

**Beekeeping in the Sierra Nevada de Santa Marta, Colombia: Entanglements, Transformations,
and More-than-Human Becoming-with**

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Received: 19/07/2025 Accepted: 12/02/2026 Updated: 04/08/2026

DOI: 10.17151/luaz.2026.63.2

Abstract

Sustainable development interventions in the Sierra Nevada de Santa Marta (SNSM), Colombia, have fostered distinctive relationships between beekeepers and bees. Drawing on the anthropology of nature(s), the anthropology of development, science and technology studies, and multispecies ethnography, we conducted ethnographic research between 2019 and 2024 using archival research, semi-structured interviews, and participation. By reconstructing the history of beekeeping in the SNSM alongside broader processes of territorialization, we identified a reciprocal learning process through which both beekeepers and bees shape one another's practices. These interactions cultivate forms of reciprocity and mutual recognition that extend beyond the human-bee relationship to include the diverse beings inhabiting coffee plantations and surrounding forests. Our findings reveal the emergence of more-than-human relationships that exceed purely economic or market-oriented logics and are instead sustained through practices of care and mutual learning. Beekeepers describe learning apicultural skills from the bees themselves, while the bees gradually come to recognize and respond to their human companions. This reveals a more-than-human and pluriversal ethic in which local communities are not merely users of development interventions, and bees and other-than-human beings are not merely resources. Rather, they are subjects who communicate and participate, thereby making possible multiple forms of existence and relationality.

Key words: bees; beekeepers; beekeepers-with-bees; multispecies ethnography; more-than-human becoming-with; Sierra Nevada de Santa Marta (SNSM).

Apicultura en la Sierra Nevada de Santa Marta, Colombia: entramados, transformaciones y devenires más que humanos

Resumen

Las intervenciones del Desarrollo Sostenible en lugares como la Sierra Nevada de Santa Marta (SNSM), Colombia, dan lugar a relaciones específicas entre apicultores y abejas. Partiendo de la antropología de la(s) naturaleza(s), la antropología del desarrollo, los estudios de ciencia y tecnología y la etnografía multiespecie, realizamos un estudio entre 2019 y 2024 que combina técnicas como el trabajo de archivo, las entrevistas semiestructuradas y la participación. Al reconstruir la historia de la apicultura en la SNSM en relación con las dinámicas de territorialización, observamos un proceso de aprendizaje bidireccional entre apicultores y abejas que orienta las relaciones hacia formas de reciprocidad y reconocimiento mutuo entre estos y otros seres que habitan los cafetales y el bosque en esta zona dinámica y heterogénea. Ilustramos la emergencia de relaciones más-que-humanas que exceden las lógicas del mercado, manifestándose a través de prácticas de cuidado y aprendizaje mutuo. En estas prácticas, los apicultores descubren cómo las abejas les enseñan habilidades apícolas y, a cambio, las abejas aprenden a reconocer a sus homólogos humanos. Esto revela una ética más-que-humana y pluriversal en la cual las comunidades locales y otros seres distintos a los humanos no son meros usuarios y recursos. Por el contrario, son sujetos que se comunican y participan, haciendo posible diversas formas de existencia y relacionamiento.

Palabras clave: abejas; apicultores; apicultores-con-abejas; etnografía multiespecie; devenires más-que-humanos; Sierra Nevada de Santa Marta (SNSM).

Introduction

Anthropological understandings of the relationships between humans and the many beings with whom they share the world have changed profoundly over the past decades. Earlier approaches rooted in environmental determinism (Bollig & Krause, 2023) have increasingly been questioned and complemented by perspectives that move beyond dichotomies commonly associated with modernity, such as nature/culture and subject/object, and instead attend to heterogeneous and

dynamic more-than-human sociomaterial relationships (Haraway, 2016; Jhagroe, 2024; Kulick, 2017; Lien & Pálsson, 2021; Tsing, 2021, 2022).

From this perspective, nonhuman beings, including spirits, animals, and material objects, are understood as active participants rather than passive entities or symbolic representations (Lien & Pálsson, 2021; Tsing, 2024). Among many Amazonian peoples, for example, jaguars are regarded as persons whose bodily form shapes their particular perspective on the world (Viveiros, 2021). Likewise, tools, artifacts, and objects are inseparable from the production of knowledge and social reality (Latour, 2005). Marine organisms such as scallops have been shown to influence and even disrupt human projects (Callon, 1999), while diseases and sheep emerge as multiple actors capable of compelling humans to act across intrinsically related domains, including politics, scientific research, healthcare systems, and food production (Law & Mol, 2008; Mol, 2002). More recently, studies have highlighted how mountains are earth-beings that participate in political actions related to natural resource extraction and the defense of Indigenous territories (De la Cadena, 2022). Similarly, postwar rubble, vegetation, and ruins, along with migrants and refugees, participate in the ongoing production of urban space amid unequal power relations and social exclusion (Stoetzer, 2022).

Together, these studies demonstrate that nonhuman beings exist in multiple ways and possess capacities that modern naturalist thought has traditionally reserved for humans, including agency (Elzenbaumer *et al.*, 2025; Meloni, 2025a; Strange, 2024). They challenge the notion that humans relate to nature in subject-object terms, proposing instead more-than-human forms of intersubjective relationality (Álvarez *et al.*, 2023; Descola, 2005, 2021; Haraway, 2016; Lien & Pálsson, 2021; Viveiros, 2021; Martínez-Dueñas & Perafán-Ledezma, 2017). Building on these debates, this article examines an ethnographically grounded case in which human-bee relationships emerge through specific historical, territorial, and development processes.

Approaching more-than-human relations from a post-dualist perspective (Descola, 2005) makes it possible to recognize relationships that often unfold unconsciously and reciprocally (Despret, 2004), as we further illustrate through the case of bees. Consequently, asking who influences or determines whom becomes increasingly complex, since humans and nonhumans are simultaneously cause and effect of the movements produced by one another within broader relational networks (Reisman, 2021; Tsing, 2021, 2024). What emerges is not simply an interaction between two separate actors,

but a shared experience of becoming-with (Despret, 2004; Haraway, 2016; Meloni, 2025a; Strange, 2024), through which mutual transformation becomes possible (Kulick, 2017; Reisman, 2021).

Recent scholarship has called for collaborative forms of inquiry that engage not only animal communicators but also animals themselves as interlocutors in the ethnographic encounter. This approach seeks to establish an intuitive form of communication that is both mediated and direct, allowing researchers to engage with animals' perspectives. Rather than speaking on behalf of animals (Barrett *et al.*, 2021; Hafen, 2012; Tucker & Blenkinsop, 2025), the goal is, as Praet (2013) and Viveiros (2021) suggest, to cultivate an intersubjective relationship. Such an approach moves beyond the asymmetry of the conventional human-subject/animal-object divide in more-than-human ethnography. It acknowledges not only alternative ways of knowing but also that animals possess their own knowledge of the world and are capable of communicating it (Barrett *et al.*, 2021).

Anthropological research on bees provides several examples of how such symmetrical relationships can be understood. Among the Batek, an Indigenous people of the Malay Peninsula, bees inhabit the earth as bees and the sky as humans. Within this animist relationship, bees are regarded as *hala*, a category associated more closely with the dead than with wildlife. As such, they are non-living beings capable of becoming human and adopting a human perspective. Honey gatherers, in turn, can adopt the perspective of bees by dying and becoming bees themselves through practices such as burning incense and singing bee songs. In this reciprocal process, humans and bees each become the other and inhabit the other's perspective (Praet, 2013).

A different form of interspecies becoming can be observed in the educational context of a Swedish preschool, where theatrical performances involving bees encourage children to engage in a process of *becoming-with* bees. Unlike the Batek case, in which humans become bees (Praet, 2013), children participate in performances that allow them to become with bees and enact a form of collective agency. This pedagogical approach offers a way to move beyond anthropocentrism and promote a biocentric ethic among students (Weldemariam, 2020).

Urban beekeeping provides further examples of these relational dynamics. In New York City, Moore and Kosut (2014) show how beekeepers, bees, and ethnographers participate together in what they describe as *intra-species mindfulness*: an ongoing effort to remain attentive to the experiences and perspectives of another species. This practice involves respecting bees as autonomous beings rather than valuing them solely for their usefulness to humans. During fieldwork, researchers seek to appreciate bees' rhythms, behaviors, and roles within the colony and the urban environment

(Moore & Kosut, 2014). Phillips (2020, 2024) reports similar findings in Australia, where beekeepers and bees continually negotiate and co-produce rhythms, temporalities, and timescales. Extending this perspective, Maderson and Elsner-Adams (2024) show how rural beekeepers in the United Kingdom develop a multispecies ethic of stewardship in which the care and well-being of both bees and the surrounding environment are understood as fundamentally interdependent. Likewise, the beekeeper and anthropologist Meloni (2025a, p. 262), reflecting on the entangled lives of bees, beekeepers, and environments in Sardinia, Italy, argues for "a way of making ethnography with the bees, not just about them," suggesting that drawing beekeeping practices enables researchers to become-with other more-than-human beings.

Comparable relationships have also been documented among urban beekeepers in Canada, who cultivate affectionate and embodied relationships with bees through playful, non-instrumental practices that emphasize curiosity, wonder, and delight rather than economic productivity. Such playful engagement gives rise to bee-centered practices in which the needs and preferences of bees take precedence over those of the beekeeper (Ellis, 2022). At the same time, Slater (2021) reminds us that care in beekeeping is inherently ambiguous. Although practices of care may foster more-than-human ethical relations, they may also risk instrumentalizing bees, highlighting the need for a more nuanced understanding of care within multispecies worlds. Along similar lines, Price (2023) calls for a rethinking of more-than-human justice by reconsidering issues such as artificial pollination and pollinator decline, and by envisioning an ecological transition that addresses inequalities not only among humans but also across more-than-human relations. This expanded understanding would also include living and non-living beings that do not occupy an immediately evident place in human existence (Ginn, 2024).

Taken together, these studies portray bees not as resources to be managed but as beings with whom humans enter into complex, reciprocal relationships that demand attention, care, and respect. They point toward forms of coexistence that extend beyond anthropocentric understandings of well-being. Building on this scholarship, we propose a historical ethnography *with* bees that foregrounds both their role in history (Mitchell, 2002) and the ways in which beekeepers, bees, and the many other beings inhabiting the Sierra Nevada de Santa Marta become more-than-human together. Within this process, reciprocal learning between humans and bees emerges, transforming relationships that might otherwise be understood simply as those between a producer and a natural resource (Brown *et al.*, 2024). Following Barad (1999) and Strange (2024), these beings do not pre-

exist their intra-actions; rather, they emerge through them. They come into being in one another's company, in Haraway's (2016) terms, through *sympoiesis*. Because companion species coexist through multiple forms of mutual becoming, we argue for an interspecies, pluriversal ethic that recognizes the many ways of *becoming-with*, since becoming necessarily entails becoming-with others (Haraway, 2016; Meloni, 2025a; Silberzahn, 2024).

These ideas are particularly relevant in the Sierra Nevada de Santa Marta, where diverse more-than-human collectives coexist and where bees have recently assumed a prominent historical role through their incorporation into associations of beekeepers and organic coffee growers. Our study therefore responds to Wels' (2015) call to recognize animals as active participants within organizations, challenging the tendency to view them merely as economic assets and shifting our attention from speaking about animals to listening to them.

Methods

This study draws on multiple theoretical traditions, including the anthropology of nature(s) (Descola, 2005; Viveiros, 2021), science and technology studies (Barad, 1999; Callon, 1999; Haraway, 2016; Latour, 2005; Law, 2004), the anthropology of development (Demaria *et al.*, 2023), and multispecies ethnography (Kirksey & Helmreich, 2010; Locke & Muenster, 2015; McLauchlan, 2021). Ethnographic fieldwork combined archival research, semi-structured interviews, participant observation, and informal conversations. During the COVID-19 pandemic (2020–2021), digital communication technologies enabled remote field engagement, while research activities returned to face-to-face fieldwork from 2022 onward. This multi-method approach allowed us to trace the relationships linking beekeepers, bees, beehives, coffee cultivation, and the Sierra Nevada de Santa Marta (SNSM).

Fieldwork began in 2019 as part of the project *Construcción de un modelo colaborativo de gestión de conocimiento agropecuario: enfoques territoriales y de innovación en la Sierra Nevada de Santa Marta* (RGCA). During four field visits to the district of Palmor and its surrounding villages, we conducted 35 semi-structured interviews with coffee growers focusing on local history, settlement processes, and agricultural practices, complemented by visits to coffee farms.

A second period of fieldwork took place in 2022 and included participant observation (Moore & Kosut, 2014), seven additional semi-structured interviews, and informal conversations with coffee

growers and beekeepers. We also attended an event in Ciénaga organized by the *Red de Productores Ecológicos de la Sierra Nevada de Santa Marta* (Red Ecolsierra) and the Food and Agriculture Organization of the United Nations (FAO), where we established contact with two experienced beekeepers. Combining these ethnographic materials with archival sources (Maderson & Wynne-Jones, 2016) enabled us to reconstruct the historical development of beekeeping in the SNSM and to examine its connections with settlement processes, agricultural development, the armed conflict, and sustainable development interventions.

To complement the ethnographic data, we reviewed reports, audiovisual materials, and 21 broadcasts of the *Tu Voz Ecolsierra* radio program published between 2019 and 2021. These materials provided valuable insights into local coffee-growing and beekeeping practices. Finally, in 2024, we conducted an in-depth interview with a coffee grower and beekeeper affiliated with Red Ecolsierra, allowing for a deeper exploration of his long-term relationship with bees.

Ethics

This research forms part of the undergraduate thesis *Apicultura de Conservación en la Sierra Nevada de Santa Marta: entramados, transformaciones y devenires inter-especie* (Aroca, 2023), developed within the RGCA project (2019–2022). The project received ethical approval from the Research Ethics Committee of the Faculty of Human Sciences at the Universidad Nacional de Colombia (UNAL), as documented in Act No. 5 of May 19, 2018, and official letter B.VDIECH-038-18 of May 21, 2018.

During the COVID-19 pandemic, fieldwork protocols were adapted in accordance with the guidelines issued by UNAL and the Universidad del Magdalena, relying on information and communication technologies whenever in-person research was not feasible. All participants received detailed information about the objectives of the study and provided informed consent prior to their participation, including authorization for the use of their narratives in this research. Consistent with the multispecies perspective that informs this study, ethical considerations extended beyond human participants to include the well-being of the nonhuman beings involved in the research.

Results

The Development of Beekeeping in the Sierra Nevada de Santa Marta

The Sierra Nevada de Santa Marta (SNSM) is an isolated mountain massif on Colombia's Caribbean coast, characterized by exceptional climatic and ecological diversity (ProSierra, 1997). Recognized as a UNESCO Biosphere Reserve (UNESCO, 2020), it is the primary source of freshwater for the departments of Magdalena, La Guajira, and Cesar (ProSierra, 1997). The region is home to diverse human communities, including Afro-Colombian and peasant populations, as well as the Kogui, Wiwa, Kankuamo, and Arhuaco Indigenous peoples, who regard the Sierra as the *Heart of the World* (Barney *et al.*, 2017).

Beginning in the mid-twentieth century, families displaced by internal armed conflict migrated to the SNSM from different parts of Colombia, seeking opportunities to settle and pursue their life projects. Coffee cultivation became their principal economic activity (Viloria, 2019) and gradually evolved through the adoption of agronomic techniques that improved productivity. By the late twentieth century, the agroecological characteristics of coffee-growing practices, particularly their integration into agroforestry systems (Herrera, 1993), had positioned coffee production at the center of some sustainable development initiatives promoted across the SNSM (Perafán-Ledezma *et al.*, 2024; ProSierra, 1997, 2000).

Over the decades, peasant communities in the SNSM have experienced a series of socioeconomic and political processes that have reshaped their ways of life, the territory, and their relationships with other beings. These processes include the expansion of drug trafficking during the 1970s and 1980s (ProSierra, 2000), the armed conflict that intensified between the 1980s and 2005 (Comisión de la Verdad, 2022), the collapse of international coffee prices in the 1990s (Jaramillo, 2001), and successive development interventions promoted by government agencies and non-governmental organizations. Since the 1990s, these interventions have focused on sustainability, biodiversity conservation, the political and economic stability of communities, and agricultural productivity (Madrid, 2007; Perafán-Ledezma *et al.*, 2024). Within this context, beekeeping emerged both as an environmentally sustainable livelihood and as a complementary source of income that strengthened cooperation among the region's diverse communities (Corpamag, 2018; personal communication, Red Ecolsierra administrative staff, 2020).

Technified beekeeping was first introduced to the SNSM in 1997 in the village of Siberia (Ciénaga) through an initiative led by the Fundación Pro-Sierra Nevada. The project aimed to promote beekeeping as an environmentally sustainable productive alternative while improving local food production. Between 2000 and 2004, beekeeping expanded with the establishment of organized beekeeper groups in Palmor, San Pedro (Ciénaga), and Minca (Santa Marta) (personal communication, Red Ecolsierra manager, 2020). In 2004, the *Asociación de Apicultores Conservacionistas de la Sierra Nevada de Santa Marta* (Apisierra) was founded. Together with Red Ecolsierra, the association played a pivotal role in consolidating commercial beekeeping across the region (personal communication, Red Ecolsierra administrative staff, 2020). The following year, Red Ecolsierra opened its first honey processing and packaging facility (Red Ecolsierra, 2016; Rodríguez & Silva, 2020).

These initiatives also received support from Colombia's *Familias Guardabosques* Program, which promoted sustainable livelihoods as alternatives to illicit crop cultivation (Madrid, 2007). As one coffee farmer from Palmor explained, beekeeping reinforced the conservation practices already being encouraged in the region while supporting crop substitution and productive diversification (personal communication, Palmor, 2019).

Additional conservation-oriented beekeeping projects followed. Between 2006 and 2008, Apisierra and Red Ecolsierra established approximately 1,800 hives along the *Troncal del Caribe* highway corridor. In 2008, the Fundación Pro-Sierra co-financed the project *Beekeeping Production Promotion on the Slope of the Ciénaga Grande de Santa Marta*, which installed 400 hives in the municipality of Ciénaga. That same year, the Regional Autonomous Corporation of Magdalena (Corpamag) funded the installation of 66 additional hives in the village of La Secreta (Ciénaga) to support tropical dry forest conservation. In 2014, Red Ecolsierra expanded its operations by opening a new honey processing and packaging plant (Red Ecolsierra, 2016).

Beyond honey production, these initiatives sought to restore forest ecosystems, protect water sources, conserve native bee populations, enhance crop pollination through *Apis mellifera*, and diversify household incomes in coffee-growing communities (Red Ecolsierra, 2016). Their reported outcomes included the creation of nine local beekeeper groups involving approximately 200 families and the establishment of around 1,700 hives. Together, these initiatives produced an estimated 40 tons of honey annually while contributing to the recovery of five native bee species, the restoration of approximately 1,500 hectares of forest, and the protection of more than 200 natural water

sources. In addition, the report indicated that 60 farms integrated ecological beekeeping with coffee production, while another 110 were transitioning toward these practices (Red Ecolsierra, 2016).

These developments have encouraged peasant communities in the Magdalena sector of the SNSM to incorporate beekeeping into both their agroecological and commercial practices. Reflecting on this process, Jairo Marciano, former manager of Apisierra and a long-time apicultural leader, explains: "...beekeeping is an activity that not only promotes conservation but also strengthens social ties among individuals and community organizations, leading to collective conservation agreements aimed at improving environmental conditions and, above all, people's quality of life" (Corpamag, 2018, authors' translation).

As part of a reconciliation initiative supported by Ecopetrol, the Swedish Embassy, the United States Agency for International Development (USAID), ACDI/VOCA, and Corporación Reconciliación Colombia, 70 families from the communities of Siberia, Palmor, Minca, and San Javier—all affected by the armed conflict—participated in a beekeeping project. According to Apisierra beekeeper Deiner Osorio, the initiative created opportunities for beekeepers from different communities to meet and exchange experiences and knowledge (Reconciliación Colombia, 2019).

A similar initiative was implemented through the Comprehensive Agricultural and Rural Development Project (PIDAR), coordinated by the *Cooperativa de Caficultores y Agricultores de la Sierra Nevada de Santa Marta* (Coagronevada), the Rural Development Agency (ADR), and the FAO. The project involved 55 families from the district of Bonda (Santa Marta), who began producing organic honey while promoting bee conservation as a strategy for diversifying agricultural production and contributing to the Sustainable Development Goals (FAO-Colombia, 2021; UN-Colombia, 2021).

As part of PIDAR, participating families received training in hive management, bee nutrition, and honey and wax production. The project also facilitated commercial partnerships with organizations such as Red Ecolsierra and supported the development of a floral calendar identifying flowering periods throughout the year. This tool allows beekeepers to anticipate periods of floral scarcity and provide supplemental feeding when necessary to maintain colony health (FAO-Colombia, 2021; UN-Colombia, 2021). One beekeeper described how he carefully prepares sugar syrup during periods of food shortage to "give them a little support so they can sustain themselves and reconnect with their environment" (personal communication, Palestina village, Palmor, October 17, 2019).

More recently, a regional beekeeping committee was established, and participating families received starter colonies together with beekeeping equipment to maintain 550 hives. By avoiding agrochemicals, these producers marketed more than 20 tons of honey annually (UN-Colombia, 2021). Throughout the project, participants consistently emphasized the importance of treating bees with respect. As Sandra Palacios of Coagronevada explained, "Bees must be respected; they do not attack; they defend themselves." Following this principle, the organization regularly took children to apiaries to teach them how to interact safely and respectfully with bees, reinforcing the idea that "bees are not to be trifled with" (FAO-Colombia, 2021, authors' translation).

These initiatives have also transformed the way beekeepers describe their relationships with bees and the surrounding environment. During a workshop organized by FAO and Red Ecolsierra as part of the Sustainable Landscapes Project, Atilano Mendoza, a beekeeper from the *Asociación de Productores de Sacramento* (Asoprodesa), reflected on how his understanding of bees had changed through his involvement with Apisierra:

"...We used to keep bees the way our grandparents did. During the summertime, we would locate the bees, cut down the trees they inhabited, and use smoke from whatever wood was available to harvest the honey, inadvertently harming their habitat. Apisierra taught us about forest conservation and the essential role bees play as pollinators.... Today, whenever we find bees, we first identify the species. If they are in a vulnerable location, we relocate them without harming the tree, protecting both the bees and their home" (personal communication, September 21, 2022, authors' translation, edited for clarity).

Relationships that initially emerged from the organizational, economic, and ecological benefits of beekeeping have gradually evolved toward a stronger ethic of care centered on bee well-being. As Jairo Marciano observed in 2018:

"...Bees must be cared for—their care is everyone's responsibility. Even in cities, native bees need protection by planting flowers in gardens, allowing them to visit these flowers. On farms, especially in the Sierra, conserving forests and protected areas is essential because they provide food not only for bees but for all pollinators" (Corpamag, 2018, authors' translation, edited for clarity).

These practices are shaped not only by technical manuals but also by knowledge generated through the ongoing interactions between beekeepers and their colonies. One example comes from the *Buzz* segment of the *Tu Voz Ecolsierra* radio program:

"...Nothing works better than feeding the hives with our own honey. This week, our friend Richard Almanza told us that after feeding his hives with honey, he immediately noticed positive changes: the queen increased [egg] laying, and the colony's overall performance improved. What does this indicate?... We should reserve some honey for supplemental feeding. Honey offers a natural alternative to sugar syrup, which is artificial and chemically processed. This practice is crucial, and the bees will appreciate it immediately. Remember, supplemental feeding is necessary only when the hive has depleted its stores or when we suspect the colony has abandoned the hive because of a lack of food" (*Red Ecolsierra*, July 4, 2021, authors' translation, edited for clarity).

At the same Sustainable Landscapes Project event, Edwin Traslaviña, an experienced beekeeper and Apisierra representative, contrasted this approach with large-scale commercial beekeeping practices that neglect the protection of bees and overexploit them, subjecting them to harmful conditions:

"...[in Europe and the United States], they are more businesspeople than beekeepers. Their priority is production, not caring for bees. The word beekeeper means someone who cares for bees, not someone who exploits them. For example, they use supplemental feeding, and if a pollination [contract] comes up, they take the bees there, even if the bees die in the process.... We do not do that. We keep our bees in one place, and we always respect their food sources" (personal communication, September 21, 2022, authors' translation, edited for clarity).

Overall, these findings suggest that technified beekeeping in the SNSM has emerged through the convergence of historical processes, peasant experiences and expectations, and sustainable development interventions promoted by state institutions and international organizations. Within this context, relationships among beekeepers, bees, forests, flowers, coffee plants, and water sources have become increasingly reciprocal and unique. What began as a productive and conservation-oriented initiative has also become a multispecies practice of care in which both humans and bees participate in shaping one another's lives. The following sections explore how

these reciprocal dynamics give rise to more symmetrical relationships between beekeepers and bees.

Thinking with Beekeepers-with-bees

After more than a year of reviewing archival materials, analyzing previously collected interviews, and maintaining contact with local beekeepers by telephone, we noticed that beekeepers frequently described their relationships with bees in ways that extended well beyond productivity. However, it was not until November 2021 that we were able to return to some farms in the Magdalena sector of the Sierra Nevada de Santa Marta (SNSM). These visits allowed us to complement documentary sources, radio broadcasts, and audiovisual materials about relationships between peasants and bees that exceeded a simple producer–commodity logic. The following section draws on these ethnographic encounters, together with previously examined documentary sources.

Coffee grower and beekeeper Norberto Bernal, from the village of Cherua (Palmor), reflected on his experience with organic coffee production and beekeeping: "...The bees recognize me, and it's important to understand how to work with them. They learn my scent, and they feel threatened when they detect unfamiliar smells, much like we do when strangers enter our homes" (personal communication, Cherua, November 14, 2022, authors' translation, edited for clarity).

Norberto's account highlights both the bees' agency and the reciprocal nature of the relationship. Rather than treating bees as passive objects, he recognizes their capacity to identify individual humans through scent and to respond differently depending on who approaches the hive. His experience suggests a relationship built on familiarity and mutual recognition.

Walter Guevara, a coffee grower and beekeeper from the village of Cuatro Caminos, described a similar experience. According to Walter, protective suits are necessary mainly for visitors because the bees already know him:

"...Bees are intelligent. If you leave something sweet here and one bee finds it, it immediately lets the others know, and within minutes hundreds of bees arrive.... They know me because they've become accustomed to me, but [visitors] should always wear protective equipment. If they attack, it's simply because they're defending their home" (personal communication, November 16, 2022, authors' translation, edited for clarity).

Although Norberto and Walter have interacted with bees in different environments, under different conditions, and across different temporalities, they have established distinctive bonds with them. These are singular stories shaped through shared experience, that is, through *being-with*. Consequently, it becomes more appropriate to describe this relationship not simply in terms of humans and bees, but in terms of humans-with-bees. The shift in terminology reflects more than a semantic preference: within these new relationships, not only do new relational configurations emerge and intermingle, but new humans-with-bees also come into being (Despret, 2004).

Testimonies from some beekeepers suggest that their interactions with bees are symmetrical. In these accounts, bees are understood not only as economically and environmentally valuable pollinators but also as beings that actively participate with beekeepers in the co-production of beekeeping knowledge. Deiner Osorio, an apicultural technician with Red Ecolsierra, explained: "...I trained myself... the bees teach us. We learn from them. Every day, we learn things. Even after working with bees for twenty or thirty years, every day there are things to learn" (Red Ecolsierra, 2021, authors' translation).

Richard Almanza, reflecting on more than two decades of experience with bees, expressed a similar idea: "An experienced technician can teach you the basics, but bees live in many different environments. In the end, they are the ones who shape you as a beekeeper" (personal communication, March 22, 2024, authors' translation, edited for clarity).

The accounts of Deiner and Richard suggest that beekeepers, hives, and bees continually become-with one another, generating new ways of relating and coexisting. Argemiro Quintero likewise describes his relationship with bees as reciprocal and regards beekeeping as essential to ecosystem conservation. From his perspective, bees and beekeepers depend on one another for sustenance and survival:

"...If there is no reforestation, there will be no honey, because without natural food sources the bees cannot work or produce it. That changed the way I think.... Now, instead of cutting down a tree, I'd rather plant one so the bees have food. They feed themselves, they feed me, and they feed my family. It is a chain.... It changes the way we think and the way we live" (Corpamag, 2014, authors' translation, edited for clarity).

Unexpectedly, bees also contribute to wildlife conservation. Because some residents perceive the bees as potentially dangerous, hunters tend to avoid these areas, indirectly protecting surrounding

wildlife. As Nedin Guerrero explained: "...We don't allow hunting on our farm anymore. Animals like agoutis and armadillos [wild mammals] are now quite common here. Since I placed hives around the property, people always [warn each other], 'Be careful, there are bees there'" (personal communication, Uranio Alto, Palmor, October 23, 2019, authors' translation, edited for clarity).

Carlos Garzón considers bees indispensable not only for ecosystem functioning but also for the distinctive sensory qualities of SNSM coffee. Yolanda Martínez recalled that during the 1980s her father harvested honey from wild colonies found in trees, primarily for medicinal rather than commercial purposes, because honey "has many properties that strengthen the immune system and help fight illnesses such as the flu" (personal communication, October 19, 2022, authors' translation, edited for clarity). During the COVID-19 pandemic, Red Ecolsierra incorporated similar ideas into its marketing campaigns with the slogan, "If you want to prevent the virus, consume honey from the Sierra!" (*Red Ecolsierra*, August 9, 2021, authors' translation). Such initiatives frame bee conservation not only as an environmental commitment but also as a source of collective well-being.

These reciprocal relationships are not based on strict human control. Instead, intervention remains deliberately limited, allowing forests and agricultural landscapes to provide the resources that bees freely use. Nedin Guerrero described this approach:

"...This time I didn't harvest all the honey. During the rainy season I don't like demanding too much from them. In the afternoons they stop bringing nectar, so [I leave part of the honey] for them.... Their floral resources are all around here. Guamo blossoms are the best. I plant guamo every year, and when one dies, I replace it.... I also pruned this coffee plantation to leave the flowers for them. This area now belongs to the bees; nobody disturbs it" (personal communication, Uranio Alto, Palmor, October 23, 2019, authors' translation, edited for clarity).

In this account, bees appear not as passive insects but as active participants capable of remaining in—or abandoning—a place depending on environmental conditions such as food availability. The humans-with-bees relationship also dissolves the conventional distinction between wild and cultivated spaces, particularly between forest and farm. As one *Tu Voz Ecolsierra* broadcast put it, "the protagonists are the bees and the peasant families" (*Red Ecolsierra*, February 1, 2020). Richard Almanza similarly explained that beekeepers adopt agroecological practices—including avoiding pesticides and agrochemicals—to protect bees, other pollinators, and biodiversity more broadly. As

he put it, "the whole environment is cared for by the farming families and, obviously, by the bees. Everyone plays a role through what they do" (personal communication, March 22, 2024, authors' translation).

These humans-with-bees dynamics extend far beyond individuals, generating broader ecological effects while revealing an ethic of care that exceeds narrowly productive or anthropocentric concerns.

Beekeepers and bees in the SNSM continually reshape one another through ongoing encounters. They learn to recognize each other, protect each other, and work together in multiple ways over time. Richard captured this relationship succinctly: "...There is a kind of chemistry between a beekeeper and the bees... you fall in love. It's a powerful bond that's very difficult to break" (Redondo, [2014], pp. 16–17, authors' translation).

Reflecting further on this relationship, Richard added:

"...It's almost like an addiction.... If you looked at my YouTube history, probably ninety percent of what I watch has something to do with beekeeping. You always want to learn more, explore more, spend more time with the bees.... It's almost like love. Some people grow old together and even die together. Beekeeping is like that—you rarely walk away from it.

On weekends I need to spend time with the bees.... It's my source of energy, my way of disconnecting. I need to be in the mountains, in the forest, with the bees. Otherwise I feel as though I never really rested.... The apiary becomes your home.... Eventually you no longer know how to live apart from beekeeping and the bees" (personal communication, March 22, 2024, authors' translation, edited for clarity).

Seen from this perspective, it is unsurprising that Edwin Traslaviña, Apisierra's current representative, remarked: "I go to bed thinking about bees, and I wake up thinking about bees" (Minciencias, 2021).

Bees also teach beekeepers about collective work. Richard explained that although bees "don't speak, read, or write, they organize themselves and, obviously, have their own language of communication" (Redondo, [2014], p. 17). He draws on the hive as a model when discussing organizational life:

"...Every hive has different tasks, and teamwork is visible everywhere.... Even during work meetings I often say we should function more like a beehive. [In Red Ecolsierra], for example, everyone contributes differently.... Some workers leave with the first sunlight, others later—that's simply part of how the hive works.... Studying bees teaches us an enormous amount about teamwork, collectivity, and solidarity" (personal communication, Richard Almanza, March 22, 2024, authors' translation, edited for clarity).

Rather than envisioning organizations as rigid, standardized, and fully optimized structures, Richard sees them as relational and heterogeneous collectives in which different ways of contributing coexist. His reflections resonate with Bordeleau and Casemajor's (2025) analysis of how hive dynamics are articulated with organizational processes through forms of interspecies governance. In this perspective, the hive is more than a metaphor: it becomes an integral component of productive, organizational, and symbolic life. Together, these accounts illustrate how principles of collectivity, plurality, and relational coordination emerge through practices of *humans-with-bees*.

Discussion and Conclusions

Conservation beekeeping in the Sierra Nevada de Santa Marta (SNSM) is embedded within a network of local and global dynamics in which relationships between beekeepers and bees are shaped by broader eco-governmental processes that affect how humans engage with other beings (Bluwstein *et al.*, 2024; Tsing, 2021).

While sustainable development initiatives often promote a normative vision of the "right" way to practice beekeeping—as Andrews (2019) and Slater (2021) have shown in their analyses of contemporary efforts to both “save the bees” and sustain productivity—our findings reveal a different dynamic. Rather than simply adopting externally defined models, beekeepers-with-bees in the SNSM actively reinterpret and reshape these discourses through their everyday practices.

Our ethnographic material shows that beekeepers relate to bees in ways that extend well beyond their instrumental value. These forms of intra-action resonate with findings from the United Kingdom (Maderson & Elsner-Adams, 2024) and Poland (Galiński, 2022), where beekeeping similarly involves reciprocal relationships grounded in care and mutual responsiveness. Richard Almanza describes this relationship as a kind of "chemistry" through which they "fall in love" with the bees. Such experiences reshape not only their understanding of beekeeping but also their ways of living.

Their accounts further suggest that beekeeping is fundamentally a process of more-than-human learning, in which bees actively teach their human counterparts. This observation echoes Brown *et al.* (2024), who found that even highly experienced beekeepers continue to regard bees as their primary teachers, fostering a more-than-human ethic of care.

As beekeepers gradually attune themselves to the world of bees, they become increasingly capable of attending to the bees' perspective and recognizing their active participation in a more-than-human world (Despret, 2004; Galiński, 2022; Ingold, 1988; Strange, 2024). Ellis's (2022) concept of bee-centered beekeeping similarly highlights how practices attentive to bees' needs and preferences can foster situated, more-than-human ways of knowing and enacting shared worlds within ecological and productive constraints.

These findings also point to the importance of interspecies—or more-than-human—communication (Barrett *et al.*, 2021). Such communication challenges the exclusionary politics inherited from modern anthropocentrism, in which nonhuman beings are denied voice, language, and agency. Through this denial, human perspectives silence alternative forms of expression and consciousness (Abram, 1997; Spiegelhofer, 2020). Moving beyond this requires rethinking what communication itself entails, paying greater attention to emerging forms of interaction across species and other beings. Our findings resonate with Meloni's (2025a) work, which shows how drawing beekeeping practices as a form of ethnography with bees can foster sensory and embodied dialogues through which bees can be recognized as active participants and companions rather than objects of observation.

From an organizational perspective, Richard's reflections illustrate how an association of ecological farmers may come to understand bees not merely as honey producers or pollinators, but also as teachers and companions. This perspective aligns with Bordeleau and Casemajor's (2025) concept of interspecies governance, in which bees become stakeholders whose presence, needs, and responses actively shape collective decision-making. The dynamics of beekeepers-with-bees in the SNSM involve forms of mutual recognition (cf. Phillips, 2020; Spiegelhofer, 2020). Appreciating the richness of these interactions therefore requires a broader and more flexible understanding of communication (Barrett *et al.*, 2021), one that views communication as a relational process arising through encounters and ongoing practices of becoming-with.

Within the SNSM, humans-with-bees continually produce and transform one another through sympoiesis, generating collective well-being grounded in more-than-human care (Haraway, 2016).

Together, they co-create relationships in which becoming-with is not a final state but an ongoing relational process (Galiński, 2022; Haraway, 2016; Silberzahn, 2024; Slater, 2021; Weldemariam, 2020). Forests and farms become shared spaces where humans and other beings encounter one another, and, as Meloni (2025b) suggests, beekeeping practices can be understood as multispecies forms of *worlding together*. In this sense, the conventional distinction between wild and cultivated landscapes becomes increasingly blurred, giving rise to more-than-human forms of coexistence and well-being (cf. Maderson & Elsner-Adams, 2024; Slater, 2021).

Through our engagement with beekeepers-with-bees, we have learned that more-than-human existence is fundamentally relational. Bees actively participate not only in human lives but also in the dynamics of farms and forests. This finding resonates with Ellis (2022) and Pliushchik *et al.* (2024), who likewise show how bees shape both productive practices and everyday life and reconfigure beekeepers' experiences and relationships with them. We therefore argue for an ethic of becoming-with, in which both human and nonhuman beings are recognized as having an equal right to exist (Pliushchik *et al.*, 2024; Price, 2023; Silberzahn, 2024). Our study contributes to expanding recognition of communicative practices beyond the human, showing how years of shared experience enable beekeepers-with-bees to develop forms of more-than-human communication that cannot be reduced to conventional human language.

Finally, recognizing the experiences of beekeepers-with-bees and their emergent communicative relationships is important not only for understanding this particular case but also for broader efforts to decolonize knowledge by acknowledging alternative ways of being and relating in the world. In dialogue with Dussel (2020) and Haraway (2016), we suggest the possibility of a *more-than-human philosophy of liberation*, one that recognizes the exploitation of humans and other-than-human beings as deeply interconnected. From this perspective, bees are understood not as passive resources but as active participants in the worlds they help create and sustain. By combining these ethnographic insights with recent theoretical debates, this study advances a more-than-human ethic of care, showing how symmetrical ethnographic approaches (Luggauer & Ferdinand, 2025; Meloni, 2025a) can illuminate non-anthropocentric and non-capitalocentric ways of becoming-with others, while opening promising avenues for future research.

Disclosure statement

The authors declare that they have no competing interests.

Sources of financing

This research was conducted within the framework of the project *Construction of a Collaborative Agricultural Knowledge Management Model: Territorial and Innovation Approaches in the Sierra Nevada de Santa Marta*. The project was funded by the Ministry of Science, Technology and Innovation of Colombia (MINCIENCIAS) through Colciencias Call No. 808-2018, with additional support from the Universidad Nacional de Colombia and the Universidad del Magdalena.

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Para citar este artículo: Aroca-Molina, L., Martínez-Dueñas, W. A., & Perafán-Ledezma, A. L. (2026). Beekeeping in the Sierra Nevada de Santa Marta, Colombia: Entanglements, transformations, and more-than-human becoming-with. *Revista Luna Azul*, 63, 7-34.

<https://doi.org/10.17151/luaz.2026.63.2>

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