Cosmology and Visionary Plants in Biocultural Conservation

Exploring the role of religious cosmology influenced by visionary plants in human-environment relationships in non-Western societies

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Abstract

Religion emphasizes cultural values, mirroring attitudes towards the environment; it is the framework through which people relate to their surroundings. For some, rituals regulate resource use, nurturing ecological balance, and groups directly dependent upon their immediate environment seem to have a sustainability ethic embedded in their religious ideology. This is especially true for many South American peoples whose cosmology is centred around the use of a visionary plant brew, *Ayahuasca*. However, not all traditional societies have a cosmology which fosters bioconservation, despite their misappropriation as perfect examples of ecological harmony. Cosmology illustrates a society's place in the ecosystem, and determines its ecological perspective. The attitude of a given group towards conservation can be seen as a symptom of this perspective; though its relationship is not necessarily causal, the underlying religious system's main role is to reinforce cultural behaviours. The attitudes towards nature of Amazonian societies which revolve around shamanic traditions involving the ingestion of psychedelic plants can be contrasted with the attitude of Western science and biomedicine; despite this incongruity, the West has often benefited from ethnopharmacological discoveries generated by the very societies whose cosmology is dismissed and whose environment is degraded. The resulting interplay between religion, conservation, and visionary plant-use has implications for cultural and environmental protection and adaptations to change. Proper respect for and understanding of indigenous traditions ensures the protection of valuable *in situ* resources of biodiversity, as well as rich cultural traditions which hold a wealth of valuable ecological and medicinal knowledge.

Introduction

Cosmology expresses the socio-environmental relationships within a society, and analysis of these connections is "almost inevitable in studying some religions, especially indigenous ones" (Sponsel 2010: 131). For Amazonians, religion goes beyond mere "belief in spiritual beings", often reflecting evolutionary relationships and preserving cultural values for future generations. As Lynn White states in his essay on the roots of ecological crisis, "what people do about their ecology depends on what they think about themselves in relations to things around them—that is, by religion" (1967: 23). Thus, an inherent interest in protecting natural resources is frequently integral to indigenous religions. Far from a pristine wilderness uninhabited by humans, the U.S. National Park Service clarifies that "conservation seeks the

proper use of nature, while preservation seeks protection of nature from use" (2015), a situation of ecological balance where the environment is exploited in a sustainable manner (Cotton 1996). Indigenous religion and visionary plant-use guides the maintenance of this balance, and despite any doubt in the ritual and visionary basis of their extensive environmental knowledge, Western science has profited from it for centuries.

Among the countless examples is the surgical anesthetic d-tubocurarine isolated from the South American arrow-poison *curare,* which revolutionized the understanding of neuromuscular function (Lee 2005, Milner 2009), as well as the widespread co-option and commercialization of the *Ayahuasca* ceremony itself (Labate and Cavnar, 2014, Labate and Jungaberle, 2011). Fully 75% of plant-based pharmaceutical products originate from "traditional" societies (Farnsworth 1988), and trial and error is an unsatisfactory explanation when one considers that *curare* production involves combining several plants (e.g., *Strychnos toxifera, Chondrodendron tomentosum,* etc.), boiling them for 72 hours while avoiding the fragrant and deadly vapors emitted, to produce a paste that is safe to eat but deadly when injected (Lee 2005, Milner 2009). The intensely complex production of the psychoactive brew, *Ayahuasca*, is equally improbable by the scientific explanation; necessarily the combination of two unrelated plants (e.g., *Banisteriopsis caapi,* and *Psychotria virdis*) out of 80,000 named species of Amazonian rainforest taxa in a preparation meant to inhibit endogenous stomach enzymes and allow for the etheogenic effect of dimethyltryptamine, it stands as a testament to the in-depth botanical knowledge of the indigenous (Narby 1999). Cosmology's contribution to indigenous knowledge is not only medicinal, but also ecological; religiously significant places tend to be "generally high in biodiversity" (Turner 2013), and there is a global correlation between traditional societies and biodiversity hotspots (Nakashima and Roue 2002:5).

That these empirically effective management strategies and medicinal substances result from religious systems dependent on shamans who ingest visionary plants runs counter to mainstream scientific thought. Nevertheless, Ashaninka and Shipibo shamans attribute their extensive expertise of medicinal and

toxic plant properties to the plants themselves, claiming that they were taught directly by the plants through their visions (Narby 1999). Simply stating that such people only stumbled upon their knowledge accidentally belies a much greater story, and at least partially functions as an excuse for the poaching of such knowledge, and leads to mismanagement of forest resources as well as devaluation of indigenous knowledge. Through the recent work of anthropologists and ecologists, indigenous peoples have gained land titles and rights to their territory recognized by Western governments, although they are often ignored and lands are still clear-cut by various development interests. Protection of indigenous knowledge is sometimes sought through intellectual property (IP) legislation, however, anthropologist Darrell Posey points out that indigenous people have ample reasons not to trust IP law to protect their cultural resources; for example, the fact that US government agencies applied for patents of cell lines developed form indigenous donors, or the patenting of indigenous plants and their derived compounds by US scientists in the case of *Ayahuasca* and British scientists in the case of two medicinal plants of the Wapishana (Sillitoe et al. 2002: 33).

Indigenous cosmologies provide local people with a holistic understanding of their universe as well as their place in it (Levi-Strauss 1979). The holistic approach to ecology of groups like the Ashaninka, far from the Western reduction of forests to isolated chemical compounds or compartmentalized ecosystem services, involves a view of the plants and their medicinal properties as being in relationship with all other beings, and this living community revealed through *Ayahuasca* visions is both the source of illness and of healing (Lenaerts 2006, Luziatelli et al. 2010). If environmental practices are an extension of this perspective, belief should indicate behaviour; clearly the treatment of plants as subjects, an ontology shaped by *Ayahuasca*-drinking practitioners, has a positive effect on biodiversity. Even environmentally-friendly religions perpetrate unsustainability: overharvesting of timber by Chinese Buddhists caused large-scale deforestation (Tuan 1970), Buddhism and Shinto failed to prevent environmental degradation in Japan (Sponsel 2010), and deforestation likely caused the collapse of the Mayan state of Copan (Abrams and Rue 1988), leading some to conclude that materialism trumps ideology.

While the appearance of balance can simply be due to an isolated group's size (Ellen 1986), the use of *Ayahuasca* seems to set certain Amazonian groups apart from these other examples as natural conservationists (Narby 1999). Despite exceptions, examples abound of strict religious rules to prevent overharvesting and impart an attitude of respect (Arhem 2003, Reichel-Dolmatoff 1976, Sponsel 2011, Whitten 1978). Victoria Reyes-Garcia demonstrated indigenous people's conservation potential quantitatively, showing that for a Tsimane community in Bolivia, ethnobotanical skills are directly linked to the amount of rainforest cleared per household; a deforestation reduction of 25% was seen when the area of forest clearance was measured against the amount of ethnobotanical knowledge possessed, even when accounting for variables such as integration into the market economy (Reyes-Garcia et al. 2007).

This begs the question: when societies evolve cosmologies aligned with sustainable ecological behaviour adopted out of necessity, does it merely "resemble" conservation? Whatever the origin, superficially arbitrary or religiously driven practices have significant ecological repercussions, and often relates how non-Western societies adapt to globalization and climate change. Even with language-loss and encroaching market pressures, it is still not uncommon for even Ashaninka children to have extensive knowledge of medicinal plants and ecological relationships (Lenaerts 2006, Luziatelli et al. 2010). As the West confronts its own relationship with the natural world in the face of ecological crisis, an evaluation of its cosmological perspective is necessary for any efforts to improve that relationship.

The Law Of Conservation: Protecting Resources

Religion and cosmology define one's relationship to the world. Discussing the philosophy of Martin Heidegger, Tim Ingold states that, "Unlike the animal in its captivation, which finds itself *taken* in an environmental embrace that is as passionate as it is overwhelming, the human being stands before the world, as a domain of things-in-themselves, and has of necessity to take a stance *towards* it" (2011: 82). Religion coincides with the stance one takes. Ingold describes the story of a meshwork of disparate but interrelated forces, others designate a hierarchy or a

linear Darwinian ideal; whatever the case, it follows that the kind of story one tells influences how one regards conservation.

Referring to non-Western social units, Roy Rappaport defines them as “a group of people who entertain similar beliefs about the universe…who participate together in the performance of religious rituals”. He stresses that ritual actions do indeed have a “practical result in the external world” and backs up his claim with a case study of the Tsembaga, whose ritual cycles are said to regulate human-environment relationships (1967: 17). With a cosmology involving a host of spiritual entities associated with every aspect of their lives, the Tsembaga engage in a 5-10 year cycle of planting sweet potatoes and raising pigs which leads to the *kaiko* festival, and then the uprooting of a ritual *rumbim* controlling periods of conflict and peace, the slaughtering of livestock, as well as trade and exchange. This regulates everything from pig population density, to social relationships and land distribution, and functions ecologically to maintain an undegraded environment (Rappaport 1967).

Most indigenous groups experience the totality of their environment as interrelated, without separation between humanity and nature (Watson et al 2003). In her ethnography of the Runa, self-proclaimed descendants of the Inca, Catherine Allen writes about a co-dependent community of inextricably intertwined personal relationships. Their survival relies on mutual aid between people and the land they inhabit. Captured by the Quechuan idea of *ayni* (reciprocity), the “sacred places” provide nourishment and shelter to the people and the people provide *sami* (energy) through rituals and other offerings. Coca-chewing shamans act as the indispensable unifier and mediator of *sami* between these parallel avenues (Allen 2002). This Andean application of the law of conservation of energy is shared by many other groups, including the Tukano of Colombia. The creation of their universe is conceived as having a fixed amount of energy: “Since the quantity of energy is restricted, man may remove what he needs only under certain conditions and must convert his quantum of 'borrowed' energy into an essence that can be reincorporated into the circuit” (Reichel-Dolmatoff 1976: 310). Tukano cosmology represents an adaptive set of behavioural rules which control environmental exploitation, and “a

blueprint for ecological adaptation" including hunting restrictions to avoid illness caused by the spirits of game-animals, and the placing of taboos by shamans (Reichel-Dolmatoff 1976).

Biological conservation is a religious proposition for the Tukano; ecological knowledge is "essential for survival because man must bring himself into conformity with nature if he wants to exist as part of nature's unity, and must fit his demands to nature's availabilities" (Reichel-Dolmatoff 1976: 311). Resemblance to modern ecological theory, where energy output equals input, should not be lost on Western observers. Recognition that every level of the biosphere contains its own community of interacting species, each with its own sensorium and with limitations, needs, and conflicts similar to our own, has a relatively short Western scientific history. To the indigenous Amazonians, this has been an obvious fact of life for as long as they have been reciting their myths to one another—albeit refracted through animistic ideas, an inverse perspective which presumes humanlike spiritual unity behind corporeal diversity.

Kaj Arhem describes the Makuna of Colombia, who live by the "fundamental message that the land is potent because it is part of the ancestral body and the result of primordial creation. Everything that lives off the land partakes of its creative and destructive powers" (2003: 55). For the Makuna, and further south the Guayaki, "Eating is not a simple act; you cannot eat just anything in any way you choose" (Clastres 1998:155). For the Makuna, reciting specific chants (*bare queare*) over slain animals not only prevents any sickness resulting from eating unblessed meat, but also ensures the species killed will be able to regenerate and remain plentiful (Arhem 2003:104-105, 112-115). The Guayaki bless their food and sing in honour of their prey for similar reasons. If a hunter neglects to extend these courtesies to his catch, "the other members of its species might get angry and not allow themselves to be shot anymore" (Clastres 1998:160). Integration of resource management into cultural practice does not mean all non-Western societies have the same perspective; where the Makuna stress a deep kinship with all creatures, the Guayaki are in a constant battle to differentiate themselves from animals and assert their

unique humanity (Arhem 2003, Clastres 1998). Still, both have a lifeway which actively conserves the resources they depend upon.

To protect a geographically isolated group like the Tukano or the Makuna, the shaman acts as “ecological engineer”, monitoring population trends of game animals and predator-prey abundance through the strategic application of taboos (Reichel-Dolmatoff 1976, 1971, Sponsel 2010). The Amazonian concept of spirit game-keepers incentivizes the treatment of individual animals and plants with respect (Arhem 2000, Descola 2014, Clastres 1998, Reichel-Dolmatoff 1976, Sponsel 2010, Viveiros 1998). Their conception of a finite and steadily deteriorating universe invites caution. However, the Western idea of “harmony” with nature does not apply where man and nature are not separate; “Occasionally man can unbalance it by his personal malfunctioning as a component, but he never stands apart from it” (Reichel-Dolmatoff 1976: 318).

Cosmological myths intimately tie humans to their food in a way that forces a conservative approach to exploitation. This religious system represents ecological principles, with the goal of maintaining equilibrium between societal demands and environmental resources. Eduardo Viveiros de Castro’s “Amerindian perspectivism” requires a multitude of restrictions or precautions when dealing with animals, since all life is composed of intrinsically human persons (1996, 1988). This perception seems to lend itself to conservation, where one easily empathizes with the shared humanity of nature. Echoing Viveiros de Castro, Philippe Descola describes an Amazonian cosmology where one sees oneself as the “seat of the interactions between organisms….all beings, and not just humans, engage with the world and with each other as selves, that is, as beings that have a point of view…occupying a certain position in the ecology of relations” (2014: 271). This attitude is not reserved for hunter-gatherers; the Kayapo of Brazil have long-term strategies for forest management “which actually increase biological diversity” proposed as guiding principles for ecological conservation movements. Far from random, their management strategies follow specific cosmological beliefs; controlled burnings integral to their agroforestry occur before the “birth of the August moon” (Posey 1985: 140, 143).

Not restricted to the Amazon, a 2010 article about “Spiritual Ecology” by Leslie Sponsel details indigenous religious traditions related to conservation for a diverse range of groups, from the Huichol of Central America to the Native Americans of the Pacific Northwest. Describing the cultural life of the Inuit, Marcel Mauss discerned a seasonally driven spiritual practice where religious taboos on killing certain animals prevented overhunting during times of the year when certain populations were more sensitive (1906). The Nuer, described by Evans-Pritchard in 1940, are pastoralists primarily dependent upon the herding of cattle. Cattle-herding provides their construction materials, their food and drink, and their basic ability to subsist in a tree-less grassland under an unforgiving sun. As such, cows are integral to their cosmology and dominant in their folklore—through a ritual specialist known as “Man of the Cattle” cows are dedicated to spirits (1940: 118-119). Overgrazing is a risk, but most data suggests that regular grazing by cattle ensures a healthy balance of vegetation and increased species richness (Mwendera, Saleem, and Woldu 1997).

Across many cultures, religion stimulates efficient use of resources. Potlatching ceremonies of the Tlingit and Kwakiutl tribes of the Pacific Northwest require a surplus production of goods; besides their ritual function, they act as social motivation to do what is ecologically beneficial (Rosman 1972). A classic study of Balinese rice terraces shows how religion manifests as a system of agricultural management; water conservation and irrigation is guided by a network of shrines to agricultural deities which reduces pests and increases yields (Lansing and Kremer 1993). This water temple network is a classic example of “the natural functions of the supernatural; that is, how Balinese priests regulate the intricacies of human-environment interactions as part of their adaptive processes” and their system “has proven sustainable for a thousand years” (Sponsel 2010: 133).

The Sakkudai of the Mentawai Islands enjoy ecological balance due to the “evolved ritual prescriptions and proscriptions that, expressing their ideology of harmony” prevent “ruthless exploitation of the environment.” They have a “respect for spirits in nature through strict taboos that prevent over-hunting…any intervention in the environment is considered sinister and disruptive of ecological equilibrium, and,

accordingly, certain rituals are performed to restore and maintain" (Sponsel 2011: 132-133). The way cosmology influences bioconservation elsewhere differs, but the result is similar. Nurit Bird-David demonstrates how seemingly disparate views of shared environments still leads to the same respect for the environment. In South India, the Nayaka, Bette and Mullu Kurumba, as well as the Mbuti, Bemba, and Bisa of Africa all use human kinship terms for the forest and see nature as ancestors. But while some view it as an ever-providing parent, others see it as a reciprocating ancestor who they live in spite of. However, in all cases familial and sacred relationships with nature serves to prevent environmental degradation (Bird-David 1990).

Intentional or Incidental?

Research reveals a common global trend: "most remaining regions of the world that are biodiversity rich are also homelands for traditional and indigenous peoples" (Nakashima and Roue 2002:5). The study of religion in non-Western societies provides a glimpse into the processes and decision-making behind environmental management. Biocultural approaches see ecological underpinnings in cultural beliefs, where the value of traditional knowledge is increasingly recognized "as both plant uses and management methods have been validated empirically" (Cotton 1996: 313). Deep knowledge of one's environment precludes careless exploitation, however, "non-Western societies" are not a monolith and not all researchers reach the same conclusion regarding this connection. Religion can have adaptive or maladaptive influence, and the literature offers plenty of internal contradictions demonstrating that "nature religion" and "environmental awareness" are not always interchangeable, e.g. the Ganga river being highly sacred to Hindus while also being highly polluted (Sponsel 2011).

Ingold's description of Cree hunters' "sentient ecology", a characteristic of non-Western societies, sees the web of life as inhabited by beings to which one is intimately related (Ingold 2000). Also referencing the Cree, Michael Alvard contradicts Ingold with the optimal foraging theory, arguing that subsistence hunters do not really care about conserving prey resources and short-term exploitation reigns supreme. He explains that rotation of hunting areas which prevents depleting prey

populations is only driven by seeking higher yields. Alvard holds that any conservation resulting from this practice is incidental, although his conclusion assumes that the Cree can't connect overhunting to dropping animal populations, or don't realize that moving allows hunted areas to regenerate (Alvard 1998).

Roy Ellen points out that traditional peoples such as Inuit hunters often conflict with modern conservationist goals. The scale of destruction is simply too small to make a difference. "They need pay no heed to environmentalist doctrines. It is not, of course, size alone that is critical here, but size in relation to a particular kind of ecological system. Thus, Nuaulu hunters on the Indonesian island of Seram have a vandalistic attitude to the rain forest which any self-respecting Friend of the Earth would find positively obscene" (1986: 11). Although Ellen's point seems to be more of an assumption about unspoken intentions, perhaps the Nuaulu attitude inadvertently creates vital disturbances in the jungle vegetation that allows for ecological succession and species competition.

Religious belief can find itself in opposition to both economic and environmentalist interests, and cannot be judged on outward appearance of ecological balance alone (Ellen 1986). Nor can it be lauded simply for the convenience of application to conservationist agendas. Alvard defines conservation as incurring a short-term cost (1998), and short-term economic gain usually wins out. The Hindu cow, however, remains sacred regardless of potential economic promise. While some claim that a huge population of useless cattle is detrimental, their sacred status endures. Marvin Harris "argues that the cow is sacred, not because of superstructure, but because of infrastructure. The cow is most valuable for the practical necessities of life…religious beliefs about the sacredness of the cow are epiphenomena that reinforce its practical value" (Sponsel 2010: 133). Whether economically or environmentally determined, Harris comments that "the probability that India's cattle complex is a positive-functioned part of a naturally selected *ecosystem* is at least as good as that it is a negative-functioned expression of an irrational ideology" (Harris 1966: 59).

Writing about the patrilocal Shoshone of the Great Basin, Julian Steward describes religion designed for sustainability; activities like hunting are mediated by

religious figures called “antelope shamans” (1955). Divination by shamans also controls where game is procured by the Montagnais-Naskapi in Labrador, hypothesized to be an overhunting-avoidance scheme, the reverence for game animals as spiritual kin of the Koyukon in Alaska guides their hunting practices, and Inuit hunters avoid exploiting natural resources in certain areas with supernatural significance (Sponsel 2010). Nevertheless, the debate between environmental and cultural determinism rages on, and many argue the hunting and settlement patterns of these groups are driven purely by environmental and economic constraints.

The unity of religion and nature in non-Western societies means that “the concrete and the spiritual co-exist side by side, complementing and enriching rather than competing and contradicting” (Nakashima and Roue 2002: 2). Therefore, the protection of sacred headwater forests due to religious significance cannot be removed from the acknowledgment of its practical importance for farmers’ fields. Writing on the rich ecological diversity of the Achuar and Jivaro of South America, Descola comments on the divide among researchers who view nature as either the “animate twin of society” or a “set of phenomena occurring outside the realm of human action”. This exemplifies the problem of separating religion and conservation in non-Western societies: “in the one case, attention is focused almost entirely on productions of the mind…in the other case, practice is entirely reduced to its alleged adaptive function” (2000: 1-3).

Conflict, Change, and Adaptation

While mainland Japan suffers from deforestation, large-scale tree planting restores and preserves degraded landscapes of the Ryukyu Feng Shui village, representing “a mutually beneficial relationship between society and nature through human intervention according to the forces of spiritual energy” (Sponsel 2010: 134). Conservation studies in Zimbabwe, Thailand, and Tibet have found that traditionally sacred forests correlate with higher biodiversity and reduced forest loss, where most inhabitants have a relationship with natural resources guided by religious values (Sponsel 2010). The Quichua of eastern Ecuador represent another group where “ecosystem knowledge and social structure are systemically linked to cosmological

premises within a dynamic system of indigenous cultural adaptability" (Whitten 1978: 836).

Despite trading for machetes and axes, the Quichua still maintain a strong "rejection of the logic of Western utility value as basic to the transformation of their cultural system". During intrusive Dominican-sponsored gatherings, they enact an exaggerated two-day demonstration emphasizing the "waste and excessive exploitation of rain forest-swidden-riparian resources" and consistently organize religious displays as a form of protest in the face of any perceived environmental threat (Whitten 1978: 849). Their subsistence lifestyle has survived outsiders since the late 1800s, including the rubber boom, oil explorations, sugar plantations, expanding colonization, and catholic missionizing. A "paradigm of ecological imagery" has been used to defend against such forces, all the way up to encroaching national bureaucratic control—all of which relates to organizing aspects of their cosmological system (Whitten 1978). "Absence of adverse environmental changes of a given kind in a particular place despite their occurrence in similar contexts elsewhere", such as when only one village in East Kalimantan rejected financially advantageous proposals by logging interests, presents a question of motivation (Vayda 2013). A belief in the sacred value of a certain landscape can often provide a partial answer.

Fieldwork in the Maluku Islands of Eastern Indonesia reveals the traditional *sasi* ritual system as regulating access to fields, reefs, and rivers, promoting biodiversity and environmental health. Places significant to spirits are marked with prohibitory signs (*matakau)*, protecting ecological well-being. When Christianity arrived, it viewed *matakau* as pagan superstition, attempting to ban them; Islam was more tolerant. Whether Christian, Muslim, or Maluccan, religion has a role in conservation directly related to environmental views each belief system confers on its practitioners. More recently, outsiders' recognition of the value of the *sasi* system has been a boon to bioconservation efforts, although a skewed interpretation of cultural practices fuelled by conservation has also resulted in a deemphasis of certain cultural meanings to fit a desired narrative (Zerner 1994).

Ecological resilience during periods of socio-environmental extremes often comes from shared belief systems, which “can facilitate collective responses to crises”, as in communities in south-western Spain affected by climate change (Gómez-Baggethun et al 2012). Religious institutions are not always enough, however. While life in their rural settlements was by no means romantic, the Runa of Peru have traded their past society of reciprocal relationships between people and sacred places for “a more modern nation, from money”. The slower, more subsistence based lifestyle ended with the gradual collapse of the *surt’i* system of rotating crops and fallowing pastures as well as the rise of fertilizers and early potatoes (Allen 2002). The simultaneous decline of traditional religious practices as well as sustainable environmental ones seems to support Lynn White’s original connection between ontology and one’s attitude (and treatment of) nature (1967: 23).

Conclusion

Although indigenous cultures represent less than 15 percent of the world population, they occupy almost half of its landmass, highlighting the significance of religious sites to bioconservation. “Indeed, some sacred places may be, in effect, part of an ancient and widespread ‘system’ of indigenous protected areas, whether intentional or inadvertent. This possibility is increasingly the subject of basic and applied research in conservation” (Sponsel 2017: 24-25). While the reflection is more pronounced in some belief systems than in others and different religions influence it in different ways, their contribution to human-environment relationships is universal. Non-Western groups such as the Navaho and Zuni, “whose central value is harmony with nature”, practice a kind of “spiritual ecology” opposed to “many Westerners, especially early pioneers, whose values seem to have been to subdue, dominate, and transform” (Sponsel 2017: 21).

A love of nature doesn’t necessarily translate into effective conservation; American biologist Edward O. Wilson expressed his view of nature as “that part of the original environment and its life forms that remains after human impact. Nature is all on planet Earth that has no need of us and can stand alone” (Sponsel 2017: 17). The dangers of such an approach are best expressed here by Descola: “By fetishising nature as a transcendental object, the control of which would be displaced

from predatory capitalism to the rational management of modern economics, the conservationist movements, far from questioning the foundations of Western cosmology, tend rather to perpetuate the ontological dualism typical of modern ideology" (Descola and Palsson 1996: 97). Ignoring the nuance of religion's role in conservation is attractive when painting indigenous peoples as natural conservationists, but critics of "religious environmentalism" caution that it is "a Western idea" which cannot always be applied to non-Western societies, whose own survival in a modern context prevents them from pursuing it (Sponsel 2010: 135).

Indigenous perceptions of the world stem from religious perspective; if cosmology defines the human and the environment, then it manifests in the kind of relationship which exists between the two. But religion is only one of many factors explaining human-environment interactions, and context can never be removed from interpretation. For groups such as the Ashaninka, religion underpins a perspective on conservation which handles ecological relationships as vital to a system which they all depend on and participate in; plant knowledge is inseparable from the people, and a plant's healing power comes from its relational context in a network of life including both human beings and plants (Laenerts 2006, Bletter 2007). Similar to modern Western ecological principles, religion is the structure upon which environmental relationships rest. Integral to conservation, studying this structure gives one critical insight into the understanding of non-Western societies.

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