910	795	.363	
Park Stewardship (5 items)	0.43 (0.71)	0.35 (0.64)	1.314	827	.189	
Appreciation for EVER (6 items)	0.13 (0.46)	0.22 (0.42)	-2.200	818	.028	Camp > Day
Home Stewardship (9 items)	0.10 (0.62)	0.15 (0.64)	.968	807	.333	

[1] *Change in composite mean (post – pre)*

Individual Program Comparison (Table 7)

- The Royal Palm Day, Shark Valley Day, Loop Road Camp, and Hidden Lake Camp programs had a similar impact on students' Environmental Stewardship and Park Stewardship Behaviors.
- The Royal Palm program had a significantly lower impact than the other programs (primarily Loop Road and Shark Valley) for all other attitudinal measures.
- Royal Palm and Shark Valley had significantly higher impact than Hidden Lake on Objective Learning
- Loop Road participants also had significantly higher change in students' Interest in Learning, Subjective Knowledge Gain, Comfort with Experiencing Nature, and Appreciation for EVER than Royal Palm Day Programs.

Table 7. Comparison of programs on change in composite mean.[1]

Outcome	ΔMean (SD)				ANOVA			Conclusion (Post Hoc test)
	Royal Palm (RP)	Shark Valley (SV)	Loop Road (LR)	Hidden Lake (HV)	F	df	SIG	
Objective Learning (# correct out of 15)	2.01 (3.06)	2.11 (2.62)	1.66 (1.80)	0.94 (2.49)	4.365	730	.005	RP>HL** SV>HL***
Subjective Learning (post-visit mean, not change)(9 items)	4.30 (0.73)	4.40 (0.63)	4.49 (0.62)	4.42 (0.58)	2.588	857	.052	LR>RP*
Interest in Learning (6 items)	0.07 (0.57)	0.06 (0.55)	0.29 (0.61)	0.13 (0.63)	3.632	850	.013	LR>RP, SV**
Comfort with Experiencing Nature (5 items)	0.04 (0.76)	0.16 (0.76)	0.29 (0.74)	0.09 (0.64)	3.234	863	.022	LR>RP** SV>RP*

Outcome	ΔMean (SD)				ANOVA			Conclusion (Post Hoc test)
	Royal Palm (RP)	Shark Valley (SV)	Loop Road (LR)	Hidden Lake (HV)	F	df	SIG	
Environmental Stewardship (8 items)	0.17 (0.50)	0.12 (0.51)	0.19 (0.42)	0.17 (0.48)	.745	793	.525	
Park Stewardship (5 items)	0.46 (0.70)	0.40 (0.72)	0.35 (0.62)	0.35 (0.66)	1.123	825	.339	
Appreciation for EVER (6 items)	0.078 (0.44)	0.178 (0.47)	0.230 (0.42)	0.204 (0.43)	4.308	816	.005	HL>RP* LR, SV>RP**
Home Stewardship (9 items)	0.036 (0.61)	0.159 (0.62)	0.221 (0.63)	0.092 (0.65)	3.032	805	.029	LR, SV>RP*

[1]*Change = post-visit mean minus pre-visit mean; *p<.05, **p<.01, ***p<.001*

Teacher Results

Characteristics

The majority of responding teachers were female (91%). Also, the majority of the responding teachers were White, not of Hispanic descent (53%) or Hispanic (28%). The rest of respondents were either Black, not of Hispanic descent (14%) or Other (5%). Seventy percent of responding teachers had ten or more years of teaching experience. A majority of responding teachers (75%) had some responsibility for teaching science, and a majority of respondents taught several or all subjects (79.5%) (Table 8). Responding teachers visited the Everglades an average of 6.61 times with their school and 10.32 times with their family, friends or other groups. Responding teachers have also been taking students to the Everglades for an average of 6.95 years.

Table 8. Subjects taught by respondents

Subjects taught	% (N=44)
Language Arts/Social Studies	25.0
Science	20.5
All subjects	20.5
Math/science/social studies	18.2
Math/Science	13.6
Reading/Science	2.2

Teachers' perceptions of student outcomes

Perception of program impacts on students

Teachers rated the academic influence of the Everglades program on their students very highly. The majority of teachers (96-100%) agreed or strongly agreed with all of the academic influence items (Table 9). The highest rated items were "My students had fun" (4.91) and "Taking my students to Everglades National Park was worth the effort" (4.89).

Table 9. Response of all teachers (N=45) to General Academic Influence items.

Item	Mean (SD)	% Agreement				
		Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
This program helped my class meet state curriculum standards.	4.80 (0.41)	0	0	0	20	80
My students became motivated to perform better academically.	4.56 (0.59)	0	0	4	36	60
My students learned a lot about important topics.	4.84 (0.37)	0	0	0	16	84
My students had fun.	4.91 (0.29)	0	0	0	9	91
The program content was relevant to my students' lives.	4.78 (0.42)	0	0	0	22	78
Taking my students to Everglades National Park was worth the effort.	4.89 (0.39)	0	0	2	7	91
This Everglades National Park experience is valuable for the students I teach.	4.87 (0.41)	0	0	2	9	89
The program was age-appropriate for my students.	4.87 (0.41)	0	0	2	9	89

**Scale: 1=Strongly disagree, 2=Disagree, 3=Neutral, 4=Agree, 5=Strongly agree*

Also, teachers indicated that EVER programs positively impacted their students across a range of outcomes including: academic performance, appreciation for the natural environment, environmental stewardship, understanding ecological processes, understanding the importance of biological diversity, and scientific inquiry skills (Table 10). Across all items, the majority of teachers (84 to 100%) indicated that the Everglades program impacted their students a moderate amount or a great deal. The highest rated impacts were "Appreciation for the natural environment" (4.89), "Understanding of ecological processes in the Everglades" (4.76); and "Understanding issues and threats facing Everglades National Park" (4.76).

Table 10. ALL Teachers' (N=45) rating of the impact of EVER program on their students

Impact on Students	Mean (SD)	%				
		Not at All	A Little	Some	A Moderate Amount	A Great Deal
Academic performance.	4.31 (0.73)	0	2	8	45	45
Positive attitudes toward school.	4.44 (0.69)	0	2	5	40	53
Appreciation for the natural environment.	4.89 (0.32)	0	0	0	11	89
Interest in Environmental stewardship.	4.67 (0.71)	0	2	7	13	78
Interest in taking actions to conserve or improve the environment.	4.73 (0.58)	0	0	7	13	80
Understanding of ecological processes in the Everglades.	4.76 (0.48)	0	0	2	20	78
Understanding of the mission of the National Park Service.	4.56 (0.55)	0	0	2	40	58
Understanding the importance of biological diversity.	4.44 (0.79)	0	2	11	27	60
Understanding issues and threats facing Everglades National Park.	4.76 (0.53)	0	0	4	16	80
Scientific inquiry skills.	4.24 (0.77)	0	2	14	42	42
Interest in learning outdoors/playing outdoors.	4.60 (0.58)	0	0	4	31	65
Interest in learning more about the environment.	4.73 (0.45)	0	0	0	27	73
Appreciation for science.	4.65 (0.57)	0	0	5	25	70

Satisfaction

Teachers were asked to rate their overall satisfaction with the Everglades program on a scale of 0 (Not at all satisfied) to 10 (Very Satisfied). The mean satisfaction rating was 9.8 and 87% of teachers indicated "Very Satisfied". Teachers also provided positive comments about the program (See Appendix C).

Meeting NGSSS standards

The survey provided a means to assess if the EVER programs helped students reach Florida NGSSS benchmarks in science and social studies. Teachers indicated that the Everglades program helped their students meet almost all of the NGSSS science and social studies benchmarks listed in the survey (Table 11). Between 68 and 98% of teachers indicated that the EVER program helped their

students meet the NGSSS benchmarks a moderate amount or a great deal. The benchmarks with the highest mean ratings were "How human actions can impact the environment" (4.85), "Interdependence" (4.72), and "The relationships between the Earth's ecosystems and the populations that dwell within them" (4.68). The lowest rated benchmark was "The World in Spatial Terms" (3.85).

Table 11. Teachers' (N=46) rating of how the EVER program helped their students meet NGSSS benchmarks

		%				
NGSSS Benchmark	**Mean**	**Not at All**	**A Little**	**Some**	**A Moderate Amount**	**A Great Deal**
Interdependence (Science)	4.72	0	0	2	24	74
Diversity and Evolution of Living Organisms (Science)	4.64	0	0	2	32	66
Organization and Development of Living Organisms (Science)	4.55	0	0	0	45	55
Earth Systems and Patterns (Science)	4.04	2	4	13	49	32
Earth Structures (Science)	4.11	0	4	15	47	34
Practice of science (Science)	4.23	2	4	6	43	45
Civic and political participation (Social Studies)	4.17	6	2	9	34	49
Contemporary Florida into the 21st Century (Social Studies)	4.04	6	0	15	41	38
The World in Spatial Terms (Social Studies)	3.85	4	6	22	36	32
Environment and Society (Social Studies)	4.61	0	2	2	28	68
Physical and cultural characteristics of places. (Social Studies)	4.37	0	2	11	35	52
The relationships between the Earth's ecosystems and the populations that dwell within them. (Social Studies)	4.68	0	0	0	32	68
How human actions can impact the environment. (Social Studies)	4.85	0	0	0	15	85

Meeting National STEM standards

Currently NPS curriculum-based education programs desire to help students meet National STEM Framework benchmarks pertaining to general scientific skills and abilities as well as STEM Disciplinary Core benchmarks. The majority of teachers (80 to 96%) indicated that the Everglades

program helped students meet the selected STEM Framework benchmarks (scientific practices and crosscutting concepts) a moderate amount or a great deal (Table 12). The most highly rated benchmark was "Identify cause and effect" (4.63), and the lowest rated benchmark was "Understand scale, proportion, and quantity" (4.15).

Table 12. Teachers' (N=46) rating of how the EVER program helped their students meet STEM Framework standards for abilities

		%				
STEM Framework	**Mean**	**Not at All**	**A Little**	**Some**	**A Moderate Amount**	**A Great Deal**
Ask scientific questions.	4.30	2	0	13	26	58
Define scientific problems.	4.33	2	0	11	37	50
Engage in argument from scientific evidence.	4.30	2	0	20	22	56
Recognize patterns.	4.30	2	0	20	24	54
Identify cause and effect.	4.63	0	0	4	28	68
Understand scale, proportion, and quantity.	4.15	0	5	15	41	39

STEM Disciplinary Core benchmarks reflect knowledge about specific concepts. The Life Science and Earth and Space Sciences benchmarks included in the survey were selected based on their relevance to EVER's curriculum. The majority of teachers (81 to 98%) rated the EVER program as helping their students meet these STEM Disciplinary Core benchmarks a moderate amount or a great deal (Table 13). All benchmarks were rated well above the midpoint. The benchmarks that were rated the highest include: "What happens to ecosystems when the environment changes" (4.76), "How humans depend on Earth's resources" (4.69), and "How humans change the planet" (4.69). The lowest rated benchmark was "How organisms detect, process, and use information about the environment" (4.28).

Table 13. Teachers' (N=46) rating of how the EVER program helped their students meet STEM Disciplinary Core Ideas

		%				
STEM Disciplinary Core	**Mean**	**Not at All**	**A Little**	**Some**	**A Moderate Amount**	**A Great Deal**
How the structures of organisms enable life's functions.	4.48	0	2	11	24	63
How organisms grow and develop.	4.40	0	0	11	38	51
How organisms obtain and use the matter and energy they need to live and grow.	4.50	0	0	11	28	61
How organisms detect, process, and use information about the environment.	4.28	0	2	17	31	50

STEM Disciplinary Core	Mean	%				
		Not at All	A Little	Some	A Moderate Amount	A Great Deal
How organisms interact with the living and nonliving environment to obtain matter and energy.	4.61	0	0	9	23	68
How matter and energy move through an ecosystem.	4.35	0	2	13	33	52
What happens to ecosystems when the environment changes.	4.76	0	0	2	20	78
How organisms interact in groups so as to benefit individuals.	4.46	0	0	9	37	54
Why individuals of the same species vary in how they look, function, and behave.	4.33	0	4	9	37	50
How the environment influences populations of organisms over multiple generations.	4.39	0	4	13	22	61
What biodiversity is, how humans affect it, and how it affects humans.	4.35	0	4	11	31	54
How the properties and movements of water shape Earth's surface and affect its systems.	4.46	0	0	9	37	54
How humans depend on Earth's resources.	4.69	0	0	5	22	73
How natural hazards affect individuals and societies.	4.46	0	2	9	30	59
How humans change the planet.	4.69	0	0	7	18	75

Teacher Training and Preparation

This study investigated the influence of teacher training, specifically a pre-trip teacher workshop, and teacher participation in the EVER curriculum-based program. This section reviews teacher perceptions of the training as well as self-assessment of their preparation.

Participation in training

Teachers (N=44) participated in EVER teacher training an average of 1.75 times. The majority (66%) have participated in only one training, 20% participated in 2 to 3 trainings, and 4% participated in 8 to 10 trainings.

Level of preparation

Teachers were asked to indicate how well the Everglades teacher training workshop prepared them for their trip with their students (0 = not prepared to 10 = highly prepared). Respondents rated their level of preparation as high. The mean for level of preparation was 9.52, and 68% of respondents indicated they were highly prepared (10). No one gave a rating below 7.

Self-assessment of improved confidence in teaching EE

Teachers were asked to rate how much their confidence changed in certain environmental education competencies as a result of participation in the most recent Everglades National Park training and trip with their school. The majority of respondents (80 to 95%) indicated their confidence improved a moderate amount or a great deal for all the competencies listed (Table 14). The two competencies with highest improvement were "Ability to incorporate Everglades/National Park Service resources into the classroom curriculum" (4.64) and "Your knowledge of Everglades National Park" (4.64). "Your preparation for teaching science" (4.22) was the competency with the lowest level of self-assessed improvement.

Table 14. Teachers' (N=46) self-assessment of improvement in their preparation due to participation in the EVER education program

			% Improvement				
Type of preparation	**Mean**	**SD**	**Not at All**	**A Little**	**Some**	**A Moderate Amount**	**A Great Deal**
Your preparation for teaching science.	4.22	0.82	0	2	18	36	44
Your preparation for teaching environmental topics in the Everglades.	4.62	0.75	0	2	9	13	76
Your ability to manage your students outside of the classroom in a park or other natural setting (coping with weather, plants and animals).	4.47	0.94	2	2	11	16	69
Ability to serve as a role model for environmental stewardship.	4.58	0.69	0	2	4	27	67
Ability to serve as a role model for appropriate behavior around wildlife.	4.60	0.69	0	2	4	25	69
Ability to incorporate Everglades/National Park Service resources into the classroom curriculum.	4.64	0.61	0	0	7	23	70
Your knowledge of Everglades National Park.	4.64	0.68	0	2	4	20	74

Use of Pre-trip and Post-trip Materials

The majority Day program teachers (77%, n=31) used pre-trip material to prepare their students for the Everglades program, and those who used pre-trip materials invested a mean of 9.5 hours in pre-trip preparation. Also, the majority of Camp program teachers 86% (n=14) used pre-trip materials, and those who used pre-trip materials invested a mean of 9.0 hours in pre-trip preparation. Teachers varied widely in the number of hours spent on pre-trip preparation. The minimum time spent by Day teachers was 3 hours, and the maximum was 40 hours. The minimum time spent by Camp teachers was 2 hours, and the maximum was 20 hours.

Fewer respondents (68%) used post-trip materials with their students and of those using post-trip materials – 68% (n=31) of Day teachers and 43% (n=14) of Camp teachers used post-trip materials. Of those who used post-trip materials, the mean number of hours spent on post-trip activities was 3.6 for Day teachers and 5.2 for Camp teachers. Again, the number of hours spent on post-trip materials varied, ranging from a minimum of 1 hour to a maximum of 15 hours for Day teachers, and from a minimum of 2hours to a maximum of 10 hours for Camp teachers.

A list of pre-trip and post-trip materials and activities used and additional comments are in Appendix D.

Pre-visit and Post-visit actions

The majority of teachers (53 to 82%) indicated that they frequently incorporated environmental and outdoor curriculum principles in their teaching prior to participating the EVER program (Table 15). The activities they engaged in with the highest frequency were "Incorporate environmental themes in my teaching" (4.26), "Incorporate inquiry-based, hands-on activities into the students' school experiences" (4.22) and "Advocate the value of the Everglades National Park education program to school administrators and parents" (4.20). The behavior with the lowest level of frequency was "Volunteer to help the environment" (3.62).

Table 15. Teacher ratings of how often they engaged in behaviors prior to participating in the Everglades program.

			% (N=45)				
Behaviors	**Mean**	**SD**	**Never**	**Rarely**	**Some-times**	**Often**	**Very Often**
Incorporate environmental themes in my teaching.	4.36	0.77	0	0	18	29	53
Use environmental themes to better meet state standards.	4.18	0.81	0	0	25	33	42
Incorporate inquiry-based, hands-on activities into the students' school experiences.	4.22	0.74	0	0	18	42	40

Behaviors	Mean	SD	% (N=45)				
			Never	Rarely	Some-times	Often	Very Often
Incorporate outdoor activities into your classes.	3.87	0.87	0	4	31	38	27
Advocate the value of the Everglades National Park education program to school administrators and parents.	4.20	0.94	2	0	22	27	49
Encourage other teachers to participate in the Everglades National Park education program.	4.16	1.07	4	4	9	36	47
Use National Park Service sites or materials for teaching.	3.89	1.15	2	13	18	27	40
Volunteer to help the environment.	3.62	1.09	7	2	38	29	24

As a result participating in the Everglades program, 82 to 91% of teachers indicated they would be more likely or much more likely to engage in all of the behaviors (Table 16). The behaviors in which they were most likely to engage were "Advocate the value of the Everglades National Park education program to school administrators and parents" (4.60), "Encourage other teachers to participate in the Everglades National Park education program"(4.59) and "Use National Park Service sites or materials for teaching" (4.59).

Table 16. Teachers' likelihood that they will engage in certain behaviors.

Behaviors	Mean	SD	%				
			Much less likely	Less likely	Same as before	More likely	Much more likely
Incorporate environmental themes in my teaching.	4.33	0.77	0	0	18	31	51
Use environmental themes to better meet state standards.	4.31	0.76	0	0	18	33	49
Incorporate inquiry-based, hands-on activities into the students' school experiences.	4.44	0.77	0	0	16	23	61
Incorporate outdoor activities into your classes.	4.36	0.84	0	2	16	25	57
Advocate the value of the Everglades National Park education program to school administrators and parents.	4.60	0.65	0	0	9	22	69

Behaviors	Mean	SD	%				
			Much less likely	Less likely	Same as before	More likely	Much more likely
Encourage other teachers to participate in the Everglades National Park education program.	4.59	0.66	0	0	9	23	68
Use National Park Service sites or materials for teaching.	4.56	0.69	0	0	11	22	67
Volunteer to help the environment.	4.36	0.77	0	2	11	36	51

Teacher's Appreciation for the Everglades

Teachers indicated a strong appreciation for the Everglades (Table 17). The majority (89 to 93 %) strongly agreed with all of the Appreciation for the Everglades items. The highest rated items were "Knowing that Everglades National Park is protected makes me feel good" (4.93) and "I care about Everglades National Park" (4.93).

Table 17. All teachers (N=47) Appreciation for the Everglades

Item	Mean (SD)	%				
		Strongly Disagree	Disagree	Neutral	Agree	Strongly Agree
The Everglades is a fun place to visit.	4.89 (0.44)	0	0	5	2	93
Knowing that Everglades National Park is protected makes me feel good.	4.93 (0.25)	0	0	0	7	93
Even if I never visited Everglades National Park again, I am happy it's there.	4.82 (0.65)	2	0	0	9	89
I want to visit Everglades National Park.	4.89 (0.44)	0	0	5	2	93
The Everglades is part of my community.	4.89 (0.38)	0	0	2	7	91
I care about Everglades National Park.	4.93 (0.25)	0	0	0	7	93
APPRECIATION Composite Mean***	4.89 (0.34)					

Management Implications and Recommendations

Introduction

Currently Everglades National Park (EVER) provides a range of curriculum-based educational opportunities that serve thousands of students and hundreds of schools in South Florida each year. EVER offers two single-day and two residential camping experiences that provide unique opportunities for students to experience the park firsthand. To investigate the immediate influence of these programs we surveyed students 3-5 days prior to participating in one of the educational programs and then again 2 days after attending the program. This study examined a range of outcomes including: objective learning, subjective learning, interest in learning, comfort experiencing nature, environmental stewardship, park stewardship, appreciation for EVER, and intentions to perform home stewardship behaviors. In addition, all attending/participating teachers were asked to complete a short survey 10 days after the educational program regarding their perceptions of student outcomes and their assessment of satisfaction with the program.

Management Implications and Recommendations

The results of the study have provided several key findings, which have management implications including:

1. The EVER programs are very high quality and produce very satisfied teachers. The results of the study also suggest that EVER programs and their curricula are meeting the expectations of teachers that attend the programs.

2. According to students and teachers, the EVER programs had a positive influence on all outcomes of interest including content-related learning outcomes pertaining to the environment, science skills, ecological processes, appreciation for biodiversity, knowledge of the NPS, and environmental stewardship, among others.

3. The results indicate that teachers strongly believe that the Everglades education programs are valuable for helping their students meet the Florida NGSSS benchmarks for science and social studies and National STEM benchmarks and Disciplinary Core benchmarks. Marketing should highlight that the EVER program helps to meet these benchmarks in science and social studies.

4. According to students and teachers, the EVER programs had a positive influence on students' Park Stewardship, Environmental Stewardship, and intentions to perform Home Stewardship behaviors. These results suggest that students are making connections between what they learned and experienced in these programs and the role that individual behaviors may have on the EVER environment and at home. These results also have implications for not only the long-term health of EVER but also for the immediate protection of park resources and supports the notion that education can be a practical and useful tool for advancing resource protection.

5. The EVER programs serve a very diverse group of students (51% Hispanic, 20% Black, 13% two or more races, 11% White, 1% American Indian or Alaskan Native, 1% Asian, 3% Other), which supports the NPS Directors "Call to Action" of making the NPS more relevant to a broader audience and in engaging new and underserved populations.

6. Continue to provide opportunities for students to directly experience the EVER (such as the Slough slog). Past research supports the idea that more immersive programs may produce more powerful student outcomes pertaining to environmental literacy (e.g., Stern, Powell, and Ardoin, 2008).

7. The programs were very successful at influencing the wide-range of student outcomes. Staff from each of the programs should meet to discuss the results of this study and share their specific program approaches so that all may benefit and learn.

8. After participating in the teacher trainings and attending the programs, teachers indicated that they were more likely or much more likely to engage in integrating environmental curriculum and activities into their teaching. This suggests that involvement with the EVER curriculum-based programs serves as an important form of professional development for teachers.

9. Teacher involvement in co-teaching the EVER programs should be continued for 2 reasons: the professional development value and because other studies have demonstrated that teacher involvement enhances student outcomes (e.g., Stern, Powell, and Ardoin, 2008).

10. Use the results of the study to justify the program to internal and external audiences. The results will also be useful as support for external grants.

Limitations

There are limitations that should be considered when interpreting the data and drawing conclusions. These include:

- The results may be influenced by a "ceiling effect" which describes the phenomenon when scores are very high on a pre-visit survey and provide little or no room to continue upward.
- The surveys may not be sensitive enough to measure the concepts under consideration.
- Self-reported behaviors and behavioral intentions may not reflect actual behaviors.
- Social desirability bias may influence the results of this study, especially as it pertains to stewardship.

References

Powell, R.B., Stern, M.J., & Ardoin, N. (2006) A sustainable evaluation framework and its application. *Applied Environmental Education and Communication, 5 (4) 231-241.*

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APPENDIX A
Student and Teacher Indexes

Table A-1. Student survey attitudinal scales[1]

Interest in Learning (α=.808): *This composite reflects interest in learning about natural resources (Stern et. al, 2008; Powell, Vezeau, & Stern, 2010). Students were asked: "How interested are you in the following things?" Response categories included: not at all interested=1, slightly interested = 2, somewhat interested=3, very interested=4 and extremely interested=5.*
Learning about plants, animals, and the places they live.
Learning how to protect the environment
Learning about threats to Everglades National Park, such as water use.
Learning more about things that live in Everglades National Park
Learning about science in school
Learning more about the environment
Comfort Experiencing Nature (α=.807): *This composite reflects willingness to experience the usual discomforts when exploring natural resources. The scale was developed based on known conditions for students participating in the Everglades program as well as research on comfort in nature (Bixler & Floyd, 1997). Students were asked: "How willing would you be to experience the following in order to see interesting things in nature?" Response categories included: Totally unwilling=1, Somewhat unwilling = 2, Neutral=3, Somewhat willing=4 and Totally willing=5.*
Getting my clothes wet
Being in the hot sun
Sleeping outside in a tent
Getting some bug bites
Walking in a swamp
Environmental Stewardship Attitudes (α=.737): *This composite reflects the goal to inspire environmental responsibility and community respect in participants (Powell, Vezeau, & Stern, 2010). Students were asked: "Do you agree or disagree with the following statements ?" Response categories included: strongly disagree=1, disagree= 2, neutral=3, agree=4 and strongly agree=5.*
My actions can impact the health of the environment.
I am careful not to harm the environment when I am playing outside
Conserving water is my responsibility
I can make my community a better place.
I have the power to help protect the environment.
I feel it is important to take good care of the environment.
It's important to protect as wide a variety of animals and plants as we possibly can.
Humans are a part of nature, not separate.

Park Stewardship Attitudes (α=.612) *This composite reflects the goal to inspire environmental responsibility and respect in participants for resources in Everglades National Park. Students were asked: "Do you agree or disagree with the following statements ?" Response categories included: strongly disagree=1, disagree= 2, neutral=3, agree=4 and strongly agree=5.*
It's ok if I take things home, such as shells or feathers, from Everglades National Park (reverse code)
It's ok if I feed wild animals in Everglades National Park (reverse code)
It's ok for me to pick a flower in Everglades National Park (reverse code)
It is my responsibility to help take care of Everglades NP
People should consider how their actions at home can impact Everglades NP.
Home Stewardship Behaviors (α=.870): *This composite reflects personal behaviors at home to conserve natural resources. Students were asked "How often do you do the following things?" Response categories included: never=1, rarely=2, sometimes=3, often=4, and very often=5.*
Clean up all my garbage when I am playing outside
Recycle aluminum cans and plastic bottles at home
Talk to my family about ways to protect the environment
Turn the lights out when I leave a room
Pick up trash left by others
Use less electricity at home
Recycle paper products at home
Turn off the water when brushing my teeth
Conserve water at home
Attachment to Everglades (α=.757): *This composite reflects the importance and emotional connection an individual places on the physical and social environment provided by Everglades National Park. The scale reflects input from Everglades staff and items adapted from Kyle, et.al (2005). Students were asked: "Do you agree or disagree with the following statements?" Response categories included: strongly agree=5, agree=4, neutral=3, disagree=2, and strongly disagree=1.*
The Everglades is a fun place to visit.
Knowing that Everglades National Park is protected makes me feel good.
Even if I never visited Everglades National Park again, I am happy it's there.
I want to visit Everglades National Park (again)
The Everglades is part of my community.
I care about Everglades National Park.

[1]Chronbach's alpha (α) measures the reliability of the scale based on the post-visit survey results. This reliability measure is between 0.0 and 1.0. In general higher reliability of 0.8 to 1.0 is the most desired as an indicator that a survey scale has consistency between the items in the scale. Good reliability indicates that respondents are responding to each of the items in the scale in a similar manner.

Table A-2. Other individual items

Comfort with Nature 2: *These items had low reliability when analyzed as a scale, so they are analyzed separately as individual items and no composite mean score was computed. Students were asked: "How comfortable would you be in the following situations?" Response categories included: very uncomfortable=1, somewhat uncomfortable= 2, neutral=3, somewhat comfortable=4 and very comfortable=5.*
Exploring the outdoors near my home.
Exploring Everglades National Park with a ranger.
Exploring Everglades National Park with my family.
Camping with my class in Everglades National Park.
Interest in Learning2: *These were some general items designed to assess overall attitude about overall interest in learning. Students were asked: "Do you agree or disagree with the following statements ?" Response categories included: strongly disagree=1, disagree= 2, neutral=3, agree=4 and strongly agree=5.*
Field trips help me see real life examples of things I am learning in school.
I enjoy learning about new subjects in school.
Connection to Nature: *These items had low reliability when analyzed as a scale, so they are analyzed as individual items. Students were asked: "Do you agree or disagree with the following statements ?" Response categories included: strongly disagree=1, disagree= 2, neutral=3, agree=4 and strongly agree=5.*
When I'm outside, I pay close attention to different plants and animals.
I would love to see a panther in the wild
I enjoy watching wildlife around my house and school

Table A-3. EVER teacher survey scales

General Academic Influence: *These questions examined teacher perceptions of the general impact of the EVER program on their students. Teachers were asked, "Do you agree or disagree with the following statements about your Everglades NP experience?" Response categories will include: strongly agree, agree, neutral, disagree, and strongly disagree.*
This program helped my class meet state curriculum standards.
My students became motivated to perform better academically.
My students learned a lot about important topics.
My students had fun.
The program content was relevant to my students' lives.
Taking my students to Everglades National Park was worth the effort.
This Everglades National Park experience is valuable for the students I teach.
The program was age-appropriate for my students.
Meeting Florida NGSSS curriculum standards: *NPS education programs that demonstrate a strong fit with state academic standards are valuable to schools looking for field trip experiences and needing to justify costs. Items reflecting state standards were selected from Next Generation Sunshine State Standards (NGSSS) adopted in 2008 for science and social studies (grades 5-8). These standards are listed on the CPALMS website (http://www.floridastandards.org). The items listed selected for the survey were the most closely matched with*

EVER curriculum objectives mentioned by education staff. Teachers were asked, "Please indicate how much the EVER program helped your students meet NGSSS curriculum standards for each of the following benchmark categories". Response categories were: not at all, a little, some, a moderate amount, a great deal.
Interdependence (Science – Big Idea #17)
Diversity and Evolution of Living Organisms (Science – Big Idea #15)
Organization and Development of Living Organisms (Science – Big Idea #14))
Earth Systems and Patterns (Science – Big Idea #7)
Earth Structures (Science – Big Idea #6)
Practice of science (Science – Big Idea #1)
Civic and political participation (Social Studies – Civics and Government)
Contemporary Florida into the 21st Century (Social Studies – American History)
The World in Spatial Terms (Social Studies – Geography)
Environment and Society (Social Studies – Geography)
Physical and cultural characteristics of places. (Social Studies – Geography)
The relationships between the Earth's ecosystems and the populations that dwell within them. (Social Studies – Geography)
Understand how human actions can impact the environment. (Social Studies – Geography)
National STEM framework: *The framework standards listed by the National Research Council (2011) were used to develop items reflecting STEM learning objectives that were most relevant to the EVER curriculum. The first three reflect abilities that are scientific practices and the second three are abilities that are the cross-cutting concepts. Teachers were asked: "Please indicate how much the EVER program contributed to your students ability to meet the following National level goals for achievement in science". Response categories were not at all, a little, some, a moderate amount, a great deal.*
Ask scientific questions (scientific practice)
Ability to define scientific problems (scientific practice)
Engaging in argument from scientific evidence (scientific practice)
Recognizing patterns (crosscutting concepts)
Identifying cause and effect (crosscutting concepts)
Understanding scale, proportion, and quantity (crosscutting concepts)
National STEM Disciplinary Core: *A second STEM scale adopted more detailed knowledge areas selected from the STEM Disciplinary Core Ideas – Life Sciences (LS) and Earth and Space Sciences (ESS) goals for achievement in science (NRC, 2011) which were most relevant to the Everglades curriculum. Teachers were asked: "Please indicate how much the EVER program contributed to your students ability to meet the following National level goals for achievement in science". Response categories were not at all, a little, some, a moderate amount, a great deal.*
How the structures of organisms enable life's functions (LS 1)
How organisms grow and develop(LS 1)
How organisms obtain and use the matter and energy they need to live and grow (LS 1)
How organisms detect, process, and use information about the environment (LS 1)
How organisms interact with the living and nonliving environment to obtain matter and energy (LS 2)
How matter and energy move through an ecosystem (LS 2)
What happens to ecosystems when the environment changes (LS 2)
How organisms interact in groups so as to benefit individuals (LS 2)

Why individuals of the same species vary in how they look, function, and behave (LS 3)
How the environment influences populations of organisms over multiple generations (LS 4)
What biodiversity is, how humans affect it, and how it affects humans(LS 4)
How the properties and movements of water shape Earth's surface and affect its systems (ESS 2)
How humans depend on Earth's resources (ESS 3)
How natural hazards affect individuals and societies (ESS 3)
How humans change the planet (ESS 3)
Impact on Students: *These questions investigated teachers' perceptions regarding the influence of the Everglades NP programs on students' appreciation, stewardship, knowledge, understanding, and interest pertaining to a range of topics. Teachers were asked: "Indicate to what extent you think the Everglades NP experience has positively impacted your class overall in the following areas:" Response categories will include: a great deal, a moderate amount, a little, almost none, and none. Teachers will also be asked: "As a result of your recent Everglades NP educational program, what percentage of your students increased their:" Response categories for this question will be: 0-20% 21-40%, 41-60%, 61-80%, and 81-100%.*
Academic performance.
Positive attitudes toward school.
Appreciation for the natural environment.
Interest in Environmental stewardship.
Interest in taking actions to conserve or improve the environment
Understanding of ecological processes in the Everglades.
Understanding of the mission of the National Park Service.
Understanding the importance of biological diversity.
Understanding issues and threats facing Everglades National Park.
Scientific inquiry skills.
Interest in learning outdoors/playing outdoors.
Interest in learning more about the environment.
Appreciation for science.
Teaching Behaviors and Intentions: *These questions investigated teachers' pre trip behaviors and post trip intentions to incorporate environmental themes, outdoor activities, and inquiry-based, hands-on activities into their teaching. These issues are particularly relevant to the Everglades EE program due to the integration of required teacher training and opportunities for teachers to lead lessons during the park visit. Teachers were asked: "Prior to participation in the Everglades NP program, how often have you done the following?" Response categories included: never, rarely, sometimes, often and very often. Teachers were also asked: "As a result of participating in the Everglades National Park program, are you more or less likely to participate in the following activities in the next year?" Response categories were: much less likely, less likely, same as before, more likely, much more likely.*
Incorporate environmental themes in my teaching.
Use environmental themes to better meet state standards.
Incorporate inquiry-based, hands-on activities into the students' school experiences.
Incorporate outdoor activities into your classes
Advocate the value of the Everglades NP EE program to school administrators and parents
Encourage other teachers to participate in the Everglades NP education program
Use NPS sites or materials for teaching
Volunteer to help the environment.

Confidence in environmental education teaching skills: *Given the importance of teacher training and integration of teachers as educational leaders at the Everglades site, the staff and research team developed a scale to assess confidence in environmental education teaching skills. Teachers were asked "As a result of your participation in the most recent Everglades National Park training and trip with your school, how much did your confidence in the following improve?" Response categories were not at all, a little, some, a moderate amount, a great deal.*
Your preparation for teaching science
Your preparation for teaching environmental topics in the Everglades
Your ability to manage your students outside of the classroom in a park or other natural setting (coping with weather, plants and animals)
Ability to serve as a role model for environmental stewardship
Ability to serve as a role model for appropriate behavior around wildlife
Ability to incorporate Everglades/NPS resources into the classroom curriculum
Your knowledge of Everglades NP
Attachment to Everglades (α=.89): *The Attachment to Everglades scale was the same as that one used on the student survey. Teachers were asked, "Do you agree or disagree with the following statements?" Response categories included: strongly disagree, disagree, neutral, agree, strongly agree.*
I care about Everglades National Park.
Knowing that Everglades NP is protected makes me feel good.
Even if I never visited Everglades NP again, I am happy it's there.
The Everglades is part of my community.
The Everglades is a fun place to visit.
I want to visit Everglades National Park again.

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APPENDIX B. Detailed results for indexes

Table B-1. Independent samples T-Test for Everglades DAY & CAMP Programs on Self-assessed learning (Post-visit survey only)

How much did you learn about...	Day or Camp	MEAN (SD)	t	SIG	RESPONSE FREQUENCY DISTRIBUTIONS (%)				
					1 (Nothing)	2 (A little)	3 (Some)	4 (A moderate amount)	5 (A great deal)
The natural environment	Day	4.56 (0.82)	-.024	.981	1	2	6	19	72
	Camp	4.57 (0.72)			0	2	6	25	67
Everglades National Park*	Day	4.73 (0.66)	-1.685	.048	1	1	4	12	82
	Camp	4.82 (0.49)			0	0	3	11	86
Plants and animals and how they interact	Day	4.46 (0.89)	-.493	.622	2	2	9	21	66
	Camp	4.50 (0.80)			0	3	10	20	67
The importance of biological diversity	Day	3.98 (1.27)	-.795	.450	8	7	15	21	49
	Camp	4.05 (1.11)			3	7	22	19	49
The mission of the National Park Service	Day	4.34 (1.04)	-.446	.656	4	4	10	19	63
	Camp	4.38 (0.92)			1	4	10	24	61
Issues and threats facing Everglades National Park***	Day	4.03 (1.35)	-6.436	.000	11	3	13	18	55
	Camp	4.54 (0.84)			2	1	7	20	70
How to study plants and animals	Day	4.15 (1.16)	-.730	.466	4	7	14	20	55
	Camp	4.21 (1.00)			2	6	11	30	51
The reasons for Everglades restoration**	Day	4.33 (1.06)	-2.821	.005	4	4	11	18	63
	Camp	4.53 (0.77)			1	2	8	23	66
Where my drinking water comes from	Day	4.36 (1.12)	-1.352	.177	5	4	11	12	68
	Camp	4.46 (0.87)			1	3	11	20	65
SELF-ASSESSD LEARNING Composite Mean	Day	4.35 (0.68)	-1.871	.062					
	Camp	4.45 (0.60)							

*Significant difference at p≤.05; **significant difference at p≤.01; ***significant difference at p≤.001

Table B-2. Comparison of Day and Camp programs on objective test

Outcome	Day	Camp	T-Test			Conclusion
	Mean (SD)	Mean (SD)	t	df	SIG	
Test Total Pre-visit	7.93 (2.50)	8.98 (2.59)	-4.538	732	.000	Camp>Day
Test Total Post-Visit	9.99 (2.78)	10.24 (2.67)	-.972	732	.331	
Test Total Change[1] (15 items)	2.061 (2.83)	1.257 (2.23)	3.694	732	.000	Day>Camp

*[1] Change in composite mean (post – pre); *Significant difference at p≤.05; **significant difference at p≤.01; ***significant difference at p≤.001*

Table B-3. T-Test for Total Test score within program (0= no correct responses, 15 =all correct responses)

ITEM		MEAN (SD)	t	df	SIG	% CHANGE*
DAY	pre	7.93 (2.50)	-17.613	585	.000	25.98
	post	9.99 (2.78)				
CAMP	pre	8.98 (2.59)	-6.841	147	.000	14.03
	post	10.24 (2.67)				
ALL	pre	8.14 (2.55)	-18.773	733	.000	23.34
	post	10.04 (2.76)				

**% Change = (post-visit mean minus pre-visit mean)/pre-visit mean x 100*

Table B-4: Percent of correct answers on individual test items: Day vs. Camp

Question	% Correct within group						*Increase in % correct Pre-visit to Post-visit*
	Pre-Visit			Post-Visit			
	Day or Camp		*ALL*	Day or Camp		*ALL*	
	Day	Camp		Day	Camp		
1. Marjory Stoneman Douglas wrote a book about the unique ecosystem she worked to protect. The title of her book and a nickname for the Everglades is…(MC)	57.4*	46.1	*55.0*	65.7	61.7	*64.9*	*9.9*
2. Why is the winter dry season important for the wood stork in Everglades National Park? (MC)	45.4	62.2	*48.9*	58.3	57.3	*58.1*	*9.2*
3. How can you tell the difference between an alligator and a crocodile? (MC)	27.1	29.8	*27.7*	55.3	46.6	*53.4*	*25.7*
4. The list below contains some reasons that scientists are working to restore the Everglades. Circle the one that is incorrect. (MC)	59.7	61.8	*60.1*	63.4	66.0	*64.0*	*3.9*
5. Who owns Everglades National Park? (MC)	32.4	31.4	*32.2*	63.3	50.5	*60.6*	*28.4*
6. Which of the following is an example of an Adaptation? (MC)	53.6	60.5	*55.0*	63.2	67.9	*64.2*	*9.2*
7. The list below contains 3 actual food chain examples in the Everglades. Circle the INCORRECT example. (MC)	23.6	26.1	*24.1*	28.5	20.5	*26.8*	*2.7*
8. An invasive species is: (MC)	35.0	60.4	*40.4*	52.3	69.1	*55.9*	*15.5*
9. The Everglades is well known for its variety of habitats. Which habitat is not found in the Everglades? (MC)	51.8	62.4	54.0	74.0	78.2	74.9	20.9
10. The primary source of peoples' drinking water in south Florida is: (MC)	48.6	64.7	51.9	69.2	80.6	71.7	19.8
11. Increasing South Florida's human population may harm the Everglades ecosystem. (T/F)	59.4	74.7	62.7	73.3	88.0	76.5	13.8
12. It is a good idea to stay at least 10 to 15 feet away from wild animals when you are observing them. (T/F)	92.0	93.2	92.3	93.5	94.7	93.8	1.5
13. Fertilizer used on farms as far away	41.9	51.9	44.0	56.7	61.9	57.8	13.8

Question	% Correct within group						*Increase in % correct Pre-visit to Post-visit*
	Pre-Visit			Post-Visit			
	Day or Camp		*ALL*	Day or Camp		*ALL*	
	Day	Camp		Day	Camp		
as Orlando can harm my drinking water. (T/F)							
14. Below the soil in the Everglades, the ground is made up mostly of sand. (T/F)	70.8	78.5	72.4	78.1	79.5	78.4	6.0
15. Releasing unwanted pets into the Everglades can harm the native wildlife. (T/F)	83.3	85.6	83.8	91.2	90.5	91.1	7.3

**Shading indicates that Chi-square is significant at p≤.05; MC=Multiple Choice; T/F=True/False*

Table B-5. Everglades DAY Programs – Interest in Learning

ITEM		MEAN (SD)	t	df	SIG	% CHANGE*	RESPONSE FREQUENCY DISTRIBUTIONS (%)				
							1 (Not at all interested)	2 (Slightly interested)	3 (Somewhat interested)	4 (Very interested)	5 (Extremely interested)
Learning about plants, animals, and the places they live.	pre	4.08 (0.97)	-3.54	722	.000	3.19	2	6	16	35	41
	post	4.21 (0.94)					2	3	15	32	48
Learning how to protect the environment	pre	4.33 (0.93)	-0.47	711	.639	0.23	1	4	13	25	57
	post	4.34 (0.93)					1	4	12	25	58
Learning about threats to Everglades National Park, such as water use.	pre	3.66 (1.31)	-2.44	711	.015	3.55	12	6	20	28	34
	post	3.79 (1.32)					11	5	16	28	40
Learning more about things that live in Everglades National Park	pre	4.48 (0.79)	-3.12	705	.002	2.01	1	2	7	28	62
	post	4.57 (0.75)					1	2	7	20	70
Learning about science in school.	pre	4.15 (1.03)	-0.27	715	.789	.24	3	5	15	29	48
	post	4.16 (1.07)					4	4	16	26	50
Learning more about the environment	pre	4.31 (0.92)	-1.21	706	.228	.93	1	4	13	27	55
	post	4.35 (0.88)					1	3	14	25	57
INTEREST Composite Mean	pre	4.17 (0.66)	-3.08	673	.002	1.68					
	post	4.24 (0.71)									

**% Change = (post-visit mean minus pre-visit mean)/pre-visit mean x 100 [NOTE: Shaded cells indicate a statistically significant difference (p≤.05) between pre-visit and post-visit composite scores (paired T-test within program) on the outcome for the specific program]*

Table B-6. Everglades CAMP Programs – Interest in Learning

ITEM		MEAN (SD)	t	df	SIG	% CHANGE*	RESPONSE FREQUENCY DISTRIBUTIONS (%)				
							1 (Not at all interested)	2 (Slightly interested)	3 (Somewhat interested)	4 (Very interested)	5 (Extremely interested)
Learning about plants, animals, and the places they live.	pre	3.81 (0.97)	-2.42	192	.017	4.72	2	7	24	41	26
	post	3.99 (0.98)					2	4	23	33	38
Learning how to protect the environment	pre	4.10 (0.96)	-1.81	191	.072	2.93	1	7	15	36	41
	post	4.22 (0.95)					2	2	13	34	49
Learning about threats to Everglades National Park, such as water use.	pre	3.83 (1.03)	-2.05	192	.042	4.70	2	11	22	34	31
	post	4.01 (1.06)					2	8	19	28	43
Learning more about things that live in Everglades National Park	pre	4.26 (0.88)	-2.88	185	.004	4.69	1	3	14	34	48
	post	4.46 (0.78)					1	2	5	33	59
Learning about science in school.	pre	3.68 (1.14)	-1.92	190	.057	3.80	4	15	24	27	30
	post	3.82 (1.14)					5	7	22	32	34
Learning more about the environment	pre	3.98 (0.94)	-4.17	191	.000	7.54	2	5	20	40	33
	post	4.28 (0.85)					0	3	16	31	50
INTEREST Composite Mean	pre	3.95 (0.75)	-4.30	179	.000	5.06					
	post	4.15 (0.72)									

**% Change = (post-visit mean minus pre-visit mean)/pre-visit mean x 100 [NOTE: Shaded cells indicate a statistically significant difference (p≤.05) between pre-visit and post-visit composite scores (paired T-test within program) on the outcome for the specific program]*

Table B-7. Everglades DAY programs - Other interest in school and learning items

ITEM		MEAN (SD)	t	df	SIG	% CHANGE*	RESPONSE FREQUENCY DISTRIBUTIONS (%)				
							1 (Strongly Disagree)	2 (Disagree)	3 (Neutral)	4 (Agree)	5 (Strongly Agree)
I enjoy learning about new subjects in school	pre	4.25(0.87)	-.383	713	.702	0.24	1	1	15	35	48
	post	4.26(0.92)					2	3	13	32	50
Field trips help me see real life examples of things I am learning in school	pre	4.51 (0.77)	-3.720	723	.000	2.66	1	1	7	28	63
	post	4.63 (0.71)					1	1	4	22	72

**% Change = (post-visit mean minus pre-visit mean)/pre-visit mean x 100 [NOTE: Shaded cells indicate a statistically significant difference (p≤.05) between pre-visit and post-visit composite scores (paired T-test within program) on the outcome for the specific program]*

Table B-8. Everglades CAMP programs - Other interest in school and learning items

ITEM		MEAN (SD)	t	df	SIG	% CHANGE*	RESPONSE FREQUENCY DISTRIBUTIONS (%)				
							1 (Strongly Disagree)	2 (Disagree)	3 (Neutral)	4 (Agree)	5 (Strongly Agree)
I enjoy learning about new subjects in school	pre	4.08 (0.93)	.144	188	.886	-0.25	2	2	20	37	39
	post	4.07 (0.96)					3	1	23	33	41
Field trips help me see real life examples of things I am learning in school	pre	4.44 (0.74)	-1.309	196	.192	1.80	0	2	10	31	57
	post	4.52 (0.76)					1	0	13	19	67

**% Change = (post-visit mean minus pre-visit mean)/pre-visit mean x 100*

Table 16. Everglades DAY Programs – Comfort with Nature

ITEM		MEAN (SD)	t	df	SIG	% CHANGE*	RESPONSE FREQUENCY DISTRIBUTIONS (%)				
							1 (Totally unwilling)	2 (Somewhat unwilling)	3 (Neutral)	4 (Somewhat willing)	5 (Totally willing)
Getting my clothes wet	pre	4.07 (1.37)	-2.30	710	.022	2.70	12	4	10	15	59
	post	4.18 (1.34)					11	4	9	12	64
Being in the hot sun	pre	3.51 (1.48)	-.627	704	.531	.85	17	10	15	22	36
	post	3.54 (1.50)					18	8	14	21	39
Sleeping outside in a tent	pre	3.88 (1.45)	-3.11	705	.002	3.87	14	5	12	17	52
	post	4.03 (1.37)					11	5	11	16	57
Getting some bug bites	pre	2.36 (1.58)	-3.52	701	.000	8.05	50	10	11	12	16
	post	2.55 (1.65)					46	8	12	13	21
Walking in a swamp	pre	3.74 (1.56)	-.469	706	.639	0.53	19	5	12	14	50
	post	3.76 (1.56)					19	4	10	15	51
COMFORT Composite Mean	pre	3.53 (1.06)	-3.46	678	.001	2.83					
	post	3.63 (1.10)									

**% Change = (post-visit mean minus pre-visit mean)/pre-visit mean x 100 [NOTE: Shaded cells indicate a statistically significant difference (p≤.05) between pre-visit and post-visit composite scores (paired T-test within program) on the outcome for the specific program]*

Table B-9. Everglades CAMP Programs – Comfort with Nature

ITEM		MEAN (SD)	t	df	SIG	% CHANGE*	RESPONSE FREQUENCY DISTRIBUTIONS (%)				
							1 (Totally unwilling)	2 (Somewhat unwilling)	3 (Neutral)	4 (Somewhat willing)	5 (Totally willing)
Getting my clothes wet	pre	4.46 (0.89)	-1.948	191	.053	3.14	1	3	12	17	67
	post	4.60 (0.82)					2	2	4	19	73
Being in the hot sun	pre	4.05 (1.17)	-.586	191	.559	0.99	4	10	14	23	59
	post	4.09 (1.24)					8	3	12	23	53
Sleeping outside in a tent	pre	4.45 (0.97)	-3.559	192	.000	5.62	3	2	10	17	68
	post	4.70 (0.76)					2	1	3	14	80
Getting some bug bites	pre	3.38 (1.48)	-1.914	192	.057	5.33	19	9	17	24	31
	post	3.56 (1.50)					16	9	16	19	40
Walking in a swamp	pre	4.25 (1.14)	-4.052	193	.000	7.53	4	7	14	13	62
	post	4.57 (0.86)					2	4	4	17	73
COMFORT Composite Mean	pre	4.13 (0.85)	-3.581	190	.000	4.36					
	post	4.31 (0.79)									

**% Change = (post-visit mean minus pre-visit mean)/pre-visit mean x 100 [NOTE: Shaded cells indicate a statistically significant difference (p≤.05) between pre-visit and post-visit composite scores (paired T-test within program) on the outcome for the specific program]*

Table B-10. Everglades DAY Programs – Comfort with Exploring – Individual items

ITEM		MEAN (SD)	t	df	SIG	% CHANGE*	RESPONSE FREQUENCY DISTRIBUTIONS (%)				
							1 (Very uncomfortable)	2 (Somewhat uncomfortable)	3 (Neutral)	4 (Somewhat comfortable)	5 (Very comfortable)
Exploring the outdoors near my home	pre	4.22 (1.01)	-.979	714	.328	0.95	3	2	18	24	53
	post	4.26 (1.06)					4	2	15	22	57
Exploring EVER with a ranger	pre	4.49 (0.93)	-5.326	716	.000	4.23	3	2	8	18	69
	post	4.68 (0.71)					1	1	5	14	79
Exploring EVER with my family	pre	4.55 (0.94)	-.407	714	.684	0.22	3	2	6	14	75
	post	4.56 (0.92)					3	2	6	14	75
Camping with my class in EVER	pre	4.01 (1.36)	-1.082	718	.279	1.50	11	5	10	19	55
	post	4.07 (1.32)					10	4	11	19	56

**% Change = (post-visit mean minus pre-visit mean)/pre-visit mean x 100 [NOTE: Shaded cells indicate a statistically significant difference (p≤.05) between pre-visit and post-visit composite scores (paired T-test within program) on the outcome for the specific program]*

Table B-11. Everglades CAMP Programs – Comfort with Exploring – Individual items

ITEM		MEAN (SD)	t	df	SIG	% CHANGE*	RESPONSE FREQUENCY DISTRIBUTIONS (%)				
							1 (Very uncomfortable)	2 (Somewhat uncomfortable)	3 (Neutral)	4 (Somewhat comfortable)	5 (Very comfortable)
Exploring the outdoors near my home	pre	4.30 (1.00)	-1.836	194	.068	3.26	2	4	14	21	59
	post	4.44 (0.90)					2	3	9	22	64
Exploring EVER with a ranger	pre	4.53 (0.83)	-2.664	192	.008	3.75	1	3	6	21	69
	post	4.70 (0.69)					1	1	4	14	80
Exploring EVER with my family	pre	4.37 (1.02)	-1.648	194	.101	2.75	4	3	11	18	64
	post	4.49 (0.87)					1	4	8	19	68
Camping with my class in EVER	pre	4.43 (0.85)	-3.370	192	.001	4.29	1	3	8	28	60
	post	4.62 (0.79)					2	1	7	15	75

**% Change = (post-visit mean minus pre-visit mean)/pre-visit mean x 100 [NOTE: Shaded cells indicate a statistically significant difference (p≤.05) between pre-visit and post-visit composite scores (paired T-test within program) on the outcome for the specific program]*

Table B-12. Everglades DAY Programs – Connection to Nature – Individual items

ITEM		MEAN (SD)	t	df	SIG	% CHANGE*	RESPONSE FREQUENCY DISTRIBUTIONS (%)				
							1 (Very uncomfortable)	2 (Somewhat uncomfortable)	3 (Neutral)	4 (Somewhat comfortable)	5 (Very comfortable)
When I'm outside, I pay close attention to different plants and animals	pre	4.05 (1.02)	-.727	717	.468	0.74	3	4	18	34	41
	post	4.08 (1.06)					4	5	16	31	45
I would love to see a panther in the wild	pre	4.49 (1.00)	-2.319	717	.021	2.00	7	3	7	14	73
	post	4.58 (0.94)					4	1	6	11	78
I enjoy watching wildlife around my house and school	pre	4.06 (1.13)	-2.920	708	.004	3.20	4	6	18	23	49
	post	4.19 (1.07)					4	4	15	24	53

**% Change = (post-visit mean minus pre-visit mean)/pre-visit mean x 100 [NOTE: Shaded cells indicate a statistically significant difference (p≤.05) between pre-visit and post-visit composite scores (paired T-test within program) on the outcome for the specific program]*

Table B-13. Everglades CAMP Programs – Connection to Nature – Individual items

ITEM		MEAN (SD)	t	df	SIG	% CHANGE*	RESPONSE FREQUENCY DISTRIBUTIONS (%)				
							1 (Very uncomfortable)	2 (Somewhat uncomfortable)	3 (Neutral)	4 (Somewhat comfortable)	5 (Very comfortable)
When I'm outside, I pay close attention to different plants and animals	pre	3.97 (1.04)	-.386	194	.700	0.76	4	4	22	33	37
	post	4.00 (1.00)					3	3	20	38	36
I would love to see a panther in the wild	pre	4.45 (0.92)	-2.849	190	.005	4.27	1	5	8	20	66
	post	4.64 (0.71)					1	0	6	19	74
I enjoy watching wildlife around my house and school	pre	4.03 (1.05)	-3.013	190	.003	5.46	4	4	18	31	43
	post	4.25 (0.97)					2	4	13	29	52

**% Change = (post-visit mean minus pre-visit mean)/pre-visit mean x 100 [NOTE: Shaded cells indicate a statistically significant difference (p≤.05) between pre-visit and post-visit composite scores (paired T-test within program) on the outcome for the specific program]*

Table B-14. Everglades DAY Programs – General Stewardship Attitudes

ITEM		MEAN (SD)	t	df	SIG	% CHANGE*	RESPONSE FREQUENCY DISTRIBUTIONS (%)				
							1 (Strongly Disagree)	2 (Disagree)	3 (Neutral)	4 (Agree)	5 (Strongly Agree)
My actions can impact the health of the environment.	pre	3.66 (1.33)	-10.700	720	.000	14.48	11	8	20	25	36
	post	4.19 (1.16)					7	3	12	22	56
I am careful not to harm the environment when I am playing outside.	pre	4.41 (0.94)	.000	719	1.00	0.00	3	2	8	26	61
	post	4.41 (0.87)					2	2	8	30	58
Conserving water is my responsibility.	pre	3.99 (1.06)	-3.691	709	.000	4.51	4	5	19	33	39
	post	4.17 (1.07)					4	3	17	24	52
I can make my community a better place	pre	4.35 (0.87)	-2.909	704	.004	2.53	2	1	12	31	54
	post	4.46 (0.79)					1	1	10	28	60
I have the power to protect the environment.	pre	4.33 (0.94)	4.812	717	.000	-4.62	2	2	14	24	58
	post	4.13 (1.02)					3	4	19	27	48
I feel it is important to take good care of the environment	pre	4.70 (0.63)	1.439	722	.151	-1.06	1	0	2	22	75
	post	4.65 (0.69)					1	0	3	23	73
It's important to protect as wide a variety of animals and plants as we possibly can.	pre	4.52 (0.82)	-.823	718	.411	0.66	2	1	8	23	66
	post	4.55 (0.78)					1	1	9	21	68
Humans are part of nature, not separate.	pre	4.28 (1.00)	-3.486	708	.001	3.27	3	2	17	21	57
	post	4.42 (0.91)					3	1	12	21	63
GENERAL STEWARDSHIP Composite Mean	pre	4.26 (0.53)	-7.066	632	.000	3.52					
	post	4.41 (0.53)									

**% Change = (post-visit mean minus pre-visit mean)/pre-visit mean x 100 [NOTE: Shaded cells indicate a statistically significant difference (p≤.05) between pre-visit and post-visit composite scores (paired T-test within program) on the outcome for the specific program]*

Table B-15. Everglades CAMP Programs – General Stewardship Attitudes

ITEM		MEAN (SD)	t	df	SIG	% CHANGE*	RESPONSE FREQUENCY DISTRIBUTIONS (%)				
							1 (Strongly Disagree)	2 (Disagree)	3 (Neutral)	4 (Agree)	5 (Strongly Agree)
My actions can impact the health of the environment.	pre	3.96 (1.15)	-5.837	191	.000	12.37	6	7	15	31	41
	post	4.45 (0.98)					4	1	7	21	67
I am careful not to harm the environment when I am playing outside.	pre	4.33 (0.84)	-1.206	195	.229	2.08	1	3	6	40	50
	post	4.42 (0.88)					3	2	5	31	59
Conserving water is my responsibility.	pre	3.88 (0.94)	-4.138	184	.000	9.02	1	6	26	37	30
	post	4.23 (0.94)					3	2	14	32	49
I can make my community a better place	pre	4.33 (0.80)	-.901	189	.369	1.39	1	0	13	36	50
	post	4.39(0.85)					3	0	9	31	57
I have the power to protect the environment.	pre	4.36 (0.85)	2.401	195	.017	-3.67	2	2	9	33	54
	post	4.20 (0.83)					1	2	16	39	42
I feel it is important to take good care of the environment	pre	4.68 (0.53)	.000	196	1.00	0.00	0	0	3	26	71
	post	4.68 (0.60)					0	1	3	23	73
It's important to protect as wide a variety of animals and plants as we possibly can.	pre	4.55 (0.76)	-.436	192	.663	0.66	2	1	5	26	66
	post	4.58 (0.66)					0	1	7	26	66
Humans are part of nature, not separate.	pre	4.21 (0.99)	-3.443	188	.001	5.94	3	3	15	29	50
	post	4.46 (0.80)					1	1	12	23	63
GENERAL STEWARDSHIP Composite Mean	pre	4.25 (0.45)	-5.179	163	.000	4.24					
	post	4.43 (0.53)									

**% Change = (post-visit mean minus pre-visit mean)/pre-visit mean x 100 [NOTE: Shaded cells indicate a statistically significant difference (p≤.05) between pre-visit and post-visit composite scores (paired T-test within program) on the outcome for the specific program]*

Table B-16. Everglades DAY Programs – Park Stewardship Attitudes

ITEM		MEAN (SD)	t	df	SIG	% CHANGE*	RESPONSE FREQUENCY DISTRIBUTIONS (%)				
							1 (Strongly Disagree)	2 (Disagree)	3 (Neutral)	4 (Agree)	5 (Strongly Agree)
It's *not* ok if I take things home, such as shells or feathers, from Everglades National Park[1]	pre	3.81 (1.42)	-11.234	717	.000	16.01	11	10	14	16	49
	post	4.42 (1.14)					6	4	7	10	73
It's *not* ok if I feed wild animals in Everglades National Park[2]	pre	4.18 (1.31)	-5.910	689	.000	8.37	8	6	9	12	65
	post	4.53(1.10)					7	1	3	9	80
It's *not* ok for me to pick a flower in Everglades National Park[3]	pre	3.85 (1.23)	-9.593	713	.000	12.73	7	8	22	22	41
	post	4.34 (1.11)					5	4	10	15	66
It is my responsibility to help take care of Everglades National Park.	pre	3.95 (1.10)	-8.509	720	.000	8.86	3	8	21	28	40
	post	4.30 (0.95)					2	2	15	25	56
People should consider how their actions at home can impact Everglades National Park.	pre	4.06 (1.03)	-7.507	721	.000	8.13	3	4	22	27	44
	post	4.39 (0.89)					2	1	13	25	59
PARK STEWARDSHIP Composite Mean	pre	3.97 (0.73)	-15.375	651	.000	11.08					
	post	4.41 (0.64)									

**% Change = (post-visit mean minus pre-visit mean)/pre-visit mean x 100 [NOTE: Shaded cells indicate a statistically significant difference (p≤.05) between pre-visit and post-visit composite scores (paired T-test within program) on the outcome for the specific program] [1] Reverse coded for analysis; original statement was: "It's ok if I take things home, such as shells or feathers, from Everglades National Park". [2]Reverse coded for analysis; original statement was: "It's ok if I feed wild animals in Everglades National Park". [3]Reverse coded for analysis; original statement was "It's ok for me to pick a flower in Everglades National Park".*

Table B-17. Everglades CAMP Programs – Park Stewardship Attitudes

ITEM		MEAN (SD)	t	df	SIG	% CHANGE*	RESPONSE FREQUENCY DISTRIBUTIONS (%)				
							1 (Strongly Disagree)	2 (Disagree)	3 (Neutral)	4 (Agree)	5 (Strongly Agree)
It's *not* ok if I take things home, such as shells or feathers, from Everglades National Park[1]	pre	3.90 (1.30)	-6.342	190	.000	13.58	9	8	12	26	45
	post	4.53 (0.90)					3	1	7	17	72
It's *not* ok if I feed wild animals in Everglades National Park[2]	pre	4.37 (1.17)	-1.700	187	.102	3.89	6	5	5	13	71
	post	4.54(1.02)					5	2	4	12	77
It's *not* ok for me to pick a flower in Everglades National Park[3]	pre	3.79 (1.17)	-5.593	193	.000	13.72	8	4	25	30	33
	post	4.31 (1.11)					6	1	10	21	62
It is my responsibility to help take care of Everglades National Park.	pre	4.12 (0.89)	-3.491	193	.002	5.58	1	4	18	36	41
	post	4.35 (0.86)					2	1	12	31	54
People should consider how their actions at home can impact Everglades National Park.	pre	4.29 (0.86)	-2.371	195	.026	3.73	1	3	13	33	50
	post	4.45 (0.75)					0	1	10	31	58
PARK STEWARDSHIP Composite Mean	pre	4.08 (0.69)	-7.304	176	.000	8.82					
	post	4.44 (0.59)									

**% Change = (post-visit mean minus pre-visit mean)/pre-visit mean x 100 [NOTE: Shaded cells indicate a statistically significant difference (p≤.05) between pre-visit and post-visit composite scores (paired T-test within program) on the outcome for the specific program] [1] Reverse coded for analysis; original statement was: "It's ok if I take things home, such as shells or feathers, from Everglades National Park". [2]Reverse coded for analysis; original statement was: "It's ok if I feed wild animals in Everglades National Park". [3]Reverse coded for analysis; original statement was "It's ok for me to pick a flower in Everglades National Park".*

Table B-18. Everglades DAY Programs – Home Stewardship Attitudes

ITEM		MEAN (SD)	t	df	SIG	% CHANGE*	RESPONSE FREQUENCY DISTRIBUTIONS (%)				
							1 (Never)	2 (Rarely)	3 (Sometimes)	4 (Often)	5 (Very Often)
Clean up all my garbage when I am playing outside.	pre	3.97(1.13)	-2.821	711	.005	3.27	5	6	19	28	42
	post	4.10 (1.10)					4	5	16	27	48
Recycle aluminum cans and plastic bottles at home.	pre	3.82 (1.27)	-.766	709	.444	1.05	8	8	21	21	42
	post	3.86 (1.29)					8	8	19	20	45
Talk to my family about ways to protect the environment.	pre	3.26 (1.42)	-2.736	701	.006	4.29	16	15	24	17	28
	post	3.40 (1.44)					15	13	22	17	33
Turn the lights out when I leave a room.	pre	4.44 (0.96)	.546	709	.586	-0.45	2	4	11	17	66
	post	4.42 (0.93)					1	5	10	19	65
Pick up trash left by others.	pre	3.40 (1.40)	-2.314	702	.021	3.53	16	10	23	23	29
	post	3.52 (1.35)					12	10	25	20	33
Use less electricity at home.	pre	3.84 (1.24)	-4.001	696	.000	4.95	8	8	21	22	41
	post	4.03 (1.15)					4	7	19	22	48
Recycle paper products at home.	pre	3.69 (1.35)	-2.161	692	.031	2.71	11	10	19	21	39
	post	3.79 (1.36)					10	9	18	18	45
Turn off the water when brushing my teeth.	pre	4.31 (1.15)	-3.753	709	.000	3.48	6	3	11	14	66
	post	4.46 (0.96)					2	5	9	14	70
Conserve water at home.	pre	4.17 (1.07)	-2.321	700	.021	2.40	4	4	17	23	52
	post	4.27 (1.06)					3	5	12	21	59
HOME STEWARDSHIP Composite Mean	pre	3.90 (0.80)	-4.051	625	.000	2.82					
	post	4.01 (0.85)									

**% Change = (post-visit mean minus pre-visit mean)/pre-visit mean x 100 [NOTE: Shaded cells indicate a statistically significant difference (p≤.05) between pre-visit and post-visit composite scores (paired T-test within program) on the outcome for the specific program]*

Table B-19. Everglades CAMP Programs – Home Stewardship Attitudes

ITEM		MEAN (SD)	t	df	SIG	% CHANGE*	RESPONSE FREQUENCY DISTRIBUTIONS (%)				
							1 (Never)	2 (Rarely)	3 (Sometimes)	4 (Often)	5 (Very Often)
Clean up all my garbage when I am playing outside.	pre	4.14 (0.96)	-3.166	194	.002	5.31	2	2	21	30	45
	post	4.36 (0.87)					2	2	6	36	54
Recycle aluminum cans and plastic bottles at home.	pre	3.97 (1.23)	-2.373	193	.019	4.79	6	8	16	22	48
	post	4.16 (1.08)					3	7	13	24	53
Talk to my family about ways to protect the environment.	pre	2.94 (1.20)	-3.239	192	.001	10.54	15	21	30	23	11
	post	3.25 (1.38)					15	15	25	19	26
Turn the lights out when I leave a room.	pre	4.43 (0.85)	.354	193	.724	-0.68	1	3	10	25	61
	post	4.40 (0.80)					0	3	11	29	57
Pick up trash left by others.	pre	3.61 (1.22)	-1.286	191	.200	3.32	7	11	25	26	31
	post	3.73 (1.23)					8	6	22	30	34
Use less electricity at home.	pre	3.69 (1.10)	-4.770	193	.000	9.49	4	8	32	27	29
	post	4.04 (1.01)					2	5	24	27	42
Recycle paper products at home.	pre	3.81 (1.30)	-3.174	188	.002	6.82	8	9	19	20	44
	post	4.07 (1.14)					5	7	16	24	48
Turn off the water when brushing my teeth.	pre	4.42 (0.96)	.594	193	.553	-0.90	2	3	11	18	66
	post	4.38 (1.01)					2	5	13	14	66
Conserve water at home.	pre	4.21 (0.90)	.263	193	.793	-0.47	0	3	22	24	51
	post	4.19 (1.02)					2	5	17	24	52
HOME STEWARDSHIP Composite Mean	pre	3.93 (0.70)	-3.176	182	.002	3.82					
	post	4.08 (0.69)									

**% Change = (post-visit mean minus pre-visit mean)/pre-visit mean x 100 [NOTE: Shaded cells indicate a statistically significant difference (p≤.05) between pre-visit and post-visit composite scores (paired T-test within program) on the outcome for the specific program]*

Table B-20. Everglades DAY Programs – Attachment to Everglades

ITEM		MEAN (SD)	t	df	SIG	% CHANGE*	RESPONSE FREQUENCY DISTRIBUTIONS (%)				
							1 (Strongly Disagree)	2 (Disagree)	3 (Neutral)	4 (Agree)	5 (Strongly Agree)
The Everglades is a fun place to visit.	pre	4.54 (0.79)	-4.461	712	.000	3.52	1	1	9	20	69
	post	4.70 (0.71)					2	0	3	16	79
Knowing that Everglades National Park is protected makes me feel good.	pre	4.50 (0.84)	-1.139	712	.255	0.89	2	1	8	24	65
	post	4.54 (0.76)					1	0	8	25	66
Even if I never visited Everglades National Park again, I am happy it's there.	pre	4.44 (0.84)	-4.918	717	.000	3.83	1	1	11	26	61
	post	4.61 (0.71)					1	1	6	21	71
I want to visit Everglades National Park.	pre	4.78 (0.56)	2.254	717	.025	-1.46	0	0	3	14	83
	post	4.71 (0.70)					1	1	4	13	81
The Everglades is part of my community.	pre	4.14 (1.04)	-9.675	709	.000	9.18	3	4	20	22	51
	post	4.52 (0.84)					1	2	10	18	69
I care about Everglades National Park.	pre	4.60 (0.72)	-3.408	703	.001	1.96	1	1	7	20	71
	post	4.69(0.61)					0	0	5	19	76
ATTACHMENT Composite Mean	pre	4.52 (0.48)	-7.183	650	.000	2.88					
	post	4.65 (0.47)									

**% Change = (post-visit mean minus pre-visit mean)/pre-visit mean x 100 [NOTE: Shaded cells indicate a statistically significant difference (p≤.05) between pre-visit and post-visit composite scores (paired T-test within program) on the outcome for the specific program]*

Table B-21. Everglades CAMP Programs – Attachment to Everglades

ITEM		MEAN (SD)	t	df	SIG	% CHANGE*	RESPONSE FREQUENCY DISTRIBUTIONS (%)				
							1 (Strongly Disagree)	2 (Disagree)	3 (Neutral)	4 (Agree)	5 (Strongly Agree)
The Everglades is a fun place to visit.	pre	4.40 (0.75)	-6.532	190	.000	8.64	0	0	16	27	57
	post	4.78 (0.54)					0	1	3	14	82
Knowing that Everglades National Park is protected makes me feel good.	pre	4.34 (0.83)	-2.847	189	.005	4.15	2	0	13	32	53
	post	4.52 (0.72)					1	1	7	29	62
Even if I never visited Everglades National Park again, I am happy it's there.	pre	4.42 (0.73)	-4.058	190	.000	5.66	1	1	9	34	55
	post	4.67 (0.68)					2	1	4	19	74
I want to visit Everglades National Park.	pre	4.73 (0.60)	-.970	192	.333	0.85	0	1	4	16	79
	post	4.77 (0.60)					1	1	4	11	83
The Everglades is part of my community.	pre	4.23 (0.89)	-4.248	190	.000	6.62	1	3	17	31	48
	post	4.51 (0.77)					1	1	6	28	64
I care about Everglades National Park.	pre	4.52 (0.67)	-2.669	187	.008	2.88	0	1	8	30	61
	post	4.65 (0.67)					1	0	4	23	72
ATTACHMENT Composite Mean	pre	4.44 (0.51)	-6.622	168	.000	4.95					
	post	4.66 (0.43)									

**% Change = (post-visit mean minus pre-visit mean)/pre-visit mean x 100 [NOTE: Shaded cells indicate a statistically significant difference (p≤.05) between pre-visit and post-visit composite scores (paired T-test within program) on the outcome for the specific program]*

Appendix C. Teacher comments about the Everglades National Park education program

DAY programs

- I think that the Everglades National Park education program is an excellent program. The program provides an "up close and personal" experience like none other for all students. Having the rangers be the ones teaching them the information not only gives them direct access to the experts but also makes the students feel very special that the rangers have dedicated their day to them. They not only learn about the importance of the Everglades but also the fact that they themselves can make a difference and can even consider being rangers themselves in the future. It literally brings science to life for them in a way that we cannot hope to accomplish in a classroom no matter how much we might try. The first-hand experience is irreplaceable!
- I feel the experience is fantastic for students and teachers alike. I am excited to take students again next school year. I had the pleasure of taking 3 separate groups to Shark Valley this school year.
- Beautiful program. Once it is hot please make provisions for the students to drink more often.
- This is a great opportunity for the students to enjoy and learn about nature. We had a wonderful time and hope to visit next year.
- It was a wonderful experience for our students and the Rangers were well informed and encouraged interaction with students. They added to the enjoyment the Everglades has to offer.
- I love this trip. The rangers are wonderful with the kids. They make the day a REAL learning day as well as a lot of fun. What a great way to enjoy nature and learn at the same time.
- Love moving out to Everglades national park. Wish that all the students had a ranger led group on the anhinga trail. The students love hearing them and asking questions. They spend so much time listening to me that they didn't want to be in my group and wanted to be with the ranger.
- An amazing field trip which allows us to take our students on an unforgettable experience in this unique environment. Many of our students do not have the opportunity to experience the Everglades unless they go with their school. We are extremely thankful for the ability this field trip affords to our students. They leave with a much greater appreciation of their environment.
- This is one of the greatest opportunities for our children to experience something so very special and important. Out of my 42 Science student 0 had been to Royal Palm before this trip. They are still talking about it. Older students come back to visit and start with "remember when we went to the Everglades". I am so glad that I get to share this with them!!!!!!!!
- Keep it going! The children are the future guardians of the Everglades! My goal is to instill a sense of ownership and wonder and hope that they remember their fourth grade experience in the years to come.
- I love this Field Trip! Every year I go I enjoy it even more than the last and I can't wait to go again. I have been going to the Everglades since I was in elementary school and it thrills me that I can continue to do so. I hope it continues. The rangers are always so wonderful and great with the kids. You can tell they love what they do. I can't say enough about how excited the students get before the trip (of course I hype it up a lot) but after they go they all agree that it is the best trip they have been on. I come back from a trip like this with a renewed energy to really dig into the science curriculum and get our hands dirty. I hope this program continues for many, many years. I can't wait for next year.
- Our guides were fantastic in every way!

CAMP programs

- I always have enjoyed the Everglades Experience
- Thank you very much for your efforts in making experiences like this one available for our students.
- I love this camping program, and have had the joy of watching a parent attend as a chaperone after attending this camp as a student. The power and impact of these programs extends far beyond the three days camping.
- The experience provided to the students at [X] Elementary through the Loop Road Educational Program has been unforgettable. The students leave the trip with an appreciation for the Everglades and a deep understanding of it's delicate balance.
- We had two trips this year and I had already filled this out - my answers are the same for both trips. Both trips had amazing Rangers and the kids loved it.
- The Camping Trip is an opportunity of a life time and an experience kids will never forget. I am so grateful for this program.
- It is my favorite and most rewarding thing I do each year with students.
- Love it!!!

Appendix D. Pre-trip and Post-trip activities used by teachers with their students participating in the Everglades National Park education program

Teachers were asked what pre-trip and post-trip materials they used. Responses are below:

Pre-trip DAY

- Incorporated the "Children are the Future of the Everglades - A Curriculum for 4th Grade Teachers" into my curriculum.
- The prepared lessons from Everglades national Park teacher training +Time For Kids Readers-The Everglades
- We used the Smartboard to look up the Everglades. We spoke of the many parks in the Everglades and the different habitats. We are reading a class novel, "A Land Remembered" where they venture with the characters into the mysterious Everglades throughout the book.
- Brainpop video about the Everglades ecosystem. Lesson on types of animals, ecosystems, and adaptations of Everglades animals and plants.
- "Hurry for Habitats", Everglades Baseball, Play Riddles- Guess the Organism.
- History of the Everglades, Map of the Everglades and the different plants and animals in the Everglades.
- Review of ecosystem, plants, animals
- We explored trade books and videos about the Everglades.
- Everglades videos, lessons on habitats and everglades animals
- Pre-test, video, habitat poems, sponge water activity, voc. cards, feed the wood stork, post test
- I have a packet from years ago. I make copies of the packet.
- Lessons on ecosystems, lessons from Everglades pre-site visit booklet. Videos by the Kerns.
- Habitat hunt, water poetry, food chain, etc.
- I am in a co-teaching or departmentalized school. I teach reading and language arts while my partner teaches math and science. She prepares the students for this experience.
- Animal beak adaptations food chain cards food web with yarn indigenous vs. invasive species coordinate grids "who am I" card game Animal classifications with Everglades species
- Science labs, vocab, lessons about the environment and ecosystems, movie,
- We learned about the plants, animals, birds and habitats of the Everglades. We looked at maps of the state of Florida as well as maps of the Everglades and Big Cypress National Preserve to further our understanding of the location and its importance to our environment. Students conducted independent and group research about the birds, plants, animals and habitats of the Everglades.
- Study of Everglades during science class
- Students watched an Everglades video, we read about history of Everglades, read as a whole the book, "Everglades" by Jean Craighead George, students worked in groups to create a concept map about an Everglades habitat and then presented them to class.
- I used the notebook that was given to me at the Teacher Workshop. In particular I used the "Royal Palm & Long Pine Key Guide." I also did some of the activities from the notebook including "Camouflage Critters" "The Giving Tree" & my favorite "And Then There Were None." I like that activity the most because the students get to see how everything they do

affects the Everglades and the animals that live there. We also covered the environment and animal interdependence section in our P-SELL Science books (a program from the University of Miami).

- My students had (3) weeks prior to the trip to work on a project based on (1) animal assigned to him/her. They researched: description, habitat, adaptations, food chain, etc. and presented to their classmates. We studied vocabulary relevant to each habitat learned about national parks, it's symbol and why national parks are important.
- Reading material, Everglades map and info received from last year visit
- We completed activities regarding water conservation, animal adaptations, and did a comprehensive study of the ecosystem. The students researched and made dioramas of the various habitats. We watched 2 different videos about the National Park System and Everglades National Park.
- Reading Passages, Theme project, map skills, pre-Everglades questionnaire
- I followed the Everglades National Park hand book I received at the teacher workshop, It helped my students learn about the landforms, and different habitats found in the Everglades
- Internet search of animals found in the Everglades as well as the 4th grade Science textbook
- The Science Team prepared the students.

Pre-trip CAMP

- Food Webs Activity Guide for Teachers of South Florida National Parks
- Review of animal species and food chains that would be encountered on the trip.
- Frayer Model, What's happening here?, Hurry for habitat
- The Giving Tree, Endangered Animal Reports, Tree & Plants of the Everglades research, Everglades poetry (haiku), Adventure in the Everglades (video)
- The Journey of Wayne Drop, Novel Studies including: The Missing 'Gator of Gumbo Limbo, Lost in the River of Grass, The Talking Earth, and Escape to the Everglades.
- Introduction to Ecosystems
- I used the guide provided to me on the trip leader training, several different media sources, and our "Green School" resources.
- We used the Habitat Hunt, Create a national Park and Create a Food Chain
- The changes in the water flow over time, a group project where students researched the habitats of the Everglades, vocabulary games

Post-trip DAY

- Reviewing and discussing what we learned in the Everglades. Observing and discussing pictures taken during the trip. Completing the post visit survey.
- Drawings of scenes they experienced in the park, thank you notes to Rangers
- Write a haiku about something they saw first hand. Draw and color a picture for your haiku
- Brain Pop Everglades
- Students submitted a one page paper about their experiences. We also completed the post survey.
- Review of information the ranger gave us, writing about the trip
- Writing Essay and Thinking Maps

- Writing assignment and read The Missing Gator of Gumbo Limbo
- We reviewed our experiences and wrote about what we did.
- Group posters on the different areas we visited.
- Essay about the Everglades.
- Classification of spotted animals and plants habitat dioramas written response to trip survey
- Review, quiz, computer program about the ecosystems, wildlife
- Essay Contest, post-field trip reflections, concept mapping
- Presentations
- Finished the P-SELL section on animal interdependence.
- Students wrote about what they experienced, took a quick quiz on information that they should have learned on the tour. We then viewed a power point slide that I prepared on the trip and got to speak about what they saw, heard and learned on the trip.
- Essay writing, Post questionnaire
- Review of the names of landform and habitats in the Everglades
- Debriefing and discussing the information provided by the Rangers on the trip
- Cold Read based on Everglades

Post-trip CAMP

- We will be going to Shark Valley next week.
- Journaling about the overall experience and how specific activities helped gain a greater understanding of which particular benchmarks.
- Everglades Book: poetry, reports, journals entries from camp, shared adventures with Mrs. Pollman's class before they come to Loop Road next week.
- Reflection journals.
- The students put together a slide show using some of the photo taken on the trip to share the experience with those students who didn't have the opportunity attend the trip.

Teachers were also asked if additional materials were desired. Several teachers indicated that what they had was sufficient. Their comments included:

DAY

- All materials are useful and appreciated.
- The materials offered by the Everglades are plentiful and useful.
- I love that the materials are accessible on line!
- I think the notebook is the key. I use many of the activities from it and even if I don't use the full activity I will get ideas to expand on a lab or activity that I am already doing. Also the teacher guide is great for a quick overview of what to expect. That really makes the students more comfortable before they go on their trip.
- Continue to provide info on varied habitat of park and pictures of varied birds, species, etc. of park

CAMP

- I have received plenty of information to teach with from the Everglades National Park
- All of the materials are quite valuable.

However, there were some suggestions regarding needs for materials, and these included:

Suggestions for materials DAY

- Bird guides, plant and tree identification guides would be great.
- Possibly some teacher maps (NPS brochures) prior to going to the park
- Pre and post activity packets that highlight the specifics of the trip.
- Some information flyers
- Reading activities using Everglades related material that enhances the Everglades curriculum would be beneficial to our departmentalized instruction.
- We need updated/new videos! The video that we have, Children of the Everglades is in very poor condition.
- Maybe a virtual tour seen through the eyes of one of the everglades creatures.

Suggestions for materials CAMP

- Detailed information about the common species and preferred prey/predators for students to prepare.
- Updated list of activities

Two respondents also indicated that the timing of materials sent to the schools needed to be earlier.