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**BRUNO FERREIRA GUILHON**

**KNOWLEDGE OF AN URBAN PARK VISITORS ABOUT THE NATIVE  
WILDLIFE: THEIR PROFILE COULD INFLUENCE THIS UNDERSTANDING?**

**Análise do conhecimento dos visitantes de um Parque Urbano sobre a vida selvagem  
nativa: seu perfil influencia neste entendimento?**

**FORTALEZA**

**2018**

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Orientadora: Prof<sup>ª</sup>. Dr<sup>ª</sup>. Diva Maria Borges Nojosa.

Co-orientador: Dr. João Fabrício Mota Rodrigues

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Aprovada em: \_\_\_/\_\_\_/\_\_\_\_\_.

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## RESUMO

A etnozootologia é uma área de estudo bastante importante para ajudar a compreender melhor as interações e o conhecimento das comunidades humanas em relação aos demais animais. Esse conhecimento pode variar devido a questões culturais da região, bem como também por características sociais do indivíduo, como: idade, grau de escolaridade e frequência de visitaçãõ a regiões verdes. Por meio de estudos com essas comunidades pode-se obter informações sobre a fauna, relevantes à conservação. O Parque do Cocó configura-se como uma unidade de conservação do tipo Parque Estadual, localizado no município de Fortaleza–CE, possuindo uma rica fauna nativa e diversos problemas ambientais associadas, como os gatos domésticos presentes no local. O presente estudo objetivou avaliar se o conhecimento acerca desta problemática e sobre a diversidade faunística do Cocó variava em relação ao perfil dos visitantes. Os dados foram coletados entre os meses de setembro e outubro de 2018 usando um questionário estruturado e aplicado com 126 visitantes do Parque. Foi observado que os visitantes conhecem relativamente pouco sobre a fauna do Parque Estadual do Cocó e também costumam encontrar poucos animais durante as atividades realizadas no local. Não foram encontradas relações entre o conhecimento com a idade e frequência de visitaçãõ, além de que o grau de escolaridade também não influenciou o correto reconhecimento dos gatos como um problema ambiental do Parque. Possivelmente, alternativas mais diretas de informar os visitantes sobre a fauna que compõem o Parque possam trazer resultados mais positivos que apenas os avistamentos realizados por eles. Além disso, atividades de educação ambiental podem aumentar o conhecimento sobre o impacto causado pelos gatos abandonados no Parque, atuando assim também na conservação das espécies nativas.

**Palavras-chave:** Etnozootologia. Educação ambiental. Unidades de conservação. Parque Estadual do Cocó. Espécies exóticas invasoras.

## ABSTRACT

Ethnozoology is a very important area of study that could help better understand the interactions and knowledge of human communities in relation to other animals. This knowledge may vary due to cultural issues in the region, as well as social characteristics of the individual, such as: age, educational level and frequency of visits to green areas. Through studies with these communities can obtain information on the fauna, relevant to conservation. The Parque do Cocó is a conservation unit of the State Park type, located in the municipality of Fortaleza-CE, possessing a rich native fauna and several associated environmental problems, such as the cats present in the place. The present study aimed to evaluate if the knowledge about this problem and the faunistic diversity of Cocó varied in relation to the profile of the visitors. The data were collected between September and October 2018 using a structured questionnaire applied with 126 Park visitors. It was observed that the visitors know relatively little about the fauna of the Parque Estadual do Cocó and usually find few animals during the activities realized in the place. No relationship was found between the knowledge with age and frequency of visitation, besides the level of schooling also did not influence the correct recognition of the cats as an environmental problem of the Park. Possibly, more direct alternatives to inform the visitors about the fauna that compose the Park can bring more positive results than just the sightings made by them. And environmental education activities can increase awareness about the impact of abandoned cats in the Park, thus also helping to preserve native species.

**Keywords: Ethnozoology. Environmental education. Conservation unit. Cocó State Park. Invasive alien species**



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## KNOWLEDGE OF AN URBAN PARK VISITORS ABOUT THE NATIVE WILDLIFE: THEIR PROFILE COULD INFLUENCE THIS UNDERSTANDING?

### Análise do conhecimento dos visitantes de um Parque Urbano sobre a vida selvagem nativa: seu perfil influencia neste entendimento?

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**ABSTRACT:** Ethnozoology is a very important area of study that could help better understand the interactions and knowledge of human communities in relation to other animals. This knowledge may vary due to cultural issues in the region, as well as social characteristics of the individual, such as: age, educational level and frequency of visits to green areas. Through studies with these communities can obtain information on the fauna, relevant to conservation. The Parque do Cocó is a conservation unit of the State Park type, located in the municipality of Fortaleza-CE, possessing a rich native fauna and several associated environmental problems, such as the cats present in the place. The present study aimed to evaluate if the knowledge about this problem and the faunistic diversity of Cocó varied in relation to the profile of the visitors. The data were collected between September and October 2018 using a structured questionnaire applied with 126 Park visitors. It was observed that the visitors know relatively little about the fauna of the Parque Estadual do Cocó and usually find few animals during the activities realized in the place. No relationship was found between the knowledge with age and frequency of visitation, besides the level of schooling also did not influence the correct recognition of the cats as an environmental problem of the Park. Possibly, more direct alternatives to inform the visitors about the fauna that compose the Park can bring more positive results than just the sightings made by them. And environmental education activities can increase awareness about the impact of abandoned cats in the Park, thus also helping to preserve native species.

**Keywords:** Ethnozoology. Environmental education. Conservation unit. Cocó State Park. Invasive alien species

## 1. INTRODUCTION

The interactions between humans and animals are very old in the history and are marked with a variety of ecological relationships (MOURÃO et al., 2006; ALLABY, 2010). During their history, humans began to observe animals and transmit information about species and the

environment over their generations. This is intimately represented in knowledge, beliefs and cultural practices related to animals (SANTOS-FITA; COSTA-NETO, 2007). Because of that, animals are often one of the central features of many human cultures and have a lot of representations (MANNING; SERPELL, 2002), as in cave paintings (AUBERT et al., 2014; MITHEN, 2013), domestication (MORRIS, 1967; TUNNER; BATESON, 2000; VIGNE, 2011), myths and legends (ALLABY, 2010) and among many others.

The relationship between humans and animals is one of the subjects of Ethnozoology, a field of study that aims to understand the interactions between them (ALVES; SOUTO, 2011). Ethnozoology also observes, among other subjects, the perceptions and classification systems (FLECK et al., 1999; MOURÃO et al., 2006), biological aspects and cultural representations related to animals in human cultures, quite present in folk knowledge (MORRIS, 1967; SANTOS-FITA; COSTA-NETO, 2007).

The folk knowledge is commonly originated from experiences of past generations with the nature that were transmitted orally to future generations (POSEY et al., 1984; COSTA-NETO, 2005; SANTOS-FITA; COSTA-NETO, 2007). People, besides sharing space with fauna, recognize and name animals by following their own locally widespread categories and names, and in this way biodiversity also belongs to the cultural domain, and culture enable people to understand and know the fauna (DIEGUES, 2000).

Some cultural and social factors can affect attitudes, perceptions (SERPELL, 2004) and knowledge related to animals (ELLEN, 1998). There may be qualitative and quantitative variations of this knowledge according to age (KELLERT, 1985a; RANDLER et al., 2007), level of schooling (KELLERT; BERRY, 1980; PINHEIRO; RODRIGUES; BORGES-NOJOSA, 2016) and, in case of animals found in green areas or natural parks, frequency of visitation (RANDLER et al., 2007).

In relation to knowledge toward animals, some studies presents some kind of positive relation with age (RANDLER et al., 2007), considerably in young children to young adults (KELLERT, 1985a, 1997). Perhaps this relation it is because the interest in activities involving animals increases with increasing age (BJERKE; ØSTDAHL, 2004). But this relation is not well established between adults and older people, presenting no significant differences in knowledge among these two groups (KELLERT, 1997). Frequency of visitation in urban parks also shows a positive relation with knowledge (RANDLER et al., 2007). According to this author, most frequent visitors tend to know more animals than less frequent visitors and people

who do not visit the park, because there may be occasional learning and visitors may also be able to encounter more animals during activities in the park.

Among the other variables, level of schooling presents the most striking relation with knowledge toward animals (KELLERT; BERRY, 1980; KELLERT, 1984; PINHEIRO; RODRIGUES; BORGES-NOJOSA, 2016). People with higher level of schooling has substantially more naturalistic and less utilitarian views related to animals, expressing greater affection, interest and knowledge toward animals and the natural world (KELLERT, 1997). Higher educational levels also could contribute to a biocentric perspective of life, inducing people to see more the animals with equal rights (BJERKE; ØSTDAHL, 2004). Besides that, education is related with information, and people with higher educational levels are more likely to have been exposed to ecological principles (DUNLAP; LIERE, 1978; OSTMAN; PARKER, 1987), in this way it is expected that they also present knowledge and awareness toward the nature problems.

One of the types of natural spaces in modern cities are the urban parks. This space represent a fundamental importance in the form of ecosystem services (COSTANZA et al., 1997). They provide valuable benefits to environment and to the population, aiding in the mitigation of temperature, carbon sequestering, prevention of floods from the rainwater drainage and it acts as a refuge for wildlife (COSTANZA et al., 1997; BUNDUND; HUNHAMMAR, 1999). And also in the form of psychological services, urban parks provide a space for recreation and health improvement for visitors (CHIESURA, 2004).

However, there are some problems that may go undetected by visitors while they use the park. Invasive alien species, for example, can cause a significant impact in the environment (SIMBERLOFF; REJMÁNEK, 2011) and, mainly, in the native biodiversity (POWELL et al., 2013). The domestic cat (*Felis catus*) is one of the most common invasive alien species and it negatively affects the native fauna in several regions of the world (LOWE et al., 2000). Cats are responsible for the death of countless animals and also extinction of several species of reptiles; birds and mammals (TUNNER; BATESON, 2000; LOSS; WILL; MARRA, 2013), not only by preying, but also competing with native predators (COLEMAN; TEMPLE; CRAVEN, 1997) and transmitting new diseases to wild felines (ROELKE et al., 1993; JESSUP et al., 2015). This problem is a great challenge, because the management is greatly hampered by public opinion (NOVOA et al., 2017), but at same time the key to success of conservation projects, which aim to control and remove invasive alien species, is also the public support and awareness (BREMNER, 2007).

Therefore, due to the importance of urban parks for the city and the necessity to preserve its biodiversity, we wondered if visitors know the wildlife that occur within that area of the city and if they have awareness and know the risks that the park's biodiversity suffer with the invasive alien species. Thus, our study aimed to understand how the sociodemographic conditions and the profile of visitors of an urban park affect their knowledge about a park fauna. Then, more specifically we aimed to observe 1) if this knowledge varies according to frequency of visitation and age of the visitors, 2) whether the formal education has influence in the ability to recognize cats as invasive animals that affect the native wildlife of the park. We expected that people that visit the park more frequently and older visitors would be able to know more about the animals of the park. In addition, visitors with higher educational level would be more likely to recognize cats as an invasive alien animal.

## **2. METHODS**

### *2.1. Study Site*

Urban parks and open green areas are great locations to observe and study the factors mentioned above, because it is possible to find a wide variety of people in different sociodemographic conditions and with most diverse motivations to visit nature (CHIESURA, 2004; RANDLER et al., 2007).

Thus, we conducted this study in the Parque Estadual do Cocó, an urban park within the city of Fortaleza, Ceará, northeastern Brazil. Formerly, the area in which today is the park used to be a saltern, but it was deactivated in the 70's. After that, the area for the park was demarcated, but it spent a lot of time without a protective status. Just recently, the "Parque Estadual do Cocó" was officially inaugurated (by state decree nº 32,248 of July 4, 2017) as a Conservation Unit. Therefore, the park was regularized with an area of 1,571 ha, which covers the limits of the cities of Fortaleza and Maracanaú until the mouth of the Cocó river in Sabiaguaba beach.

The Park is characterized by a large part of Dune Fields, Coastal Plains, Pre-coastal Tabuleiro, Caatinga and Mangrove vegetation, mainly by White, Black and Red Mangrove (SOARES, 2005). The park allows visitation only between 05:30 and 17:45, your surroundings are fenced and there are areas fragmented by roads. Inside there is a dense forest that borders the trails that cover the extension of the park that have, in all, about 2.015 km length, which the visitors can pass through by bike or hiking, also with dogs. Besides, the visitors often use the

park for picnics or other gatherings and the Park also has at the disposal of visitors some environmental educators (EA) who works on disseminating information about the fauna, flora and history of the park to them. The park has some environmental problems, but mainly the great presence of cats. These cats are abandoned within the area and some people give food and shelter to them. However, they are still reproducing and killing the native fauna of the park.

## *2.2. Questionnaire*

We interviewed 126 visitors at the park, except for those who were interacting with cats, using a questionnaire (TABLE 1; APPENDIX A). The questionnaire included closed and open-ended question, and usually took five minutes to complete. We applied it between September 08 and October 21, 2018. Each interview started with an introduction about the study and its aims, and then we allowed the visitors to answer the questions. The participation in the study was not obligatory and we asked the visitors whether they consent the use of the data in the research. We did not ask for any other personal information of the visitors, as their names, monthly income or their identity number.

We categorized the level of schooling by considering complete or incomplete the primary, secondary school and college, following the Ministry of Education of Brazil's guidelines. About the sixth question we considered a "positive" answer if the visitors marked "yes" and recognized the cats as an invasive alien species and/or justified because they negatively affect wildlife, by killing or transmitting diseases. However, we considered a "negative" answer if visitors marked "no", "did not know" or even "yes", but with any other justification.



Table 1 – Summary of the questions addressed in the questionnaire, applied in the Parque Estadual do Cocó, with the possible answers of closed questions in parenthesis.

1. Age, gender (m/f), public or private school and educational level (1st to 9th grade of primary school; 1st to 3rd grade of secondary school, college, master and doctorate.)
2. How often do you visit the Parque Estadual do Cocó? (first time, irregular, once a month, every week, more than once a week)
3. What activities do you perform or participate in the Park? Have you ever seen any animal during these activities? Which are? (More than one activity and animal can be cited per visitor)
4. Which of these animals occur in the Parque Estadual do Cocó?
5. What is the source of your knowledge about the animals of the Parque Estadual do Cocó? (TV; Newspaper; Environmental Educators of the Park; Information boards; Internet; Friends/Family; School; Sightings and Others)
6. Do you think abandoned cats living in the park can have any impact on wild animals in the park? Why?

Source: Elaborated by the authors.

### 2.3. Species Selection

To understand the species recognized by visitors as native animals of Parque Estadual do Cocó, we made a list with 18 species that occur in the park, in addition with more six exotic animals that do not belong to the Park fauna (TABLE 2). The native species were verified according to the official records of sightings registered by the Park management, the work performed by Aguiar (2017) (AGUIAR, 2017) and by checking the species collected in the Park and listed in the Coleção Herpetológica da Universidade Federal do Ceará (CHUFC). To help the interviewed to recognize the animals, the common names were present in a list and we showed pictures of every animal using a cellphone while the interviewed was marking those they know occur in the Park.

### 2.4. Data Analysis

We considered the knowledge of visitors related to animals by the Number of Native Animals Marked (NNAM) and the Number of Native Animals Sighted (NNAS), from the answers of the fourth and the third question, respectively. Thus, excluding the domestic and invasive species of the city fauna. From this, to observe if the NNAM and NNAS were related to the frequency of visitation or the age of visitors we performed two tests. First, we tested the assumptions of homoscedasticity and normality, then we use an ANOVA with NNAM

depending on the frequency of visitation. Besides, we performed a Spearman's rho between age of visitors and NNAM. For the NNAS we performed the same two tests.

Table 2– List of species selected presented in the interviews in the Parque Estadual do Cocó.

Common name	Scientific name	Status
“Tatu-Peba”	<i>Euphractus sexcinctus</i>	Native
“Macaco Prego”	<i>Sapajus libidinosus</i>	Dot not occur in Fortaleza
“Raposa”	<i>Cerdocyon thous</i>	Native
“Cassaco”	<i>Didelphis albiventris</i>	Native
“Morcego”	<i>Artibeus planirostris</i>	Native
“Soim”	<i>Callithrix jacchus</i>	Native
“Mão Pelada”	<i>Procyon cancrivorus</i>	Native
“Esquilo”	<i>Sciurus carolinensis</i>	Do not occur in Brazil
“Garça”	<i>Ardea alba</i>	Native
“Gavião Caramujeiro”	<i>Rostrhamus sociabilis</i>	Native
“Anu Branco	<i>Guira guira</i>	Native
“Anu Preto”	<i>Crotophaga ani</i>	Native
“Águia”	<i>Haliaeetus leucocephalus</i>	Do not occur in Brazil
“Frango D’Água Azul	<i>Porphyrio martinicus</i>	Native
“Soldadinho do Araripe”	<i>Antilophia bokermanni</i>	Do not occur in Fortaleza
“Pica Pau”	<i>Picumnus limae</i>	Native
“Iguana”	<i>Iguana iguana</i>	Native
“Jiboia”	<i>Boa constrictor</i>	Native
“Píton”	<i>Malayopython reticulatus</i>	Do not occur in Brazil
“Surucucu”	<i>Lachesis muta</i>	Do not occur in Fortaleza
“Cobra D’água”	<i>Erythrolamprus taeniogaster</i>	Native
“Cobra Cipó”	<i>Oxybelis aeniis</i>	Native
“Falsa Coral”	<i>Oxyrhopus trigeminus</i>	Native
“Cobra Verde”	<i>Philodryas olfersii</i>	Native

Source: Elaborated by the authors.

In relation to the sixth question, we used the Chi-Square test to assess the dependence between: 1) Recognition of the Cats as an Environmental Problem (RCEP) and sighting of cats in the park area, 2) RCEP and sightings of cats inside the park trails, 3) RCEP and level of schooling. To isolate the level of schooling variable in our analysis, we performed the first two tests to observe whether visitors might not recognize cats as an environmental problem because they don't see many cats inside the park and trails.

We analyzed the variables using a significance level of  $P < 0.05$ . In this study, we performed all the analysis using R version 3.5.1 (Development Core Team,2018).

### 3. RESULTS

We observed that the profile of the visitors of Parque Estadual do Cocó corresponds to people between 13 and 83 years (mean  $\pm$  standard deviation;  $33.04 \pm 15.18$  years), almost the same proportion of male and female (TABLE 3). Most visitors completed the secondary school, visit the Park at a low frequency (first time and/or irregular) and carry out activities involving the trails of the Park.

Table 3– Profile of visitors of Parque Estadual do Cocó (n = 126).

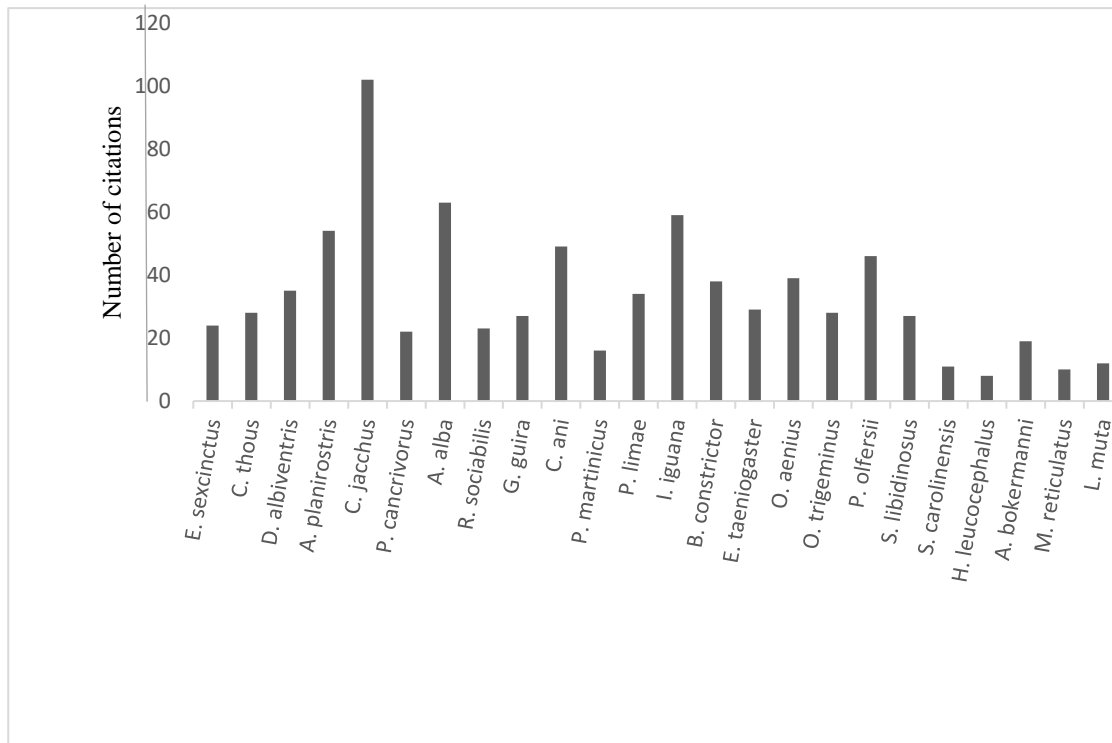
Variable	Information	Number of visitors
Age (years)	<20	20
	20>29	46
	30>39	19
	40>49	17
	50>59	17
	60>69	4
	70>79	2
	>80	1
Gender	Male	62
	Female	64
Level of schooling	Primary incomplete	5
	Primary complete	5
	Secondary incomplete	7
	Secondary complete	73
	College complete	36
Frequency	First time	39
	Irregular	39
	Once a month	26
	Every week	13
	More than once a week	9
Activities	Trails	40
	hiking (within the trails)	64
	Picnic	34
	Cycling (within the trails)	6
	Photography	5
	Exercises	4
	Observe fauna	3
	Others	16

Source: Elaborated by the authors

They saw few animals during the activities in the Park ( $1.05 \pm 1.29$  NNAS) and knew few animals ( $5.683 \pm 4.76$  NNAM). Most visitors cited (number of citations in parentheses) *C. jacchus* (102) and *A. alba* (63), while *P. cancrivorus* (22) and *P. martinicus* (16) were the less know (FIGURE 1). Some visitors also claim to exist in the Park some exotic species: *S. libidinosus* (27), *A. bokermanni* (19), *L. muta* (12), *S. carolinensis* (11), *H. leucocephalus* (8) and *M. reticulatus* (10) (FIGURE 1). The two sources of knowledge about the animals most cited by visitors were “information boards” (64) and “sightings” (58), but few visitors cited the

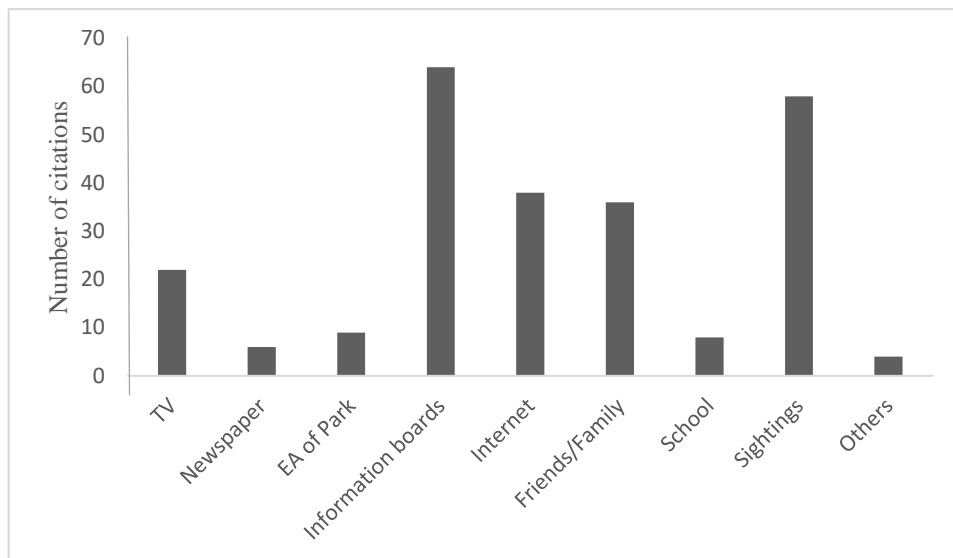
“EA of the Park” (9) (FIGURE 2.). About the sixth question, we considered most of the responses as “negative”, because many visitors answered “no” (67), provided a wrong answer (15), or did not know (2).

Figure 1 – Frequency of citation of each animal species marked by visitors of Parque Estadual do Cocó.



Source: Elaborated by the authors.

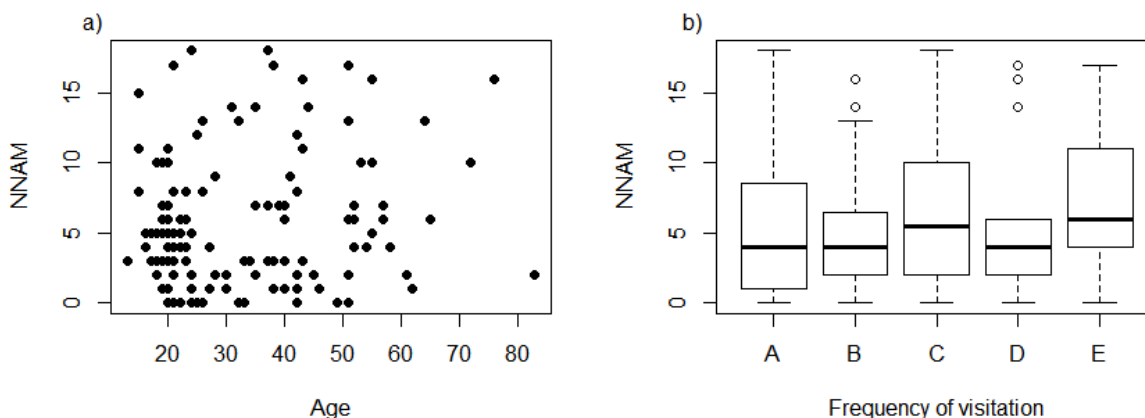
Figure 2 – Frequency of each category of source of knowledge about the fauna of Parque Estadual do Cocó marked by visitors.



Source: Elaborated by the authors.

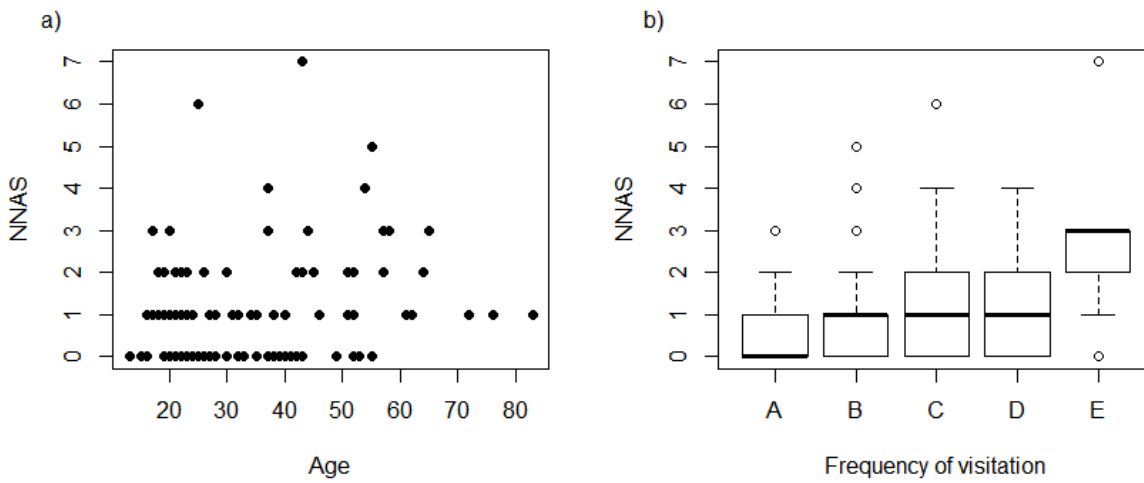
The NNAM was not influenced by age ( $\rho = 0.09$ ,  $n = 126$ ,  $p = 0.3113$ ) (FIGURE 3-A) and frequency of visitation ( $F = 1.127$ ,  $df = 4, 121$ ,  $p = 0.347$ ) (FIGURE 3-B). However, the NNAS increased with increases of age ( $\rho = 0.2022$ ,  $n = 126$ ,  $p = 0.02314$ ) (FIGURE 4-A) and with increases of frequency of visitation ( $F = 6.859$ ,  $df = 4, 121$ ,  $p < 0.001$ ) (FIGURE 4-B).

Figure 3 –Relation between a) Number of Native Animals Marked (NNAM) and age of visitors, b) NNAM and frequency of visitation at the Parque Estadual do Cocó. A = First time; B = Irregular; C = Once a month; D = Once a week; E = More than once a week.



Source: Elaborated by the authors.

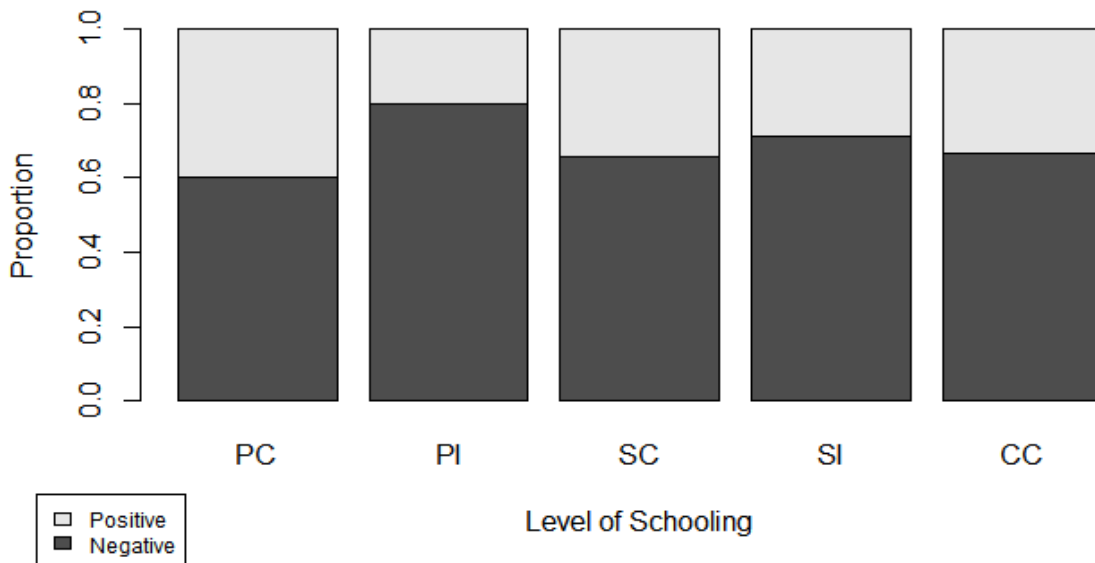
Figure 4 – Relation between a) Number of Native Animals Sighted (NNAS) and age of visitor, b) NNAS and frequency of visitation at the Parque Estadual do Cocó. A = First time; B = Irregular; C = Once a month; D = Once a week; E = More than once a week.



Source: Elaborated by the authors.

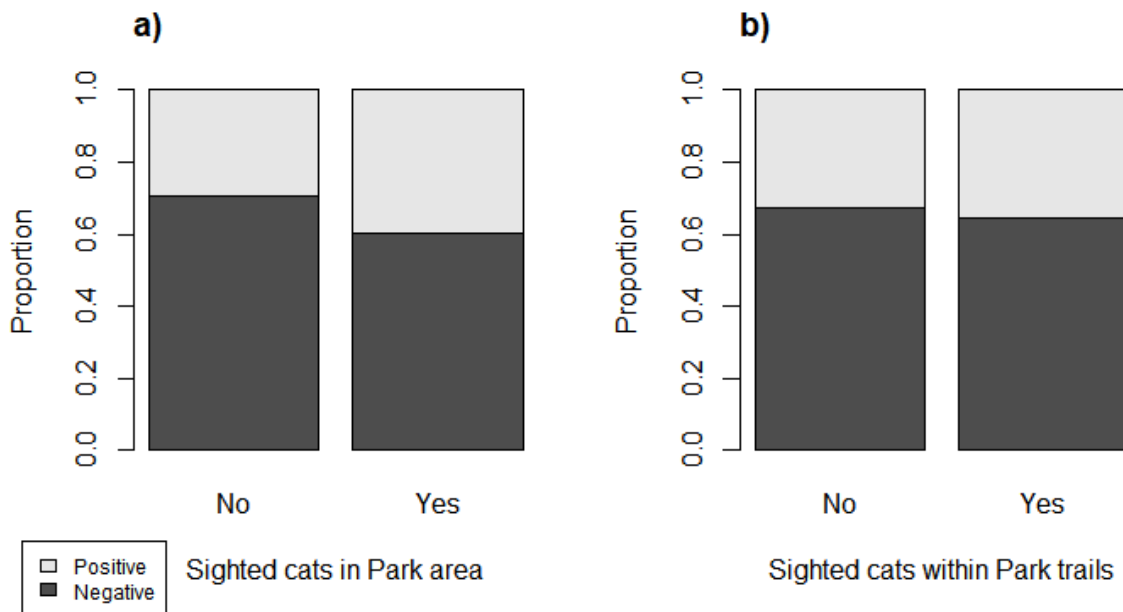
And about the RCEP we did not find any relation according to level of schooling ( $X = 0.59883$ ,  $df = 4$ ,  $p = 0.9632$ ) (FIGURE 5), sighting of cats in the park area ( $X = 0.94651$ ,  $df = 1$ ,  $p = 0.3306$ ) (FIGURE 6-A) and sighting of cats within the park trails ( $X = 0.005348$ ,  $df = 1$ ,  $p = 0.9417$ ) (FIGURE 6-B). Also, many visitors showed an innocent view in relation to the behavior of cats, claiming that cats are harmless to other animals.

Figure 5–Proportion of responses about cats as an environmental problem according to the level of schooling of visitors at the Parque Estadual do Cocó: PC=Primary complete; PI= Primary incomplete; SC=Secondary complete; SI=Secondary incomplete; CC=College complete.



Source: Elaborated by the authors.

Figure 6 – Proportion of responses about cats as an environmental problem according to a) Visitors that claim to have sighted cats in the Park, b) Visitors that claim to have sighted cats within the trails at the Parque Estadual do Cocó.



Source: Elaborated by the authors.

#### 4. DISCUSSION

Many studies showed that visitors age and level of schooling (KELLERT; BERRY, 1980; KELLERT, 1984, 1985a, 1997) in urban parks, and frequency of visitation (RANDLER et al., 2007) are great predictors to knowledge toward animals. However, our study showed contrasting results.

The visitors of Parque Estadual do Cocó, during their activities, saw more animals with the increase of their age and frequency of visitation. These variables were positively related, showing similar results with that of the studies cited above and confirming our forecasts. However, they still saw few species, and this does not represent the amount of species addressed in the questionnaire. In addition, most visitors also had a low level of knowledge about the animal species, with the NNAM average being less than 1/3 of the total number of animals listed. In relation to age, Kellert (1997) found that young adults and elderly do not have significant differences in their knowledge of animals and nature, this relation is more striking toward young children and adults. In this case, our sample covered an insufficient number of children, we had more participation from people who are included in the range of age that do not showed this relation, as shown in the above author's findings.

Frequency of visitation did not show relation with NNAM and most visitors have cited the information boards as source of their knowledge, being this a very reliable source and with information about some animals of the Park. Maybe the information boards were not being so effective in informing visitors about the native fauna. In this way, other direct alternatives of information transmission could be more efficient, like environmental education activities that aim to approach the fauna of the Park in a more interactive way.

As well as the other variables, level of schooling did not affect the results in RCEP. We expected that visitors with higher education level would be aware of the impact of cats in natural areas, because they would be more likely to have more ecological information as Dunlap and Liere (1978) suggested. Despite, formal education does not aim to develop critical thinkers and active participants in environmental issues, being more concerned with the transmission of cultural knowledge, skills and values (STEVENSON, 2007), and this contrasts with the environmental concerned profile. Besides, a high frequency of visitors with inoffensive perceptions regarding cats and their behavior may have disguised this relation, because cat is one of the most common favorite animal for various kind of people (KELLERT, 1985b; WOODS, 2000). This affection may turn over in a blind superprotective perception, leading to false beliefs about the impacts of cats on wildlife and even denying direct evidences (PETERSON et al., 2012).

In this way, encouraging visitors participation in environmental activities may be an alternative to them to learn more about the environment (HARON; PAIM; YAHAYA, 2005) and could help in this challenge regarding to cats. Since the projects of environmental education are very important to help the conservation of species, because it acts in the interface between human and nature. It have a great potential to evaluate the problems, find solutions and educate individuals to be more active and concerned about environmental problems (MANGAS; MARTINEZ; PEDAUYÉ, 1997). Projects of environmental education in association with formal education institutions, and even by non-formal, enable the community to think about your impact on environment (CARRILLO; BATISTA, 2007). Aiming this, the environmental educators should work with the community to provide to them more information and knowledge about the nature to, in this way, change their behavior (POOLEY; O'CONNOR, 2000).

## **5. CONCLUSIONS**



Our study shows that age, level of schooling and frequency of visitation are not related to knowledge about the animals and the ability to recognize cats as an environmental problem in the studied park. However, despite having a positive relation between the number of native animals sighted with age and frequency of visitation, this number is still considerably insufficient in comparison to the number of animals covered in the research and, principally, the whole richness of native species of the Park. Thus, only the sighting of animals is not enough to able visitors know a considerable amount of the fauna. In addition, cats configure also a much larger problem than just the formal education is able to handle.

## **6. FINAL CONSIDERATIONS**

In this way, more investments in environmental education and activities that provide an active community involvement would be a better alternative. Because visitors may be more likely to learn and valorize the fauna, as well as better understand the environmental problem that cats provide in green areas, even with their harmless views toward them.

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**APPENDIX A - QUESTIONNAIRE APPLIED DURING THE RESEARCH IN THE PARQUE ESTADUAL DO COCÓ**

**PERMISSÃO PARA UTILIZAÇÃO DOS DADOS**

Você está sendo convidado para participar da pesquisa **Conhecendo a Fauna do Cocó**, do aluno Bruno Ferreira Guilhon, do curso de Ciências Biológicas da Universidade Federal do Ceará. Nós nos comprometemos a utilizar os dados coletados apenas para a referente pesquisa, e os questionários individuais serão compartilhados apenas entre os pesquisadores envolvidos.

Autorizo a utilização dos dados para a pesquisa.

**QUESTIONÁRIO “CONHECENDO A FAUNA DO COCÓ”**

1. Idade: \_\_\_\_\_

Sexo:  Masculino  Feminino

Escolaridade – Escola:  Pública  Privada

Ensino Fundamental:  1º  2º  3º  4º  5º  6º  7º  8º  
 9º

Ensino Médio:  1º  2º  3º

Ensino Superior:  Graduação  Mestrado  Doutorado

2. Você visita o Parque do Cocó com que frequência?

Primeira vez

Não vou com frequência

Uma vez por mês

Toda semana

Mais de uma vez por semana

3. Que atividades você realiza ou participa no Parque do Cocó? Você já viu algum animal durante essas atividades?

<b>Atividade</b>	<b>Sim/Não</b>	<b>Nome do Animal</b>

4. Quais desses animais ocorrem no Parque do Cocó?

Tatu

Garça

Iguana/Camaleão

Macaco Prego

Gavião Caramujeiro

Jiboia

Raposa

Anu Branco

Píton

Cassaco

Anu Preto

Surucucu

Morcego

Águia

Cobra D'água

Soim/Sagui

Frango D'água Azul

Cobra Cipó

Mão-pelada/Guaxinim

Soldadinho do Araripe

Falsa Coral

Esquilo

Pica Pau

Cobra Verde

5. Qual a fonte dos seus conhecimentos sobre os animais do Parque do Cocó?  
 TV       Jornal       Educadores Ambientais do Parque       Placas do Parque  
 Internet       Amigos/Família       Escola  
 Avistamento no Parque       Outro: \_\_\_\_\_
6. Você acha que os gatos abandonados que vivem no parque podem ter algum impacto aos animais silvestres do parque? Por quê?

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**Obrigado pela sua colaboração!**