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
Top predators are vulnerable to the effects of development (Ripple et al. 2014).

Often removed from the system (Graham et al. 2005).

May result in changes in wildlife behavior and ecology (Beckmann and Berger 2003, George and Crooks 2006).
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
Most observed = 126

Mating – March to June
Nesting – July to October
Winter – November to February
Size Class Structure of American Alligators on Jekyll Island, GA

- <3 ft: 42%
- 3-6 ft: 33%
- 6-9 ft: 20%
- 9+ ft: 5%
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

<table>
<thead>
<tr>
<th>Method</th>
<th>Ave</th>
<th>Min</th>
<th>Max</th>
</tr>
</thead>
<tbody>
<tr>
<td>Radio</td>
<td>35.3</td>
<td>4.55</td>
<td>105.90</td>
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<tr>
<td>GPS</td>
<td>136.3</td>
<td>16.41</td>
<td>386.37</td>
</tr>
</tbody>
</table>
100% isopleth = 4.55 ha
20% isopleth = 0.81 ha

Jesus
10/28/2013 - 9/18/2014
325 days
61 relocations
Jesus
4/20/2014 - 7/1/2014
72 days
330 relocations

100% isopleth = 161.66 ha
20% isopleth = 2.98 ha
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
Cognitive Hierarchy Model
Homer and Kahle’s (1988)

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

Attitudes
Evaluation of person, object, or action

Behaviors
The way one acts or conducts oneself
Radio Telemetry

Woody
4/19/2013 - 9/18/2014
517 days
113 relocations

100% isopleth = 105.90 ha
20% isopleth = 4.09 ha
Woody
103 days
657 relocations

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