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Joti ecogony, Venezuelan Amazon

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Abstract


The current environmental crisis permeates the discourse and concerns of people all over the world. Consideration of diverse environmental ethics showing the alternative ways in which people conceptualize and relate to *nature* and natural resources are critical for bringing about more sustainable human behaviors. After a brief review of Western historical notions of nature, this work explores the *ecogony*, or causal reasons, that trigger the behavior of the Joti, an Amerindian people of the Venezuelan Amazon, with other entities and the forest that they inhabit. The analysis presented synthesizes 15 years of transdisciplinary ethno-ecological research comprising quantitative and qualitative methods (collection of herbarium voucher specimens, floristic inventories in forest plots, structured interviews focused on plot vegetation, semi-structured interviews of life-histories, participant observation, time allocation studies, food resource accounting, focal person following observations, garden crop inventories and censuses, mapping of wild resource harvest locations, among others). Joti pragmatic and ideological tenets generate a distinctive environmental ethics based on ecogonic nodes. Notions of *interdependence*, *humanity* and *person* are articulated on a daily basis through several dynamics: (1) hyper-awareness of all living things' dependence on each other and other elements of the biophysical environment at macroscales and microscales, (2) the construction of human spiritual, conscious, physical and agentive constituents from a variety of diverse botanical and zoological species and mineral components of their homeland, and (3) an understanding of the aggregate surroundings, including a significant portion of the biotic and abiotic components, as potential subjects with awareness, creativity and moral stances. This condition of interdependence confers rights and duties on all the parts. Joti horizontal communications with and among life-forms sustain their condition as committed actors in the configuration of the forests that they inhabit.

Keywords: environmental ethics, ecogony, biocultural diversity, Venezuelan Amazon, Indigenous people, Joti, Amerindian

1. Introduction

Diversity sustains life. Heterogeneity of notions, ethics and logics offers potential alternatives to alleviate the world's environmental crisis. Historical records worldwide register the conscious attempts of hegemonic societies to homogenize

the ethos of their colonized subjects. Notions of nature in Western¹ thought provide a good illustration of such disregard for diversity. The amount of written and graphic material produced to describe the multiple conceptions of defining and acting on *nature* is overwhelming. A diachronic view

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¹ The term 'Western' is a heuristic device that overtly recognizes limitations. Included as Western are the conglomeration of European and American nations that inherited Greco-Roman, Christian and Enlightenment traditions, comprising ancient traditions subsumed and absorbed by Greco-Roman-Christian processes of colonization and transformations (Germanic, Egyptian, Asia Minor and Jew).

of Western concepts of nature reveals this notion as an episteme², a logical construct built up through centuries (Zent 2012). *Nature*, a word deriving from Latin *natura* (after the verb *nāsci*, born) which in turn comes from the Greek *physis* (φύσις, *physis*), has been seen from many perspectives: teleological (the immanent presence of ultimate purpose), ethical (intrinsic versus extrinsic values as receptacles of infinite or finite resources), theological (sacred and secular) and ontological (the condition of the object or subject). In ancient Greece and Rome, a diverse assortment of philosophers and schools of thought (Torrance 1992, p v, Lloyd 1992, p 2, Bargatzky and Kuschel 1994, p 6) endeavored to delineate nature. *Physis* was a Greek protogenic goddess who embodied life, an immanent hypostatic entity with breath, animus, spirit, volition and morality comprising the mind structure and meanings that generate diverse life-forms. The translation of *physis* to *natura* in Latin emphasized the inherent movement, emergence and rise of *physis* (Heidegger 2000, pp 13–15). The culture–nature dichotomy made explicit by Descartes many centuries later started to build from this period. *Physis* was simultaneously divine-apprehensible and material-apprehensible through the senses, including the mind and soul (Heidegger 2000, p 13) until the Presocratics initiated the reduction of nature to organic processes. Previous to Plato and Aristotle, *physis* had at least four connotations: primordial matter, origin, process and result (Naddaf 2005, p 3, 163; Lloyd 1992, p 12). *Physis* was not completely separated from ontological and mythological views, nor from discussions about the *natural* etiology of diseases and illnesses (Lloyd 1992, p 8). The shift from myth to *logos* is attributed to philosophers after Socrates, when *physis* was opposed to *nomos* (νόμος, socially built norm, experience and order) and to *technē* (τέχνη, art, craft, practical method for creating an object or reaching an objective). These partitions are the foundation of oppositions between nature and culture, art or artifact (Lloyd 1992, p 13; Inwood 1999, p 137). Once the myth was excised by logical thought, a more secular view of nature was fabricated linked to Plato's pre-eminence of logic as offering phenomenological and causal explanations to all inquiries. Christian medieval tradition found continuity in the notion of nature, the world of sensual phenomena associated with the perfect world of ideals (cf Inwood 1999, p 14) inasmuch as all forms of sensible assemblages were attributed to Godly orderliness (Zent 2012). The Renaissance added to this mixture an anthropocentric environmental ethics that was consolidated during the Enlightenment (mid-15th to early 19th centuries) with the search for rational causal explanations to worldly phenomena: 'the 17th-century conception of nature has remained the basis of the Western view of reality ever since, so that it is impossible to imagine the whole

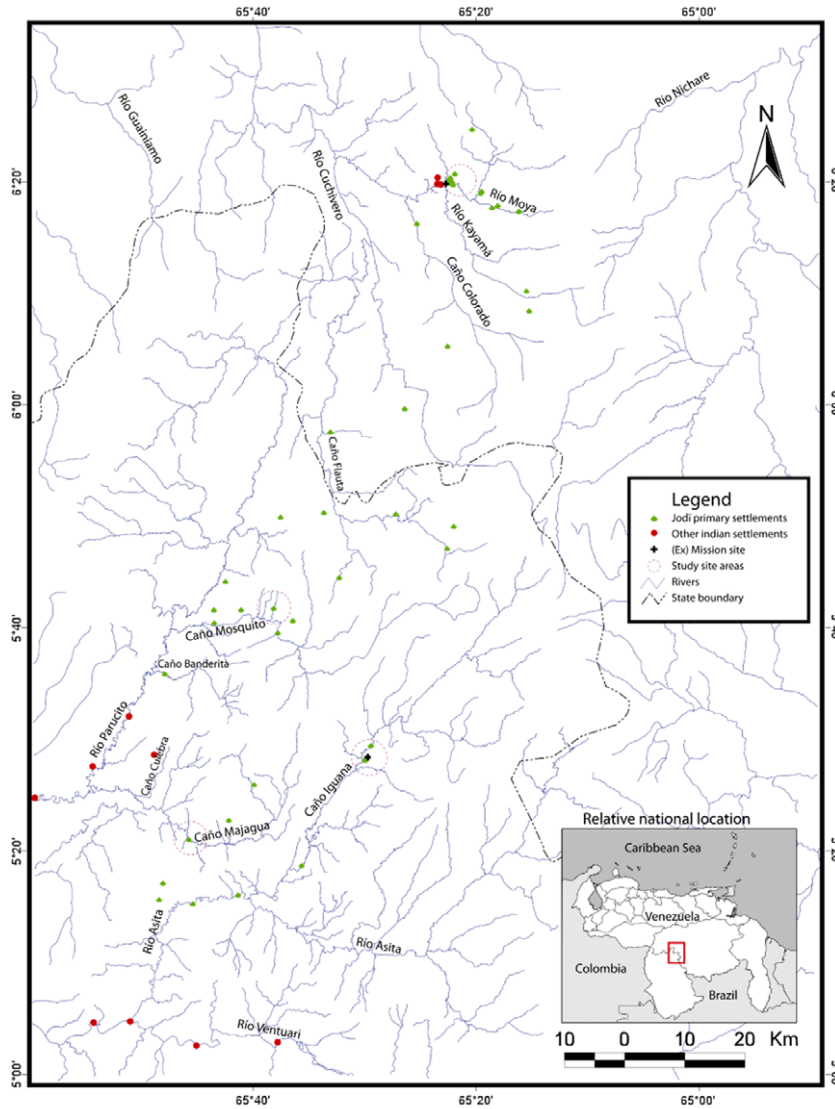
enterprise of modern science, the central and determining feature of contemporary Western Civilization, apart from this background (Westfall 1992, pp 64–65)'.

It is naive to assume homogeneous processes or absolute concepts in the broad and incomplete temporal and spatial spectrum mentioned above. A hegemonic new vision emerged however, during the 17th century: *natural* (object) and *social* (subject) spheres were axiomatically separated. From this period forward, the new (scientific?) construction of nature as object has been inherently secular. The official view, consolidated with the formulation of French philosopher René Descartes (1596–1650), established nature as a machine, quantified and explained with accuracy (Westfall 1992, pp 70–1) in terms of isolated compartments without understanding its integral design (cf Bargatzky 1994, p 18, Berner 1994, p 29). This conception, however, did not eradicate the persistent subjectification or animation of nature in other social contexts.

The current environmental crisis (brought on by the massive extinction of species, populations, communities, ecosystems, landscapes at local, regional and national levels, as well as languages, religions and culture traits, and irrespective of any national or political border) necessarily demanded a profound rethinking of the nature concept. Such re-conceptualization had an initial drive during the mid-1960s with the ecosystem theory (Odum 1993). A second vigorous moment, persistent until now, is given by the explicit call for action in the field of biological and cultural conservation which has pervaded science, mass media and global politics. A crucial aspect demands change in people's environmental ethics involving attention to human positioning toward non-humans and their surroundings commonly synthesized as intrinsic versus instrumental values (Lewis 1970, Rolson 1975, Regan 1981). The proliferation of conservationist creeds and action plans, as expressed in multiple declarations, treaties, conventions, laws, movements, international campaigns (e.g. Convention on International Trade in Endangered Species of Wild Fauna and Flora 1973, United Nations 1987, UNCED 1992b, UNCED 1992a, Kyoto Treaty 1997, World Wildlife Foundation 1986, 1999, 2002, UNCED 2002, etc) and so forth, has legitimated these categories to the extent of institutionalizing a global conservation agenda halfway between praxis and discourse. Eclectic ethics informed by a variety of worldwide philosophies and beliefs have taken particular active roles in the implementation and adherence of global behavioral changes toward nature. Some successful movements such as Deep Ecology (Næss 1973), Autopoiesis (Varela *et al* 1974), Gaia (Lovelock 1979) and Biophilia (Wilson 1984) have gained many supporters in academic, religious and lay circles (Zent 2012). These movements and others with the same profile and aim are linked by a main goal: the preservation of life on Earth. These views, as we shall see below, are not that different from ancestral ones in the Americas.

Recognition of the remarkably diverse range of perspectives worldwide to conceiving and acting toward nature could contribute toward improving current environmental ethics. Attempting to address this complex goal, this essay

² In the Foucault sense (1972, p 191): 'By *episteme*, we mean ... the total set of relations that unite, at a given period, the discursive practices that give rise to epistemological figures, sciences, and possibly formalized systems ... (It) is not a form of knowledge (connaissance) or type of rationality which, crossing the boundaries of the most varied sciences, manifests the sovereign unity of a subject, a spirit, or a period; it is the totality of relations that can be discovered, for a given period, between the sciences when one analyses them at the level of discursive regularities'.



Prepared by Stanford Zent and Nuria Martin. Based on topographic maps NB-20-III and NB-20-IV, 1:500,000, South American Projection 1959. Instituto Geográfico de Venezuela "Simón Bolívar", Ministerio del Poder Popular para el Ambiente, República Bolivariana de Venezuela.

Figure 1. Joti homeland.

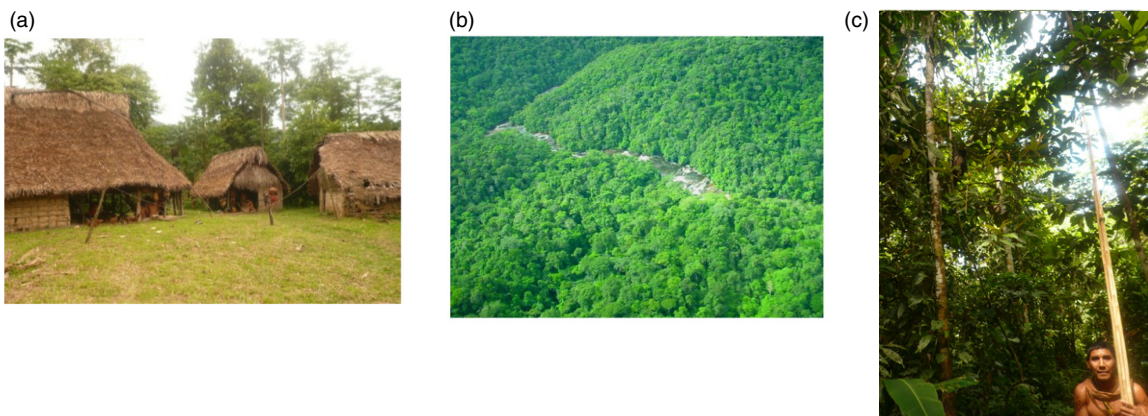


Figure 2. (a) Single-family houses at Caño Iguana. (b) Caño Iguana Valley. (c) Baijkyo on his way to hunt.

explores the idea of a web of life held by the Joti, a group of 1200 people living in a rainforest environment in the Sierra Maigualida in Southern Venezuela (figures 1 and 2). Joti environmental ethics, or *jkyo jkwaini*, will

be explored here within the ecogony theoretical concept and framed in the Sapir–Whorf hypothesis as will be immediately explained after the methodology section below.

2. Some methods

Since 1996 Stanford Zent and the present author have conducted research on three main macrosubjects: ethnecology, ecogony³ and ethnocartography (ethnobotany, ethnomycology, behavioral ecology, mythology, territoriality, land self-demarcation, etc) among the Joti. Our presence among the Joti has been approved by the community in oral and written ways, after communal meetings had been held over the years. Permits for conducting research have also been requested and issued at national, regional and local levels. Most importantly, the permanent interchange of communication and service between the Joti and us has legitimized our projects to the community, whose members address us as friends and allies nowadays. Our approaches have attempted to answer a range of questions associated with understanding the Joti trekking lifestyle and use of the forests that they inhabit. Our epistemologies moved between biocultural conservation and human ecology. Intentionally integrative in the sense of wanting to document Joti ecological *knowledge* and *behavior*, our methods have been *quantitative* (aspects of the observed empirical phenomena) and *qualitative*. The gathering and analysis of data along with our comprehension of Joti ecological dynamics has been a gradual process, like the continual learning of the language.

Inasmuch as this work synthesizes data analysis spanning several years and projects, the more relevant methods used are listed numerically: (1) census and mapping of 25 Joti communities; (2) collection of herbarium and fungal voucher specimens (~3500) following standard handling procedures (Bridson and Forman 1998)—biosystematic determinations made by botanists from national and international herbariums; (3) floristic inventories in measured forest plots (1 ha in size) at four Joti communities (see Prance *et al* 1987, Boom 1989, Phillips *et al* 1994); (4) the conduction of standardized interviews, phrased in the vernacular language, among a demographically representative sample of persons in the respective communities ($n = 169$); (5) semi-structured interviews with 65 Joti individuals dealing with protogonic, anthropogonic, cosmogonic, ecogonic and eschatological narratives; (6) 75 structured life-history interviews; (7) unstructured interviews about various ethno-ecological topics (plant/animal names, habits, habitats, exploitative and management techniques, etc) carried out in a variety of normal activity contexts or directly in association with the plant collections; (8) participant observation of domestic and subsistence activities (social visits, domestic chores, craft-making, gardening, foraging excursions, camping trips, etc); (9) time allocation studies (20 687 person-days) over a three-year period, using the spot check method described by (Johnson 1975); (10) food resource accounting (1074 days) (cf Zent 1996); (11) focal person following observations ($n = 90$) during subsistence activities; (12) garden crop inventories and sample plot censuses in gardens of varying ages ($n = 131$); (13) geographic position system (GPS)

recording of wild resource harvest locations (besides the geographical coordinates, also noting the harvest date, resource item, weight, person carrying out the harvest, and harvest techniques).

This set of imbricated methods has allowed us to understand diverse areas and aspects of Joti human ecology. Much is still being processed and analyzed. We hope that the interpretative analyses provided here, although not exhaustive, describe with fidelity Joti voices and practices.

3. Some theory

Rearticulating Robin Wright's definition of religion⁴ to fit my own research inquiries, I coined the term ecogony (Zent 2009), emphasizing the sphere associated with what particular human groups define as their cosmos and the interrelationships of the different entities within it. The paper in question attempted to show how plants permeated the Joti universe beyond the material sphere in: 'four interrelated areas of praxis and ideology: (1) protogony, the order that explains the origin of the cosmos and surroundings (perceptible or imperceptible) and the entities that dwell therein; (2) anthropogony, the discourse that explains human creation; (3) ecogony, the elucidation of the interrelationship and dynamics between the entities of the biosphere and their current function; and (4) eschatology, the declaration of closure, the individual, and social end or potential transcendence of selves in the afterworld (Zent 2009, p 10)'. Ecogony emerged then, as a term turning into a concept with epistemological potential: signifying the understanding of the subsumed causes that originate (usually unconsciously) the distinct ways that cultures interact with their biotic and abiotic environment. That is, the casual roots that underlie the distinctive interactions between a human group and their surroundings. Ecogony appears *vis à vis* cosmogony or anthropogony: each society has a textual and contextual body of tenets for explaining current realities and dynamics. Etymologically, ecogony is a compound of the Greek words *oikos*: eco, home, and *γένεσις*, *gonos*, creation, origin. The main target here is attempting to comprehend the different causal interrelationships (ideological, material, economic, social, spiritual) subsumed to generate and explain the diverse articulations and dynamics of people with other entities and their environs. The main issue here is revealing the root causes that provide such different configurations of interactions between past or present cultures. Biocultural ethical concerns are subsumed within a society's ecogony.

Ideally the approach should comprise diverse foci and disciplines, valuing both quantitative and qualitative methods/data/analysis. A fruitful setting for articulating this approach is offered by the ethnography of some Amazonian groups. Cautiously, instead of pretending to offer panaceas or solutions to the very complex environmental problems arising worldwide today, Amerindian ethics and philosophies

³ I thank Rafael Gasson for encouragement to explore this term further *vis à vis* cosmogony.

⁴ As consisting of 'anthropogonies, cosmologies, theories of nature and relationships among beings in the cosmos, and eschatology', Lecture, University of Florida, 23 August 2007.

are alternative modes of conceptualizing and acting in the current sensual reality that has historically created life⁵. The Jotí example described here resonates in essential aspects with other Amerindian people (such as Airo pai, Arawete, Ashuar, Baniwa, Cashinahua, Curripaco, Ese eja, Eñepa, Juruna, Kayapo, Kuikuro, Guajá, Huaorani, Inuit, Makuna, Makushi, Muinane, Naded, Nukak, Parakana, Pemon, Tukano, Waiwai, Wari, Warao, Yanomami, Yawalapiti, and Yekwana). To be precise, the reification of one perception of nature (assumed to be right) is what has minimized Western world possibilities to rethink alternative ways of life.

The ecogony notion is suitably linked with the Sapir–Whorf hypothesis which advanced the theory of a systematic relationship between a person’s language—lexical and grammatical categories—and his or her thoughts, world perceptions and behaviors: the ‘*real world*’ is to a large extent unconsciously built upon the language habits of the group (Sapir 1929/1958, p 69). A main relational question following this statement is: *Do words precede thoughts or generate them?* Different linguistic patterns and categories would produce different thinking and behavioral patterns: *We dissect nature along lines laid down by our native languages (...). We cut nature up, organize it into concepts, and ascribe significances as we do, largely because we are parties to an agreement to organize it in this way (...)* (Whorf 1940, p 213).

In this context, it is very significant that all Amerindian languages known lack a term or lexeme that could be translated as nature. They do not have words equivalent or even approximating to the Western scientific idea of nature, nor do they have words to label our corresponding sociocultural sphere. There are 1002 languages spoken in the Americas today (excluding those of Western origin) corresponding to 14.5% of non-Western languages of the world and approximately 50 496 321 speakers (Lewis 2009, Migliazza and Campbell 1988, Loukotka 1968). This 1% of the world’s population assumes that, contrary to Western terms according to which nature and society imply *a priori* two spheres (albeit parallel but different in sensible reality), they conceive no terms but a single sphere of life, usually non-denominated. The prevalent ideology in the contemporary Western world considers the need to separate two domains since inherently, essentially and substantially they are apart and distinct. Nature as a unified non-human domain does not exist as an idea among Amerindian people as has been broadly theorized, especially by the Brazilian anthropologists Lima (1986, 1999) and Viveiros de Castro (1979, 1992). There is one sphere of life, a non-divisible one, and all entities are in it. Organism and environment do not denote two separate things but a non-detachable totality, a system of development, a growing process, in sum an ecogony.

⁵ Amerindian people are those native cultures considered to be descendants of the first groups that populated and dwelt in the American continent, those inhabitants that over the centuries have persisted in the Americas as diverse populations. Since their global cultural systems had been undermined, disturbed, outraged, absorbed, mistreated or destroyed, given asymmetrical contacts subsumed in power discourses and actions for the last 500 years, their holistic dynamics are non-existent.

Ecogony is still enduring an ongoing process of conceptual adjusting and attuning in order to become more manageable in a particular ethnographic setting. In that vein, this work aims to illustrate the distinctive ecogony of the Jotí: the causal triggers that produce particular configurations of interactions with biotic and abiotic components of their surroundings. A portion of Jotí philosophy, *jkyo jkwaini* (to care for all a/biotic components that surround people given their interdependence) constitutes a main pillar of Jotí ecogony: a complex web of praxis and ideas built on past knowledge performed daily. Three Jotí ecogonic nodes are described here: interdependence, humanity and subject–person.

4. Some results: the Jotí

About 70% of the Jotí are monolingual speakers of a Sáliban family language. Although Jotí communities have been exposed to dissimilar degrees of contacts with non-indigenous people, differences among the subgroups are not reflected in their essential lifestyle, which involves a mix of hunting and gathering, horticulture and fishing (accounting for 80%, 19% and 1% of their time respectively Zent and Zent 2004b). The Jotí are highly mobile, egalitarian and their settlements are structured primarily by cooperation (figure 3). The Jotí sense of well-being rests on interactions through the circulation and transference of goods, materials, information, services and foods, which craft the socialization and identity of group members. A healthy Jotí (*jti ja* male, *jti jau* female) is a good and beautiful person who is articulated integrally with his/her socio-ecological environment. By contrast, a sick person is associated with incompleteness, badness and ugliness, and is someone who does not have effective communication with other entities of their universe.

4.1. Interdependence

Jkilějka smiled while we collect botanical samples on a 1 ha plot that we set up in a high forest 15 min’ walk from his settlement. An annatto dyed loincloth and neatly weaved organic beads, crossed bandolier-like on his torso, were his only attire. Dots painted with vegetal resins adorned his limbs. Flashes of sunlight traversed the tiny interstitial spaces between entangled tree branches. Spots of blue sky played here and there among the diverse verdant shades of canopy plants. My body was exhausted, hungry and painful after several weeks of hiking through the forest ... Nothing could be worse, I thought. A minute later a tropical shower began to fall ... progressively water poured down in torrents. Nothing was left dry. Gently concatenated in staccato between the fissures of rain, harmonic sounds flowed. A chain of tones echoed persistently in colorful hues: Jkilějka was playing his cane-flute under a broad leaf (Phenakospermum sp.) umbrella fastened to his loincloth through the petiole. He stared at me. Strings of notes cuddled the air diluted in the forest. He performed non-stop until the rain came to an end. (3 May 1996).



Figure 3. Jotí people. (a) Children weaving a loincloth. (b) Maternity and weaving cotton. (c) Collecting honey from a *Trattinickia* sp. tree.

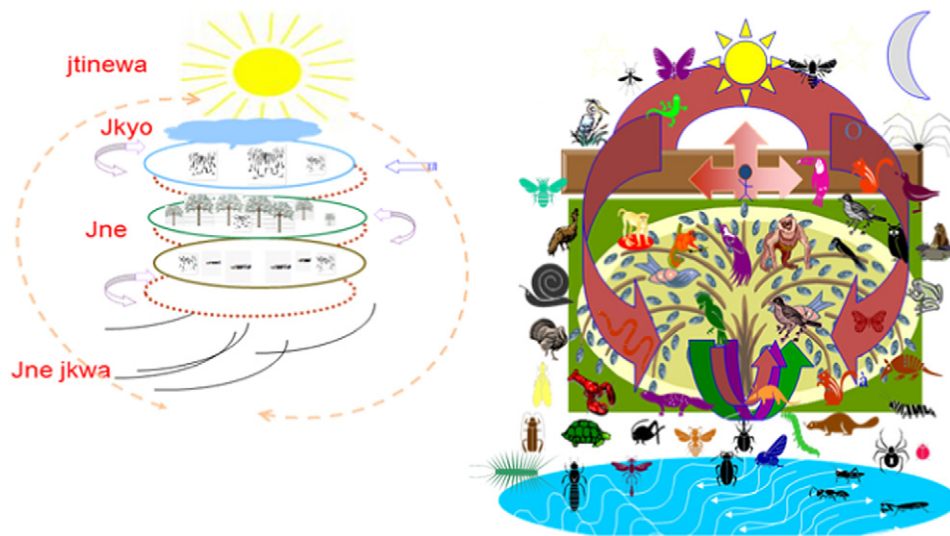


Figure 4. Simplified representation of the Jotí cosmos, its structure and interconnectedness.

Beyond an aesthetic experience, this event marked how I was taught to glimpse the Jotí’s hyper-awareness of the multiple connections and interdependence of all entities and with their environments. Jkilējka taught me to accept the forest as it is. His statement was about life: to celebrate the rainwater without which the rainforest would not exist. Jkilējka pushed me to realize the all-encompassing sense of the forest species and individuals. Humility appealed to me then as the only way to appreciate other ways of perceiving the world with a different stance of mind and body.

A set of pragmatic more than theoretical tenets sustains the continuity of Jotí lives. Among them are notions analogous to those advanced by some theorists, but subsumed in actions here: *ijtiaki-bějkyadi* (sharing, interconnectedness), *balebī* (movement, interaction, predation), *wějlaki-bějkyadi* (*Umwelt*), *au jkwai* (interpenetration of essences), and *me dekae jkyo* (dwelling). These action-concepts permeate the Jotí worldview and are found again and again in their constructions of humanity and person-subjects.

(1) The meaning of the phrase *ijtiaki-bějkyadi* translates as sharing, parting. Sharing is the main condition of being alive. The Jotí world order is a vast space of interconnectedness and exchange (*ijtiaki bějkyadi*). Isolation or seclusion is a utopian impossibility, not even voluntary.

Sharing is inserted in interrelated and interdependent cosmological and social networks.

More than teleological or normative, the Jotí cosmos is composed of three intertwined tiers (see figure 4) containing its own assemblage of interacting elements. Each one possesses inherent rights and duties whose full exercise is necessary to avoid the system’s collapse. Essential transferences of material, spiritual and immaterial constituents occur incessantly. Interconnections are unremitting. Aware of the dependence (food, shelter, reproduction, etc) on myriad beings and processes, the Jotí recognize a potential lack of clear-cut limits among entities which nurture an ethos of belonging and caring among all life-forms. The tiers share attributes in shape, composition and disposition of space, time and entities inhabiting them. They are oval but relatively flat at the base with concave and convex extremes and a slight inclination in order to allow water to flow down. Each tier carries on perpetual oval movements, being home to a diverse assemblage of people, animals, plants, spirits, etc. All subjects living in the tiers reproduce Jotí social and moral conditions (kinship, ethics, relatedness, tools, etc). Only *jkajo jadi* (pl., *jkajo ja* sg, weightless wise people, male and female, who are potentially immortal and metamorphic) can see all tiers. The steep mountain-peaks are trails toward

jkyo ‘the sky’. Smaller mountains are passageways to go toward *jne jkwa* ‘the underworld’. Four tree-trunks support the middle layer: *muye jyei* (*Copaifera officinalis* L.), *ni alawini* (*Vitex capitata* Vahl), *jkawale jka jka* (*Caryocar microcarpum* Ducke) and *kyabo jyei jka jka* (*Qualea paräensis* Ducke). These trees were used by *jlae* (lit. father, also called *jkyo ae*, hypostatic being, thunder) to build the original houses. Sturdy vines of *jkwayo inimo ju* (*Prionostemma* sp.) are used to fasten the logs together to the sky. The sky is supported by huge trees: *ni alawini* (*Vitex capitata* Vahl), *jnujtiyebo jele* (*Amphirrhox longifolia* St. Hil.) and *jkawale jka jka* (*Caryocar microcarpum* Ducke). The trunks that hold up the sky are similar to the poles supporting current houses. A big river–lagoon encircles the oval spheres of life. This water is in soft motion around the three layers, *jkyajka* ‘downstream’ and *mamejka* ‘upstream’. There is nothing after the lagoon, according to the sixty-five Jotĩ that talked to us about this cosmic representation. We are floating in nothingness.

Even people are partible and are not conceived as individuals but as *dividuals*. The inviability and even inexistence of the society–individual dichotomy is asserted by the Jotĩ in their behaviors, for instance in the total lack of a notion of privacy. Like Melanesian or Indian cultures (Marriott 1976, Strathern 1988), people conceive themselves as dividuals, or divisible, instead of individuals, or indivisible. Like other Amerindian people, for the Jotĩ the condition of subjects such as persons is not restricted to *Homo sapiens* (Zent 2005) but includes many other components of their environment (such as some stars, plants, arthropods, mammals, birds, etc) endowed with sensibility, agency, volition and decision-making ability, and thus capable of influencing the Jotĩs’ daily life. The person in Western perception is a unified discrete entity that approaches the world in particular ways (Strathern 1988, Mondragón 2011). When people participate in an economy of sharing, gifts are omnipresent and their dynamics are interwoven in a grid of permanent giving–receiving and everything is distributed. In such social sphere, the value bestowed on objects and subjects comes from the recognition of the parts in relationships of constant interchange. Neither things nor persons possess intrinsic ontological values (self-sufficiency or autonomy) mainly because they are hyperconscious of not having the ability to reproduce themselves. Like for Melanesian societies, among the Jotĩ all productive action is generated by a collective capacity called the *dividual* by Strathern (1988) since an individual’s creative labor depends upon social relationships caused by interchange (Mondragón 2011).

Ijtĩaki-bějkyadi fosters interconnectedness, reciprocal or mutual sharing, generating exchanges, contacts, bonds and foremost communication between organisms or individuals of the same kind or of different kinds. Constant interchange of three essences: water, light and sap, ensures uninterrupted communication among the three tiers. Water surrounds the three tiers. Sunlight spreads its warmth and power over everything. Sap permeates the trees; it disperses and sprouts everywhere: as roots in the underworld, trunks on the Earth and canopy in the sky. Tree branches are the home of many beings. The clues to understanding the Jotĩ world

order are given by interactions among subjects, humans and non-humans. The cosmos is a ‘matter of responsibility between humans and other kinds of beings’ (Morrison 2002, p 24). People’s actions are the main keys for understanding the world of Amerindians (Hallowell 1960). Sky, Earth and underworld are multi-spatial tiers perceived in heterogeneous ways by the different actors that pullulate around them. Most life-forms roam around, moving among the tiers, notably humans’ major predators.

The movements of subjects are permeated by communicative behavior or its avoidance. Resources and strategies for accessing them are sensibly perceived. Two major spheres of interactions are found in the Jotĩ daily routine, tangible (hunting and gathering, fishing, natural histories, etc) and intangible (transmission of cosmological and mythological traditions, rituals, prescriptions, etc). The two spheres are imbricated. Predatory routines modulate the dynamics of giving–receiving–taking which embraces numerous beings, each with distinct essences and substances but tied together in a *continuum* of life. A paramount and direct consequence of this comprehensive view is horizontal communication with and among life-forms: the attitude and behavior of people are modulated by respect and care for tangible and intangible spheres.

Selfishness, social aggression, overexploitation, disrespect, loud voice, neglect of subjects, violence, etc, are considered inappropriate and bring negative consequences. Flawed human conduct unavoidably leads to biotic extinction, disease and death. Furthermore, the undesirable effects and costs of poor behavior are absorbed by the social collectivity and not just by the individual: *Dodo Jotĩ, people with clothes and technology survive thanks to people like us. We sustain and support the communication lost long ago to many. The day we turn arrogant and selfish, the moment we stop sharing food, drinks, tools, ideas, knowledge and medicines, that day Jkyo malidekõ would declare the end of life on Earth to Jtinewa (Sun) who would then stop walking. Disease and pain would appear everywhere. Everyone would die.* (Ijtõ, 2002).

(2) Probably the closest translation of *balebi* is ‘movement, motion, mobility’. In contemporary contexts as well as those recorded in mythological narratives, *balebi* signifies a temporal–spatial variance of a subject’s position, structures or strategies, entailing a change of location, modes of interactions or *habitus* (sense of Bourdieu 1977, bundle of affections). Movement permits the realization of subsistence activities (hunting, fishing, gathering, etc) and continuation of the Jotĩ lifestyle, including the necessary tangible and intangible transformations. The main activators of motion are interactions similar to those defined in population ecology and perspectivism (intra-species or inter-species: mutualism, competition, amensalism, commensalisms, predation and parasitism). *Balebi* adds meanings when complemented with the word *jkyo*; thus, *jkyo balebi* is a polysemic verb that requires many words to convey its Jotĩ meaning: to prowl, walk, explore, browse, hunt–fish–gather, go out to the forest. *Jkyo balebi* synthesizes the practices of a lifestyle inherently distributive (plants, arthropods, mammals, birds, rocks, water, air, etc). Many *jkyo balebi* activities are modulated by

two components, the so called *jkyo aemodi* (*jkyo aemo* sing., hypostatic protector polymorphic semi-godlike human beings) and knowledge to use the body as a communication vehicle. Each species has *Jkyo aemodi*: wise persons who take care (feed, protect, shelter) of all individuals of their genera⁶. They conglomerate all of their kind and regulate the flow of their populations, deciding when, how and where one is able to capture those of their group (Zent 2005). Joti must have good relationships with *jkyo aemodi* to reproduce their life and guarantee its continuity. Success in hunting and gathering, fishing, gardening, fabricating bodies or shelters is dependent on specific modes of (socio-ecological–cosmic) communication. These, in turn, are contingent on proper knowledge of the conditions that create and recreate the interactions required to enable the normal flow of daily life.

Jkyo balebi expresses movement in different spheres such as water bodies (that surround the three tiers of life and are articulated in hundreds of arteries flowing all over the Amazon), air (stored and produced by plants and their entities), stars (especially Jtinewa, the Sun, the ‘huge person’ who walks daily around the three biospheres and gives energy, light and information to all entities), human fluids (blood, nursing milk, saliva, semen, urine, etc), the sap of plants (especially from emergent trees that sustain the cosmos and provide food, shade and life on Earth), among other things (e.g. pregnancy). Everything is persistently moving in the cosmos (humans, animals, rocks, etc), at diverse frequencies (isolated event, daily, monthly, annual, once in a lifetime, etc), intensities (total engagement, superficial transactions, intermediate force, etc), and for varied reasons (economic, social, religious, pleasure, etc). Motion conceals predation, which is critical for survival but also is the most asymmetrical of all communications. Joti predatory events permeate multiple levels of the socio-ecological realm. Contextually, the same entity changes roles between predator and prey. A broad assortment of biological species (600 plant species, 45 mammal species, 53 bird species and 15 fish species, detailed in Zent 1999) are involved in predatory interactions along with many non-tangible spiritual agents in a practice known as mystical predation or the cosmic food web (Århem 1996). Predation in many diverse forms and tactics is omnipresent daily. Joti ecogony cannot be aligned to Rousseauian noble savage metaphors.

(3) Earth’s chaos is a latent possibility while the cosmic order rests on the perceptor’s sensorial capacity to apprehend his/her environs or *wējlaki bējkya*. This notion, related to *Umwelt* (von Uexküll 2001)⁷, denotes how the outer world or environment is not apprehended equally by all species or individuals. The surrounding world is not an empty background. *Wējlaki-bējkya* comprises objective and subjective aspects apperceived by the organism as an

interrelated network of signs. Entities respond to signs according to meaning in a plurality of subjective worlds (Hornborg 1996, p 52). This concurs with the Viveiros de Castro’s Amerindian perspectivism (1979), Århem’s perspectival quality (1996) and Gray’s perspectival relativity (1996). Joti mythical narratives and daily events abound with precise examples of *wējlaki bējkya*. *Jkyo*, or the external contexts, are replete with signs, and constitute complex open systems articulated by and composed of countless sentient subjects interacting through their own perspectives and lenses. *Wējlaki-bējkya* is not the physical surroundings of life-forms, but the filtered sensual meanings that each living creature perceives as her/his global external open system. Perception and action are linked. The Joti recognize how each subject (not just *Homo sapiens*) builds a perceptual world through his/her senses corresponding to her/his operational world that constrains her/his range of potential events and actions in the cosmos. *Umwelt* is also the interlinking of objects of experience: what behaviors are adequate and prompted by the signs grasped by each life-form. Joti subjects (Sun, animals, mushrooms, etc) persistently create chains of signs that prompt a series of expected meaningful behaviors. Joti *wējlaki-bējkya* offers heterogeneous landscapes readable to the wise and accessible to all willing to learn about proper ways to interact, move, create, respond and communicate with signs (see figure 5).

(4) The Joti are aware of their daily incorporation of essences into their bodies, including air, food, drinks and human fluids but in particular there is a conscious effort to incorporate *triggering* essences into their bodies. Such practice is generically referred to as *au jkwai* and consists of a set of procedures such as nasal or oral libations (*au wai*), inhalations (*au ño jkwai lamau*), coctions (*au jkwai*), partial or total body baths (*au dili*) using carefully selected pieces or fragments of mostly organic and occasionally inorganic objects (e.g., particular kinds of plants, mushrooms, arthropods, mammals, fish, or birds, water or rocks rich in minerals), or physical contact (spitting, stepping on something) with those objects. This compound notion or *interpenetration of essences* (Zent 2008, 2009) is bidirectional since specific parts of plants, animals or minerals are likewise submitted to interpenetration of human essences (saliva, blood, maternal milk, semen, footprint, etc). *Au jkwai* builds and rebuilds life in a range of daily settings (fabricating shelters, baskets, bodies, gardens, fishing, hunting, gathering, learning a skill, etc). It is practised for diverse reasons: to purify and restore connections with entities, to make plants and animals grow healthy, good and close to people, to fortify and recuperate good health, to develop positive relationships with the environment, to acquire and stimulate skills and abilities, to gain certain powers in order to be able to establish contact with sentient beings, to ward off diseases or bad omens, and to build alterity. The organic fragments guarantee connectivity with sensory beings and their environments. A primary example of the common application of *au jkwai* is to enhance hunting ability and success (Zent 2005), evincing the pragmatic awareness of the dependence of humanity on complex ecological linkages and processes involving myriad biotic and abiotic components of the biosphere.

⁶ Equivalent to Masters of animals (plants, mushrooms), often quoted in the Amerindian literature (Desana, Reichel-Dolmatoff 1971, Kapon/Pemon, Butt Colson and de Armellada 1990, Eñepa, Henley 1988, Piaroa, Overing and Kaplan 1988, Mansutti 1997; Yanomami, Alès 1995, Makuna, Århem 1996, Yek’wana, Silva Monterrey 1997, Guajá, Cormier 2003).

⁷ Introduced by the Estonian entomologist Jacob von Uexküll (1909 Chebanov 2001, p 169).



Figure 5. Links of the biota with ontological and pragmatic spheres.

Interpenetration (from Lat. *inter*, in the middle, in between, and *penetrāre*, go through a body/matter) stresses the mutual entrance or insertion of two discrete entities or forms, denoting bidirectional movements. *Essence* is recognized by the Joti as those key or intrinsic components of an entity or object that spark off transformations and movements. *Au jkwaï* is a pragmatic affirmation of the transient condition of life and the impossibility of separation among entities; it is a hyperconsciousness of immanent interdependences of all life-forms and their surroundings. *Au jkwaï* is a memento about the utopia of disconnectedness among beings: there is no option to disentangle the web of life because connections are inevitable. The Amazonian ethnographic literature suggests cautious but possible extrapolations to the practice of interpenetration of essences, a notion analogous with *consubstantiation* (Descola 1996, p 138).

(5) *Me dekae jkyo* signifies a bond to the Earth, implying living and engaging with one's surroundings. The Joti have the ability to immerse, to dwell in their holistic space of life as an inescapable condition of existence (Ingold 2000). *Dwelling*⁸, denotes building, remaining or staying in a place, both in ontological and physical spaces, although this presence does not imply stasis. From a Joti perspective, the world is not a finished given but rather is in permanent formation. Its dwellers and multiple components are meaningful in relation to the modes of incorporating them in dynamic life patterns of change. This idea articulates with the Jotis' day-to-day building of the forest that they inhabit (Zent and Zent 2004a).

4.2. Humanity

Jlita and I hurried behind the swift pace of her group, heading to the creek to collect crabs (Fredius adpressus). The skyless trail requested awareness to walk through this forest teeming with myriad life-forms. Sun-loving creatures were roaming around. Aulola and Jkute-ju, the older women, were constantly pointing out plants, bees, termites or caterpillars to

the teenagers and children. After an hour's walk, we reached a small creek where a deep blue sky was framed by the emergent trees. A band of jki jki squirrel monkeys (Saimiri oerstedii) ran noisily above. Yellow and blue jkamaya macaws (Ara spp.) glided across the sky. Everybody jumped in the water. Trunks of muli ji (Socratea exorrhiza (Mart.) Wendl) and jetö eloli jyei (Cordia sericicalyx A DC) were lying on the bottom of the river. Quietly the women stood in each extreme of the trunks closing the passage through the emptied piece of wood and collected a dozen adult crabs. Weeks earlier they carved out holes in cut sections of palm-trunk and placed them in the creek creating a propitious environment for the female crabs to deposit their eggs. They grabbed the crabs with dexterity and tied them up with supple stems of the jedö iye ju vine (Mikania micrantha HBK). Then, they were bundled up with broad leaves of jnejna jwajwa (Monotagma laxum K. Schum.). The women explained that muli ji palm serves best as crab traps because of the softness of the inner stem's fiber, the relative durability of the outer stem and the feeding habits of the crabs on this plant. The wood extracted from the trunks is eaten by other species (weevils, caterpillars) used and managed by the Indians. Returning to the community, the women cooked the crabs which would be shared among the other 20 members of their household.

In this crabbing event, the Joti enacted again their ecological awareness of connections, dependences and interactions of species within a web of life. Crab collection is not an isolated strategy; rather it meshes with a set of ecological behaviors defined by symbolic and survival quests. Crab collection should be mastered by all Joti females by the time of their first menstruation. It plays an important role in the rite of passage that defines humanity. The myth recalls that during the primordial time Crab was a human being that decided to turn into an animal so that all women thereafter could find food relatively easily. Stem-traps are part of a subsistence strategy along with the use of phyto-indicators (*jani iye jyei Trichilia inaequilatera* Penn., *jedö iye jyei Trichilia* sp., *iye bulijnajko jyei Cupania scrobiculata* L.C. Rich.) and the mental cartography of successful past harvest events associated with resource management (crabs' sizes, population distribution, ages,

⁸ A concept formulated by Tim Ingold partially based on Martin Heidegger's notions.

Table 1. Number of ligneous botanical species per use class.

Use	Families	Species	Undetermined
Edible	58	222	43
Medicinal/ritual	67	182	76
Construction	59	285	46
Fishing	18	36	4
Firewood	54	325	51
Thirst quencher	9	11	4
Hygiene	15	23	7
Technology	59	193	50
Animal food	91	550	89

sexual dimorphisms, localities, etc). The connected interplay of these components guarantees a fruitful harvest of crabs. The women did not collect all of the crabs found in each nest, in keeping with what they were taught by their female elders who in turn learned from their ancestors.

Besides crabs, weevils, mushrooms, etc, the Jotĩ gather around 230 species of plants as food (Zent and Zent 2004a, p 88, table 3.1; most harvested trees and their seasonal availability), and 182 for medicine (see table 1). Ecological praxis and knowledge are tied to the processes acquired gradually but steadily from an early age, like generosity, which is a marker of humanity among the Jotĩ. In that sense, selfish and egotistical people (*ijtedema-ja*) are not essentially human. Humanity and knowledge are comprehensive and articulated processes, not end products. They are not given but rather are assembled. None of them are exclusive conditions of *Homo sapiens*.

The Jotĩ body frames the person whose fabrication is a synthesis of two practices: to reproduce the self as a conglomerate of many organic elements and to bequeath an ethos (knowledge–praxis–habitus). The person, *jo* (human being), implies more than the material-body; it is constructed in concrete ways such that physiology depends upon culture (Seeger *et al* 1979, p 15). Most life-forms were at the beginning primordially humans and although a broad speciation took place, besides being embodied in people the quality of being human-subjects is still embodied by celestial bodies (Moon, Sun) and many other non-people species (plants, animals, mushrooms). Human-subjects possess intentionality, rationality, sensibility and autonomy. Ancestral oral narratives (cosmogonical, anthropogonical, eschatological and ecogonical) explain today's world and people. Current humanity is built with essential organic fragments: the tangible and intangible components of people are manufactured from an assortment of species. Humankind is another way in which the universe materializes itself.

Jtinewa (Sun) was the first entity to be completely human. He is still the only one walking daily through all the tiers. In the last big destruction, *ikyëka ja* (hard man, primordial trickster) predated all humankind after cutting down the four trees that support the Earth. *Jtinewa* rested motionless at noon until *Ñamulie jaiñe* (the first man son) climbed up into the sky and killed him. Sun was reborn immediately and *Ñamulie jaiñe* taught him his path and how to be a complete person. In this chaotic scenario, some essential aspects of Jotĩ ontogenesis, phylogenesis and cosmic qualities

are revealed to be tightly associated with the dynamics of the forest. Clues to how to grasp the articulated notions of personhood and eternity following predatory strategies are carefully constructed in mythical narratives (Zent 2005). Following the instructions of Thunder (*Jkyo ae*, powerful hypostatic being), *Jkajo ja* (weightless wise one) carved the first woman (*Ñamulie au*) from the tree-trunk of *jitĩtimö jyei* (*Apeiba schomburgkii* Szyszyl). He put an *ijkwö ju* (lit. heart, life, soul) in the innermost part of the stem and from this heart the human essence emerged, providing their/our sensibility and subjectivity. The *inë ja dodo* (lit. animate flesh–skin, palpable body), and the *ijkwö ju* are generated in conception, expressing the person in material form and defining the organism's *habitus*.

Jkyo ae taught the first couple all of the traditions that regulate today's Jotĩ behaviors relating to the couvade (pregnancy, childbirth and post-partum prescriptions) and which offers guiding principles of the human condition (see Zent 2006, 2009). After a baby is born, the father participates directly in his/her conformation. After superficially burying the placenta among the roots of soft trees, the father goes into the forest for three days and gathers leaves, barks, roots, flowers and fruits of diverse plants, liana saps, mushrooms, arthropods⁹, certain rocks and waters. After chewing up all of these elements, he puts the resulting mass into a basket weaved for this purpose while asking *jkyo ae* for a strong, healthy *jnamodi* (lit. animus, intangible spirits settled in the person's heart) for the newborn. He then returns home and the baby's mother rubs and bathes the newborn with this biodiverse compound consisting of the species' essences and the father's saliva. This triggers the most convoluted event in the assembly of a person: the mass-of-essences transforms into the *jnamodi* which penetrate and inhabit the baby's body, insufflating him/her with intelligence, volition, knowledge, sensibility and health (a detailed explanation of the fabrication of a Jotĩ body–person can be found in Zent 2006). These essences penetrate, protect and connect the newborn forever with each of the species and elements that were part of the compound (115 species are mentioned in this regard; figure 6). Besides the time of birth, *jnamodi* may be fabricated and bestowed at other liminal moments (adolescence, specific trainings). Each person has from one to four *jnamodi* depending on his/her age and wisdom. They reside and grow inside and around the whereabouts (in the forest, houses, gardens, rivers) of the person. Literally the person *is* the biosphere: hundreds of species compose and sustain humankind, and it is not possible to separate the person from her/his species essence-impartation.

While the heart allows the person to see, feel, foresee, know, apprehend and live as a sentient being, the body individualizes and spatializes the person and permits her/him to apperceive, think, and move around in sensible spheres. *Jnamodi* allow us to dream, think, understand and avoid diseases.

⁹ Systematic biology determinations are not provided when bioactivity of the organisms is suspected.



Figure 6. Examples of the species involved in essence interpretation of a baby born from a teenage couple.

4.3. Personhood

Both couples of initiates looked emaciated. Several sleepless nights, days of fasting and consuming tobacco for the first time resumed their cyclical rictus of vomit and consumption. The previous night there had been an intense celebration to mark the closing of a 3-month rite with a communal party. Preceded by torches, the dancers sang and played flutes breaking the absolute darkness that escorted the steps to the idö jnuwe (oval multifamily house). Entangled bodies intermingled in concentric circles of performers donning skirts, aprons, crowns (woven with *Attalea maripa* Mart. leaves), necklaces, bracelets and anklets (made of seeds, bones, mushrooms and exoskeletons). Food and drink were shared bountifully. The ancestral rite of passage to consolidate humanity in a person's body was once again reproduced (November 2004).

Ni Joti or true humanity-personhood is consolidated nowadays, as in the primordial time, by way of a ritual celebrated at puberty. The ritual entails spatial, corporeal, symbolic and behavioral elements implying an integral cosmic connection to live as proper Joti (see Zent 2005, 2006, 2009 for details on this ritual). The initiates, individuals or a couple of potential spouses, transform into persons endowed with consciousness, creativity, agency and morality. After the ritual, the Joti way of life as consummate predator starts in symbolic, spiritual and behavioral spheres, marked by nose perforation (*ñojkajka jkale*), a procedure which confers correct interaction with their aggregate surroundings and a significant portion of its (biotic and abiotic) components which are also considered to be potential subjects endowed with consciousness.

Since hunted or harvested species (from the forest or garden) are person-subjects, they must be de-humanized or de-personalized before being predated, ingested or used for

survival. Yu (sanitize, make healthy, cure or consecrate game or harvested plants) is the mechanism for de-personalizing the game or harvested plants (see also Århem 1996). Yu is a brief exhalation of air and conversation with the area where the hunt or harvest takes place, with the prey's body and with the meat that it will provide. The hunter-gatherer commits to share all substances and food. Yu transforms the subject-animal or subject-plant into object-food by a shamanic act. It is a more relaxed practice if the game's or plant's essence to be eaten was part of the compound mixed by the father to build the person's *jnamodi* at his/her birth. The potential of abduction, transformations (into the predator kind) or predation by the Masters of species is more likely if *yu* is not practiced. After *yu* the game recognizes that it must go to its place of origin in order to initiate another cycle of individual life.

Hunter-gatherers usually paint-adorn their bodies (*maluwe duwidekae*) with essences and organic elements (*Protium* spp., *Himatanthus* sp., *Trattinnickia* spp., *Mabea* sp. for men and *Aphelandra* spp., *Bixa* sp., *Psychotria* spp., *Garcinia* sp. for women, mixed with substances from the heart of animals—tapir, spider monkey, peccary, black curassow, burned exoskeleton of wasps, scorpion, bullet ants, different ant species, caterpillars, fish cartilages, resins, etc) that protect the hunters and facilitate connectivity-communication among them and their target (tree, bird, vine, honey-bee, tapir, etc), while proceeding to track, persuade-seduce, trap, grab, collect or kill the selected prey. Every person can be a hunter-gatherer and acts as a manager of her/his relationship with diverse species of animals and plants; her/his behavior affects all the subjects of her/his group. Each subject takes the place of a human intermediary with the divine intangible world in the sense that her/his behavior modulates and assumes the responsibility of human discourse before the spirits.

The Joti are committed to preserving the biosphere because each person's fundamental objective is to sustain and

reproduce the total interconnection of entities as the only possible strategy for maintaining the existence in the world. Such responsibility is the footprint *par excellence* of humans and it is paradigmatically represented in the Jotí lifestyle. Each subject is endowed with a responsible, autonomous life. Humans are immersed in practical ways in the cosmos as they are dynamic constituents engaged actively in the production and reproduction of life. Rather than just inhabit the world, the Jotí dwell in and modify it by joining diverse dynamics to reproduce sociocultural life conditions in different realms. Fishing, hunting and gathering forest products are part of a continuous vital interchange. Nothing is static or fixed. People's roles are contextually changeable and depend upon the time and place where they are. Most Jotí are cognizant of their role in managing plant and animal populations when hunting–gathering (see Zent and Zent 2008, p 516, table 5 for a list of the most frequently hunted prey during three years of observation according to weight percentage). However, interactions between those species and the Jotí do not exist on a material or trophic plane alone.

5. Some conclusions

(1) The Jotí life-strategy could easily be discarded as obsolete, minimalist and untested. Beyond defending blindly an ecological noble savage stance, there are solid grounds for sustaining that Jotí environmental ethics and their overall ethos support the maintenance of local or regional biodiversity or even enhance it. Phytosociological studies carried out in 4 ha of forest plots (used daily by the Jotí) at four different Jotí communities showed not just maintenance of vegetal diversity but also enhancement of plant species to the extent of harboring the richest forests in species (highest α and β diversity) thus far documented in the Venezuelan Guayana (Zent and Zent 2004c, pp 2475–7). The four hectares of forest inventoried never reached an asymptote, accounting for a total of 65 families, 232 genera and 533 species, including some unidentified vouchers. Within each plot and between them there is high diversity since less than 20% of the total inventory of species are present in two or more plots. The average degree of similarity in species composition for plot pairs was 12% and 18% using the Jaccard and Sørensen similarity coefficients respectively. Such richness is sustained by dynamic intervention strategies (harvest and dispersal of fruit trees, use and handling of palms, monitoring and management of palm grubs, gap cultivation, and honey extraction) traditionally practised by the Jotí to modify and create biological diversity (Zent and Zent 2004a, 2004b, Choo *et al* 2009, Zent and Zent 2008).

The Jotí are not just dynamic, but key actors in the composition, diversity, configuration and functional integration of the forest biome that they inhabit. The scale of human impacts on these forests is very small (single tree falls, usually less than 200 m²), small (multiple tree falls, usually less than 0.5 ha) and medium (swidden plot felling and burning, usually less than 1 ha). The ecological impact of the Jotí, given their lifestyle, can be regarded as medium frequency events (intervals of a few to 60 years).

Such impacts are characteristic of environments having the greatest mix of species of types J (early succession species) and K (late succession species), and hence the highest levels of biodiversity (cf Barbour *et al* 1987, Pickett *et al* 1992, Odum 1993, Groom *et al* 2006). Moreover, Jotí impacts are low intensity, being localized and reversible, without large energy investments (stimulating colonization by J species, eliminating some but not all seeds of K species, and prolonging the succession process). The subsistence technology and lifestyle of the Jotí have a non-detrimental impact on their surrounding environment, making them creative architects of their rich Amazonian lands. They go beyond the simple dichotomy of conceiving humans as either harmful exploiters of (*apart from*) nature or beneficent stewards of (*part of*) nature with a more holistic vision of the human–environment relationship as *art* (*ars*, ability, expertise, skill). They are *creative* in the sense of triggering ecosystemic outcomes beyond those aimed only at satisfying immediate needs.

In this vein, Jotí environmental ethics could be summarized as what Marshall (1993) called 'ecological extension' (fundamental interdependence of all entities and their essential diversity, i.e. the Gaia hypothesis, ecocentric ethics, ecologist, intrinsic value) and 'libertarian extension' (all animate and inanimate elements in the world have the same rights as humans, i.e. deep ecology, biocentric ethics, intrinsic value) and are not so much of a good example of conservation ethics (nature as fulfilling a potential or real utility to humans, i.e. shallow ecology anthropocentric ethics, extrinsic value).

(2) The diverse treatment given to nature as a concept constitutes a good example of the socio-ecological risks implied when notions that trigger behaviors are extrapolated worldwide as if they were standard ones. I hope to have shown that nature is an elusive and resilient concept. Western notions of nature and society have unfolded opposed, symmetrical and conflicting epistemes that generated two broad parallel domains, natural versus social. Although much has been written about this erroneous dichotomy since the late 1970s (Latour 2009), little has been accomplished to change these *official* notions. Nature–society concepts subsume dual Cartesian conceptions that in turn embrace as their focus objective (natural) versus subjective (cultural) realms. This apparently theoretical intellectual exercise is the product of a historical contingency and has practical, changeable implications, where nature has now 'shifted from being a resource to become a highly contested topic' (Latour 2009, p 2). Nature and society are concepts strongly influenced by those (political) systems that reify them as truthful in order to justify and promote their (often economic) interests. Such concepts are not universal; rather they are culturally built. An unavoidable call for recognizing the weight of such concepts in decision-making and policy-making in socio-ecological systems is compulsory now for the survival of life on Earth. This work has tried to add arguments in favor of diversity as a strategy for reaching that goal.

(3) The Jotí geophysical space has a material corporality of time. Space and time are not discrete dimensions but

associated with specific entities. Trees, people, arthropods, birds, stones, mountains, stars, rivers have a fluid teleology that emphasizes the existence of a tight connection among all beings. This connection drives material, spiritual and essential transferences and trans-identifications among the spheres of sentient life (terrestrial, aerial, aquatic) and the material structures that support them (mountains, rocks, rivers). Beyond being exceptional, the connections are expressed in Jotí daily ecological praxis. Their extensive ecological, phenological and etiologial knowledge has syncretic, utilitarian, symbolic, functional, ceremonial and definite referents. Human corporality works as a central organizational axis of individual expression, shifting around a fundamental social and cosmological function defined by the predatory praxis.

(4) This work glimpsed the roots of ecological interactions of the Jotí people with the forest and larger biosphere that they inhabit, including the biophysical and spiritual substrate (soils, plants, mushrooms, animals, tangible, intangible, hypostatic or immanent entities, etc) in different spheres (ecological, social, cultural) for the production of life. They have an efficient management system sustained in environmental ethics (ecological and naturalistic knowledge, mythic geography, rituals, etc) that channel how they think, dwell and use their surroundings. Seemingly mundane management plans among the Jotí are sustained in ancestral philosophy and praxis that are simultaneously emotional, informed and morally engaged. Violation of ethical norms (aggression, selfishness, taboos, etc) implicate (transitory or fatal) punishments including reduction or extinction of resources (plants, animals, water, air, etc) on Earth, kidnapping and mystical predation, diseases, loss of connectivity, lack of communication, isolation, and even the total destruction of this era, chaos. The main method for avoiding harm of any sort is to conserve an ethos of respect toward everyone and everything in action, word and thought. That is to say, they have a clear consciousness of temporality and continuity associated with each subject's responsibility and their awareness of interdependence and perpetual motion. The Jotí predisposition for sharing as well as the practice of penetrating their bodies with organic essences (plants, mushrooms, arthropods, feeding, tobacco, libations, inhalations, ablutions, etc) constitutes a recurrent statement of interdependence. Their bodies synthesize the sphere of life interconnections. Plants, mushrooms and arthropods are vehicles for attaining connectivity, acting as material, intellectual and spiritual inductors that conspire and allow for successful harvesting.

An assessment of the efficiency of Jotí environmental ethics is clear in their agency as producers of biodiversity. Such agency shares a substrate with that of other Amerindian people and certainly Westerners can appropriate these notions to create more than destroy.

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