

Perspectives, dimensions, and references that shape the notion of nature: A semiotic model based on socioecological relations

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Abstract. If the significance of nature is a crucial phenomenon in understanding the forms of relations societies establish with the environment, in what way is this significance built? This paper presents the results of a case study focused on exploring how the meanings of nature and socioecological relationships relate to each other in an indigenous population. The first part of the article explains the theoretical scaffolding used to collect and analyse data, based on ecological anthropology and Ogden and Richards' semiotic scheme. The second part describes the methodological procedures and the first findings, that is, the elements and dimensions that integrate the meanings of nature and land for the inhabitants of this population. It is also explained how those meanings are built and how they are fused to local socioecological relationships in an ontological way. The findings reveal that the inhabitants of this community configure their meanings of 'nature' from multiple references of biological, spiritual, axiological, and cultural character, often represented by its referent 'land'. The notion of 'nature' (as land) is created from subjective and social experiences with the environment and the territory, and in turn provides meaning to the biocultural identity of the population. However, historical learning, worldview, and social organization also emerge as the main structuring elements of the social meanings of nature and land.

Key words: meaning; territory; biocultural identity; cultural semiotics; land; environment

The meanings of nature in contemporary societies constitute a significant element of the civilizational paradigms that guide the ways in which human beings conceive of the world and how they relate to it. The cultural perspectives “provide

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the knowledge, assumptions, values, goals, and rationales which guide human activity” (Milton 1997: 491), which directly affect ecosystems (Rappaport 1971) and the planet in general. At the same time, human activity “yields experiences and perceptions which shape people’s understanding of the world” (Milton 1997: 491) in a permanent dialectical process.²

Amid the prevailing global cultural diversity, each society (and each person within it) creates their meanings about nature based on the historical moment, cultural determinations, and the ways in which the society is linked to the environment (Descola 1996). The semiotic aspect of relationships between humans and nature could refer to, for instance, “the contexts-dependence of the valuation of nature, differences in seeing and understanding it” (Kull 1998: 351). Anyhow, human-nature relationships are linked to deep cultural processes (Kull 1998).³ In this paper, nature’s relevance is considered to depend widely on the meanings that people give to it, which are constructed in combination with a diverse range of elements that must first be identified in order to achieve a holistic comprehension of this semiotic construct.

With the aim of exploring the way in which a society creates its meanings associated with nature from the perceived world of experiences and things, and observing how these might influence the social perspective relating to natural surroundings, an ethnographic study was conducted with focus on the inhabitants of an indigenous village in southern Mexico.

This research is supported by a theoretical framework based on elements deriving from the fields of ecological anthropology and semiotics. The former discipline offers anthropological perspectives on culture–nature relations, and the latter provides semiotic explanations of meaning processes that allow the apprehension and analysis of social semiosis in the case studied.⁴ Here, semiotics

² Rappaport (1971) distinguishes between two models through which nature is “solidified”: one model corresponds to the image one has of nature, which is why it is a perceived (symbolic) model, and the other one is an operative (physical) model that alludes to the ecological system (including the people). The former is based on knowledge, beliefs, and the purposes of a social group regarding the environment, and the latter simply exists. This study is centred on the symbolic model.

³ It should be clarified that ‘nature’ and ‘environment’ are not synonyms, even though the comparison is frequent among modern societies and many people use it so. In relation to this, Ingold (2000) argues that the adoption of one term or the other (‘nature’ or ‘environment’) corresponds to two different perspectives, respectively: seeing oneself within the world, or assuming oneself to be outside of it.

⁴ Furthermore, semiotics contains a particular field, ecosemiotics, defined by Kull (1998: 350) as “the semiotics of relationships between nature and culture”, which includes the semiotics aspects relating to the importance of nature for human beings. Even though this field could be useful in understanding some of these aspects, its theoretical scaffolding is not used in this study.

is considered as a bridge.⁵ The integration of both fields provides a complementary perspective, since this study focuses on obtaining a semiotic cartography of the notion of nature from a specific population, interpreted through theoretical contents provided by ecological anthropology and by Ogden and Richards' semiotic scheme.

1. The significance of nature: An interface between relationality and culture

Ecological anthropology considers *relationality* to constitute a fundamental factor in the significance of nature to human beings (Descola 2012; Hornborg 1996; Ingold 2000), as is the case with all living organisms.⁶ This statement coincides with the *umwelt* theory, according to which organisms respond as subjects because they react only to signs (Uexküll 1982). According to this approach, "each organism in an ecosystem lives in its own subjective world (*Umwelt*), largely defined by its species-specific mode of perceiving its environment" (Hornborg 1996: 53). At the same time, the interactions that occur within the ecosystem involve a plurality of subjective worlds that communicate and exchange meanings; therefore, ecological relationships are based on meaning; that is, they are semiotic (Hornborg 1996).⁷

However, among human beings the interaction reaches its highest known degree of complexity because such beings are in a permanent search for meaning surrounding the objects of their experience, attempting to understand the meaning they have in relation to their existence and to react to them (Watzlawick *et al.* 2002). It can be affirmed, then, that relationality is the quality that makes the perceptive experience of human beings in their environment possible, and one by which meaning is imparted to their environment itself.

Given the immeasurable diversity of potential relationship forms, it is relevant to identify the relational modes specific to a particular society. Relational modes constitute integrating schemes, which "stem from the kind of cognitive, emotional, and sensory-motor structures that channel the production of automatic inferences,

⁵ For Kull (in Favareau *et al.* 2017: 17), "most of contemporary semiotic theory has been developed on the basis of a humanities background" and, therefore, semiotics should be linked to the humanities.

⁶ According to Milton (1997), the objective of ecological anthropology constitutes the combined understanding of the material effects that human populations exert on their environment, and *vice versa*, as well as the way people think and act, recognizing the great diversity in ways that people conceive of the world.

⁷ Watzlawick *et al.* (2002) affirm that existence itself is a function of the relationship between the organism and its environment.

orientate practical action, and organize the expression of thought and feelings according to relatively stereotyped patterns” (Descola 2012: 310). These schemes should not be considered categorical imperatives, but rather objectified properties of the whole collective life that manage to configure a local *ethos* (Descola 2012) which is fused to their social practice. This explains how the ways of interacting with the environment condition the ways of understanding it, and how they shape the relationship with it (Milton 1997). In the desire to achieve a deep ecological understanding of how people relate to environments, Ingold (1996: 42) states that “it is imperative to take this condition of involvement as our point of departure”.

Another factor of primary relevance when it comes to the establishment of meaning is culture. Hornborg (2018) says that the experiential dimension of human-environmental relations involves the continuous creation of cultural frameworks in the conceptualization and perception of the world, as does language. That is, in other words, that the social processes of imitation, narration, and categorization produce meaning formation, and refer to a cultural construct that, in addition to involving tacit and sensory dimensions, contains a linguistic and discursive dimension (Hornborg 2018). Considering that, in the quest of exploring the meanings related to nature by a certain group, both relational and linguistic aspects are key cultural sources, assuming that culture is “the human version of a universal semiotic capacity essential to all life”, an indissoluble component of physical and practical human engagement with the environment (Hornborg 2018: 8).

Along with the above, when addressing the study of the significance of nature, it is necessary to consider the dialectic between two areas by which it is perceived: subjective and intersubjective. With regard to the former, since significance is predominantly an internal and personal process (Moulian 1999), the meanings that are attributed to aspects of nature can be said to originate within the subjective, a world made possible by biological structure (Maturana, Varela 1984). This domain is commonly observed to be mediated by factors such as that of the existential sense of self (Watzlawick *et al.* 2002), emotions, will, interest (Ellen 1996), and biography, among others. Meanwhile, social sign systems are produced in the intersubjective sphere, in which subjective meanings are exchanged through the interactions between subjects. In this sphere, the integration of the sign systems in social practices and cultural frames is happening as well.⁸ From this perspective, Rossi-Landi (1992a) affirms that all operations of social life – or social practices – are, in their essence, sign operations.

The notion of social practice refers to what people do in their operations as united members of particular communities, so that “social practice is seen as

⁸ Rossi-Landi (1992a: 30) affirms that sign systems are produced by societies; even more, he says that “society is a set of sign systems taken as an organized whole”.

the practice of men as subjects of history, as operators upon nature and upon themselves” (Rossi-Landi 1992b: 234). In this context, socioecological relationality forms a set of social practices belonging to sign systems that exist objectively in social reality and that can, in general, be conceived of as reproductive mechanisms of culture (Rossi-Landi 1992c). For these reasons, semiotics holds a central role in the attempt to understand the complementarity between the meanings of nature and the character of socioecological relations that prevail in specific communities.

The theoretical framework outlined above allows for a social practice to be conceived of as an act of significance that incorporates the subjective dimension within the intersubjective, even more so when it is assumed that this practice involves a continuous epistemic-cognitive recreation in which individuals express meanings corresponding to the cultural framework of their community and rebuild them from their subjective experience together with the other members of their group in everyday life.

Recognizing the complexity represented by the phenomenon of semiosis by itself – defined by Kull (2019: 90) as “the process in which meaning arises or emerges” –, this study does not seek to obtain a broad understanding of the semiosis processes that generate the meanings of nature, but rather some of the elements that constitute them and how they are associated with the socioecological relations of a specific community.

1.1. The meaning, beyond words

The purpose of knowing the meanings of nature in a certain population transcends the intention of delimiting the meaning that underlies words, due to the reasons given, in addition to the fact that notions about nature cannot be symbolized by a single linguistic expression (Ellen 1996), or even as a specific reference. It could be found that, as a concept, nature has very little meaning (Descola 1996), or that its semantic value is relative, or immeasurable and, therefore, the subjects find it difficult to express (Gudynas 2002). Edward Sapir (1912) and Benjamin Lee Whorf (1959) had already noticed the limitations of trying to conceive the environment and nature based on linguistic systems alone.

However, despite the complexities involved in the notion of ‘nature’ (from the *etic* perspective of the researcher), it is proposed as the axis of navigation in this search because it is widely known in contemporary societies, including traditional, *campesinos*,⁹ and indigenous peoples. Beyond questioning the validity of the

⁹ ‘*Campesinos*’ refers, in general, to people who live in rural areas and depend widely on primary economic activities: agriculture, forestry, livestock and poultry farming, gathering, hunting, fishing, etc. They own land or have access to communal lands for their use. When necessary, they combine these activities working as merchants, *jornaleros* (day labourers) in agricultural and construction activities, or in the service industry.

modern construction of 'nature' and the ontological separation that it implies with respect to the human being (Descola, Pálsson 1996), it is useful as a category that guides the exploration and analysis of the meanings of this symbol (Hornborg 2002)¹⁰ in the social group studied.¹¹

2. A case study: A Zapotec indigenous village in southern Mexico

To support the assumptions raised, this article relies on the results of an ethnographic investigation conducted in an indigenous rural population in southern Mexico: La Trinidad Ixtlán, municipality of Xiacuí. It is located in the Sierra de Juárez region (or Sierra Norte), in the north of the state of Oaxaca, in the watershed of the Sierra Madre Oriental, with forests situated on the slopes of the Gulf of Mexico and the Pacific Ocean. This region is distinguished by an impressive orography on which extensive areas of mesophyllous mountain forests and high evergreen forests develop, considered one of the most important centres of biodiversity and water harvesting in the state and in the country (Gasca 2014).

La Trinidad Ixtlán is a small village, inhabited by 783 people who own a communal territory (a form of social property), mostly covered with temperate forests. For almost four decades, it has implemented a community forestry model that provides economic and environmental benefits to its inhabitants.

During several stays with the population between 2016 and 2019, a continuous coexistence with five families and dozens of local inhabitants was established by the researcher. In the course of the fieldwork, direct observations were made of the subjects' practices in daily life and of their communicative interactions. Informal dialogues with the actors and 15 formal interviews with adults were also held. The main purpose of the study was to identify the social epistemic practices through which meanings about nature are shared and built. The precondition to reaching the objective was to know, precisely, the significance that local inhabitants attribute to nature.¹²

¹⁰ Hornborg, Alf 2002. In defense of the Nature/Culture distinction: Why environmental anthropology can neither dispense with, nor be reduced to, semiotics. Paper presented in the panel *Beyond universalism and relativism*, at the Ninth International Conference on Hunting and Gathering Societies, Heriot-Watt University, Edinburgh, Scotland.

¹¹ Here, the term 'symbol' alludes to Ogden and Richards' semiotic scheme (Ogden, Richards 1946[1923]), in which they distinguished three elements of a sign: the reference (concept), the referent (thing, object or event), and the symbol (word, name). In this study the symbol 'nature' is referred to as the basic name given to a wide concept that is being explored in this case.

¹² For some of the results of the research project related to social educational practices of La Trinidad people, see Aparicio 2019.

It must be acknowledged that an important challenge in the present investigation was the approaching of this significance through the relations of the people with their environment. To reach this goal, the person immersed in their social interaction scenarios was considered as an 'analysis unit', that is, "the whole person in action, acting within the contexts of that activity" (Pálsson 1996: 73), assuming that every human action is a sign activity (Rossi-Landi 1992a). Such a perspective facilitated the task of identifying certain meanings by observing people engaging in their ordinary activities, i. e., harvesting crops in their fields, preparing meals, making arrangements regarding the communitarian labour, working in the woods, etc. These actions were taken as operationalized (that is, physically expressed) meanings by people in relation to their life contexts and, characterized like that, were studied, registered, and analysed as a fundamental source of meaning.¹³

An observation guide was made with this purpose in mind. The initial focus of the observation was on the inhabitants' actions by which elements of nature were either interacted with or referred to as *means of subsistence* (food, water, oxygen, biofuel) and as *environment* (land, field, mountain, climate), all of which can be reasonably thought to constitute tangible references concerning nature. The definition of these two basic axes of observation was the result of a first exploratory visit to the community, since in people's daily lives food, climate, and issues related to primary productive activities, among others, are of central importance as subsistence depends largely on the direct use of one's territory. Through people's conversations, a constant mention of these aspects was detected, but what else could be conceived of as nature? The question about other possible referents required a theoretical construct that allowed to grasp a broader, and perhaps more sophisticated, spectrum of aspects that could allude to it.

At this point it became necessary to resort to some schemes regarding the elaboration of the idea of nature by authors in the field of ecological anthropology, particularly Ellen (1996: 104), who, despite acknowledging the difficulty of configuring the notion of nature, considers it possible to recognize "a minimum number of underlying assumptions upon which pragmatic schemata and symbolic representations are built". To Ellen (1996), every model of nature is built based on three dimensions or cognitive axes: the first one permits us to interpret nature inductively, in terms of the objects or "things" included by people in it. The second dimension enables us to construe nature spatially, relating it to some realm outside humans. The third one allows us to conceive nature in essentialist terms, as a force or power beyond human control. Even though the three cognitive axes have

¹³ Ellen (1996: 119) says that "concepts are often used, operationalized, without defining them". For that reason, in order to grasp the elements than intervene in the social significance of nature, a semiotic categorization was made based on direct observations of the actions of the members of the studied community (see Fig. 1).

different relevance when building the notion of nature, they all are necessary to integrate “a model of cognitive geometry of nature” (Ellen 1996: 120).

The “model of cognitive geometry of nature” allowed the researcher to visualize other fields or aspects that had not been originally contemplated as possible categories of observation during the first visit to the community. In people’s daily lives, however, Ellen’s model was not fully compatible with the findings generated through direct observation of the communicative actions and interactions, such as specialized knowledge of the environment (drawn from productive work for subsistence) and local history. In addition, after the people had been interviewed about their life trajectories, other referents associated with nature that prevail in the cultural framework of the population were discovered; these are linked to identity, the way of life, and a person’s own humanity as nature.

With the aim to systematize the most significant referents and frame them in a semiotic outline, the observation guide was broadened to include the new emerging categories (described in the following section), adding to a total of nine references (see Table 1). These references form the basis of the analytical categorical framework, which was generated through the dialogue between theory and empirical work. The notion of ‘references’ (Ogden, Richards 1946) acquired an initial role as guide for the classification of these first findings.

Table 1. References obtained, sources and applied methods of collecting data¹⁴.

References	Source	Method	Level
Means of subsistence	Daily life: peoples’ ordinary activities; social and familial communicative interactions	Direct observation	Descriptive
Environment			
Living space			
Sacred entity		Informal conversations	
Inner being	Inhabitants’ discourse	Formal interviews	Interpretative
Life (biological phenomenon)			
Existential enjoyment (Biocultural) identity			
Way of life (culture)			Inferential

¹⁴ This table shows the findings, sources of information, methods of collecting data and levels of inference applied in interpreting the emerging field categories.

Once these primary findings had been discovered, a new stage of qualitative analysis was carried out through ethnographic analysis methods to complete the analytical framework. During the work of analysis and classification of the data obtained (words, elements or referents, thoughts or ideas, perspectives), the main references to nature were grouped into the specific elements (or referents) of each corresponding category. After that, a synthesis of findings and corresponding semiotic inferences was made. The inferences were integrated into a categorizing system, whose interpretative description is based on the semiotic scheme of Ogden and Richards (1946[1923]: 11); that is, referring to and categorizing a sign in relation to its composition consisting of three elements: thought or reference (concept), referent (thing, object or event), and symbol (word, name). All these findings integrate the analytical categorical scaffolding of elements that can be said to intervene in the construction of the meanings of 'nature' as well as the most common references (concepts) related to that sign. The findings are presented below.

3. A categorical model for the analysis of the meanings of 'nature'

In this study, the sign 'nature' has been related to nine references – that is, the psychic representations or thoughts with which it is associated (Ogden, Richards 1946). The first is that which will be referred to as *means of subsistence* (1), which organizes a set of elements that, for instance, favour human life, such as water, oxygen, energy, food, medicine, and materials. In other words, such elements are included within this conceptual category, as each of these elements constitutes specific referents to aspects of nature and is mediated by its representation as a *means of subsistence*. This reference belongs to the biological dimension.

The second reference of nature, *environment* (2), brings together geospatial elements, such as territory, landscape, ecosystem, planet; weather factors such as rain, frost, drought, and heat; geographical landforms – for example, mountains, hills, rivers, and ravines; and elements of the environment – vegetation, stones, soil, wild animals, etc. Although the people are immersed in the environment, this category rather represents an ontological disposition in which the humans assume themselves to be separated from it, at least in a symbolic way. For that reason, this reference is situated in the ecosystemic dimension.

The third representation, *living space* (3), refers to the space where human life develops, often colloquially referred to as 'home', 'el pueblo' ('the village'), 'mi tierra' ('my land'), and 'la sierra'. Similarly to *means of subsistence*, the *living space* reference is located in the biological dimension, but it is shared in the axiological dimension when it is associated with the territory to which the subject belongs, as

well as to its original culture, thereby conforming the biocultural identity of the people (Fig. 1).¹⁵

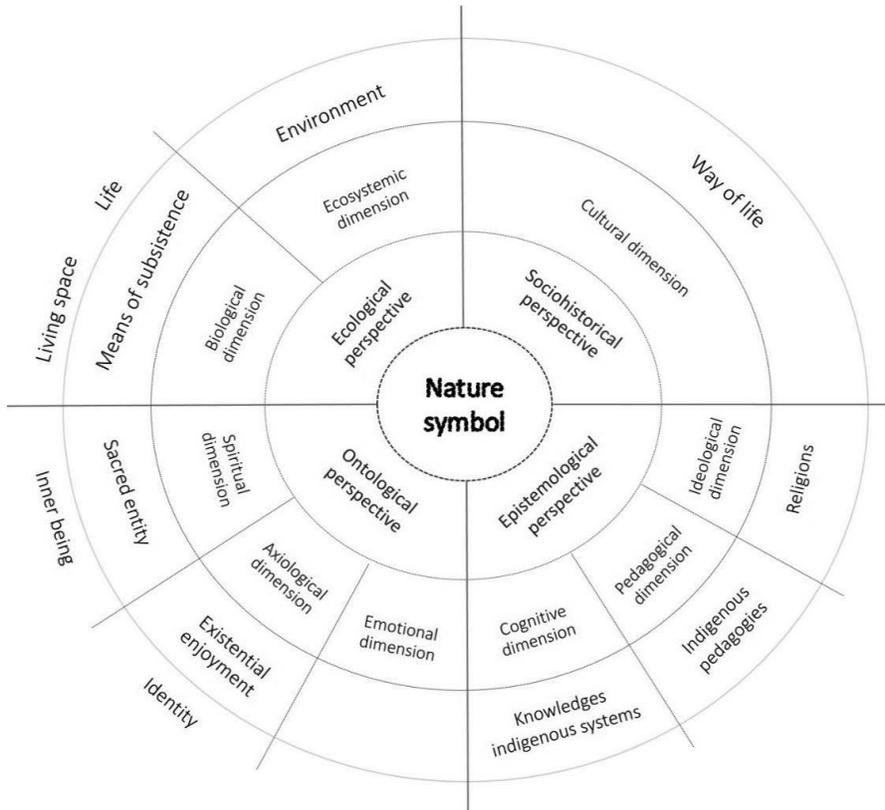


Figure 1. Perspectives, dimensions, and references involved in the construction of the notion of nature among the inhabitants of La Trinidad Ixtlán.

¹⁵ The notion of bioculturality includes a variety of living beings and a range of cultures, although different authors incorporate other dimensions in it (Toledo, Barrera-Bassols, Boege 2019), depending on their disciplinary perspective. This notion is linked to an ecological phenomenon called “the co-evolution of small-scale human groups with their local ecosystems” (Oviedo, Gonzales, Maffi 2004). The phenomenon is offered as an account of why the conception and experience of nature (as well as the beings that organize and inhabit nature) are inextricably related to humans, who are considered part of nature (Boege 2015). The ‘biocultural identity’ is a concept derived from this notion, applied to the study of society–nature relations in native populations, as is the case addressed in this article. This identity is the result of long-term relationships between indigenous societies and their original territories (Boege 2008), as well as the current living of the former on the latter, by which nature is incorporated into their own culture.

Associated with the *sacred entity* reference (4), nature can be conceived of as a divinity, entity, or higher consciousness, an exogenous force to the human will (Ellen 1996), thanks to which life is possible. Meanwhile, from the *inner being* representation (5), the human being is observed to perceive nature as an internal energy, often in correspondence with the sacredness of life, by which the person is assumed to be part of the whole of everything alive. Both references are associated with the spiritual dimension.

Progressing to the next category, some people conceive of nature as a *vital phenomenon* (6), that is, as an animation or biological phenomenon by which beings live (physically). This reference belongs to the biological dimension of significance.

In addition, nature can be perceived as an aspect of *existential enjoyment* (7), and is a source of well-being and human development, a space of enjoyment and quality of life; the referents of living in freedom, tranquillity, physical and food security, as well as the possibility of creativity and fulfilment, are associated with it. The perspective of nature as an *identity* (8) is the origin and space of communitarian life. In this representation, it is also conceived of as a historical reservoir of ancestral culture, a heritage that is recreated in the present society.¹⁶ Both of the previous two references are inserted into the axiological dimension of being.

Finally, the representation of nature as a *way of life* (9) incorporates social principles and practices that give meaning and structure to the lives of people and groups through work in and with the environment, shaping the culture of the people.

In summary, the references described above are associated with nine dimensions or sources of significance related to nature, which include the ecosystemic, biological, spiritual, axiological, emotional, cognitive, pedagogical, ideological, and cultural ones, as indicated in Fig. 1. In the intent of express significance, that is, when a person tries verbally to elaborate her own concept of nature, one or several of these dimensions can intervene, depending on the situation of the subject and the source of the feeling, doing, thinking, or saying of the individual or collective who designs such significance, either from an ecological, ontological, epistemological or sociohistorical perspective, or a combination of these.¹⁷

¹⁶ Some prevailing cultural aspects of this community, such as the social organization, collective values as communality and solidarity (present in social practices such as the *Guelaguetza* and the *tequio*), come from the indigenous Zapotec people who founded the village centuries ago, according to Mr Malaquías García, a farmer of La Trinidad.

¹⁷ This article describes six of the sources of significance, inscribed in ecological, ontological, and socio-historical quadrants. The dimensions within the epistemological perspective (cognitive, pedagogical, and ideological) are not addressed in this article for length reasons.

Once the aim of knowing the elements that intervene in the significance of nature has been achieved, an interpretative description of the results is made to show how the meanings of nature appear in the daily life of the population studied, and how people elaborate and express their significance of nature through interviews. The following description is based on the categorial system presented in this section, and includes some historical, cultural, and situational factors in order to characterize better the current relations between the community and its territory, which allow us to understand the semiotic wealth that the sign 'nature' has for these people.¹⁸

4. Nature, territory, land, and worldview

La Trinidad Ixtlán is currently in a phase of productive transition, changing from an economy based on agriculture to one that is dependent on the provision of services, backed also by the monetary income the community earns from the timber exploitation of its forests. During this transition, new nuances have been generated in certain social schemes as a result of acculturating phenomena.¹⁹ Examples of this are schooling and emigration, which have strongly influenced the life expectations of numerous families in the community, as some interviewees told the researcher. This phenomenon started at the beginning of the 20th century, due to conditions of food shortages and poverty in the families of the region (Chapela 1999). At present, the conditions have changed: the majority of young people have been observed to regard emigration as their life's project as they seek to integrate themselves into urban populations, to take part in university studies and enter the predominant labour scheme in cities (wage employment) rather than be farmers or foresters.

It is within this context that the *environment* can be seen as the most direct and frequent reference for nature among adults in the population. This perception is perhaps partly explained by the geographical situation of the village that is located

¹⁸ Understanding the meaning that this population gives to nature and referring this meaning to a linguistic expression observed is a challenge commonly occurring in debates concerning cultural relativism. Milton (1997: 493) offers an interesting analysis of this point, in which she recommends that a reasonable cultural relativist should not "seek to understand each culture entirely in its own terms, but [to] attempt to understand all cultures in the same terms, as ways of seeing the world and not as the way things are".

¹⁹ Zecchetto (2002) mentions that, as signs are changing cultural phenomena, they register continuous processes of evolution. Due to this, the referents or cultural units of experiences are transformed as a result of the close interaction that exists between the given semantic fields and the sociocultural processes in continuous formation. This explains, in part, the transformation of social meanings about nature, depending on changes in the cultural perspective and even the state of the environment.

in a mountainous area covered with temperate forests. The life of the population has adapted to this orography, its landscape, and the climate. On the other hand, the environment represents the possibility of subsistence for farmers and foresters and gives direct benefits to the entire community.

The most common words found to refer to the physical environment are ‘forest’, ‘*monte*’,²⁰ and ‘land’, all of which were noted to be relevant and employed in social discourse. These meanings allude to the references in which nature can be directly identified, specified in the notion of ‘territory’. The territory, in turn, is ordinarily termed as ‘land’ by the members of this population.²¹ To clarify this relationship at a semiotic level, we sought to derive an in-depth understanding of these people’s meaning for ‘land’, a pursuit that led to the identification of possible synonymity between the concepts of ‘land’ and ‘nature’.

During one conversation with a farmer, he explained that the land is an element of nature, but that it does not constitute its totality: “The land is something... it is nature, more than anything because the soil, water, the heat, the cold, everything comes together, everything is a set that gives me life” (M.61).²² In this case, the assumption that ‘land’ refers to the natural environment as space, and as an ecosystem, is supported.

In numerous conversations, the inhabitants expressed a tendency to conceive of ‘nature’ as a set of diverse elements, in which land appeared as a nearby entity to which gratitude, love, and reciprocity were expressed. However, from those perspectives, the meaning of ‘land’ was not simple or monosemic. The following quotations from what the interviewees said are related to such observations:

- In relation to soil or substrate: “These wastes are left there to be reintegrated into the organic layer of the land, to recover its fertility” (ALP.82).
- In relation to farmland: “We say that they are going to break land, or they are going to plant” (G.64).
- In relation to a living entity: “My dad used to make a hole in the soil and feed the land” (MP.44).

²⁰ ‘*Monte*’ is a colloquial way of referring to the forest in this region. Because there is no appropriate English translation, the Spanish form of this word will be used in this paper.

²¹ The impossibility of semiotically superimposing the symbol ‘territory’ onto that of ‘land’ is due to the existing decalibration between *etic* and *emic* thinking. That is, although for the social sciences, ‘territory’ is a commonly used concept particularly attributed to indigenous peoples, it was but rarely found in the language of the community studied. As described by the *comuneros* (community land co-proprietors), the modern-colonial notion of territory responds to what they call ‘land’ (*tierra*, in Spanish).

²² The initials and age of the person interviewed are given in the brackets. The English translation tries to adhere to the sense of the interlocutors’ original expressions in Spanish.

- In relation to an entity that feeds and provides: “The land provides what we eat” (JMR.66); “The land provides everything” (R.49).
- In relation to family heritage: “I have dedicated more to my lands” (R.49).
- In relation to a place of life: “For one it is a pride to be in our land, with what we have” (G.64).
- In relation to a communal territory: “We did not fight for the tree, but for the land” (JMR.66).

This shows that, in addition to being a complex reference to the expanded symbol ‘nature’, ‘land’ on its own constitutes a symbol of vast significance (Ogden, Richards 1946[1923]). The diversity of references relating directly to the term ‘land’ outlines a significance that goes beyond the biological and ecosystem dimensions: it involves the cultural, the axiological, and the spiritual. The last one is revealed in the symbolic practice of feeding the land, inherited from ancestral visions that recognized metaphysical powers in the natural elements, to which tribute is still paid and whose will people appeal to. Proceeding from this animistic vision, the land is both an element and a sacred entity, particularly in relation to what it is and what it can do. The human being gives back the gifts he receives through rites, gifts, and care, which defines an *ethos* of reciprocity (Descola 1996).²³

All this exemplifies the diversity of references concerning ‘land’, generated from multiple situations of meaning. Regarding the relationship of the concept ‘land’ with the symbol ‘nature’, if this is considered in the sense that “no complex symbol may contain constituent symbols which claim the same place” (Ogden, Richards 1946: 105), and with ‘land’ as a referent of ‘nature’, this symbol represents a larger entity, as will now be explained.

The terms ‘forest’ and ‘*monte*’ are representations of nature as a physical environment and refer to a certain type of territory (woodland). Examples of references made to these appear in the following examples: “We lived in the *monte*” (ALP.82); “On the days I have time, I go to the *monte*” (M.61); “That small *monte* provides for us all” (R.49).

Fused with the concepts of ‘land’ and ‘mountains’, ‘forest’ forms a single entity (which can be understood as ‘territory’, from an *etic* perspective), a complex reference relating to the natural environment, which is, in turn, the fundamental reference of ‘nature’ for this population. The community builds a complex reference adding to it other meanings associated with the communitarian culture and ontology, and this is expressed through the relationship between human

²³ However, agricultural ritual practices of retribution to land are rapidly disappearing. Farmers who still conduct rites to ask and thank for the harvest pray to the God of the Judeo-Christian religions, in an act of syncretism characteristic of numerous Mesoamerican peasant communities (Broda 2003). Sometimes, the prayers include the land as a superior entity.

beings and their environment, both individually and collectively. In this way, the physical environment constitutes an expanded symbol in which this category covers several meaningful situations (Ogden, Richards 1946).

Regarding this broad meaning, various references associated with the sign 'nature' emerged as a result of the data analysis. For example, the representation of nature as *means of subsistence* is linked to that of the *environment*, which contains elements such as food, oxygen, and water, essential for the biological reproduction of the social group (Nahmad 1988). Such an observation is reflected by the following testimony:

Nature [environment] gives us water, trees; the land also provides us with food to eat [means of subsistence]. And all that, I would say, as a livelihood for the human being. [JMR.66]

The expression presented below involves the *environment* reference and those of biocultural *identity* and *living space*, which are permanently associated, and seem to have a similar scale of value for people:

It is our land, it is our climate: it is our environment [environment]. That is why we live here [living space]. We are natives here [identity] and here we were developed by nature [sacred entity] and we are living [vital phenomenon]. [ARM.80]

Furthermore, a broad explanation of mountain life includes the reference of *existential enjoyment* along with others already mentioned, such as *identity*, *living space*, *means of subsistence*, and *environment*:

Here [living space], we [identity], in the Sierra [identity and living space], do not suffer to feed ourselves because, thank God, there is everything, we have everything [means of subsistence]. Here, the question is to work the land to produce [way of life]. Because of the weather, vegetation [natural environment], everything [...] does produce. As for what we have to eat – here the land, the weather, all this that includes the vegetation there is –, then, we do not lack anything. What we breathe and everything we have is clean, it is pure [existential enjoyment]. [MP.44]

In case the perceptions concerning land and nature were associated with the work for subsistence and viewed from the life-experience and existential perspectives, these were observed to be more direct in their relation to the reference *means of subsistence*. The following is the testimony of a farmer:

For me, in my experience, (nature) seems to me to be the most sacred [sacred entity] for the community because it feeds us [means of subsistence], hence it gives us income for everything that is required: economic, a part of what the land produces; then, more than anything, it gives us oxygen ... I do not know how one is going to leave his land [identity], purified with this oxygen, water ... even if it is little, but there exists. Nature is the most sacred [sacred entity] for community development. [ALP.82]

This statement contains the sentiment that the relevance and sacredness of nature is spontaneously revealed, as well as an element not mentioned before, regarding the representation of *means of subsistence*: the monetary value of natural resources (i.e. the forests, for the revenue stream accessed through the sale of its wood), which in turn allows the provision of social benefits such as school education, health services, and urban infrastructure.

At this stage, the influence of changes on the productive activities of the community can be noticed. The changes in the meaning of the forest are consistent with the transition of the population's subsistence activities to one of secondary economical activities, such as commerce, factory work, and transportation. This shifts the notion of the natural environment as an essential source of people's livelihood towards a more utilitarian perspective in an economic sense, without the former nevertheless losing centrality.

This change can be observed in the abandonment of agricultural work which for decades was the main activity of subsistence and, therefore, of human-environmental relations. Instead, people now prefer to buy their food rather than produce it. By diminishing the feeling of direct dependence on the natural environment to obtain food, the notion of nature as *means of subsistence* is losing its meaning as an indispensable source of this.

Meanwhile, on the part of those who are currently occupied in agriculture and forestry, the notion of nature is associated with spiritual and axiological dimensions. For example:

We cover everything with a tranquillity that, whether it (the land) provides or not, we are calm, happy with God, with our community, with our people [identity], with ourselves [existential enjoyment]. [G.64]

Based on the results of the ethnographical analysis of the data, *environment* and *living space* appear as the primary references of nature for the inhabitants of La Trinidad, along with *identity* and *means of subsistence*, as has been explained. These are followed in importance by *existential enjoyment* and *way of life*, which is intrinsically fused with aspects of community life, and with communality as a central social value.

According to the interviewees, some of the values associated with the reference of *existential enjoyment* of the place and the ways it is lived in by the community are the possibilities of subsistence based on work in the field, tranquillity, security (physical and food-related), coexistence with the family and with the community, the breadth of space, the landscape, the pleasant climate, and a healthy environment to live in. The following testimonies describe this enjoyment:

Here, the fresh and cold air runs. You miss that. And when one is far away, you remember your people [identity]. When one is in the city, you miss being in your village because one is free, at ease ... You do not have to worry about your wallet or bag (because of thefts). That is the advantage. And one sees the *monte*. [V.47]

My idea was to come to the village. I liked going out to plant, to clear the land, to take care of the cornfield, to pick, to carry firewood, everything. Although its hard work, I am at ease, happy. [G.64]²⁴

I was born and raised here. I have not emigrated. I really like living here; that is why I have not left. The tranquillity in the community ... The landscape has a lot to do with tranquillity; it is my life, to walk in the *monte*. I like being in the forest. [JMR.66]

Most people reveal emotions and a close connection with the forest and its biodiversity. The following testimonies describe the greatness and beauty of nature:

Nature is very beautiful. And at the same time, it is very beautiful and must be untouchable because you cannot fight against nature, huh? Right now, for example, the wind is nature. And nature is also going to be able to be restored because God is so great, and nature is so great that it also recovers. [R.49]²⁵

Here, nature is so beautiful that you never get to know everything there is. In the forest – I am working there, right now it's my job – sometimes there are plants that I do not know, so many things ... For example, last time I found an orchid. It is something I did not expect. In nature, one never stops learning, as in life: every day it presents something, every day it shows you something you heard but never saw. And now, you see it. [EG.40]

²⁴ The lady explains that having migrated with her husband and children to Mexico City for 12 years, she always planned to return to La Trinidad, and did so as soon as it became possible.

²⁵ By “the wind”, R.49 refers to the storm that occurred in early March 2016 in several areas of the Sierra Norte, which devastated hundreds of hectares of forest.

With different references, people also consider nature to be an essential entity to which they bestow a character of sacredness. Some respondents recognized the superiority of that entity which had been sacred to their ancestors, although they also pointed out that the vision had become lost among young people along with the agricultural rituals of gratitude to the land. This can be noticed in the following statement:

Before maybe the ancestors worshipped nature, something, and right now it does not matter to us, maybe. We are just waiting for seasonal changes. For them, it was something sacred. Now we, instead of doing something for it, are hurting it. [JML.38]

However, whether or not it is considered sacred, or the sense of ancestral sacredness has been transformed, villagers show reverence to the forest as a living entity that is respected and cared for and has been fought for, which explains the strong social bond with the place. A small monument in the middle of the forest recalls the struggle for the recovery of the territory in the 1940s. In that place, on every 18 March the people celebrate a ceremony of reaffirming their commitment to the land. The monument was shown to the researcher by the president of the *Comisariado de Bienes Comunales* during a visit to the community's logging camp.²⁶

Besides, the community keeps some historical natural living monuments. One of them is El Centenario, an old pine with a thick diameter (approximately 1.5 metres), which contrasts with most of the surrounding trees, whose diameters range from 50 to 70 centimetres. This tree survived the logging carried out by a paper mill at the time of the forest concessions given in the mid-20th century. Once released from the concessions, the community bought the tree from the Forest Community Enterprise to prevent it from being cut. Since then, El Centenario is under the protection of the community along with two other similar trees that bear witness to the ancient forests. This story was told by seven interviewees, mostly seniors.

The meaning given by the population to these trees shows the community's sense of identity with the forest and the mountain, strengthened by socio-political resistance when La Trinidad opposed the dispossession of their territory by the federal government through forest concessions in the last century. Some interviewees were first-hand witnesses of those historical struggles in which they had actively participated. It is possible to say that, for this community, social and environmental history are one, which generates deep social feelings around the forest, a fundamental referent of nature.

²⁶ The *Comisariado de Bienes Comunales* is the steward figure in populations that possess a territory in communal ownership, such as La Trinidad Ixtlán.

Finally, there is the significant *inner being* aspect located in the spiritual dimension, which is revealed among those who consider themselves part of nature: “I am also part of nature because I live in it” (ARM.80); “We always walk within it, within nature” (JMR.66); “I am within it” (M.61); “We are part of nature because we are in it” (LMPL.58). This volitional disposition assumes the human being consciously and directly as part of the ecosystem. This vision shares aspects identified by Boege (2008) in the ancestral Mesoamerican indigenous worldviews, so it remains linked to the spirituality of today’s Zapotec people, said Juan Martínez, a native carpenter. This feeling is not explicit in everyday work or ordinary language, but is reflected when the dialogue is oriented to the topic of nature and to humans’ relationship with it.

It can also be noted that the semiosis processes of nature made by the inhabitants of La Trinidad are to a large extent determined by the circumstances of the subject and by the community’s cultural framework, but are also influenced by the community’s relationship with the modern world, a phenomenon widely extended in Mexico in which indigenous populations gradually transform their ways of life, detaching themselves from their ancestral sentiments and ways of living (see Gasca 2014; Garibay 2008; Massieu, Chapela 2007). This article briefly referred to emigration, although other cultural agents, such as the school system, religions, and public policies, affect community life as well. Each of these symbolic structures grants new elements of significance to the environment and the territory, primary referents of nature.

5. What does nature mean for the people of La Trinidad?

As has been indicated, various references of a biological, spiritual, axiological, and cultural character have been raised in this society, making ‘nature’ an extended symbol of vast significance (Ogden, Richards, 1946) for the inhabitants of La Trinidad. However, in this case, nature and land are more than verbal symbols: their significance exceeds words and verbal language as was demonstrated by the results. The meaning configures the perceived model of nature (Rappaport 1971) specific to this population who is, in turn, immersed in a territory privileged by nature.

The main basis of the significance of nature in the studied community appears to be the complex referent of the territory, represented by the land–forest–mountain entity to which the people belong, while it belongs to them in return. According to some older interviewees, this perception of the natural environment comes from an ancestral episteme that identifies the land as the core of culture and as the origin of community identity. At the same time, it has been suggested that the appropriation-integration of this provides meaning to the biocultural identity of these social groups (Boege 2008; Toledo, Barrera-Bassols 2008).

Historical learning, social organization, the communal ownership of the land, and a long relationship with the territory are primary elements that make up the social semiotics of nature, incorporated in the biocultural identity of the people, that reproduces itself in a transgenerational way through their social practices within a common life project as Toledo and Barrera-Bassols (2008) claim. Since the meanings that are conferred on nature are integrated into being (both subjective and collective) from the vital experience, the relationship condition is key to understanding the significance of nature in the case studied. For this community, nature's semiosis crosses the biological, ecosystemic, emotional, axiological, cognitive, and cultural dimensions, constituting a semiotic structure of an ontological essence.

The social understanding of nature is congruent with the community's social organization which develops under the value of communality – a principle that refers to the ontological condition of *us*, which corresponds to the group as a subject. According to Esteva (2011: 164), that *us* is the subject of communality, the first layer of a person's being, formed by the entanglement of the networks of real relationships that form each person. In La Trinidad, life is built on the relationship between people themselves as well as the territory, which leads to the consideration that, in this case, the relationship between the local cultural experience and the surrounding environment is coevolutionary (Hornborg 2002), and socially and environmentally sustainable to a remarkable degree.

Based on the results of this study, it can be claimed that in La Trinidad, as in other types of societies, the meanings of 'nature' are implied in unique ways in the adaptive organization of the people, people who act in congruence with the meanings that they build (Rappaport 1971). These meanings are constantly signified depending on the circumstances. Following Rappaport (1971) and Descola (1996), this society tends to construct its meanings of nature from the community's historical learnings, current context, cultural determinations, civilization paradigms, and the manner in which the people are currently linked to their surrounding environment.

The study shows that, in this case, nature appears not only as a symbol or a sign, but also as a model for understanding and living the world. It should be noted that the local inhabitants do not commonly allude to the symbol 'nature': people do not talk about nature, but the land, *la tierra*, the forest, the weather, each with their own references, depending on the context and the meaning attributed to it by the speaker. The word 'nature' is seldom used, and its principal meaning implies territory. Either way, what from an *etic* perspective would be called nature, or *tierra* (land), in an *emic* view constitutes a large part of the existential meaning of these people and its presence is vital to the population, as shown in the results presented here.

Regarding the semiotic analysis, it should be noted that the semiotic model generated by this investigation to identify the elements that intervene in the significance of nature and observe how nature is integrated into the sociocultural framework, is exclusive to the studied community, emerging from its exclusive features.²⁷ Still, this model offers a way to identify the referents, references, dimensions, and perspectives involved in the elaboration of the meanings of nature also in other societies, if adapted to their conditions.

6. Conclusions and final thoughts

The challenge of trying to apprehend an immeasurable notion, or simply of trying to insist on its existence, poses difficulties such as the ones described in this article. Ecological anthropology has warned of these difficulties and of the intention of carrying out intercultural research from an *etic* perspective that supposes the existence of a notion of nature in a culture different to that of the researcher. In any way, ecological anthropology recognizes the possibility of obtaining elements to comprehend the symbolic construction in a specific social group through their socio-ecological relations, akin to this case.

In La Trinidad Ixtlán, the meanings of nature and land are reflected in sustainable local socioecological relations, but it was also found that other pragmatic elements guide the collective's decisions and actions concerning the environment. For these people, reality poses strong challenges as to their daily subsistence, economic and political struggles, emigration, environmental impact, and a continuous loss of cultural elements and ancestral values that affect community life. Although this article does not provide an in-depth description of the current context and social situation of the population studied, it was found that these people face diverse difficulties. Continuous efforts must be made by the community to retain the current equilibrium, which can often be maintained by its social organization.

Therefore, given the tendency to idealize the relations of native populations with local environments, it should be repeated that meaning is not the only factor that influences the local behaviour towards the environment, even if this behaviour is positive. There are situations in which the needs of the social order precede the preservation of the environment, while nature turns out to be “an

²⁷ In this regard, Descola (2013: 405) points out the following: “Every type of presence in the world, every way of connecting with it and making use of it, constitutes a particular compromise between, on the one hand, the factors of sensible experience that are accessible to us all, albeit interpreted differently, and, on the other, a mode of aggregating existing beings that is adapted to historical circumstances. The fact is that none of those compromises, however worthy of admiration some may be, can provide a source of instruction valid for all situations”.

aesthetic abstraction with little relationship to the nature or a real ecosystem” (Kalland 2005: 326). Social research should allow a broader approach to current social and environmental realities and, thus, better knowledge of these, rather than idealize socioecological relations, especially in indigenous or traditional populations.

Even if a balance between the social and conservation needs of the territory is observed in La Trinidad, this cannot be generalized onto a global context where economic and political interests undermine environmental sustainability on all scales. Because of this, in the interest of generating deep cultural changes in order to avoid environmental deterioration, it is important to know how meanings provide content to socioecological relationships, and *vice versa*. Without a comprehension of the semiotic mechanisms that define nature’s place in diverse cultures, there is little chance to solve severe environmental problems (Kull 1998). Since reality is shaped by symbols, the meanings that human societies attribute to their environment – a central reference of nature – are vital indicators of their present and future viability.²⁸

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²⁸ The author thanks La Trinidad Ixtlán people for sharing their thoughts and their stories with her. She also thanks Simone Alavez Aparicio for her support in translating the article, and the reviewers and editors of *Sign Systems Studies* for the suggestions made to improve this paper.

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Взгляд на значение природы через социально-экологические отношения в сельском коренном населении Южной Мексики

Если значение природы является важнейшим явлением в понимании форм отношений, которые общество устанавливает с окружающей средой, то каким образом создается это значение? В данной статье представлены результаты изучения взаимосвязей значений природы и социально-экологических отношений в среде одного сообщества. Первая часть статьи объясняет теоретические установки, используемые для сбора и анализа данных, на основе экологической антропологии и семиотической схемы Огдена и Ричардса. Вторая часть описывает методологические процедуры и первые выводы, то есть элементы и измерения, которые интегрируют значения природы и земли. Также объясняется, как строятся эти значения и как они онтологически сливаются с местными социоэкологическими отношениями. Результаты показывают, что жители этого сообщества формируют свое значение слова «природа» на основе множества ссылок биологического, духовного, аксиологического и культурного характера, часто представленного его референтом «земля». Понятие «природа» (как земля) создается на основе субъективного и социального опыта взаимодействия с окружающей средой и территорией и, в свою очередь, придает значение биокультурной идентичности населения. Историческое познание, мировоззрение и социальная организация также становятся основными элементами структурирования социальных смыслов природы и земли.

Looduse tähenduse käsitlus ühiskondlik-ökoloogiliste suhete kaudu Lõuna-Mehhiko põliselanike maakogukonnas

Kui loodusele omistataval tähendusel on otsustav tähtsus, mõistmaks suhte vorme, mida kogukonnad keskkonnaga kehtestavad, siis mil moel see tähendus luuakse? Artiklis esitatakse juhtumiuuringu tulemused, mis keskendus vaatlemisele, kuidas looduse ja ühiskondlik-ökoloogiliste suhete tähendused ühes põliskogukonnas üksteisega suhestuvad. Artikli esimeses osas tutvustatakse andmete kogumisel ja analüüsimisel kasutatud teoreetilist raamistust, mis toetub ökoloogilisele antropoloogiale ning Ogdeni ja Richardsi semiootilisele skeemile. Teises osas kirjeldatakse metodoloogilisi töövõtteid ning esimesi leidsid, s.t elemente ja mõõtmelisi, mis looduse ja maa tähendusi selle kogukonna liikmete jaoks lõimivad. Samuti selgitatakse, kuidas neid tähendusi luuakse ja kuidas need on ontoloogiliselt kohalikesse ühiskondlik-ökoloogilistesse suhetesse sulandatud. Leitu põhjal ilmneb, et kogukonna liikmed konfigureerivad tähendused, mida nad 'loodusele' omistavad, arvukatest bioloogilise, spirituaalse, aksioloogilise ning kultuurilise iseloomuga osutustest, mida sageli esindab selle referent 'maa'. Arusaam 'loodusest' (kui 'maast') luuakse keskkonna ja territooriumi subjektiivse ja sotsiaalse kogemise kaudu ning see pakub omakorda tähenduse kogukonna biokultuurilisele identiteedile. Ent loodusele ja maale omistatavate sotsiaalsete tähenduste peamiste struktureerivate elementide seas tulevad esile ka ajaloolised teadmised, maailmavaade ning ühiskonnakorraldus.