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Hunting and Use of Wildlife Species in the Semi-Arid Region of Brazil

Caça e Uso da Fauna Cinegética na Região Semiárida do Brasil

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Abstract

This article investigates the socio-cultural and ecological aspects associated with the hunting of wild animals by the inhabitants of the Cruz village, State of Alagoas. The data was obtained through semi-structured interviews and informal conversations. A total of 23 species was indicated as a game, with mammals being preferred by the population. Among the techniques of capture, the hunting of persecution with dog and hunting with a shotgun stands out, in addition to the shuttlecock, used to reach the birds with small stones. Four forms of animal use were recorded: food, medicine, pets, and control. Despite being indicated as one of the main causes of the reduction of wildlife, hunting is strongly related to the socio-cultural aspects of the Brazilian semi-arid populations. Thus, proposals for the management of wildlife resources in traditional communities must take into account the needs of these populations.

Key Words: Hunting fauna. Conservation. Socio-environmental. Ethnobiology.

Introduction

Hunting is a widespread practice amongst human communities throughout the national territory and, despite being considered illegal, according

Resumo

Este artigo investiga aspectos socioculturais e ecológicos associados à caça de animais silvestres pelos moradores do povoado Cruz, no Estado de Alagoas. Dados foram obtidos por meio de entrevistas semiestruturadas e conversas informais. Um total de 23 espécies foi indicado como recursos cinegéticos, sendo os mamíferos os preferidos pela população. Entre as técnicas de captura, destaca-se a caça de perseguição com cachorros e caça com espingarda, além do uso de peteca, utilizada para atingir as aves com pequenas pedras. Quatro formas de uso dos animais foram registradas: alimentar, medicinal, estimação e controle. Apesar de ser apontada como uma das principais causas da redução da fauna silvestre, a caça está fortemente relacionada aos aspectos socioculturais das populações do semiárido brasileiro. Dessa forma, as propostas de manejo dos recursos faunísticos em comunidades tradicionais devem levar em consideração as necessidades dessas populações.

Palavras-chave: Fauna cinegética; Conservação; Socioambiental, Etnobiologia.

to Federal Law No. 5,197 (Brazil, 1967), and constitutes one of the oldest bases of human feeding (Alves et al., 2009). Several studies have

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described the importance of hunting for traditional Brazilian communities (Alves et al., 2009, Galvagne-Loss et al., 2014; Pereira & Schiavetti, 2010).

In Brazil, until the early 19th century hunted animals were a food source for indigenous and rural communities. From then on, sport hunting began to be part of the country's scenario, influenced by the increase in population and miscegenation of the Brazilian Society (Fernandes-Ferreira, 2014).

Hunted animals have various purposes, among which feeding, the use as pets, the biotherapy, illegal trade (Pereira & Schiavetti, 2010), and also as objects of decoration (Pereira & Schiavetti, 2010). In the semi-arid region of the Brazilian Northeast, are also common hunting for recreational or sports hunting and control reasons, which occurs when some wild animals present a risk to the health of people or to the creations (Alves et al., 2009).

The hunting activity was influenced both by the native culture, which can be verified by means of the registration of active capture methods, such as bow and arrow, spear and blowpipe, and of European culture, through the replacement of traditional methods for the use of firearms (Fernandes-Ferreira, 2014).

Among the traditional animal capture tools used are the stone press trap (quixó), trap door (asaprã), lace, sling (sling), trap, bear trap (Arataca), basket, fixed mesh fencing (worldly), mousetrap. The use of dog-assisted capture techniques and the use of shotguns has also been reported, along with the waiting technique, when waiting for the animal in places commonly frequented by it; besides mocking (Alves et al., 2009), which consists of the use of whistles to mimic bird singing.

The uses and means by which wild fauna are exploited generate greater or lesser pressure on exploited populations (Alves & Souto, 2010), hunting activity is pointed out as one of the

causes of population extinction or decline of many wild species (Ramos Arreola et al., 2017). Among the impacts caused by hunting activities, there is a reduction in overall population density, reduction of breeding age, the population of animals in adulthood, decisive factors in the local extinction of species (Nasi et al., 2011).

However, hunting still represents an important source of protein in nutritional supplementation for many communities, as well as providing symbolic and cultural representation for many of them (Alves & Souto, 2010). This fact promotes a conflict of interest between conservationists and human populations, generating clashes since the form of symbolic and material appropriation of the environment are distinct throughout human populations and result from different ways of seeing the world or of modifying the surrounding space (Nasi et al., 2011).

Due to these specificities, conservationist actions must overcome the technicist view, through the interpretation of social, political and cultural dimensions in the resolution of environmental conflicts, since they are intrinsically integrated domains (Martinez-Alier, 2009).

Conservation strategies for the Caatinga should consider the social, cultural, and economic reality of the human populations that reside there (Alves et al., 2010). Studies that address fundamental hunting activities are essential in the formulation of management plans and proposals to regulate hunting, which allows the sustainable use of fauna resources in the region (Alves & Souto, 2010). Based on this assumption, the present study investigates the socio-cultural and ecological aspects associated with the hunting activity carried out in the village of Cruz, in the municipality of Delmiro Gouveia, in the state of Alagoas.

Methodology

The study has been carried out in the village of Cruz (Figure 1), located in the municipality of Delmiro Gouveia- Alagoas, Brazil (09° 27' 17.4" S, 38° 03' 1.4" W, 774m).

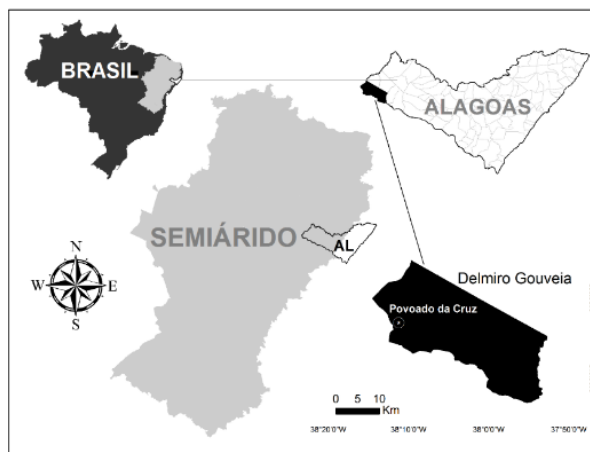


Figure 1. Municipality of Delmiro Gouveia, in the Semi-arid region of Northeastern Brazil, where the village of Cruz is located.

Source: Authors' collection (2016).

Fieldwork was performed from May 30 to December 10, 2016, and data were collected through semi-structured interviews and informal conversations (Santos et al., 2016). The interviews were applied to 17 residents who hunt or already hunted wild animals. Collecting data about these animals, hunting sites, capture forms, hunting purposes, as well as socioeconomic aspects of the interviewees.

The selection informant was made using the so-called "snowball" (Bailey, 1994). At the beginning of each interview, the objectives and nature of the work were explained to the respondents to obtain their permission to record the information when they became aware of the contents of a Free and Informed Consent Term and agreed to participate in the research.

The study was approved by the Research Ethics Committee of the State University of Bahia (Opinion no. 1,562,009). The identities of the interviewees were kept confidential, identified with the initial letter "M", followed by the sequential number in which the interview took place.

The common names of the species were listed according to the traditional terminology used by the informants. The species were identified with the help of specialists familiar with the fauna of the Caatinga as follows: a) analysis of photographs of the animals; B) vernacular name; And c) consultation with specific field guides (Endrigo, 2011).

The local knowledge was analyzed qualitatively, according to the union model of the various

individual competencies and the information about the wildlife was compared with those corresponding or correlated in the scientific literature, according to Moura and Marques (2008).

The chi-square test (X^2) was used to verify whether there was a difference in the information on wildlife hunting obtained between male and female informants in the studied community. The non-parametric Spearman Rank Order Correlation coefficient (r_s) was applied to verify if there was a significant relationship between the number of species cited and the age of the informants, being considered significant $p < 0.05$ by the Student's t-test (ZAR, 2011). The analyzes were performed using the R software (R Development Core Team, 2016).

The Shannon diversity index (H'), accompanied by the equitability index (J') were used to combine species richness and uniformity citation by informants respectively.

The diversity of hunted wildlife cited by the community of Cruz (AL) was estimated by Shannon index (1948): $H' = - \sum p_k \times \ln(p_k)$, where p_k is the proportion of species k in the sample. Moreover, the uniformity of animal species informed by sampled villagers was calculated by the evenness index (J'): $J' = H' / H_{max}$ (Magurran, 2011), where H_{max} which is the Naperian's logarithm of the total number of animal species cited by the informants. Both the Shannon index and the Pielou index were calculated by a program called PAST, version 1.81 (Hammer et al., 2001).

A Collector's Curve was elaborated, constructed through the accumulation of the number of species cited by the informants during the study period. The Collector's curve allows us to evaluate how close a study is to capture all species of the sampled site. To estimate the total richness of species mentioned for the investigated area, Colwell et al. (2012) was used. Also, to determine the sample adequacy of animals used, the non-parametric Chao 2, ACE (Abundance-based Coverage Estimator), Jackknife 1 and Bootstrap estimators were calculated by the EstimateS 9.1.0 program (Colwell, 2009). The 95% confidence intervals of Chao2 were used to plot the curves. The use of the Chao2 estimator is recommended for ethnozoological studies since it is an estimator based on incidence matrix data, it is possible to estimate the richness of the species explored from data collected by interviews (Santos et al., 2016).

For the analysis of grouping investigated aspects related to wildlife hunting in this study, were used metrics that quantify the similarity between these aspects informed by the community studied, we used the analysis of non-weighted averages of clusters (UPGMA) using the index of similarity of Jaccard, and Bray-Curtis as a distance measure. For this analysis, the PAST program was used (Hammer et al., 2001; Barros et al., 2012; Vliet et al., 2015a; 2015b; Cajaiba et al., 2015; Morsello et al., 2015; Constantino, 2016).

Results and Discussion

Socioeconomic profile of respondents

The interviewee's age was between 18 to 84 years old, with 30 to 39 being the most representative age group (41%) followed by 18 to 29 years (35%). Regarding gender, 71% of respondents were male and 29% female. About 76% of the people studied were married. Most of the people approached in this study reported having incomplete elementary school (76%), their occupation being predominantly fisherman (41%), followed by 29% unemployed and 24% retirees.

Wildlife Resources

It was registered a total of 23 species of wild animals used in the community of Cruz (Table 1) distributed in the following taxonomic groups: mammals (n = 10), birds (n = 8), and reptiles (n = 5). Of these, mammals and birds were more prominent about taxonomic richness. No significant differences were observed between the species cited by informants of both sexes ($X^2 = 1.3369$, $df = 1$, $p > 0.05$). There wasn't found a nonsignificant correlation between the age of the informants and the number of animal species cited by ($r_s = 0.46251$, $p > 0.05$).

Other researchers consider than there is a strong relationship between the age and traditional knowledge in medical plants (Amorim et al 2019) and zotherapy (Barros et al., 2012). The knowledge in zotherapy has its even distribution, in different age groups, was verified in studies in traditional communities of the Amazon (Barros et al., 2012). Contrary to the premise that older informants have more time to dedicate themselves to the cultivation of plants and animals, in addition to the high probability that these informants have more knowledge about certain subjects when compared to younger informants.

The number of animals cited (N = 23) by the Cruz community in this study was plotted on a curve of species accumulation (or cole rarefaction), which showed a progressive tendency to stabilization, indicating a significant increase in the number of species cited by the informants.

From the thirteenth interview conducted (Figure 2). Probably an increase in the number of samples may increase the possibility of reaching the estimated number of wild species for the community investigated.

Due to the non-stabilization of the accumulation curve of the species, total richness estimators were used from the sample data of the studied community. The wealth estimators varied between 23.13 (Chao 2) and 24.88 (Jack 1), with intermediate values of 24.48 (Bootstrap) and 23.88 (ACE) (Figure 2), for the seventeen informants interviewed in this study. These indexes suggest that between 92% and 98% of the wildlife present in the studied area were effectively sampled.

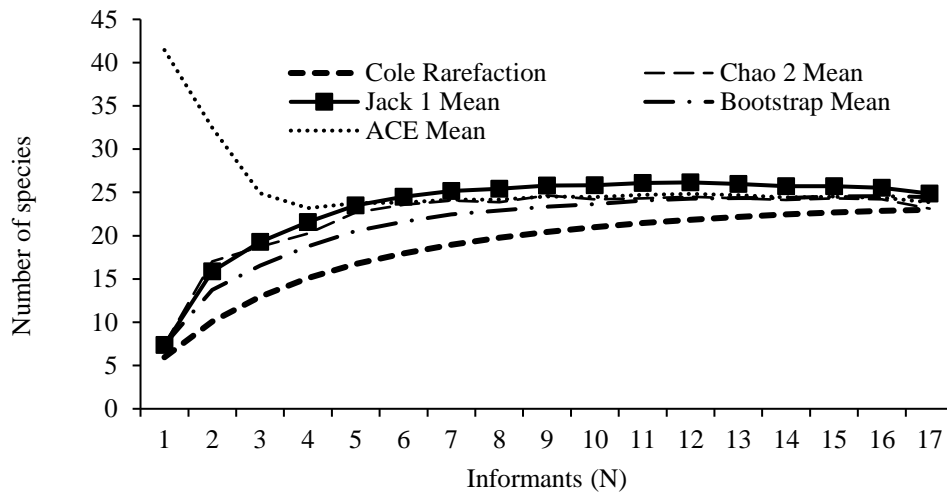


Figure 2. Richness estimators used with data from wildlife species cited according to informants from the community of Cruz, Alagoas, from May 30 to December 10, 2016.

Source: Elaboration of the authors.

The preference for capturing mammals and birds may be related to the availability of the animals and their cultural value, since they are used in many ways, not only as a source of food (Pereira & Schiavetti, 2010) The representativeness of birds in hunting activity is also due to their use as pets (Santos et al., 2016).

This preference seems to be a pattern of hunting activity not only for the semi-arid region but also for other regions of Brazil since it is documented in different studies (Peres & Palacios, 2007; Santos et al., 2016).

Medium-sized mammals are those animals, suffering the greatest impact of hunting activity (Peres & Palacios, 2007). This occurs as a function of feeding preference over this group. Hunting pressure on mammals and birds should be assessed by considering the ecological role played by birds and terrestrial mammals, such as the importance of seed dispersers and natural predation (Alves et al., 2009). Despite this, they are an important source of protein for rural human populations (Pereira & Schiavetti, 2010; Galvagne-Loss et al., 2014).

Table 1.

Diversity (H') and uniformity (J') indices present in hunting fauna used in the Cruz village, Alagoas, from May 30 to December 10, 2016.

Family Species / Popular name	Category of use/interaction and number of citations				Form of capture
	Feeding	Medicinal	Pet	Control	
BIRDS					
Cariamidae					
<i>Cariama cristata</i> (Linnaeus, 1766) / Red-legged "Seriema"	X				AF
Rheidae					
<i>Rhea americana</i> (Linnaeus, 1758) / Rheas – "Ema"	X				AF
Cuculidae					
<i>Crotophaga ani</i> (Linnaeus, 1758) / Smooth-billed ani – "Anu-Preto"		X			AF
Funaridae					
<i>Pseudoseisura cristata</i> (Spix, 1824) / Caatinga cacholote "Casaca-de-Couro"	X	X	X		AF
Muscicapidae					
<i>Turdus</i> sp. / Ganga thrush-"Sabiá"	X		X		AF
Columbidae					
<i>Zenaida auriculata</i> (Des Murs, 1847) / Eared Dove – "Ribaça"	X				AF
<i>Columbina picui</i> (Temminck, 1813) / Picui Ground-Dove "Rolinha"	X		X		AF; F; E
Corvidae					
<i>Cyanocorax cyanopogon</i> (Wied, 1821) / White-naped Jay- "Cancão"		X	X		AF
MAMMALS					
Mustelidae					
<i>Conepatus semistriata</i> (Lichensteins, 1836) / Skunk "Cangambá"	X	X			C
Caviidae					
<i>Hydrochhoerus hidrochaeris</i> (Linnaeus, 1766) / Capybara - "Capivara"	X				AF
<i>Kerodon rupestris</i> (Wied, 1820) / Rock cavy - "Mocó"	X				AF; A
<i>Galea spixii</i> (Wagler, 1831) / Spix's Yellow-toothed Cavy "Preá"	X				A

Continue...

Table 1. Continue ...

Family Species / Popular name	Category of use/interaction and number of citations				Form of capture
	Feeding	Medicinal	Pet	Control	
Dasypodidae					
<i>Dasypus novemcinctus</i> (Linnaeus, 1758) / Nine-banded armadillo- "Tatu-galinha"	X				C; R; AF
<i>Euphractus sexcinctus</i> (Linnaeus, 1758) / Six-banded armadillo- "Tatu-peba"	X	X			C; R; AF
Myrmecophagidae					
<i>Tamandua tetradactyla</i> (Linnaeus, 1758) / Southern tamandua-"Tamanduá"	X				C
Felidae					
<i>Leopardus tigrinus</i> (Schreber, 1775) / Oncilla – "Gato-do-mato"	X				R; C; AF
Canidae					
<i>Cerdocyon thous</i> (Linnaeus, 1766) / Fox – "Raposa"	X			X	R; C; AF
<i>Chryson brachyurus</i> (Illiger, 1815) / Guará wolf "Lobo Guará"	X				AF
REPTILES					
Teiidae					
<i>Salvator merianae</i> (Duméril & Bibron, 1839) / Argentine Black and White Tegu - "Teiú"		X			C; AR
Iguanidae					
<i>Iguana iguana</i> (Linnaeus, 1758) / Iguana	X				AR; M
<i>Chelonoidis carbonaria</i> (Spix, 1824) / Red- footed tortoise "Jabuti"		X	X		AR; M
Alligatoridae					
<i>Caiman latirostris</i> (Daudin, 1802) / Broad- snouted caiman – "Jacaré"		X			M
Viperidae					
<i>Crotalus durissus dryinas</i> (Linnaeus, 1758) / Rattlesnake - "Cascavel"		X			AF
Total of Citations (n)	110	93	26	2	
Species (s)	18	14	6	1	
H' index	2.64	2.50	1.58	0	
J' index	0.91	0.95	0.88	0	

Note: Tag name: AF = Firearm; F = facheado; E = slingshot; C = usage of dogs; A = bear trap; R = tracking; AR = trapping; M = manual.

Source: Elaboration of the authors.

Among the cited mammal by the interviewed villagers, the skunk (n=13) had the biggest citation frequency, followed by the nine-banded armadillo (n=10), armadillo (n=9) and tamandua (n=7). The emphasis on the first three is justified in the preference for meat consumption, which can be observed in the following statements: “Nine-banded armadillo meat, six-banded armadillo and skunk are the best there are” (M-2); “The armadillo meat is very good” (M-5).

The prevalence of the consumption of Dasypodidae (armadillos) is also observed in other studies on wild fauna (Peters et al., 2011; Pause & Silva, 2015; Santos et al., 2016). According to Peters et al. (2011), this habit is regionally widespread due to the value and quality attributed to the meat of this animal.

Regarding the food use of reptiles, only two species were mentioned: *Salvator merianae* and *Iguana iguana*. Their meat is used as food and the lard of *S. merianae* is widely disseminated in the traditional medicine of several regions (Lima; Santos, 2010). According to Vanzolini et al. (1980), the widespread use of *S. merianae* in the semi-arid region may be related to size. This species is the largest lizard found in this environment. The capture of this lizard results in a higher energy return, which makes this animal the main hunted species of the region. Also, the taste of meat is greatly appreciated (Alves et al., 2012; Fernandes-Ferreira et al., 2013).

Therefore, to ensure a future for animal populations, wildlife management and conservation plans should include not only the precepts of ecology but also the economic and cultural interactions established between ecological and social systems, constituting a common regional system, since biological diversity can not be dissociated from cultural diversity (Alves & Albuquerque, 2012).

Purpose of hunting

In this study, four forms of use of local fauna were observed: food, medicinal, pets, and control resources. There was a high number of citations and great diversity of animals related to food use (18 species) followed by medicinal (14 sp) and pets (6 sp) (Table 1). It was not possible to calculate the indexes related to the control form, because there is only one quotation. The values of the uniformity index (J') for medicinal, alimentary and pets were higher than 0.7, indicating that the use of the animals in the three forms cited by the informants occurred

homogeneously, not being focused on only one species.

Similarity analysis, using a quantitative metric (Bray-Curtis index), showed that the use for food and medicinal purposes shared 43.5% of the wild fauna cited by Cruz informants. The other groupings were weakly formed using this metric, probably the mentioned wild native species are related to isolated uses, resulting in reduced values of similarity, obtained by these analyses.

Food and medicinal were the goals that stood out in this study by the wealth of animal species cited by informants, leading us to believe in the importance of hunting for such purpose. Other studies highlight not only the use of hunting for food and medicine but also for animal trade purposes (Costa Neto, 2011), magical-religious, magical-religious (Pereira & Schiavetti, 2010), ornamental pieces, recreation, and hunting control when some wildlife pose health risks to people or reproductions (Alves et al., 2009).

The effective use of game animals was observed for birds and chelonians raised as domestic animals. These animals have traditionally been used as pets throughout Brazil (Galvagne-Loss et al., 2014; Santos et al., 2016). The use of birds as pets is reported in Brazil since the sixteenth century (Fernandes-Ferreira et al., 2012). In relation to the chelonians, the affective preference for these animals can be motivated by the fact that they are considered docile, rustic and easy to capture, as well as the symbology associated with the prevention of respiratory diseases for the families that keep them as domestic animals (Alves & Souto, 2010).

For control hunting in the Cruz community, the crab-eating fox (*Cerdocyon thous*) was reported for attacking crops and domestic animals, causing damage to agricultural producers. A similar result was described by Santos et al. (2016) with the Trukás Indians. Despite the existence of conflicts between humans and the fox, its by-products, such as lard, leather, and tail, are used in traditional medicine, demonstrating a pattern of use of wild fauna (Pereira & Schiavetti, 2010; Santos et al., 2016).

Even though there is no intentional pattern, the multiple uses of the by-products of the hunted species act in a certain way as a conservation strategy, by maximizing the resources of the ecosystems (Moura & Marques, 2008).

The magic-religious use of animals was not observed in this study, which may occur due to

the influence of the Christian religions installed in the community. According to the interviewees, there are no references in the Cruz community to religions of African nature, denominated by them as "witchcraft".

Hunting Strategies

The main capture techniques mentioned by the interviewees were firearm chasing, dog assisted, trap, tracking, facheado, and

shuttlecock/slingshot (Table 1). These techniques follow the pattern recorded in other studies (Alves et al., 2009; Barboza et al., 2016). The use of firearms associated with dogs, which are trained while still puppies for the slaughter of the targets, are used to catch tamandua, armadillo, skunk, oncilla, and the black and white tengu. The dogs are trained to sniff and follow the traces of these animals, which take refuge in burrows and are then captured by the hunter.



Figure 3. Hunting and capture instruments of wild animals. a) Shotgun, ammunition, machete and canteen used in hunting activity; b) Creel (Aió) used to store hunting instruments and captured birds; c) Hunting dog and d) Slingshot used to target wild birds.

Source: Elaboration of the authors.

A low sharing of hunting strategies was observed, highlighting a weak similarity in the use of dogs and tracking (the Jaccard similarity index $-SJ = 0.57$), additionally to the group formed between the manual and trapping strategies ($SJ = 0.40$). This shows that most species are captured exclusively by specific hunting strategies. Of the 23 species cited in this study, only five species are captured using three of the four strategies cited by the informants, three species are associated with two of the four strategies mentioned, and the other species (15 species) are associated with only one form of capture.

In the village of Cruz, among the 23 species cited by the informants, 16 species were captured with firearms and dogs had been used as hunting strategies, being respectively the first and second ways of capturing the most cited fauna in this study. According to Sanches (2004), the most common hunting technique in Brazil is the use of firearms and the aid of other techniques such as the use of dogs and traps.

The use of dogs in hunting activities usually results in an increase in the number of preys, since it is a technique that captures species indiscriminately, regardless of sex or reproductive status (Peres & Palacios, 2007; Alves & Souto, 2010; Fernandes-Ferreira, 2014). However, the use of firearms, due to the great distribution and intensity, in the form of the capture of greater impact for the conservation of the wild fauna (Fernandes-Ferreira, 2014).

Therefore, the most impactful hunting techniques are awaiting, the luring and facheado, for using firearms and dogs in the capture of several animals. Firearms, besides being used to kill the game animals, are also used to defend the hunters (Alves & Souto, 2010; Galvagne-Loss et al., 2014).

The slingshot is typically used by children to catch birds, such as the ground doves (*Columbina picui*). This technique is transmitted by the parents as a process of initiation into the

hunting activity (Lima et al., 2018; Galvagne-Loss et al., 2014).

In a pioneering study on the historical and current panorama of wild fauna hunting in Brazil, Fernandes-Ferreira (2014) observed that active techniques are historically attributed to a leisure activity, which promotes, in addition to subsistence, socialization, physical exercise and biological knowledge. Thus, hunting activity has become an important socioeconomic and cultural practice for human populations.

Regarding frequency, hunting activity in the village Cruz varies from one to two times a week and usually occurs on weekends. The time spent hunting the wild animals depends on the type of prey to be captured, which can be spent between 3 and 8 hours of searching. Similar results were found in a study carried out by Pause e Silva (2015).

Regarding the best place to hunt in the community, the interviewees mentioned the banks of the São Francisco River and the surroundings of the mountains. Hunting can be done in the tracks of the mountains, seeking to spot the wild animals or signs, such as traces. Or on the banks of the river, since they are quite visited by the animals in search of water. The man chooses the place where he will hunt taking into account aspects such as accessibility, preferences, and knowledge about the behavior of the animal and the landscape (Campos, 2008). According to Barboza et al. (2016), the hunting sites chosen are those furthest from the community's population nucleus, since the animals are more abundant in areas where the forest was less disturbed.

Biotherapeutic use of wild animals

The zootherapy practiced by the informants was characterized by the registration of nine species (Table 2) used as a therapeutic resource for the treatment of ten health-related situations, such as flu, stuffy nose, wound, earache, toothache, asthma, epilepsy, swelling, rheumatism, and perforations (puncture injury). The animals listed are distributed into three taxonomic categories: reptiles, birds, and mammals.

Reptiles are the most representative group, considering the number of times each species was cited. The lard of *Salvator merianae* has been indicated by all the interviewees to treat various pains, flu, sore and perforations. The alligator was cited by nine respondents. Its hide is

indicated for strokes and asthma, and lard is used for wound treatments.

In traditional medicine, the use of animals occurs through the use of the whole specimen, parts of the body or products extracted from it, such as lard, fat, leather, feather, thorns, scales, bones and liver (Oliveira et al., 2010). The parts quoted by the informants follow this trend, with citation of lard, meat, hull, hair, feather, leather, and nest. Lard was the most cited part, a tendency also found in the studies of Moura and Marques (2008), Oliveira et al. (2010), Lima and Santos (2010) and Santos et al. (2016). In the present study, lard was indicated for the treatment of nine conditions: wound, throbbing, flu, toothache, earache, stuffy nose, wound, swelling, and rheumatism.

Besides the role in healing, natural products often have a magic-religious meaning, reflecting the different views regarding health and disease that exist within each culture (Alves et al., 2009). In this way, the use of animal substances must be understood from a cultural perspective, since medical systems are organized as cultural systems (Costa Neto, 2011).

Studies on hunting have privileged indigenous or cabocla populations (Silva, 2012). The demand for studies in this regard comes from the concern to understand the contextual conditions and the ways in which humans obtain, choose and use game resources in order to safeguard their compatible use in the long run. It is understood that the art of hunting is an immaterial cultural practice that establishes connections between social and natural systems, taking into account the environmental, cultural and economic aspects that affect the forms of social organization and the ways of using them resources (Pereira & Schiavetti, 2010; Cajaiba et al., 2015).

The selection of local species for food use goes through the texture, smell and taste of meat, however, it is observed that cultural patterns such as customs, beliefs, myths, family traditions and habits also act on the processes of choice and use of wild animals as food. Thus, eating practices are influenced by myths and taboos that may or may not limit the consumption of available food resources. (Figueiredo; Barros, 2016).

In this sense, Ferreira et al. (2012), reports that the species *Tapirus terrestris*, is strongly rejected for consumption in regions of the Amazon and semi-arid because it is an animal with the supernatural power to transform itself into

various forest animals, which makes the consumption of their potentially offensive meat. Thus, we can say that food myths and taboos act as factors of identity and cultural rules formed from the thought and relationships established with animals and those with humans (Descola, 1998; Ortner, 2011).

Assuming that rural and / or traditional societies are on the threshold of the right to use and the need to conserve, hunting is a particularly relevant issue, both in terms of impact on animal populations and food security. and maintenance of the cultural references of these societies, considering that the activity is inserted in a

network of symbolic relations (Figueiredo; Barros, 2015).

Although practiced in all regions of Brazil, the management of hunting activity is still neglected by the competent agencies. The restriction of hunting by legislation did not resolve issues of conflict between human populations and wildlife resources, but rather has led to the abandonment of local practices of wildlife use and management by traditional populations, resulting in rupture of the environmental knowledge for new generations, which hinders the conservation and sustainability of wild species (Verdade & Seixas, 2013).

Table 2.

Animal species used in traditional medicine, and in Cruz village, Alagoas, from May 30 to December 10, 2016.

Animal species Popular name Scientific name	Application		
	Human Medicine	Veterinary	Diseases
black and white tengu / Teiú <i>Salvator merianae</i> (Duméril & Bibron, 1839)	X		Wound, toothache, earache and flu
Rattlesnake / Cascavel <i>Crotalus durissus</i> (Linnaeus, 1758)		X	"Animal catarrh."
Broad-snouted caiman <i>Caiman latinostrus</i> (Daudin, 1802)	X		Dizziness and sore
Caatinga cacholote -- Casaca-de-couro <i>Pseudoseisura cristata</i> (Spix, 1824)	X		Dizziness
Eared Dove -Ribaça <i>Zenaida auriculata</i> (Des Murs, 1847)	X		Dizziness
Six-banded armadillo-Tatu preá <i>Euphractus sexinctus</i> (Linnaeus, 1758)		X	Sick dog smoking
Skunk-Cangambá <i>Conepatus semistriata</i> (Lichensteins, 1836)		X	Sick dog smoking
Red-footed tortoise-Jabutí <i>Chelonoidis carbonaria</i> (Spix, 1824)	X		Asthma
Smooth-billed ani – Anu-preto <i>Crotophaga ani</i> (Linnaeus, 1758)	X		Smoker

Source: Elaboration of the author.

Conclusions

Hunting represents for human populations a means of production that allows the subsistence of families that depend on these resources for food supplementation and maintenance of cultural expressions, being rooted in their traditions.

In the Cruz community, hunting is an old practice that remains significant to the daily life of the inhabitants, although fishing is a means of subsistence for this population, being used as a

source of protein for families and also leisure, practices transmitted throughout generations, demonstrating the consolidation as a local cultural expression.

The interactions between man and wildlife recorded in the community of Cruz are demonstrated in the practice of hunting and use of fauna resources, this information should integrate the proposals of conservation of the local fauna, respecting the local cultural dynamics and the ecological and economic aspects associated with them.

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