

Spirits in the Wood: A Relational Socio-Ecology of the Brazilian “Wilds”¹

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Abstract:

This article proposes theoretical, methodological and empirical innovations which can better express the richness of non-secular worldviews and their relationship to global environmental issues. A relational approach to the Brazilian “wilds” is used to dialogue with animist and spiritually bifurcated worldviews and perhaps even with non-human beings in a way that promotes socially-inclusive environmental conservation. This is of the utmost importance at a time when the naïve naturalism of biocentric conservation of the so-called (re)wilds is not mitigating global carbon emissions and climate change in any significant way. In the search for a more spiritual kind of conservation, two of Latour’s fourteen modes of existence in a reformed scientific worldview — religion [REL] and metamorphosis [MET] — are related to environmental conservation. Four ideal types of worldview are presented and shown to be hybridized in three different biomes of Brazil. Hybridized animist-spiritually bifurcated worldviews are shown to predominate in preserved wooded regions of the country and are constructively engaged by relational socio-ecological conservation rather than ignored by urban-biased biocentric national park mentalities.

Keywords: Socio-Ecological Conservation, Spiritual Relational Ecology, Amerindian Animism, Hybrid Folk Religion, Brazilian “Wilds”.

Resum: *Esperits als boscos: una socioecologia de les “natures salvatges” brasileres*

Aquest article proposa unes innovacions teòriques, metodològiques i empíriques que poden expressar millor la riquesa de les cosmovisions no seculars i llur relació amb aspectes ambientals globals. S'empra un enfocament relacional de les “natures salvatges”

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brasileres per dialogar amb cosmovisions animistes i espiritualment bifurcades i tal vegada fins i tot amb éssers no humans de manera que es pugui promoure una conservació ambiental socialment inclusiva. Això resulta de màxima importància en un moment en què el naturalisme naïf de la conservació biocèntrica basat en l'anomenada "(re)naturalització" no està mitigant pas les emissions de carboni ni el canvi climàtic de forma significativa. Per tal d'assolir una mena de conservació més espiritual, es relacionen dos dels catorze modes d'existència de Latour —la religió [REL] i la metamorfosi [MET]— en una cosmovisió científica reformada amb la conservació ambiental. Es presenten quatre tipus ideals de cosmovisió que es mostren hibridats en tres biomes diferents del Brasil. Es demostra que les cosmovisions híbrides, animistes i espiritualment bifurcades predominen a les regions boscoses preservades del país. Des d'una perspectiva constructivista, aquestes cosmovisions es relacionen amb la conservació socioecològica relacional, tot superant la seva omisió per part de les mentalitats dominants als parcs nacionals biocèntrics de biaix urbà.

Paraules clau: conservació socioecològica, ecologia relacional espiritual, animisme amerindi, religiositat popular híbrida, "natures salvatges" brasileres.

Resumen: *Espíritus en los bosques: una socioecología de las "naturalezas salvajes" brasileñas*

Este artículo propone unas innovaciones teóricas, metodológicas y empíricas que pueden expresar mejor la riqueza de las cosmovisiones no seculares y su relación con aspectos ambientales globales. Se utiliza un enfoque relacional de las "naturalezas salvajes" brasileñas para dialogar con cosmovisiones animistas y espiritualmente bifurcadas y tal vez incluso con seres no humanos de manera que se pueda promover una conservación ambiental socialmente inclusiva. Ello resulta de suma importancia en un momento en el que el naturalismo naïf de la conservación biocéntrica basado en la llamada "(re)naturalización" no está mitigando las emisiones globales de carbono ni el cambio climático de forma significativa. En aras a un tipo de conservación más espiritual, se relacionan dos de los catorce modos de existencia de Latour —la religión [REL] y la metamorfosis [MET]— en una cosmovisión científica reformada con la conservación ambiental. Se presentan cuatro tipos ideales de cosmovisión que se muestran hibridados en tres biomas diferentes de Brasil. Se demuestra que las cosmovisiones híbridadas, animistas y espiritualmente bifurcadas predominan en las regiones boscosas preservadas del país. Desde una perspectiva constructivista, estas cosmovisiones se relacionan con la conservación socioecológica relacional, superando su omisión por parte de las mentalidades dominantes en los parques nacionales biocéntricos de sesgo urbano.

Palabras clave: conservación socioecológica, ecología relacional espiritual, animismo amerindio, religiosidad popular híbrida, "naturalezas salvajes" brasileñas.

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“[The moderns] believe that we know and we know that the others [only] believe ... in ‘all that nonsense’ ... [we] must put an end to belief but not to beliefs.”

(Latour, 2013, pp. 171, 173, 183).

1. Introduction

The call for ontological pluralism in the pursuit of socially inclusive knowledge in the quote above from Latour was expressed in another way by Sauer, when he admonished geographers to “see the land with the eyes of its former occupants” (1963, p. 362). This means that geographers must temporarily, or better yet, permanently suspend the naturalist ontology of their scientific training because it is based on the arrogant view that only scientists observe natural things as they exist-in-themselves. The subject of this article is to seriously dialogue with other worldviews that include the belief that spirits animate the wood and evaluate how these beliefs relate to environmental conservation, hence the title of this work.

What is proposed here is an updated Spiritual Ecology in the form of relational Socio-Ecology. The latter deals with what are called “Animal Geographies”. Cresswell observed that this approach usually focusses on animals “out of place” in highly urbanized settings in postindustrial countries (2013, p. 257). The opposite is treated here, namely humans “in place” in the so-called “wilds” of Brazil, a country with extensive areas of exuberant “Nature”, which global environmentalists hold to be in dire need of preservation if climatic change is to be reversed. This policy is shown to be based on a fundamentally flawed secular naturalist ontology, which separates society from nature and supernatural phenomena from natural phenomena. A relational approach goes a long way to correcting this fatal flaw in environmental education curricula.

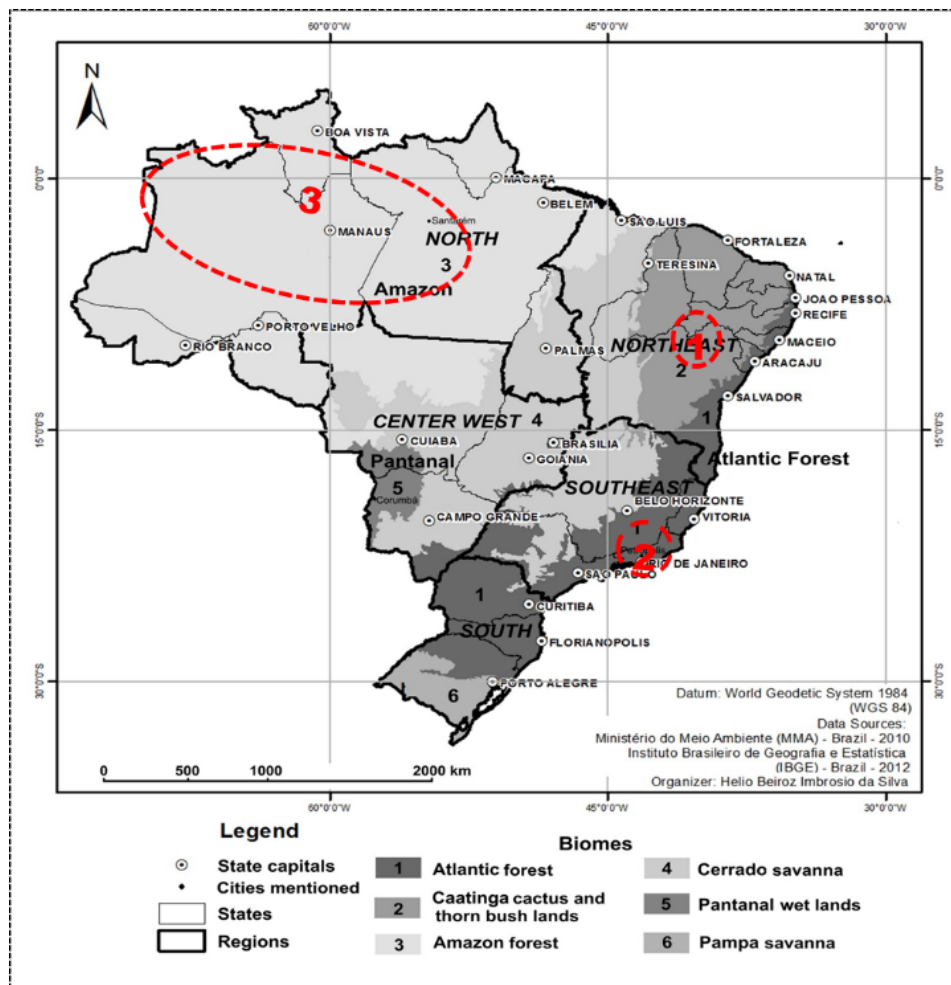
A relational approach to the nature/society dualism is easy for geographers to understand and Whatmore (2002) did an admirable job of adapting Latour’s work published in the 1990s. However, the pertinence of investigating the visible-material-natural/invisible-immaterial-supernatural opposition present in Western science is more difficult to comprehend because supernatural phenomena are considered to be beyond the purview of science. Both great and apprentice geographers have expressed to me their difficulty in applying this side of Latour to their work. In truth, they would have to read the anthropologist Descola alongside the sociological philosopher Latour in order to do this. Latour and Descola mutually influenced one another by trading pre-published work for comments and Latour’s (2013) *An Inquiry into Modes of Existence* must be seen as an extension of Descola’s (2013) *Beyond Nature and Culture*. The latter focused on non-Western worldviews and the former tries to reform Western Science in such a way as to be able to dialogue with these other worldviews.

In recent publications I have treated how a relational socio-ecological perspective permits going beyond the unproductive dualism between *society* and *nature*. This dualism is often present in conventional secular science and biocentric conservation policy and results in environmental injustice toward poor rural folk (Hoefle, 2019, 2020, 2021) or as Dowie (2009) and Büscher and Fletcher (2018) put it: the one-hundred-year green war between Western colonial science and indigenous peoples throughout the world. In these publications the interpretive framework was based on Environmental History and Political Ecology perspectives but Relational Ontology had an auxiliary role with regard to philosophical arguments against biocentric conservation as well as in understanding the socio-ecological movements of the rural poor which permit them to resist green enclosures and so stay in place. The present work moves Relational Ontology center stage to investigate another unproductive dualism present in conventional Western science between *natural* and *supernatural* phenomena, which can also produce environmental injustice, even if in a subtle way.

Using a socio-ecological approach inspired in Latour (2013) and Descola (2013) the metaphysical dimension of conservation is explored in order to improve our understanding of non-secular worldviews and in the process better appreciate how they mediate the relationship between animals and humans through belief in animist beings and extraordinary creatures of the "wilds". In other words, these beliefs are shown to be important for conservation and so are not just quaint folklore to be ignored by materialist Science. We will see that two modes of existence, Religion [REL] and Metamorphosis [MET], as defined by Latour and Descola, are the key to integrating these phenomena into an overall socio-ecological vision which simultaneously unites nature and society and natural and supernatural.

In the rural hinterland of Brazil traces of animism can still found in hybrid Christian worldviews. I draw on decades of primary research undertaken on beliefs held by a variety of rural social actors concerning enchanted creatures and metamorphic beings of the countryside and wilds in: 1) the Caatinga bush lands, 2) the Atlantic Forest and 3) the Amazon Rain Forest biomes (fig. 1). We will explore the role of animist spirits as protectors of the wilds from unfettered hunting by people as well as how they define humanness and proper social behavior. Over the years this research was published separately in detailed articles treating these subjects in each region (Hoefle, 1999, 2008, 2009a, 2009b). The successive interpretative frameworks used in each study, first Humanist Structuralism, then Political Ecology and Environmental History, did not do justice to the empirical richness of the research results presented and only superficial regional comparisons were offered. This is now corrected here using a relational approach to show how many curious beliefs relate back to a long history of hybrid give-and-take between Amerindian animism and pre-reformation Catholicism introduced with Portuguese colonization.

Figure 1. Study areas in different Brazilian biomes



With a view forward, we will see how belief in spiritual beings of the wilds is undermined by deforestation and especially by the teaching of secular biology in school. In formal education students first learn in primary school that enchanted creatures and other mythical beings are quaint folklore, i.e. they do not really exist. Then, in secondary and university education, such supernatural entities are held to be beyond the scope of scientific investigation and indeed are considered to be so much superstitious non-sense, all of which plays into urban bias held against rural folk who are considered to be ignorant country bumpkins despoiling the “wilds”. This view in turn adds yet another layer of urban bias to environmental injustice already present in biocentric conservation (for more on this see Hoefle, 2019, 2020, 2021; Bicalho and Hoefle, 2022).

2. Going Beyond the Purview of Conventional Western Science

Most readers, like the author himself, were indoctrinated in a scientific naturalist view of the world in their formal education, that is to say, we elite academics are also part of the problem. From the early 20th century onward mass public education instilled this kind of worldview, to which “environmental education” was included in the curriculum by the end of the century. As Descola (2013) and Latour (2013) show, Naturalism is based on two basic dualisms/oppositions: nature is separated from human society/culture and natural from supernatural phenomena.

Consequently, as environmental education is still based on these two problematic dualisms, in the face of global ecological degradation, the only course of action presented to students is more “wildlife” conservation which supposedly will compensate the emissions provoked by the expansion of cities and industry where most of them live. This is to say the only choice is either full conservation units without (rural) human presence (a.k.a. national and state parks) or “anthropic action” outside park entrance gates. In fact, setting aside some land for nature reserves actually *authorizes* unfettered development in the vast majority of a national territory. This sort of biocentric logic lies at the root of national and global carbon trade-off policies which are criticized by political ecologists because if industrial and post-industrial countries contribute to conservation of forests in the Global South they can continue polluting without doing much of the expensive work needed for reducing emissions at home. The fallacy of this conservation approach is evident in the unabated growth of global emissions despite all the smoke and mirrors espoused at global climate summits (cf. Bumpus and Liverman, 2011; Büscher and Fletcher, 2014, 2018; Machequeiro, 2023).

Environmental injustice also has its roots in a dualistic scientific worldview that arose in the late 19th century in which researchers who study natural phenomena are radically separated from those who investigate human phenomena. On the biophysical side of this divide, scientists use reductionist explanatory frameworks in which interaction between analyzed parts of one phenomenal level are thought to cause what is observed at the level immediately above it, stretching “up” from the interaction of sub-atomic particles at one extreme to astronomical phenomena at the other (Simmons and Cox, 1985; Merchant, 2005).

Biophysical scientists subscribe to a naturalist ontology in which they think that they objectively perceive “natural phenomena/matter” as they exist-in-themselves, i.e. without any filter caused by their human point of perspective. Scientists detect real natural processes while other worldviews are hopelessly mired in subjectivity because they insert “immaterial” cultural relationships into their observations. At best, “savage/wild thought” may hit upon actual

natural relationships and so achieve similar results to those produced by rational scientific thought (cf. Lévi-Strauss, 1969, 2020).

In classical Philosophy, Naturalism is based on “naïve empiricist realism”, which is opposed by both rationalist epistemologies, which distrust the capacity of our senses to properly see the essence/structure of objects/processes observed, as well as by phenomenological epistemologies, which propose a participative constructionist approach to perception as an interrelationship between the scientific perceiver and the phenomenon being studied, be it other humans or sub-atomic particles whose behavior is distorted by the intrusion of scientific observation and instruments which permit us to extend the capacities of our senses to their perceptive “level” of existence. For more on epistemology and scientific observation see Hoefle (2022).

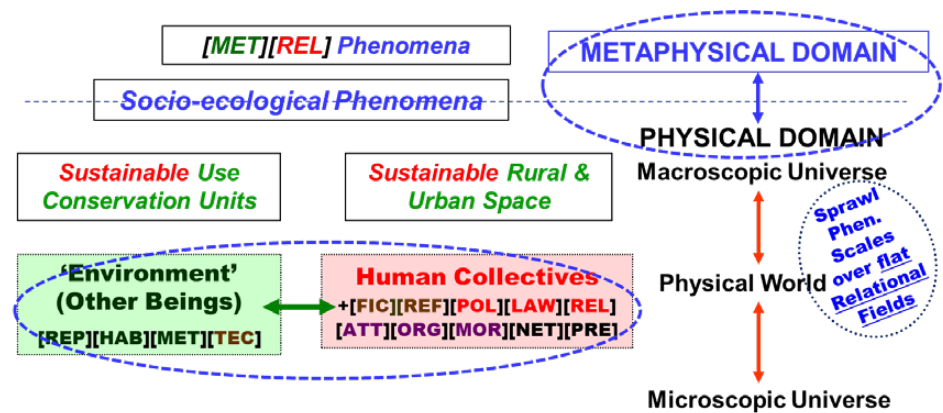
Against naïve empiricist and naturalist science informing biocentric conservation, radical ecologists and environmental historians of the late 20th century developed a holistic view of science and conservation which mobilized disciplinary knowledge across phenomenal scales and in the case of Deep Ecology and Spiritual Ecology could even embrace a supernatural dimension inadmissible to secular materialism. Instead of separating nature from society, in the holistic view, culture and environment are seen to be entangled entities and conservation needs to be decolonized of scientific naturalism. Instead of US-style national parks, European-style conservation/heritage units with sustainable human use are promoted. In the place of elitist biocentric environmental ethics, *homo-ecocentric environmental ethnics* were advocated in order to attend to both human and ecosystem value and moral status (Simmons and Cox, 1985; Simmons, 1993; Pepper, 1996; Merchant, 2005).

Twenty-first century relational perspectives in the social sciences go beyond limited views of Political Ecology as merely being the study of conflict over natural resources in which the urban and rural poor lose out. In relational perspectives, a hybrid view of natural and social networks composed of humans, animals, plants, landscapes and objects is proposed in which all are considered to be actors in their own right (Whatmore, 2002; Latour, 2004, 2005; Descola, 2013; Holbraad and Pederson, 2017). Karlsson (2018) goes so far as to call this perspective “After Political Ecology”, while Hodgetts (2018) and Schwanen (2018) show how relational connectivity-nexus perspectives embrace not only Political Ecology but also a number of other approaches in Human and Physical Geography.

Latour (2004, 2005, 2013) and Descola (2013) are perhaps the greatest critics of the separation of human society from biological nature, which they empirically show to exist only in modern Western science. Against this view of a single ontologically independent Nature, whose secrets are revealed by objective Western science, relationalist social scientists show that there are as many natures as there are cultures, each of which groups people and other beings in different ways. Scientific concepts of Nature and Society/Culture

are considered to be incomplete ontological amalgamations that occult at least fourteen different inter-relational modes of existence identified in Western thought which span the divide between humans and non-humans. Humans have ten specific modes and share another four with non-human beings. As a result, instead of splitting up phenomena for separate study by human and biophysical scientists, who due to different epistemologies and methodologies do not understand one another, a relational perspective proposes the holistic study of entangled human and non-human networks (fig. 2).

Figure 2. Relational socio-ecology



Relational [Modes of Existence] following Latour (2013).

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|----------------------------|-------------------------|-----------------------|---------------------------|--------------------------|
| REP = reproduction | TEC = technology | POL = politics | ATT = attachment | NET = network |
| HAB = habit | FIC = fiction | LAW = law | ORG = organization | PRE = preposition |
| MET = metamorphosis | REF = reference | REL = religion | MOR = morality | |

Relational Ontology also takes the interdisciplinary of Environmental Studies a step further by turning phenomenal scales on their side and so flattening relationships between humans and other beings in an attempt to go beyond anthropocentric Western science, which has historically exalted human superiority and underwritten despoiling the planet. Against the extremes of rationalist Nature and phenomenological socially constructed Nature, relational radical empiricism occupies the middle ground: other beings are considered to have their own modes of existence outside of our own, which can converge or cross paths with “us” and so enter into relationships of dependence, inter-dependence or maintain their independence vis-à-vis humans.

Relational theorists also further develop the metaphysical dimension to environmental ethics and ideological worldview by including beings of metamorphosis (divinities of transformation) and beings of religion (gods of salvation and the end of times) into their investigations. In the cases below we will treat a number of situations in which certain kinds of people suffer metamorpho-

sis into extraordinary creatures or animals turn into humans. Latour defines metamorphosis as a mode of existence in which divinities of possession bring cures and therapy for persons in crisis that cause their mutation and transformation. Extraordinary metamorphic creatures and temporary transfiguration of specific people into hybrid beings thus mediate the interface/nexus between humans and non-humans. For Latour in religious phenomena, gods come to the aid of a whole people in crisis, uniting and saving them through conversion with the promise of plentitude in the end of times. Through religion people gain access to their neighbors here and now in this world and not only in the other world when they go to be with their god(s) after death.

The Religion [REL] mode of existence for Latour looks suspiciously like classic functionalist anthropological and sociological explanations of the role of religion in this world. However, we may ask what kind of functions? Malinowski (1935, 1966, 1968) held the view that magic and religion had positive social functions because they allayed fear in situations of low technical control over natural risk, such as traveling in frail outrigger canoes in open ocean or when planting crops, while Radcliffe-Brown (1968, pp. 148-149) pointed out that this kind of belief could actually increase anxiety by introducing fickle or terrifying spiritual agents into the relationship with people. We shall see both situations in the cases treated below but my main concern here is with what do these spiritual entities mean or signify to a people rather than what they do in terms of positive or negative social functions. Horton (1964) made this point long ago when he showed how what became Humanist Structuralism was different from Functionalism. My old faculty supervisor at Oxford summed this difference up with an analogy from building bridges: functionalists examine the visible girders which hold the bridge up while structuralists project invisible opposing force vectors which sustain it upright (Peter Rivière, personal communication, 1975). So much for the material/immaterial dualism which Latour also shows to be just another unproductive Western opposition.

With this in mind, a relational perspective considers all phenomena, both physical and metaphysical, to be socio-ecological and the object of scientific study, not just natural material phenomena. This is an important point to be made because most all non-scientific worldviews incorporate spiritual entities into their relational chains concerning their dealings with the so-called "environment".

3. Dialogue with Hybrid Worldviews

Scientific Naturalism and *Relational Socio-Ecology* presented above are two "recent" ideal types of worldview. *Tribal animism and totemism* and *spiritually-bifurcated peasant worldviews* are "older" worldviews, and hybridity between the former two and the latter are important for understanding and maybe helping to resolve planetary environmental issues.

Animism was the original worldview prevalent in what became Brazil at the time of the Portuguese Conquest. Over the centuries considerable difference arose between official Catholic doctrine in Europe and the hybrid animist-Catholic worldviews found throughout the Brazilian countryside because priests were few and far between and missionaries had to be tolerant with their flock or they would lose it or worse they could end up martyred like one famous case when a priest was tied to a cross and floated over Paulo Afonso Falls by disgruntled Amerindians. Consequently, the violent process of disenchantment that occurred in mercantile zones of Europe never took place in much of Brazil (Hoefle, 1995; Souza, 1996). Religious diversity increased even more so as Brazil became a newly industrialized country in the latter 20th century when subaltern and emerging middle-class people searched for religious sects that served their ideological needs better than historically dominant Catholicism (Stoll, 1990; Hoefle, 1995; Lehmann, 1996). In other words, even today very few Brazilians subscribe to a purely secular worldview.

First, let us begin with the *animist worldview* present in Brazil at the time of the Conquest as presented in the anthropological Amerindian literature. In animist worldviews, Nature is not considered to be a separate entity divided into material-physical and spiritual-supernatural or into organic-vital and inorganic-nonvital phenomena. Scientific biological classification separates humans, animals and plants into different meta-groups of beings organized in nested hierarchies of inclusion/exclusion according to appearance and evolutionary history (Frake, 1964; Berlin, 1992). However, as Hodgen (1971) showed this system was originally rooted in folk classifications of European fauna and flora and the classificatory terms used, such as kingdom, class, genera, family and individual species, are rift with charged anthropocentric meaning of social class and status in Europe.

Animism, by contrast, groups some humans together with certain animals, which are said to display cultural behavior, and also with beneficial spiritual entities. These animals are thought to live socially in invisible villages and to maintain kinship and marriage rules. In the distant past, the animals once were able to speak directly to people but today communication is only possible in dreams and trances. Against this group of beings are aligned other human enemies, dangerous solitary animals and malignant spirits. This is to say, there is no separation of nature from human society and natural from spiritual phenomena as in secular scientific naturalism. Important animals and plants each may have a guardian spirit, which mediates relations between them and people, i.e. between the hunter and the hunted or the cultivator and the cultivated. Proper ceremony and respect are shown when killing individual animals and harvesting food so that notions of balanced reciprocity may exist which can limit overexploitation of food sources (Reichel-Dolmatoff, 1976; Descola, 2013). However, in the cases below we will see that these checks and balances only occur in tribal settings and are not necessarily effective among culturally hybrid peasants.

In an animist worldview, the hunt is likened to sexual seduction in which a hunter convinces an animal to reveal and yield itself to him. Before the hunt, sexual abstinence can be necessary and negotiation with spiritual guardians is made whereby permission to take one animal is granted in return for tobacco which is said to increase the capacity of animal reproduction and so compensate for the loss of one specific kill. All of this may act to limit overhunting (Reichel-Dolmatoff, 1976; Descola, 2013).

As Matta (1973) long ago noted and is emphasized in historic ethnographic accounts of Amerindian villages, space is seen as being round: a village is located in a circular clearing with a big round house or a circle of round individual family houses arrayed around a commons located in the middle, followed by a ring of gardens behind the houses. After that, a band of mixed fields, fallows and forests exists followed by deep forest stretching out dozens of kilometers into interfluvial and mountainous lands. Descola shows how the enormous forested zone is not considered to be a hostile wilderness in the Western sense because hunters are completely familiar with every part of it, a multitude of memories are associated with each place and protector spirits are said to cultivate the forest (2013, pp. 40-41).

Animism also involves a flattened cosmology with the afterlife being found relatively close by in this world. After death a soul roams the forest in a solitary way or attaches itself to a specific animal or tree before finally dissipating and eventually forming a new soul that will enter the body of a baby in the womb. Direct descendants should avoid contact with all individuals of the animal or tree species thought to abode their parents, which means that close kin forego utilizing these species for food or material and this also contributes to overall conservation of wildlife (Matta, 1973; Reichel-Dolmatoff, 1976).

Not just humans, animals and plants are considered to be living beings but land, water and even rocks can also be considered to be alive and possess similar vital attributes. Consequently, humans are not beings set apart but rather are intimately tied to a holistic earth whose vitality must be actively conserved. What Science calls Nature is animated with spiritual entities with which humans must interact in a reciprocal way and contact with the ancestors is not severed by death. The envy of souls of the ancestors, of spirits of the wilds and of fellow villagers in turn limits individual selfishness because a person who neglects kinship and community obligations in order to accumulate riches at the expense of others suffers spiritual attack or is accused of witchcraft (Evans-Pritchard, 1937; Sahlins, 1966; Reichel-Dolmatoff, 1976; Schneider, 1990).

Now we shall turn to a fourth ideal type of worldview, which arose with the rise of states and empires in Antiquity. In these social formations, humans started to actively domesticate landscapes on a greater scale according to their needs by promoting the presence of some species and eliminating others. Increasing inequality between social castes and classes also arose, all of which

are reflected in worldviews. Schneider (1990) distinguished these worldviews from previous ones by the existence of *spiritual bifurcation* between beneficent supreme gods identified as patrons of one polity while those identified with one's enemies were considered to be maleficent. Supernatural beings approved humanity's greater domestication of the landscape and could intervene to aid people adversely affected by natural events which these deities had originally created and still controlled. People could beseech this help preventively, such as in rites enacted to achieve a plentiful harvest, or after the fact when illness was contracted. Descola (2013) calls this kind of worldview *analogical* because it joins different human and non-human beings into an all-inclusive intertwined web of unlike entities, which echoes Durkheim's (1964) problematic views on organic societies with a complex division of labor in which individuals are integrated in an interdependent but socially unequal way.

In the first early civilizations, much like in animism, common people did not separate natural, supernatural and social realms. Everything was considered to be alive, conscious, to possess a soul and to be interrelated, including plants, animals and even stones. All were just other beings so that an Aztec would apologize to trees that were cut down for timber. However, some beings possessed more powers than humans. They lived longer, could change shape, were omnipresent with the ability to be in different places at the same time and moved freely between terrestrial and extra-terrestrial realms. These powerful beings were called gods, deities, spirits or just an all-pervasive force which animated the universe. In addition to this, deities behaved much more like and resembled human beings than animist spirits do. The deities possessed human reason and both good and bad emotions (Trigger, 2003, pp. 441-445).

A major change in worldview occurs here with the spatial dislocation of the abode of the gods to distant and extra-terrestrial realms even if they regularly intervened and occasionally appeared in This World. Spirits are no longer close at hand or occasionally sighted in the forest like in animism. As regular contact with the deities only occurs in the afterlife, then these spirits are also temporally dislocated. Furthermore, notions of balanced reciprocity between humans and spirits are abandoned. The gods grant grace and humans are eternally in their debt, mirroring social relations in This World between divine or divinely-ordained sovereigns and their subjects (Schneider, 1990).

The shift toward *secular naturalism* took over six hundred years to fully materialize across society in modern Europe, even if Trigger (2003) traces its rise back to the 3rd millennium before the present when some Greek, Hebrew, Zoroastrian, Hindu and Chinese philosophers started to separate a natural world composed of plants, animals and inanimate objects from the social world of humans because the latter were uniquely guided by goals, reason and morality. For these thinkers, the supernatural realm of gods was also separated from the natural and social realms because the deities were less constrained by the material world that they had created (Trigger, 2003, p. 411).

Nevertheless, this was not the worldview of the vast majority of common people living in these states and empires, particularly during 250-year long waves of imperial decentralization (cf. Wolf, 1982; Frank, 2003). Bloch graphically described life and ambience for such a period in Western Europe during the so-called Dark Ages after the fall of the Roman Empire as one characterized by periodic plagues and famine, political instability, invasions and wars. Nights were cold and dark during winter. Forests existed close at hand and were considered to be dangerous due to the presence of bears and wolves. The will of God was unpredictable, made no sense to mortals and people were given to hysterical outbursts or sullenly accepted their fate. In this scheme of things, a Great Chain of Being existed in which all beings were considered to be interrelated and the spiritual entities occupied the upper echelons, not humans. Time was not conceived as being evolutionary in which human progress was exalted but rather limited, degenerative and chaotic (Bloch, 1961; Lovejoy, 1966; Pepper, 1996).

This started to change in Western Europe after 1200 when religious reforms beginning first in the Catholic Church and then cumulating in the Protestant schism rooted out three persisting elements of "paganism" still current among unlettered lay persons: 1) contact with spirits of the forest; 2) lost souls present in This World and the possibility of contact with the Other World through dreams and visions; and 3) ecstatic millenarian cults of the saints intermeduating this contact in order to obtain miraculous cures and good fortune.

The paganist beliefs to be eliminated were exactly traces of remaining animist elements. Anyone claiming to have direct contact with spirits of the forest or of the Other World were accused of witchcraft and trafficking with the Devil because these apparitions were now considered to be manifestations of the Devil in This World engaged in His eternal temptation of humanity. The hysterical propagation of witchcraft accusations spread from northern Italy to southeast England where mercantilism first arose in Europe so that historians consider this phenomenon to be an eminently modern event. With the restriction of kinship obligations, accusations fell mainly on vulnerable elderly widows. These women were often healers who collected wild herbs in the forest where they were accused of having contact with Satan (Schneider, 1990).

At the same time, a quantitative revolution occurred which Crosby (1996) calls *pantometry*, the measurement of everything, that gave rise to the development of pure mathematics, architecture, astronomy, cartography, mechanical clocks, triangular navigation, double-entry accounting, geometric perspective painting, metered music and military science (1996, pp. 5-13). Then after 1500 the rise of reductionist, mechanistic Science reinforced these trends by promoting a materialist worldview which separates human society from nature, divides the latter into organic and inorganic phenomena and eliminates the belief in the interference of spiritual entities in natural processes or even their very existence (Schneider, 1990; Merchant, 2005; Descola, 2013).

Animist and spiritually bifurcated worldviews and environmental ethics can be encountered throughout rural Brazil but rarely in pure form. True, the few remaining tribal Amerindians who live in remote parts of the Amazon maintain animist worldviews but acculturated indigenous peoples and the mestizo historical peasantry can in greater or lesser degree incorporate animist elements in a spiritually bifurcated Christian worldview, involving a benevolent God aided by saints who can interfere in mundane affairs. Throughout the rural interior of Brazil, a post-reformation religious outlook, without animist elements and aligned to secular naturalism, was only found among commodity farmers originally from southern Brazil, i.e. exactly the rural actors most engaged in deforestation and who have the highest levels of formal education.

4. Researching Environmental Ethics and Worldview in the Brazilian "Wilds"

Over a period of more than forty years of research on environment perception and worldview in different regions of Brazil, methodology and interpretive frameworks shifted accompanying changing theoretical approaches through time. This can be seen in the cases treated below.

A typical anthropological approach involving participative ethnography over a period of nineteen months of field work was used in the late 1970s in the Sertão of Northeast Brazil. Research was guided by Marxist Cultural Ecology and Humanist Structuralism. The research on socio-economic dimensions was done in a systematic way and used questionnaires in interviews with 156 rural and 79 urban families in three different municipalities selected to capture different environmental and economic realities in the Sertão. Research on environment perception and religious worldview on the other hand involved long conversations with a limited number of informants in addition to participative observation over the period of the fieldwork. Research in the Sertão also involved the active involvement of my rural geographer wife. She found my investigation on environment perception and worldview to be intriguing but beyond the scope of her discipline and if she were to study beliefs in enchanted creatures she felt that it would have to be done more systematically including a larger number of informants over a wider area.

I took this suggestion to heart in later research undertaken in the Atlantic Forest of Southeast Brazil from in the mid-1990s onward. Under the influence of Political Ecology, Environmental Studies and Postmodernist currents in the social sciences, this research tried to capture cultural variation in environment perception according the age, gender, ethnic group, level of formal education and religious affiliation as well as according to variation in degree of deforestation. In-depth interviews were undertaken with 103 families selected according to

cultural differentiation present in three kinds of landscape: deforested, mixed field-and-forest and forested.

This approach was further refined in research undertaken between 1997 and 2013 in the Central and Western Amazon. At first, I did not attempt to investigate environmental perception because the research was undertaken in the form of 15-21-day field trips. However, from 2002 onward a last page on animist creatures was added to a general questionnaire on farming and some questions concerning divine intervention into agriculture and health were included at other points of the questionnaire. In the end 193 families were interviewed concerning animist elements and religious worldview.

Finally, it must be mentioned that researching enchanted creatures of the wilds is not easy or even something a researcher with little prior experience in research in the above regions can do. If a researcher does not specifically ask about these beings by their proper names one will never know that belief in them exists because they are rarely mentioned in everyday settings. One noted US cultural geographer once wrote me saying that he had done research in the Amazon and had never heard of the beings described in an article of mine (Hoefle, 2009a) and half-joking called the work an example of "geographical imagination". Then, another experienced German researcher on Brazil tried to ask about the spiritual creatures along the Rio Negro but said that the people did not understand her questions about "gods of the forest". This happened because she used the wrong word, namely "gods", of which there is only one God in hybrid Christianity of the Amazon. If she had asked about "spirits" or "enchanted creatures" of the forest, then she would have gotten better feedback.

5. Enchanted Creatures Situated Between People and Animals in the Sertão of Northeast Brazil

The Sertão of the Northeast is a distinctive socio-ecological area of Brazil. In function of its semi-arid climate and low population density, for centuries the Sertão had a frontier ambience where blood feuds, bandits and religious millenarian cults existed. Human occupation and some cropping were concentrated along seasonal rivers and extensive areas of unfenced Caatinga thorn bush existed in interfluvial lands where a good deal of wild fauna still lived alongside free-roaming cattle, goats and sheep. Before roads were built into the Sertão after 1930, periodic drought could cause large-scale famine and death. Farming systems varied according to access to water and scarce fertile soils. In the study area situated in the center of the Sertão, in the 1970s capitalized irrigation arose in alluvial lands located along the perennial São Francisco River. To the north, conditions were typically semi-arid and more cropping and cattle raising were encountered than to the south of the São Francisco where climatic conditions were almost arid and the focus of farming was goat and

sheep raising alongside cropping for self-provisioning and some cotton for sale.

At the time of the original research in the 1970s, typical Sertanejos were Catholics, particularly in the countryside. Catholic cosmology of the Sertão still maintained the three basic elements of pre-reformist Christianity which tie This World to the Other World and the natural world to the social world: 1) lost souls who hover about in This World and threaten the living; 2) an accentuated cult of saints to whom vows and pilgrimage are made in order to resolve farming and health problems; and 3) human-like spiritual entities thought to live in the bush which protect wild animals from hunters and herders.

In comparison with the rich lore concerning lost souls, vows and pilgrimage involving contact with the Beyond, little is known about the Other World itself. For Sertanejo Catholics there are two or three spheres of the Other World: 1) Heaven, 2) Hell and 3) Purgatory. In flattened animist fashion, these spheres are not seen to be physically above or below This World but rather as constituting another parallel dimension located here and possibly contacted in real time. After release from the body upon death, the existence that a soul leads in each sphere is thought to be quite different in terms of lighting, temperature and degree of solitude. Sertanejo Hell is the exact opposite of the Hell in traditional European cosmology as a place where the souls of sinners burn eternally or where the Devil and demons stick sinners with tridents. Solitude in "space" is the maximum punishment for Sertanejos where lost souls are thought to have a profoundly sad existence of hovering about alone in isolation. This Hell is thought to be an empty, cold, deadly silent and dark dimension located nearby. This is clearly similar to animist beliefs concerning the afterlife.

The idea of sin also reflects the frontier past when the wrongs of This World were, and still can be, settled here and now by killing an adversary. Justifiable murder, and most any murder can be justified as an affront to one's honor, is not considered to be a sin. Other sins in conventional Catholic doctrine are also resolved immediately in the Sertão. Before the influence of national television, pre-marital and extra-conjugal sex resulted in forced marriage or vengeance killing. True sinners are drunken bums who avoid work, steal and leave their family in misery but even this is put in interpersonal terms rather than in universal mores of a sinner being condemned to Hell. In fact, in the case of accidental death by lightning or car accident or someone being carried away by a lost soul, a person does not even have to commit a sin to go to "space". In addition to this, someone who baptized an illegitimate child, who abandoned a wife to live with another woman or who had sexual relations with a priest suffered periodic or permanent metamorphosis into a werewolf or a headless mule.

Finally, in addition to belief in the interference of souls and saints in This World the third element of pre-reformist Christianity is still found in the Sertão: the belief in spirits of the wilds and in enchanted animals. These are typical animist beings who live in dense uncut bushlands. They are considered to be the protectors of the wild animals and as such stand in opposition

to people. The antagonism between the bush spirit Caipora (also known as Curupira elsewhere in Brazil) and hunters is placed explicitly in gender terms, both sexually and with regard to the social division of labor, as well as concerning food preferences. While the name and the basic belief in Caipora are Amerindian in origin (Cascudo, 1962), the description of these bush spirits is very similar to the Diana-like wild-women figures of European lore related by Duerr (1985). Even though Caipora is said to be invisible, she is also said to have the appearance of a woman but a very ambiguous one. She lives in the uninhabited bush together with the animals and her food is raw fruit and roots instead of cooked meat. She sleeps on the ground in the open and not in a proper bed. Her hair is disheveled and she wears no clothing. Instead of riding a horse side-saddle in the traditionally appropriate feminine manner she straddles a deer or peccary.

Caipora is rarely encountered by people, almost exclusively in the context of hunting, a masculine activity. When the hunter or his dogs start to receive invisible blows these are attributed to Caipora. If this happens the hunter leaves tobacco on the ground which Caipora adores. With this offering she then permits the hunt to proceed. Interviewed hunters were unaware of the Amerindian belief that tobacco is thought to increase the reproduction capacity of animals by their guardian spirit. The exchange of tobacco for permitting the hunt was simply interpreted as an act of reciprocity between a hunter and the spiritual master of the animals.

Human-animal relationships are seen from the perspective of the farm house out into the bush passing from more to less domesticated spaces until finally arriving in the wilds of inter-fluvial areas. Each sphere is charged with sexual tones and alimentary preferences. Animals which humans have the most subjective relationship with are dogs and to eat them is thought to be nearly cannibalism and to have sex with them almost as incest. People also have long-term affective relationships with milk cows and prize bulls so that they too should not be eaten. Preferred meat is that obtained from castrated mature livestock raised in the nearby bush lands. Meat from game animals hunted in inter-fluvial areas can be eaten but is really beyond any self-respecting rancher though not for hired hands and poor farmers. As is common in rural settings where a strong traditional Eurasian emphasis on female virginity exists (cf. Goody, 1976), boys can practice bestiality with cows and ewes but they do this with a neighbor's animals because to do so with one's own animals is considered disrespectful.

As is common in animism, strong sexual overtones are present in the hunt and hunters display sexual desire in their descriptions of deer as well as jealousy with regard to rival predators (jaguars, ocelots) whose meat is considered to be disgusting. Finally, Caipora is quasi-human, so to eat one would be considered cannibalism. Also, unlike the Amazon treated below, Caipora is not thought of in sexual terms despite the fact that this creature is a naked female and hunters are males.

Many of the same characteristics attributed to Caipora are also used to describe Amerindians of the past. As such, Caipora is used to reflect on cultural differences between colonizer and the original Amerindian population which local people say "lived like beasts". This is ironic because most of the population of the Sertão has strong indigenous ancestry. A Swiss priest once became exasperated during a mass by the conservative cultural and political views of his flock and called them "all a bunch of Indians" to the general perplexity of the congregation.

Fables represent another such reflection on people and animals used much in the same way as in Amazonian animism (cf. Descola, 2013). There was a time in the distant past in the Sertão when animals talked just like people, but over time, each one of them suffered a loss of divine grace and so they can no longer speak. At the same time, people "progressed" and became further differentiated from animals.

Most people believe in metamorphic werewolves and witches, men and women respectively, who on nights with a full moon are transformed into hairy creatures with the appearance of pigs. On that night these creatures must run through seven parishes. During their long nocturnal journey along roads they can pass close to houses and scare or even attack people. Werewolves are most active during Lent and on Good Friday, a period of great religious fervor in the Sertão. To keep werewolves away a palm fawn from Palm Sunday Mass is placed on the door. During my research in the Sertão an actual sighting of a werewolf occurred but, in the end, it was just a man going to visit his mistress who had dressed a fleece of wool to scare people off that might identify him.

A turn-into-beast suffers another kind of metamorphosis. It is someone who suddenly starts acting like an animal, such as eating raw meat. An actual case of a man turning into a beast occurred during market day in one of the communities studied. First, near his home he killed and ate a cat. Then he went to the public market place, started threatening people and then ate the head of a goat in front of everyone. For the local people he had turned into a beast but for the local doctor with a secular medical worldview he was considered to be insane and sent to the state capital for psychiatric treatment.

What all of these metamorphic transformations have in common is anti-social behavior. In addition to people who attack their neighbors or eat raw meat, a person who marries or has sex with a priest, baptizes an illegitimate child or abandons a wife to live with another married women also suffers metamorphosis into these horrible creatures. Like the spirits of the bush, these creatures define the limits of human behavior.

Even at the time of the original research in the 1970s cultural change was already in coarse. Farming was in the process of being disenchanting, particularly in highly commercial irrigation along the São Francisco River where Green Revolution methods were adopted. When these productivist farmers were asked what they do when an outbreak of crop pests or disease occurs they said that

they applied pesticides. Only 7% of them attributed these problems to the evil eye as opposed to 94% of the ranchers in extensive stock raising zones who consider the evil eye to be a serious problem. However, commercial irrigation involves high unpredictable market risk and some farmers could make vows to sponsor a São Gonçalo dance if they were able to sell their produce for a good price at harvest time. In sum, technical control may have reduced natural risk but it was substituted by economic risk. In stock-raising the mandatory use of vaccines and other veterinary treatment as well as increased fencing of inter-fluvial lands also removed the need for using prayer cures to reach inaccessible animals out in the bush.

Belief in bush spirits like Caipora was also on the wane among younger people because they attained higher levels of formal education than their elders. One middle-age woman was shocked to hear her teenage nephew say that he had never heard of Caipora. He lived in town and was in middle school at the time. The boy liked to visit relatives in the countryside but he never went out hunting in the bush with his uncles, so he quite literally had never heard anything about enchanted creatures.

6. Deforestation and Disenchantment in the Atlantic Forest of Southeast Brazil

The Brazilian Atlantic Forest is considered to be a world environmental hotspot by ecologist NGOs and international development agencies. Occupying an area of 1 million km² along the east coast of Brazil, this biome encompasses a huge variety of tropical and sub-tropical micro-environments. Located in the oldest area of European colonization in Brazil, deforestation has surged and ebbed over time according to commodity export cycles and progress in national industrialization. This caused widespread conversion of tropical woodlands into fields and cities so that by 1990 only 5% to 8% of the original land cover remained (Andrade, 1973; Dean, 1995).

The study area located in Southeast Brazil was originally colonized during the 16th century and presently is part of the industrial heartland of Brazil where the largest metropolitan areas are located. Agriculture in the Southeast has been fully commercial since coffee was introduced in the 19th century and was profoundly transformed by the post-war diffusion of conventional productivist agriculture and the rise of a national agro-industrial complex (Sorj, 1986; Müller, 1989). Against this, the state of Rio de Janeiro has long held an important role in environmental preservation. The first Brazilian conservations units were set up in this state from the 1860s onward and today about a quarter of its territory is in nature reserves, most concentrated on the windward side of the Fluminense Coastal Mountains.

The study area included five municipalities straddling these mountains at the point of transition from essentially rural areas located inland to the metropolitan region of Greater Rio de Janeiro situated on the Atlantic seaboard. Within these municipalities three kinds of landscapes areas were researched according to the farming system used and the degree of deforestation present: 1) productivist vegetable farming undertaken in completely deforested areas located on the leeward side of the mountains between 600 to 800 meters altitude which had once been important for coffee growing; 2) productivist and post-productivist vegetable farming in a mixed field-and-forest landscape located in mountain valleys at altitudes between 800 and 1,000 meters, which were too high for coffee growing in the past; and 3) non-productivist slash-and-burn farming in forested areas located on the steep windward escarpment at 200 to 1,100 meters altitude, which were too humid for coffee growing.

With regard to religious worldview, this case represents the exact opposite of the Sertão of Northeast Brazil. Rio de Janeiro is where Pentecostal Protestantism has made more inroads in Brazil and the zone of productivist vegetable farming in the mountains is even more Protestant than the metropolitan area. This raises the question: did Protestantism secularize farmer worldviews and eradicate traces of animism? We will see that religious worldview does indeed affect socio-environmental and metaphysical perceptions but the farming system used, the degree of deforestation present and the level of formal education were found to be more important causes for disenchantment.

On theological grounds Protestants usually reacted strongly to questions about belief in animist beings. When asked about the Amerindian bush spirit Caipora/Curupira, the black rural spirit *Saci Pererê* and werewolves the usual response was that the only thing that really exists is Jesus Christ and the rest is merely superstition. This notwithstanding, 17% of the interviewed Protestants were found to believe in *Saci* and in werewolves because of personal encounters in which they claimed to have actually seen these creatures. However, this was explained away by their neighbors who considered such sightings to really be the Devil in disguise.

For Protestants the Devil is everywhere and is always ready to tempt individuals into sin, especially young maidens. In fact, it is advisable to not even mention his real name and instead refer to him as 'The Bad Thing'. This view of the omnipresence of the Satan and in particular Protestants having distilled the bush spirits into manifestations of the Devil amuses Catholics. When asked about the bush spirits one Catholic man remarked to the general laughter of all present that they no longer exist locally because 'The Bad Thing' arrived and scared them all off.

Nevertheless, for Protestants this struggle with the Devil is limited to social affairs and rarely enters farming. Problems with crop disease or poor luck with produce prices are never attributed to the Devil. Nor does God have much to do with these problems either. His help can on rare occasion be invoked when

mundane productive problems become unbearable but it is far more common to ask for divine intervention only for very serious health problems like a grave illness or a snake bite.

Local Catholics behave similarly and do not invoke the saints as assiduously as we saw above in the case of Catholics with enchanted worldviews in the Sertão. Similarly, few Catholics and Protestants in areas of productivist agriculture had heard of the term Caipora or Curupira and when they had they did not really know what it was. One boy remembered a story that his grandfather had told him about giving porridge to Caipora in a hunting context at the beginning of the 20th century when the landscape was still predominantly forested. Furthermore, only 6% of Catholics productivist farmers were found to believe in Saci and none believed in the existence of werewolves which is even a lower figure than that of anti-animist Protestants.

The worldview in areas of non-productivist agriculture was found to be highly enchanted with half of the farmers believing in Curupira, 80% in Saci and 85% in werewolves. Much more is known about Curupira and descriptions match those encountered in areas of peasant agriculture elsewhere in Brazil (fig. 3). The spirit is said to have the appearance of a small Amerindian man who is half-human and half-animal. His feet are pointed backwards, he has pointed ears and fur and he is mounted on a peccary. Curupira eats wild fruit and as “chief of the forest” controls human hunting activities so as to maintain a balance between kills and reproduction. There is a common tale about a hunter who killed five peccaries. Curupira suddenly appeared and complained that five peccaries were more than the hunter could eat. With a wave of his hand,

Figure 3. Curupira and Saci Pererê as animalistic spirits



Source: cover of the journal *Revista da FBCN*; cover of Lobato (1998).

Curupira brought four of the animals back to life, sent them scurrying off into the forest and told the hunter that he should consider himself lucky that he had left him one peccary to take home.

Saci Pererê and werewolves are also human-like rural spirits but unlike Curupira they do not live only in deep forest which might explain why these spirits are well-known in more deforested landscapes even if the productivist and post-productivist farmers there do not believe in them. Saci Pererê has the appearance of a little black man who wears a red cap, smokes a pipe and has only one leg. However, unlike Curupira, Saci has no clear social function other than to play tricks on humans. The animalistic characterization of indigenous Curupira and black Saci reflects historic colonial relations involving rebellious slaves who fled from civilized society dominated by European colonists and became "wild men" who went to live in the forest (cf. Duerr, 1985; Taussig, 1987).

Werewolves are humans transformed into large hairy dog-like creatures with long ears, large teeth and claws. Their function is social rather than environmental. A man becomes a werewolf because he is evil, mentally disturbed and does not believe in God. Alternatively, he may be the seventh born son and to avoid becoming a werewolf he must be baptized by his oldest brother.

The higher proportion of people who believe in these spirits in the area of non-productivist agriculture is also related to the poor lighting facilities. At the time of the research, most farmers of the forested escarpment did not have electricity and transport was still by horseback so that there were numerous tales of close encounters with spirits at night on dark lonely roads, much like those heard in the Sertão. The name for spirits, *assombrações*, evokes the image of nocturnal encounters: the root word *sombra* literally means shadow. This can be seen in the answer received when one productivist farmer stated half-jokingly that the electricity company had done away with belief in spirits. He explained his answer: before electricity and proper lighting, they had lived in "darkness", so when a strange shadow was seen moving about in the darkness it was assumed to be a spirit.

Religious worldview by itself was found to be of marginal importance for provoking deforestation. If Protestants had a more disenchanting worldview they would be expected to be more prone to deforesting their land. In the productivist landscapes of the leeward side of the mountains on average Protestants were indeed found to have only 7% of the forest cover remaining on their farms while Catholics had 15%, but this is hardly a significant difference. Similar average figures were encountered in zones of productivist agriculture in the mountains, where 8% and 15% of farms was still forested respectively for each religious group.

What made a greater difference in forest cover in the mountain valleys and the windward escarpment was the farming system used. Before the 2006 ban on cutting secondary growth in the Atlantic Forest biome, non-productivist farmers usually had about a fifth of their highest land in primary forest and

two-thirds of the rest in varying stages of fallow. Farmers who used conventional productivist farming there deforested their farms just like farmers did on the leeward side of the mountains. Farmers using newer alternative post-productivist methods in the mountains on the other hand had let their steepest marginal lands revert to secondary forest which covered 37 % of their property versus only 9 % for farmers using productivist methods. Farmers using post-productivist methods stated that they wanted the forest cover to protect water sources for irrigation and to have access to fence post and crop stake materials, the cost of which had become extremely expensive even before the 2006 ban.

Reinforcing the thesis of the importance of farming systems *vis-à-vis* world-view is the fact that enchanted worldviews do not come back again with the re-growth of forests. None of the post-productivist farmers had heard of Curupira or believed in Saci and werewolves. Finally, it should be noted that most farmers, irrespective of the agricultural system used, retained an organic-vitalist view of the environment in which land, water and even rocks for some are considered to be alive. Consequently, it is possible to have a spiritually disenchanted view of farming in function of the farming methods employed but the propagation of a materialist mechanistic attitude involving an inert nature depends on the level of formal education attained. As most farmers engaged in productivist farming in deforested areas did not finish primary school they did not study Natural Sciences in school and so still retained an organic view of nature. This view of nature was only changing in the mountain valleys where formal educational attainment was higher and students went on to secondary school where they have contact with Agronomic, Biological and Physical Sciences.

7. Enchanted and Disenchanted Amazonia

A host of global, national, regional, state-, municipality- and community-level social actors interact and struggle over the fate the Amazon and the concept of relational socio-ecology is fundamental for understanding how they perceive forested and deforested landscapes. Many international environmentalists and foreign heads of state regard the human population to be a threat to the conservation of the Amazon rain forest. On the other hand, the Amazon has also been a great laboratory for Amerindian, indigenous and riverine peasant social movements which resist both biocentric conservation as well as expropriation by agribusiness. Indeed, almost all of the experiments involving conservation with sustainable use are concentrated in the Amazon while biocentric conservation and environmental injustice are usually the rule elsewhere in Brazil (Bicalho and Hoeffle, 2010, 2022; Hoeffle, 2021).

Remote tribal Amerindians historically live in villages located in headwater refuges, practice long-fallow cropping, hunting and some poultry raising. A few Amerindians occasionally go downriver for a period of time in order to engage

in monetary activities and earn income for buying iron tools which they do not make locally. They speak mainly their indigenous language at home and some mixed Portuguese and Spanish in their dealings with outsiders. These Amerindians have fully animist worldviews and often successfully resist the efforts of foreign missionaries to convert them to Christianity.

Hybrid indigenes and peasants live along main rivers and for centuries have had contact with global capitalism as well as with Catholic missionaries. After the Conquest in the past they lived dispersed along the main rivers and today increasingly in communities in order to access public services. This historic peasantry practices reasonably sustainable medium-fallow cropping, raises small domestic animals and some cattle on a semi-subsistence basis. When located near larger cities they may even become capitalized vegetable and fruit farmers who sell their produce to urban markets. Most peasants display strong recent Amerindian ancestry, almost all of them speak only Portuguese and for centuries they have had a spiritually bifurcated Christian worldview laced with animist elements.

Frontier peasants located along roads are recent settlers coming from deforested landscapes of the Northeast, have some old indigenous ancestry, practice unsustainable cropping with little or no fallowing, raise small domestic animals and cattle in a semi-commercial regime but use few capital inputs. These peasants live dispersed along roads or in communities and have a spiritually bifurcated Christian worldview without animist traces. Settlers from southern Brazil also live along roads and have pronounced European ancestry. They also had lived in deforested landscapes previously and practice fully commercial cattle ranching and soy commodity production using mechanized super-productivist methods. Southerners attain high levels of education, culturally separate themselves in Gaucho traditions centers and possess a secular worldview toward farming and health issues.

The tales of enchanted creatures of the Amazon are a product of centuries of cultural hybridity between descendants of detribalized Amerindians and immigrants from other regions of Brazil which produced a historical peasantry living along the river and lake systems of the Amazon. Water courses are large and extensive forested areas exist close by so that indigene and riverine peasants possess a rich lore of human-like spirits of the forests and rivers, of enchanted animals temporarily metamorphosed into humans, of humans temporarily transformed into monstrous animals and of divine interference into worldly affairs. As the Amazon has a good deal of recent Amerindian cultural heritage more enchanted creatures are identified and tales concerning them are also richer than those encountered in other regions. Some enchanted entities are specific to the Amazon while others are common throughout the Brazilian countryside.

Curupira (occasionally referred to as Caipora) is the most commonly cited forest spirits. The term *curupira*, like others treated below, is of indigenous origin and is also used in Spanish in the Peruvian and Colombian Amazon.

This creature is referred to as “chief of the forest” or “mother of the forest” and as such is feminine like Caipora in the Northeast. Smith (1996) on the other hand found Curupira to be male in the less preserved eastern Amazon. Curupira lives deep in the virgin forest of inter-fluvial areas and at the headwaters of rivers where few people live so that only former rubber tappers who lived there in the past and male hunters today have had contact with her. She eats natural fruit or hunts animals like people do, which seems similar to Amerindian animist projecting culture on to a spirit of the forest. As protector of wild animals, Curupira can interfere in hunting activities by causing a hunter to become lost in the forest and by springing his traps. She normally only beats a hunter or his dogs with invisible blows or throws rocks at them but in some tales dead hunters were found tied to a tree deep in the forest and this was attributed to Curupira. Some stories of Curupira have a sexual side of her trying to keep hunters as mates but the men resist her overtures because she is so ugly, in which case the hunter is tied to a tree and forcibly abused.

Curupira is usually thought to be an enchanted spirit with the power of invisibility but when sighted to have the appearance of a small brown-skinned hybrid (*cabocla*) or a fully Amerindian woman. She mixes human and animal characteristics and the human traits are said to be Amerindian. She uses no clothes, has long hair covering her face and fur over her body (fig. 4). Her feet are pointed backwards and in the western Amazon is said to have a short tail.

Figure 4. Curupira mixes human and animal appearance and behavior



Source: Wood carving displayed in a restaurant in Leticia, Colombia

She does not have the capacity of speech and only makes guttural sounds. Because of this she is said to have only a “semblance” to people and so occupies a half-way position between humans and animals. Hairy men or someone who is always out hunting in the forest can receive the nickname of Curupira. This of course implies that their appearance and behavior is not human, which is a classic function of animal-human metaphors (cf. Urton, 1985).

Curupira loves tobacco and particularly sugarcane spirits which are used to placate her so that she does not interfere with the hunt. This could be interpreted as an act of reciprocity within an animist worldview which might limit overhunting but no one interviewed ever expressed the idea that Curupira maintains a balance between kills and reproduction like encountered elsewhere in Brazil or in some case studies of Amazonian Amerindians. Regarding this, Descola (2013, pp. 12, 346, 348) expresses doubts concerning Reichel-Dolmatoff’s (1974, 1976) model of animist energetic balance with shamans acting as bookkeeper managers of the ecosystem. In addition, no one interviewed ever said that they did not go into certain parts of the forest in order to avoid encountering Curupira or other feared extraordinary creatures in the way that Smith (1996, p. 11) suggested for creating no-go buffer zones that permit faunal reproduction.

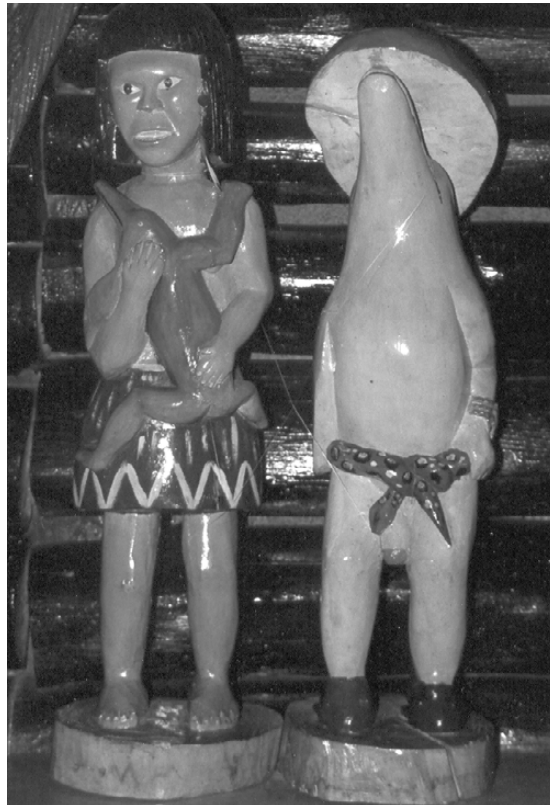
However, the idea of limiting overhunting was present in one description of Hell told by a riverine farmer who lived along a tributary of the upper Amazon in which the damned are forced to eat the rotten meat of all the animals which they had hunted beyond their alimentary needs. Despite this, when another man who lived in the same general area and far from any city, returned from a hunt with a large amount of meat and was asked if he was going to eat all of it, his answer was, “I have bills to pay”. This shows that riverine peasants are not deterred from overhunting by beliefs in enchanted creatures because they have been articulated to a monetary economy for centuries.

Mention of *Saci Pererê* is rarer in riverine Amazonia and more commonly found on the advancing frontier among immigrants from southern Brazil even if most do not believe in it. Like we saw above, this creature is characterized as a little black boy with only one leg who wears red shorts, a black cap, smokes a pipe and mounts a horse. However, some stories “mix” the description of the spiritual entities which cautions against insisting on “typical” tales. One farmer on the advancing frontier called this spirit *Martin Pererê* but gave a description normally attributed to Curupira. Another person who lives on the periphery of Manaus said *Saci* once existed there when forest was still present. His description mixed the appearance of *Saci* with the behavior of Curupira in that *Saci* causes people to get lost in the forest and hunts forest animals to eat. Here we see at the personal level how classic Structuralist transformations and inversions occur whereby people recombine elements of what for the “collective consciousness” approach to myth would be “different” beliefs. Indeed, ethnographic research methods which are not multi-sited and

do not consult a larger number of individuals would not even have detected this socio-spatial complexity.

The rivers of the Amazon are also animated by extraordinary creatures, the most commonly cited being enchanted pink dolphins. These creatures have the capacity to metamorphose into people, usually in the form of young men, who come on to land at night. A handsome but unknown young white man, all dressed in white, will appear at a party or before a young woman near the river when she is washing clothes or taking a bath at dusk and enchant her into accepting his advances. Alternatively, such a dolphin will transform from the shoulders down into human form, maintain a dolphin head and only dress a string-ray as a hat, an electric eel as a belt and use shoes. Enchanted pink dolphins are said "to do evil" to humans by placing young maidens into a trance in order to seduce and impregnate them. An affected woman must be physically restrained or else she will jump into the river to go after her dolphin lover down to his underwater abode from where she never returns. Some Protestants consider the dolphin to be a manifestation of the Devil (fig. 5).

Figure 5. The dolphin, his human partner and mixed-species offspring



Source: Wood carving displayed in a restaurant in Leticia, Colombia

The belief in mermaids, also occasionally called *iaras*, is not common in this part of the Amazon but when present are a mirror image of dolphins. Sirens are beautiful women who have a human torso, a fish tail and sometimes duck feet. They can live in the rivers but usually in the sea. They seduce fishermen, take them down to their underwater abodes and are never heard of again. As the dolphin, a mermaid can also metamorphose into a complete beautiful woman and come on to land after a man to carry away with her.

Wicked humans can be metamorphosed into extraordinary animals and lost souls. The term *visage* or *visagem* (vision) are spirits or shades (*vultos*) in the form of the ghost of a dead person who was not "saved" (did not go to Heaven). They dress in white robes and have no hair. A vision appears and disappears in an instant late at night along a dark trail or in the village and when people see such a spirit they become petrified to the point of immobility. Shades do not actually attack people but rather scare the daylight out of them. They are thought to be lost souls who did evil in life and now wander in an earthly solitary hell, an animist notion of damnation similar to that related above for the Sertão.

The metamorphosis of men into werewolves is another kind of divine punishment, in this case, for those who were not baptized. Just before midnight on Wednesday of Holy Week such a man is transformed into a kind of ugly pig- or dog-like creature, which during the night must run on its elbows and knees through seven parishes. Along the way, a werewolf may stop to gnaw on old animal and fish bones encountered or in some accounts attack and eat children. Dogs get nervous and bark at a werewolf but do not dare attack it because it will beat them brutally if they come too near it, maybe alluding to Curupira. On the other hand, if a werewolf is beaten by people it transforms back into a human and any wound received will appear the next day so confirming suspicions about the strange behavior of a neighbor.

Again, we see that in the Amazon these creatures refer to human identity and colonial ethnic relations. In the most general way, extraordinary and ambiguous creatures serve to define human-ness in terms of physical appearance and proper behavior. Curupira has some human traits such as walking on two legs and she has a taste for tobacco and cane spirits but is fury, does not use clothes, possesses superhuman force and has the power of invisibility. Mappinguari is said to be similar to Curupira in form but much larger, to have a mouth in the wrong place and to smell horribly. Saci has human form and dresses shorts but has only one leg and has the ability to appear and disappear. People dress properly and take a bath every day.

Creatures temporarily transformed into people, like enchanted dolphins and sirens, lead people into sexual temptation and cause them to abandon their human homes to live in an enchanted abode at the bottom of rivers and the sea. The belief in lost souls closes the circle between people and the extraordinary creatures in that some people think that enchanted dolphins are the lost souls

of drowned humans. Lost souls usually appear to ask the living to perform some task left unfinished, such as fulfilling a vow to a saint. They can also appear because they want to carry a living person off with them into death so as to have company in their lonely wanderings and, in the case of lost souls being enchanted dolphins, down to their abode in the water.

Enchanted beings also represent different historic ethnic groups in the Amazon. Enchanted dolphins are young white males and as such considered to be handsome. Juma is a deformed Amerindian and Curupira is a hairy *cabocla*, both living in the forest like animals. Saci is black and also lives in the wilds. As in the other cases treated above, these creatures can be seen as inverse images of the historically dominant European ethnic component of Brazil. Statements like, "Mapinguari is a transformed Indian" or "Curupira is an old Indian woman who turned into her present form" were frequently made by riverine peasants. Another variant was that "Curupira tamed wild Indians and turned them into *cabolos*".

With regard to social groups defined by region of origin, beliefs concerning enchanted creatures sets the historical population off from the new settlers who arrive from other regions of Brazil. Of the riverine population, 63% believed in two or more forest spirits and 38% two or more river spirits while only 32% and 17% of frontier settler peasants did. Social class and educational attainment were found to be strongly related to non-belief with no ranchers or commodity farmers believing in forest or river spirits. These farmers usually have at least a high school education and some had university degrees.

Finally, the limited role of religious affiliation highlights the importance of formal education for disbelief in animist spirits and metamorphoses. In recent decades folk Catholicism in the Amazon has lost members to Protestant groups whose worldview might be more disenchanting because the forest and river spirits are considered to be manifestations of the Devil. However, Pentecostal Protestants and Cruzista Catholic Fundamentalists believe *more* in the spirits than do typical Catholics. True, the former may believe less in supernatural influence on farming, but, on the other hand, they have a fixation with diabolical interference in their personal life. The few Lutherans encountered in the Amazon did not believe in the spirits of the wilds or in divine intervention in farming because they were from southern Brazil, practiced super-productivist commodity production and had high levels of formal education, not because their religion demonized the forest spirits. With regard to other religious groups, the Cruzistas had the lowest educational attainment, followed by Pentecostal Protestants, which shows how formal education and not religion, provokes worldview disenchantment.

The presence of forest is also important and can even trump formal education. One boy in high school who lived in what is now a periurban area of Parantins (a medium city of the Central Amazon) said that he believed in the existence of Curupira because his father had seen the creature nearby in the past. The

boy had never seen Curupira himself because local land clearing removed the forest where Curupira lived but he said that she just moved away to another forested area. A second interesting case involved former riverine peasants now living along a frontier highway. The couple remembered the stories of enchanted creatures that their parents had told to them but they did not pass the tales on to their children because they now lived in a deforested environment where forest and river spirits do not exist. The stories were simply not relevant in their new location. With this we see that lore can be lost in three generations.

8. Conclusion

This work has demonstrated how a relational approach can seriously dialogue with the hybrid animist-spiritually bifurcate worldviews of indigenous and peasant populations present in key threatened Brazilian biomes in which environmental conservation is important for reversing global climatic change. The general theoretical discussion and empirical examples from Brazil implement Latour's (2013) call for a reformed scientific worldview composed of fourteen modes of existence that can overcome naïve naturalist ontology and its inadequate nature-society and supernatural-natural dualisms. Instead of promoting nature enclosures and environmental injustice toward historic peoples like biocentric conservation does, socio-ecological conservation leaves historic populations in place.

This is not just an abstruse theoretical point because global conservation will only be successful when emissions are reduced by adopting environmentally benign technologies in the Global North as well as promoting socio-ecological conservation of key biomes in the Global South (and in the North too for that matter). This means focusing more on entire sustainable livelihoods for people present in the key biomes of the South. Simply forcing more REDD (Reduced Emissions from Deforestation and Forest Degradation) policies on the South and doing little at home is doomed to failure and indeed is cynical.

More "re-wilding" is also not the answer because this kind of policy is still based on naïve naturalism and so represents just another term for biocentric conservation which only takes the good of the ecosystem into consideration and the country bumpkins be damned. A new English translation (2020) of Lévi-Strauss' classic *La Pensée sauvage* as *Wild Thought* captures the issues in a nutshell. Lévi-Strauss tried to show how primitive peoples acted rationally and through astute observation could hit upon the "real" relations of Nature just like Science does. In other words, he wanted to preserve scientific investigation by showing how all of the world's peoples acted rationally. Savage thought was not considered to be inferior just prior and was only problematic when it placed culture (magic, religion, games, etc.) between the primitive observer and the observed natural phenomena. Lévi-Strauss (1969, 2020) may have had good

intentions but this view has long been used to justify eradicating the interference of supernatural culture through the propagation of biological naturalism in formal education.

Naturalism is light years away from a relational approach which holds that there are as many natures as there are cultures, or better yet, there is no culture or nature, but rather level relational fields of humans interacting with non-humans. Here we saw how worldview can be important for environmental conservation though not by itself but rather as part of overall sustainable livelihoods. Consequently, possible limitations to environmental overexploitation imposed by surviving animist elements present in hybrid worldviews were found to be no match for capitalist commodity production and scientific naturalism which got us into our current environmental mess. Furthermore, the Brazilian cases treated above showed that once a worldview is disenchanting by naturalist formal education it can never be re-enchanting by simply recreating forests. Rewilding policies recreate nature in the form of greater biodiversity but one that is spiritually impoverished. Real wild thought involves close and immediate approximations between humans and non-humans in This World and the Other.

To move forward, the fatal flaws of global capitalism must be addressed and I would argue that a major change in scientific worldview is part of this process. Harvey (2014, pp. 216-225) is of the opinion that environmental problems do not constitute the most serious contradiction to global capitalism while Peet, Robbins and Watts (2011, pp. 15-23) hold the opposite view, that it is in the very nature of capitalism to destroy environments. However, despite their differences, these authors agree that a post-capitalist transition is fundamental for reducing global environmental destruction and for promoting social justice. I agree whole-heartedly with them.

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