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Multispecies ethnography: Theory, techniques and current challenges

Etnografía Multiespecies: teoría, técnicas y desafíos actuales

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Abstract: We live in a crisis of multiple dimensions that jeopardizes not only the continuity of human life but also its interrelation with other species. This situation demands experimenting with theoretical tools and methodological approaches that allow us to rethink the human-nature relationship. One of these innovative tools is Multispecies Ethnography, which has been the subject of various studies for just over a decade, most of them in the Anglo-Saxon academia, and to a lesser extent in Latin America. Based on an analysis of academic literature, this paper aims to identify its techniques and theoretical aspects, while also highlighting its current challenges. One of the main findings is that ethnography has been primarily designed to investigate humans; however, the inclusion of animals, plants, microorganisms, and some biotechnological devices in the foreground of multispecies ethnographies is sparking new debates about the importance of reconsidering what is referred to as "humanity" and "nature." Similarly, while there is an increasingly robust multispecies theoretical and conceptual framework, there is still room for further exploration of new methodological approaches.

Keywords: multispecies ethnography; nature/culture relationship; non-humans; multispecies studies; ethnography.

Resumen: Vivimos en una crisis de múltiples dimensiones que pone en riesgo la continuidad de la vida humana, pero también su interrelación con otras especies. Esta situación exige experimentar con herramientas teóricas y planteamientos metodológicos que permitan repensar la relación ser humano-naturaleza. Una de estas novedosas herramientas es la Etnografía Multiespecies, sobre la cual se han desarrollado diversos estudios desde hace poco más de una década, la mayoría de ellos en la academia anglosajona, y en menor medida en América Latina. A partir de un análisis de literatura académica, en este trabajo se plantea el objetivo de identificar sus técnicas y aspectos teóricos, al tiempo que se señalan sus desafíos actuales. Uno de los principales hallazgos es que la etnografía ha sido pensada principalmente para investigar humanos; sin embargo, la entrada de animales, plantas, microorganismos y algunos dispositivos biotecnológicos al primer plano de las etnografías multiespecies, está animando nuevos debates sobre la importancia de repensar aquello que se denomina «humanidad» y «naturaleza». De igual modo, si bien se encuentra un marco teórico y conceptual multiespecies cada vez más robusto, aún queda espacio para profundizar en nuevos planteamientos metodológicos.

Palabras clave: etnografía multiespecies; relación naturaleza/cultura; no humanos; estudios multiespecies; etnografía.

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Introduction

Life on Earth began with the last universal common ancestor (LUCA) approximately 3.5 billion years ago. Human beings as a species, on the other hand, emerged only 315,000 years ago and quickly placed themselves at the center of the world order, dominating other species and transforming ecosystems. However, as the LUCA reminds us, the human species is not alone but coexists and interrelates with millions of others in the great web of life. Recently, viruses, identified as quasi-species (Lowe, 2010), have managed to interrupt the monopoly of anthropocentric control, demonstrating the capacity for the agency of other beings beyond humans.

This life is in a predicament that can be understood from diverse perspectives —the capitalocene (Moore, 2015a), the anthropocene (Crutzen & Stoermer, 2000), the terricide (Movimiento de Mujeres y Diversidades Indígenas por el Buen Vivir, 2022) or the civilizational crisis (Lander, 2013)— which focus on different causes, but overlap on the opinion that the separation between nature and humanity in modern thought is one of the leading causes. In other words, this distinction directs to a material way of organizing the world, which has led to the contemporary environmental crisis. This situation demands new theoretical, methodological, and practical tools for researchers to respond to unprecedented challenges (Menzel & d'Aluisio, 2000).

The division between what is "natural" and what is "cultural" proposed by Western humanism provided the logic through which the Homo Sapiens species was understood as an exceptional entity that is separate from other beings on earth (Pacini-Ketchabaw et al., 2016). Conversely, nature was characterized as an external entity separate from culture and theorized mechanistically as a series of resources used by humans (Brombin, 2019).

However, what is presently called "nature" is not natural in the sense of being independent of humans, their discourses, the unintended consequences of their actions, or their domination and conquest practices. As humans reach out to all parts of the world with their impacts, they are abandoning the idea of a "virgin" nature separated from culture (Singer, 2014). Therefore, the division between these two concepts no longer sufficiently explains the permanent and irreversible transformations that humanity has caused in the biosphere, to the point that one can no longer speak of pristine nature but rather of anthropogenic biomes (Gatto & McCardle, 2019).

Similarly, we are gradually changing our concept of "human being," no longer regarding humanity as something exceptional and separate from nature but as an entity that emerges from its relationship with other creatures on Earth (Gatto & McCardle, 2019) and even with technological and cybernetic artifacts (Haraway, 1985, 2019). A human being is, in a way, a body assembled by microorganism colonies, inhabited by nearly ten thousand bacterial species which outnumber the cells we consider "ours" by up to ten times and weigh a total of about three pounds, the same as our brain (Specter, 2012).

In these times of planetary crisis, Escobar (2014) pointed out the limits of this dualism between nature and culture, adopting a materialist and empirical approach to try to answer how humans and non-humans participate together in creating worlds. Ethical concerns about the environmental consequences of anthropocentric exceptionalism have motivated the emergence of other ethnographies, which is where Multispecies Ethnography (ME) originates, as a methodological approach to breaking the divide between nature and culture and observing how humans and non-humans integrate each other through constant relationships (Ogden et al., 2013).

This article aims to identify, through an analysis of academic literature, the theoretical-conceptual framework, methodological approaches and techniques, and the challenges presented during the first ten years of research in ME.

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Methodology

The article describes the development of ME over ten years (2010-2020) to achieve the proposed objective. 2010 was considered the initial year of reference since it was the publication time of the first academic article on the subject (Kirksey & Helmreich, 2010), and the final reference was 2020, despite several related works having been published since then. This time limit was considered necessary for two reasons: firstly, it would be impossible to bring together in a single academic work all the research (including years of publications) around the subject, and secondly, because this work's main interest is to provide a representative overview of this ethnographic approach in its first decade of development.

The Scopus, Web of Science, and Google Scholar databases identified the texts. The concepts "Multispecies AND Ethnography OR Studies" were used in the first two databases, limiting the search to titles, abstracts, keywords, and journal articles between 2010 and 2020, which located 63 documents. The list was complemented with 17 publications found in Google Scholar using the search terms "multispecies ethnography" and "multispecies studies." Twenty-seven articles or books recommended by experts were added, including more current Latin American sources. Initially, 107 texts were obtained

, and criteria were defined for including or excluding texts from the final review. A matrix was created with the titles, abstracts, authors, main ideas, methods, and the final reflections of each study to help decide which documents, in English or Spanish, were relevant to achieving the research objective based on approaches related to social sciences belonging to the scientific literature.

Texts that had not been peer-reviewed were discarded, as well as those referring to other types of ethnography unrelated to anthropology, social sciences, or ethnography. Editorials, opinions, and publications from events such as seminars, congresses, and meetings, among others, were also excluded. The matrix was evaluated in a subsequent step, and 30 publications were eliminated, leaving 77 for review.

Subsequently, a critical, rigorous, and complete reading of each text included in the study was carried out, defining analysis categories through the ATLAS.ti software, exposing the influence of epistemological and cultural currents on ME and hidden or undervalued meanings. This document was then prepared, which contains the presentation and interpretation of the software analysis results, divided into three parts: the first is concerned with the theoretical bases of ME, the second focuses on its techniques, and the third on challenges, as well as some final considerations.

A review always risks simplifying deep debates, and texts considered fundamental from other perspectives might be left out. However, the aim here is not to conduct an exhaustive study of every work and debate but to provide an illustrative overview for those taking up this subject.

Results

Theoretical foundations: Beyond the nature/culture division

ME is a methodological approach to social and environmental research that studies how human societies and other organisms are related (Kirksey & Helmreich, 2010; Moore & Kosut, 2014). ME uses a theoretical perspective to understand multispecies landscapes, incorporating a posthumanist vision in which social and cultural phenomena are explored through the relationships between people and other creatures (Parathian et al., 2018). Below, we outline ME's origins and the theoretical influences corresponding to its emergence.

Genealogy and influences of multispecies ethnography

The term "multispecies" was first introduced in natural sciences by the Dutch De Ruiter, the German Wolters, and the American Moore (De Ruiter et al., 2005), who were highly influential in the field of ecology by describing the diverse patterns of niche co-construction involving

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several species. Introducing this notion into the social sciences contributed to creating new interpretations of the concept, especially with how ecologies around the world affect and are affected by capitalism (Gatto & McCardle, 2019). This idea has contributed to understanding how "the livelihoods of multiple organisms are shaped by political, economic, and cultural forces" (Kirksey & Helmreich, 2010, p. 545), as well as how different species are involved with the political economy of human societies and all the processes of globalization and development (Singer, 2014).

The seminal ME article was published by American anthropologists Kirksey and Helmreich in 2010 under the title "The emergence of multispecies ethnography," was written as a result of discussions at the "Multispecies Salon," a series of panels, roundtables, and art galleries held at the annual meetings of the American Anthropological Association in 2006, 2008, and 2010. Visitors to the Salon could experience such as the sound of live cockroaches mixed with recorded chimpanzee sounds or images of genetically modified bacteria sharing space with household artifacts, which served to create alliances between artists and social scientists around a common interest in exploring ways to overcome dichotomies between nature and culture (Kirksey & Helmreich, 2010).

ME emerges amid posthumanist reflections from the beginning of the 21st century in philosophy, art, literature, and history, attempting to decenter the idea of the "human" as a singular and external subject of "nature." This position is based on a vision of life as something that emerges from the interaction of multiple attractive and repulsive forces, which cause continuous reconfigurations between different species (Gatto & McCardle, 2019). Descola (2014) points out that posthumanism is a project that attempts to bring other beings back into the social sciences, emphasizing human relationships with animals, plants, microorganisms, artifacts, and images.

In turn, posthumanism is part of a much broader series of debates from the so-called "ontological turn," which promotes a redefinition of the conception of nature from alternative perspectives to Western anthropocentric rationality (Ruiz & Del Cairo, 2016). This change of focus is, to a certain extent, subsidiary to the non-dualist knowledge of ancestral peoples, who avoid thinking of the "natural" and the "human" in opposite terms (Descola, 2014). Various concepts have contributed to developing the reflections of this current, pointing out the nonexistence of borders between society and the non-human: hybridity, networks, assemblages, human-natural frameworks, biocultural mixtures, socionatures and, of course, multispecies relations (Durand & Sundberg, 2019).

The ontological turn is a theoretical transformation arising mostly within anthropological discussions, but it does not remain there, extending its effects into the general social theory level and relates to the reincorporation of two key questions: What exists? And how do we classify that which exists? (Holbraad & Pedersen, 2017). The theoretical and political consequences of these questions are profound since they allow reviewing and discussing certain dualisms, such as nature/culture or human/non-human, casting doubt on the idea that the only valid view of nature is the one constructed by the modern West. In this way, the political possibility of imagining multiple existing natures and their forms of classification and intervention arises (Martínez-Dueñas & Perafán-Ledezma, 2017).

Over the past ten years, an increasing number of ME-related research studies have been published, most of them from the Anglo-Saxon academy, influenced in turn by several currents associated with art (Kirksey, 2012), hybrid geographies (Lorimer, 2012), material ecology (Ingold, 2000), practice ecology (Stengers, 2005), social studies of science and technology (Latour, 1993; Mol, 2002), relational ontologies (Blaser & De la Cadena, 2009), the "animal turn" (Hurn, 2012), biosemiotics (Kohn, 2012), neomaterialist feminism (Haraway, 2008; Tsing, 2015) and poststructuralist political ecology (Escobar, 2010).

Erasing the border between nature and humanity

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ME "is a project seeking to understand the world as a material reality, partially knowable and emerging through contingent relations between multiple beings and entities" (Ogden et al., 2013, p. 6). Theoretically, this ethnography emerges as part of a broader movement questioning the dualism between nature and humanity and from a reaction to the collapse of Eurocentric humanism (Brombin, 2019). In this context, multispecies ethnographers study contact zones where the border between nature and culture is blurred, where encounters between humans and other species generate mutual ecologies and co-produced niches (Kirksey & Helmreich, 2010).

In short, ME reveals other species' power to shape the world and points out that humans are built through relationships with other beings (Ogden et al., 2013). Animals, plants, fungi, and various microorganisms appear in the stories' foreground, with stories that are hybrids of biology and politics. Thus, amid apocalyptic narratives about planet Earth's destruction, multispecies ethnographers find some examples of biocultural hope (Kirksey & Helmreich, 2010). However, this is not a romantic and harmonious approach to the relationship between diverse living creatures; it is a way of telling stories from specific places where the human's exceptionality becomes diffuse (Sotelo, 2016).

From this perspective, nature and culture are considered to be linked in various ways, so mapping and theorizing about the relationships between humans and other living species becomes a crucial task (Lloro-Bidart, 2018). Multispecies ethnographers argue that the links between humans and other species are established in domestic or wild contexts and in urban, rural, terrestrial, or aquatic spaces. These ties are too important to be left out of the analysis of "social" realities (Sánchez-Maldonado, 2018).

Thus, ME is concerned with understanding interactions "as a bidirectional (or multi-directional) process, affecting the body, mind, behavior, social lives, and the nature of all organisms involved" (Singer, 2014, p. 1283). Adopting a co-construction approach, it seeks to identify how entities relate, emphasizing local studies where people interact with their environments, demonstrating that what is considered "natural" is constitutive of the "social" and vice versa (Brombin, 2019). Parathian et al.'s (2018) research shows how the bond between humans and macaques produces certain forms of ecological interaction that generate niches, which are superimposed on the economic, political, and cultural context.

Rethinking "the human" and "the natural"

Moving beyond the natural-human divide involves rethinking what is meant by "humanity." Multispecies ethnographers provide critical reflections regarding the unpredictable ways humans are being reshaped (Brombin, 2019). In this sense, what can be understood as "human" is a result of relationships and links between multiple species that form a continuum between nature and culture, or a "natureculture" (Durand, 2020; Tsing, 2015) and even a "technoculture." Donna Haraway has put it this way:

> I love the fact that human genomes can be found in only about 10 percent of all the cells occupying the mundane space I call my body; the other 90 percent of the cells are filled with the genomes of bacteria, fungi, protists, and similar organisms that act in a symphony necessary for me to be alive, some of which feed on us without causing us any harm. My tiny companions vastly outnumber me; in other words, I become an adult human being in the company of these tiny diners. To be one is always becoming with many (Haraway, 2008, p. 2).

Through this new look at what is "human," ME has come to question the primacy of its symbolic systems, such as language. Instead, it has attempted to provincialize the latter, seeing it only as part of a broader semiotic universe that includes various non-verbal signs circling among multiple species (Kohn, 2007, 2012).

Similarly, practicing ME implies a reconceptualization of what is conceived as "nature" or "non-human species." As humans decentralize their understanding of reality, the actions and agency of other living species are captured, reconsidering the role they have played in human societies (Lloro-Bidart, 2018; Martínez-Dueñas & Perafán-Ledezma, 2017). Under the lens of ME, other species are

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understood as co-constitutive subjects of social life and not as simple food or part of the landscape (Moore & Kosut, 2014).

According to ME, crabs, honeybees, or cockroaches should not be considered passive study objects. Instead, we must question their place as active subjects of a network of organic and inorganic entities in continuous movement, of which the human being is also a part (Aroca, 2022; Moore, 2015b). It is a reality constructed through "natural-cultural" relations of coevolution and conflict (Haraway, 2008; Sánchez-Maldonado, 2022). It could be said, along with Latour (2008), that any species that modifies a state of affairs with its influence is an actor with the capacity for agency.

Under the understanding of ME, species are not static in the world but rather establish a "dance of encounters" through which they become what they are. In this way, an attempt is made to deconstruct the Cartesian dualism between nature and culture to establish a change of thought toward materialities as active, self-organized, and vital entities (Brondo, 2018).

Multispecies Ethnography

Techniques

As a relatively recent approach, ME is a field of experimentation and creativity in which researchers try new ways of accessing information. There are even debates about the scope of ethnography to understand this ontoepistemological challenge and the "species" unit for thinking about life's diversity (Hartigan, 2021; Parathian et al., 2018).

New ways of doing this type of research from ethnographic studies have unceasingly encountered problems and questions. According to Lloro-Bidart (2018), accessing and understanding the possible languages of other species represents a challenge for this discipline because human physiology imposes limitations on learning and understanding these other "languages" and also because anthropocentric and humanistic traditions of thought in Western culture have seen other species as simple objects lacking agency.

In this sense, Swanson (2017) asks: what happens when ethnographers pose new questions about non-humans or their relationships with humans in a field with a long tradition of focusing on people? This situation implies that for ME, the question of methodological approach is central, requiring that research practices often conflict with traditional ethnography methods. Problems do not come exclusively from the ever-present tendency to see human beings as the appropriate focus of "social" research but also from the risk of anthropomorphizing other species when seeking to account for their agency (Pacini-Ketchabaw et al., 2016).

ME has proven to be a challenge as it exposes the very weaknesses of traditional ethnography; thus, "it is relatively easy to say that we need to take non-humans more seriously, but it is quite difficult to know what knowledge practices we might use to ask about non-human practices" (Swanson, 2017, p. 85). Classical social science techniques allow, to a certain extent, understanding the practices through which scientists, ethnic communities, or local people come into contact with other species; however, they tend to fall short when studying these creatures. Thus, from a theoretical standpoint, there is greater clarity about ME's arguments, but there is still not enough development in terms of techniques, so most research uses general methodological approaches but few specific techniques.

For these reasons, multispecies ethnographers have used a combination of more traditional ethnographic techniques, some of which have emerged from their encounters in the field with other species. In addition to participant observation, semi-structured interviews, and field diaries, we should also add intraspecies mindfulness, mobile observation methodologies, participant sensation, dialogue with natural sciences, multisensory research, audiovisual recording techniques (photography, video, audio, drawing), and archival materials that document relationships with other species, among others. Some examples are presented below.

Intraspecies mindfulness

A tool called "intraspecies mindfulness" (Moore &

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Kosut, 2014) allows us to describe the behavior of other species through multiple sensations involving taste, sound, vision, and the development of affects in intimate moments, generating connections, overlaps, and clashes. Thus, contact zones between humans and non-human species can be unpleasant, painful, therapeutic, or pleasurable.

In this sense, intraspecies mindfulness is a practice of speculation that seeks to resist anthropomorphic descriptions, trying to get beyond what is human and reach out to other species. This technique pays special attention to these life forms' daily lives and becoming one with them rather than trying to differentiate from them (Moore & Kosut, 2014).

In their study of urban beekeepers in New York, Moore and Kosut (2014) worked on the entanglements between insects and humans, exploring how to interpret and translate the actions of bees, which become non-human informants and actors in their own right. This approach presents new challenges as people cannot communicate like other creatures, so to risk adopting their worldview is impossible. However, making statements about their suffering is possible, as these authors do when they try "entering the ontology of bees." In this way, these researchers interpellate through their perception of injustice, highlighting the forced labor of industrial bees and their permanent and unstable state of migration related to their territories of origin (Africanized bees).

Trying to understand other animals is, in a way, abandoning the human tribe and taking the position of those other creatures, and remembering that human qualities are often inscribed into other species's understanding, some of which are being dominated. As noted, humans do not share the language or culture of bees but participate in intimate spaces negotiated with them; thus, translation work is essential for ME. To this end, one can study how people interact with bees, deconstructing how humans understand these insects' behavior, often based on descriptions distorted by anthropocentrism associated with gender, race, sustainability, and development narratives. However, it must be recognized that researchers cannot see how translations about human beings are carried out among bees (Aroca, 2022; Moore & Kosut, 2014).

However, as Donati (2019) points out, using a "cautious anthropomorphism" to make claims about animals' social and emotional worlds is sometimes necessary. While it is true that one must be cautious in making judgments about other species, it is undeniable that they would like to eat, play, socialize, and indeed care for each other. In some situations, they can emote, decide, and even "reason" similarly to humans. Animals are capable of experiencing many things that humans cannot understand, which demonstrates the human limitation in comprehending animal experience rather than the inability of animals to experience the world.

In other words, cautious anthropomorphism involves being careful when assigning human characteristics to other species while recognizing that some things can be known about them through different forms of knowledge and one's own experience.

Multisensory research

The practice of ME requires changing the representation of other species as objects of study and assuming a commitment to them that involves seeing them as active research subjects, which demands different habits and skills. Thus, traditional ethnography is not enough; instead, a method of "observation" is needed that is not based exclusively on visual and textual representations, requiring leaving pencil and paper behind for a moment.

Principles of sensory ethnography, such as the interconnection of senses, emplacement, and knowing-in-practice, can be illuminating for this new way of doing ethnography (Pacini-Ketchabaw et al., 2016). ME emphasizes "the centrality of the body and sensory experiences as privileged tools for understanding and articulating the interaction between humans and non-humans" (Brombin, 2019, p. 202). Thus, ethnography is not only about participant observation but also about "participant sensing" (Howes, 2019) or "participant perception" (García, 2017).

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Practicing ME involves rethinking what it means to use the various senses. For example, the visual experience is one of the most important and is permeated by the human desire to observe interactions with other creatures. However, ME does not refer to vision as an objectifying tool of modern rationality, which would be returning to the separation between the active subject that "sees" and a passive object that is "seen." Instead, the act of seeing implies proximity, intimacy, mutual affectation, and material commitment with other species through direct contact (Brombin, 2019).

Listening and paying attention to the various sounds also illustrates the importance of the senses. Fine recordings of human and non-human sounds, the rainforest, melting glaciers, and bird flights, among others, are tools that become relevant (Howes, 2019). The research carried out by Fonck and Jacob (2018), for example, shows how these recordings become fundamental when it comes to understanding the link between humans and other species. While walking with "open senses" through the forest, a temporal and spatial encounter occurs with other beings that emit various songs and sounds.

Likewise, sensations and emotions must have a central place in the techniques developed by multispecies ethnographers since reading the emotional lives of other species and the researchers themselves is necessary. In feminist ME, developed by thinkers such as Gillespie (2019), emotionality and the sensorial become political issues and the central way of knowing and thinking about other creatures. However, it cannot be ignored that the perceptions obtained through tastes, sounds, or touch are also crossed by gender, social class, sexual orientation, or culture (Howes, 2019).

Ethnographic writing thus becomes a way of being mundane. From this perspective, writing is also a way of capturing perceptions, like a finely textured prose to describe one's sensations and emotions. Furthermore, audiovisual media such as films and audio recordings could be considered extensions of the senses so that ethnography could be carried out filmically (Howes, 2019). Likewise, photographs and drawings made by ethnographers can very vividly describe encounters between humans and other species, capturing action in a way that is impossible with writing alone, bringing reality much closer to the public (Eraso-López, 2018; Moore & Kosut, 2014).

Dialogue with natural sciences

Thinking about a different relationship between humans and other species involves researching through a combination of social and natural sciences. However, this dialogue is still full of debates and mutual distrust between "both sides" of science. Though rarely made explicit, tensions between ME and natural sciences exist in most research.

Indeed, there is a tendency to see a dualism between social and natural sciences: the former, in their relationship with non-modern/indigenous worlds, "animate" the world and open up ontological and political possibilities, while the latter are accused of "objectifying" the world, creating a positivist vision that reinforces dominant modern ontologies (Swanson, 2017). Furthermore, this dialogue can generate some concern due to the possibility that crossing lines activates historical epistemic hierarchies since natural knowledge remains privileged over work in the social sciences, particularly in productions regarding "nature" (Lloro-Bidart, 2018).

In any case, as Swanson (2017) would argue, it is necessary to play the role of the impostor: moving back and forth between social and natural sciences to blur boundaries and contaminate methods. Feminist science studies can help in this work by drawing attention to the way race, class, and gender shape scientific knowledge production practices —which does not imply taking an anti-science position but rather a deep commitment to a "situated" science that emerges from "partial perspectives," rejecting both classical objectivism and social constructivism (Haraway, 1988; Harding, 1986; Swanson, 2017).

When it comes to better inhabiting worlds destroyed by humanity, one must begin by better describing their

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multispecies relationships. These narratives require ethnographers to know much more about other species, which implies cultivating a dialogue with natural scientists, who can be collaborators in learning about more-than-human environments (Swanson, 2017). In this regard, Latour (2004) proposed listening to the "spokespeople" of non-humans, biologists, agronomists, zoologists, virologists, and others who can represent these other organisms. However, this attitude is not always sufficient since their concerns may differ significantly from those of multispecies ethnographers.

Swanson (2017) points out that it is also necessary for ethnographers to use techniques that have been tested in other fields. Such is the case of animal geography, where the histories of some species have been recovered from tracking and data collection devices that can be placed on animals that are difficult to track, instruments for bioacoustic recording, satellite maps or geospatial data, and even technologies to investigate forms of communication outside the visual and auditory range of humans and genomic analysis techniques.

In Parathian et al.'s (2018) research, for example, an attempt is made to break down the disciplinary barriers between the social and natural sciences through a dialogue of the biological perspectives of primatology with the ethnographic tools of anthropology to understand the beneficial and dangerous results of the relationship between humans and other primates in West Africa. However, for this type of technique, it must be taken into account that it is not a question of studying the species themselves (since this would be of interest to the natural sciences) but rather of analyzing them amid neoliberalism, the capitalocene, the environmental crisis and all those relationships that other species establish with humans, constituting the precariousness of contemporary life.

In short, a revitalization of science implies that natural scientists produce social theory while social scientists explore the possibilities opened up by the former (Smart, 2014). Undoubtedly, multispecies ethnographers can greatly benefit from this dialogue while remaining alert to the power imbalances existing in the politics of knowledge and the relationship between the various ways of practicing science.

Ethnography with a relational approach

According to Donati (2019), case studies have a particular value for ME as they focus on specific everyday life problems and issues where interspecies entanglements can be narrated in detail. In carrying out their studies, multispecies ethnographers have also made a relational turn to traditional methodologies for ethnography, using techniques such as focus groups or interviews based on particular attention to "relationships" between species.

An example is Bear and Eden's (2011) study, which used an approach to fishing clubs on several rivers in the United Kingdom to observe how the relationship between fishermen and fish was constructed. Thus, they first contacted some fishermen in more detail using two focus groups and spoke with other participants they met at public fishing events using the snowball technique in sixty interviews. The methodology used by these authors did not allow them to observe the behavior of the fish directly, but it did motivate people to reflect on how they approached these animals and how they were affected by their agency. Although this work was not completely symmetrical in the way it studied fish and humans, it is worth noting that it adopted a relational approach that recognized that both groups affect and are affected in a network where all actors (humans and other species) are in constant relationships.

Similarly, the research carried out by Greenhough (2012) on the virus that causes the common cold uses accounts from those who lived and worked in the Common Cold Research Unit in the United Kingdom, complemented by data from the historical archives of various medical institutes and a record of interviews carried out two decades earlier. The information was analyzed to understand how the material and institutional assemblages were constituted to investigate the relationships between viruses and humans, through

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which "epidemic spaces" are created in which microorganisms, patients, doctors, animals, laboratories, regulations, and other actors learn to live with viruses. For this author, instead of seeing these microorganisms as external threats that must be eradicated, they should be seen as "viral companions" with whom we must learn to live.

Another example is a study on forests in Chile, where Fonck and Jacob (2018) used traditional techniques such as semi-structured interviews (54 in total) and conversation workshops, combined with "participant observation on the ground," which involved close contact with the actors involved in managing these ecosystems through participation in their daily activities. Similarly, these authors used "mobile participant observation methodologies," consisting of daily walks with guides, environmentalists, and farmers in the reserve area, which was considered a critical information-gathering strategy based on walking the forest paths with open senses following biodiversity experts.

Discussion and final considerations

ME is a situated, local, and relational research approach that allows for empirical knowledge to be gained for learning to be present in a world that is not only human and for which there are no perfect solutions, trying to bring people and other species into greater harmony (Pacini-Ketchabaw et al., 2016). Bringing animals, plants, microorganisms, and some biotechnological devices back into ethnography is encouraging new debates on the need to overcome the intellectual division of labor between humanities, social sciences, engineering, and natural sciences (Smart, 2014) and on the importance of rethinking what is called "human" and "natural."

Undoubtedly, ME is revolutionizing certainties in various fields, including politics, design, and family studies. The meaning of "politics," for example, is radically shifted when the agency of other species is considered in the production of social collectives. For this reason, Ogden et al. (2013) have suggested an anti-essentialist approach called multispecies political ecology. Meanwhile, in design, the excessive focus on humans and "users" is being questioned, calling for other species to be considered in designing and reimagining the future on Earth (Gatto & McCardle, 2019). Likewise, multispecies ethnographers have shown that dominant notions of the human family must be reformulated to understand the emergence of "more-than-human families," as there is a redefinition of family issues that not only takes into account gender issues but also kinship relations with other species (Acero, 2019; Sánchez-Maldonado, 2018).

However, the posthumanist conceptualizations and ontological turns taken up by ME are firmly established; however, their actions are fraught with difficulties (Pacini-Ketchabaw et al., 2016), implying that, although ME research is growing exponentially, there is still much to explore regarding techniques and methodological approaches. As evidenced in our study, there is a constant invitation to include other species in ethnographic studies; however, the methodological dilemmas in these works still have a long way to go.

For example, one might consider the following question: How could other species be understood through a methodology primarily oriented toward studying the human? This issue has involved discussions on ME's theory and techniques, among which questions regarding many concepts and procedures used by multispecies ethnographers have taken particular relevance. Therefore, it is necessary to reconsider that many multispecies ethnographers prioritize human knowledge about other species instead of the material realities experienced by other life forms. This situation creates a problem related to other creatures' representations since most ethnographers do not debate what it means for humans to observe and assert the power to speak for "them" (Gillespie, 2019).

This circumstance is evident, for example, when humans define other species as "non-humans," a concept that is quite common in ME studies. However, saying "non-human" is like using the expression "non-white," which implies a lack of something, so it remains a remarkably anthropocentric category that refers to the

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absence of humanity (Kirksey & Helmreich, 2010). Moreover, this distinction does not take into account that some "non-humans" are within our bodies and constitute that which is human (Brombin, 2019; Kohn, 2007), so adopting these terms would again constitute the dualistic separation between nature (non-human) and culture (human), which of course is difficult to overcome.

On the other hand, ME also presents severe limitations by focusing mainly on the study of warm-blooded animals and paying little attention to "cold-blooded" species. Thus, many existing studies focus on daily and sustained human-animal relationships in domestic or production contexts. The most studied species, then, are dogs (Bolton, 2020; Weinberg, 2019), cats (Stone, 2019), horses (Dashper, 2020), cows (Nisly, 2019), primates (Parathian et al., 2018) and even elephants (Remis & Jost, 2020). However, regarding ties with fish and other animals in aquatic environments, contacts are different because they tend to be intermittent and fleeting. Thus, the strangeness of fish bodies and the almost "alien" aquatic spaces they inhabit, which contrast with the "airy" contexts where humans live, are striking. Despite this, one cannot deny the need to study the links of intimacy between humans and "cold-blooded" species, which continues to be a debt of ME (Bear & Eden, 2011; Swanson, 2017).

On the other hand, ME is still required to go beyond studying relationships between other species and humans, meaning that it is not just a matter of describing these moments of contact but also of understanding how species relate to other organisms (in addition to people) and have a life of their own apart from humanity. For example, according to Swanson (2017), the practices of animals include their link with humanity but also go far beyond that link, implying that attention should not only be paid to intimate encounters between other species and people but also to how these animals, plants, and microorganisms are constituted according to their association with minerals when fleeing from predators, in their migratory flow of reproduction, or when acting under the influence of climatic seasons. In this way, the stories of encounters between humans and other creatures are inscribed within broader networks of multispecies relationships.

Regarding the ethical-political dilemmas of consuming meat and other animal-derived products, Gillespie (2019) and Watson (2016) point out that one of the frequent criticisms of ME is that it is not designed to alter interspecies hierarchies due to the unwillingness of many researchers to change their daily practices of consuming animals. These authors argue that, in many cases, ME remains a method that needs to take its ethical and political dimensions more seriously, attending to the approach and transformation of injustices, suffering, and violence that humans exert on other species with the participation of scholars. If, ultimately, some animals only matter to the extent that they are transformed into food, the practice of eating and living well must consider more explicitly who lives well and who dies well under current conditions and how these conditions could be improved (Donati, 2019; Ginn et al., 2014).

It is also important to highlight the importance of expanding studies on new cyborg species and cybernetic or robotic organisms. As technological advances increasingly impact the relationship with life as we know it, leading humanity into artificial intelligence, there are open questions about ethical principles and agreements and multispecies justice (Celermajer et al., 2020) in these contexts.

On the other hand, it should be noted that although ME still presents many challenges, it opens a critical window to carry out this type of study in Latin America, especially due to its high biological and cultural diversity, which provides a possibility of multispecies relationships that is very interesting to investigate. In this work, several Latin American works that have been carried out in recent years have been mentioned, and although it would be impossible to mention them all, it is evident that there is already an agenda to develop this type of approach in the region.

In this regard, detailed studies are being carried out on many peoples' associations with other species. The tense and ambivalent relationship that fishermen, peasants,

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Indigenous, and black peoples maintain with other species cannot be seen simply as one of speciesist exploitation. These other entities, such as cows, pigs, mules, plants, and birds, are part of local communities' work and daily life; in many cases, they are considered essential beings for the reproduction of life.

For example, in a recent investigation, De la Cadena and Martínez (2020) examined the practices and categorizations linked to cows in Colombia, analyzing how these reflected broader social and cultural issues. As a result, they highlight the differences between the approaches used to raise "cattle" or "specimens," distinguishing them and underlining the importance of the word "race" in the language of the Colombian bovine world. They also highlight the complex interrelationship between human and non-human elements, offering a thorough and nuanced exploration of the practices and classifications associated with cows and their cultural implications.

In turn, other recent investigations in Colombia link the dynamics of the armed conflict with its impacts on the lives of other species and non-human entities, like those by Pardo (2023) or Pinto-García (2022), which highlight the sensorial collaboration between dogs and people in various humanitarian demining tasks, as well as the complex health conditions, emotional dependence, and affective ties between soldiers and army canines. Similarly, the work carried out by Ojeda and Ruiz (2023) invites us to reflect on non-human actors, such as plants, animals, substances, or technologies, that are mixed with the stories of violence and war. In this context, thinking about peace and reconciliation also makes it necessary to rebuild relationships of mutual care with other more-than-human communities.

Finally, it is important to note that many similar investigations in Latin America and other parts of the world are not called "multispecies ethnography" or "multispecies studies." However, they are based on very similar ontological, epistemological, and even methodological assumptions, as is the case of those carried out from the perspectives of "Amerindian perspectivism" (Viveiros, 1996), "multinaturalism" (Martínez-Dueñas & Perafán-Ledezma, 2017), "Indigenous thought" (Green, 2011) or "Afro-Latin American" (Bispo, 2015). Therefore, these works must also be considered when studying the region's nature/culture relationship.

In summary, this paper draws attention to the importance of opening dialogues regarding ME for contributing to the production of new epistemological, ontological, methodological, and practical approaches. ME emerges as a possible avenue to recreate interrelated life amidst increasingly degraded planetary conditions of existence.

Author's contributions

Juan David Arias-Henao: searching for documents in databases, organizing and systematizing information, information analysis, text outline, writing, style correction, theoretical and methodological debate.

Denisse Roca-Servat: document search in databases, information analysis, text outline, writing, style correction, theoretical and methodological debate.

Conflict of interest statement

This research was conducted without any influence from external agents or the personal interests of the research team that may have affected the scientific rigor of the study. The results here are the product of the academic literature review process, and its authors declare that they have no conflicts of interest.

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References

Acero, M. (2019). Esa relación tan especial con los perros y con los gatos: la familia multiespecie y sus metáforas. *Tabula Rasa, 32*, 157-179.

Aroca, L. (2022). *Apicultura de conservación en la Sierra Nevada de Santa Marta: entramados, transformaciones y devenires inter-especie* [Trabajo de grado para optar al título de Antropólogo, Universidad del Magdalena].

Bear, C., & Eden, S. (2011). Thinking like a Fish? Engaging with Nonhuman Difference through Recreational Angling. *Environment and Planning D: Society and Space, 29*(2), 336-352.

Bispo, N. (2015). *Colonização, quilombos, modos e significações*. Instituto Nacional de Ciência e Tecnologia de Inclusão no Ensino Superior e na Pesquisa (INCTI).

Blaser, M., & De la Cadena, M. (2009). «Introduction» World Anthropologies Network (WAN) / Red de Antropologías del Mundo (RAM). *Electronic Journal* (4), 3-10.

Bolton, M. (2020). We Need to Talk About the Dog! Explorations of Human–Canine Relations and Community Hybridity in Bolivia. *The Journal of Latin American and Caribbean Anthropology, 25*(1), 28-47.

Brombin, A. (2019). The Ecovillage Movement: New Ways to Experience Nature. *Environmental Values, 28*, 191-210.

Brondo, K. V. (2018). Entanglements in multispecies voluntourism: conservation and Utila's affect economy. *Journal of Sustainable Tourism, 27*(4), 590-607.

Celermajer, D., Schlosberg, D., Rickards, L., Stewart-Harawira, M., Thaler, M., Tschakert, P., Verlie, B., & Winter, C. (2020). Multispecies justice: theories, challenges, and a research agenda for environmental politics. *Environmental Politics, 30*(1-2), 119-140.

Crutzen, P., & Stoermer, E. (2000). The Anthropocene. *Global Change Newsletter,* (41), pp. 17-18.

Dashper, K. (2020). Holidays with my horse: Human-horse relationships and multispecies tourism experiences. *Tourism Management Perspectives*, *34*, 100678.

De la Cadena, M., & Martínez, S. (2020). In Colombia some cows have raza, others also have breed: Maintaining the presence of the translation offers analytical possibilities. *The Sociological Review, 68*(2), 369-384.

De Ruiter, P., Wolters, V., & Moore, J. (2005). Dynamic Food Webs. Multispecies Assemblages, Ecosystem Development and Environmental. En P. De Ruiter, V. Wolters, & J. Moore, *Dynamic Food Webs* (pp. 3-9). Academic Press.

Descola, P. (2014). All too Human (still). *HAU: Journal of Ethnographic Theory, 4*(2), 267-273.

Donati, K. (2019). 'Herding is his favourite thing in the world': Convivial world-making on a multispecies farm. *Journal of Rural Studies, 66*, 119-129.

Durand, L. (2020). Covid19 y el retorno de los animales. Apuntes desde la etnografía multiespecie. *Notas de coyuntura del CRIM,* (19), 1-5.

Durand, L., & Sundberg, J. (2019). Sobre la ecología política posthumanista. *Sociedad y Ambiente, 7*(20), 7-27.

Eraso-López, A. (2018). *¡Ojo con el perro! Un acercamiento etnográfico a la (re)significación de animales no-humanos domésticos (Perros) en un parque de Cali* [Trabajo de grado, Universidad ICESI].

Escobar, A. (2010). Ecologías políticas postconstructivistas. *Revista Sustentabilidades, 2*, 2-5.

Escobar, A. (2014). *Sentipensar con la tierra: nuevas lecturas sobre desarrollo, territorio y diferencia*. Universidad Autónoma Latinoamericana (UNAULA).

Fonck, M., & Jacob, D. (2018). «Escuchando el llamado del bosque»: explorando las dimensiones afectivas de la conservación ambiental desde la etnografía multiespecies. Santuario El Cañi, Chile. *Revista Austral de Ciencias Sociales, 35*, 221-238.

García, C. (2017). La percepción participante como una herramienta metodológica feminista: Una aplicación a los estudios de género. *Revista de Antropología Iberoamericana, 12*(2), 125-146.

Gatto, G., & McCardle, J. R. (2019). Multispecies Design and Ethnographic Practice: Following Other-Than-Humans as a Mode of Exploring Environmental Issues. *Sustainability*, *11*(18), 5032.

Gillespie, K. (2019). For a Politicized Multispecies Ethnography: Reflections on a Feminist Geographic Pedagogical Experiment. *Politics and Animals*, *5*, 17-32.

BY-NC-SA

Ginn, F., Beisel, U., & Barua, M. (2014). Flourishing with Awkward Creatures: Togetherness, Vulnerability, Killing. *Environmental Humanities, 4*(1), 113-123.

Green, A. (2011). *Significados de vida: Espejo de nuestra memoria en defensa de la Madre Tierra*. Universidad de Antioquia.

Greenhough, B. (2012). Where species meet and mingle: endemic human-virus relations, embodied communication and more-than-human agency at the Common Cold Unit 1946–90. *Cultural Geographies, 19*(3), 281-301.

Haraway, D. (1985). A Manifesto for Cyborgs: Science Technology and Socialist Feminism in the 1980s. *Socialist Review, 80*, 65-108.

Haraway, D. (1988). Situated Knowledges: The Science Question in Feminism and the privilege of partial perspective. *Feminist Studies, 14*(3), 575-599.

Haraway, D. (2008). *When Species Meet*. University of Minnesota Press.

Haraway, D. (2019). *Seguir con el problema. Generar parentesco en el Chtuluceno*. Consonni.

Harding, S. (1986). *The Science Question in Feminism*. Cornell University Press.

Hartigan, J. (2021). Knowing Animals: Multispecies Ethnography and the Scope of Anthropology. *American Anthropologist, 123*(4), 846-860.

Holbraad, M., & Pedersen, M. A. (2017). *The Ontological Turn: An Anthropological Exposition*. Cambridge University Press.

Howes, D. (2019). Multisensory Anthropology. *Annual Review of Anthropology, 48*, pp. 17-28.

Hurn, S. (2012). *Humans and other animals: Crosscultural perspectives on human-animal interactions*. Pluto.

Ingold, T. (2000). *The Perception of the Environment: Essays on Livelihood, Dwelling and Skill*. Routledge.

Kirksey, E. (2012). Thneeds Reseeds: Figures of Biocultural Hope in the Anthropocene. *Rachel Carson Perspectives,* (9), 89-94.

Kirksey, E., & Helmreich, S. (2010). The emergence of multispecies ethnography. *Cultural Anthropology, 25*(4), 545-576.

Kohn, E. (2007). How dogs dream: Amazonian natures and the politics of transspecies engagement. *American Ethnologist, 34*(1), 3-24.

Kohn, E. (2012). Life 'Itself' Thinking Itself through Us: Thoughts from an Amazonian Forest [Ponencia]. Encuentro de la American Anthropological Association, San Francisco, California.

Lander, E. (2013). Crisis civilizatoria, límites del planeta, asaltos a la democracia y pueblos en resistencia. *Estudios Latinoamericanos, 36*, 29-58.

Latour, B. (1993). *We Have Never Been Modern*. Harvard University Press.

Latour, B. (2004). *Politics of Nature: How to Bring the Sciences into Democracy*. Harvard University Press.

Latour, B. (2008). *Reensamblar lo social. Una introducción a la teoría del actor-red*. Manantial.

Lloro-Bidart, T. (2018). A Feminist Posthumanist Multispecies Ethnography for Educational Studies. *Educational Studies, 54*(3), 253-270.

Lorimer, J. (2012). Multinatural geographies for the Anthropocene. *Progress in Human Geography, 36*(5), 593-612.

Lowe, C. (2010). Viral Clouds: Becoming H5N1 in Indonesia. *Cultural Anthropology, 25*, 625-649.

Martínez-Dueñas, W., & Perafán-Ledezma, A. (2017). Pensando la conservación desde el multinaturalismo en una localidad indígena de los andes colombianos. *Universitas Humanística, 84*, 77-107.

Menzel, P., & d'Aluisio, F. (2000). *Robo sapiens: Evolution of a new species*. Mit Press.

Mol, A. (2002). *The Body Multiple: Ontology in Medical Practice*. Duke University Press.

Moore, J. (2015a). *Capitalism in the Web of Life: Ecology and the Accumulation of Capital*. Verso Books.

Moore, L. J. (2015b). A Day at the Beach: Rising Sea Levels, Horseshoe Crabs, and Traffic Jams. Sociology, 49(5), 886-902.

Moore, L. J., & Kosut, M. (2014). Among the colony: Ethnographic fieldwork, urban bees and intra-species mindfulness. *Ethnography, 15*(4), 516-539.

Movimiento de Mujeres y Diversidades Indígenas por el Buen Vivir (2022) Argentina: ¡Basta de Terricidio! *Stop Ecocidio International (SEI).* 18 de agosto de 2022.

BY-NC-SA

Nisly, J. (2019). Under one Roof Year-round. The Multispecies Intimacy of Cohabiting with Cows in Byre-houses since the Economic Enlightenment. *Ethnologia Europaea, 49*(2), 50-69.

Ogden, L. A., Hall, B., & Tanita, K. (2013). Animals, Plants, People, and Things. A Review of Multispecies Ethnography. *Environment and Society: Advances in Research, 4*(1), 5-24.

Ojeda, D., & Ruiz, D. (2023). *Belicopedia*. Ediciones Uniandes.

Pacini-Ketchabaw, V., Taylor, A., & Blaise, M. (2016). Decentring the Human in Multispecies Ethnographies. En C. Taylor, & C. Hughes, *Posthuman Research Practices in Education* (pp. 149-167). Palgrave Macmillan.

Parathian, H. E., McLennan, M. R., Hill, C. M., Fraz-o-Moreira, A., & Hockings, K. J. (2018). Breaking Through Disciplinary Barriers: Human–Wildlife Interactions and Multispecies Ethnography. *International Journal of Primatology, 39*(5), pp. 749-775.

Pardo, D. (2023). Sensory Co-laboring: Mine Detection Dogs and Handlers in Humanitarian Demining in Colombia. *Environmental Humanities, 15*(3), 30-51.

Pinto-García, L. (2022). Military Dogs and Their Soldier Companions: The More-than-human Biopolitics of Leishmaniasis in Conflict-torn Colombia. *Medical Anthropology Quarterly, 36*(2), 237-255.

Remis, M., & Jost, C. (2020). Elephants, Hunters, and Others: Integrating Biological Anthropology and Multispecies Ethnography in a Conservation Zone. *American Anthropologist, 122*(3), 459-472.

Ruiz, D., & Del Cairo, C. (2016). Los debates del giro ontológico en torno al naturalismo moderno. *Revista de Estudios Sociales,* (55), 193-204.

Sánchez-Maldonado, J. (2018). Familias-más-que-humanas: sobre las relaciones humanos/no-humanos y las posibilidades de una etnografía inter-especies en Colombia. *Desenvolvimento e Meio Ambiente, 49*, 305-317.

Sánchez-Maldonado, J. (2022). Aproximación a la coevolución entre humanos y cánidos y la consolidación de un programa de investigación en etnografía interespecies. *Papel de Colgadura, 22*, 93-99.

Singer, M. (2014). Zoonotic Ecosyndemics and Multispecies Ethnography. *Anthropological Quarterly, 87*(4), 1279-1309.

Smart, A. (2014). Critical perspectives on multispecies ethnography. *Critique of Anthropology, 34*(1), 3-7.

Sotelo, A. S. (2016). Etnografía acerca de la manera en que se piensan y representan los bosques: reseña al libro *How Forests Think: Towards an Anthropology beyond the Human*, de Eduardo Kohn. *Boletín de Antropología, 31*(52), 325-328.

Specter, M. (2012, 22 de octubre). *Germs Are Us*. New Yorker.

Stengers, I. (2005). Introductory Notes on an Ecology of Practices. *Cultural Studies Review, 11*(1), 183-196.

Stone, E. (2019). What's in it for the cats?: cat shows as serious leisure from a multispecies perspective. *Leisure Studies, 38*(3), 381-393.

Swanson, H. (2017). Methods for Multispecies Anthropology. Thinking with Salmon Otoliths and Scales. *Social Analysis, 61*(2), 81-99.

Tsing, A. (2015). *The mushroom at the end of the world. On the possibility of life in the capitalist ruins*. Princeton University Press.

Viveiros, E. (1996). Os pronomes cosmológicos e o perspectivismo ameríndio. *Mana, 2*(2), 115-144.

Watson, M. (2016). On Multispecies Mythology: A Critique of Animal Anthropology. *Theory, Culture & Society, 33*(5), 159-172.

Weinberg, M. (2019). Especies compañeras después de la vida: pensando relaciones humano-perro desde la región surandina. *Antípoda. Revista de Antropología y Arqueologia,* (36), 139-161.