

Rural Populations of Alagoinhas and Herpetofauna: Knowledge, Uses and Interactions

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Abstract

Background: Brazil has one of the greatest diversity of species of herpetofauna in the world. Associated with this diversity of species, rural communities in Brazil have developed a vast knowledge about these animals.

Methods: The present research aimed to characterize the knowledge and influence of the socioeconomic variables of the population in the interaction between humans and herpetofauna of the rural area of the municipality of Alagoinhas. The free list method and semistructured questionnaire was used to list the species of the herpetofauna known by the informants.

Results: A total amount of 39 species of amphibians and reptiles was cited by the informants. These interact with residents in the categories of food use, magical-religious purposes, medicine, pets and in conflicting relationships.

Conclusion: Regarding the results of socioeconomic variables influencing knowledge, time of residence, gender, the location of the community, education level, explained the knowledge associated with the reptiles. For amphibians, time of residence and gender explained the knowledge associated.

Introduction

Evolutionary and cognitive aspects have shaped the relationship of the human species with fauna over time [1]. This favored the construction of a vast knowledge about the fauna allowing human societies to develop utilitarian (i.e. food, medicinal, cosmetic, magical-religious uses) and cognitive (i.e. beliefs, myths) relationships [2].

Amphibians and reptiles are among the most important animals with which human beings have an intimate relationship [3, 4]. Brazil has one of the greatest diversity of species of reptiles and amphibians in the world [5]. Data from the Brazilian Society of Herpetology indicate that at least 1080 species of amphibians and 795 species of reptiles occur in the Brazilian territory [6, 7]. Associated with this diversity of species, rural and traditional communities in Brazil have developed a vast knowledge about these animals that is reflected in different practices and interactions [2]. Data available in the literature indicate that at least 89 species of the Brazilian herpetofauna are used by humans for purposes such as food, medicine, magical-religious purposes, ornamentation or decoration and kept as pets [8 – 14].

This relationship, however, proves to be ambiguous because several biological and cultural factors can interfere in the perception of human societies towards this group of animals so that amphibians and reptiles are admired and feared by several human societies [3, 15, 16]. Herpetofauna present a significant biological and cultural importance, and ethno-zoological studies that aim to measure the knowledge of human populations about amphibians and reptiles can contribute to the conservation of these fauna resources. The predominantly negative values that humans associate with different species of herpetofauna [4, 17 - 21] due to erroneous popular beliefs, can be an aggravating factor that contributes to the population reduction of these taxonomic groups. Ceriaco [21], when assessing the presence of beliefs and myths related to these animals, found that negative perception is the main cause of attitudes of persecution and killing of amphibians and reptiles. Thus, understanding the knowledge (number of recognized species) and categories of uses (food, medicinal, magical-religious purposes) related to herpetofauna is important both for the conservation of fauna and for the maintenance of traditional practices [1, 16, 21, 22].

Considering the above, the present research aimed to characterize the knowledge (uses and interactions) that the inhabitants of the rural area of the municipality of Alagoinhas, Bahia have on species of reptiles and amphibians. Additionally, it evaluated the influence of the socioeconomic variables of the population in the interaction between humans and herpetofauna in the studied areas.

Material And Methods

Study area

The present study was developed in the rural area of the municipality of Alagoinhas (12°08'08" S 38°25'09" OW), which is located in the Identity Territory of the State of Bahia called Litoral Norte and Agreste Baiano, in the Northeast of Brazil (Figure 1). With a population of 141,949 inhabitants [23], 124,042 residents in urban areas and 17,907 inhabitants in rural areas, the demographic expectation for 2017 was approximately 155,979 inhabitants.

The municipality of Alagoinhas has a sub-humid to dry, humid and humid to sub-humid climate, with an average annual temperature of 23.5° C. Its territory is characterized by a vegetation altered by humans, with traces of Caatinga and fragments of rain forest, remnants of the Atlantic Forest, presenting an annual average rainfall of 1478 mm. With these characteristics, the municipality has extensive eucalyptus plantations in its surroundings, a prominent situation in the vicinity of the studied areas [23].

Sampling and Data Collection

The study was carried out in 13 communities and rural districts in the municipality of Alagoinhas, separated into three parcels. These parcels were adopted as a sampling criterion to establish a distance gradient in relation to the urban center (5 to 10 km, 10 to 20 km and more than 20 km from the main town) and, consequently, cover the maximum number of communities within the rural zone.

The choice of communities, within each parcel, was based on the signaling of the residents' availability to participate in data collection. The sampling design was as follows: Parcel 1: locations within a radius of 5 to 10 km (communities in Buri, Calú, Papagaio I and Santo Estevão); Parcel 2: 10 to 20 km (communities of Catuzinho, Oiteiro, Fazenda Espinho, Pindobal de Cima and Papagaio II); Parcel 3: over 20km (Riacho da Guia district and Quizambú, Borges and Conceição de Cima communities) (Figure 2).

These communities emerged from the dismemberment of large farms of the 19th century, or as a result of the occupation of travelers test areas the edge of streams [24 – 27] Alagoinhas, 2020. Thus, during the construction of this municipality, there was a mixture of several socio-ecological systems from different locations in Brazil, providing the formation of a rich cultural system associated with local biological diversity.

The sampling design was probabilistic, in which all respondents had the same possibility of being chosen, and the inclusion criterion was defined with all residents who deal with amphibians and reptiles for different purposes. The field survey was carried out between the months of January and May 2018 and started after receiving authorization by the Research Ethics Committee of the Universidade Federal do Vale do São Francisco - UNIVASF (protocol number CAAE 79331217.8.0000.5196, SISGEN: A17F74F). A total of 130 informants aged between 14 and 90 years were interviewed. The interviews with informants under 18 years old took place in the presence of the parents who authorized the interviews.

According to Resolution 466/2012 of the Ministry of Health, the Free and Informed Consent Term - TCLE was handed to the interviewees to read, so they could understand the research objectives. The data were obtained and confidentiality of the informants' identity was guaranteed. During the data analysis, the interview number corresponded to the code of each informant.

Semi-structured interviews contributed to the collection of ethnobiological data in the field. The interviews had objective and subjective questions, which involved several questions and statements about sociodemographic aspects, knowledge, uses, interactions related to reptiles and amphibians, carried out individually [28], as well as the use of a digital recorder, when allowed.

Vernacular names of species were recorded as quoted during the interviews. Zoological material was identified with the aid of specialists, through examination of voucher specimens donated by the interviewees or purchased at the surveyed markets, and through photographs taken during interviews of the animal species or their parts. Whenever necessary, these procedures were supplemented by checking vernacular names provided by informants against the scientific names, with the aid of taxonomists familiar with the study areas. All the questionnaires and as photographs of the specimens described, were deposited in the Núcleo de Estudos de Conservação da Caatinga - UNIVASF.

Socioeconomic information included gender, age, religion, time of residence in the community, education level, professional activity and income. About the knowledge related to the fauna, the informants answered the following questions: What are they? What did they feel when they saw a certain animal? Are these used for any purpose? If they knew any beliefs and if they were important to humans and to nature.

Finally, after the categorization of uses, a free list of animals was built for each of the cultural domains mentioned (categories of uses or interactions). In addition to the free list, which, according to [28] presents some obstacles, the techniques of non-specific induction (Nonspecific prompting), new reading (Reading back) and semantic suggestion (Semantic Cues) were applied. Both procedures enhance studies involving free lists.

Categorization of types of interaction between human beings and herpetofauna

The relationship between people and herpetofauna in the studied areas was characterized by listing the interaction regarding the relationships and uses of the specimens cited with the interviewees, among the following categories: food, magical-religious purposes, medicine, pet and conflicting relationships [20]. Additionally, after the characterization, it was determined which categories mentioned have the greatest cultural importance within the studied parcels, calculating the Informant Consensus Factor - ICF [29]

$$ICF = \frac{nar - na}{nar - 1}$$

Where: ICF = Informant consensus factor; nar = sum of interactions recorded by all informants in a category; na = number of species indicated in the category. A value close to zero indicates a high variation in the indication of interactions with the herpetofauna, indicating, for example, that the selection of animals is random, or the non-sharing of information. The high values (close to 1) suggest a high intracultural consensus, both for the species selection criteria, if any, and for the dissemination of information.

Cultural importance of the species

The salience index was adopted as a parameter for calculating the cultural importance of the species. This is based on the number of times the species has been cited, establishing, from the free list, an order of cultural importance for known animals [28]. The salience index was calculated for each of the use categories (cultural domains). Additionally, the free lists obtained were compared using the ANTHROPAC 4.x software for Windows [30] to determine the salience of the species with the greatest cultural importance for the studied parcels.

Influence of socioeconomic variables on knowledge, uses and relationships between humans and herpetofauna

A generalized linear model (GLM) was performed using the Poisson distribution to verify whether there is a relationship between socioeconomic variables (gender, community, time of residence in the community, religion, education level, income and location of the community in relation to the urban center) with three variables related to the knowledge of herpetofauna species by the informants. It was assumed that knowledge is associated with the total number of species cited for each dependent variable. Thus, the variables were: general knowledge of herpetofauna, for food purposes and about species that present conflicting relations. We emphasize that the analyzes carried out on the knowledge and number of species of amphibians and reptiles, as well as the use and the relations of conflicts were analyzed separately. For this analysis the variables were organized as follows: gender (female and male); education (illiterate, elementary and high school); location of the community in relation to the urban center (parcel 1 [5 to 10 km], parcel 2 [10 to 20 km] and parcel 3 [over 20 km]); religion (atheist, catholic, evangelical and African origin); and income (without minimum wage = 1, up to one minimum wage = 2, between one and two minimum wages = 3). The time of residence in years was included in the analysis according to what had been informed by the interviewee. Proceeded with the simplification of the variables that were not considered significant for the model ($p > 0.05$), as well as verification of the residuals, used were the function "rldiagnostic" of the package MASS. For all analyzes, the software R 3.6.1 [31] was used.

Results

A total of 130 interviews were carried out in the three surveyed parcels in the municipality of Alagoinhas (67 women and 63 men) with people aged between 14 and 90 years. Table 1 shows the socioeconomic results along the three parcels.

The informants cited 39 popular names of animals, of which three were amphibians and 36 reptiles (Table 2). Regarding the number of citations, the toad (*Rhinella jimi*) and the frog (*Scinax x-signatus*) were mentioned by all informants (Table 2). Among the reptiles, the most cited species were gecko catende (*Tropidurus hispidus*), with 124 citations, gecko briba (*Hemidactylus mabouia*) with 123 citations and the coral snake (*Micrurus ibiboboca*), with 103 citations (Table 2).

The species cited interact with residents in the categories of food use (14 animals), magical-religious purposes (2), medicine (14), pets (1) and in conflicting relationships (32) (Table 3). Considering the five categories of use and interaction (food, magical-religious purposes, medicine, pets and conflicting relationships), the 39 popular names of animals were mentioned 1,340 times in different uses (Table 3). Analyzing the categories, a conflicting relationship was the most cited by the informants (752 citations) (Table 03). However, according to the Informant's Consensus Factor, the Pet category use obtained the highest ICF (ICF = 1) (Table 03).

Regarding the cultural importance of the species by category of use, the category of conflicting relationships had *Crotalus durissus*, *Micrurus ibiboca* and *Philodryas olfersi* with the highest salience rates. In the food uses category *Salvator merianae*, *Leptodactylus* sp. and *Boa constrictor* were the most culturally important for the informants. For the medicinal use category, *Rhinela jimi*, *C. durissus* and *S. merianae*. In the other categories, the salience was not calculated, since they presented few species (magical-religious purposes with two species, and pets with one specie).

Regarding the results of socioeconomic variables influencing knowledge (see Table 4), it was observed that the total knowledge about reptiles was explained by the time of residence and gender; the knowledge about reptiles used for food was influenced by the location of the community in relation to the urban center; the knowledge about reptile species with conflicting relationships was explained by the time of residence, gender and education level. For amphibians, it was observed that the variables of food species and total knowledge of species was not explained by any socioeconomic variable. However, the knowledge about amphibian species with conflicting relationships was explained by time of residence and gender.

Discussion

In the area studied, the rural populations have extensive knowledge about species of the local herpetofauna. Possibly, the use of land for planting allows contact with biodiversity, including several animals of the local herpetofauna, allowing the development of traditional practices with species of amphibians and reptiles [4, 32]. The analysis of the data showed that the informants have agriculture as their main work activity. The rural area of Alagoinhas has a small-scale agricultural plantation, which is used for families' subsistence, as well as contributing to the local supply (Personal observation).

The number of amphibian species cited in the present study was lower than other studies [33– 35]. For reptiles, the number of species found was higher than other studies conducted, i.e. Mendonça et al. [14], Rojas et al. [33] and Leyte-Manrique et al. [34]. The variation in the richness of fauna species used in different communities is an expected result, as this knowledge can vary depending on local environmental factors (greater or lesser availability, habitat reduction) and local cultural factors (specific knowledge of a specific human group).

Analyzing the categories of use and interaction cited by the informants, amphibians and reptiles fit into biophilic and biophobic relationships. Thus, corroborate the theory of biophilia and biophobia proposed by Wilson [36]. In this proposal, biophilia is related to the affinity that human beings have with biodiversity, while biophobia proposes the existence of fear and aversion.

According to the results, the IFC values of the categories cited show that the informants knowledge is well disseminated within communities. Thus, it is likely that the species selection criteria for these purposes is highly widespread and specific within the cultural context of the sampled communities. The category magical-religious purposes obtained the least number of citations (27). Several studies show that species of herpetofauna are used for magical-religious purposes [37– 39].

Regarding the pets category, a total of 43 citations and only one specie (*Chelonoidis carbonaria*) were observed. The habit of keeping reptiles as a pet is widely disseminated throughout the world. Alves et al. [20] reviewed human habits in Brazil concerning reptiles and highlighted that chelonians of the genus *Chelonoidis* are the most

sold and kept as pets by the population. Apparently, the fact that they are docile and easy to capture, in addition to not requiring much care, favors the demand for these animals for breeding for pet purposes.

The category of use as medicine presented a total of 125 citations. The knowledge about the use of animals in medicinal practices cited by the rural population of Alagoinhas, corroborates with the findings of numerous researches in Brazil and around the world [33, 40– 44], reaffirming the medicinal importance of herpetofauna for human communities. Apparently, according to the informants, the communities have a vast medicinal knowledge about reptiles and amphibians, but the use is not frequent. This can probably be attributed to the improvement in public health services. However, considering the number of species and uses cited for the medicinal category, it is evident that zootherapies have not lost the cultural and symbolic value of practices for these human cultures.

For the present study, the category of food use was the second most cited by the informants (393 citations). The high number of citations reflects the importance of the fauna for nutritional purposes, showing that the interaction of man with wild animals for food purposes is common in rural and urban areas [45]. Among the species of greatest cultural importance, according to the salience index, *Salvator merianae* was the animal with the highest number of indications for food use. The meat of this species is very much appreciated because, according to the informants, it tastes like chicken. This has also been recorded by other studies [46-48].

Among the five categories of use and interaction, the category of conflicting relationships is the one with the highest number of species cited by the informants ($n = 32$) and the highest number of citations (755). The informants demonstrated to have beliefs and definitions that enhance negative perceptions about species of amphibians and reptiles (especially with snakes), favoring conflicting relationships. In this way, human judgments regarding animals can go to extremes, ranging from love to hate and, eventually, varying due to the local culture and the connection of each individual with the animal throughout life [20, 49]. In view of the above, the conflicting relationships may have favored the construction of an extensive knowledge about reptiles and amphibians throughout the evolutionary history of humans [15, 16, 21, 50- 52].

Analyzing the salience results for the categories of food, medicine and conflicting relationships, we observed that *S. merianae* has high cultural importance for the informants who use it for nutritional and medical purposes and low importance for conflicting relationships. Probably, the high utilitarian aspect of this species influences low conflicting relationships for the sampled human communities. This finding reinforces the theory of biophilia and biophobia, showing how local contexts can lead to the development of positive and negative perceptions of the same species [53, 54].

Considering the importance of fauna to human societies, understanding how socioeconomic factors (gender, income, age, education, religion) influence the construction of knowledge associated with animals can support research that favors the maintenance of these socio-ecological systems. Thus, the present study brings elements to a discussion about how socioeconomic variables can influence the knowledge about herpetofauna.

In the analysis of the relationship of socioeconomic variables with the total knowledge of reptiles, residence time and gender significantly influenced the number of known reptile species. The variable time of residence can be explained as follows: the longer the time of interaction, the longer the time to build knowledge about a given resource and this knowledge is transmitted between local generations [55]. Thus, the longer residence time directly influences the amount of experience with reptile species, enabling the construction and sedimentation of knowledge about more animals.

Regarding to the role of gender in explaining the knowledge of reptiles, Alambert [56] points out that, throughout the evolution of humans, the male gender was responsible for hunting, favoring a closer relationship between men and fauna. Another point is related to the division of labor, in which most societies were built on hierarchical models centered on the role of men, with a clear division of labor, in which men were responsible for hunting and women for domestic activities; thus, this function attributed to man, enabled a greater contact with animals [56].

Regarding food use, the positioning of the community in relation to the urban center of Alagoinhas influenced the knowledge about reptiles used for this purpose. Communities located in parcel 2 know more species (12 species, 90 indications), while communities located in parcel 3 know fewer species (6 species, 130 indications) used for food purposes. It is possible that communities located in parcel 3 have socioenvironmental conditions that favor a greater dissemination of knowledge about the use of reptile species as food. Within this parcel, the communities are located on the edge of a river and maintain a riparian forest in regeneration (Personal observation). Thus, it is likely that these ecological characteristics have favored the knowledge and use of animal species within this parcel [47].

The conflicting relationships with reptiles were explained by time of residence (the longer the time the greater number of species known), gender (men know less species) and education level (illiterate people know more species). The time of residence can explain the knowledge of species with conflicting relationships as follows: the longer the contact time with the environment, the greater the experiences that can be generated with the reptiles, resulting in the knowledge of more species. Thus, it is possible that the longer the residence time in the locality, the greater the possibility of conflicting experiences with the herpetofauna (possible attacks by these animals). Consequently, residence time favors the construction of associated knowledge about reptiles that could potentially cause some risk to human populations.

Regarding the role of gender in conflicting relationships, the division of labor cited by Alambert [56] may have contributed to the number of species with conflicting relationships. As noted in the present study, men know more species of reptiles. Kellert et al. [53] claim that human beings who hunt are more knowledgeable about wild animals and tend to have more favorable attitudes towards certain groups of animals. In this sense, women are in contact with fewer species of reptiles, consequently, they tend to know less and develop more conflicting relationships with this group.

The effect of schooling on the number of species with conflicting relationships can be explained as follows: it is likely that the lack of school education amplifies the construction of cognitive aspects related to the fear of reptiles. People with less education may have more negative relationships with the herpetofauna, as was verified in our study and by other authors [1, 57, 58]. However, Liordos et al. [51] studying the conservation of snakes found that the educational level was not correlated to the perception of snakes, even though people with higher education were more oriented to conservation compared to people with lower school levels. Thus, more studies are needed to understand schooling as a modulator of conflict relations.

The analysis with amphibians showed that only conflicting relationships are influenced by socioeconomic variables. time of residence and gender. The knowledge about amphibian species with conflicting relationships was negatively influenced by the time of residence, in which, the shorter the time of residence in the community, the greater the knowledge of species. In this case, it is expected that the relationship would be positive, so that the longer residence time would influence a greater number of species with conflicting relationships. It is possible that

the low citation of amphibian species (three) has influenced the results of this analysis, considering that the species mentioned here have many conflicting relationships presented in other studies [21, 59, 60].

Another point to be addressed is that it is possible that informants with shorter residence times in the community have little contact with amphibian species, as they would be exercising other professions and, consequently, would have less general knowledge about these animals. This favors the development of more conflicting relationships as well as different perceptions [55], contrasting with residents who have lived in the community for longer.

Regarding the gender, it was observed that men know less species with conflict relations. Roskaft et al. [61] found that when compared to males, females express more negative attitudes towards animals, which according to the authors is not only due to their own safety, but also for the well-being of their children. Another point may be related to the division of labor, pointed out by Alambert [56], in which the greater male contact with nature can favor a greater knowledge about amphibian species, consequently reducing the number of species that have conflicts. The aesthetics of animals is also pointed out as a factor influencing the preference that men and women have for certain animals, in which an animal group can be favored for females and disadvantaged for males, and vice versa [52]. Thus, in the present study, it is possible that amphibian aesthetics are a determinant for men to have conflicting relationships with fewer amphibian species than women.

FINAL CONSIDERATIONS

The rural communities in the municipality of Alagoinhas know an expressive number of species of amphibians and reptiles that play positive (from a utilitarian perspective) and negative (conflicting relationships) roles within the sampled socio-ecological system. The knowledge recorded here is well disseminated within the sampled communities. Thus, our data show that even in rural environments altered by agriculture, and close to urban centers, traditional knowledge about wild fauna remains and recording it through scientific studies is extremely important.

Aspects related to the evolutionary history of humans, such as biophilia and biophobia relationships, and socioeconomic aspects, as observed in the present study, can influence knowledge and perception of herpetofauna. The understanding of the aspects related to the construction of this knowledge contributes to the understanding between the evolution of the relationship between humans and herpetofauna, to favor the direction of conservation practices of the fauna involved and the maintenance of the traditional knowledge produced.

In short, this study paves the way for further research to discuss the effect of conflicting relationships as modulators of knowledge (considering the number of species cited for these purposes in this study). Thus, it makes it possible to understand how humans “choose” certain animals to love or hate and what are the consequences of this intriguing emotional relationship for the evolution of socio-ecological systems.

Declarations

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Authors' contributions

FLC carried out the field study, analyzed the data, and drafted the manuscript. EMFLN, EMCN, and FFS helped in data analysis, interpretation, and preparation/correction of the final draft.

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Availability of data and materials

All data have already been included in the manuscript. We are willing to share the data generated and analyzed during the current study.

Ethics approval and consent to participate

All the participants in the work have been given an information sheet about the project and asked to provide informed consent in writing. Research was approved by the Research Ethics Committee of the Universidade Federal do Vale do São Francisco - UNIVASF (protocol number CAAE 79331217.8.0000.5196), according to Resolution 466/2012 of the Ministry of Health of Brazil.

Consent for publication

The present paper does not contain any individual person's data; therefore, this section is not applicable to our study.

Conflict of interest

The authors declare that they have no conflict of interest

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Tables

Table 01: Socioeconomic profile of informants from rural communities in the municipality of Alagoinhas, Bahia, Brazil

Socioeconomic variables		5 to 10 km	10 to 20 km	over 20 km
Age	14- 19	3	3	4
	20 -29	10	9	7
	30 – 39	9	10	10
	40 – 49	6	15	5
	50 – 59	5	3	7
	60 – 69	2	4	4
	> 70	5	6	3
Gender	Female	25	21	21
	Male	15	29	19
Profession	Farmer	27	29	22
	Other	4	8	8
	Housewife	3	5	3
	Student	3	4	1
	Without profession	2	1	4
	Retired	1	3	2
Education level	Complete primary education	2	0	0
	Incomplete primary education	14	23	22
	Complete high school	13	16	10
Table 01: Socioeconomic profile of informants from rural communities in the municipality of Alagoinhas, Bahia, Brazil				
Socioeconomic variables		5 to 10 km	10 to 20 km	over 20 km
	Incomplete high school	3	4	2
	University education	0	0	1
	Illiterate	8	7	5
Religion	Catholic	19	37	31

	Evangelical	9	7	3
	African matrix	1	0	1
	Without religion	11	6	5
Income (1 salary =R\$ 1.0.39,00 or US\$ 198,51)	Up to 1 salary	29	39	27
	1 to 2 salary	3	3	4
	2 to 3 salary	0	0	2
	Over 3 salary	0	0	0
	Without income	8	8	7

Table 2: Species of herpetofauna cited by informants from rural communities in the municipality of Alagoinhas, Bahia, Brazil.

Species	Number of informants	Categories of use and interaction									
		FO		MR		ME	PE		CR		
		S	C	S	C	S	C	S	C	S	C
Amphibians	-	-	-	-	-	-	-	-	-	-	-
Bufonidae	-	-	-	-	-	-	-	-	-	-	-
Sapo - <i>Rhinella jimi</i> (Fitzinger, 1826)	130	-	0	-	26	0.6034	34	-	0	0.2807	47
Leptodactylidae	-	-	-	-	-	-	-	-	-	-	-
Gia - <i>Leptodactylus</i> sp.	102	0.5251	73	-	0	0.0540	4	-	0	0.0975	29
Ranidae	-	-	-	-	-	-	-	-	-	-	-
Rã - <i>Scinax x-signatus</i> (Spix, 1824)	129	0.0278	5	-	0	0.0129	1	-	0	0.2060	44
Reptiles	-	-	-	-	-	-	-	-	-	-	-
Alligatoridae	-	-	-	-	-	-	-	-	-	-	-
Jacaré - <i>Caiman</i> sp. (Daudin 1802)	11	0.0410	9	-	0	0.0057	1	-	0	-	0
Amphisbaenidae	-	-	-	-	-	-	-	-	-	-	-
Cobra de duas cabeça (cobra cega) - <i>Amphisbaena vermicularis</i> (WAGLER, 1824)	89	-	0	-	0	-	0	-	0	0.3068	55
Boidae	-	-	-	-	-	-	-	-	-	-	-
Cobra jiboia - <i>Boa constrictor</i> (Linnaeus, 1758)	76	0.3926	64	-	0	0.1034	8	-	0	0.2371	34
Cobra salamanta - <i>Epicrates</i> sp. (Linnaeus, 1758)	3	0.0037	1	-	0	-	0	-	0	0.0162	2
Cobra sucuiú - <i>Eunectes murinus</i> (Linnaeus, 1758)	62	0.3010	48	-	0	0.0445	4	-	0	0.2152	39
Table 2: Species of herpetofauna cited by informants from rural communities in the municipality of Alagoinhas, Bahia, Brazil.											

Species	Number of informants	Categories of use and interaction										
		FO		MR		ME		PE		CR		
		S	C	S	C	S	C	S	C	S	C	
Colubridae	-	-	-	-	-	-	-	-	-	-	-	-
Cobra cainana - <i>Spilotes pullatus</i> (Linnaeus, 1758)	36	-	0	-	0	-	0	-	0	0.1048	25	
Cobra cipó - <i>Philodryas</i> sp. (Linnaeus, 1758)	60	-	0	-	0	-	0	-	0	0.1994	44	
Cobra corre campo - <i>Philodryas nattereri</i> (Steindachener, 1870)	11	-	0	-	0	-	0	-	0	0.0394	6	
Cobra d'água - <i>Helicops</i> sp. (Schlegel, 1837)	3	-	0	-	0	-	0	-	0	0.0067	2	
Cobra espada - <i>Chironius</i> sp. (Linnaeus, 1758)	22	-	0	-	0	-	0	-	0	0.0735	13	
Cobra esparradeira - <i>Waglerophis smerremii</i> (Wagler, 1824)	1	-	0	-	0	-	0	-	0	-	0	
Cobra malha de traíra - <i>Mastigodryas bifossatus</i> (Raddi, 1820)	17	-	0	-	0	-	0	-	0	0.0403	9	
Cobra papa-pinto - <i>Drymarchon corais</i> (Boié, 1827)	32	0.0017	1	-	0	0.0198	2	-	0	0.1066	22	
Cobra papa-rato - <i>Cleria</i> sp. (Wied, 1820)	7	-	0	-	0	-	0	-	0	0.0264	5	
Cobra verde - <i>Philodryas olfersii</i> (Lichtenstein, 1823)	91	-	0	-	0	-	0	-	0	0.3872	65	

Table 2: Species of herpetofauna cited by informants from rural communities in the municipality of Alagoinhas, Bahia, Brazil.

Species	Number of informants	Categories of use and interaction									
		FO		MR		ME		PE		CR	
		S	C	S	C	S	C	S	C	S	C
Cobra 11 horas – <i>Tantilla melanocephala</i> (LINNAEUS, 1758)	5	-	0	-	0	-	0	-	0	0.0259	4
Elapidae	-	-	-	-	-	-	-	-	-	-	-
Cobra coral – <i>Micrurus ibiboboca</i> (Merrem, 1820)	103	0.0142	2	-	0	0.0560	7	-	0	0.5014	73
Gekkonidae	-	-	-	-	-	-	-	-	-	-	-
Lagartixa (bribe) – <i>Hemidactylus mabouia</i> (MOREAU DE JONNÈS, 1818)	123	-	0	-	0	0.0431	4	-	0	0.0217	8
Iguanidae	-	-	-	-	-	-	-	-	-	-	-
Iguana (camaleão) – <i>Iguana iguana</i> (Linnaeus, 1758)	102	0.2988	74	-	0	0.0307	4	-	0	0.0068	4
Teiidae	-	-	-	-	-	-	-	-	-	-	-
Teiú - <i>Salvator merianae</i> (DUMÉRIL & BIBRON, 1839)	111	0.5423	100	-	0	0.1845	16	-	0	0.0026	7
Testudinidae	-	-	-	-	-	-	-	-	-	-	-
Jabuti (cágado) – <i>Chelonoidis carbonaria</i>	58	0.0151	9	-	0	-	0	-	41	-	0
Tropiduridae	-	-	-	-	-	-	-	-	-	-	-
Lagartixa preta (catende) – <i>Tropidurus</i>	124	-	0	-	0	0.1514	19	-	0	0.0133	7

<i>hispidus</i> (SPIX, 1825)											
Viparidae	-	-	-	-	-	-	-	-	-	-	-
Table 2: Species of herpetofauna cited by informants from rural communities in the municipality of Alagoinhas, Bahia, Brazil.											
Species	Number of informants	Categories of use and interaction									
		FO		MR		ME	PE		CR		
		S	C	S	C	S	C	S	C	S	C
Cobra cascavel – <i>Crotalus durissus</i> (Wagler, 1824)	90	0.0128	4	-	1	0.2506	20	-	0	0.5082	71
Cobra jaracuçu – <i>Bothrops neuwiedi</i> (Wagler, 1824)	13	-	0	-	0	-	0	-	0	0.1179	21
Cobra jaracuçu de tabuleiro - <i>Bothrops</i> sp. (Wagler, 1824)	1	-	0	-	0	-	0	-	0	0.0059	0
Cobra jararaca – <i>Bothrops erythromelas</i> (Amaral, 1923)	71	-	0	-	0	0.0172	1	-	0	0.3281	53
Cobra jararaca do rabo branco - <i>Bothrops jararaca</i> (Wied, 1824)	7	-	0	-	0	-	0	-	0	0.0185	3
Cobra malha de sapo - <i>Bothrops</i> sp. (Amaral, 1923)	64	0.0057	1	-	0	-	0	-	0	0.2509	44
Cobra pico-de-jaca - <i>Lachesis muta</i> (Linnaeus, 1766)	8	-	0	-	0	-	0	-	0	0.0096	6
Cobra surucucu - <i>Bothrops</i> sp. (Hoge, 1965)	21	-	0	-	0	-	0	-	0	0.0662	11
Unidentified	-	-	-	-	-	-	-	-	-	-	-
Calango	85	0.0105	2	-	0	-	0	-	0	0.0056	1
Cobra 24 horas	7	-	0	-	0	-	0	-	0	0.0106	3
Cobra 7 horas	2	-	0	-	0	-	0	-	0	0.0115	2

Cobra de vidro	1	-	0	-	0	-	0	-	0	0.0014	1
Papa vento	8	-	0	-	0	-	0	-	0	-	0
Velador	7	-	0	-	0	-	0	-	0	-	0

Legends: FO (food), MR (magical-religious purposes), ME (medicine), PE (pet), CR (conflicting relationships), S (salience index), C (number of citation).

Table 03: Citation use, number of species cited by category and IFC in rural areas of Alagoinhas

Categories of use and interaction	Number of citation	Number of species	ICF
Food	393	14	0.97
Magical-religious purposes	27	2	0.96
Medicine	125	14	0.9
Pet	43	1	1
Conflicting relationships	752	32	0.96

Legends: Informant Consensus Factor – ICF

Table 4: General linear model showing the relationship between species knowledge and socioeconomic variables

	Variations	Estimate	STD error	Z value	P
<i>Total citation of reptiles</i>	Intercept	2.296130	0.056967	40.306	< 2e-16 ***
	Time of residence	0.003773	0.001341	2.814	0.00489 **
	Gender (Male)	0.098027	0.051214	1.914	0.05561
	AIC: 716.6				
<i>Conflict relations with reptiles</i>	Intercept				
	Illiterate	0.798118	0.242123	3.296	0.00098 ***
	Time of residence	0.010401	0.002385	4.362	1.29e-05 ***
	Gender (Male)	-0.366543	0.083315	-4.399	1.09e-05 ***
AIC: 833.11					
<i>Food use of reptiles</i>	Intercept	0.8858	0.1015	8.724	<2e-16 ***
	Communities in parcel 2	-0.2980	0.1464	-2.036	0.0417 *
Table 4: General linear model showing the relationship between species knowledge and socioeconomic variables					
	Variations	Estimate	STD error	Z value	P
	Communities in parcel 3	0.3005	0.1340	2.243	0.0249 *
AIC:489.82					
<i>Conflict relations with amphibians</i>	Intercept	0.57127	0.18026	3.169	0.00153 **
	Time of residence	-0.01132	0.00520	-2.177	0.02952 *
	Gender (Male)	-0.78498	0.20162	-3.893	9.89e-05 ***
AIC: 353.76					

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Figures



Figure 1

Location of the municipality of Alagoinhas and municipalities belonging to the Identity Territory of the North Coast and Agreste Baiano. Legends Ac: Acajutiba; ARA: Aramari; Ap: Aporá; Ar: Araças; CA: Catu; CS: Cardeal da Silva; ER: Entre Rios; ES: Esplanada; INH: Inhambupe; ITA: Itanagra; IT: Itapicuru; JA: Jandaíra; OUR: Ouriçangas; PE: Pedrão; PO: Pojuca; RR: Rio Real. Note: The designations employed and the presentation of the material on this map do not imply the expression of any opinion whatsoever on the part of Research Square concerning the legal

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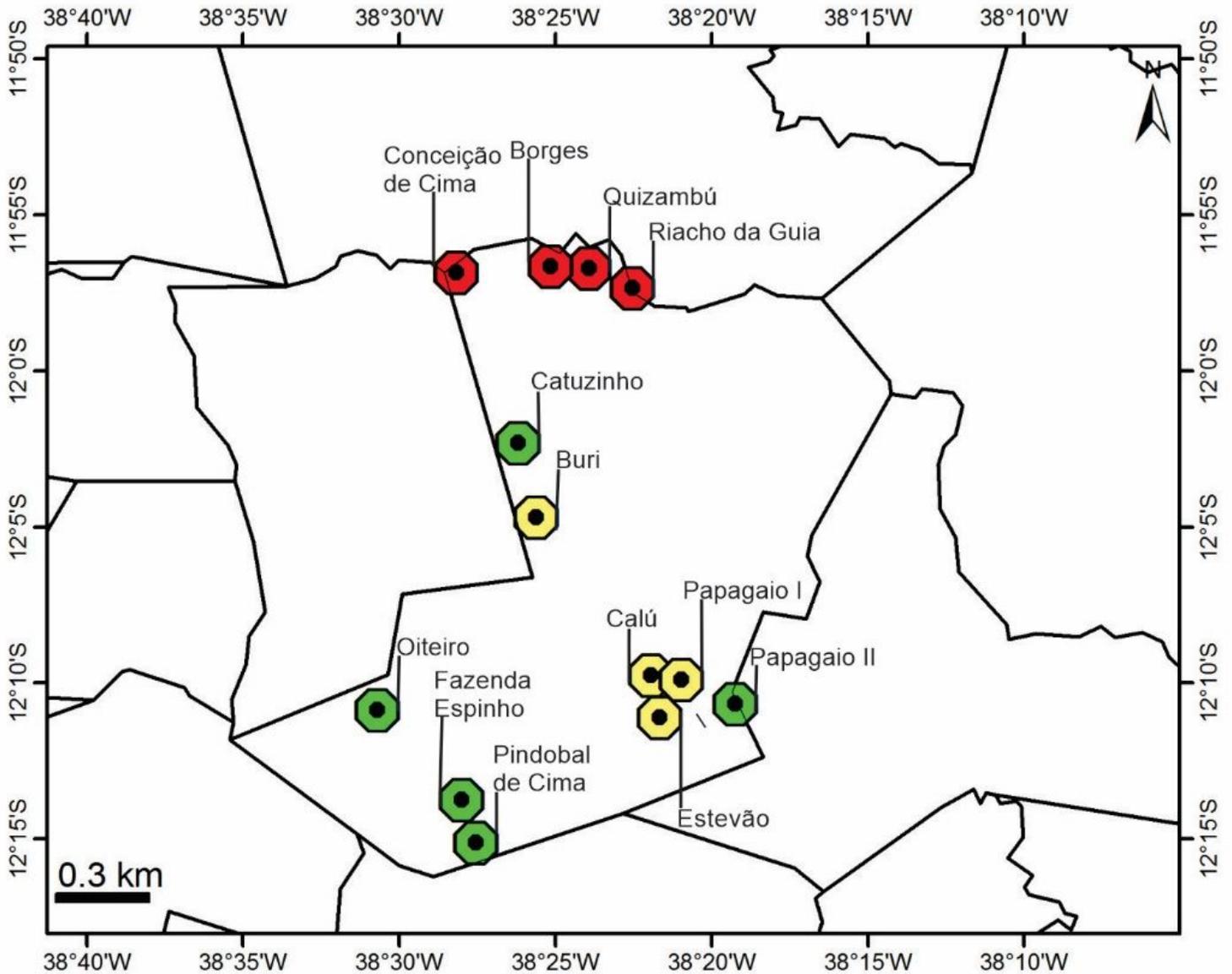


Figure 2

Researched communities in the municipality of Alagoinhas. In yellow, locations within a radius of 5 to 10 km; in green, locations within a radius of 10 to 20 km; in red, locations within over 20km. Note: The designations employed and the presentation of the material on this map do not imply the expression of any opinion whatsoever on the part of Research Square concerning the legal status of any country, territory, city or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. This map has been provided by the authors.