

**University of São Paulo
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**The importance of storytelling in shaping attitudes towards jaguars
(*Panthera onca*) and parallels with folklore of non-indigenous
traditional communities of the Central Amazon Basin**

Jacob Daniel Charters

Dissertation presented to obtain the degree of Master
in Science. Area: Applied Ecology

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2019**

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Science Degree in Zoology**

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5. Comunidades tradicionais I. Título

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"E, se bem que seja obscuro
Tudo pela estrada fora,
E falso, ele vem seguro,
E, vencendo estrada e muro,
Chega onde em sono ela mora.
E, inda tonto do que houvera,
A cabeça, em maresia,
Ergue a mão, e encontra hera,
E vê que ele mesmo era A Princesa que dormia."

Fernando Pessoa

RESUMO

A importância da narrativa e da comunicação verbal na formação de atitudes em relação às onças-pintadas (*Panthera onca*) em comunidades não indígenas tradicionais da Bacia Amazônica Central

Grandes carnívoros podem provocar fortes emoções nos humanos e compreender os mecanismos de formação das atitudes voltadas aos carnívoros selvagens é fundamental para o planejamento de estratégias de mitigação que se destinam a mudar atitudes negativas. No Brasil, a maioria das pesquisas sobre conflitos entre humanos e carnívoros teve foco nas percepções em relação as onças quando estas estavam associadas à predação de rebanhos domésticos. Em regiões onde não há produção pecuária ou esta é de baixa importância econômica, como em áreas da Bacia Amazônica, a caça de onças (*Panthera onca*) continua frequente, mas as razões para isto ainda são controversas. Este estudo foi realizado na cidade de Beruri, AM, e em quatro comunidades ribeirinhas ao longo do baixo rio Purus. Foram utilizados questionários semiestruturados e análises qualitativas para avaliar como as normas sociais e as interações entre pares (na forma de narração de histórias) influenciam as atitudes em relação as onças. Foram traçados paralelos entre como os encontros com onças (e outros animais selvagens) e o folclore regional permeiam as comunidades e são aceitos pelos residentes. Finalmente, a influência de fatores demográficos foram avaliadas. Os resultados mostram uma correlação negativa entre a atitude e o nível de crença no folclore. Esta tendência foi semelhante em todas as idades, independente de sexo, comunidade de origem ou relacionamento com o habitat. Compreender a importância da narrativa e da transmissão verbal de ideias entre pares em comunidades tradicionais não-indígenas é essencial para mudar as atitudes em relação à vida selvagem para fins de conservação. Este estudo destaca que as atitudes são geralmente robustas e não necessariamente baseadas em informações factuais. Assim, qualquer projeto de conservação deve olhar para além dos modelos tradicionais de educação ambiental e usar uma abordagem multifacetada para mudar as atitudes em relação aos carnívoros.

Palavras-chave: Conflito humano-vida selvagem; Folclore; Narrativa; Carnívoros; Comunidades tradicionais

ABSTRACT

The importance of storytelling and verbal communication in forming attitudes towards jaguars (*Panthera onca*) in non-indigenous, traditional communities of the Central Amazon Basin

Large carnivores often elicit strong human emotions. Given that most people will never have a significant encounter with wild carnivores implies that these attitudes are based on indirect influences such as media, education, social norms, and peer-peer interactions. Understanding the mechanisms of how people form attitudes towards carnivores is important for deciding mitigation strategies aimed at changing attitudes. In Brazil, most human-carnivore conflict research to date has investigated perceptions towards jaguars (*Panthera onca*) in association with the depredation of livestock. Where livestock absent, or of low economic importance, such as in many areas of the Amazon Basin, the rate of hunting of jaguars remains high, yet the reason for negative attitudes and acceptance of killing jaguars in these areas remains unclear. This study, conducted in the town of Beruri and adjacent four riverine communities along the lower Purus River, in the Brazilian state of Amazonas, uses semi-structured questionnaires and qualitative analysis to assess how social norms and peer-peer interactions- in the form of storytelling- influence attitudes towards jaguars. Parallels are made between how accounts of encounters with jaguars (and other wildlife) and regional folklore permeate the communities and are accepted by residents. Finally, the influence of demographic factors are assessed. Results show negative correlations between attitude and the level of belief in folklore. This trend was similar across age, sex, community, and relationship the surrounding habitat. Understanding the importance of storytelling and the verbal transmission of ideas between peers in non-indigenous traditional communities is essential for changing attitudes towards wildlife for conservation purposes. This study highlights that attitudes are often robust, and not based on factual information. Thus, any attitude mitigation projects should look past the traditional environmental education models, and use a multifaceted approach for changing attitudes towards carnivores.

Keywords: Human-wildlife conflict; Folklore; Storytelling; Carnivores; Traditional communities

INTRODUCTION

Most people, throughout their lives, will have little first-hand contact with large wild carnivores, yet these animals have a tendency to elicit strong emotional responses, making their conservation a complicated, yet pressing issue (Kellert et al., 1996; Jacobs et al., 2014). Whilst generally regarded as being of high value on a global scale (Dickman, Macdonald and Macdonald, 2011), people who live in close proximity with large carnivores, are more likely to have negative attitudes, often based on the perceived threat to people, pets and/or livestock (Cavalcanti et al., 2010; Marchini and Macdonald, 2012; Engel et al., 2016). Negative attitudes and mistrust of carnivores often results in the persecution of these animals, and indeed, hunting, along with habitat loss and the loss of prey species are the biggest threats to the long-term existence of many carnivore species (Clutton-Brock, 2003; Treves and Karanth, 2003; Majić et al., 2011). This is the case for the Jaguars throughout much of their range, including Brazil (Weber and Rabinowitz, 1996; Rabinowitz, 2005; Cavalcanti et al., 2012).

Jaguars, like most wild felids, are naturally illusive and in low abundance. Thus, most people living in communities adjacent to jaguar habitat will have little personal experience with these animals, especially in dense forests habitats such as the Amazon or Atlantic Forest. Consequently, most people base their attitudes towards jaguars on emotion or information from outside influences such as the media, social norms and peer-to-peer interactions. Understanding the mechanisms of how people form attitudes towards jaguars is important for deciding mitigation strategies aimed at changing attitudes, more specifically, the acceptability of killing jaguars.

To date, most studies on human-jaguar conflict in Brazil have been conducted in rural areas such as the Pantanal (Rabinowitz, 2005; Zimmermann, Walpole and Leader-Williams, 2005; Marchini and Macdonald, 2012; Porfirio et al., 2016), the highly modified areas of Atlantic Forest (De Angelo, Paviolo and Di Bitetti, 2011; Engel et al., 2016, 2017) and the southern frontier of the Amazon Basin (Michalski et al., 2006; Marchini and Macdonald, 2012), that support both jaguars and large numbers of domestic cattle. These studies have shown mixed results when investigating the

influence that perceived threats to cattle have on local's attitudes towards jaguars. For example, Zimmermann et al. (2005) found no link between reported loss of cattle as a result of predation by jaguars and attitude towards jaguars. On the other hand, Marchini and Macdonald (2012) found that ranchers with higher perceived cattle losses due to predation by jaguars had more negative attitudes towards jaguars. Interestingly, perceived danger towards people was almost equally important as a predictor of negative attitudes towards jaguars in this study. Given that attacks by jaguars on humans are extremely rare (Neto, Neto and Haddad, 2011), this suggests that the perception of danger that jaguars represent to these farmers are indeed largely based on misguided beliefs and social constructs.

Even in areas where cattle are absent or of low economic importance, and thus, depredation does not play a factor in influencing attitudes, the hunting of jaguars still remains relatively common. For example, a study that interviewed hunters from 45 communities in the Tapajós–Arapiuns Extractive Reserve, in the state of Pará found that at least 32 jaguars had been killed in the reserve over a 10 year period. Santos (2009) suggested that the two species most at risk in the Sustainable Development Reserve Piagaçu-Purus ((RDS-PP), the reserve in which part of the current study is conducted) were the large carnivores, the anaconda and the jaguar (together with the puma). Although, hunters in these regions may consume the meat or use the skin of these species, in most cases the motivation for killing was fear or disdain. Cavalcanti et al. (2010) showed that fear of jaguars was higher in Amazonian frontiersmen than ranchers from the Pantanal that have more experience with jaguars. As many Amazonian non-indigenous settler communities are less than 100 years old (B. L. Barham and Coomes, 1994), residents of these areas are likely to have less cultural ties to jaguars than those from other parts of Brazil, and especially members of indigenous communities.

Before the arrival of European settlers, Jaguars and Central and South American Paleoindians had been co-existing for at least 13,000 years (A.C. Roosevelt, 2013). This is despite the fact that, particularly towards the end of this period, many

indigenous populations had reached considerably high densities. This coexistence has been attributed to the prominence of Jaguar symbolism and worship throughout all indigenous cultures (Shepard, 2014). For example, Mayan, Aztec and other Mesoamerican civilizations, associated the jaguar with power, nobility, courage and shamanic transformations, in which the most accomplished warriors could turn into jaguars (Saunders, 1989, 1998; Benson 1998). Jaguars also play an important role in shamanism in Amazonian indigenous cultures (Reichel-Dolmatoff, 1975), as well and having been credited for giving fire to the Kayapó people in the Central Brazilian Amazon (Turner, 2017). The positive attitudes associated with such beliefs appear to have outweighed any negative associations that may have been linked with fear and mistrust.

As well as narratives of sacred jaguars and shamanism, Paleoindians of the Amazon Basin, as with many pre-literate societies, used folklore and oral traditions in day-to-day life and to pass on information and moral values from generation to generation (Coelho, 2003; Ribeiro et al., 2015). In the absence of written word, such oral literature was a major factor in the long term success of these societies and was often used to emphasize the importance of sustainable use of resources. For example, one indigenous legend is the Curupira, a guardian of the forest, who pursues any hunter that kills more than he needs to feed his family (Smith, 1996; Cascudo, 2012, 2015). Other legends are thought to be recounts of megafauna that coexisted with earlier indigenous ancestors, with stories having been distorted by time, such as the Mapinaguri, a large hairy beast, possibly based on the Giant Sloth (*Megatherium* sp.) which was distributed throughout much of Brazil including the Amazon, and coexisted with the Paleoindians for several thousand years before going extinct (Oren, 2001; Steadman et al., 2005; Velden, 2016). This shows the importance of storytelling in traditional cultures, and although quite robust, these stories are susceptible to change over time.

During the early-to-mid 1900s, large numbers of workers from north-eastern and southern parts of Brazil, moved into the Amazon Basin following a period

of economic growth, driven by the rubber boom and the exploitation of other resources, as well as developmental projects supported by the Brazilian government (Smith, 1996). These frontiersmen spread throughout much of the Amazon, particularly along the rivers. They created small communities which also included members of indigenous tribes and decedents of Afro-Brazilian slaves, who had also been brought in to work in the fields and forests (Smith, 1996). From here forward, this paper will focus primarily on isolated riverine communities, known locally as “comunidades ribeirinhas” (and community members known as ribeirinhos), but many parallels could be made with other communities based on terra firme. Ribeirinhos adopted and adapted folklore from the three worlds (African, European and indigenous) (Cascardo, 2012, 2015), creating mythology and legends that still remain culturally important today. However, not all indigenous mythology seems to have been incorporated into modern-day riverine community life and there is little evidence that spiritual connections to jaguars are common place amongst community members (Cascardo, 2012; Barros, 2014; Pereira, 2015).

Thus, unlike indigenous communities who managed to live side-by-side for thousands of years with jaguars, members of Amazonian riverine communities are likely to be less tolerant of jaguars, as they have little cultural or spiritual affinity to these animals, and less accumulated experience and knowledge, even compared other regions of Brazil, such as “pantaneiros” (residents of the Pantanal). The current study area lies along the lower Purus River in the municipality of Beruri, and includes four small riverine communities and the town of Beruri. Two of the communities within this study area are situated within the Sustainable Development Reserve- Piagaçu-Purus, which allows the sustainable use of natural resources within the boundaries. The region is very isolated, underdeveloped with little contact with outsiders. Thus, as with pre-literate communities, verbal communication and storytelling still play an important role in passing information between community members, as shown by the continued prominence of folklore within these communities. Taking this into consideration, this study will investigate the parallels between the belief in local folklore, and verbal

narratives of jaguar encounters in how they are accepted by community members, and how the tendency to believe in folklore correlates with attitudes towards jaguars.

CONCLUSIONS

The aim of this study was to highlight the importance of storytelling and verbal communication in relation to shaping attitudes towards jaguars and other wildlife using folklore as a parallel to demonstrate how these stories can permeate and spread through a community and may be influenced by pre-existing individual experiences and preconception as well as the collective memory as a whole.

The issue of conservation of carnivores is contentious and complicated as these animals are often considered as of high value globally, and of little or negative value locally. Conservation projects should attempt to understand the origins of negative attitudes and consider local culture, history, and relationships with wildlife, and even accept the fact that, for many members of such communities, changing attitudes may not be viable. It is by doing this, that different mitigation efforts can focus on specific social groups, whether it be by using education and participation strategies to change attitude, or financial incentives or deterrents to change behaviour.

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APPENDICES

APENDIX A

Table. Folklore distributions by references.

Folklore	Variations	Region	References
Cobra Grande	Minhacão	<ul style="list-style-type: none"> • Uruguay and Paraguay River Basins 	Souza, Santos and Fontes (2007)
	Yacumama	<ul style="list-style-type: none"> • Pantanal, Goiás, Mato Grosso do Sul 	Martins (2007) Gow (1994) Whitten Jr (2016)
	Cobra Grande/Boiuna	<ul style="list-style-type: none"> • Amazon Basin within Peru, Bolivia, Colombia and Ecuador • Brazilian Amazon Basin • Guianese, French Guianese and Surinamese Amazon 	Santos, (2009) Tol, (2014) Aculdade, Epartamento and Rograma (2007)
Fogo Fátuo/Boitatá	Fogo Fátuo/Boitatá	<ul style="list-style-type: none"> • Brazilian Amazon Basin • Espírito Santo, Minas Gerais 	Pereira (2015), Machado et al.(2019). Cascudo (2012)
Curupira	Curupira	<ul style="list-style-type: none"> • Espírito Santo • Brazilian Amazon 	Cascudo (2012) Cascudo (2012)

Homem Boto	Homem Boto El bufeo colorado	<ul style="list-style-type: none"> • Brazilian Amazon • Peruvian Amazon • Bolivia Amazon • Colombian Amazon 	Santos (2009), Cardoso (2018) Cruz and Simões, (2014) Yañez, (1999) Pedrosa (2013)
Caipora	Caipora	<ul style="list-style-type: none"> • North-east Brazil • Brazilian Amazon 	Cascudo (2012), (Hoefle 2015) Machado (1987), Cascudo (2012)
Onça da Água	Onça da Água	<ul style="list-style-type: none"> • Venezuelan Amazon • Amazonas, Pará 	Smith (1996) Smith (1996)
Martim	Matim	<ul style="list-style-type: none"> • Pará, Amazonas, Acre 	Cascudo (2012)
Mula sem Cabeça	Mula sem Cabeça	<ul style="list-style-type: none"> • North-eastern Brazil • South-western Amazon (AC, RO, MT) • Central and Southern Brazil (SP, MT, MG, ES, GO, PR,RS, RJ, SC) 	Cascudo (2012) Cascudo (2012) Cascudo (2012)
Mapinguari	Mapinguari	<ul style="list-style-type: none"> • Brazilian Amazon • North-East Brazil 	Machado (1987), Cascudo (2012) Cascudo (2101)

Juma	Juma	<ul style="list-style-type: none">• City of Parantins• Madeira River, Purus River, Tapajós River Catchments	Gonzaga (2013)
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APPENDIX B



Photo A shows a pelt of a jaguar shot around 10-15 years prior, by the brother of a man in Beruri. Photo B show the skull of a young jaguar shot by an interviewee from Itapuru around 10 years prior. The interviewer had said that the jaguar did not show any aggression and that he shot it mainly out of curiosity, then saying that he would not shoot a jaguar again.