

A walk through the park – Do people know the animals living in urban parks?

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Research

Keywords: Ethnzoology, Environmental education, Protected areas, Zoology

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22 **Abstract**

23 **Background:** It is important that people know the fauna occurring around the city and within
24 it, because people could present a more positive relationship toward animals and valorize the
25 fauna. This knowledge may vary due to cultural features of the region, as well as social
26 characteristics of the person, such as: educational level and frequency of visits to green areas.
27 This study aimed to evaluate if the knowledge about the faunistic diversity of an urban park
28 varied in relation to the profile of the visitors.

29 **Methods:** Parque Estadual do Cocó is a conservation unit, located in the Fortaleza
30 municipality in Ceará state, which has a very diverse fauna. We collected the data between
31 September and October 2018 using a structured questionnaire applied with 126 park visitors.

32 **Results:** We observed that visitors only know 31.57% of the fauna of the Parque Estadual do
33 Cocó and usually find 1.05 ± 1.29 animals during the activities realized in the place.
34 “Common marmoset” (*Callithrix jacchus*) and “Great egret” (*Ardea alba*) were the most cited
35 species, with respectively 102 and 63 citations, while “Crab-eating raccoon” (*Procyon*
36 *cancrivorus*) and “American purple gallinule” (*Porphyrio martinicus*) were the less cited,
37 with 22 and 16 citations. We did not notice a relationship between the knowledge about the
38 Park fauna with frequency of visitation, but we noticed a positive relation between the number
39 of animals sighted and frequency. The most cited source of information about the Park native
40 species was information boards, but there was no relation between the presence of boards with
41 an animal species of the Park and the knowledge of visitor about them.

42 **Conclusions:** Visitors do not know the species richness of the Park, even with a high
43 frequency of visitation and the presence of information boards about the Park fauna. However,
44 a high frequency of visitation allowed people to see more animals throughout these visitations.
45 Possibly, more direct alternatives to inform visitors about the native fauna of the Park can

46 bring more positive results than just the sightings and simply the presence of information
47 boards.

48 **Keywords: Ethnozoology, Environmental education, Protected areas, Zoology**

49

50 **Background**

51 Open green areas are very important for the quality of life in society. In urban parks, for
52 example, is possible to find a wide variety of people of different sociodemographic conditions
53 and with most diverse motivations to visit nature [1,2]. These spaces may provide important
54 ecosystem services, aiding in the mitigation of temperature, carbon sequestering, prevention
55 of floods from the rainwater drainage, and it acts as a refuge for wildlife [3,4]. Urban parks
56 also provide a space for recreation and health benefits for visitors [1], being comfortable
57 places to visit and relax, attracting many visitors for these reasons.

58 When we think about urban spaces it is almost intuitive to conclude that nature is not
59 present, or the diversity of species is very low [5]. Indeed, urbanization causes several impacts
60 and modification in nature, like fragmentation and habitat disturbance [6]. Despite this, the
61 species still resist and occupy remaining fragments of vegetation in natural areas of the city,
62 especially urban parks, which reinforce the importance of biodiversity conservation and
63 researches in this natural areas surrounded by urbanization [7,8].

64 The knowledge about animal species, beyond that achieved by science, is also related
65 to traditional knowledge. This knowledge is commonly originated from experiences of past
66 generations with the nature that were transmitted orally to future generations [9–11]. People,
67 besides sharing space with fauna, recognize and name animals by following their own locally
68 categories and names. In this way, biodiversity also belongs to the cultural domain, and

69 culture enables people to understand and know the fauna [12,13]. Knowing the name of a
70 specie is also an important feature that indicates the connectivity between people and nature,
71 showing a closer interaction with these living beings [14,15].

72 Some cultural and social factors can affect attitudes, perceptions [16] and knowledge
73 related to animals [17]. There may be qualitative and quantitative variations of this knowledge
74 according to age [2,18], level of schooling [19,20] and, in case of animals found in green
75 areas or natural parks, frequency of visitation [2]. According to these authors, frequency of
76 visitation in urban parks shows a positive relation with knowledge about the local fauna. The
77 most frequent visitors tend to know more animals than the less frequent visitors and people
78 who do not visit the park, because occasional learning may occur, and visitors can also be
79 able to encounter more animals during activities in the park.

80 Therefore, due to the importance of urban parks for the urban environment and the
81 necessity to preserve its biodiversity, we evaluated if park visitors know the wildlife that
82 occur within that area of the city. Thus, our study aimed to understand the knowledge of
83 visitors of an urban park related to the native wildlife and how the profile of visitors affects
84 their knowledge about park fauna. Then, more specifically we aimed to observe if this
85 knowledge varies according to visitor's frequency of visitation and the presence of the
86 animal's species in the information boards of the park. We expected that people that visit the
87 park more frequently would be able to know more about the animals of the park and the
88 animals represented in information boards will be more known.

89

90 **Methods**

91 **Study area**

92 We conducted this study in the Parque Estadual do Cocó, an urban park within the city of
93 Fortaleza, Ceará, northeastern Brazil. Formerly, the area in which today is the park used to be
94 a saltern, but it was deactivated in the 70's. After that, the area for the Park was demarcated,
95 but it spent a lot of time without a protective status. Just recently, the "Parque Estadual do
96 Cocó" was officially inaugurated (by state decree nº 32248 of July 4, 2017) as a Conservation
97 Unit. The Park was regularized with an area of 1571 ha, which covers the cities of Fortaleza
98 and Maracanaú until the mouth of the Cocó river in Sabiaguaba beach [21].

99 The Park is characterized by a large part of Dune Fields, Coastal Plains, Coastal
100 Tabuleiro, Caatinga and Mangrove vegetation, mainly by White, Black and Red Mangrove
101 [22]. In this remaining of vegetation inhabit several species of amphibians (16), reptiles (24)
102 and mammals (8) (AGUIAR et al., 2020, no prelo) and birds (162) (ARCADIS, 2020, no
103 prelo), representing a refuge for many wildlife animals in the city. The touristic part of the
104 Park allows visitation only between 05:30 and 17:45, its surroundings are fenced, and there
105 are areas fragmented by roads. Inside there is a dense forest that borders the trails that cover
106 the extension of the Park that have, in all, about 2.015 km length, where the visitors can pass
107 through by bike or hiking, also with dogs. Besides, visitors often use the touristic part for
108 picnics or other gatherings. In this area, there are 60 information boards about the flora, fauna,
109 environment, and history of the Park. There are eight information boards focused on animals.
110 There are also some environmental educators (EE) to explain about the biodiversity and
111 history of the park to the visitors.

112

113 **Questionnaire**

114 We interviewed 126 visitors at the touristic part of the Park using a questionnaire
115 (Appendix A and B). The questionnaire included closed and open-ended question, and usually

116 took five minutes to complete. We applied it between September 08 and October 21, 2018.
117 Each interview started with an introduction about the study and its aims, and then we allowed
118 the visitors to answer the questions. The participation in the study was not obligatory and we
119 asked the visitors whether they explicitly consent the use of the data in the research (See
120 Appendix A and B). We did not ask for any other personal information of the visitors, as their
121 names, monthly income or their identity number. This study was part of the author's
122 monograph, and the data present in this study are a subset of those obtained in the
123 questionnaire (Table 1).

124

125 Table 1 – Questions addressed in the questionnaire applied in the Parque Estadual do Cocó and used in this study.
126 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 information of your knowledge about the animals of Cocó Park? (TV; Newspaper; Environmental Educators; Information boards; Internet; Friends/Family; School; Sightings or Others)

127

128 **Species Selection**

129 To understand the species recognized by visitors as native animals of Parque Estadual
130 do Cocó, we made a list with 18 species that occur in the park, in addition with more six
131 exotic animals that do not belong to the Park fauna (Table 2). To help respondents to
132 recognize the animals, the popular names were presented in the list and we showed pictures of
133 every animal using a smartphone while the respondent was marking those they know occur in
134 the Park.

135

136 **Data Analysis**

137 The knowledge of visitors related to park fauna was estimated as the number of native
138 animals marked (NNAM) and the number of native animals sighted (NNAS), from the
139 answers of the fourth and the third question, respectively, excluding the domestic and invasive
140 species of the city fauna. To observe if NNAM and NNAS were related to frequency of
141 visitation we performed two tests. First, we tested the assumptions of homoscedasticity and
142 normality for all the variables, then we used an ANOVA to evaluate the relationship between
143 NNAM (dependent variable) and the frequency of visitation (independent variable). For the
144 NNAS we performed the same tests.

145 To know whether the species group (mammal, reptile or bird) influence the knowledge
146 and citation frequency of these animals by visitors, we performed an ANOVA with the
147 number of citations of each native species (NCENS) as the dependent variable and the group
148 that they belong as the independent variable. To observe whether this knowledge varies with
149 the presence of the animal species in information boards of the park (present or absent), we
150 performed a t test between the NCENS and the presence of the species in these boards.

151

152 Insert Table 2

153

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

156

157 **Results**

158 We observed that the profile of the visitors of Parque Estadual do Cocó corresponds to people
159 between 13 and 83 years (mean \pm standard deviation; 33.04 ± 15.18 years), almost the same
160 proportion of male and female (Table 3). Most visitors completed the secondary school, visit
161 the Park at a low frequency (first time or irregular) and carry out activities involving physical
162 exercises at the Park area.

163

164 Insert Table 3

165

166 They saw few animals during the activities in the Park (1.05 ± 1.29 NNAS) and knew
167 few animals (5.683 ± 4.76 NNAM). Most visitors cited (Binomial name and number of
168 citations in parentheses) Common marmoset (*C. jacchus*, 102) and Great egret (*A. alba*, 63),
169 while Crab-eating raccoon (*P. cancrivorus*, 22) and American purple gallinule (*P. martinicus*,
170 16) were the less known (Figure 1). Some visitors also claimed to exist in the Park some
171 species that do not belong to Park fauna: Black-striped capuchin (*S. libidinosus*, 27), Araripe
172 manakin (*A. bokermanni*, 19), Bushmaster (*L. muta*, 12), Eastern gray squirrel (*S. carolinensis*,
173 11), Bald eagle (*H. leucocephalus*, 8) and Reticulated python (*M. reticulatus*, 10). Although
174 mammals were the most cited group of animals, cited by 35% of visitors, while reptiles and

175 birds by 32% and 28%, respectively, this difference was not significant ($F = 0.779$, $df = 2, 15$,
176 $p = 0.254$) (Figure 2).

177 The two sources of knowledge about the animals most cited by visitors were
178 information boards (64) and sightings (58), but few visitors cited the EE (9) (Figure 3). Eight
179 animals of the 18 native species of the questionnaire were presented in the information boards.
180 We did not find any influence of the information boards of the park on NCENS ($t = -1.288$, df
181 $= 9.0281$, $p = 0.2298$) (Figure 4).

182

183 Insert Figure 1.

184

185 Insert Figure 2.

186

187 Insert Figure 3.

188

189 Insert Figure 4.

190

191 The NNAM was not influenced by frequency of visitation ($F = 1.127$, $df = 4.121$, $p =$
192 0.347) (Figure 5-a). However, the NNAS increased with increases of frequency of visitation
193 ($F = 6.859$, $df = 4.121$, $p < 0.001$) (Figure 5-b).

194

195 Insert Figure 5.

196 **Discussion**

197 The visitors of the Parque Estadual do Cocó, during their activities, saw more animals with
198 the increase of their frequency of visitation. It was expected, since gradually new encounters
199 with species and even incidental learning may occur with each new visit [2]. . However,
200 despite that, they still saw few species, just seeing 5.83% of the species listed on
201 questionnaire and 0.54% of all Park native species. Most visitors cite “sightings” as their
202 source of information about Park fauna. Although encounters with animals are relatively
203 frequent in the touristic part of the Park, some species are rare to be seen and others occupy
204 areas that general public usually do not visit. The great length of the park makes it impossible,
205 in fact, for visitors to see various species of local fauna. In this way, sightings cannot be a
206 very informative source about the park’s species richness.

207 Frequency of visitation is not related with NNAM, and most visitors also know few
208 species of the park native fauna, with the NNAM average being 31.57% of the total number
209 of animals listed and only 2.92% of all Park species. This may be associated with the use of
210 the Park space for purposes, mostly, involving physical activities and leisure. In this way,
211 observe or learn about animals are not the primary purpose and focus of visitors' attention.
212 This scenario could be observed in others urban and national parks [23–25]. Then, Park space
213 could work just as a pleasant background for these purposes, making undervalued the
214 environmental attractions and species richness that the park has to offer. These low values of
215 NNAM and NNAS seen to indicate that visitors are still not well informed about the
216 composition of the Park native animals.

217 Despite most visitors have marked information boards as one of their main sources of
218 information about the Park fauna, the animal species that were represented on these boards
219 were not mentioned more frequently than those that were not represented. These boards are a

220 reliable source of information about these species, and Park management made them in order
221 to inform visitors. But maybe the information boards were not being so effective in informing
222 visitors about the native fauna, even more because the species present on these boards still
223 represent only a small portion of the Park native species. Thus, in order to properly inform
224 visitors about the native fauna, in addition to the information on the boards and visual contact
225 with the fauna, it may be necessary to interact with people who actually know the species that
226 inhabit the Park and who can pass on these information with more attention [26], in this case,
227 the environmental educators of the Park.

228 Therefore, we noticed that just the existence of information boards and visitors
229 encountering fauna do not guarantee that they will be able to know the wildlife species of the
230 Park, because the native fauna of the Park is more than visitors could see on visits and
231 observe on these boards. They still need to be accompanied and informed by environmental
232 educators or others who know about the Park native species.

233 In this way, encouraging visitors to participate in environmental activities may be an
234 alternative for them to learn and care more about the environment [27]. For that purpose, the
235 environmental educators should work with the visitors for provide to them more information
236 about the nature of the Park to, in this way, change their behavior and increase their
237 knowledge [28]. This can help to make the Park's environmental beauty and fauna more
238 attractive and interesting to visitors, thus enabling greater contact, appreciation and even the
239 recognition of the conservation importance of them. Such recognition could be a
240 reinforcement for the conservation of this protected area, by the improvement of conservation
241 attitudes of visitors [29], since public support is very important to assist in the success of
242 conservation projects and management [30].

243

244 **Conclusions**

245 Our study shows that frequency of visitation is not related to the number of species known by
246 visitors, but rather to the number of species that visitors see in the studied park. However,
247 despite having this positive relation between the number of native animals sighted with
248 frequency of visitation, this number is still considerably low in comparison to the number of
249 animal species covered in the research and, principally, the whole richness of native species
250 of the Park. In addition, information boards do not seem to be effective in informing visitors
251 about the native fauna. In this way, other direct alternatives of information transmission could
252 be more efficient. More investments in environmental education and activities that provide an
253 active community involvement would be an interesting alternative because visitors may be
254 more likely to learn and valorize the fauna.

255

256 **Abbreviations**

257 **EE:** environmental educators

258 **NNAM:** Number of Native Animals Marked

259 **NAAS:** Number of Native Animals Sighted

260 **NCENS:** Number of Citations of Each Native Species

261

262 **Declarations**

263 **Ethics approval and consent to participate**

264 Before conducting interviews, oral and written consent, explicit by marking the authorization
265 question, was received from visitors regarding data collection and publication. No further
266 ethics approval was required. We followed the ethical guidelines of the International Society

267 of Ethnobiology (<http://www.ethnobiology.net/>). Furthermore, we did not collect any personal
268 data of the interviewers.

269

270 **Consent for publication**

271 Not applicable.

272

273 **Availability of data and materials**

274 The datasets used during the current study are available from the corresponding author on
275 reasonable request.

276

277 **Competing interests**

278 The authors declare that they have no competing interests.

279

280 **Funding**

281 This research did not receive funding for its realization.

282

283 **Authors' contributions**

284 BFG conceived the main idea of the manuscript. BFG, JFMR, DMBN delineated the study.

285 BFG collected and analysed the data. BFG and JFMR interpreted the results. BFG wrote the

286 first draft of the manuscript. BFG, JFMR and DMBN provided substantial contributions to the

287 final version of the manuscript. All authors read and approved the final manuscript.

288

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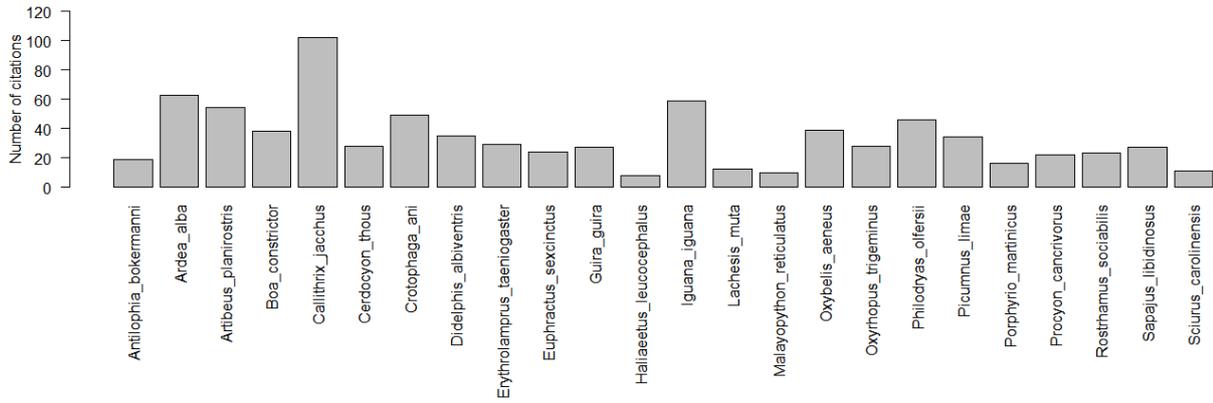
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400 **Figures**



401

402 Figure 1. Frequency of citation of each animal species cited by visitors of Parque Estadual do
403 Cocó, Fortaleza, Ceará, Brazil.

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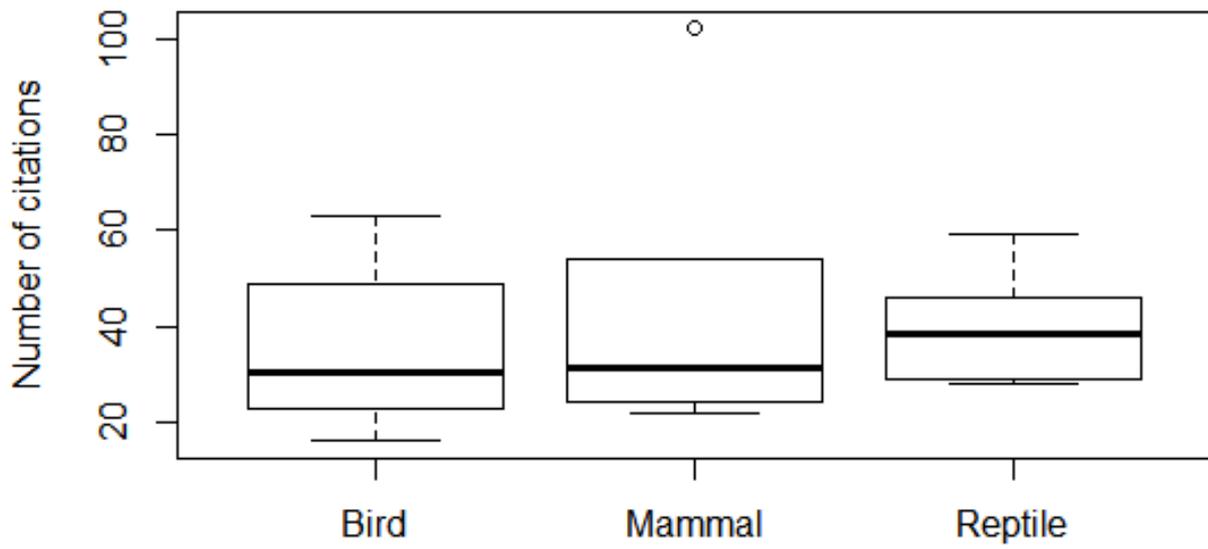
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413 Figure 2. Relation between Number of Citations of Each Native Species (NCENS) and the
414 vertebrate group that they belong.

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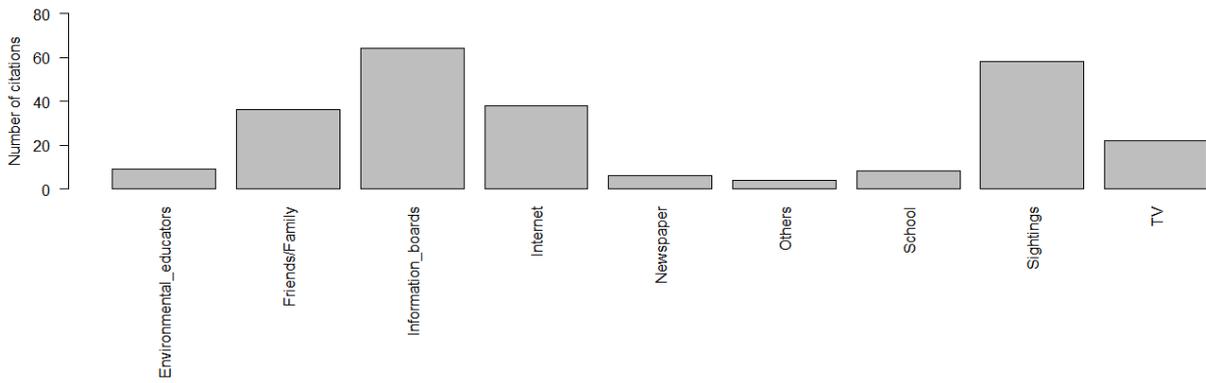
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425 Figure 3. Frequency of citation of each information source category about the Parque Estadual
 426 do Cocó fauna marked by visitors.

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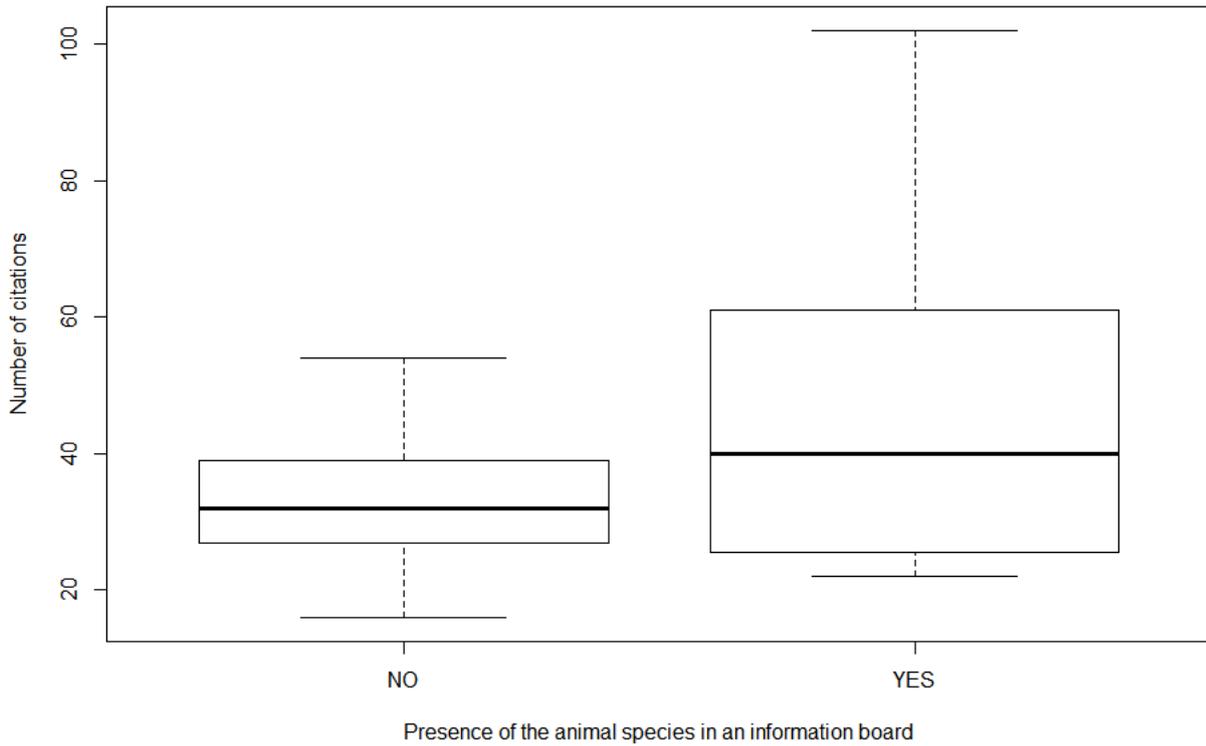
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436 Figure 4. Relation between Number of Citation of Each Native Species (NCENS) and the
 437 presence of an information board about it at the Parque Estadual do Cocó, Fortaleza, Ceará,
 438 Brazil.

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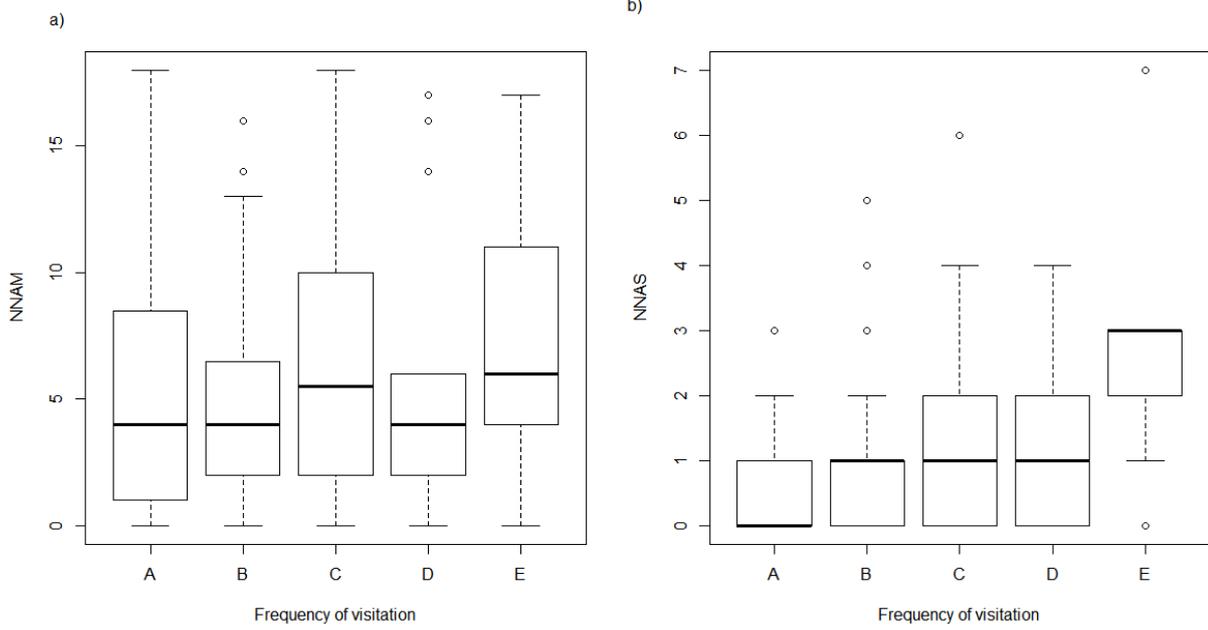
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449 Figure 5. Relation between frequency of visitation at the Parque Estadual do Cocó with: a)
 450 Number of Native Animals Marked (NNAM), b) Number of Native Animals Sighted (NNAS).
 451 A = First time; B = Irregular; C = Once a month; D = Once a week; E = More than once a
 452 week.

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462 **Tables**

463 Table 2– List of species selected, presented in the interviews in the Parque Estadual do Cocó,
 464 Fortaleza, Ceará, Brazil.

Popular name	Binomial name	Status	Information boards
Six-banded armadillo	<i>Euphractus sexcinctus</i>	Native	Absent
Black-striped capuchin	<i>Sapajus libidinosus</i>	Does not occur	Absent
Crab-eating fox	<i>Cerdocyon thous</i>	Native	Present
White-eared opossum	<i>Didelphis albiventris</i>	Native	Absent
Flat-faced fruit-eating bat	<i>Artibeus planirostris</i>	Native	Absent
Common marmoset	<i>Callithrix jacchus</i>	Native	Present
Crab-eating raccoon	<i>Procyon cancrivorus</i>	Native	Present
Eastern gray squirrel	<i>Sciurus carolinensis</i>	Does not occur	Absent
Great egret	<i>Ardea alba</i>	Native	Present
Snail kite	<i>Rostrhamus sociabilis</i>	Native	Present
Guira cuckoo	<i>Guira guira</i>	Native	Absent
Smooth-billed ani	<i>Crotophaga ani</i>	Native	Absent
Bald eagle	<i>Haliaeetus leucocephalus</i>	Does not occur	Absent
Purple gallinule	<i>Porphyrio martinicus</i>	Native	Absent
Araripe manakin	<i>Antilophia bokermanni</i>	Does not occur	Absent
Ochraceous piculet	<i>Picumnus limae</i>	Native	Present
Green iguana	<i>Iguana iguana</i>	Native	Present
Common boa	<i>Boa constrictor</i>	Native	Absent
Reticulated python	<i>Malayopython reticulatus</i>	Does not occur	Absent

Bush master	<i>Lachesis muta</i>	Does not occur	Absent
South american swampsnakes	<i>Erythrolamprus taeniogaster</i>	Native	Absent
Brown vine snake	<i>Oxybelis aeneus</i>	Native	Absent
False coral snake	<i>Oxyrhopus trigeminus</i>	Native	Absent
South American green racer	<i>Philodryas olfersii</i>	Native	Present

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477 Table 3– Profile of the visitors of the Parque Estadual do Cocó, Fortaleza, Ceará, Brazil (n =
 478 126).

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	64

Picnic	34
Cycling	6
Photography	5
Weight training	4
Observe fauna	3
Others	16

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492 **Appendix A - Questionnaire applied during the research in the Parque Estadual do**
493 **Cocó, Fortaleza, Ceará, Brazil.**

494 **PERMISSÃO PARA UTILIZAÇÃO DOS DADOS**

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

500 Autorizo a utilização dos dados para a pesquisa.

501 **QUESTIONÁRIO CONHECENDO A FAUNA DO COCÓ**

502 1. Idade: _____

503 Sexo: Masculino Feminino

504 Escolaridade – Escola: Pública Privada

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

506 9º

507 Ensino Médio: 1º 2º 3º

508 Ensino Superior: Graduação Mestrado Doutorado

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

510 Primeira vez

511 Não vou com frequência

512 Uma vez por mês

513 Toda semana

514 Mais de uma vez por semana

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

Atividade	Sim/Não	Nome do Animal

517 4. Quais desses animais ocorrem no Parque do Cocó?

- 518 Tatu Garça Iguana/Camaleão
- 519 Macaco Pregos Gavião Caramujeiro Jiboia
- 520 Raposa Anu Branco Píton
- 521 Cassaco Anu Preto Surucucu
- 522 Morcego Águia Cobra D'água
- 523 Soim/Sagui Frango D'água Azul Cobra Cipó
- 524 Mão-pelada/Guaxinim Soldadinho do Araripe Falsa Coral
- 525 Esquilo Pica Pau Cobra Verde

526 5. Qual a fonte dos seus conhecimentos sobre os animais do Parque do Cocó?

- 527 TV Jornal Educadores Ambientais do Parque Placas
- 528 do Parque Internet Amigos/Família Escola
- 529 Avistamento no Parque Outro: _____

530 6. Você acha que os gatos abandonados que vivem no parque podem ter algum impacto
 531 aos animais silvestres do parque? Por quê?

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Obrigado pela sua colaboração!

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552 **Appendix B - Questionnaire applied during the research in the Parque Estadual do**
553 **Cocó, Fortaleza, Ceará, Brazil (translated).**

554 **PERMISSION TO USE THE DATA**

555 You are being invited to participate in the study “Knowing the Fauna of Cocó” by the student
556 Bruno Ferreira Guilhon, from the Biological Sciences course at the Universidade Federal do
557 Ceará. We are committed to use the data collected only for the respective research, and the
558 individual questionnaires will be shared only between the researchers involved.

559 I authorize the use of the data for research.

560 **QUESTIONNAIRE KNOWING THE FAUNA OF COCÓ**

561 1. Age: _____

562 Gender: Masculino Feminino

563 Schooling – School: Public Private

564 Elementary school: 1st 2nd 3rd 4th 5th 6th 7th

565 8th 9th

566 High school: 1st 2nd 3rd

567 University education: Undergraduate Master Doctorate

568 2. How often do you visit the Park?

569 First time

570 Irregular

571 Once a month

572 Every week

573 More than once a week

574 3. What activities do you realize or participate on Cocó Park? Have you ever seen any
575 animal during these activities?

Activity	Yes/No	Name of the Animal

576

577 4. Which of these animals occur on Cocó Park?

- 578 Six-banded armadillo Great egret Green iguana
- 579 Black-striped capuchin Snail kite Common boa
- 580 Crab-eating fox Guira cuckoo Reticulated python
- 581 White-eared opossum Smooth-billed ani Bush master
- 582 Flat-faced fruit-eating bat Bald eagle South American
- 583 swampsnake
- 584 Common marmoset Purple gallinule Brown vine snake
- 585 Crab-eating raccon Araripe manakin False coral snake
- 586 Eastern gray squirrel Ochraceous piculet South American green
- 587 racer

588 5. What is the source information of your knowledge about the animals of Cocó Park?

- 589 TV Newspaper Enviromental educators of Park
- 590 Information boards of Park Internet Friend/Family
- 591 School Sightings on Park Other: _____

592 6. Do you think that abandoned cats that live in the park can have an impact on the park's

593 wild animals? Why?

594 _____

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Thank you for your collaboration!

Figures

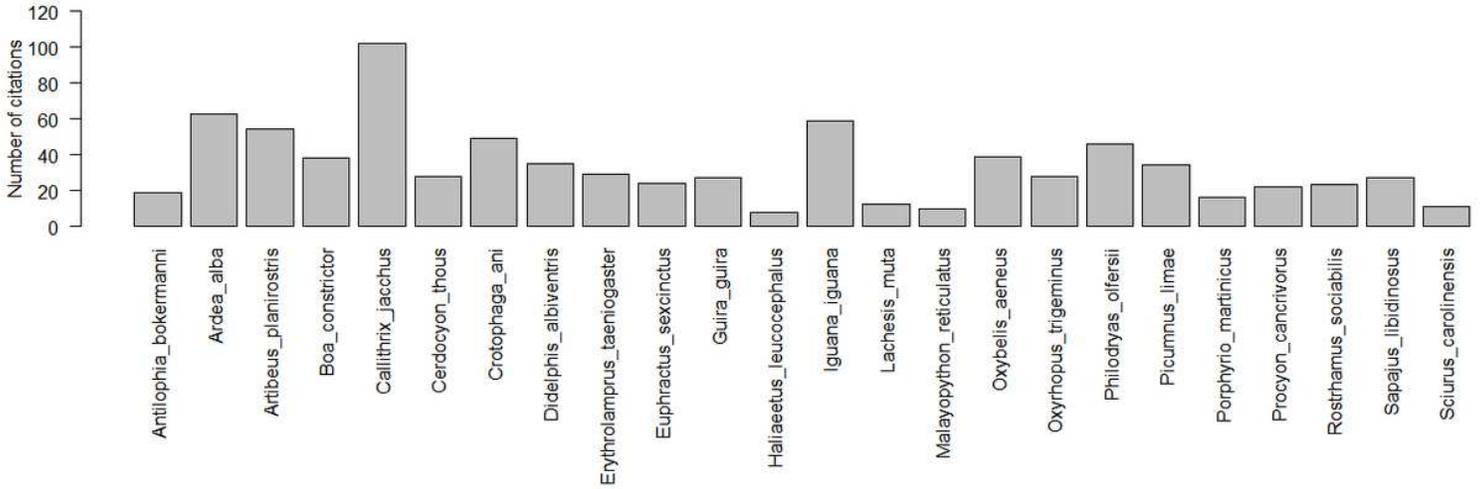


Figure 1

Frequency of citation of each animal species cited by visitors of Parque Estadual do Cocó, Fortaleza, Ceará, Brazil.

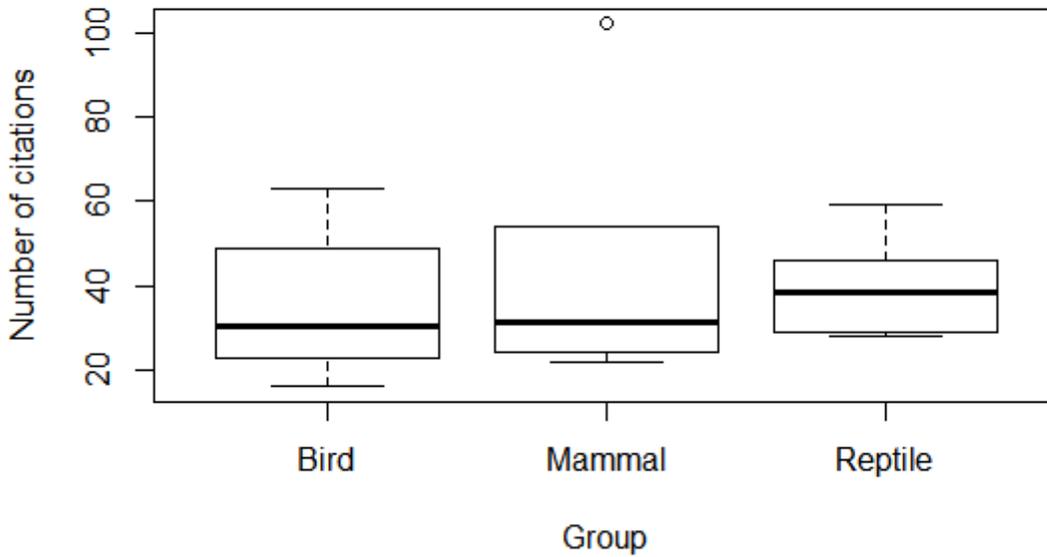


Figure 2

Relation between Number of Citations of Each Native Species (NCENS) and the vertebrate group that they belong.

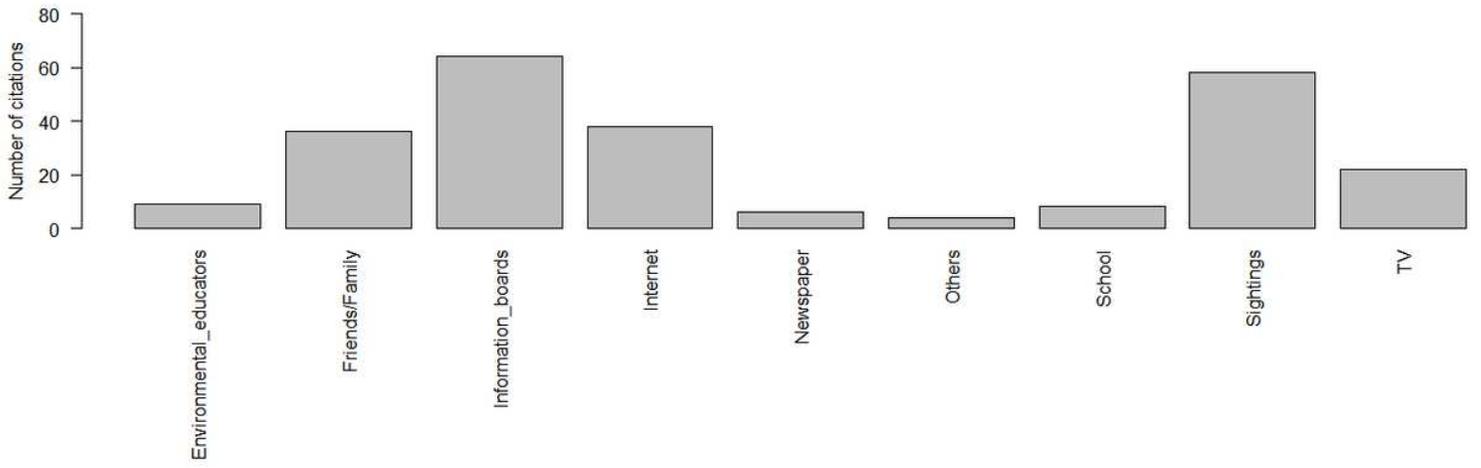


Figure 3

Frequency of citation of each information source category about the Parque Estadual do Cocó fauna marked by visitors.

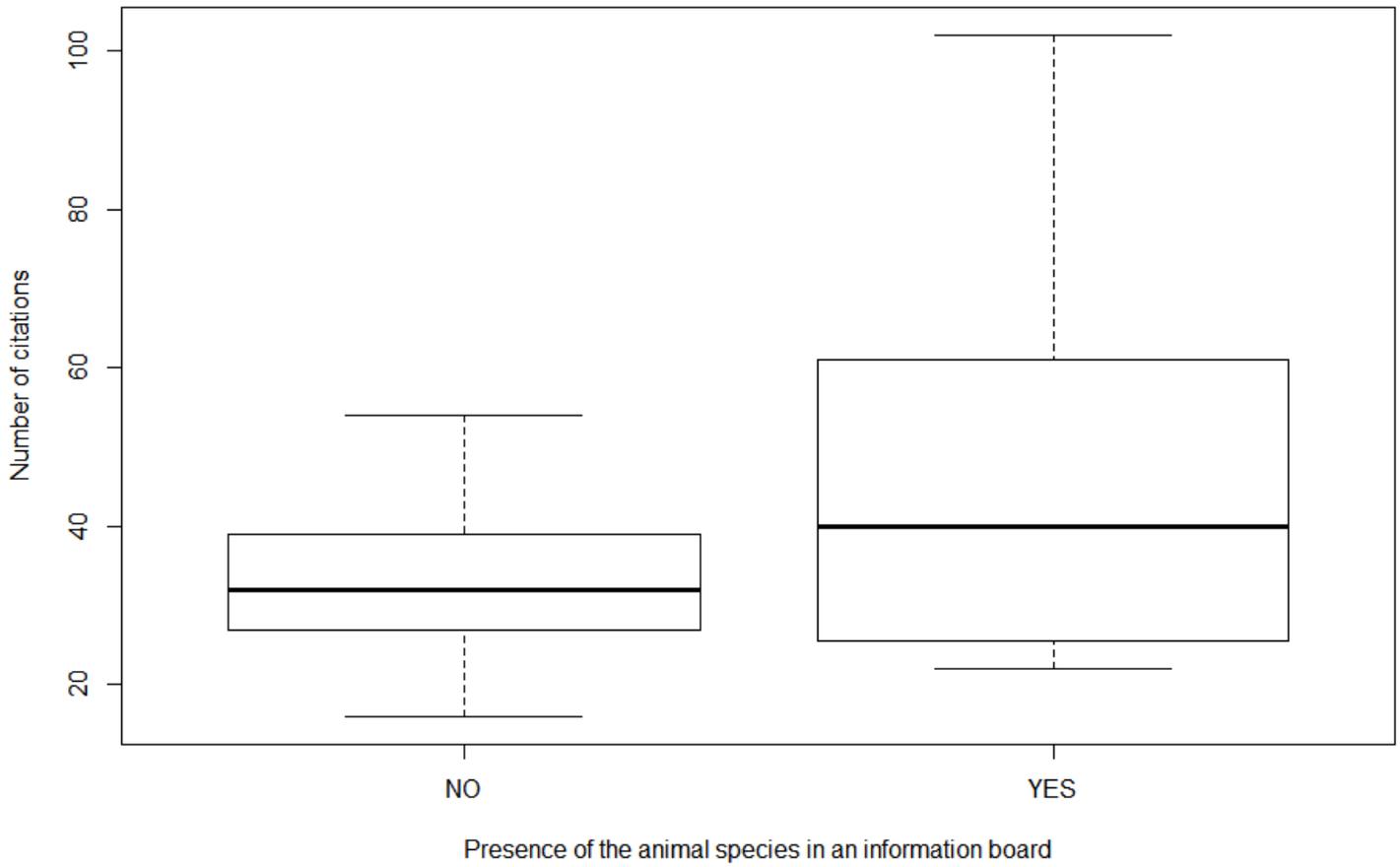


Figure 4

Relation between Number of Citation of Each Native Species (NCENS) and the presence of an information board about it at the Parque Estadual do Cocó, Fortaleza, Ceará, Brazil.

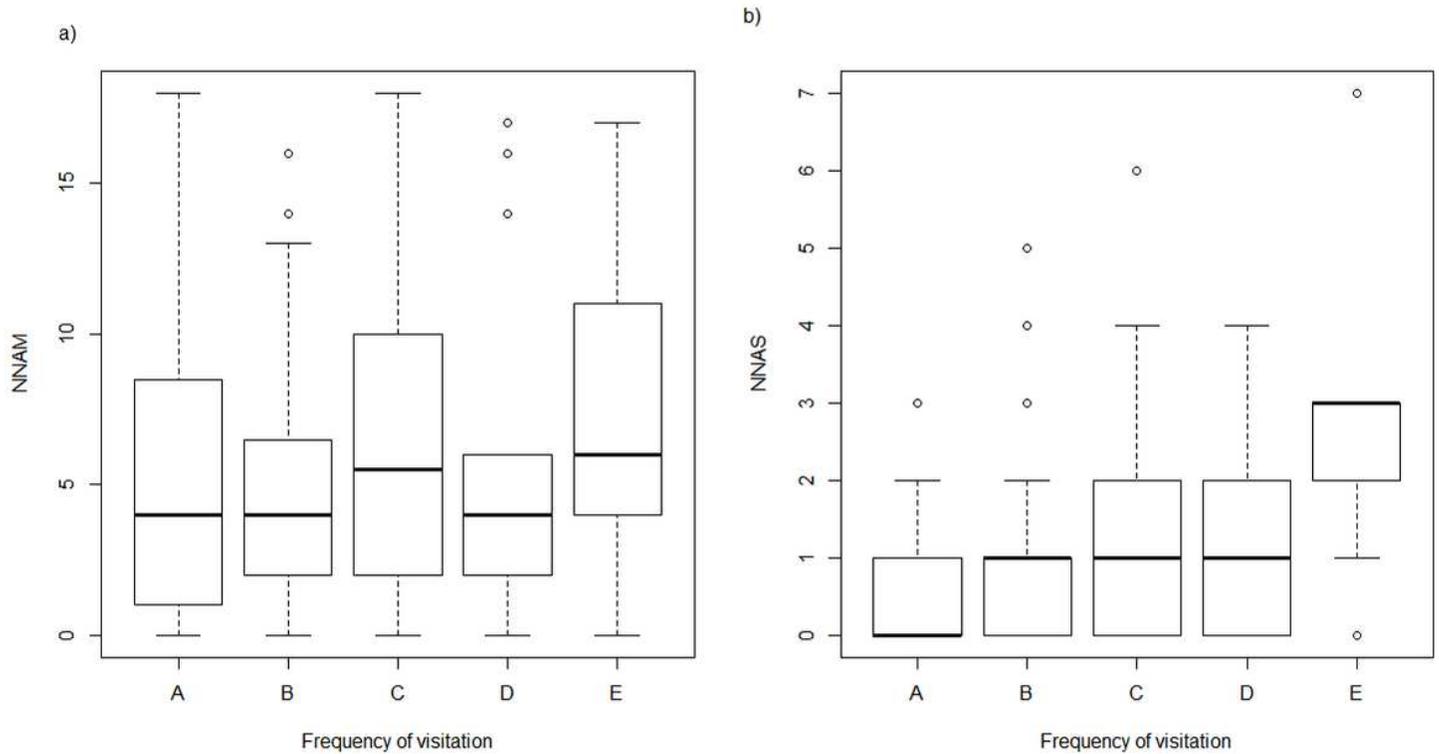


Figure 5

Relation between frequency of visitation at the Parque Estadual do Cocó with: a) Number of Native Animals Marked (NNAM), b) Number of Native Animals Sighted (NNAS). A = First time; B = Irregular; C = Once a month; D = Once a week; E = More than once a week.

Supplementary Files

This is a list of supplementary files associated with this preprint. Click to download.

- [AppendixB.pdf](#)
- [AppendixA.pdf](#)