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Hunting activity in the Cerrado of Maranhão: techniques and associated sociocultural factors

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ABSTRACT

Hunting activity is an ancient practice that reveals important connections with biodiversity. This activity presents patterns of use and consumption that may be linked to sociocultural factors, such as taste preference, land ownership situation, and financial condition. However, the pressure of this activity can cause the decline of wild animal populations, generating conservation implications. Because of this, the research aims to provide an inventory of the most frequently cited species during hunting, in addition to analyzing hunting patterns and the socioeconomic characteristics of hunters in a Cerrado location in Northeast Brazil. The information was obtained through semi-structured questionnaires, complemented with informal conversations. The sample consisted of 21 hunters aged between 18 and 72 years. Principal Component Analysis was used to verify the hunting pattern in the area, and the Generalized Linear Model to investigate the influence of socioeconomic factors on the number of species hunted. A total of 23 taxa were recorded, belonging to the taxonomic groups of mammals and birds, with uses linked to food. Hunting patterns revealed an interrelationship between instruments and techniques during hunting, but socioeconomic variables have no effect on the number of species hunted, leading to the assumption that sociocultural aspects are the main influence.

Keywords: Ethnozoology, Fauna, Socioeconomic profile.

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SIGNIFICANCE STATEMENT

The state of Maranhão boasts a great diversity of species due to the predominance of three main biomes: the Amazon, Caatinga, and Cerrado. However, few studies address hunting activity and the uses of wild species. In this manuscript, we highlight the main hunted animals, the techniques and instruments used, as well as evaluate the influence of socioeconomic variables on the number of hunted species. Through our analyzes, it is possible to suggest the existence of hunting patterns across biomes and to hypothesize that sociocultural aspects exert more influence on the practice than isolated socioeconomic variables.

INTRODUCTION

Since ancient times, animals and their products have been used to benefit humans in the most diverse cultures (Lev 2003). In Brazil, due to its rich fauna and cultural diversity, indigenous communities and descendants of European settlers (Alves and Souto 2011) have used numerous species of animals, with generally linked uses: food, cultural activities, commerce, zootherapy and magical-religious purposes (Alves and Pereira Filho 2007; Alves et al. 2012b; Ferreira et al. 2012; Lima et al. 2014).

Despite the broad utilitarian nature of wild animals and their importance for Brazil, there are large gaps regarding hunting activities, as the clandestine or semi-clandestine factor of the activity possibly makes it difficult for researchers to access accurate information (Alves et al. 2012a), since such activity is considered illegal in Brazil - 9605/98 Environmental Crimes Law (Brazil 1998). Among the various conservation implications surrounding hunting, we can highlight: the overexploitation of fauna (Mendes 2020), impacts on the reproduction rate of hunted species (Thoisy et al. 2005; Cajaiba et al. 2015) and local extinctions in forest fragments (Fernandes-Ferreira and Alves 2014).

Even with these problems, species continue to be slaughtered in different biomes (Barbosa et al. 2009), and hunting practiced in all regions of Brazil by the most diverse human communities, being culturally considered an activity rooted in their ways of life (Fernandes-Ferreira and Alves 2017). For certain groups of people, due to adverse environmental conditions and sociocultural structure, the relationships established with natural resources become stronger (Alves et al. 2012a), and the use/consumption patterns of fauna end up suffering influences of factors such as: land tenure, occupation and financial condition (Souza et al. 2022).

In the Northeast region, studies were carried out that highlighted subsistence hunting as the main motivation among hunters with low economic resources (Barbosa et al. 2009; Alves et al. 2009; Pereira and Schiavetti 2010; Alves et al. 2012a; Barboza et al. 2016; Silva Neto et al. 2017). However, it is necessary to pay attention to the use of this term, as "subsistence hunting" in some locations is increasingly associated with commercial hunting, an alternative income, rather than hunting out of "necessity", since the social programs created in Brazil in the beginning of the 2000s, incomes improved, essentially for poor rural residents, reducing this dependence (Bragagnolo et al. 2019).

For states in the Northeast, such as Maranhão, little is known about the motivations, techniques and factors that influence hunting activity in the state. Most of the available works focus on descriptions of indigenous communities in the northwest portion (Garcia 2010; Chahud 2019; Chahud 2020; Figueiredo et al. 2022) and west Maranhão (Melo 2019). While other studies provide descriptions of hunting in the eastern region, but do not analyze the influence of socioeconomic variables on the activity (Mercês et al. 2021; Costa et al. 2023). Additionally, the need for information extends to biomes such as: Pantanal and Cerrado, where the distribution of ethnozoological work is disproportionate in comparison to Caatinga and Amazon (Alves and Souto 2011).

Due to this scenario, the need for information related to the components that encourage hunting in the state is evident. Therefore, for this context, the current study becomes pioneering, as it aimed to inventory the species most cited during hunting, in addition to analyzing hunting patterns and the socioeconomic characteristics of hunters in a Cerrado location in Northeast Brazil.

MATERIAL AND METHODS

Study area

The study was conducted in the Urban Zone of the city of Anapurus - Maranhão, established in the Mesoregion Leste Maranhense and in the microregion of Chapadinha (Figure 1), with a hot and semi-humid tropical climate with two well-defined seasons - dry and rainy period, high temperatures with average annual temperatures above 24°C (CPRM 2011). The territorial area is 608,903 km^2 and estimated population of 13,793 inhabitants, with the Cerrado being the predominant biome (IBGE 2024). Among the economic activities carried out in the municipality are: subsistence farming, agribusiness, plant extractivism, fishing, hunting and commerce (PMS 2022).

Ethical procedures and data acquisition

This qualitative descriptive study was registered in the Plataforma Brasil under protocol number 4.721.143. Data collection took place between January and September 2021 through the administration of semi-structured questionnaires to male residents engaged in hunting activities in the city, all aged between 18 and 72 years old.

Participant selection was carried out using snowball sampling. This type of non-probabilistic sampling is capable of locating certain groups that are difficult to access, to which participants indicate new contacts, thus promoting the growth of the sample (Vinuto 2014). Before each recording of information, the objective of the research was explained, and the free consent form was presented as provided for in the Resolution No. 510/2016, as a way of allowing the use of

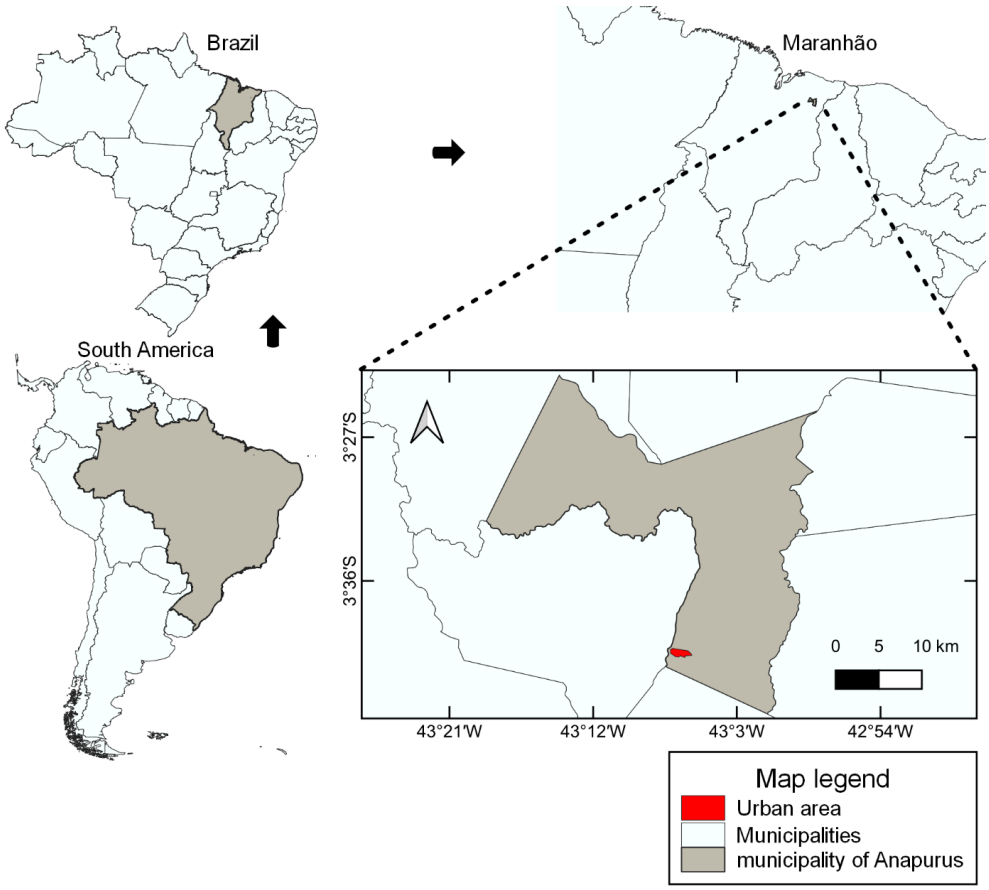

Figure 1. Location of the study area with emphasis on the city of Anapurus

data.

The process of scientific identification and systematic ordering of species was carried out through descriptions provided by participants combined with information from the Wikiaves website (https://www.wikiaves.com.br/) and Pacheco et al. (2021) for birds and the Global Biodiversity Information Facility website (https://www.gbif.org/) and Abreu et al. (2023) for mammals. The investigation of the conservation status of the species mentioned took place through the LVFBAE-Livro Vermelho da Fauna Brasileira Ameaçada de Extinção (ICMBio 2018) and the IUCN red list (International Union for Conservation of Nature).

Semi-structured questionnaire

The questions were mixed (alternative and descriptive), where each participant could use the "other" item if they were unable to answer or the answer was not listed in the options. For ethnozoological items, the questions were about the animals captured (mammals, birds, reptiles and others), hunting techniques, purpose of hunting (subsistence - food, income supplement - commerce, entertainment and others), frequency of practice at the study site, periods of suspension of the practice, organization of hunters (individual hunting, group or others), instruments used, selection of forest fragments and perceptions about the quantity of fauna in the forest.

Added to this, socioeconomic data were recorded to verify their influence on activity. During the questionnaire application process, additional information provided during free conversations was recorded in note blocks.

Data analysis

The qualitative data were quantified and tabulated using Microsoft Excel 2016®, and later the same software was used to calculate the absolute frequencies and percentages for the recorded citations. The average frequency of the mentioned taxa was calculated with the aim of identifying the animal preferred by hunters.

A Generalized Linear Model (GLM) with Poisson family distribution was used to evaluate the influence of socioeconomic factors (group hunting, age, fixed income, hunting objective and hunting frequency) on the number of species hunted, the adopted significance for model ≤ 0.05. Additionally, Principal Component

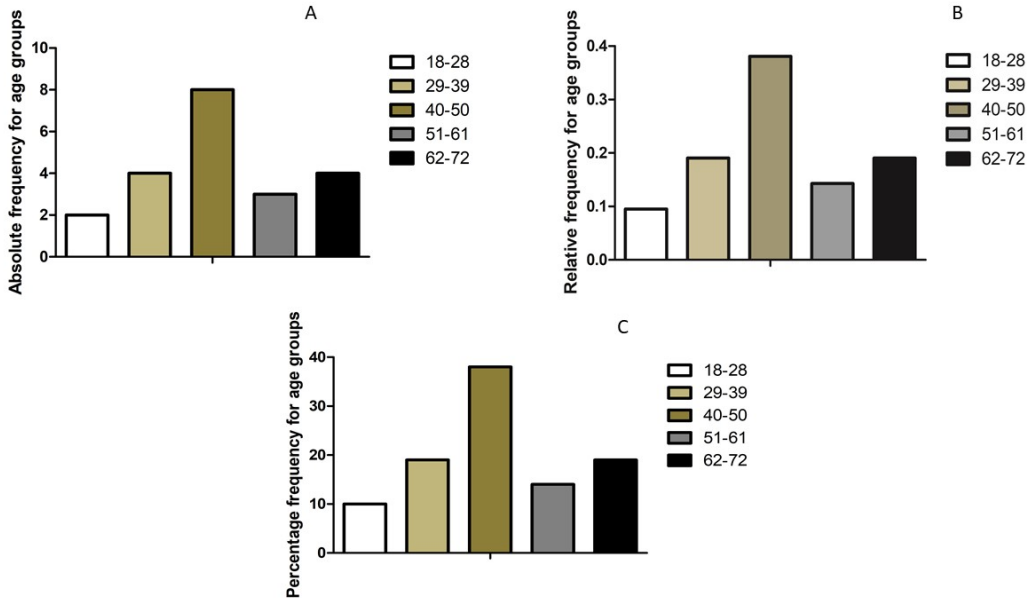

Figure 2. Number of participants according to age and frequencies: A (absolute frequency), B (relative frequency) and C (percentage frequency).

Analysis (PCA) was used to verify the interrelationship between the variables (techniques, instruments and organization of hunters), where the interrelationships vary between 0 and 1. These analyzes were carried out through the software R (R CORE TEAM, 2023) version 4.3.1. In addition to software GraphPad Prism (GraphPad Software, 2023) version 8.0, to create certain graphs.

RESULTS

A total of 21 hunters were interviewed, distributed across different age groups (Figure 2). Among them, 52% had incomplete primary education, 5% had completed primary education, 38% had completed secondary education, and 5% had completed higher education. In relation to fixed income, 86% of the hunters had no income from formal employment, while 14% had fixed income of up to $200 USD.

The study obtained records of hunting activity for 12 families, 3 genera and 20 species, with 57% of the registered wild animals belonging to the bird group and 43% to the mammal group. Among the taxa, the average frequency demonstrated that the animals most subject to hunting are *Dasyprocta* sp., *Passalites nemorivagus* and *Crypturellus tataupa* (Table 1).

The registered wild animals are predominantly used as a food resource, and due to this factor, they were subjected to investigation of status of conservation. At the national level, 90% of the wildlife fell into the "LC" category and 10% with status “DD”. For the international level, 90% had an "LC" status, 5% were "DD" and 5% were "NT”. It is possible to observe that the majority of animals, at both levels, had a wide geographic distribution, being considered as: “Less concern” (LC) in terms of conservation. The other category of use recorded, medicinal, had only 6 records with one reptile mentioned, where according to hunters capture is sporadic (Table 2).

The techniques adopted for capturing wild animals were divided into three types: sit and wait (characterized by the construction of a hiding place to ambush the animals), use of dogs, and traps (mondé, tatuzeira and net). Of the total, 72% of hunters use the “sit and wait” technique, 17% hunt with dogs, and 10% use traps. Regarding the traps, the hunters described them as follows: the net trap (Figure 3 A-B) intended for capturing mammals, such as *D. novemcinctus*, *D. septemcinctus* and *E. sexcinctus*, where a net is positioned in the "animal’s passage," and when the trigger is activated, it comes loose and falls on the animal. The tatuzeira trap (Figure 3C) is also designed to capture members of the Dasypodidae family. The equipment is positioned close to the animal’s burrow and has two openings that, when the trigger is activated, close the openings, trapping it. Finally, the mondé (Figure 3D) this trap is developed to capture animals, such as *P. tajacu*. A barrier of twigs is constructed on both sides, and a wooden log is positioned on top, which falls onto the animal when the trigger is activated.

Table 1. Wild animals recorded based on citations and descriptions provided by interviewees combined with consultation of guides and species lists.

Common names in Portuguese	Common names in English	Scientific name	Class	Family	LVFBAE	IUCN	$\bar{x}$
Aracuã	Chachalaca	*Ortalis* sp.	Bird	Cracidae	-	-	0.047
Gavião	Snail Kite	*Rostrhamus sociabilis* (Vieillot, 1817)	Bird	Accipitridae	LC	LC	0.047
Inhambu	Small-billed Tinamou	*Crypturellus parvirostris* (Wagler, 1827)	Bird	Tinamidae	LC	LC	0.047
Jacu	Rusty-margined Guan	*Penelope superciliaris* Temminck, 1815	Bird	Cracidae	LC	NT	0.333
Jacutinga	Guan	*Penelope* sp.	Bird	Cracidae	-	-	0.047
Juriti	White-tipped Dove	*Leptotila verreauxi* Bonaparte, 1855	Bird	Columbidae	LC	LC	0.571
Nambu	Tataupa Tinamou	*Crypturellus tataupa* (Temminck, 1815)	Bird	Tinamidae	LC	LC	**0.666**
Pomba do bando	Eared Dove	*Zenaida auriculata* (Des Murs, 1847)	Bird	Columbidae	LC	LC	0.571
Rolinha	Plain-breasted Ground-Dove	*Columbina minuta* (Linnaeus, 1766)	Bird	Columbidae	LC	LC	0.476
Rolinha azul	Blue Ground-Dove	*Claravis pretiosa* (Ferrari-Perez, 1886)	Bird	Columbidae	LC	LC	0.238
Rolinha sangue-de-boi	Ruddy Ground-Dove	*Columbina talpacoti* (Temminck,1810)	Bird	Columbidae	LC	LC	0.047
Sericora	Gray-cowled Wood-rail	*Aramides cajaneus* (Statius Muller, 1776)	Bird	Rallidae	LC	LC	0.047
Seriema	Red-legged Seriema	*Cariama cristata* (Linnaeus, 1766)	Bird	Cariamidae	LC	LC	0.047
Caititu	Collared Peccary	*Pecari tajacu* (Linnaeus, 1758)	Mammal	Tayassuidae	LC	LC	0.238
China	Brazilian Lesser Long-nosed Armadillo	*Dasypus septemcinctus* Linnaeus, 1758	Mammal	Dasypodidae	LC	LC	0.190
Cutia	Agouti	*Dasyprocta* sp.	Mammal	Dasyproctidae	-	-	**0.761**
Mambira	Southern Tamandua	*Tamandua tetradactyla* (Linnaeus,1758)	Mammal	Myrmecophagidae	LC	LC	0.142
Paca	Lowland Paca	*Cuniculus paca* (Linnaeus, 1766)	Mammal	Cuniculidae	LC	LC	0.523
Peba	Yellow Armadillo	*Euphractus sexcinctus* (Linnaeus,1758)	Mammal	Dasypodidae	LC	LC	0.333
Tatu	Nine-banded Armadillo	*Dasypus novemcinctus* Linnaeus, 1758	Mammal	Dasypodidae	LC	LC	0.523
Veado capoeira	Red Brocket	*Mazama americana* (Erxleben, 1777)	Mammal	Cervidae	DD	DD	0.523
Veado catingueiro	Gray Brocket	*Subulo gouazoubira* (G. Fischer, 1814)	Mammal	Cervidae	LC	LC	0.571
Veado jitinga ou ritinga	Amazonian Brown Brocket	*Passalites nemorivagus* (Cuvier, 1817)	Mammal	Cervidae	DD	LC	**0.714**

*Conservation status according to LVFBAE and IUCN: least concern (LC), near threatened (NT), vulnerable (VU), critically endangered (CR), endangered (EN) and insufficient data (DD). The highest average values are highlighted in bold.

The instruments used during hunting activities were categorized into attraction instruments (whistle and mini sound box) and capture instruments (shotgun and machete). Among the instruments with the highest percentages are 76% for the whistle and 91% for the shotgun (Table 3).

Regarding the organization of hunters for hunting execution, the following forms were recorded: individual, pair, and group. 52% hunt in groups (3-6 people), 29% hunt individually and 19% in pairs. PCA demonstrated a significant interrelationship between the use of the "sit and wait" technique, instruments (whistle/shotgun) and the organization of hunters (individual/group). Additionally, other techniques, such as "use of dogs" and traps, were also significant, thus showing that a single hunter can employ more than one technique and instrument during the activity (Figure 4).

Hunting takes place in forest fragments, and according to the hunters, it is divided into: closed forest and open forest, with the description that: 76% hunt in closed forest (dense vegetation with a large number of fruit trees and the presence of animal tracks) and 24% in open forest (less dense vegetation, forests and agricultural fields). When asked about the quantity of animals in the forest, hunters reported their perceptions: 76% described there being "few" (Figure 5B), 14% believed there are "still many" (Figure 5A) and 10% agreed that the quantity "varies with the species" (Figure 5C).

Hunters were asked about the frequency of hunting activity, and it was described that 62% hunt weekly, 28% hunt once a month, 5% twice a month and 5% once a year. Hunters also mentioned occasions when they either cease or continue hunting: 57% do not engage in the activity during the rainy season, 29% reported maintaining activity without restrictions, and 14% refrain from it during Lent (religious principles).

The motivations of hunters for engaging in hunting are linked to the categories: subsistence, income supplementation, and entertainment. 62% hunt for subsistence reasons, 33% for entertainment and 5% to supplement their income. All hunters were questioned about the illegality of the activity and stated that they were fully aware of the prohibition. The GLM demonstrated that none of the socioeconomic variables analyzed showed a significant correlation with hunting activity (Table 4).

DISCUSSION

Our results describe the profile of hunters in the eastern region of Maranhão, highlighting the techniques, instruments and motivations behind the practice. The study presents patterns associated with hunting and analyzes the influence of socioeconomic factors on activity. Additionally, it provides a list of 20 species and 3 genera, which are most subject to hunting pressure. The registered wild animals corroborate the knowledge of Maranhão's fauna, since the state has gaps in knowledge about biodiversity (Vieira and Oliveira 2020).

The fauna used for food belongs to the taxonomic groups of birds and mammals, certainly due to the abundance and greater protein return that these animals offer to hunters. The mention of these groups as the most hunted animals is common in the Northeast region of Brazil (Chagas et al. 2015). Other studies in Maranhão have cited mammals (Costa et al. 2023), birds, and reptiles (Oliveira 2018) as components of the human diet. In fact, reptiles have a wide variety of uses in the Northeast, such as food (Alves et al. 2012a), medicinal (Barbosa et al. 2014), artisanal (Santos et al. 2019) and magical-religious (Rodrigues and Teles 2013). However, for the present study, there were few records of the group and only in medicinal use, possibly cultural aspects or taboos generate restrictions for its uses in other categories.

Other animals, members of the families Dasyproctidae and Cervidae, are highly valued by hunters due to the 'taste of the meat.' In several Brazilian ecosystems, these animals are hunted precisely because of their good acceptance in the human diet and ease of capture (Fragoso et al. 2011). Furthermore, in addition to the "preference and taste" (Chaves et al. 2020), factors such as availability, richness and size of the animal (Cajaiba et al. 2015) can also affect the choices of certain target species. Therefore, the most cited species are probably those that suffer most from hunting pressure. Oliveira et al. (2022) in their study found a significant correlation between the animals mentioned in *Freelisting* and their captures.

Due to their use, the species were subjected to an assessment of conservation status in order to identify potentially declining populations (Cassano et al. 2017). Of the species analyzed at national and international level, most fell into the "LC" category, species with a wide geographic distribution, with the exception of *M. americana* (DD) *P. nemorivagus* (DD), and *P. superciliaris* (NT). Although the majority of species are not threatened with extinction, excessive exploitation of the most desired animals can lead to extinction locally (Alves et al. 2009). Since hunting and other human activities - habitat fragmentation and deforestation tend to cause negative impacts on wild animal populations (Rios et al. 2019).

The capture of fauna largely occurs in the "closed forest", organized individually or in groups of hunters, using associated techniques and instruments. Among the techniques, the "sit and wait" mode is the most common among hunters who wish to ambush animals during feeding and drinking. Oliveira et al. (2023)

Table 2. Medicinal use of fauna parts.

Parts of the fauna	Absolute frequency	Percentage frequency	Function/treatment
Fat tissue (*Crotalus* sp.)	2	33%	Neoplasm, inflammations, and flu
Fat tissue (*Cerdocyon* sp.)	1	17%	Flu
Fat tissue (*E. sexcinctus*)	1	17%	Earache
Horn (*S. gouazoubira*)	2	33%	Stroke and vascular problems
Total	6	100%	

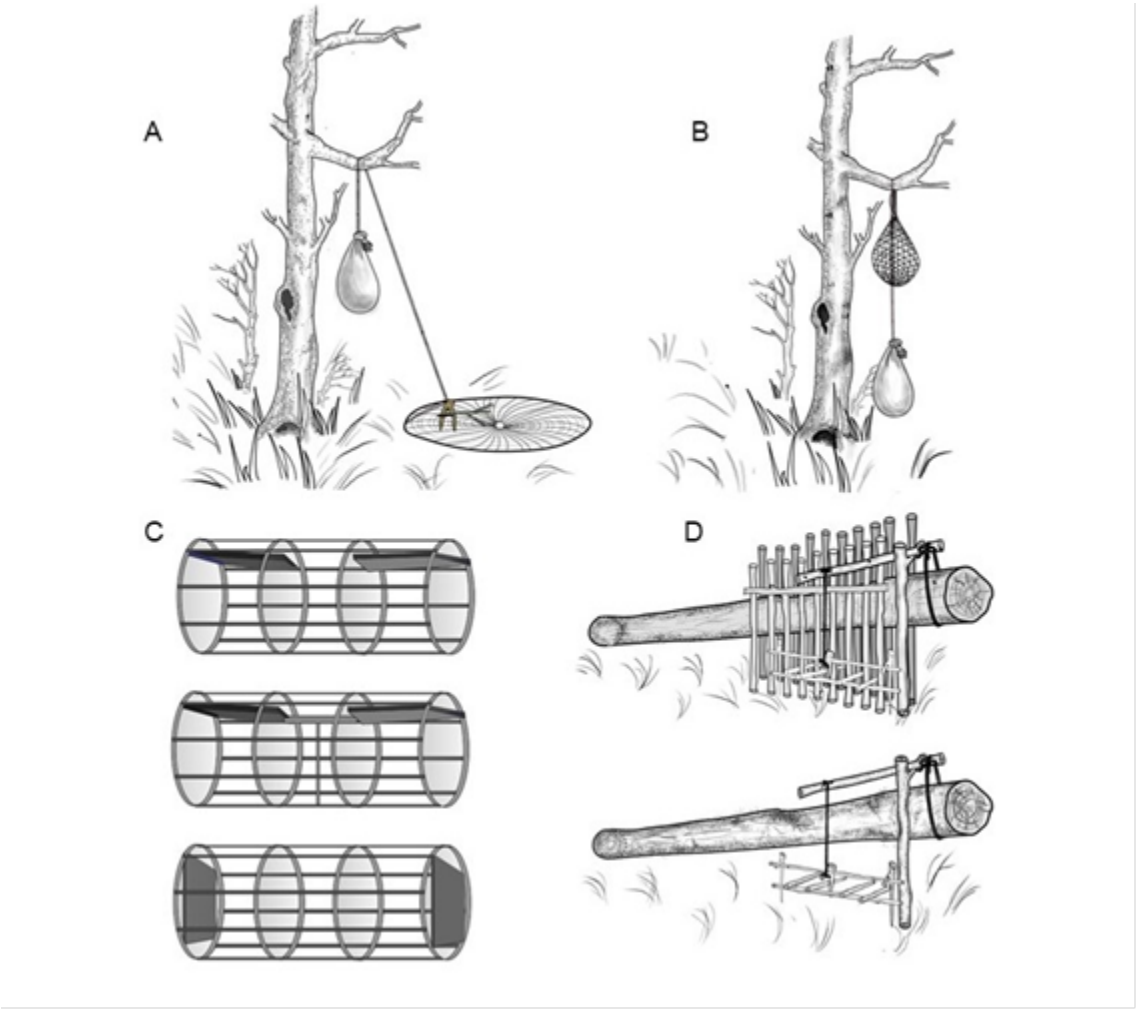

Figure 3. Traps used in the city of Anapurus: Rede (A-B), Tatuzeira (C) and Mondé (D). Illustrator: Rubenilson dos Santos Soares.

reported in the Amazon a prominent mention by both urban and rural hunters for the same technique, possibly due to the influence of fruit-bearing trees in determining hunting locations, thus providing better chances of capturing fauna. Another determining factor is the ecology of the animal, which can influence local knowledge and the setting up of ambushes (Souto et al. 2019). Studies in different biomes, such as: Amazon (Medeiros and Garcia 2006; Reis et al. 2018), Caatinga (Alves et al. 2009) and the Atlantic Forest (Souza and Alves 2014), described similar techniques and instruments, demonstrating that there is a hunt-

Table 3. Instruments used in hunting activities.

Attraction instruments	Absolute frequency	Percentage frequency
Whistle	16	76%
Mini sound box	5	24%
Total	21	100%
Capture instruments		
Shotgun	21	91%
Machete	2	9%
Total	23	100%

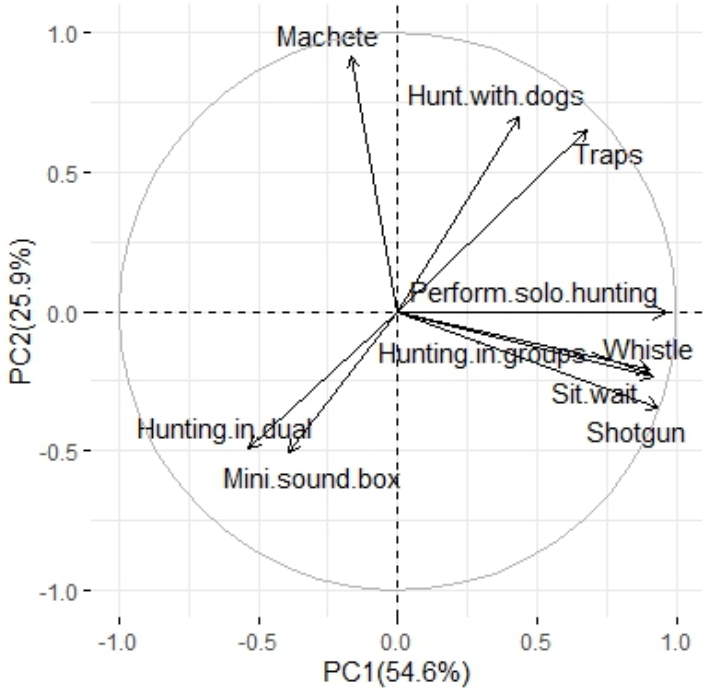

Figure 4. Circle of interrelationship between variables.

ing pattern across biomes.

In regard to hunters' perceptions of animal quantities in the forest, it was reported that the occurrence of species has decreased. We believe that the frequency of hunting combined with other human activities has caused exhaustion in species, preventing their "restoration" in the forest. The hunters mentioned that during the rainy season and Lent, hunting is not practiced, which creates "relief" for the fauna. For hunters who adopt active techniques (sit and wait) due to the rains, they described that ambushes and movements to the areas where they carry out the activity are compromised. Thus, the technique is used during the dry season due to the ease in hearing the movement of animals on dry leaves (Bonaudo et al. 2002). On the other hand, depending on the location, hunting in the rainy season may be more favorable due to the ripening of native fruits and ease of identifying animal tracks (Figueiredo and Barros 2016).

Of the motivations for hunting, subsistence stood out, in which hunters use natural resources for their own or family consumption, but reported that they do not depend exclusively on these resources to survive, as they work in other economic activities. In urban environments, hunters rely on alternative economic activities besides hunting and this practice ends up be-

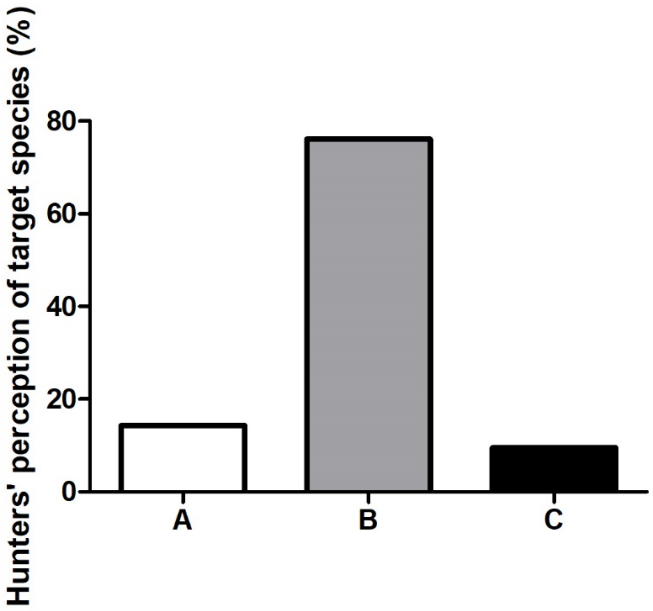

Figure 5. Perceived Abundance: A (there are still many), B (much less than before) and C (varies according to the species).

Table 4. GLM result for socioeconomic variables and hunting activity in the municipality of Anapurus.

Variables	Df	Deviance	Pr (>Chi)
Hunting in a group	1	0.5242	0.46907
Age	1	2.7884	0.09495
Fixed income	1	3.2203	0.07273
Objective	2	3.0168	0.22126
Frequency	1	0.1033	0.74788
Signif. codes:		0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1>	

coming multifunctional, offering food, income, leisure and social contacts (Van Vliet et al. 2015). Souto et al. (2019) suggest that "subsistence" hunting has changed its scenario, moving away from a purely "need" context, to complement other demands. Therefore, the consumption of wild meat among families that have easy access to alternative protein often occurs for the aspect of delicacy or snack (Pessoa et al. 2013).

Hunting for entertainment is the second most practiced, where hunters see the killing of fauna as a form of leisure that can be shared within the group of practitioners. Soares (2016) describes that many hunters consider hunting a sport, and it is common for friends to gather on weekends in an atmosphere of "relaxation and adventure" to do it. In Europe, this modality has been practiced for hundreds of years and still remains in the traditional context (Machado et al. 2013), but in Brazil, the modality is considered an environmental crime. However, this illegal nature of the activity does not seem to intimidate hunters, as El Bizri et al. (2015) study recorded about 383 videos on YouTube about illegal sports hunting practice in Brazil, largely carried out in the Cerrado with the use of modern equipment and with the approval of the majority of viewers.

Hunting to supplement income is the least practiced in the locality, but we believe that the clandestine nature of the activity and the fear of reprisals from environmental agencies, even if there is no such type of inspection in Anapurus, has inhibited hunters from reporting the real contributions of this category to motivation. The trade is carried out locally and according to hunters, the meat is sold to acquaintances or via order. Santos et al. (2018) in their study in Bahia, they

described a similar mechanism in commercial hunting, but dividing it into two aspects: simple and on a local scale, in the first category hunters offer wild meat to acquaintances/clients while it is still fresh and in the second category the meat becomes be sold to order locally.

Given this scenario, the question arises: what factors are responsible for influencing hunting? For the Anapurus location, the generalized linear model demonstrated that no socioeconomic variable analyzed had an effect on the number of species hunted, possibly the sample size or socioeconomic profile with similar characteristics had an influence on the analysis. However, it is common in ethnobiological studies that variables such as: age (Lacuna-Richman 2002; Almeida et al. 2010; Hanazaki et al. 2013; Aguilar-Santelises and Del Castillo 2015), gender (Paniagua-Zambrana et al. 2014; Torres-Avilez et al. 2014; Ramos et al. 2015), income (Medeiros et al. 2012; Medeiros et al. 2014b), education (Lacuna-Richman 2002) and the location (Medeiros et al. 2014a) exert influence on traditional knowledge and practices.

Another hypothesis that would explain hunting activity in Anapurus would be the cultural and traditional aspects that also form the profile of hunters. Santos et al. (2020) describe that certain human populations preserve vast ecological knowledge, resulting from a long historical process of social sharing of individual experiences and learning. Such knowledge is derived from contact with natural resources, which enable the development of management and strategies, originating in beliefs, perceptions and values shared in communities and disseminated orally (Silva Mourão and Nordi 2006). Thus, economic, social, and cultural activities carried out by human groups often depend on the supply of goods and services available in the local environment (Alves et al. 2005). Therefore, we suggest a correlation of factors (socioeconomic and cultural) that would explain hunting activity in Anapurus rather than separate factors, since Lima et al. (2020) emphasize that hunting activity is strongly related to sociocultural aspects.

CONCLUSION

Knowledge about wildlife and the ways in which local populations use animals become essential factors for developing future conservation plans. In this sense, the study provides a list of 23 taxa used in food and that suffer most from hunting pressure. Most species fell into the "least concern" conservation category at national level, but the conservation status of local fauna is uncertain, as there are no studies that provide information on the population dynamics of wild species in Anapurus. However, hunters' perceptions revealed a trend of declining animal populations in the forest, possibly due to hunting frequency, techniques, tools, taste preferences, and other anthropogenic activities conducted in the area. "Subsistence hunting" does not justify the slaughter of fauna, which leads us to suggest that the practice is more linked to the transmission of knowledge, leisure and social interactions than a dependence on resources for survival. This possibility becomes more evident when analyzing socioeconomic variables and none has an effect on hunting, leading to the assumption that sociocultural aspects are the main influence. Future studies within the scope of hunting, in Anapurus, need to take into account the sample size and, when using the GLM, verify new socioeconomic variables that may interfere in the activity.

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DATA AVAILABILITY

To protect the identity of participants, data will be available upon request in a pseudonymous format.

CONFLICT OF INTEREST

The authors declare that they have no conflicts of interest.

CONTRIBUTION STATEMENT

Regarding the roles of the authors in preparing the manuscript, PVCS was responsible for collecting and analyzing data and writing the text. FSV contributed with the statistical analyzes and SVB was responsible for data collection and interpretation of the analyzes.

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