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Clever animals: Naturalcultural interactions in Karitiana hunting practices (Rondônia, Brazil)

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*Eneke the bird says that since
men have learned to shoot without missing,
he has learned to fly without perching.*

Chinua Achebe, Things Fall Apart

Introduction

The Karitiana are hunters. This is not because their livelihoods strictly or mostly depend on hunting forest animals or because their everyday existence and rituals are almost wholly confined to traversing the forests in search of prey, as in the case of the Awá-Guajá, Aché-Guayaki, Sirionó, or other groups in lowland South America traditionally portrayed in the literature as hunter-gatherers. Like most Amazonian societies, the Karitiana get most of their food from farming, primarily manioc, corn, and beans, and today they increasingly tend to purchase an extensive variety of groceries from markets in nearby cities (rice, noodles, cookies, vegetable oil, salt, sugar, coffee, candy, and even frozen beef, chicken, and fish). Rather, like most other indigenous peoples in the Brazilian Amazon, the Karitiana define and understand themselves as hunters and greatly appreciate hunting, which they undertake frequently and spend even more time talking about. They enjoy game meat more than any other food. In the Karitiana language the word for prey, *himo*, is the same word for meat, since hunted animals are above all meat, and this is the “*alimento primeiro do índio*” (“an Indian’s primordial food”). It is the food most appreciated by the Indians and the element that defines the correct way to eat. As one might expect, a meal without meat is not considered a proper meal. Hunting is also closely related to the conceptions of masculinity held by this indigenous group, since a complete man (adult, responsible, good husband, dedicated father) must be a good hunter who regularly provides his family with the tastiest and most appreciated game meat (monkey is most appreciated by the Karitiana, with peccary not far behind).

How can this openly assumed preference for hunting and game meat be reconciled with the hunters’ own admissions that it is becoming increasingly difficult to hunt and find prey near the Karitiana villages? This article discusses some of the ways the Karitiana have come to relate to local wildlife and the pressures they and neighboring non-indigenous communities have exerted on this fauna for at least the past fifty years. Their activities and ideas about hunting are situated within the territorial context, which has undergone accelerated ecological and political transformations over recent decades. In relation to their statements about the increasing scarcity of game, I argue that the Karitiana not only formulate a conception of their territory but also about the animals, namely, changes in the ways they relate to the animals they habitually hunt and the capabilities of these animals, notably their ability to learn and react differently to new practices, techniques, and technologies introduced by human hunters. They state—in what initially sounds like a paradox—that after encountering and being hunted by humans, certain prey animals become increasingly *sabidos* [clever - Pt]¹ and *bravos*

1. Where relevant, the abbreviations Pt for Portuguese and Kt for Karitiana will be used to indicate the source language.

[wild/aggressive -Pt], and harder to find and kill. Animals become *sabidos*, in Portuguese, or *sondytywak* in the Karitiana language which means “the one that wants to know,” derived from the intransitive verb *sondyt* [to know -Kt]. As they become cleverer and wilder, the animals near the areas inhabited, traversed, and exploited by the Karitiana recognize their human predators, avoiding and even attacking them. These changes provide a glimpse of how the Karitiana perceive animals think and learn, and also allow us to speculate on how relations with animals have evolved amid growing threats to and use of indigenous territories by these groups as well as increasingly frequent and violent invasions by non-indigenous people. These considerations can offer the first steps of what could be called an ethnohistory of the relations between humans and animals in the native societies of lowland South America, similar to discussions about interactions with plants and, in a broader sense, landscapes.

I attempt to align the Karitiana’s perceptions about some of their prey with zoological knowledge about these animals in order to sharpen our understanding of the interrelationships between human and animal lives in the southwestern Brazilian Amazon. The goal is to avoid splitting humanity and animality into domains that are radically separated—in theory, but also particularly in practice—according to rather simplistic Cartesian thinking in which a conscious mind and deliberate agency is reserved for humans, while animals are only bodies made of raw materials and machines that lack intention, learning, and desire (Kohn, 2013).² My argument resonates with the work of ethnographers working in the Amazon and other ethnographical landscapes (Descola 2005). Indeed, the Karitiana do not think about animals this way. Their continuous engagement with the world around them modifies not only the Karitiana themselves, but also the non-human beings that share their existence in everyday interactions, approaching the notion of mutual ecologies. This concept, coined by Agustín Fuentes (2010), is based on the interconnection between structural ecologies (the physical and biotic environment) and social ecologies (relationships between human and animal agents) that always operate together to build naturally and culturally—natureculturally—constructed niches.

Some theoretical background

As I discussed in a previous article (Vander Velden 2009), our understanding of the relationships between humans and animals must begin with the forms of sociality of both humans and animals as agents. My arguments are attuned with what many authors have suggested about the shared domestic living relationship between humans and animals, which Natasha Fijn (2011) called co-domestication. I advocate extending that idea of a mutual transformation between humans and animals to the context of the hunt (cf. Robinson and Remis 2014). Just as humans learn from their hunting practices how to surprise animals in order to make them prey—thus converting subjectivities into mere “meat-objects”—the animals, in turn, also learn from their human predators in their ongoing encounters.

Nevertheless, here I call for greater attention to what happens to different animals. Although many Amazonian lexicons do not include a word for the myriad of beings that Western zoology bundles together as “animals” (Adelaar 2004, 234; Viveiros de Castro 2007), my own research has not convinced me that animals are never grouped together as beings of a specific type³ with which certain kinds of relations are established. For example, “animals” are all those creatures usually hunted or killed by human groups. This implies a series of analytical operations that can only be outlined here in broad terms. It requires a more radical ethnographic openness to engage in a critical dialogue with the life sciences, and particularly Ethology, in its search for animals’ minds, consciences, and especially, ways of learning (Griffin 1976, 1984, 1992; Harris 2007), and exploring “the nature of animal minds—what is in them and how they process information” (Bekoff 2013, 395).

2. I am not suggesting that the human-mind/animal-machine dualism is prevalent in the more general Western opposition between humans and non-humans. Even among scientists today there is a proliferation of uncertainties concerning the status of animals, which constantly veers between notions that presume that they are inert matter that can be manipulated and sentient beings attentive to the world and capable of building affective bonds (Candea 2013).

3. Or more than one type, as in the case of the Awá-Guajá, who separate humans from animals that can be hunted (*ma’amiara*) and animals that can be raised (*hajma*), although both are “animals” despite the fact that this specific word does not exist in their language (Garcia 2018, 193).

In a sense, I agree with Willerslev that “we will never come to understand what animals actually think” (2012, 113, question mark suppressed). Still, it is worth trying, and the focus on human and animal practices in mutual relationships, as well as in what our indigenous interlocutors say about animals, can allow us to imagine ways (in the sense proposed by Roepstorff and Bubandt 2003) to access clues about what animals experience from their perspective that extend beyond Western notions. This includes «[t]his idea that humans and animals are not essentially different, that animals can do things that greatly resemble what humans can do” (Willerslev 2012, 112). In short, this involves one of the tasks of an ethno-ethology program (Lestel, Brunois and Gaunet 2006, 167), namely, human interpretations of the interpretations other humans have of animals and humans, without neglecting to add an ecological dimension to the combined ethological and ethnological tools for studying human-animal interactions (Lescureux 2006, 472-473)⁴.

As noted by Viveiros de Castro (Fernández Bravo and Viveiros de Castro 2013), two species cannot both “be” human at the same time: if one considers itself human, it must see the other as non-human. Thus, our task is to investigate how the Karitiana (or any other group of indigenous people) consider how animals are seen by the animals themselves. In other words, I investigate what the Karitiana think animals think about animals, as owners of bodies that are radically different from human (Karitiana) bodies. This approach derives from the initial formulation of Amerindian perspectivism in 1996 that the point of view is given by the body (Viveiros de Castro 1998; Lima 1996). For this approach, the focus of attention naturally falls on what bodies do and what they know and do (McCallum 1996). A Karitiana ethno-ethology therefore involves precisely what McCallum defines as the location of differences between species and “a fundamental concept in perspectivist worlds”: it is not anatomical or physiological, but behavioral or ethological. From this understanding, ethograms offer a better tool for distinguishing one being from another rather than anatomy or morphology. The Amerindian perspective is an ethno-ethology, and involves looking for (animal) points of view from the human (Karitiana) perspective, since every species represents a point of view about other species. And from this point of view, animals can change. They have a history, so to speak.

Indeed, a pragmatic approach to human-animal interactions should allow us to combine what appears to be a unique rapprochement between the fields of Amazonian ethnology and studies of animal ethology and cognition. The most innovative approaches in these fields focus on what is called embodied cognition, in which an animal’s mental state is understood not as an indicator of its behavior but instead as an intersubjective effect of relationships between beings and their bodily (sensorimotor) experiences of the world (Dutton and Williams 2004, 217-220). The proponents of this approach maintain that one should not ask if animals (and humans) “have” minds, but rather how they “make” minds through their actions, interactions, and relationships. Body and mind cannot be separated according to this perspective, since concepts and categories can only emerge from sensory and interrelational experiences of the world and other beings (Dutton and Williams 2004)⁵. In this way, indigenous theories of animal “minds” emerge from practical interactions between humans and animals, as these embodied connections produce mutual knowledge through shared bodily consciousness. Amerindian peoples learn through their bodies from an “embodied way of knowing” (Harris 2007).

This also requires a dialogical engagement with interlocutors in the field with regards to what happens internally and externally to observed animals (and their actions). Far from assuming that academic Biology holds the truth about living beings, I maintain that common forms of understanding should be negotiated between indigenous and scientific knowledges, especially since both are constructed from observation and therefore widely open to interpretation on both sides (Kohn 2013). According to this reasoning, the “animal” is what emerges in the encounter between indigenous practices and ontologies and those of

4. Note that I am not advocating that the Karitiana think animals have “minds” like those attributed to some beings (mostly humans) by much Western science. Here the term “mind” is used in a way that resembles Philippe Descola’s (2005) notion of interiority (as opposed to a being’s physicality or exteriority), and also considers Karitiana understandings of how animals learn through their experiences.

5. The idea that humans and animals can share bodily experiences by recognizing a basic similarity between their bodies is a naturalistic assumption that, according to Viveiros de Castro (1998), reveals the fundamental rift between Amerindian and Western ontologies. The latter is founded on the natural (ultimately chemical) constitution of beings that contrasts with radically cultural (spiritual) differences. I maintain, however, that this view of naturalistic ontology is exceedingly simplistic because it ignores many contemporary studies that advocate the existence of both: identical bodies and similar souls, spirits, or even (animal) cultures (Lestel 2001; Giraldo Herrera and Páls-son 2014).

their non-indigenous counterparts. As Jon Nyquist (2015, 44) suggests, “realities are, among other things, conversed into shape.”

For this reason, my intention here is, in a certain way, to rediscuss the notion of the “animal” in Amazonia, where every being is “human” because every being has a soul and/or a point of view. While every being may have a soul, perhaps animals can be said to have animal souls and/or animal points of view rather than human ones, precisely because they have animal bodies according to a human (indigenous) perspective. A jaguar is a jaguar, sees itself as a jaguar, hunts like a jaguar, understands like a jaguar, and dies like a jaguar. My material on the Karitiana suggests something similar. Over almost 20 years of research no interlocutor has stated that “animals are people,” much less that they are human.⁶ Yet, the idea of metamorphosis which is so common in the highly transformational Amazonian worlds (Rivière 1994) appears not only in the mythical pre-cosmological narratives called *histórias do tempo antigamente* [“stories from ancient times” -Pt] but also in everyday life (Araújo 2014).

What I wish to emphasize is that even though many animals used to be humans or people in mythical times, today they may not be exactly the same, even if such fabled events can explain certain aspects of the world we experience today.⁷ (Re)thinking perspectivism in practice or in the flesh can create a space for renewed ways of imagining non-human interiorities in lowland South American societies outside the privileged contexts of shamanism and mythology. We are interested in the viewpoints of ordinary men and women (Cabral de Oliveira 2015) or those who have only “ordinary people’s ghost eyes” (Kopenawa and Albert 2013) in contexts in which non-human beings are *potentially* human (Viveiros de Castro 2017). My suggestion, like Bechelany (2013, 337, my translation), proposes an analysis that lessens the focus “on hunting practices within the village” or “how hunting activities in the forest can be considered” based on metaphysical speculations in the literature, as well as “above all, how they emerge in these contexts.”

One example is the work of the Tukano anthropologist João Paulo Barreto (2013). Barreto categorically states that the authoritative phrase often heard in ethnographies of the Upper Rio Negro, that “fish are people” (Jackson 1983; Cabalzar, 2005), is mistaken. He asserts several times (for instance, Barreto, 2013, 15, 31, 69-70) that “fish are not people,” and that aquatic animals are vehicles of communication between the *wai-mahsã* (aquatic people) who own and inhabit aquatic environments and human beings, which is also true for all types of *mahsã* (people) that live everywhere but cannot be confused with their eponymous animals. In this way, the *wai*, the fish (aquatic animals), are not the *wai-mahsã* (“invisible humans”) and consequently not the same as “true humans” (Barreto 2013, 16). He closes by stating that “mythical narrative cannot be taken as the definitive understanding explaining the relationship between humans and nonhumans” (Barreto 2013, 31, my translation) because the animals in the myths are not the same animals that are encountered, hunted, and eaten by the indigenous groups in the Upper Rio Negro. “One thing is the fish as an animal; another is the *wai-mahsã* who is the owner of the place (where the fish lives) who is called fish (...). The *wai-mahsã* cannot be mistaken for its eponymous animal,” while the “fish, like any other animal, is just an animal” (Barreto 2013, 69-70, my translation).⁸ Naturally, this is not to say that being “just an animal” is necessarily in line with what zoology defines as an animal, but this statement complicates the category of “animal” when looking at practical relationships between humans and animals, especially during deadly encounters between these two groups during hunting and fishing.

What I suggest here is that rather than definitively considering that animals used to be people (humans) and today continue to be people (humans, but dressed in animal clothing) as stable and established knowledge, we must admit that this can be part of a set of indigenous speculations about what happens underneath this animal clothing, in the past and present. The Yanomami material presented by Kopenawa and Albert (2013, 61-62) is a

6. Note that in narratives about the past, the “other Indians/enemies/other true ones” (*opok pita* -Kt) were considered prey and effectively devoured by the Karitiana in cannibalistic rituals that have long been abandoned. When referring to these “genuine others,” Karitiana collective memory always states that “they weren’t people, they were Indians,” indicating that only the Karitiana were people, or, from their point of view, *Yjxa* [us -Kt], which is a term that is increasingly being used as a self-referring ethnonym. (The origin of the term “Karitiana” is unknown.)

7. Perhaps this “human background” of animals is another humanity (assuming that various forms of humans exist in the South American lowlands), anthropo-theriomorphism, or partial anthropomorphism (Valentim 2018, 194-195). Would this make animals a monstrous alterity (Praet 2013) compared to humans? The stirring discussion by Daniel Pierrri (2018) about the relationship between incorruptible celestial beings and their corruptible and imperfect images that inhabit the sublunar world provides interesting insights.

8. Rodrigo Villagra (2013, 281) also reports that the Angaité (from the Paraguayan Chaco) have a taxonomy that includes “animals that are nothing more than animals—literally ‘wild things’ (*nawhak askok*).”

perfect illustration of what I mean to say here. In his description, Davi Kopenawa seems to oscillate between two ways of thinking about present-day animals. Prey animals that are targeted, slaughtered, and consumed by ordinary people are a transformation of the ancestral *yarori* animals. In fact, *yarori* hides or skins become actual prey as their images (their “real center” or “real heart,” which is only accessible to shamans) become *xapiri* spirits. But while in some passages Kopenawa states that modern animals “are humans like us” (for example, Kopenawa and Albert 2013, 387), elsewhere he specifies that “[t]hese images of game that the shamans make dance are not those of the animals we hunt,” and that “they [the animals] were as human as we are” “at the beginning of time” but today are “others.”

It is precisely this contemporaneous alterity that I wish to address here. The “skins” or “clothing” of the animals are responsible for their specific ethograms, as we have seen. This allows us to ultimately ask about what is happening in the minds (interiorities) of animals from the indigenous peoples’ point of view. The issue does not appear to be resolved. While the life sciences continue to speculate about interiority in animals, indigenous peoples may be doing something similar and also speculating. In my opinion, this would mean setting into action the reflexivity of the “living and awakened human” for whom various possibilities exist in the transformational world, including a “non-perspectivist residue” in which a *tucunaré* (Peacock bass fish, *Chicla ocellaris*) is just a *tucunaré* (Lima 1999, 49-50, my translations).

My proposal is based on the unfolding assumption that conflicts between humans and animals must necessarily (for theoretical, ethical, and political reasons) be treated as encounters between *complete/true (but not necessarily always human) subjects* that produce logically disparate but symmetrical results. If human hunters advance against prey animals as subjects, these also respond to attacks as subjects, but not necessarily as human subjects (or endowed with human minds, as described by Kohn, 2014: 277). This makes hunting an activity that by nature is “loaded with many contradictions, inconsistencies and paradoxes, which always brings concern” (Willerslev, Vitebsky and Alekseyev 2015a, 29). For this reason, in a certain sense my objective is to connect the indigenous ethnology of the South American lowlands to anthropological studies on animals, while recognizing that the ontological turn in contemporary anthropology is also accompanied by an animal turn (DeMello 2012). From naturally partial connections between the perspectivist model and my data on the Karitiana (both read alongside ecological and ethological studies), my goal is to intertwine the contributions of both of these turns in a re-reading of hunting-based relationships between different beings in Amazonia.

Here I align myself with studies in the social sciences (particularly anthropology) that have renewed interest in the myriad of human-animal interactions, paying special attention to the dissent expressed by authors who deny the great modern divide between culture (humanity/society) and nature (animality) and instead point to the need to integrate non-human beings into social analysis and the establishment of collectives. Such authors describe worlds comprised of hybrids (Latour 1993) or naturecultures (Haraway 2003, 2008) evident in multi-species ethnographies in which the lives and deaths of animals are inevitable, intimately, and socially linked to human worlds, and vice versa (Kirksey and Helmreich 2010), and only in this way can they be consistently (and mutually) understood. Equally valuable here are recent formulations in the social sciences and humanities that focus on life and consequently refuse to separate humans from non-human animals. These approaches are grounded in the multiple realities of engagement and signical communication (in an eco-semiosis, or generalized semiosis⁹) that connect humans and animals of all kinds (Ingold 2000; Kohn 2007, 2013; Tsing 2015a; Praet 2013; Pitrou 2016; Halbmayer 2016). In South America, experiments using combined approaches from Amerindian ethnology and the life sciences may bear fruit in a broad, decentralized understanding of how phenomena such as life and categories like “species” and “animal” can be understood in a genuine multi-species philosophy (Garcia 2018, 182; see also Lima 1996; Viveiros de Castro 1998).

9. I agree with Halbmayer (2016, 147) that this communication beyond the human (Kohn 2013) is not necessarily non- or pre-symbolic, since many indigenous peoples state that animals understand and sometimes speak human languages, or that humans can speak and understand animal languages, and not only in mythical times (see Yvinec 2005; Garcia 2018; Sanchez 2023).

The Karitiana and their prey

The Karitiana are speakers of a Tupi-Arikém (Tupian stock) language who inhabit the northern tropical forests of the state of Rondônia, specifically in the municipalities of Porto Velho (the state capital) and Candeias do Jamari, in the southwestern Brazilian Amazon. Today their population numbers approximately 500 individuals (Renato Karitiana, personal communication, 2023), distributed among seven villages: five within the officially recognized Karitiana indigenous territory (Central/*Kyōwā*, Bom Samaritano, Beijarana, Caracol, and São Francisco) and two others outside the currently demarcated area (Rio Candeias/*Byyyjty osop aky* and Igarapé Preto/*Joari/E'se emo*). The Karitiana lived southeast of their current location until approximately the mid-twentieth century, with their villages spread throughout the middle and upper Candeias River Valley and its right-hand tributaries. Statements from Karitiana elders also indicate a southern origin for this group, perhaps around 1850 in the region of the modern city of Ariquemes. Pressured by the expansion into Rondônia along the telegraph line constructed by Cândido Rondon in the early twentieth century, the group gradually abandoned the right bank of the Candeias River, crossing to the left bank and occupying the region of one of its tributaries, the Garças River. There they were definitively contacted and settled by FUNAI (the Brazilian government agency in charge of indigenous issues) by the late 1960s. The Central village emerged close to the place where these initial contacts were made with the FUNAI agents on the banks of the Sapoti Creek. Its name in the indigenous language, *Kyōwā*, translates as “Child Village,” meaning the new village (Vander Velden, Storto and Fernandes 2022).

For almost 50 years, *Kyōwā* concentrated nearly all the Karitiana, except for those families living (permanently or temporarily) in Porto Velho or other places in Rondônia. This sedentary historical trajectory has important consequences for my argument, since virtually all of my fieldwork over nearly two years was conducted there, with short visits to the other villages. It is also necessary to mention that the dispersion of the Karitiana, which began in 2001,¹⁰ is closely linked to discourse about the group's relationship with animals, more specifically increasing difficulties for hunting or securing a steady and proper supply of meat.

The Karitiana hunt a wide variety of all the animals they consider *himo* [meat -Kt], which is the same word for “prey.” Their favorite meat comes from monkeys (the capuchin monkey and spider monkey are most prized), peccaries (the larger white-lipped peccary, the “big pig,” and the smaller collared peccary, or “little pig”), deer, and coatis, as well as a broad assortment of birds (especially guans, tinamous, and trumpeters of the species *Penelope*, *Crypturellus*, *Cracidae*, and *Psophia*, respectively).¹¹ All edible beings are *himo*, indicating not only that game is the most appreciated meat, but also that only the products of hunting are eaten. Even though other creatures can be considered edible (such as some domesticated animals introduced after contact, such as goats and chickens), they are only very rarely converted into prey (and then into meat) before slaughter. Only twice did I witness the Karitiana slaughter some of their chickens: the birds were chased by men with bows and arrows and killed after a period of lively pursuit (cf. Vander Velden 2012, 270-271). In other words, for these pets to be consumed, they first must be defamiliarized (Dalla Bernardina 1991), converting companion animals into prey/game/meat/food.

Even so, as I have shown elsewhere (Vander Velden 2008), the Karitiana seem to be quite open to new taste experiences. Salt, which was introduced after contact with non-indigenous people, has permitted most of these possibilities by producing changes in types of meat previously considered as bad [*him sara* -Kt]. The consumption of certain game meats is usually prohibited, but they can be eaten “if they are well spiced” [se bem temperadinho -Pt], as the saying goes. For this reason, many Karitiana individuals have tried meat from creatures that are usually forbidden, and since there were no further consequences, they re-

10. This is the year in which Cizino Karitiana and some of his allies founded the village of Rio Candeias (*Byyyjty osop aky*), reoccupying the right bank of this river after nearly half a century of absence. After this initial movement, five other villages were founded in different areas of the traditional Karitiana territory.

11. For a discussion of Karitiana knowledge about hunting and animals in general, see Vander Velden (2012). There, as here, I avoid correlating the different beings recognized by the Karitiana with zoological species, which is why the two peccary species appear in quotation marks in this text. I choose to do this because I am not sure if the Karitiana's groupings in the natural world correspond exactly to modern taxonomical groupings, even if the coincidences appear to be significant. For instance, the Karitiana differentiate spotted jaguars [*obaky* -Kt] from black jaguars [*torowoto* -Kt], both of which constitute a single species from a zoological point of view, and refer to a number of other jaguars that are also recognized as distinct, but which are nevertheless recognized as “jaguars” [*obaky*]. The Karitiana generally talk about “types” or use kinship language to describe similarities.

port they would have no problem trying them again. There are, however, certain restrictions. Types of meat that are excessively *gordas* [fatty/greasy -Pt] are avoided by hunters because they make their arrows slippery and ineffective. Meat purchased from urban butchers is also consumed sparingly, especially beef, which many Karitiana consider *fraca* [weak -Pt] and full of *vacina* [vaccines -Pt]. They sometimes also describe it as *carne tratada* [treated meat -Pt], in other words, full of unknown substances. Some even suggest that excessive consumption of treated meat is one reason why indigenous bodies today are much smaller and less fit than in the old days.

The Karitiana employ three hunting techniques that are no different from the Amazonian standard. The first is active pursuit of animals in the forest with guns (especially .20 and .22 caliber shotguns, although not all men own these weapons), usually alone or in small groups, but very often accompanied by trained hunting dogs. Bows and arrows are no longer used, and only the older men still know how to use them effectively. Hunts can take place during the day or night. The second type of hunting involves hiding and waiting, usually in the branches of fruit trees, which attract animals, or inside a straw blind known as a *rabo de jacu* [guan tail -Pt] due to its shape, and usually at night. The third technique involves traps, particularly those involving a wire running across an animal trail and tied to the trigger of a strategically positioned shotgun. These appear quite efficient for hunting smaller and medium-sized land animals like agoutis, pacas, and armadillos.

The Karitiana more frequently use the areas of secondary forest [*capoeira velha* -Pt] that surround the villages, especially the largest and oldest village, *Kyōwā*. These include several old *roças* [gardens -Pt], abandoned farming areas located relatively far from the villages (up to five kilometers). They usually travel part of the route along the road on foot, by bicycle, or car, and then leave these modes of transport when they enter the forest. The banks of rivers, streams, and lakes and areas known as *barreiros* [spots of naturally salty muddy earth -Pt] are also sought out for hunting, since they tend to draw many animals. It is important to note that hunts usually follow well-marked trails in the forest, and hunters rarely depart from them. These trails cut across Karitiana territory, but the most frequented areas are relatively close to the villages. The Karitiana usually merge time and space when talking about hunting efforts (finding game quickly means walking less, and vice versa), hunting trips rarely last more than a few hours, and today it is extremely uncommon for hunters to sleep in the forest. Hunters often return with some meat, even if the kills are small (usually birds). The slaughter of peccaries, deer, and tapirs (the largest target in the region) is relatively rare and always celebrated. However, all of these techniques, practices, dynamics, and results of hunting activity depend intrinsically on animal behavior.

Wild and tamed

Brazilian popular classification of animals (and general Western thinking about animals, cf. Leach 1983) usually divides them into tamed and gentle (e.g., domesticated, pets, raised by people) or wild and aggressive. This classification unfolds into a perception of behavioral profiles among species: a domesticated animal can be aggressive (a vicious dog, for example), while wild animals can be tame (when raised in captivity, in a zoo, or even when accustomed to the presence of humans in their natural habitat). One could argue that the farther animals are, deeper inside the forest (within the domain of nature) as opposed to the areas inhabited by humans (the domain of culture), the wilder they are. There, they are dangerous, uncontrollable, and aggressive, or otherwise suspicious and aloof, but also often tolerant of human presence (cf. Brandão 1999). Wild animals, which are aggressive by nature, have behaviors that are in direct opposition to behaviors found in the spaces occupied by humans and their culture: in nature, they are the opposite of culture.

The Karitiana understand their relationships with animals somewhat differently, suggesting a curious inversion of the way we understand the gradient of distancing between nature and culture. All animals that live in Karitiana villages (kept animals known as *byèdna*, which are raised in houses or in the areas immediately surrounding them) are tame [*syjsip* or *pyhoko* -Kt], which is the category used to describe creatures that do not fear human presence and can approach people. These beings contrast with wild animals, which are described in the Karitiana language as *gopit*, which literally means “of the forest” or “from the wild.” Another term for wild animals, *sohop*, can be translated as “unsociable” or “elusive,” and generally denotes those that do not live with humans, namely “wild” (cf. Vander Velden 2012, 264-275).

Up to this point, the Karitiana way of portraying the relationship between humans and animals is identical to ours. But the distance gradient that contrasts the village and the forest seems to invert itself on the margins, in those areas where human presence is rarer and where animals consequently have less knowledge of men and their hunting techniques and deadly weapons. Indeed, the animals in these regions—which I will discuss in a moment—do not seem to fear the presence of humans, and like animals raised by humans, they will often get unusually and dangerously close to hunters, often with fatal consequences. These animals that live far from the villages, like the animals raised in the daily company of men and women, are also said to be *mansos* [tame or sociable -Pt], but notably never said to be *de criação* [raised by humans -Pt]. And according to the Karitiana, these tame animals are more easily killed by the hunters who venture to these distant places from time to time.¹²

The opposition between wild and tame beings also unfolds according to the criteria of behavioral assessment. Animals usually considered tame can be called wild when they exhibit aggression and attack people or other beings, but in this case a different Karitiana word is used, *pa'ira*, which might be translated as “aggressive,” “attacking,” or “antagonistic.” Dogs, for example, which are such icons of the domestic sphere that they are called *obaky byèdna* [kept or domestic jaguars -Kt], can be *pa'ira* [wild -Kt] when they bark furiously at passersby and bite the unaware. Dogs, after all, are jaguars, and large predators are quintessentially *pa'ira*, since they depend on their wildness, aggressiveness, and bloody carnivorousness to live. For this reason, predators are also habitually referred to as *kida*, a category including a wide range of creatures whose similarity lies in their aggressive, antisocial, or even asocial relationships with humans and other beings (cf. Vander Velden 2012, 261-263).

On the other hand, the distance gradient that distinguishes forest animals from domestic or familiar animals (from the Karitiana point of view) produces certain ambiguities related to the territorial dynamics of the Karitiana villages (which appear common to indigenous Amazonia). The villages can be said to be the pinnacle of domesticity, while the forests are the extreme opposite, the peak of “savagery.” But as we have seen above, the animals in the forest somehow connect to the tameness of animals raised alongside human society, since they do not fear the presence of humans.¹³ In this sense, equating tameness and closeness does not make sense, as in blended correlations between village=domesticity/forest=wildness (Strathern 1980). The areas of the old fields surrounding the villages that were cleared and farmed in the past and now feature vegetation in various stages of recovery (which the Karitiana call *capoeira velha*) are spaces of ambiguity. The creatures found there can be domestic as well as wild, and the hunters' judgments often lead to misunderstandings with deadly consequences for the animals and political complications for the humans involved. Some years ago, a hunter shot a tame tapir that lived with one of the families in *Kyōwā* and they responded with hostility, demanding compensation for the animal he had inadvertently killed. The hunter claimed he had found the animal in a *capoeira velha* near the village and that it advanced upon him like a wild animal (or at least like the tapirs in the regions that are commonly traversed and used for hunting). Adult tapirs can be aggressive, according to the Karitiana, even when they are socialized from a very early age.

12. Uirá Garcia (2018, 188-189) admirably shows how our opposition between wild/forest/men and tame or domesticated/village or house/women is also not supported among the Awá-Guajá, whose “model” (the author's term) presupposes frequent movement of human and non-human beings between the wild and the village.

13. It may be that in Amazonia, this connection between maximum closeness and maximum distance is related to the frequently evoked image of animal owners/masters/hunters as farmers or herders, who have a relationship with these beings similar to the relationship between human villagers and their domesticated animals (Fausto 2012; Kohn 2013). A general domesticity is also found in the Amerindian ontologies which eventually led Philippe Descola to suggest that Amazonian people do not domesticate wild peccaries because they already have owners (who they call masters, fathers or mothers of the hunt) and cannot be appropriated a second time by human owners (Descola 2002, 2005). I note, however, that here I am trying to present the Karitiana (and consequently human) perspective of the relationship, in which animals of the forest are not thought of as domesticated animals, even though at the edges of this world things seem a bit mixed up. Is this blurring due to a recognition that in far-away areas prospects become too risky, since these are more-than-human domains? Perhaps. But it must be acknowledged that like anything else, this is a question of perspective.

For this reason, the common opposition of the terms “wild/tamed” found in the literature may not be suitable for the Karitiana. What we call “wild” animals in a broad sense (in other words, animals from outside the territory occupied by humans) would instead be animals without any relation to humans. They do not approach hunters because they like them, but instead as part of their normal mundane movements through the forest, and hunters somehow are invisible to this kind of animal that does not fear humans. Meanwhile, “tame” should be replaced by other ways of relating to humans, whether as *bravo* [aggressive -Pt] or elusive in the case of animals that are familiar with hunters and consequently attack or flee, or *manso* [tame -Pt] for those that are also familiar with humans but do not reject their presence or company. Establishing differences according to the type of relation makes more sense, and in fact makes the wild/tame dichotomy excessively straightforward for the Karitiana way of experiencing animals. In this way, using indigenous categories as an analytical tool could be more productive for addressing the ethological characteristics of animals in the Amazon region and elsewhere.

Nature-culture in near and far relationships

In their study of interactions between hunters and prey (among other human and non-human actors) in the Dzanga-Sangha Forest Reserve (Central African Republic), Robinson and Remis (2014) explore the mutual constitution of beings involved in predation relationships and events. Human hunting practices have led to interesting modifications in the behavior of various commonly hunted animal species: primates become quieter, for example, or diurnal deer concentrate their activities in the evenings (Robinson and Remis 2014, 626). On the other hand, these same changes lead to the development of new hunting techniques, practices, and strategies by the human populations who use the preservation area. Based on Agustín Fuentes’s notion of mutual ecologies (2010) and recent calls to carry out multi-species ethnographies (Kirksey and Helmreich 2010), Robinson and Remis hint that human hunters and prey animals must be investigated, arguing that analysis should consider humans and nonhumans together not only to understand the dynamics of life and ecology in the forests, but to also successfully create more efficient models for environmental conservation (Robinson and Remis 2014, 630-631). The study of human/animal relationships within the context of hunting requires attention to nature-culture composites (cf. Haraway 2008) that avoid a simple and clear-cut division between anthropology focusing on the human hunters and biology (zoology, ecology, or ethology) addressing the animal side.

Modifications of Amazon landscapes by indigenous peoples with the goal of increasing hunting yields (commonly referred to as management) by intentionally changing the habits of prey animals have been known to Americanist ethnology for quite some time. In a classic example known as garden hunting, cultivated plots attract prey to areas near villages where they can be slaughtered more easily (Linares 1976; Smith 2005). Animal attitudes in response to these human techniques still require further study, but according to Patrick Deshayes (1986), radical changes define garden hunting as wild domestication.¹⁴ I think the problem with the notion of management is that it attributes all the intentionality of these changes to the human element in the interaction, and does not grant the animals anything more than almost automatic responses to changes in the landscape by human agents. Strictly speaking, there is no interrelationship, only intention on one side and reaction on the other.¹⁵

Reciprocal exchanges between humans and animals that live in constant interaction and share the same territory can also be seen in the continuous relations between the Karitiana and prey animals, which have shared the same region for approximately fifty years. During this period, bows and arrows for forest hunting were gradually abandoned and replaced with firearms. This shift has increased pressure on local wildlife as the group became sedentary

14. Katz (2006, 184) suggests that in the Native Americas, animal domestication will outshine garden hunting when properly implemented.

15. Even if animals are given some intentionality in the process—“The importance of garden hunting is not merely a product of human choices—it clearly has something to do with the diet and behavior of the animals that are encountered by hunters in agricultural areas” (Smith 2005, 523)—it seems to appear where human intentionality is lacking, in the sense that things occur as unforeseen and unplanned side effects of other actions (in this case, growing food that animals find palatable). In any case, the adaptation of animal species to the niches created by human activity (cultural landscapes) is considered in evolutionary terms. The very notion of cultural landscape places all the emphasis on (human) culture.

after the *Kyōwā* village was founded and the Karitiana indigenous territory was demarcated in 1976, during which the population increased from around 64 individuals in 1970 to roughly 450 today. The growing demand for game meat—which, as we have seen, is considered the best food—and the continuous exploitation of the same portion of forest over half a century have had a definite impact on local ecological dynamics. Describing this set of highly complex systemic changes in detail falls outside the scope of this article. I wish to focus only on what the Karitiana say about how some species of prey animals react and adapt to this intensive human presence in their habits and their lives. It is important to remember, of course, that animals are capable of learning, and that predator/prey interactions—in the case under discussion, an anti-predatory behavior (Bekoff 2013)—are privileged contexts for analyzing the modes in which animals can learn through their own experiences.

One interesting example of mutual human-animal constitution, in relations between hunters and prey, is the behavior of coatis (*Nasua nasua*), which are a carnivorous Procyonidae native to South America. They are always found in groups, and eat a variety of foods (fruit, lizards, frogs, worms, insects, eggs, and even other small mammals) in arboreal environments as well as on the forest floor (Dos Reis et al. 2006, 261-263). When a group of coatis that is exploring the ground detects danger, they all quickly “run partway up trees to look. After a few moments they drop to the ground and disperse rapidly through the undergrowth” (Emmons 1990, 139).

The Karitiana appreciate the meat of coatis [*iri'sa* -Kt], and some of their body parts also have medicinal uses.¹⁶ These animals are usually hunted with firearms and dogs trained for hunting. Dogs are not native to the Amazon, and the Karitiana describe the first dogs they saw in great detail. The animals arrived in the possession of rubber tappers with whom the Karitiana fought sporadically, most likely in the early decades of the twentieth century. Several older Karitiana also remember *Marreteiro*, the first dog that was left among them, which had white fur and was said to have been an excellent hunter (Vander Velden 2012). Hunting with dogs is therefore relatively new among the Karitiana—and of course, also a novelty for the hunted game—dating back to the beginning of the last century. Firearms (primarily shotguns) are also a recent introduction probably adopted by the Karitiana at least 50 years ago, since today only the older men know how wield bows and arrows. These new hunting techniques are relatively recent introductions into a much older context of human-animal interaction. This seems to have changed the behavior of (some) prey in response, since introducing hunting dogs seems to initially lead to fatal encounters as prey species confront the dog without realizing it is accompanied by armed human hunters (Petersen 2013, 150-151). This is certainly true for coatis.

According to the website of a Brazilian environmental organization concerned with threats caused by the hunting of Brazilian wildlife, hunting coatis is not difficult:

A dog catches its scent and finds it very easily. To protect itself from the dog, the coati climbs a tree and remains motionless there, thinking it is safe. But the hunter finds it very easily because of the barking dog, and kills it mercilessly with shots from his shotgun (Instituto Rã-Bugio 2006, my translation).

The Karitiana hunters, on the other hand, consider hunting coatis difficult, and recognize that chasing these animals is one of the most dangerous activities for dogs. They say this is because the coatis have learned how to drop belly-up from tree branches to escape the shooting on the ground. This puts their sharp canines in the right position to reach the dogs' necks, since dogs trained for hunting tend to jump quickly at prey to bite it in the belly or neck. This behavior by the coatis—which, according to the Karitiana themselves, have responded to hunting with trained dogs by becoming wild/ferocious [*bravos* -Pt] animals¹⁷—causes many fatalities and severe injuries in the hunting dogs, which are prized by the Karitiana (Vander Velden 2012). If these dogs are *sabidos* [clever -Pt] because they know how to hunt, the coatis

16. Men eat the penis of this animal [*iri'sa o'po* -Kt] to increase their sexual energy, for example.

17. It is said that the “coati is aggressive, it knows how to fight.” Its blood can be rubbed on the body to make a person “aggressive” and better prepared for war.

18. We could argue that hunting dogs are not especially clever, since they continue to fall for the trap invented by the coatis. Nevertheless, the Karitiana say that dogs bitten by coatis become *com medo* [afraid -Pt] and refuse to go back to the forest to hunt. Hunting dogs are said to become *pa'ydna* or *sā* when they find coatis (and snakes). *Pa'ydna* or *sā* designates a state of maximum vulnerability, which makes humans and animals more prone to accidents or injury [*oky*, to injure oneself -Kt]. This term is usually associated with violation of social rules (such as the prohibition of incest or sexual relations during rituals), but here seems to be an explanation for the very common deaths or injuries caused by coatis and snakes in hunting dogs. On the other hand, many dogs become experts at killing coatis, which the Karitiana often point out, saying “this dog kills coatis alone” (that is, without human assistance).

of the region also have become *sabidos*, because they know how to defend themselves.¹⁸ As a result, today coatis are not commonly killed. In this way, “the understanding animals as non-human persons is that they, like humans, acquire particular knowledge about the environment” (Roepstorff 2003, 132). It is also true that if “the hunter may access [this knowledge] by engaging with the animals,” the animals also acquire knowledge about the hunters and of course use it to their advantage. Note that none of this denies that, within a perspectivist model, the Karitiana can picture an animal subjectivity which is human or humanlike. My argument is that the possibilities emerging from investigations that focus on indigenous theories of animal minds could potentially shed light on other ways of understanding how animals think in the here and now. In this sense, it involves adding new complex meanings to what is ultimately hidden beneath the clothes or coverings animals use and humans engage with, enriching ethnographic knowledge about (non)human interiorities.

What then happens is that in the course of interactions between humans and animals (domesticated and wild), they become clever or educated, that is, *sabidos* in Portuguese or *sodypywak* in the Karitiana language.¹⁹ In this way, all parties become better acquainted with the habits, actions, and preferences of those they live with, and consequently deal with them more intelligently. Meanwhile, prey animals that come too close to the hunters are “stupid” or “fools” [*bestas* -Pt]: “prey comes too close to people, stupid [*bestinha* -Pt],” Gumerindo once told me. Clever dogs [*cachorros sabidos* -Pt], for example, are those who obey the commands of their owners [*jongy* -Kt] and respect the limits of human sociability. They do not enter homes but remain lying down by the door, or as Elivar Karitiana told me, “they are all polite, they don’t stare at people eating.” Or as Inácio stated, recalling his dog Miro: “he was clever, a hunter, he didn’t go far; close by he found game, he killed pacas, armadillos.” His wife Sarita finished for him: “he [Miro] didn’t come into the house, he didn’t touch our things.” Clever dogs are especially those that know how to hunt. The Karitiana often and categorically state that they only appreciate hunting dogs that know how to “kill prey,” and disdain animals that don’t hunt, even if they do keep some of them as companions. And here we find productive the notion of canine “help,” which features in Karitiana narratives describing why they adopt dogs—an exotic animal in most of the Amazon—and connects to a suggestion I made elsewhere (Vander Velden 2012): companion animals, like humans, follow a standard life cycle in which everyone (humans and nonhumans alike) should devote their adult lives to cooperative work and productivity. Thus, the Karitiana recognize and appreciate dogs that “help” hunters “kill prey.” A dog is a companion in the forest, *ota* [friend -Kt], he who walks together, they say, extolling other contributions of this animal, namely protecting humans from dangerous beings in the forest.

But how do the coatis learn? These animals are said to be “ferocious” [*pa’ira* -Kt] and “bite a lot”. Bathing in their blood makes a man “so ferocious nobody can get near him.” In a certain sense, the coatis are cunning and scrappy fighters. Although no one stated to me that today coatis are people, their mythical origin may explain both their ferocity and their ability to adapt their warlike behavior. In effect, the coatis are descendants of the *opok sosy-bma*, a ferocious group of “other Indians” [*opok pita* -Kt] that resulted from an incestuous relationship between *Byyjyty* (the mythical hero that created the Karitiana from locks of his hair, grandson of the creator of everything that exists, *Botyĵ*) and his sister. The *opok sosy-bma*, they say, were “like coatis:” they could sniff out the trails of people who could not hide from them, and consequently killed many, including the brother of *Byyjyty*. In one version of this myth, these coati-Indians (as they are also called by the Karitiana in Portuguese), attracted the fury of *Byyjyty*, who hid in the sky (which at that time was near the ground) and when they grew close he decided to kill them. The *opok sosy-bma* found his trail, brought a ladder, and everyone started climbing. They broke into the sky and intended to stay there to kill *Byyjyty* but some fell when the hero allowed the hook that was holding the ladder to slip. Then *Byyjyty*

19. If among humans in lowland South America one can teach and learn only by doing, or by closely watching others, there is no privilege given to language in learning processes (McCallum 2003; Kohn 2013). What we have is something analogous to Ingold’s “education of attention” (Ingold 2000). It then seems clear that dogs are not taught to hunt but learn to hunt by doing and/or watching their more experienced companions. In this way, the techniques used to “make” a dog into a hunting dog may refer less to the animal’s training or education and more to attempts to expand the abilities dogs already have or develop alongside other dogs, what the Karitiana call their “inclinations” [aka -Kt]. In contexts where every being can be a person, and every being (or almost every being) can be a subject, teaching and learning does not imply changing the direction of another’s path, but instead providing the means for it to be reach its potential and be channeled into useful and properly human functions (or in this case canine functions, which are the same thing).

called them coatis, the strength of his words making them into the coatis that currently live in the forest after they fell from the sky, since all the *opok sosybyma* died and only the coatis remained on Earth.²⁰ In this way, said Epitácio Karitiana, “coatis used to be people long ago, but they were always annoying people, sticking their noses into everything. Then *Byyyjyty* made them into coatis.” We can perceive that when they were people, the coatis were known for their warlike nature (they were “very bad”) and what we can call their impertinence. The fact that they were formidable warriors in old times [*no tempo antigamente* -Pt] may explain the coatis’ modern capacity to react intelligently and adapt to attacks. In this sense, they are still at war (where they learn new tactics) in which humans are doing the hunting (Lima 1996; Garcia 2010; Bechelany 2013). As I have mentioned above, the Karitiana never invoked the myth to explain the agency of the coatis, and only said that they become *sabidos*. Perhaps, as the Yanomami shaman Davi Kopenawa has said, white-lipped peccaries, that I will address below, are “so wise” because they “are human ancestors” (Kopenawa and Albert 2013, 262-263).

Returning to the dramatic encounter between dogs and coatis during hunting episodes, the coatis’ simultaneously violent and intelligent response to dog attacks raises the question of whether hunting with dogs is a suitable technical choice (Govoroff 2002) in this case. This leads to two issues. First, the need for more detailed study of the interrelationships between human hunters, dogs, and prey animals in hunting activities, attributing intentionality and desire to all these agents. Second, this attribution can be responsible for failures in the technical choices adopted by one or more of these agents; indeed, the Karitiana say that dogs follow human hunters of their own free will. In the case of the coatis, this decision by the dogs usually proves fatal because of the cleverness of this potential target.

John Knight (2012), writing against approaches that consider hunting as an exchange, argued that the ephemeral nature of a hunt does not effectively allow anything like a shared socialization between prey animals and human hunters to develop. Knight insists that the agency of the animal, which attempts to escape a potentially deadly encounter with the hunter, opposes the constitution of such a socialization, and any establishment of a personal relationship is prevented by the fact that animals generally avoid this relationship by fleeing or fighting back (Knight 2012, 345). The putative relationship between the Karitiana hunters and coatis is therefore not a convergence but rather a visceral opposition (i.e., violence), in which humans seek a deadly encounter and the animals only hope to flee as far away as possible.

Other criticisms aside, Knight seems to assume a problematic distinction between relationship and conflict by placing the latter beyond socialization and subscribing to a kind of romantic vision of social interactions in which confrontational relations and death are excluded. He also seems to reduce hunting to mere predation, which does not hold true (Kwon 1998, 119; Marvin 2000, 189). The coatis, of course, try to escape from the Karitiana projectiles. But they do it precisely because they understand the predatory intentions of their neighbors, and seem to know their methods of capture well. We might call this a synchronic and diachronic coordination between human and non-human opponents, and processes of coevolution or cotransformation clearly develop even in predatory interactions. Using the concepts developed by Carole Ferret (2014, 294), the act of slaughter can be considered a perfect example of discontinuous action that focuses on individuals and ignores the fact that there is also a continuous action that evolves between hunters and their prey at local levels. In these interactions, animals and humans seem to learn from each other, and the relationship appears to be productive from the point of view of both collectives. Coatis in other forests of Brazil, as we have seen, may not have adapted to the socio-cultural behavior or techniques of their human opponents in the same way, and this remains to be investigated in more detail. Clearly, relationships of predation are known to be relationships, and the approaches of mutual ecologies and construction of natural/cultural niches that are simultaneously natural/biological and social/cultural (as presented by Agustín Fuentes) do not exclude conflictual relationships

20. The *opok sosybyma* who were already old and fell from the sky were also transformed by the powerful words of *Byyyjyty* into old monkeys [*orori* -Kt] and titi monkeys [*ery* -Kt]. Both types of monkeys are said to “often fall” from the trees where they live (like the coatis), unlike other species of local primates.

between humans and nonhumans (Fuentes 2010, 611–614). Lessons can be drawn from the violence involved in hunting and from its negativity—the “little deaths” of “everyday life” in Amazonia (Cavell cited in Kohn 2013, 18)—and this is what humans and animals seem to be doing in the forests where the Karitiana hunt. As argued by Rentería-Valencia, hunting does not objectify nonhumans. Quite contrary, it transforms animals “from objects (of a hunting expedition) to subjects (of agentive recognition), in this way requiring desubjectification of the prey so that it can ultimately become (more or less) safe food, a condition that invites an entirely new set of ethical and political [and analytical, I add] considerations” (Rentería-Valencia 2015, 99). Moreover, “[m]utual becoming does not necessarily mean mutually beneficial” (Boyd 2017, 308).

The interrelationship between human hunting techniques and the habits, attitudes, and preferences of animals as they play out in a mutually constituted and inhabited territory may also take the form of what we could describe as a ritual dialogue. In this case, hunters seek to direct certain prey that are notoriously difficult to hunt by influencing their behavior, manipulating the relationship between the prey and their human assailants. I maintain that this hunting strategy indicates the need to consider the subjectivity of the animal and its potential to attract itself (or let itself be attracted) rather than be attracted by men. This is clear in hunting the collared peccary (*Pecari tajacu*), called *sojxa ina* or “little peccary” in Karitiana, which is greatly appreciated for its fatty meat but notoriously difficult to kill. Indeed, the Karitiana say that collared peccaries, which tend to be found in groups of up to fifty individuals (Dos Reis et al. 2006, 285), are difficult to kill because they “walk straight, unswerving, they know how to move well,” suggesting that they know their routes and consequently how to avoid the presence of human predators. Every time a young hunter kills a peccary, a small ritual is performed. The animal’s head is briefly placed in the fire just to scorch the hair on the nose and top of the head. Then the shaman sings with the head facing the seated hunter after rubbing the scorched hairs on his forehead, nose (the Karitiana say *nariz* [nose -Pt]) and chest (*kyry* [liver, mid-chest -Kt]), leaving black marks. This is said to make the peccary attracted to or “like the hunter, and if it likes him it will come near him, and will appear often to the hunter,” who then “will kill a lot of prey, a lot of collared peccaries.” Note that this ritual is not intended to change the human hunter (for example, make him stronger, smarter, or more alert) but rather influences the peccary’s movements, making it “like” the hunter and be attracted to him. This is a clear example of hunting technologies that use animal body parts (especially heads, snouts and ears) to affect these same animals’ senses and perceptions (cf. McNiven 2010). The Karitiana say that “when the scorched head [of the peccary] comes, the peccary likes people, is tame to people, and appears to people.” In other words, the ritual somehow tames the wild animal, causing it to show itself to the hunter because it has come to like him; maybe the hunter is also changed through the ritual, and is seen by the peccaries as an equal, or an ally. It may be that here we encounter the well-known association—in the Amazon and elsewhere—between hunting and sexual attraction (Brightman 1993, 127–132; Descola 1996; Willerslev 2007; Bechelany 2013). The point that interests me, however, is the idea that the wild peccaries need to be tamed to bring them within shooting distance, because these gregarious and intelligent beings “know how to move well”, thus avoiding humans.²¹

Zoological studies of South American wild peccaries have suggested that collared peccaries and white-lipped peccaries exhibit different habits related to movement and the occupation and use of territory. Collared peccaries usually move in a single row through the forest, and seem to forage in the same fixed areas within a territory that contain certain fruit trees that have little seasonal variation. In other words, these animals have a predictable pattern of movement, settling in well-defined regions and traversing them with minimal changes to their routes (Donkin 1985, 19; Robinson and Eisenberg 1985; Judas and Henry 1999; Keuroghlian, Eaton and Longland 2004). White-lipped peccaries, on the other hand, exhibit less predictable

21. Since Lévi-Strauss (1970; see also Gow 2011) we have known that native South American peccaries are images of human societies/collectives for Amerindian peoples. These animals, like the coatis, are highly gregarious, and their unique characteristics in relationships with human predators can be demonstrated: “It is possible that species with a higher level of intraspecific awareness may be more adaptable in both interacting with predators and prey, and interacting with people” (Coy 1988, 80). On the idea of seducing prey (which may be implied in the notion that the peccary must “like” the hunter) I should stress that the Karitiana have never used such terms. Additionally, seduction is never a one-way action, and Roland Barthes (2002) has pointed to the permeability of affections between the seducer (predator) and seduced (prey) in the dangerous game of love.

movement patterns (Keuroghlian, Eaton and Longland 2004, 421), with wide seasonal variations in their foraging paths and frequent visits to locations they exploited recently. They also move in large and compact herds (Donkin 1985, 18). Additionally, different bands of collared peccaries always occupy specific niches, while enormous groups of white-lipped peccaries pass through different parts of a territory in what are described as dramatic movements (Keuroghlian, Eaton and Longland 2004, 422) or even nomadism or semi-nomadism (Peres, 1996:120), suggesting that they are not faithful to specific home ranges like the collared peccary (Peres 1996, 118). The way the white-lipped peccary (*Tayassu pecari*), called *sojxa ty* [big pig-Kt], roams the forest appears to be the reason why the ritual procedure described above is not performed for this animal. These peccaries, say the Karitiana, “don’t walk straight in the woods, they swerve around a lot, they cross their own paths,” indicating random wandering: “they don’t move well in the forest.” Human hunters would become the same, aimless, lost in the forest, and not finding game, if the scorched hairs of the white-lipped peccary head were rubbed onto their foreheads and chests. In this case, the ritual would affect the hunter (not the peccaries), making him move like these animals (i.e., turning him into a white-lipped peccary, one might say) and hinder his success, since the hunter needs to “collide” with the prey instead of wander around randomly.²² In fact, whether escaping predation by fleeing, or fighting back, or willingly offering themselves to the hunter, similar to prey animals in various Arctic societies (Brightman 1993; Nadasdy 2007), here we seem to see the salience of animal agency in hunting events: animals decide whether or not to show themselves to hunters. When they do show themselves, it is as if “the fish catches himself” (Hyde 2010, 19).

It should also be mentioned that while the territories of collared peccary herds can span 50 to 700 hectares, bands of white-lipped peccaries can traverse areas of up to 20000 hectares (Keuroghlian, Eaton and Longland 2004). Finally, collared peccaries seem to be more tolerant of human presence and human changes to the environment: they are “tamer” than their cousins the white-lipped peccaries. Yet their constant, regular movements seem to be the reason why the ritual is required to bring them closer to humans; that is, collared peccaries are not easy to find because they explore the forest in an orderly manner, even in areas the Karitiana have already modified with their practices.

As a result, there does not seem to be any reason to reject the idea that animals are fully capable of learning from human actions and responding to them in creative and inventive ways, not just instinctively or as a reaction. As Willerslev, Vitebsky and Alekseyev (2015b, 9) have argued, “animals are manifestly capricious and bent to escape.” Following this logic, wolves can be vindictive (Broz and Willerslev 2012, 83) and hunting is very often about coercion and trickery in relations with animals (Nadasdy 2007), affecting or altering their viewpoints, or a war or a battle in which humans and animals confront each other (Dizard 1994; Lima 1996; Knight 2000; Garcia 2011). Furthermore, as Uirá Garcia has stated (2010, 336, my translation), among the Awá-Guajá, “the animals that think the most (peccaries and jaguars, which are ‘very intelligent’ according to the Awá) are the most difficult to hunt.” Additionally, animals manifest *-paje*, “the ability to react, which is visible in their evasion,” according to the Zo’ë of the northern Amazon (Braga 2021, 5-6, my translation). Hunters “often relate to them [animals] as persons who have distinctive modes of behavior, temperaments, and sensibilities that hunters must take into account in their practical dealings with them” (Willerslev 2013, 49). There is growing understanding of how animal learning can be quite sophisticated in their interactions with human groups. Elephants in Kenya, for example, differentiate their Masai hunters from other non-Masai people. Specifically, they distinguish the ethnic group, and only attack this group and their cattle (Bates et al. 2007, cited in Lorimer 2015, 27), while Balinese macaques living around temples can distinguish local villagers from visiting tourists (Fuentes 2010, 613). Indeed, the perception of animal cleverness is enmeshed in the foundation of modern anthropology itself. Lewis Henry

22. I think the intended effect of much hunting magic in lowland South America is not so much to attract the animals but to produce an encounter between hunter and prey. My view suggests that animal agency cannot be mastered. Instead, human hunters should make trajectories collide, and hunters operate fundamentally in the “intersection of human and animal paths along game trails” (Whitridge, 2013:232ff). Note that animal agency in hunting events is central to the Karitiana. In a curious example, the Karitiana claim that a *panema* (ineffective, unlucky -Pt) hunter—called *naam* (rotten or stinky -Kt)—drives animals away. This is not the result of his putrescent odor, but because of the buzzing of flies that infest his body and warn potential prey of his dangerous presence.

Morgan, in his text *The American Beaver and His Works*, “studied the ‘acquired knowledge’ of lodge, dam, and canal building” by beavers considered “clever animals” (Kirksey and Helmreich 2010, 549). This sort of phenomenon leads the Karitiana to state that coatis and other animals are clever (in Portuguese *sabidos*, in Karitiana *sondyppywak*), i.e., intelligent creatures learning from interactions with humans.

23. This includes species that biologists working in the region consider very abundant with no risk of extinction, such as capuchin monkeys (Malu Messias, personal communication).

Nature-culture in Karitiana territorial dynamics

In general, the opposition between wild and tame animals (not counting those that live inside the villages, in direct and permanent contact with humans) is related to the effects of the Karitiana when they are outside of *Kyōwā* (and, to a lesser extent, also the other more recently created villages) and their hunting activities. In fact, the animals that choose to live or roam in the woods near the villages are, from the Karitiana perspective, wild animals. They have become familiar with Karitiana weapons and traps over the last 50 years and are all clever. This is because they have grown accustomed to recognizing humans as predators and developed behaviors in response to these patterns of interaction, such as the coatis that adapted to hunting with dogs. On the other hand, animals that reproduce in distant areas at the boundaries of Karitiana lands (the Karitiana indigenous territory is roughly shaped like a rectangle and spans around 89000 hectares, with *Kyōwā* located almost in the center) are mostly unaccustomed to human predation and are not used to the presence of hunters with defined intentions: they are tamed or naïve animals. They come too close, with consequences that are often fatal.

This distribution between wild animals (which come close to human settlements) and tame ones (which live far away) also reflects how the Karitiana occupy and exploit their current territory. Most Karitiana hunters utilize the areas surrounding *Kyōwā* more intensively, as well as those bordering the dirt road between the village and the BR-364 highway (which connects Porto Velho with Rio Branco, the capital of the neighboring state of Acre). This includes the area surrounding the village of Bom Samaritano, which is alongside this same dirt road and lies approximately five kilometers from *Kyōwā*. As a result, the animals near the areas inhabited, traversed, and exploited by the Karitiana not only become cleverer and wilder (since they avoid and even attack their human predators when they recognize them), but their numbers are visibly decreasing, as the hunters widely report.²³ This resonates with Karitiana statements that in the past, when they lived for long periods in the same place, hunting and fishing became difficult because the animals became “wild.” In their words, “a long time ago we didn’t stay in the same place, if you stay in the same place there is no more game, fish, no more, everything gets ‘wild’” (Albuquerque 2015, 5). Of course, the opposite happened and continues to happen with animals living in the far corners of the indigenous territory that are only sporadically visited by the Karitiana. In these places game is reported to be abundant, and hunting is easier since these potential prey do not understand the deadly power of rifles and shotguns.

In fact, the Karitiana have been complaining for at least 40 years that game has become scarcer in their territory, especially around *Kyōwā* which, as the oldest and largest village, has had its surroundings continuously and intensely exploited by the group. There are no quantitative data, but in 1974 the American missionary David Landin (1979-80, 228) stated: “hunting in the areas surrounding the village [*Kyōwā*] seems to have suffered from overuse.” A few years later, in 1983, an official report (Mindlin and Leonel Jr. 1983) mentioned the “decrease in game” caused by the group’s “loss of mobility”. That report linked the scarcity of prey animals to the sedentarization that resulted when the Karitiana established themselves on the banks of the Sapoti Creek where the permanent structures for indigenous assistance were established (FUNAI station, health clinic, school, etc.). Liliam Moser (1993, 24) documented the same perception that “game is very rare” on the outskirts of *Kyōwā* in her studies in the 1990s.

Nevertheless, if hunting is harder in the areas exploited by hunters over the last 50 years to feed a population which has grown remarkably during this same period, game still seems abundant in much of the Karitiana indigenous territory. The same is true in some neighboring regions that the group recently occupied as they attempted to recover part of their traditional territory in the Candeias River Valley that was excluded from the official demarcation in 1976. This pattern of intensive exploitation on the outskirts of the oldest and largest Karitiana village, however, cannot be attributed solely to proximity and convenient access since, as we noted earlier, many hunters go further out along the village access road in various types of vehicles, which they leave at specific points where they enter the forest. This pattern also derives from other factors that have limited the Karitiana's relationship with a significant portion of the southern and eastern zones of their territory.

The dense forests that still cover these areas are rarely frequented by the Karitiana, for two reasons. First, the Serra Moraes (a hilly area at the southeast of their indigenous territory and an area of great historical and cultural significance)²⁴ is home to a Mapinguari monster, a creature they very much fear that lives in a cave guarded by huge vampire bats. The Mapinguari (*Owojo*, *Kida harara*, or *Kida so'emo*, according to different informants) is usually described as a huge, hairy monster with a mouth on its chest, stone teeth, uncommon strength, and anthropophagic habits. Encounters with this creature, even though they are recorded in the memories of several individuals, are frequently fatal. The mere presence of the Mapinguari in that part of the territory, along with the rugged terrain, difficult access, and scarcity of water sources, almost completely prevent the Karitiana from using this area for hunting. Second, hunters avoid the area southeast of *Kyōwā* because of an indigenous group in this region that has still not been contacted. The Karitiana call them *Baixinhos* [literally, "short people" -Pt] or *opok pita sohóp* [literally "other Indians, non-Karitiana Indians, ferocious Indians that are wild, elusive, secretive" -Kt]—note that the same term *sohóp* is used for "unsociable" or "wild" animals that are rarely encountered. These uncontacted Indians, whose presence has been confirmed by several reports from the Karitiana themselves and residents of the areas surrounding the indigenous territory as well as material evidence, are greatly feared by the residents of *Kyōwā*. They often claim that this group is a band of Uru-Eu-Wau-Wau, their traditional Tupi-Kagwahiva enemies to the south, with whom they have exchanged aggressions since at least the mid-nineteenth century.

The southwest portion of the indigenous territory, where abundant, tame, and easily shot game was reported, is used (if only very infrequently) by Karitiana hunters, especially the younger ones. A dirt road that provides access to the (non-indigenous) village of Rio Pardo crosses close to the western border of the indigenous territory. On the southwest border is a station pertaining to ICMBio (the Chico Mendes Institute for Biodiversity Conservation²⁵), which is responsible for monitoring and conservation in the Bom Futuro National Forest (*Floresta Nacional do Bom Futuro*), the northern portion of which overlaps the southern portion of the Karitiana indigenous territory. Several families occupied areas of this national forest until a court order expelled them in 2012, and some trails and even planted fields were illegally cleared inside Karitiana territory, leading to sporadic encounters with non-Indian hunters, fishermen, and loggers. The presence of these invaders as well as the ICMBio staff, combined with the distance from *Kyōwā* and the difficult access conditions, make this area rarely frequented and exploited by the Karitiana. Recently (2014) a village called Caracol was founded on the banks of the river of the same name, close to the aforementioned ICMBio station, bringing to fruition an old plan by some Karitiana leaders to ultimately occupy this area.

The relationships between human predators and prey animals in the area inhabited by the Karitiana took on new forms starting in the 2000s. When a number of families left *Kyōwā*, their departure was associated with several factors including the scarcity of game. The Karitiana

24. The mountains get their name from Antonio Moraes, the great Karitiana leader responsible for the recovery of the group's population and their escape from the Candeias River Valley that was invaded by settlers during the first half of the twentieth century. This emblematic figure lived in a village located in one of the higher-altitude areas.

25. The Brazilian federal government agency responsible for protected environmental areas.

describe the scarcity of game as a more than understandable reason to move away because the abundance of game directly affects their sociability: the villages can only function with a constant and generous supply of meat, their favorite and most highly valued food.

In 2003, a group of Karitiana families led by the *pajé* Cizino Moraes headed east and founded the village of *Byyyjty osop aky* (Aldeia do Rio Candeias in Portuguese). During my fieldwork the following year, radio communications between the new village and *Kyōwā* mostly focused on the abundant hunting and fishing that the banks of the Candeias River offered to the newcomers. Easy and abundant prey, enormous fish, and many monkeys made the region seem like a paradise regained (since the Karitiana were reoccupying part of their old traditional territory), and those who stayed in *Kyōwā* were making plans to spend at least a few days in the new area and enjoy this abundance, if not move there definitively. Similarly, the village of Igarapé Preto, which is located on the banks of a stream called Igarapé Preto (*E'se emo*) and was established in 2008, also exhibited abundant game and fishing, since the surrounding forest area was relatively well-preserved. There is still significant forest cover connecting the northeast corner of the indigenous territory with the left bank of the mid-lower Candeias River, the area where the new village is located.

In this manner, the relationship with prey animals, which are so important to the sociability and everyday routine of the Karitiana, is directly linked to the way in which the Karitiana occupy their territory, whether the officially demarcated land or their much larger traditional territory. The recent dispersion of Karitiana villages is based, among other motives, on the search for better sites to access game and, consequently, meat. In this sense, interactions with game animals are orchestrated by the configuration of the territory, in the same way that the latter influences the modes and frequency of relationships with game. In this process of mutual constitution, the Karitiana, the animals, and the forest should be considered as products that emerge from this very interaction.

Naturally, a complex set of other actors should be taken into account in the emergence of these naturecultures in the region that is occupied and exploited by the Karitiana. These include: non-indigenous hunters (frequently encountered on the southern borders of the indigenous territory, which until recently was occupied by families who settled within the Bom Futuro National Forest), loggers (with their generally illegal management plans) and coveted precious wood, gold prospectors and mineral deposits, fishermen and regionally prized fish species, farmers and cattle (mostly on the northeast frontier of the indigenous territory, although they sporadically make incursions inside), federal and state agencies for environmental protection and biology, and even FUNAI (the staff as well as the indigenist policies themselves). There are also the hydroelectric dams on the Madeira River (particularly the Santo Antônio hydroelectric plant), the city governments of Porto Velho and Candeias do Jamari (the latter being concerned about the recent Karitiana occupation of the right bank of the Candeias River), indigenist and environmental legislation (since two Karitiana villages lie outside the officially recognized indigenous territory), along with a host of other actors including trees, insects, rivers and streams, rock formations, prevalent diseases like malaria, spirits, and the spiritual owners of animals.... in other words, a plethora of factors that make environmental matters inherently complex (Thompson 2002, 189).

The Karitiana share a world with a multitude of other beings that possess various qualities or natures. Within this shared ecology, not only does daily and intense coexistence lead to continuous (and historical) co-production between various humans and nonhumans, but any impacts will also be felt at the same time and in similar ways by the various agents that interact, whether human or animal (Fuentes 2010, 605). As a result, the data discussed herein indicate a close relationship between human and animal subjects that encounter each other almost daily in the forest. These interactions comprise what we might call a multi-species

history. Archaeological evidence (pottery) suggests that the ancestors of the Tupi-Arikém language family have occupied the middle and upper Jamari River region for at least 2500 years (Miller 2009). My own ethnohistorical research indicates that the Karitiana have been present in their current area (between the Jamari, Candeias, and Jaci-Parana Rivers, all tributaries of the upper Madeira River) for at least 150 years (Vander Velden 2012). Both indicate the deep knowledge held by the Karitiana about the beings with which they share this portion of the Amazon, as well as the experience these non-human beings have with the presence and activities of the Karitiana in the same region. These mutually constituted—and permanently constituted, based on the ideas proposed by Haraway (2008; see also Fijn 2011)—non-human and human collectives lead us to an important conundrum: whether “the dependency that humans have on plants and animals *conditioned* or stimulated responses in the form of *dependent* behaviors in some botanical and zoological species that were manipulated [...] for decades or centuries” (Zent and Zent 2002, 11-12, italics in original, my translation).

However, this account does not remain constant, given the transformations experienced by the different collectives at different times during their historical trajectories. It allows us to appreciate the coatis’ skillful and intelligent reaction when the Karitiana introduced hunting with firearms and dogs over what was likely no more than a century. This may suggest two issues to which ecological studies should be attentive regarding what I call the cotransformation or co-constitution (or also historical choreography) of humans and other organisms. Firstly, changes in the behavior of animals may occur not only “in communities associated with a long history of stable human-environment interactions” (Coddling et al. 2014, 660). It can be much faster and more dynamic and even appear in just over a few decades, as is the case with the “inter-species problems” of monkeys in the increasingly deforested jungles in western Maranhão state that need to rapidly adapt to new environmental conditions, as reported by Awá-Guajá hunters (Garcia 2018, 190). Secondly, behavioral changes—and even somatic alterations, as demonstrated by the Belyaevs’ experiments with foxes in Russia (see Hare and Woods 2012, 69-90; Dugatkin and Trut 2017)—do not need to be associated with stable human-environment interactions. These changes and alterations might result from the introduction of new patterns of mobility, subsistence practices, and new technologies, which are changes that ecologists usually understand as generally leading to extensive ecosystem disruption and a wave of species extinctions in the short term (Coddling et al. 2014, 660). Looking at humans and animals as conscious and intelligent subjects who recognize each other and make plans according to the other party’s actions provides us with a better appreciation of these short-term ecological changes.

Final thoughts

The pioneering work by William Denevan (1992) and William Balée (1994, 1998, 2013)—followed by many others (Rival 2002; Lehmann et al. 2003; Balée and Erickson 2006; Clement et al. 2015; Kawa 2016)—admirably demonstrates that Amazonia is by no means a pristine, natural, or untouched environment. Some portions of Amazonian landscapes are the result of intensive and extensive changes made over millennia by their indigenous inhabitants and continuous interactions between different groups of humans, plants, animals, bodies of water, soils, the climate, the terrain, and a multitude of other agents.²⁶ For this reason Balée (1994) refers to them as anthropogenic forests or biocultural forests, the result of interactions between human and non-human populations over thousands of years, or the product of the coevolution of human groups and countless numbers of other creatures that include but are not limited to animals, plants, fungi, and microorganisms.²⁷ But although much has been written about how vegetation (particularly palm trees) and soils (the now-famous Amazonian dark earths) have been profoundly altered by human manipulation and presence in the region, very little

26. The extent and origin of these human-induced alterations in Amazonian landscapes are debatable. Some authors claim anthropogenic forests are somewhat geographically restricted and landscape modifications usually ascribed to human action are, in fact, the result of natural processes (Peres et al. 2010; McMichael et al. 2011; Barlow et al. 2012). Interestingly, if we maintain that human (cultural) and non-human (“natural”) actions are inseparable, such discussions lose their meaning. The Amazon would be the result of millions of years of complex interactions between species, most recently including humans. To maintain that the entire Amazon is a “cultural parkland” is a highly anthropocentric worldview (Barlow et al. 2012, 48).

27. This scenario of naturecultural co-production of what we call places or landscapes is not, of course, exclusive to Amazonia (Kull, Kukk and Lotman 2003; Tsing 2015a; Swanson 2015).

is known about how the animals have also been affected, except for a few suggestions about changes in the populations and territorial structures of species (cf. Balée and Erickson 2006).

In this article, I propose extending to the animals of Amazonia (and elsewhere) suggestions similar to those made by Balée and others. In this case, as with the plants, vegetation, and landscapes in general, Amazonian animal species (their habits, their preferences, and even their bodies) must also be considered the result of thousands of years of interactions with the native human populations in the region.²⁸ How have animals acted and reacted over centuries, millennia, or even decades (since changes in Amazonian landscapes continued during colonial times and even today still happen, as suggested by Forline 2008, 72) to human activities in the Amazon (by hunters but certainly also other circumstances such as keeping pets) as non-human subjects and actors²⁹ in multi-species contexts? Can we speak of “untouched” animals when they have been in constant coexistence with various human collectives for so long? Do the animals living near Karitiana territory behave the same as those that cohabit with indigenous populations who develop different types of technologies and strategies for hunting and relating with forest beings?

To put it clearly, animals and humans—their practices, their knowledge, their behavior and perhaps also their bodies—have been co-constituting each other throughout the ages as they have coexisted in this dense and rich ecology of people (or ecology of selves, see Kohn 2013) that is the Amazon, a paradigmatic naturecultural contact zone (Haraway 2003) given its fantastic biotic diversity. As this article intended to make clear, I refer not only to the interspecific biodiversity resulting from diachronic interactions between beings, but also the production of what we can call an intraspecific variety, which is unique because it depends on interrelationships between specific human practices and particular non-human collectives with varying histories and configurations.³⁰ As Robert Delort (1984) stated over 30 years ago, “*les animaux ont une histoire*” (animals have a history).

Considering animals as emerging constructs (or technologies, we could say) does not differ from indigenous descriptions of the constitution of these beings. They can be accurately described as artifacts or artifactual assemblages (Pitrou 2016; Liebenberg 2016) since their shapes, habits, and actions in the present originate from mythical transformations out of inanimate objects (which, of course, in these constructional ontologies are never absolutely inanimate, according to Santos-Granero, 2009). In this way, the Karitiana say that woodpeckers were humans when an ogre-creator (called *Ora*) stuck a broken stone axe in their mouths; jaguars were carved from cedar wood (*Cedrella*) by another creator (called *Botyĵ*), who also made peccaries by combining a termite mound with an empty Brazil nut shell. The aquatic animals like fish, alligators, and serpents were created when *Ora* used the force of words (also a technical gesture) to convert them from the inert trunks, branches, and leaves that floated in the river currents. Much of the world is an artifact according to the Karitiana perspective, and we can see a continuity between technical processes and vital processes (Fortis 2014; Pitrou 2016) that in some sense seems to agree with most claims made by historical ecology.³¹

My arguments here are an invitation for a research agenda that explores the cotransformation of human and non-human beings in Amazonia (and naturally, in other places). They resonate with the suggestions of different authors exploring the processes described as coevolution or symbiosis (Haraway 2008) that historically constitute living beings, as well as what Vinciane Despret (2004) calls anthropo-zoo-genetic practices. These are intimate associations, often beyond the reach of one’s own conscience and not mediated by symbolic language, among distinct species that co-produce one another through shared experiences. As far as hunting (and fishing) is concerned, the task is admittedly unpredictable. As has been empirically verified so many times, animal “nature is far from fixed” and these beings are

28. Consider, for example, the suggestion that horticulture and garden hunting change landscapes concomitantly (Garine 2006, 117).

29. There is a growing set of ethnographic evidence around the world pointing to the intelligence, resilience, and cleverness of animals, especially in terms of how these beings learn to avoid techniques and devices developed by human hunters (see for instance Rye 2000; Lindquist 2000; Bamana 2014).

30. And here we can consider different formulations (scientific and popular) regarding the variety of animal cultures (Lestel 2001). The Karitiana say that each creature has its “inclination” [*jeito* -Pt] or “experience” [*vivência* -Pt], or *aka* in the Karitiana language, meaning a way of living and being in the world. This idea can also be understood as “manner”. Some dogs, for instance, have an “inclination” to hunt, while others lack the same inclination (see Vander Velden 2016).

31. Coatis, as we have seen, did not originate from inert raw materials, but were warriors in a distant past. Ferocity links both coatis and peccaries: they are the most dangerous animals for hunters, both human and canine. For this reason, the Karitiana smear themselves with blood from both coatis and peccaries to become as *pa’ira* [agressive -Kt] and *bravos* [Pt] as these animals.

always “tracking and counteracting human agency with their own,” becoming experienced (Franklin 2011, 36-37; see also Hribal, 2010).³² As for the predator/prey pair, we can assert in a processual fashion that “[T]he hunter is always slightly smarter, but the prey is always wising up” (Hyde 2010, 20). The Karitiana and the coatis (and peccaries and all the other creatures in Amazonia) are “the result of interactions accumulated during a history common to both species” (Lescureux 2006, 466), a history that does not depend on gigantic time scales and is always fundamentally dynamic (Lescureux 2006, 466-470).

Most of these studies that seek “a new integrated approach that would completely refuse to consider worlds separately from those of other human species, precisely because these worlds are not sealed off from each other” (Kohler 2012, 11, my translation) work with relationships of proximity between humans and animals imposed through the practices of domestication, taming, and continuous coexistence between them. In this way, these studies question practices of animal husbandry and contexts of intimacy, sharing, and continuous coexistence which are lasting or at least peaceful. However, are violent relationships involving combat between humans and nonhumans, with deadly consequences for one side, averse to analysis that considers human worlds and animal worlds to be overlapping and co-constituted? If Amazonia is an ecology of selves, tangled in a generalized semiosis (Kohn 2013), and if its human inhabitants constantly fight to intercept and interpret the signs emitted by the other beings with whom they live, there is no reason to overlook that these non-human beings also capture and interpret the signs produced by humans. This communication, I suggest, is part of their own modes of (inter)acting with and in the presence of socio-cultural human intentions, including those which are predatory. The attention to the ways of learning and knowing by humans *and* animals as social beings must produce much more refined analyses about the interactions between different beings in complex ecosystems (Nadasdy 2003, 60-113). The mutual learning interwoven into these deadly encounters between the myriad of beings who comprise the ecology of the tropical forests is yet another expression of the richness of natural-cultural connections that, beyond species and individuals, populate the unintentionally designed (cf. Tsing 2015b) fabric of this world.

32. Traditional fishermen in the Chapada Diamantina (in northeastern Brazil) mention *peixes cismados/velhacos* [wary/cunning fish -Pt] and *peixes sabidos* [clever fish -Pt] which are accustomed to the fishermen's strategies and are consequently difficult to catch, since they know how to avoid many kinds of traps and fishing techniques (Moura, Marques and Nogueira 2008). The perception that animals can learn from human predatory actions seems to be widespread throughout the world.

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