

# Wildlife Conservation in a Developing Landscape: Interfacing Ecological Research and Science-based Public Awareness

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# Threats

## Habitat Alterations



- 11% of surface area in lower 48 originally
- Loss between 1950-80 – agriculture
- Now covers 5%
- Now habitat conversion for development

# Threats

## Habitat Alterations

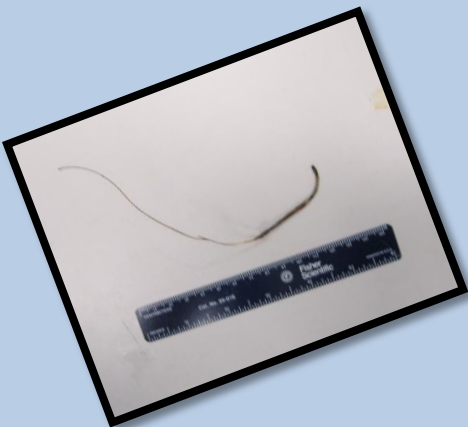
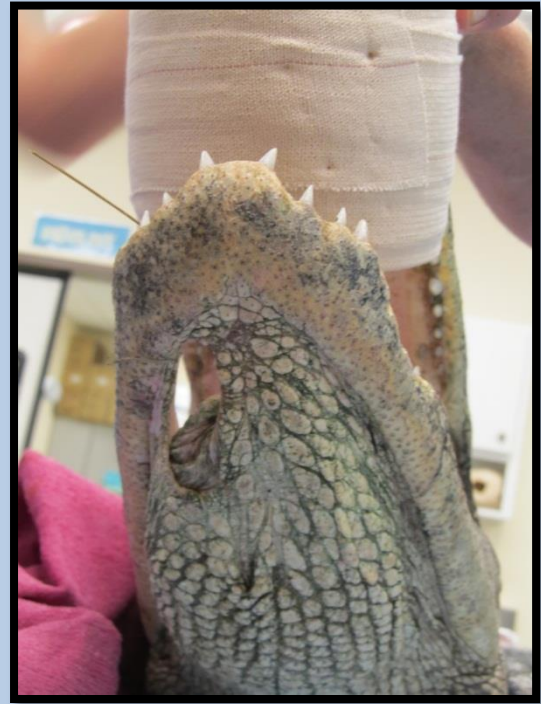
Trash

Heavy metals

Hormones and PCBs











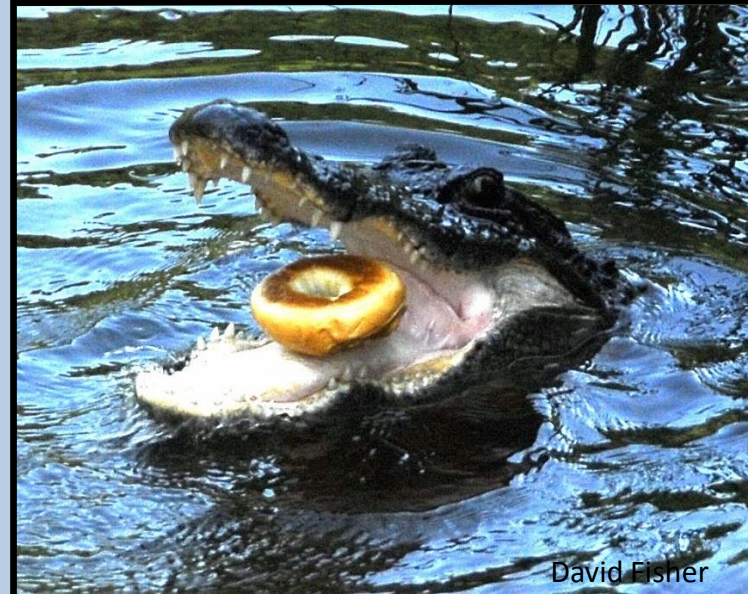
Encroachment



Supplemental Feeding



- May result in changes in wildlife behavior and ecology (Beckmann and Berger 2003, George and Crooks 2006)
- Top predators are vulnerable to the effects of development (Ripple et al. 2014)
- Often removed from the system (Graham et al. 2005)

























# Study Site

- Jekyll Island, GA
  - State Park
  - Jekyll Island Authority
  - 2,237.77 hectares
- 651.22 hectares are developed
- 34 human-made stormwater lagoons (23 on golf course)
- Extensive marsh system





# Objective 1

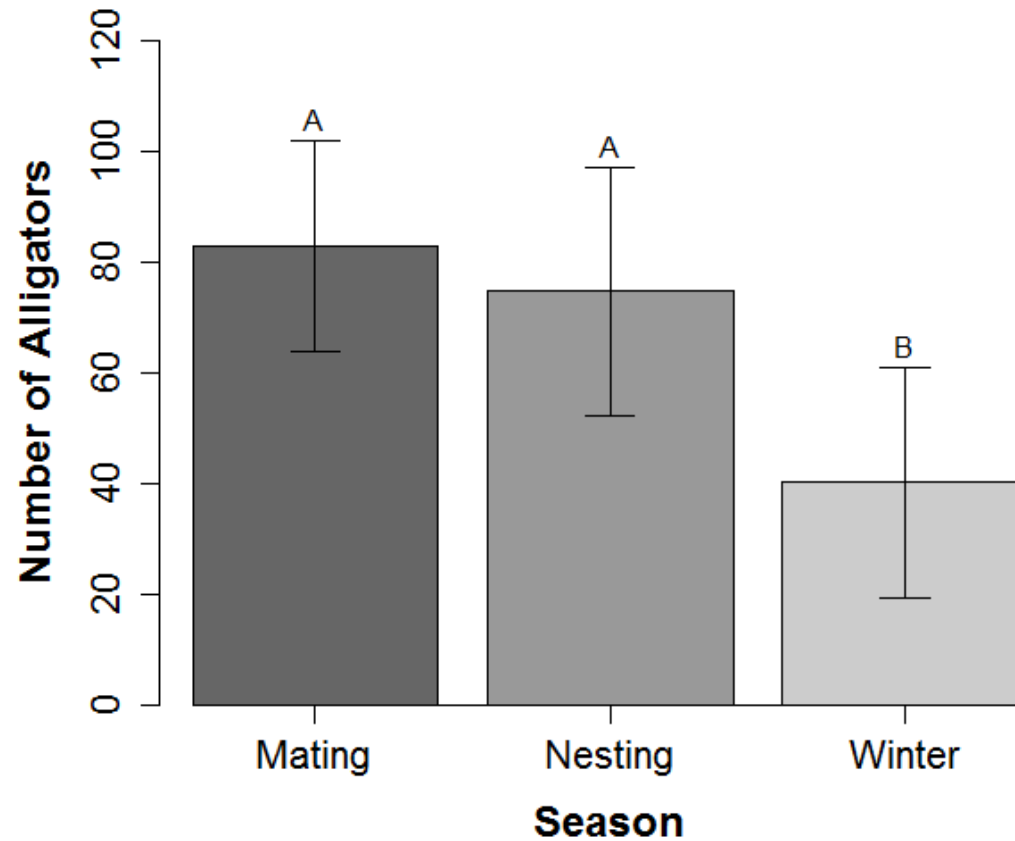
## Factors Influencing the Activity and Abundance of the American Alligator (*Alligator mississippiensis*) on Jekyll Island, Georgia, USA

- Determine effect of season on activity and effects of four lagoon characteristics on abundance





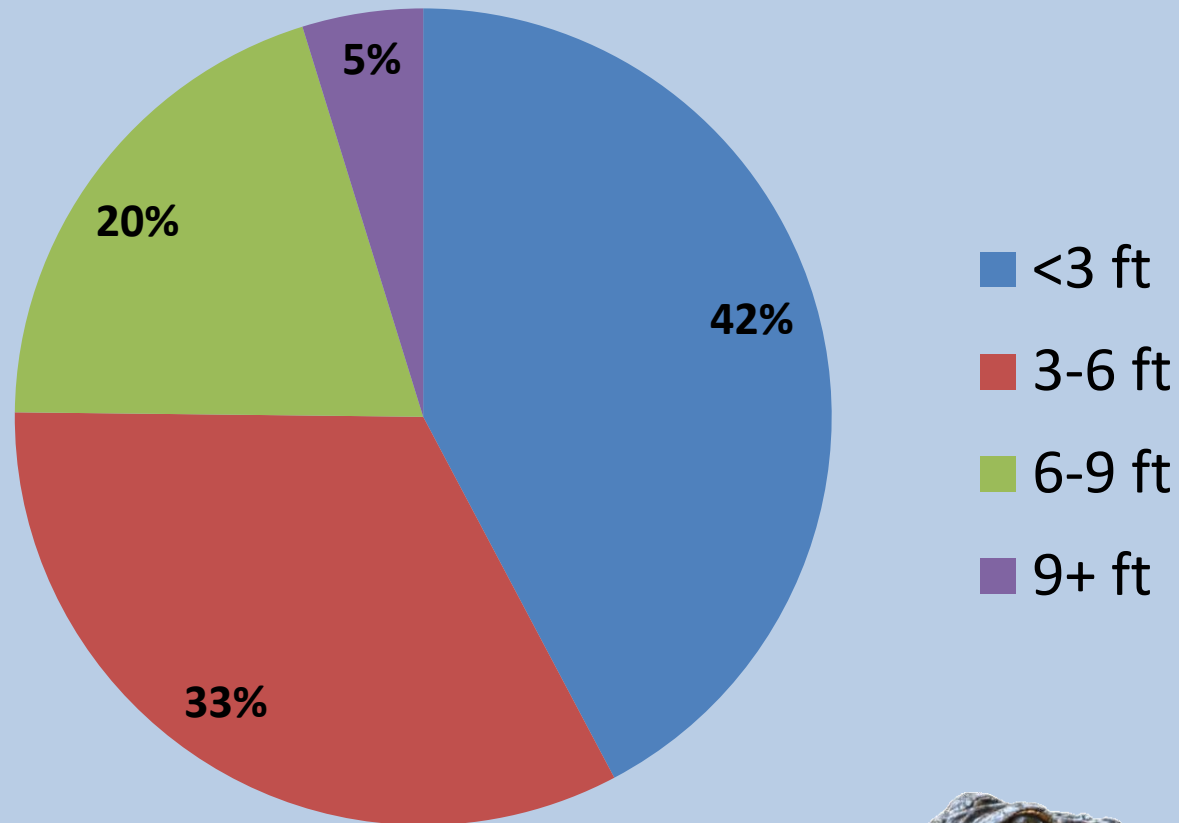
Mating – March to June  
Nesting – July to October  
Winter – November to February



Most observed = 126



## Size Class Structure of American Alligators on Jekyll Island, GA





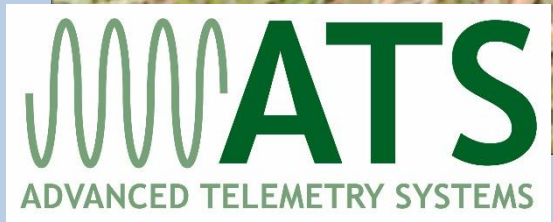
# Objective 2

## American Alligator Spatial Ecology

- Assess the efficacy of VHF and GPS telemetry
- Comparison of home range sizes and habitat use









Woody  
4/27/2014 – 10/31/2014  
1152

***a-LoCoH -***

<i>ha</i>	Ave	Min	Max
Radio	35.3	4.55	105.90
GPS	136.3	16.41	386.37



100% isopleth = 4.55 ha  
20% isopleth = 0.81 ha



0 250 500 1,000 1,500 2,000 Meters



Radio Telemetry

**Jesus**

10/28/2013 - 9/18/2014

325 days

61 relocations



100% isopleth = 161.66 ha  
20% isopleth = 2.98 ha



GPS Telemetry

**Jesus**

4/20/2014 - 7/1/2014

72 days

330 relocations



# Radio Telemetry





# Objective 3

## Teaching Tolerance? Effects of Conservation Education Programs on Wildlife Acceptance Capacity

- Assess the effectiveness of two education programs on key elements of WAC
  - positive attitudes
  - perceived risk
  - potential for coexistence



- Offered in 2013 and 2014
  - Free in 2013
  - \$2 in 2014
- Standardized length and content
- Exposure in wild, media, and previous program
- Residence and JI affiliation
- Age
- Education
- Pets

## The Alligators of Jekyll Island



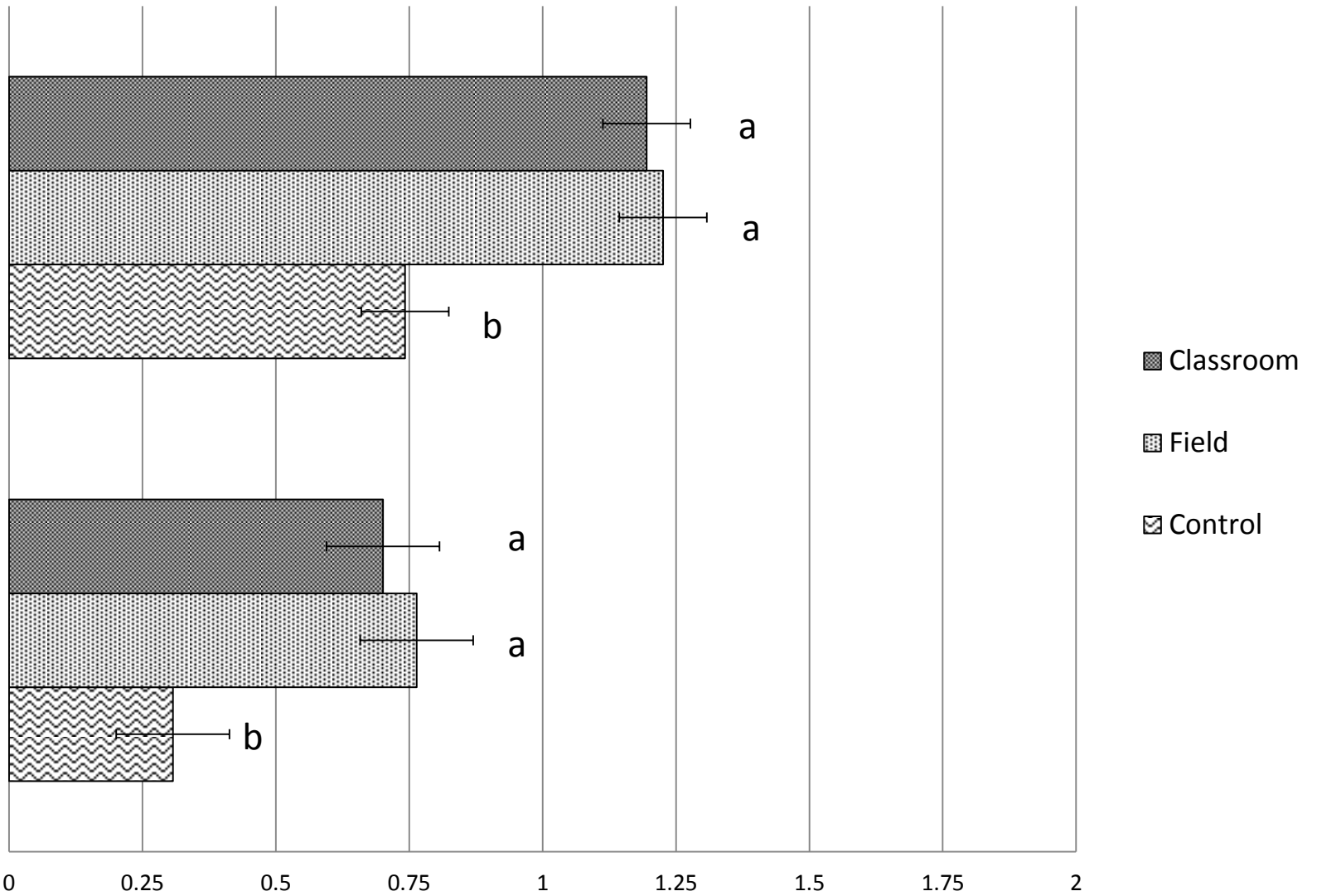
The University of Georgia, Jekyll Island Authority, and Georgia Department of Natural Resources are conducting a survey of Jekyll Island visitors, residents, and employees to learn more about their attitudes toward alligators. The information that you provide will offer feedback on how we can continue to improve our programs and help managers develop effective strategies and programs to promote positive, safe interactions between people and alligators.

We are grateful for your feedback and time in completing this questionnaire.  
Your help is voluntary and responses are anonymous and confidential.





**Positive  
Attitudes**



Classroom

Field

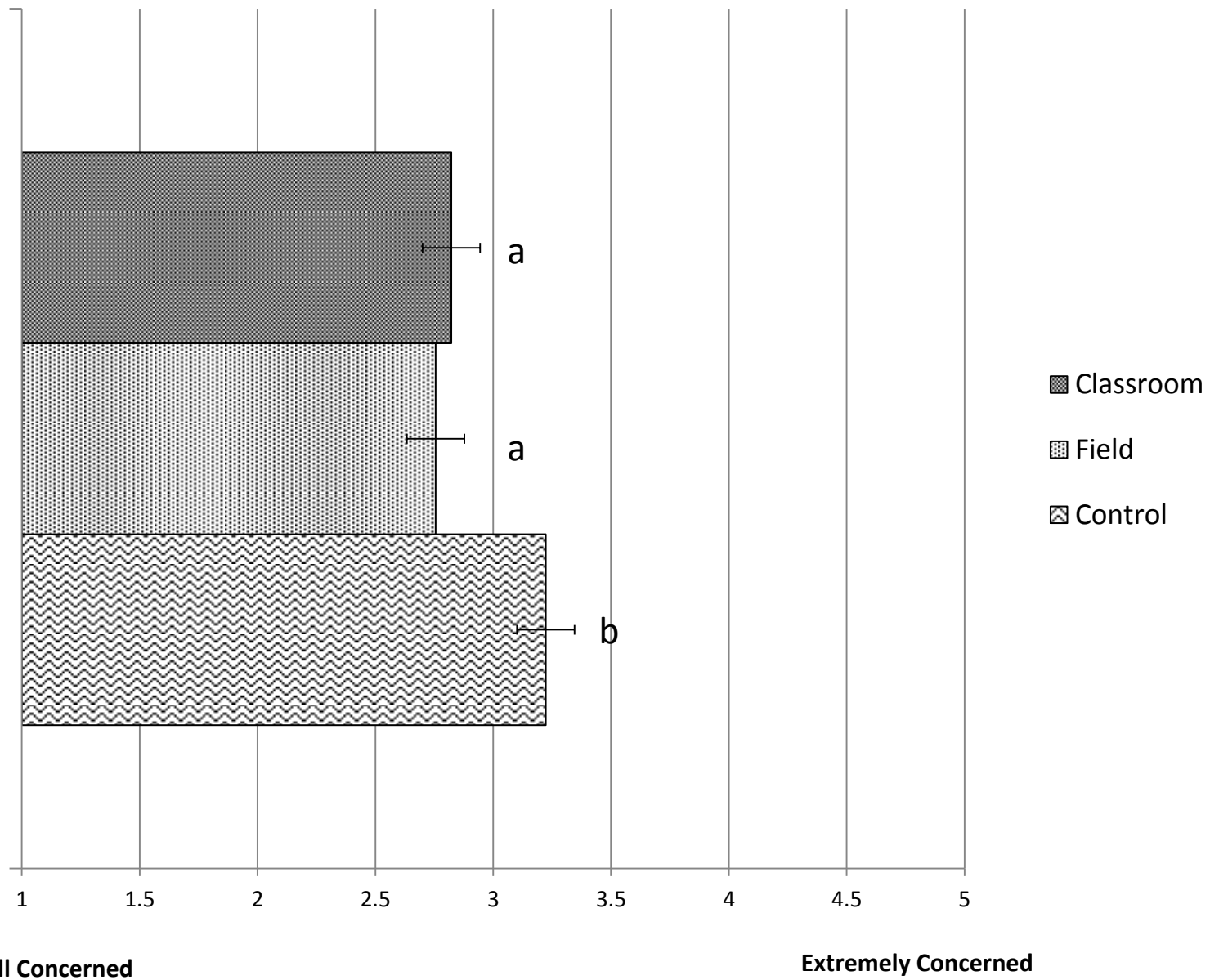
Control

**Coexistence**

**Neutral**

**Strongly Agree**

**Perceived  
Risk**





# Cognitive Hierarchy Model

Homer and Kahle's (1988)



Desirable individual  
end state, mode of  
conduct, or quality  
of life

Evaluation of  
person, object,  
or action

The way one acts  
or conducts  
oneself





100% isopleth = 105.90 ha  
20% isopleth = 4.09 ha



Radio Telemetry



**Woody**

4/19/2013 - 9/18/2014

517 days

113 relocations

100% isopleth = 386.37 ha  
20% isopleth = 7.67 ha



GPS Telemetry

**Woody**

4/27/2014 - 8/8/2014

103 days

657 relocations

0 375 750 1,500 2,250 3,000 Meters



- 60 programs (classroom = 34, field = 26)
  - 1347 participants
- 1064 questionnaires
  - Beach = 363
  - Classroom = 358
  - Field = 343



- Offered in 2013 and 2014
  - Free in 2013
  - \$2 in 2014
- Advertised:
  - Flyers, press releases, handouts, billboards, Facebook
- Standardized length and content

## The Alligators of Jekyll Island



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- Participants similar in:
  - Exposure to alligators in wild
  - Exposure to alligators in media
  - Attendance of previous alligator program
- Differed in:
  - Affiliation
  - Age
  - Pets
  - Education
- Control group = visitors, younger, more likely to own pets, and less education