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Research article

Co-Habiting Among Howls: How Interactions Between Humans and Coyotes Reconfigure Rural Territory in Costa Rica

Cohabitar entre aullidos: cómo las interacciones entre humanos y coyotes reconfiguran un territorio rural en Costa Rica

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ABSTRACT

This article examines the sociomaterial interactions between humans and coyotes that reshape a rural territory. Our research challenges the thesis of human exceptionalism, which posits that only humans construct meaningful lifeworlds. Adopting a relational perspective, we redefine the concept of the "social actor" to include non-human beings as fully recognized social agents. The empirical study was conducted in the rural locality of San Gerardo de Oreamuno, a mountainous area in Costa Rica's Cartago province. This territory includes protected wilderness areas, residential zones, horticultural production, dairy farming, and emerging community-based agroecotourism initiatives. We employed a multispecies ethnographic approach, using situated experience recording to identify the sociomaterial and affective relationships between humans and coyotes. Our analysis reveals the limitations of administrative approaches to territory, which often prioritize market-driven and planning dimensions, overlooking the values and meanings inherent in multispecies coexistence. In contrast, we highlight the role of coyotes in local territorial narratives, a key aspect for understanding emerging regimes of cohabitability. A deeper investigation into these modes of coexistence requires the integration of ontological dimensions that remain underexplored within conservation sciences. Known locally as "*perro lobo*" ("wolf dog"), the coyote exemplifies how daily interactions with specific beings contribute to local knowledge that challenges the universality of scientific categories, such as "species." In our concluding remarks, we underscore the significance of such ethnographic exercises for fostering an ecological orientation within Development Anthropology. This approach calls for critical reflection on Western andro-anthropocentric perspectives and encourages a stronger epistemological and political commitment to the study of "naturalcultural" relations, where humans are one element among many.

Keywords: Ecology; Ethnography; Multispecies; Posthuman; Rural; Territory.

RESUMEN

El artículo analiza las interacciones sociomateriales entre humanos y coyotes que reconfiguran un territorio rural. Nuestra investigación problematiza la tesis de la excepcionalidad humana, en la que se establece que los humanos son los únicos seres que construyen mundos de vida significativos. Adoptamos una perspectiva relacional para reformular el concepto del "actor social" y, de este modo, incluir también a los seres no humanos como actores sociales de pleno derecho. El estudio empírico tuvo lugar en la localidad rural de San Gerardo de Oreamuno, ubicada en una región montañosa de la provincia de Cartago, en el centro de Costa Rica. En ese territorio convergen áreas silvestres protegidas, zonas residenciales, actividades de producción hortícola, ganadería lechera y nuevas iniciativas de agroecoturismo comunitario. Diseñamos un ejercicio etnográfico fundamentado en el método y la teoría de la etnografía multiespecie. Utilizamos el registro de experiencias situadas para identificar las relaciones sociomateriales y afectivas entre humanos y coyotes. En el análisis de resultados, argumentamos que reflexiones como la nuestra evidencian las limitaciones de los enfoques administrativos del territorio, que se centran principalmente en las dimensiones de mercado y planificación. Estas visiones normativas pueden resultar insuficientes para comprender los valores y significados de la coexistencia multiespecie. En contraste, destacamos la importancia de los coyotes en las narrativas territoriales. Este aspecto es clave para distinguir los regímenes de cohabitabilidad que podrían estar emergiendo. Un análisis más detallado de estos modos de coexistencia requiere integrar elementos ontológicos que han permanecido relativamente inexplorados en las ciencias de la conservación. El "perro lobo", como se conoce localmente al coyote, muestra que el contacto cotidiano con ciertos seres forma parte de prácticas locales de conocimiento que desafían la universalidad de las categorías científicas, incluido el concepto de "especie". En nuestras consideraciones finales, destacamos la importancia de estos ejercicios etnográficos para fomentar una orientación ecológica en la Antropología del Desarrollo. En este sentido, es fundamental seguir escrutando la posición privilegiada del andro-antropocentrismo occidental y promover un mayor compromiso epistemológico y político con el estudio de las redes de relaciones "naturoculturales", en las que los humanos somos solo una parte.

Palabras clave: ecología; etnografía; multiespecie; posthumano; rural; territorio.

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INTRODUCTION

Ocultos entre la neblina
(Hidden among the fog)
Guiados por la luz de la luna
(Guided by the moonlight)
Corriendo libres
(Running free)

Cantan al son del viento,
(They sing to the sound of the wind,)
Frío y melancólico
(Cold and melancholic)

Al llegar el amanecer
(At dawn)
Su voz vuelve a ser animal,
(Their voices become animal once more,)
Incomprendida
(Uncomprehended)

Hasta la próxima luna llena
(Until the next full moon)
Cuando por una noche
(When for one night)
Quien entre al bosque podrá escuchar
(Those who enter the forest will hear)
Los secretos de los coyotes
(The secrets of coyotes)

La Noche de los Coyotes (The Night of Coyotes)
María Fernanda Rojas Campos

"Before this experience, I had neither seen nor heard a coyote in person. To me, the coyote was simply another species: *Canis latrans*. My knowledge of them came solely from books; they didn't evoke fear or pose a threat, yet they remained foreign to me" (Rojas Campos, field notes, San Gerardo de Oreamuno, April 2023). This excerpt, along with the poem *The Night of Coyotes*, used as an epigraph for this introduction, was written by a Biological Sciences student during a field trip to San Gerardo de Oreamuno, a rural community in the mountainous region of Cartago province, Costa Rica. The trip was part of a research project examining the coyote's activity areas and diet within the ethnoecological context of Costa Rica's diverse tropical forests—dry, transitional humid, very humid, premontane, montane, and subalpine. Conducted by a public university from 2020 to 2023, this project explored the species' interactions within these ecosystems.

However, the student's field notes are of interest here for reasons that extend beyond the strictly biological understanding of this species. They provide an apt

starting point for presenting the objective of this article: to analyze the sociomaterial interactions between humans and coyotes that reconfigure a rural territory.

This ethnographic inquiry is significant not merely because it offers an opportunity to examine human–nonhuman relations without replicating anthropocentric epistemologies. By positioning coyotes as situated interlocutors—on par with the humans with whom they share territory—we contend that these reflections are meaningful not because they serve specific social or academic agendas, but because they are integral to the sociomaterial fabric that actively constitutes the territory and shapes its experiential reality for both human and nonhuman inhabitants.

Accordingly, our central aim is not to justify why anthropologists or other social scientists should attend to multispecies entanglements in this particular region. Rather, we argue that taking these relationships seriously—and recognizing the configurative agency of nonhuman animals, in this case coyotes—is meaningful to those who inhabit the territory. This significance arises precisely from the fact that it matters to them, irrespective of whether it aligns with the priorities of external observers.

The analysis of human–coyote interactions in this rural context, therefore, does not seek to validate specific research agendas—though it may indeed inform them—but instead demonstrates how these interactions, understood as sociomaterial, challenge conventional anthropological categories. These categories, often structured by the nature/culture binary, predispose researchers to interpret the subject–object relationship through fixed identities embedded in a static axiological framework.

Our research challenges the thesis of human exceptionalism, which posits that only humans construct meaningful lifeworlds. Adopting a relational perspective, we redefine the concept of the "social actor" to include non-human beings as fully recognized social agents. This approach suggests that individuals become social actors when they reflexively (re)shape the territories they inhabit. In sociomaterial terms, this implies that social actors develop recursive skills and abilities, enabling them to engage in a diverse array of practices. Therefore, "sociomaterial practices" refer to performative capacities that allow individuals to interact creatively with their surroundings (Charão-Marques & Arce, 2023).

We propose that both the poetry and the student's notes offer an alternative pathway for understanding how coyotes become social actors in the territory of San Gerardo de Oreamuno. The lyricism of the poetry reveals a "coyote-territory," characterized by the animal's performativity and the creative ways coyotes engage with the aesthetics of the landscape. Additionally, the student describes the affective atmospheres that form part of the experience of contact—or, more

specifically, proximity—between humans and these animals. In the poetry, the evocations of coyotes hidden in the mist, their songs (alluding to their howls), and the "cold and melancholic" winds reveal an image of the animal that contrasts with what she had encountered in textbooks. Her training as a biologist was challenged by an experience that, in the words of Vinciane Despret (2013), reflects an "affected" perspective in knowledge practices.[1]

The Night of Coyotes is an eco-poetic statement that exemplifies the approach we follow in this article. The mist enables coyotes to amplify their presence and establish novel relationships with other biotic and abiotic elements of the territory. This meteorological phenomenon plays an active role in the relational dynamics of the coyotes. Viewed from a relational perspective, these interactions allow us to perceive the coyote in a new light and to understand how its existence gains significance for a broader array of actors (Despret & Meuret, 2016).

From a biological standpoint, coyote *Canis latrans* is a medium-sized canid with a head-body length ranging from 750 to 1150 mm (Wainwright, 2007; Reid & Gómez Zamora, 2022). The species is characterized by a slender build and a coat coloration that ranges from reddish-brown or yellowish to grayish, depending on region and altitude. Additionally, fur density varies by location. Coyotes are active both day and night, often observed either alone or in family groups of three to five individuals. Their diet is omnivorous, including scavenging and active hunting of rodents, rabbits, and, occasionally, domestic pets such as cats and dogs.

This species is distributed across much of the Americas, from Alaska to Panama (Vaughan, 1983; Méndez-Carvajal & Moreno, 2014). In Costa Rica, coyote inhabit a range of environments, both natural and human-modified, from basal areas to the tropical subalpine zone. They are found in regions such as the northwest, central, and southern Pacific, as well as in the Guanacaste, Tilarán, Central Volcanic, and Talamanca mountains ranges and the northern Caribbean (Wainwright, 2007; Carazo-Salazar et al., 2020; Azofeifa-Romero et al., 2024).

Interest in interactions between humans and other living beings has gained momentum within the field of Multispecies Studies, an interdisciplinary agenda that emerged only two decades ago. As Van Dooren et al. (2016) note, this field centers on the "arts of attention," through which humans become capable of responding to the non-human vitality of the planet. Within this conceptual and analytical framework, the ability to respond is closely tied to responsibility. Humans and non-humans are embedded in ecologies of life and death.

[1] Vinciane Despret (2013) argues that an "affected" perspective examines the ways in which take the chance of being moved by what is meaningful to the animals they study. We might also add that this notion refers to the "naive curiosity"—though genuine—that a scientist (or any attentive observer of non-human vitality) experiences when confronted with revelations from animals for which they have no prior answers or knowledge.

Responding and being responsible are ways of imbuing relationships with significance (Haraway, Seguir con el problema: generar parentesco en el Chthuluceno, 2020). It is, therefore, about learning to be affected by the agency of non-humans and finding more suggestive and nuanced ways for the lives of all organisms to truly matter. A central contribution to these debates has been the work of American anthropologist Anna Tsing. In one of her more recent works, Tsing (2015) argues that human coexistence with other beings requires a reconstruction of curiosity: we must counteract our ignorance of the multispecies worlds that surround us through unpredictable encounters.

As the poetry suggests, entering the forest can be an immersive exercise, even a way to become more attuned to what we understand and what we do not. Furthermore, it entails a greater openness—a willingness to tune in with coyotes in ways that allow them to be more proactive and intentional.

As feminist theorist Karen Barad (2003) argues, beings do not precede their interactions; rather, they co-constitute each other through agential intra-actions. Understanding that territorial dynamics are processes in constant reconfiguration—not merely simple outcomes—is essential. In simpler terms, Barad suggests that the lifeworlds of humans and non-humans dynamically interact to form situated modes of inhabiting. Acknowledging the unfinished nature of these relationships is crucial for identifying how certain practices of coexistence and territorial values tend to dominate over others. This analysis, we propose, carries both epistemological and political implications, as some practices and values may remain unnoticed under prevailing anthropocentric perspectives.

Thus, studying the regimes of cohabitability[2] that emerge in the relationships between humans and coyotes in territories like San Gerardo de Oreamuno can help us understand how these localities might achieve more autonomous resource management and better organize themselves to gain greater political leverage.

In the next section, we will briefly outline theoretical and historical elements that contextualize our research. Following that, we will present the methodological considerations. We will then focus on what we can hear—or, more specifically, on what coyotes make audible through their presence in the territory and their howls. Finally, we will explore the sociomaterial and affective practices that emerge in the relationship between humans and coyotes. In the concluding

[2] Cohabitability regimes foster interactions in which non-human beings are recognized as active participants with their own interests and needs, aiming to coexist ethically and responsibly. This approach challenges relationships of domination and exploitation towards other species and organisms. For instance, the studies conducted by American anthropologist Anna Tsing, particularly since the publication of *The Mushroom at the End of the World* (2015), emphasize the importance of these regimes in strengthening relationships of interdependence and collaboration.

section, we will offer final reflections.

A Necessary Preamble

In 2019, a group of scientists from the U.S. National Wildlife Research Center and the University of Utah analyzed the effects of human hazing on coyotes in urban areas of the country.[3] The results showed that prior experiences significantly influenced how often a coyote approached humans. In the experiment, coyotes that had previously been fed by humans needed to be harassed more frequently than those with other or no prior experiences.[4] It was also observed that the frequency with which a coyote approached a person decreased over time as the number of accumulated harassments increased. Based on these findings, the researchers suggested that coyotes learn to avoid behaviors that provoke such reactions from humans (Young et al., 2019).

Although this study primarily focuses on a behavioral experiment conducted in a context different from our own research, it underscores key aspects that strengthen our argument. The first point is that human-coyote coexistence leads to behavioral changes in both parties. This relational dynamic, in which affecting always implies being affected, generates intuitive forms of learning about the relationships we establish with other living beings.

The construction of values is fundamental in this mutual affectation. Coexistence influences not only the values we attribute to others but also our attitudes toward the implications that this coexistence has on our daily activities. However, the way these processes unfold and the influence of territory are not always clear. Understanding how emotional bonds between humans and wildlife are formed and modified in specific territories provides a valuable opportunity for conservation management models, in which both biology and anthropology have much to contribute.

The authors highlight that urban coyote have become more astute, an aspect we consider even more relevant because it acknowledges the adaptive capacity and agency of animals. This recognition can be crucial for establishing less hierarchical conditions of cohabitability, in which coyotes can become interlocutors in studies, alongside humans. This perspective could lead to a profound transformation in how we conceive Western science. More specifically, it could help us rethink how Western scientific paradigms have historically been employed to interact with other animals and organisms. Although nature and

[3] The authors use the term “hazing” to refer to what is commonly known as “scaring” or “frightening” wildlife in order to reduce their mobility in urban areas and minimize interactions that could lead to conflicts with humans. They define hazing as a form of aversive conditioning that involves making loud noises, chasing, and performing other actions that constitute harassment of the animal.

[4] The hazing technique employed involved shaking a can filled with coins, shouting, and stomping when a coyote approached within a distance of 1 to 3 meters. This type of recommendation is commonly provided by wildlife management departments in many cities across the U.S. and Canada.

culture, as well as human and animal, were never separate phenomena, Western modernity—an inheritor of Cartesian thought—artificially divided them into distinct categories. This division has led the epistemology of modern science to objectify everything that is not considered human, reducing it to the status of a "thing."

Today, no serious researcher would deny that coyotes are living beings, but their objectification has contributed to the silencing of much of our shared history. One example of this is the fact that the leading role these animals played in pre-Columbian Mesoamerican cultures, especially before European conquest and colonization, is rarely acknowledged in scientific studies that discuss the invasive potential attributed to them in recent decades.[5]

In its early days as a scientific discipline, anthropology followed the trail of non-human beings through the animist systems that so fascinated the first ethnographers. Non-human beings—from other animals and plants to spirits, the dead, and ghostly entities—were present in a circumstantial way, adapting not only to the daily experiences of local human groups but also to the anthropologists' interpretations. Often, animals were portrayed as secondary elements in actions where humans were the protagonists, the gravitational center of meaningful interactions. Animal actions lacked intrinsic meaning and depended on the human context framing them.[6]

Anthropology's interest in the animal kingdom was intrinsically linked to the need to understand the uses and meanings that various species had in the cultural and symbolic development of peoples. This led to the anthropological study of animals being considered relevant only if it contributed to understanding how

[5] In many scientific publications, it is argued that coyote only began to establish themselves in certain regions of southern Central America in the 1980s (Wu, 2020). This perspective presents an opportunity for interdisciplinary approaches to collaborate in reconstructing the natural history of coyotes and other canids, exploring how their relationships with humans have evolved from pre-colonial times to the present. It is crucial to view current coyote populations not only as sacred symbols or representations of deities, as is often the case in studies of 'totemic animals,' but also as entities with their own history and social materiality. This approach could be key to producing alternative knowledge that, as mentioned in the introduction, presents coyotes in more complex ways. Understanding their boldness as an expression of performative capacities could allow us to integrate the historical embodiment of the coyote and its material vitalism into broader reflections on the anthropogenic transformation of rural and urban ecosystems.

[6] Several classical anthropologists have approached the relationship between humans and animals from various perspectives. Among them, Franz Boas, a pioneer of cultural anthropology, focused on myths and beliefs where animals played symbolic roles, but he did not regard them as active co-creators of worlds (Boas, 1904). Alfred Métraux, in his studies in Latin America, documented how indigenous communities in the Gran Chaco established relationships of respect and reciprocity with animals, influenced by mythological narratives that endowed them with human characteristics (Métraux, 1946). Paul Rivet explored the significance of animals in indigenous worldviews, emphasizing that they are not mere resources, but central figures in myths and rituals in communities in Ecuador, Peru, and Colombia (Rivet, 1908). Julian Steward, known for his cultural ecology approach, examined how cultures adapt to their natural environment, including fauna, in his studies in Peru (Steward, 1972). Evon Z. Vogt analyzed the relevance of animals in everyday life, studying their adaptation to socioeconomic and environmental changes in communities in southeastern Mexico and indigenous groups in Guatemala (Vogt, 1976).

humans interacted with the forces of nature to create a more favorable environment for our species (Ingold, 2006).

The "*anthropos*-centric" perspective that has historically dominated anthropology continues to persist in many professional and academic spheres within the discipline. However, the ontological turn in the social sciences at the beginning of the 21st century has introduced new alternatives for questioning the dichotomous and dualistic boundaries of modern science (Holbraad & Pedersen, 2017). This turn offers a critique aimed at overcoming structuralist binaries such as the division between subject and object, reason and emotion, thereby opening up space to explore the continuity and interdependence between beings, phenomena, and all types of non-human entities (Descola, 2013). By considering coyotes as social actors, we position our ethnographic work within this contemporary trajectory. As Bruno Latour (2015) argues, reconnecting humans with the rest of nature also involves recognizing the culture inherent in animals. In this context, examining the coexistence of humans and coyotes in San Gerardo de Oreamuno enables us to empirically identify the "naturalcultural" relationships that unfold in this territory.[7] These relationships manifest through territorial practices and values, which serve as creative responses to the presence of the "other" and the contingencies of the shared territory. We will explore this theme in greater depth in the following sections of the article, after presenting the methodological considerations that guide our reflection.

Doing Multispecies Ethnography with Coyotes

Our ethnographic study is grounded in the methods and theories of multispecies ethnography.[8] Through recording situated experiences, we identify sociomaterial

[7] Donna Haraway (2003), to whom this term is attributed, argues that nature and culture are shaped through semiotic-material entanglements. These entanglements are constantly reconfigured through asymmetric relationships of power, conflict, and negotiation, which characterize multispecies contact zones.

[8] We consider it important to clarify that, having chosen to write an article that departs from conventional academic structures, our text does not include a distinct theoretical section. This is a deliberate methodological decision grounded in the understanding that, in research practice, processes are not always linear. Empirical findings, for example, do not necessarily precede theoretical reflection. More often, it is through engagement with fieldwork that we are led into dialogue with diverse authors, concepts, and traditions, regardless of their paradigmatic or disciplinary affiliations. At the same time, we find it necessary to highlight that, despite the relative novelty of multispecies studies, there exists a growing and dynamic body of scholarship engaging with this perspective, both globally and within the Latin American and Caribbean context. However, we caution against the assumption that earlier approaches addressing animal issues, animality, or human-animal relations—such as the ontological turn, critical animal studies, or even certain strands of ethology—should be considered direct precursors to the multispecies perspective. In this regard, we aim to draw attention to the rich intellectual tradition that has been significantly developed by Latin American and Caribbean anthropology in recent years. This tradition, often linked to philosophical posthumanism, political and decolonial ecologies, science and technology studies (STS), and Indigenous cosmologies, should not be conflated with, nor reduced to, the framework of multispecies ethnography. Nevertheless, it is crucial to recognize the contributions of key scholars from the region who have engaged with these themes in distinctive and meaningful ways. These include Astrid Ulloa and Gerardo Reichel-Dolmatoff in Colombia; Déborah Danowski and Eduardo Viveiros de Castro in Brazil; David Varela and Berenice Vargas García in Mexico; Diego Escobar and Celeste Medrano in Argentina; as well as Eduardo

and affective relationships between humans and coyotes within a shared territory. The term "multispecies ethnography" was formally introduced by Eben Kirksey and Stefan Helmreich in a 2010 article in Cultural Anthropology. This perspective reflects a renewed interest in exploring how diverse organisms and non-human entities interact with humans within intricate relational networks, (re)constituting themselves and other beings in the process (Kirksey & Helmreich, 2010).

The novelty of multispecies ethnography lies in its posthuman and multisensory approach, which seeks to capture the complexity of worlds charged with affect and vitality. This approach not only considers the tensions and conflicts that arise in coexistence (Haraway, 2008), but also the alliances, complicities, and collaborations that enable the flourishing of new ways of being and living with others.

Many studies using this perspective emphasize engaging with non-human vitalities through what Eben Kirksey terms “emergent ecologies.” This concept describes dynamic, shifting environments that arise from interactions between species and other actors in specific contexts. These ecologies adapt and transform as diverse forms of life intersect, creating new ecological configurations (Kirksey, 2015).

We suggest that ethnographic studies of emergent ecologies could benefit from a relational approach. Such an approach allows for a focus on situated experiences that give rise to territorial values and sociomaterial practices of cohabitability. Rather than being determined by a fixed context, multispecies coexistence is continuously reshaped within contingent relationships, where factors like unpredictability and awe shape the affective intensities of interactions with other animals and organisms.

Wells et al. (2016) argue that interactions between actors are always territorialized and based on non-standardizable practices. They introduce the concept of "singular plurality" to capture the situated nature of multispecies relationships. Living beings—and more specifically, their taxonomic and morphological classifications—gain new potentialities through the sociomaterial interactions they are part of. In their research, the salmon is presented not only as a biological entity but also as a performative actor connected to food markets, trade flows, and conventional narratives of economic development. The authors demonstrate how the vitality of this animal is intertwined with territorial arrangements in Chilean Patagonia, in “intra-active” processes where the biological (the tangible being) and the ontological (the being of experience)

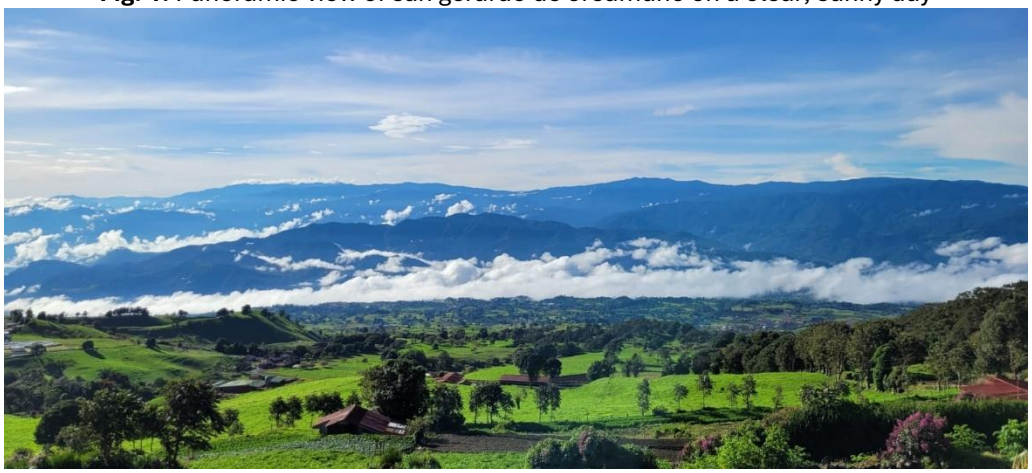
Kohn, whose ethnographic work in Ecuador has had significant impact. We particularly recommend exploring the research conducted in Brazil by the groups led by Felipe Vander Velden and Bernardo Lewgoy, especially the special issue “*Antropologia e Animais*,” (Segata et al. , 2017) published in *Horizontes Antropológicos*, the journal of the Federal University of Rio Grande do Sul.

mutually influence one another. This intertwining allows the salmon to become an active participant in a contingent interspecies relationship.

Sociomaterial practices are shaped by both (bio)physical environments and socioenvironmental phenomena that give rise to new assemblages. Arce and Charão-Marques (2021) argue that these assemblages are not fixed structures, but rather fluid configurations that emerge in response to the interaction of various elements, including development policies, markets, ecological crises, and technologies. Given that global factors influence local trajectories, while local phenomena also impact the global, this creates a disruption of scales that challenges hierarchical thinking. This approach highlights that multispecies relationships are neither static nor uniform. Instead, they are dynamic assemblages of vitality, influenced by both local knowledge and traditions, as well as by global trends, such as neoliberal approaches to nature conservation and environmental regulations.

San Gerardo de Oreamuno is a rural locality located in a mountainous region of the Cartago province (2450 masl), in the Central Region of Costa Rica (Figure 1). In this territory, protected wilderness areas, residential zones, horticultural production activities, dairy farming, and merging community-based agroecotourism initiatives converge. Its topography is marked by the Irazú (3432 masl) and Turrialba (3340 masl) volcanoes,[9] whose areas are managed by the National System of Conservation Areas (Sistema Nacional de Áreas de Conservación, SINAC) and are part of the Protected Wilderness Areas (Áreas Silvestres Protegidas, ASP),[10] in the National Parks modality.

Fig. 1. Panoramic view of san gerardo de oreamuno on a clear, sunny day



Note: Research archive. San Gerardo de Oreamuno, October 2022.

[9] The Irazú Volcano National Park (PNVI) and Turrialba Volcano National Park (PNVT) are located 20 kilometers apart.

[10] According to Article 28 of Costa Rica's Biodiversity Law No. 7788, Protected Wilderness Areas (ASP) are territorial units designated for conservation, overseen by the Ministry of Environment and Energy (Ministerio del Ambiente y Energía, MINAE). These areas are administratively defined and designed to achieve sustainable development and environmental protection goals (Law No. 7788/1998).

Volcanic soils, rich in fertility, support agricultural activities, particularly vegetable production and dairy farming. The climate in the area is classified as Lower Montane Wet Forest (bh-MB), typical of mountainous regions. The "landscape aesthetic" is defined by cool temperatures and frequent fog throughout much of the year.[11] Since the COVID-19 pandemic, agroecotourism initiatives have flourished in San Gerardo de Oreamuno, aimed at promoting territorial development. Local families lead these initiatives, with backing from external public organizations. According to the 2015 national population census, approximately 150 families reside in the area (Instituto Nacional de Estadística y Censos [INEC], 2015).

Due to its proximity to protected wilderness areas, the "*zona norte de Cartago*" (as the area where San Gerardo de Oreamuno is popularly known) is especially rich in biodiversity. The closeness of protected areas, residential zones, and land dedicated to productive activities fosters frequent encounters between humans and wildlife. In addition to coyotes, residents of San Gerardo report regular sightings of other medium-sized mammals, such as raccoons, armadillos, opossums, and even two-toed sloths. Wildlife has started using public roads for movement and, in some cases, enters houses in search of food, shelter, or protection for their young.

The ethnographic work was conducted over various periods during 2021, 2022, and 2023, with frequent visits to the area, generally two or three times a week. A significant portion of these visits was carried out individually by the first author, who established initial contacts with human and non-human actors, conducted interviews with community members, took photographic records, and identified places reported by locals as high-activity areas for coyote sightings and interactions.

The second author focused on technical work, specifically georeferencing and sound recording activities. In April 2023, a field trip with Biological Sciences students, as mentioned in the introductory section, was organized. During this fieldwork, the team combined conventional qualitative methods from the social sciences, such as interviews and participant observation, with the use of trail cameras to capture footage of coyotes in active areas. The group, consisting of the authors and six students, spent two days and one night at a dairy farm in a pasture area. During this time, biological materials of interest, such as feces and hair samples, were collected, and footprints were identified and measured.

During the field trip and the researchers' individual visits throughout the study, trail-walking techniques were employed. The recordings of vocalizations and tracks were later used in participatory sessions with local residents, facilitating

[11] The life zone of the territory is characterized by Low Mountain Wet, Very Wet, and Pluvial Forests, with annual precipitation levels ranging from 1,400 to 2,000 mm and an average temperature of 19.2º C.

conversations about perceptions, beliefs, values, and other significant aspects related to coexistence with coyotes.

While a detailed account of the methodological procedures lies beyond the scope of this article, it is pertinent to revisit a point raised by a peer reviewer: the integration of tools from both the social and natural sciences remains relatively uncommon and warrants broader adoption. In this regard, fieldwork presents not only rich opportunities for learning but also requires a careful, balanced approach. It is essential to avoid multispecies research that focuses exclusively on either animals or humans. As the reviewer noted, methodological integration facilitates a more nuanced understanding of relationality—conceived not as a simple encounter between discrete entities, but as a dynamic, co-constitutive process.

During the research period, at least 25 interviews were conducted, aiming to explore local perceptions of coyotes and their entanglements with the landscape and agro-productive environments. The participants comprised a diverse group of informants, including community leaders, homemakers, dairy workers, vegetable producers, small business owners, and tourism entrepreneurs. However, beyond cataloging occupational roles, our primary interest lay in the affects, values, and meanings these individuals associated with their coexistence with a nonhuman other.

Complementing these qualitative insights, we employed biological and geospatial techniques such as audio recordings, camera traps, the collection of biological samples (feces and hair), and the identification and measurement of tracks. These tools enriched our understanding of local social perceptions by helping us trace processes of territorialization—how coyotes inhabit, traverse, and render themselves perceptible within the shared landscape.

Undoubtedly, the methodological dimension merits deeper examination in future publications, and we intend to further pursue this line of inquiry in subsequent research.

In San Gerardo de Oreamuno, coyotes traverse lands used for various human purposes, including pastures, dairy farms, crop production fields, and even the backyards of homes near protected wilderness areas.

In San Gerardo, the coyote is commonly referred to as the "*perro lobo*" ("wolf dog") or occasionally as the "*perro del monte*" ("mountain dog"). This local designation prompted one of the authors to note in their field journal: "If you come to San Gerardo de Oreamuno and want to ask the local residents about coyotes, it's best to mention wolves directly and skip giving Linnaeus the credit" (author, field note, San Gerardo de Oreamuno, April 2023).

Our focus here is not on taxonomic debates or the informal use of names, but rather on how coyotes assert their presence in San Gerardo.[12] Referring to these animals as "*perros lobo*") ("wolf dogs") reflects sociomaterial practices embedded within broader and more intricate territorial assemblages. In this context, the emergence of the "wolf dog" concept reveals that territories are not merely physical spaces to be mapped. Instead, through affective relationships between humans and wildlife, we can perceive territorial resonances that transcend administrative and regulatory boundaries. Therefore, the coexistence of humans and "wolf dogs" can be seen as part of the practical incidents of everyday local life, dynamically shaped by contingency and unexpected changes (Arce & Charão-Marques, 2021).

ANALYSIS OF RESULTS

What Is That Sound in the Night?

Unlike the perception of coyotes in some urban areas of the country, their presence in rural communities on the slopes of the volcanoes is not viewed as threatening or dangerous by local residents. Don Leonardo Montenegro, a farmer from the area, remarked:

> They move from one mountain to another. You can hear them at night. During the day, they're silent. [...] all my life, because since we were little, when there were more mountains, there were even more coyotes. But their numbers decreased. There used to be a lot of them. [...] in fact, we had a coyote that died. My brother brought a small one; he found him in a nest. The mother had died, and the others were dead too. Only one was still alive, so we started feeding him milk with an eyedropper, and he stayed with us for a while. He was very beautiful, but someone—still unknown—poisoned him. [...] people around here don't consider coyotes harmful. We have many dairy farms in this area, and we've never heard of anyone saying they've killed livestock, not even young cattle, which are much weaker prey (Leonardo Montenegro, San Gerardo de Oreamuno, April 2022, translation by authors).

Don Fabio, the brother of Don Leonardo and a producer of milk and dairy

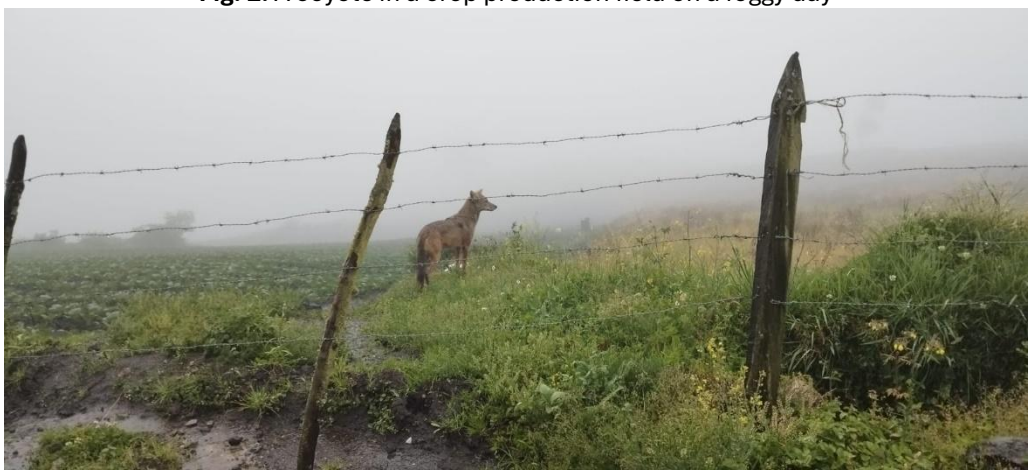
[12] It is notable that the natural history of the coyote is rich with anecdotes related to efforts to name it. Dan Flores, in his book "Coyote America: A Natural and Supernatural History", provides an extensive analysis of these episodes, which occurred throughout the 19th century and the early decades of the 20th, primarily in North America. Flores (2016) examines the trajectories of the "prairie wolf," a term used by early European explorers in North America to refer to the coyote. With a touch of irony, he describes how, before the species attained its current taxonomic status, it was classified at various times as a type of wolf, fox, and even jackal. According to Flores, these shifting classifications underscore the ambiguity that has become a defining feature of the coyote's biography, an ambiguity crucial to understanding its recent biological and socio-historical evolution. Furthermore, we must not overlook the "*coyotl*", the coyote figure in the cosmological narratives of Mesoamerican societies before the Spanish invasion and conquest.

products, also shared his insights on the presence of the "*perro lobo*" ("wolf dog") in the territory. He noted that:

> [...] they have adapted to human noise, light, and the sound of cars. They have lost their fear and now approach more closely. I imagine that, previously, they were only found in the mountains. Now, they are here, listening to people and cars. If you remain still and avoid excessive movement, they will stay nearby or pass by calmly. Any movement, however, will cause them to leave immediately. They are skittish. In the summer, when you're working and the weather is nice, you can sense their presence even if you don't see them. Since we don't bother them, they have become more accustomed to us. [...] they don't cause harm. The only risk would be if an animal, like a cow, were to fall and become unable to rise. If a cow falls in the pasture and can't get up, and they manage to approach, they could tear it apart. However, cows give birth and their calves walk around without any issues. [...] I used to be afraid of the "mountain dog" because I imagined it might be an animal that could attack me. Yes, you have to be cautious if a "female dog" has recently given birth and you approach unknowingly. It has never happened, but it could be dangerous. Yes, people say you have to be careful because they can attack. But to claim that one of "those dogs" attacked you... is a lie. [...] they don't harm anything, nor do they kill chickens. On a farm here, there are many dairy farms... and yes, there are a lot of "those dogs" because there are two deep ravines nearby, where they have burrows. You can hear them coming from the Irazú Volcano. These animals have come often; they used to feed on rabbits and other mountain animals. We never discovered why they decided to come here or what they are looking for. [...] here, people see them as a normal presence. Sometimes, people see them and say, "Oh, look! They're "wolf dogs," how nice." [...] they are close by. You could be walking and pass two or three of them without noticing because they remain still. They have an admirable sense of smell; if they are walking on a trail and are about to meet you, they crouch down and change direction. In this area, near the Irazú and Turrialba Volcanoes, where there are more of "those dogs," we have never heard of them attacking anyone (Fabio Montenegro, San Gerardo de Oreamuno, April 2022, translation by authors, emphasis added).

These stories not only describe everyday experiences but also offer insight into the values and territorial practices that emerge from the relationships between people and wildlife. The experiences of the Montenegro brothers reflect those of families who have lived in San Gerardo de Oreamuno for decades, involving a range of affective intensities expressed through the landscape and the memories it evokes (Figure 2).

Fig. 2. A coyote in a crop production field on a foggy day



Note: Research archive. San Gerardo de Oreamuno, November 2022. Courtesy of a local resident.

In the "*zona norte*" ("northern region") of Cartago province, people in the localities also refer to the coyote simply as "*perro*" (dog) or "*lobo*" (wolf). The understanding of the coyote, and with it the value attributed to it, varies depending on the adjective used. In cases where the coyotes are considered dogs, they can be seen as having a positive connotation: the dog is a domestic, friendly, and even harmless animal. In contrast, when the coyote is considered a wolf, its connotation is primarily negative: the wolf is a wild, forest-dwelling, and untamable animal. "Who knows? Wolfs might attack. It's best to be cautious," several people we interviewed told us.

As observed in Don Fabio's account, the "*perro lobo*" ("mountain dog") cannot simply be understood as a social construct of the coyote, nor as a symbolic representation of the animal made through popular imaginaries. On the contrary, the "*perro lobo*" bring us closer to the relational focus of the coexistence established between each of these vitalities. Drawing on Barad (2007), people and coyotes are constantly co-constituted through interactive and intra-active links in and with the territory. In these cases, "pure" biologies are altered by visceral processes in which broader elements of ecology, history, and even economics and politics play a significant role.

The Howls

The location where we camped during our field trip in April 2023 was Finca El Plantón, a farm of approximately 150 hectares, subdivided into three smaller farms. We selected this site because the residents of San Gerardo believe it experiences significant coyote activity. In fact, El Plantón is the same farm referenced by Don Fabio Montenegro in his account. For this reason, we decided to set up camp near the streams he and other locals identified as key points for coyote presence.

To reach the site, it is necessary to cross a main pathway. One of the streams forms the boundary between Ganadera El Plantón and Lechería Puente Tierra, and this location had been identified in prior visits as a hotspot for coyote activity. It was here that we encountered our first evidence of the animal: fresh tracks and droppings (Figure 3).

Fig. 3. Traces of coyote activity collected during the field trip at finca el plantón

Note: Research archive, San Gerardo de Oreamuno, April 2023.

From a biological perspective, the characterization of tracks and droppings—based on their shape, color, smell, and surrounding signs—enables species identification and provides specific data about the individual that left them. Droppings are considered a georeferenced record of the animal, and their analysis allows researchers to identify patterns in the field, such as movement routes and interactions with the environment (Chame, 2003). Additionally, fecal material can be dissolved with water and soap, and once the sample dries, its components can be separated to determine the animal's diet (Grajales-Tam & González-Romero, 2014). Near the stream, we set up a camera trap to obtain direct evidence of the coyote's passage. With the data collected, it would eventually be possible to determine activity areas and patterns at the site.

During the early hours of the night, the moment to hear the vocalizations finally arrived. We had come to San Gerardo specifically for this purpose, and we were

finally able to hear the coyotes' "song."[13] Despite the challenging weather conditions, with torrential rain leaking into our tent and forcing us to remain wet, we surrendered to the acoustic atmosphere created by the coyotes' howls. From the field diary of one of us:

> The night was very cold, and a thick fog enveloped the area. I thought about how the small animals must have been enduring the cold. We shared stories of all kinds, and time passed quickly, with fatigue eventually overtaking us. I began to doubt that the coyotes would howl. However, after midnight, they did, their calls once again penetrating my soul with a mixture of sadness and joy. Some howls were so distant that it was impossible to capture them. At times, I heard them between dreams, leaving me uncertain as to whether they were real or imagined. (Author, Field journal, San Gerardo de Oreamuno, April 2023).

Howls are a key element in the interaction between humans and coyotes in San Gerardo de Oreamuno. In accounts of both direct and indirect encounters with these animals, people often focus on details that, in one way or another, involve sounds, offering various interpretations of their meaning. "The howls remind me of the cry of a small child" (Leonardo M., crop production field owner, San Gerardo de Oreamuno, April 2023). "The nighttime howls make you think of screams or wails, sounds that provoke sorrow, and sometimes frighten us" (Reina T., young housewife, San Gerardo de Oreamuno, April 2023).

The sequence of coyote vocalizations and the night itself form an integral part of the territorial narratives about the relationships between human and non-human worlds in San Gerardo. Regardless of the specific emotional response these howls may evoke in the human population, they are significant because they leave no one unaffected. Here, we use the word "significant" in a dual sense: on one hand, referring to the importance these vocalizations hold for people, and on the other, indicating the meanings they convey about the daily coexistence with the animals that produce them.

This aspect is crucial for understanding how the territorial emergence of the "*perro lobo*" goes beyond a simple local attribution of a different name for the coyote; in fact, it represents a manifest expression of an emerging affective ecology, in which concern for the biological purity of the animal becomes secondary.

Spectral Presences and Contemporary Myths

"Listening to those sounds makes many people in the community nervous. They associate them with the cry of "*La Llorona*". On nights when they're heard more frequently, some of us comment the next day that it might possibly be a female

[13] For some members of the community, the howls are considered a form of song that coyotes are capable of producing.

wolf in heat" (Karla G., young community member, San Gerardo de Oreamuno, March 2023).

For the biologists on our team, this type of perception is not entirely unfounded. Although there is no scientific evidence definitively linking this particular nighttime howl to the mating calls of a female coyote, such a possibility cannot be completely ruled out. The stories that connect unidentified howls to the popular legend of "*La Llorona*" are found in various regions of the country where coyotes also reside.[14] According to Dunn (2021), the night redefines the frameworks of thought and action, providing fertile ground for imagination and speculation. However, it is not limited to this; it also fosters the emergence of different ways of "being inhabited" by the territory and of "practicing" a landscape. For this reason, it was essential for us to camp in the previously identified "coyote-territory" at Finca El Plantón.

Due to their crepuscular habits, coyotes are generally more active during the early morning and evening hours, although their vocalizations can be heard at any time of day (we heard them after midnight). However, as our team continued gathering accounts, we realized that the ethnoecological study of the species—and the sociomaterial analysis of interactions between humans and coyotes—cannot be conducted without considering the complex multispecies web to which the coyote belongs. This type of ethnographic exercise enables us to engage with elements of the landscape that cannot be perceived solely through sight or the technical artifacts we use to "see" their physical manifestations, such as camera traps.

What seems to emerge through these sociomaterial reconfigurations is a spectral entity. The coyote connects the human community with the "*perro lobo*" in the early hours of the morning and with "*La Llorona*" during the night and dawn. The affective relationships created through these connections intertwine multiple generations, temporalities, and forms of territorialization. However, other meanings and openings also emerge.

Amid the fear provoked by potential ghostly apparitions, the coyote transforms into a "self." As people attempt to understand what or who is responsible for these sounds, they also draw closer to the biological animal and experience its "*bodily*" presence. That "other," though still not fully familiar, is recognized as a performative being with whom interaction is possible. According to Fijn & Kavesh (2021), these "other-selves" are as important as physical beings, with whom

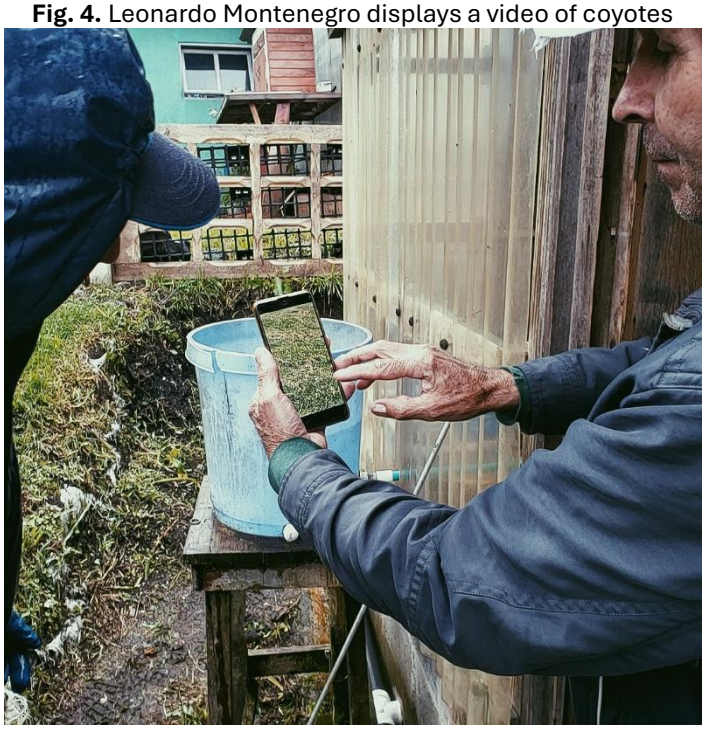
[14] "*La Llorona*" is a spectral figure in Hispanic American folklore, with some scholars tracing her origins to pre-Hispanic America. According to the most widespread oral tradition in Costa Rica, "*La Llorona*" is the "tormented soul" of a woman who, as a result of an illicit relationship with a Spanish colonizer, drowned her newborn child in a river. After committing this act, the woman was cursed by her family and condemned to social ostracism. Overcome with remorse, she devoted herself to the relentless search for her child, even after her death. She is said to haunt areas near rivers and water sources, lamenting and emitting mournful sobs that are most often heard during the night.

cooperative relationships can be established based on shared stories and experiences of “a common life.”

DISCUSSION ON SOCIOMATERIAL PRACTICES

While the nocturnal howls evoke fear in most of those who hear them, experiencing them during the day can lead to a very different narrative. The everyday interactions between human inhabitants and coyotes generate ambivalent relationships. In other words, the fear that many feel in the dark can transform into positive emotions when daylight arrives, allowing the animals to become visible (Figure 4).

Fig. 4. Leonardo Montenegro displays a video of coyotes



Note: Research archive, San Gerardo de Oreamuno, May 2022.

Beyond a simple shift in sensory perception, which is caused by the spatiotemporal reorganization facilitated by natural light, these “affective shifts” are of interest to us because they point to new ways of configuring the values associated with the wild species that coexist in the territory. To clarify this argument, we present an excerpt from a conversation one of us had with Erick G. through WhatsApp voice messages, a few days after our visit. Erick, a man in his forties, has lived and worked in the area for many years. He manages three cattle farms located near San Gerardo, and one of his primary responsibilities is to spend time outdoors, ensuring that the animals grazing in the pastures do not face dangerous situations that could jeopardize their safety.

Erick daily guides groups of 25 to 50 cows and heifers, moving them across the

farms. This work provides him with a privileged position to observe the coyotes that frequent the properties. After informing him that we had recorded the howls during the night we camped at Finca El Plantón, he shared his perspective with us:

> I had the experience of seeing them howl during the day, and, at least for me, it seems that their howling is like a celebration. Something joyful, let's say. It's like expressing a joy within them, and they celebrate it in that way. [...] I can see them during the day and notice the joy they convey when they howl. When I see them in a pack, it feels like a celebration. When I see them alone, it's more like a call—telling their mate or offspring that there is no danger, that they can continue, or something like that. So, you could imagine something like that. [...] It's really beautiful. (Erick G., farm supervisor, San Gerardo de Oreamuno, April 2023, translation by authors).

In January 2023, Erick shared another WhatsApp audio message with us, in which he said:

> In one of the farms, where I usually go to check on a group of cattle, the "wolves", or coyotes, as you call them, are almost always around. They are nearly always there. I've had the chance to take pictures and videos of them up close. It's funny, because while I won't say I see them every day, over the time I've been going there, I've seen them several times, roaming the pastures. Usually, they travel in packs of five or six, both big and small. Typically, when the mother or father howls, it's to call the little ones. One day, I was there [...] just sitting and watching, when one of them started howling, and then the others, the little ones, started showing up. It's quite interesting. (Erick G., farm supervisor, San Gerardo de Oreamuno, January 2023, translation by authors, emphasis added).

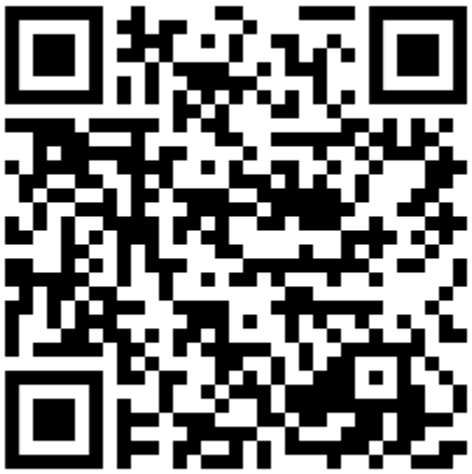
What Erick points out in his audio messages is highly relevant for several reasons. First, for the biologists on the team, it is noteworthy that people who live in close proximity to coyotes often reach similar conclusions as specialists who have been studying the species for years from a scientific perspective.

During another visit, while having lunch at a local family's house, one of us shared a link to a website they had been reviewing in the previous days. The site "Coyote Yipps" (https://coyoteyipps.com/) is managed by researcher Janet Kessler, who has dedicated more than 15 years to the empirical observation of coyotes in San Francisco, California. On this page, visitors can listen to various audio recordings, including howls and other vocalizations, and access synoptic sheets explaining the meanings of these sounds.

According to Kessler, many of the coyotes' vocalizations reflect their emotional state. Like Erick, the American researcher believes that the howls are an acoustic

expression of emotions such as joy and happiness, which she interprets as a form of celebration or festivity within the pack (Figure 5).

Fig. 5. Coyotes howling



Note: QR code generated by authors for Coyote Soundscapes Rural CR-Project. Based on field observation and recording by Erick Gómez. San Gerardo de Oreamuno. January 2023.

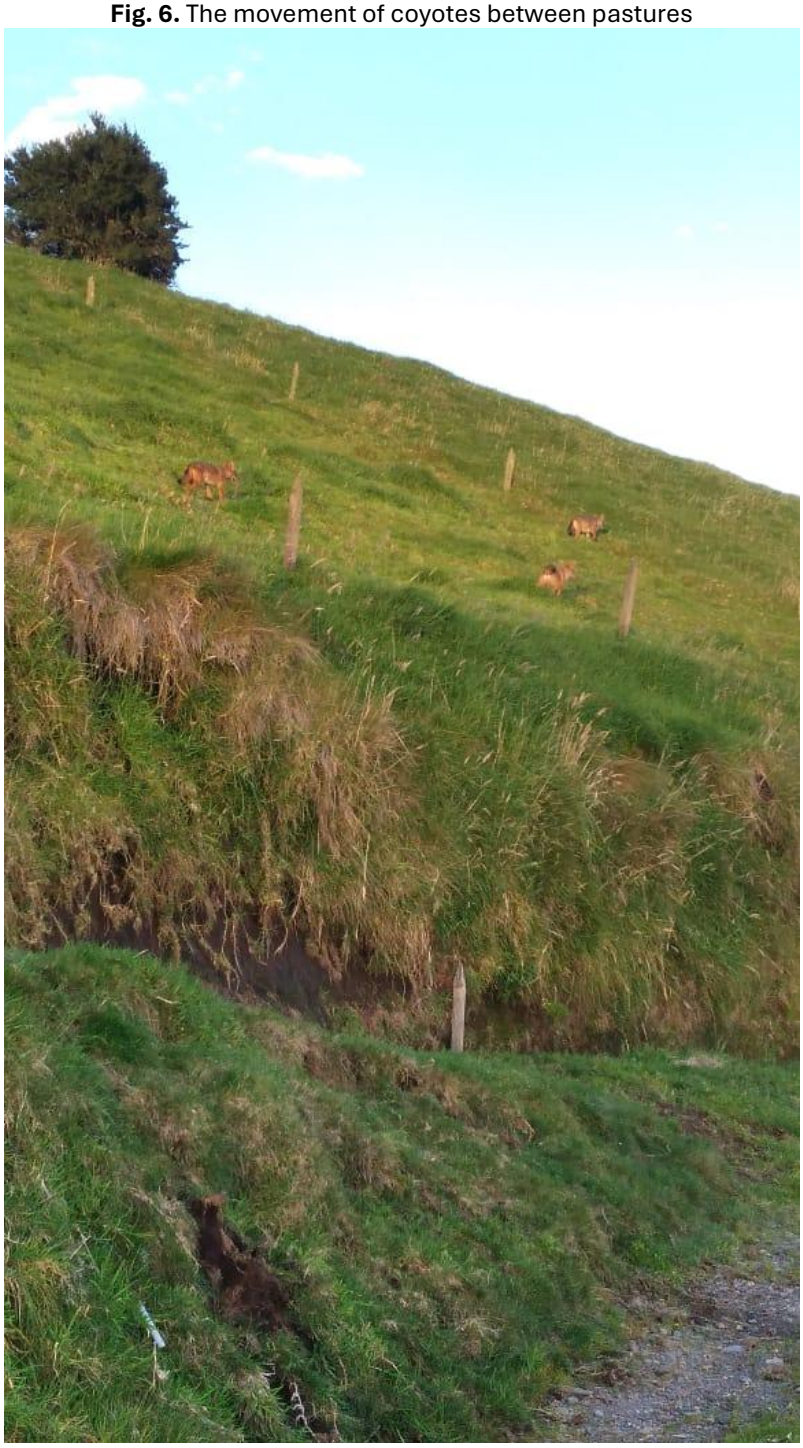
Erick's comments are also significant to us, as his description of the “daytime coyote” presents the animal as charismatic (Figure 6). In Costa Rica, the coyote is listed as a species with high invasive potential due to its adaptable nature, which is often interpreted as a mere opportunistic trait. However, this classification has sparked debate, as the concept of invasive species becomes problematic in the case of the coyote. The central issue lies in how a species that has been present in the fossil record of Costa Rica since the Pleistocene-Holocene boundary can be considered invasive (Lucas et al., 1997).

In our daily lives, it is common for people in non-academic contexts to ask whether coyotes attack livestock or domestic animals. Popular imagination often perpetuates the idea that coyotes are ruthless, fierce killers. While we have confirmed that some small dogs in the area have been attacked by coyotes, this does not necessarily mean that coexistence between coyotes and domestic animals is impossible.

In fact, the dogs of farmers and dairy owners are often left loose, and according to their owners, they sometimes go “chasing wolves” without suffering harm. However, coyotes are frequently portrayed through stereotypical connotations that do not reflect reality. These misconceptions have real consequences for the species and affect their chances of coexisting with humans. Thus, sharing the everyday experiences of people like Erick with a broader audience becomes a

task that extends beyond the academic realm. More importantly, involving the residents of San Gerardo de Oreamuno in local debates about coyote sightings and human interactions could play a crucial role in shaping more informed perspectives on the species.

Fig. 6. The movement of coyotes between pastures



Note: Research archive. San Gerardo de Oreamuno, January 2023. Courtesy of Erick Gómez.

While coyote *C. latrans*, as a taxonomic category, is defined by attributes that differentiate it from other canids, the (*perros lobo*) "wolf dogs" in San Gerardo embody these supposed distinctions, giving rise to an "undefined territorial creature" (Arce & Charão-Marques, 2021). This creature becomes an interstitial and elusive being, challenging the boundaries of conventional categories and using "conceptual contaminations" as fertile ground for new territorial associations.

Our research shows that coexistence with "wolf dogs" opens up unprecedented ways of living together (Despret, 2022). These emerging cohabitations enable people to recognize the coyote's vitality beyond rigid classifications. The sociomaterial practices arising from these interactions position the coyote as a fluid, permeable being, with whom territorial agreements can be negotiated for mutual benefit. In this way, the coyote becomes a social actor of the territory, an interlocutor in discussions surrounding both rural life and territorial development.

Rafael Orozco, the owner of the only restaurant in San Gerardo, shared his plans to remodel his establishment into a natural history museum focused on the region's wildlife, particularly the coyotes/"wolf dogs." He believes the history of the community can be narrated through the relationship between humans and coyotes in the area. This is his most ambitious project, although he also has more accessible ideas, such as creating a menu with dishes and drinks named after local species. His interest in learning about these animals stems from his desire to reflect their unique characteristics in his restaurant's offerings, seeking to honor them through flavors.

Additionally, for several months, Rafael has been collaborating with the Community Sports and Recreation Committee, a local group of young people aged 18 to 24, to identify a route for agroecotourism walks and hikes. He explained his goal as follows:

> The idea is to include areas with forests, farms, crop production fields, and dairy farms, and to identify a path that follows the same route the coyotes take. This initiative, in addition to generating income that can be redistributed among property owners and volunteers who serve as guides, provides an opportunity for people from outside San Gerardo to learn more about the coyotes and understand that they pose no threat. On the contrary, they are an important part of the landscape, and people here have many stories to share (Rafael Orozco, San Gerardo de Oreamuno, April 2023, translation by authors).

In mid-2022, the Community Sports and Recreation Committee updated its official logo to feature the silhouette of a coyote howling at the moon. This change exemplifies territorial reconfigurations emerging from spaces of coexistence,

materialized through specific sociomaterial practices. These practices address not only environmental concerns but also economic and locally autonomous organizational aspects. More specifically, the coyote, a nocturnal conspirator in myths and legends like "*La Llorona*," becomes a key ally in promoting local tourism and supporting community development during the day.

While it may appear that this discussion spans disparate analytical planes—affective shifts, local perceptions, scientific perspectives, and conservation debates—without an immediately evident or coherent connection among them, it is precisely this fragmented interplay that we seek to foreground through our ethnographic engagement. In our empirical research, a central line of inquiry has been to examine how contingent encounters and the quotidian interactions between the inhabitants of San Gerardo and coyotes reconfigure the lived experience of the landscape and its affective atmospheres in ways that resist standardization and remain partially opaque.

In our group discussions, a point of reflection—echoing Vinciane Despret (2022)—has been that, despite "the temptation of models," more-than-human territorial entanglements unfold across multiple planes of reconfiguration that resist predefined—and even more so, fixed—scales or sequences. It may be more accurate, then, to conceptualize the contingency of these encounters as "partial affinities" (Despret, 2013): relational modes that do not rely on categorical knowledge, speciesist assumptions, disciplinary preconceptions, or institutionalized practices to bring worlds into being in inventive ways.

This discussion is particularly relevant insofar as our writing seeks to remain attuned to a specific mode of sensing: what emerges from our observations is an elliptical and entangled network of relations, devoid of fixed centers or peripheries. Methodologically, we find it productive to conceptualize such ethnographic engagements as formless inquiries—endeavors in which the "object" of research resists definitive contours and, rather than tending toward stability, dissolves into relations that evade principles of epistemic or scalar coherence. In this sense, we draw on Marisol de la Cadena's critique—following Marilyn Strathern—of what she terms "kaleidoscopic permutations": state-driven and epistemologically dominant forms of scalability that obscure what cannot be readily represented within a modern-Western framework (De la Cadena, 2015). In our case, this includes the inscription of the coyote as a potentially invasive species.

Simultaneously, this approach reconsiders the significance of more-than-human agency in the narrative structuring of ethnographic experience, challenging the linearity that, to some extent, obscures the performative potential of the coyote/"wolf dog". This linearity tends to reduce its materiality to a reactive plane, where its agentive capacities are confined to discrete compartments—reservoirs of knowability that merely "embody" territorial values and affective

states, rather than proposing or reconfiguring these elements in relation to us. This undoubtedly constitutes an analytically unstable terrain, wherein conceptual categories confront both their inherent fragility and the limits of their applicability.

Moreover, the contrast between the testimonies and the data obtained through the methodological tools described reveals that the socio-material existence of the so-called "wolf dogs"—at times perceived as animals, at others as spectral beings, and even associated with supernatural figures such as "*La Llorona*"—illustrates how coyotes reconfigure territory through their distributed agency. However, it is important to clarify that, according to the argument developed in this article, such agency does not operate individually nor depend solely on the physical presence or absence of coyotes in a given area. Rather, these socio-material reconfigurations emerge from more intricate relational dynamics: affective interactions grounded in components that exceed the mere aggregation of individual entities.

From this perspective, we propose that a central axis of our reflection lies in envisioning forms of human–wildlife cohabitability that depart from conservationist assumptions framing the animal as bounded to its "natural habitat." We also challenge the prescriptive logic that conceives conservation areas as fixed and coherent territorial units. Instead of beginning with a predefined notion of "territory"—one that dictates what it is, what it should be, or how it must be organized—we advocate for a conceptual shift that embraces territory as an unstable, affectively charged space, traversed by multiple entanglements. In this regard, it may be more accurate to speak of territoriality rather than territory (Zariņa et al., 2025).

The biological and georeferencing techniques employed were crucial for contrasting the material presence of the coyote (e.g., recorded sightings) with the ontological dimensions of the "wolf dog" and the affective responses it generates among local human populations. In other words, there exists a qualitative difference—not merely one of degree—between the routine sighting of coyotes and the experience of coexisting with "wolf-dogs."

If the coyote and the "wolf dog" are understood as distinct entities, albeit embodied in the same biological-organic form, then an existential territory is opened—one that exceeds physical geography: a zone of affective indeterminacy, where ethnographic, epistemological, and ontological dimensions are co-constituted in ways that resist analytical isolation. This recognition also entails moving beyond binary frameworks of territory that posit irreconcilable differences between human and non-human modes of inhabiting—a dichotomy that, problematically, underpins many modern approaches to ecosystem services by translating conservationist interests into extensions of the commodification of nature.

These findings prompt a reconsideration of our priorities. The focus is not merely on identifying what the coyote does to alter space—though such insights may inform biodiversity policy. What is most significant, rather, is understanding that these spatial reconfigurations are not self-evident outcomes nor straightforward consequences of anthropogenic impacts on the landscape. They instead signal the emergence of "indeterminate worlds" (Lee, 2024), which evade the technocentric rationalities that dominate current knowledge regimes concerning the species.

FINAL REFLECTIONS

The potential to understand certain animals' lifeworlds "from within"—specifically, from the perspective of the animal in its relationship to the territory—extends beyond approaches confined to the physical or cartographic dimensions of space. This article adopts a relational perspective to analyze the sociomaterial interactions between humans and coyotes, which reshape a shared territory. The multispecies ethnography conducted in San Gerardo de Oreamuno, Costa Rica, offers insights into the blurred boundaries of territorial coexistence with non-human beings.

The study of sociomaterial interactions between humans and coyotes has uncovered local knowledge practices that challenge the universality of scientific categories. The emergence of "*perros lobos*" ("wolf dogs") exemplifies a creative way of revealing the territory's affective powers and the intricate bonds woven within it. Although this is not solely a matter of contrasts between purportedly neutral, distant scientific knowledge and intuitive ways of knowing, the presence of "wolf dogs" calls into question universalist concepts, such as "species," and broadens the possibilities for experiencing our everyday relationships with other living beings.

The connections between human and non-human lifeworlds, grounded in these empirical experiences, blur the boundaries between internal and external realms, between the subjectivity of animals and the perceived exteriority of the territory. Experiences shared by local residents like the Montenegro brothers and Erick illustrate how contingent contact with the vitality of territories fosters sensory and perceptual mechanisms that challenge predominant rationalist and functionalist logics in territorial management and nature conservation models.

We demonstrate that exploring the coexistence between humans and other beings can foster the creation of interdisciplinary knowledge in dialogue with local communities, through creative approaches to mutual adaptation and coevolution. This perspective can contribute to cultivating modes of responsibility and responsiveness, where humans and other beings are no longer perceived as "alien" but begin to recognize one another.

We also argue that promoting greater epistemological and political engagement with the study of "naturocultural" networks encourages a deeper exploration of the possibilities offered by multispecies cohabitation. This, in turn, could lead to a more profound critique of the andro-anthropocentric perspectives that dominate Western scientific paradigms and development models.

Understanding the territorial arrangements between humans and coyotes/"wolf dogs" invites consideration of new epistemologies of interconnected worlds, where meaningful relationships take precedence over the isolated study of individual species. Beings do not (pre)exist in isolation or prior to their participation in relationships. Our observations indicate that coyotes are agentic and performative beings whose biology cannot be viewed as a pure or discrete category. Whether as *Canis latrans*, "wolf dogs," or "*La Llorona*," the coyote functions as a social agent, actively participating in the reconfiguration of territories.

Ontological elements, though often underexplored in conservation sciences, should be integrated into contemporary analyses of biodiversity management and wildlife conservation. These reflections underscore the importance of incorporating relational perspectives in multispecies ethnographic work. Recognizing that territories are always relational processes, involving multiple modes of coexistence, can foster the ecological orientation necessary in the Anthropology of Development.

AUTHORS' CONTRIBUTION

Luis Barboza Arias: conceptualization, data curation, formal analysis, investigation, methodology, supervision, validation, visualization, writing – original draft, writing – review & editing.

Yara Azofeifa-Romero: data curation, formal analysis, methodology, supervision, validation, visualization, writing – original draft, writing – review & editing.

DECLARATION OF CONFLICTS OF INTEREST

This article is an original and unpublished manuscript. The authors declare that there are no conflicts of interest in relation to the institutions with which they are affiliated.

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