

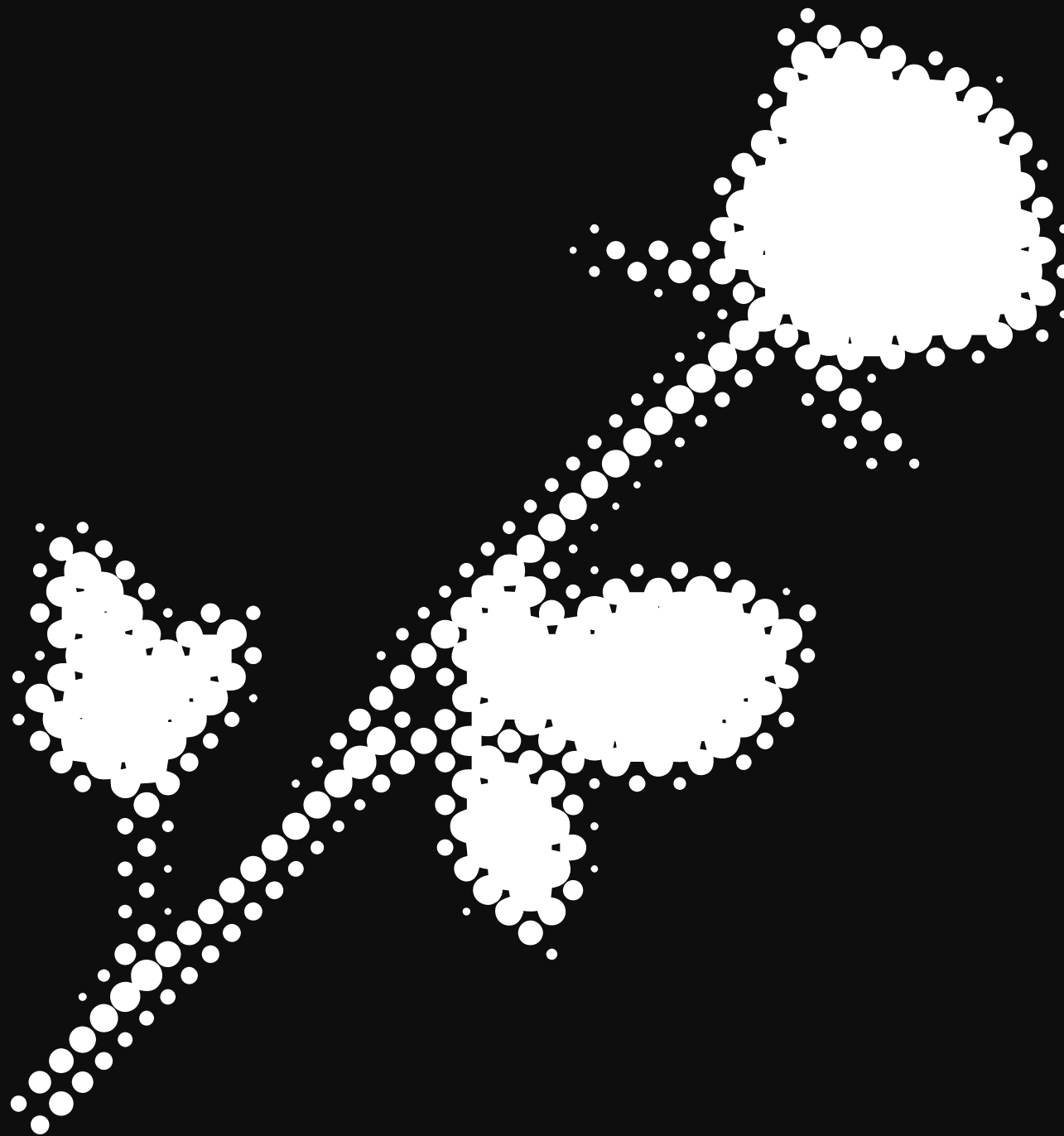
Integrating Sensory Methodologies in Environmental Anthropology

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Abstract



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senses

This chapter aims to present the strands of knowledge produced in anthropology since the sensorial turn, particularly regarding environmental inquiry. Firstly, the study provides an overview of the existing literature and traces how multisensorial synesthesia has steadily replaced earlier concerns with representation and the concept of sensory mediation. Secondly, the chapter explores the epistemological ties that have already emerged between sensory anthropology and environmental research, with the resulting methodological implications being critically analyzed. Thirdly, it advocates for a sensory perspective in ecological research on pastoralism, arguing that this approach produces not just additional knowledge but qualitatively different knowledge. What benefits arise from the attempt to approach the landscape as a synesthesia of various sensory acts that constitute it? What kind of quality do sensory approaches bring to the ethnography of pastoralism? And what does multispecies ethnography have to do with the entanglement of the sensory and the ecological? These specific questions are explored to articulate what conducting sensory-environmental research may mean. The chapter concludes by envisioning developments in the future.

With the advent of the ‘sensorial turn’ in anthropology, there has been a profound shift towards recognizing the crucial role of sensory experiences in shaping human understanding and interaction with the world. Western intellectual traditions have traditionally prioritized abstract reasoning and visual representation, often overlooking the rich, nuanced contributions of sensory experiences. The sensorial turn challenges this historical imbalance by underscoring how sensory perceptions, extending beyond the physiological realm, are fundamental to experiencing, interpreting, and constructing reality, knowledge, cultural practices, and personal identities.

This chapter explores how the focus on sensory experiences has reframed anthropological studies of both individual and collective cultural practices. It examines how these practices are deeply intertwined with and influenced by sensory modalities and their complexities. Furthermore, the chapter discusses the advantages that a sensory approach brings to anthropological research, particularly in the context of environmental anthropology. Firstly, the study provides an overview of the existing literature and traces how multisensorial synesthesia has steadily replaced earlier concerns with representation and the concept of sensory mediation. Secondly, the chapter explores the epistemological ties that have already emerged between sensory anthropology and environmental research, with the resulting methodological implications being critically analyzed. Thirdly, it advocates for a sensory perspective in the ecological research on pastoralism, arguing that this approach produces not just additional knowledge but qualitatively different knowledge. What benefits arise from the attempt to approach the landscape as a synesthesia of various sensory acts that constitute it? What kind of quality do sensory approaches bring to the ethnography of pastoralism? And what does multispecies ethnography have to do with the entanglement of the sensory and the ecological? These specific questions are explored to articulate what conducting sensory-environmental research may mean. The chapter concludes by envisioning developments in the future.

Historical overview

Focus on the sensorium in early anthropological theory was intertwined with the colonial project, where anthropological methods were applied to interdisciplinary projects with non-academic objectives, often reinforcing colonialist ideologies. The senses were explored through or in conjunction with other thematic domains, such as religion and rituals (see Leenhardt, 1979; Lambek, 1981), linguistics (Sperber, 1975), or the ethnography of a particular ethnic group (Bogoras, 1904).

Before World War I, when anthropology was still in the process of formalizing itself as a discipline, it was driven by an intellectual curiosity to test philosophical hypotheses that proposed a hierarchy of senses (Le Guérer, 2002, p. 3). For instance, Alfred Cort Haddon, during his 1898 expedition to the Torres Straits Islands, was intrigued by the question of whether, in non-European cultures such as the Torres Islanders, ‘lower’ senses like taste, touch, and smell, associated with animality, were dominant as opposed to vision and hearing, which were considered the ‘higher’ and prevailing senses in European societies (see Rivers, 1901; Myers & McDougall, 1903).

However, as the discipline evolved, there was a shift in focus, with a stronger emphasis on cultural translation, comparative studies of cultures as cohesive systems, and cultural relativism. In anthropological inquiry, this shift prioritized language over sensory experiences. The waning interest in the senses was also influenced by key figures in the field, such as Bronislaw Malinowski, who advocated for nurturing human sensibility as opposed to reliance on technology (Grimshaw, 2001, p. 54), and Franz Boas, who believed that culture could only be fully understood within its historical context (Jacknis, 1984).

While later anthropological research did give some attention to visual culture, primarily through ethnographic film, the other senses remained largely neglected (for an exception, see the seminal work on sound by Needham, 1967, and on aurality by Seeger, 1975, 1981, 1987). These exceptions are personal diary-like descriptions of the field experience, in which the sensorium is treated as a condition for understanding the world (Lévi-Strauss, 1955, p. 85).

It took decades for anthropology to realize the value of researching the senses. Although always a part of anthropological research in one way or another, the

senses did not become a central issue or a focus of consistent analytical scrutiny until the 1990s. The so-called sensual turn (Classen, 1993; Howes, 2003; Classen & Howes, 1996) was a response to the 1980s crisis of representation and the growing interest in phenomenology, the body (Csordas, 1994), and emotions (Stoller 1989, 1997). David Howes (1987, 2002, 2003, 2005, 2018), Constance Classen (1993, 1997), Paul Stoller (1989, 1997), and Steve Feld (1982, 1996, 2015), as well as Edmund Carpenter (1972) and Alfred Gell (1977, 1995) were prominent scholars who had been cultivating anthropology of the senses over the previous decades. Over time, they were joined by many more scholars. The anthropology of the senses has since permeated the field, being embraced by experts in various areas (for instance, linguist and cognitive scientist Asifa Majid, see Majid & Levinson, 2010; Majid & Kruspe, 2018). It has also extended into other disciplines within the humanities and social sciences, notably history, sociology, and geography.

Realizing that sensory research should encompass the entire human sensorium and treat all senses equally, earlier strand of research focused on individual types of sensation separately. To give a few examples: hearing—Bull & Back, 2003; Erlmann, 2004; Cox, 2010, 2015; Salmouka & Gazi, 2022; haptics—Stewart, 1999; Classen, 2005; olfaction—Howes, 1987, 2002; Synnott, 1991; Bigelow, 1992; Beer, 2007, 2014; Burenhult & Majid, 2011; Classen, 1992, 1993, Classen et al., 1994; Illich, 2000; Low, 2006, 2009; Wnuk & Majid, 2012; Candau & Wathelet, 2011; taste—Douglas, 1975, and Korsmeyer, 2005.

As knowledge about the senses has expanded, anthropologists have emphasized that the senses are not only equal in importance but also never operate in isolation. They always occur together and are interconnected. Consequently, anthropology began advocating for a multisensory approach (Howes, 2019), considering the full range of sensory experiences in their occurrence rather than privileging any single sense. A multisensory approach allows one to see the senses in a non-linear, integrated manner. We witness an urge of some scholars to explore the inter-sensory relationships and how the senses are experienced through one another, resulting in sensory synesthesia (see e.g. Porcello et al., 2010; Sutton, 2010; Speed & Majid, 2018). This approach is crucial for understanding how the senses work together to create a holistic experience and how this integration of senses is culturally constructed.

In the field, ethnography has always been based on multiple sensory and emotional encounters (Beatty, 2005). This has been possible because sensory experience is understood as embodied (Classen, 1993). A further step involved acknowledging intuitive and emotional knowledge (affectionate knowledge, MacDougall, 1998) and sensuous knowing (Taussig, 1993). Accepting that knowledge extends beyond abstract reasoning or logical deduction, and emphasizing how we come to understand the world through the physical, embodied experience of sensing feeling, and mimicking others, has allowed for a premediated focus on sensory acts.

The senses are treated as both subject of study and a means of inquiry (Howes, 2022, p. 446; Laplantine, 2015, p. 2). Accepting the body as the primary site where sensory perceptions occur and are interpreted (including the anthropologist's body) has prompted the development of sensory ethnography, i.e., the methodology of participant sensation, involving 'sensing and making sense along with others' (Howes, 2022, p. 446). It is not necessarily bound to verbalization and rationalization. Instead, it involves developing the ability to experience the world through one's own sensorium as well as through the sensorium of the culture being studied (Howes, 2003, p. 10–14), a process described as 'being of two sensoria' (Cox et al., 2016). This reflexive and critical perspective reconciles the false dichotomy of cognitivism and phenomenology, as well as the rational and the sensual, by acknowledging the socialization of the senses and their mediating role, the agency of subjects in sensing, and the interaction between sensing subjects and the senses themselves. Understanding sensory experience as relational also allows us to view the sensory as a field of interaction and exchange, hence a specific mode of communication. Sarah Pink formalized the methodology of sensory ethnography in 'Doing Sensory Ethnography' (2009), while the Harvard University Sensory Ethnography Lab (SEL), led by Lucien Castaing-Taylor (2010), has explored it through a wide range of multimedia experiments.¹

The sensory shift in academic research, particularly the integration of the senses into research and creative practice, alongside an urge to transcend the borders of anthropology as a discipline of writing, is evident in the recent transformation of visual anthropology into 'multimodal anthropologies' (Collins et al., 2017). This term reflects how anthropologists have increasingly begun experimenting with diverse media, including audio recordings, drawing, photography, videography, virtual reality, installation art, AI, and performance (see, for instance, "Phone & Spear: A Yuta Anthropology" (2019) by Miyarrka Media). They also integrate physical movements, such as walking, dancing, and sports, into every stage of ethnographic research, be it design, fieldwork, or dissemination (Elliott & Culhane, 2017, p. 3; Cox et al., 2016; Spencer, 2014).

Basic Premises

Through a historical perspective on the senses and their evolution over time (Classen, 1993) and cross-cultural anthropological inquiry (Howes, 2003, 2005), numerous statements received their evidence-based confirmation.

First of all, Classen (1993) (see also Cox on Classen In Cox, 2018) and Howes (2022) defend the proposition that the senses are not merely biological faculties but are deeply embedded in social and cultural contexts. Shaped by cultural norms and practices, they are culturally constructed (Corbin, 1990) and shared

¹ See <https://sel.fas.harvard.edu/>. [Accessed on August 15, 2024, 15:10 CET.]

within a group(s) (Candau & Jeanjean, 2006, p. 53); they are not innate, they are made (Howes, 2022, p. 447).

Howes provides “a rigorous defense of the primacy of the social which, in the instant case, means attending to the sociality of sensation and the cultural mediation of perception” (2002), in contrast to Tim Ingold's perception anthropology (Ingold, 2018). In Ingold's framework, the senses are to be considered as “means of active inquiry and of orienting oneself in the world”, and from this perspective, they are ‘interchangeable’ (Ingold, 2000, p. 245, pp. 276–81). In his ‘activity theory,’ Ingold critiques the idea that cultures are often viewed as abstract systems of collective symbols and representations, which may overshadow the real-life conditions and contexts in which individuals develop their practical skills and perceptions.

According to Classen (1993, 1997) and Howes (2002), in contrast, the role of sensory research is to explore how senses operate within different cultural frameworks and how differently they shape human experience. Hence, “[...] each culture must be approached on its own sensory terms if its perceptual world is to be apprehended and described accurately by the anthropologist” (Howes, 2002, p. 74). This involves, above all, setting aside any preconceived analytical notions regarding the nature and role of the senses, including their quantity, limits, and modes of interaction. It requires acknowledging that the senses are constructed, not inherently fixed (Howes, 2022, p. 447).

Now, understanding its methodological capacities and limitations, sensory anthropology focuses on sensory representations, experience, and communication. The acts of sensation—the interaction between the source and physiological apparatus that treats the stimuli functionally—are difficult to access through traditional anthropological methods. Thus, the anthropology of the senses focuses on the process and practice over physiology (Harris, 2018, p. 251), on the ways people represent, describe, and categorize either the stimuli, the sources of sensation, or the perceived sense as intersubjective mental representations of the sensory stimuli made possible by particular senses. Semantic processing refers to either the source of sensation—such as the ‘smell of a rose’ in olfaction (see Köster, 2002, p. 30)—or the effects stimuli have on the subject, for instance, “it mesmerizes me like the smell of a rose” (see David et al., 1997). Therefore, anthropological research on the senses is based on the premise that if the members of the same community share the same cultural models, they also share a similar sensory experience and represent particular sensory stimuli in similar ways.

In a social context, sensory experiences turn into metaphors that represent cultural ideals (Classen, 1993). In other words, sensory experiences are deeply intertwined with cultural meanings and are mediated by social norms and moral values. For instance, in societies that believe in the ‘evil eye,’ the act of looking is highly restricted and controlled (Bille, 2017). Olfaction often carries the most moral ambiguity and sensitivity among all senses (Howes, 2022, p. 451).

For example, most Europeans would describe the odor of a rose as ‘charming’ and the effects its aromatic molecules have on their bodies as ‘pleasing’. In their description, they would most likely associate this sensation with certain emotions and values like ‘love’ and ‘tenderness’. Chemically, however, this is largely unknown for most people. A rose, as a source of a particular odorous sensation, is a mixture of flowery and fecal smells (Köster, 2002, p. 30). Rituals, in particular, often engage multiple senses to create a powerful, immersive experience. The sensory symbolism employed in rituals can convey complex cultural meanings. For instance, the use of incense in religious ceremonies not only involves smell but also symbolizes purification and sanctity.

Even a subtle shift in sensory practice often points to significant social changes. When sensory values change, they both reflect and induce a changing model of cultural aesthetic and material practices (Yamin-Pasternak et al., 2014, p. 634). For example, a meal from the 18th century is rediscovered and considered tasty, spreads across the country's kitchens, and becomes a new symbol of group identity (Searles, 2002, 2016). A diachronic perspective allows us to trace historical shifts in sensory perception, such as how the rise of modernity led to a reconfiguration of the sensory order.

Since the senses are associated with certain values (assessment, judgment) and emotional states (sentiment, impression), they are often employed as categories for social classification and hierarchization (van Beek, 1992). In some societies, certain senses may be prioritized over others (see the priority of aurality in Suyà culture, Seeger, 1975, 1981, 1987). Marshall McLuhan proposes that oral societies are more attuned to auditory perception than literate ones, as their primary mode of communication is speech rather than writing or print (McLuhan & McLuhan, 1992).

In fact, societies structure the senses into hierarchies (e.g., in the context of fish cooking, smell becomes more critical than sight and hearing) and, at the same time, categorize the various perceptions and sensations within a single sense into hierarchical orders. For example, Classen (1992), in her analysis of smells, writes about an olfactory triad of good–bad–neutral, which further translates into diverse forms of social division or exclusion (Beer, 2000). These sensory hierarchies manifest differently across cultural settings, turning into so-called sensory orders (Howes, 2002). While testing McLuhan's hypothesis in Papua New Guinea, Howes discovered that, in cross-cultural comparison, it is evasive to conceptualize the prioritization of hearing in oral societies over seeing in the West. Instead of turning the comparison into a contest (Howes, 2022, p. 446), it is essential to explore how the senses are discriminated and combined in different ways within different cultures. Even within a single cultural setting, there is a nuanced orchestration of the senses, structured into culturally specific sensory orders.

By exploring how sensory orders relate to broader social and cultural structures, it becomes evident that sensory orders mirror social orders. Another

aspect of inquiry is the way the senses are navigated by social actors, producing politics of sensation (Howes 2002, p. 79). Investigating how and why the senses are hierarchized in specific cultural contexts and settings, while sensory pluralism prevails in others, is an important issue for study. Interestingly, Western science has long paralleled the social hierarchization of the senses. Since the Enlightenment, it has had privileged sight and hearing as the so-called higher senses over the lower ones such as olfaction, taste, and touch. It was not until the 1990s that this scientific perspective was challenged. David Howes writes about sensualizing Western oculacentric theory (Howes, 2022, p. 458), Classen (1997) proposes the concept of the 'sensory model,' Taussig (1993) introduced 'sensuous mimesis,' Feld (2015) developed 'acoustemology,' and Sutton (2010) offered the term 'gustemology.'

Last but not least, sensory experiences occur in specific environmental settings. Hence, the connection between sensory research and environmental studies is inevitable. I want to emphasize this point in this study and demonstrate why and how it should be explored with greater attention. I insist that it is important to understand sensory experience as part of broader sensory ecologies, where various senses (in broad terms, i.e., beyond the traditional five senses, including proprioception, nociception etc.) interact not only with each other but also with the environment (Rodaway, 1994).

Thomas F. Carter et al. (2022) employ the concept of sensory ecologies to describe how sensory experiences are embedded within specific environmental contexts. This idea suggests that the way people perceive the world is influenced by their physical surroundings (see e.g. Shepard, 2004; Sorokowska et al., 2013). For instance, in diverse ecological settings such as deserts, forests, or urban environments, the senses become attuned to particular stimuli, which, in turn, can shape cultural practices and social interactions. As a consequence, to understand the sensory experience, we have to reflect on the role of the senses not merely as a physical foundation for understanding but as a key element in how cultural frameworks shape our perception of geographical (Rodaway, 1994) and environmental knowledge.

Environmental conditions are also the reason why different cultures prioritize certain senses over others. Western cultures often give precedence to sight and hand-eye coordination, whereas other sensory systems may prioritize balance or auditory perception (Geurts, 2003). Among the Suyà of Brazil, knowing the world is closely tied to hearing (Seeger, 1975). Metaphors involving the word 'ear' are used to express anything from knowing or seeing to mastering weaving or note-taking; 'I know' would be 'It is in my ear' in the Suyà context (Seeger, 1975, p. 214). The sense of hearing may be highly developed and culturally valued because it is crucial for navigating the environment.

Sensory orders are not arbitrary but are ecologically adapted to the specific needs and challenges of the environment. Different communities develop unique

sensory practices closely linked to their specific ecological settings. For example, the ways in which senses are employed in hunting (Willerslev, 2007) or how taste is integrated into food practices (Starks Spray, 2007, 2011) can vary significantly across cultures, often reflecting the resources available in the environment and the cultural meanings attributed to them.

This may lead to variations on the individual level (Hudson & Distel, 2002), intracultural level (where senses are, among other factors, gendered, Classen, 1997, 1998, and racialized, Stoeve, 2016; Sekimoto & Brown, 2020), and on the inter-group level (e.g., a Japanese-German comparison of everyday odor perception, Ayabe-Kanamura et al., 1998). Cultural and ecological features have an impact on sensory capacities, such as odor threshold sensitivities. For example, the Tsimané, Indigenous people of the Bolivian rainforest, as Agnieszka Sorokowska et al. discovered (2013), detect n-butanol at significantly lower concentrations than people from Dresden. The possible sources for such differences, as the authors suggest, are: (i) pollution impairing the olfactory abilities of people from industrialized countries; (ii) better olfactory training due to the higher importance of smell in traditional populations; and (iii) environmental pressures shaping olfactory abilities in these populations. Classen and Howes urge anthropologists to remain attentive to intragroup and intracultural variations triggered by the politics of perception or 'distribution of the sensible' (Laplantine, 2015). This concerns resistance from some individuals who fail to conform to the dominant sensory regime (Howes & Classen, 2014: 12; Classen, 1997: 402).

Similarly, numerous studies build on the premise that specific environmental settings prompt particular sensory skills (see e.g., Bull & Black, 2003; Beer, 2007, 2014; Majid et al., 2017), or, nuanced by moral, 'sensory techniques' (Howes 1990 following Mauss, 1973), or 'ways of sensing' (Howes, 1991; Howes, 2003, pp. 32–34; Howes & Classen, 2014). These include heightened olfactory awareness, more accurate color and odor memory, greater precision in sensory identification, and varied ways of odor integration into spatial cognition (Rodaway, 1994). Sensory perception is not innate but cultivated—like any skill—through practice and training within a given environment (Ingold, 2000, p. 283). In this regard, sensory ecologies can be viewed as the "refinement of enskilled movement of bodily materials in specific spatial and temporal confines" (Carter et al., 2022, p. 242). However, such movement is not merely a bodily mechanics or its cognitive counterparts. It is a cultural practice, i.e., a moral action as the exercise of the senses always is (Howes, 2022, p. 451).

Sensory expertise prompted by particular physical or professional environments has been analyzed in numerous studies (e.g. Candau, 2013; Croijmans & Majid, 2016). Developing such expertise involves learning to detect shifts in time and space through physical practice, a process that reinforces our understanding of being part of a broader social and cultural world. Cultural contexts shape how we experience our bodies and the world, influencing how sensory experiences are acquired, interpreted, and defined.

In addition, each language possesses a unique capacity to express the senses verbally (Burenhult & Majid, 2011; Candau & Wathelet, 2011; Wnuk & Majid, 2012; Majid & Burenhult, 2014; Barkat-Defradas & Motte-Florac, 2016). By examining these variations, the ecological aspects of sensory experience are treated as culturally mediated and context-dependent. Anthropology aims to provide a “mapping [of] cross-cultural variations in the tone and shape of consciousness in accordance with variations in cultural constructions of the sensorium” (Howes, 2002, p. 79). Sensory pluralism reflects an ecological adaptation to the environment, with different senses being honed and valued based on their utility in specific ecological niches.

Sensory perception is not seen as a solitary experience; rather, as relational and interactive. Sensory information is not produced in isolation, nor can it be neatly categorized into distinct senses. Instead, our senses operate within a range of possibilities that guide the ways we interact with the world around us. This means that sensory perception is a dynamic and constant interaction between the body, the environment, and cultural practices. It is also shaped by interactions with other beings—human and non-human alike. This perspective challenges the Western notion of the senses as isolated, promoting the idea that sensory experiences are always situated within a specific ecological context.

Senses and Environmental Research: Engaging Encounters

Sensory Ecologies

Building on Bateson's concept of ecology (Bateson, 2000), which refers to the patterns, information, and ideas embedded in material forms, it becomes essential to view any action as part of a broader ecological system. Rather than isolating a specific action from its surroundings, Bateson emphasizes the importance of understanding it within its full context, as part of an interconnected subsystem (Bateson, 2000, p. 338). These ‘ecologies’ are revealed through each organism's use of its body to sense and interact with its own spatial and temporal environment. Howes (2019, p. 20) underscores the significance of recognizing how sensory ecologies emerge through the physical and perceptual placement of the sensing subject within a specific environment, calling for a deeper exploration of how such ecological relationships take shape.

The senses are integral to constructing the relationship between temporality and space. The embodiment of time plays a crucial role in shaping how we experience temporality, as the perception of a body in motion is always intertwined with other bodies and the spaces they inhabit. Translating the sensory stimuli of another person's movement into one's own ‘kinesthetic formula for acting’ (Downey, 2010, p. S28) involves not only perceiving their intent but also accounting for environmental factors. As infants, children, and even novices in various life skills, we face challenges when engaging our senses in new ways. With age, we must confront ingrained, unconscious patterns and physical inhibitions that only surface when new movements or experiences challenge us (Downey, 2010, p. S27). Observing how individuals acquire enskilled movements can reveal how we sense the spatial and temporal realities we inhabit, from the precision of timing the everyday rhythms of walking or aging from childhood to adulthood.

Sensory ecologies emerge from the dynamic interaction between bodily movement, space, time, and material surroundings. These ecologies are cultivated through refined bodily practices or ‘techniques of the body’ (Mauss, 1973), which involve learning and perfecting specific movements of the body in relation to the environment. Steps, gestures, breaths, and motions all play a part in the sensory assessment that informs how effectively one moves through space, often measured against a material or temporal benchmark (Alter, 1992; Downey, 2005).

The senses serve a mediatory role. They not only mediate how we perceive the environment and interact with one another but also shape the connections between self and society, mind and body, and idea and object (Bull et al., 2006, p. 5). Through these embodied practices, sensory ecologies are created, shaping our understanding of how we exist within and respond to our world.

The anthropology of the senses differs from the anthropology of the body in that the latter emphasizes the fluid interplay between the senses (Howes, 2022, p. 447). It allows for the integration of the mind and the body, which have long been viewed as separate since Descartes, but it also implies a unity in sensory experience. However, this perspective can falsely suggest that the senses are not differentiated or never conflict with each other. Merleau-Ponty also describes how the spatiality of sight contrasts with the spatiality of touch (1962). This implies that there are biases—spatial—temporal, distance—proximity, etc.—attached to each of the senses. Through various techniques of perception and communication shaped by the specific culture's sensory regime, these biases can be modulated and altered (Howes, 2022, p. 452).

The senses play a pivotal role in the perception of the environment and orientation. J. J. Gibson's seminal work (1979) on visual perception and ecology laid the foundation for the anthropology of mobility and spatial navigation (Ingold 2000; Istomin & Dwyer, 2009), including research on the categorization and conceptualization of the landscape as a form and quality of ground surface. Indigenous communities in Siberia use numerous landscape categories that seem to have great practical importance for productive economic activities, land use, and spatial navigation (Istomin, 2021; Mamontova & Thornton, 2022). In sensory anthropology, landscapes are conceptualized through different sensory 'scapes' (drawing on 'scapes' in global economy introduced by Appadurai, 1990), such as 'smellscape.' This term refers to the olfactory characteristics of a place that contribute to its identity and the way it is perceived by its inhabitants and outsiders. For example, in some cultures, certain smells may be associated with purity and sanctity, while in others, they may be linked to pollution and danger. Understanding these cultural variations in olfactory perception is crucial for understanding how different communities engage with their environments. Similarly, soundscapes—the acoustic environment of a place—can convey information about its ecological health, social structure, and cultural significance. By paying attention to these sensory dimensions, we can gain a richer, more nuanced understanding of the environments we study, both on an individual and societal level.

Although Gibson's theory is grounded in vision and visual perception, Ingold (2000) extrapolates it onto the rest of the sensory perception, as if the senses were 'interchangeable'. In Ingold's view, the senses are instruments of 'direct perception', 'means of active inquiry and of orienting oneself in the world' (Ingold, 2000, p. 245, pp. 276–281). He introduces Gibson's term 'non-representational' theory,

treating the senses as 'perceptual systems' (Gibson, 1966) rather than cultural constructs. Ingold aims to shift the focus from the symbolic representations to people's lived everyday experiences, unmediated by signs. Instead of systems of collective representations—abstract frameworks that supposedly define how people perceive and understand the world, people develop their sensory skills and actions in practical lives, engaging with and embodying their environment. Moving through places, they look for constancies or invariants that constitute 'affordances'—or 'possibilities for action'—which are not mental constructs but are inherent in the environment itself. Ingold promotes the idea of 'affordance-thinking', which suggests that we perceive the environment directly, without the need for an internal or symbolic representation of the world. According to Ingold, perception is 'a mode of action' (Ingold, 2000, p. 166), not representation or interpretation. 'Interpretation comes later' (Ingold, 2018, p. 41). Ingold aims to shift the focus from cultural representations to the direct, practical engagement people have with their environment.

In his critique of Ingold, Howes (2022, pp. 448–449) identifies limitations in the 'non-representational' theory regarding how the senses are instrumentalized and argues that the premise of the senses being interchangeable is flawed. According to Howes, Ingold's conception omits the role of the social and cultural in sensory experience, neglects the politics of the perceptual and renders the senses and human sensuousness abstract. He points out that an individual's sensory experience, including the anthropologist's perception in the field, cannot be readily extrapolated to the rest of humanity; the role of an individual's cultural background and social position and the contexts in which the sensory experience occurs must be taken seriously. Howes stresses the importance of more socially minded and cross-culturally sensitive work.

The temporal and spatial dimensions of our environment merge into sensory ecologies that shape our experience of being in the world. Learning to navigate these sensory ecologies involves adapting to various sensory modalities by consciously incorporating others' gestures, postures, and expressions (Howes, 1991; Ingold, 2000). In doing so, we can better understand the sensory worlds of other cultures, as bodily activities give rise to distinct perceptions of time, space, and motion. Specific ways of movement refine and generate new bodily skills, making it an effective medium for sensing the world around us.

Let us look at the example of mobility on foot in the summertime tundra of the high North. Many ethnographic studies document how tundra inhabitants deeply connect with their environment (Kerttula, 2000; Skvirskaja, 2012; Vitebsky, 2005). The tundra is blanketed by a layer of vegetation that forms a 'phytocommunicative' membrane (Schulthies, 2019), making the tundra a living entity. The terrain constantly shifts—sometimes being soft, sometimes wet, sometimes firm, and sometimes uneven. For someone from a city, used to a permanently solid ground, walking in this environment requires adaptation. The tundra's physical 'welcome'

is shaped by its sensory richness and the gentle feel of its lichen, moss, and sedge carpet. This plant layer allows for quiet, delicate movement (Yamin-Pasternak & Pasternak, 2021). Together, the tundra's botanical, ecological, and aesthetic qualities—visual, olfactory, and tactile—help create an eco-spiritual bond with the land, establishing the customs and behaviors that guide life in this unique environment (Yamin-Pasternak & Pasternak, 2021). Visually, with no trees to block the view, it enhances the perception of distances between various landscape features, gradients of slopes, and mountain peak heights. The rapid greening of summer fills the air with rich, intense aromas and fragrances.

By paying attention to our bodily interactions, the materials we engage with, and the meanings attributed to those materials in different cultures, we can deepen our understanding of the wide range of sensory perceptions of others. Sensory ecologies, therefore, offer a framework for exploring embodied ways of knowing. Attending to these ecologies is one way to explore the cultural specifics of sensing bodies in motion, allowing us to examine concepts of time, space, and movement as integral parts of our sensory experience and, ultimately, our sense of being.

Sensory Methodologies in Environmental Anthropology

Given the central role of the senses in human experience, it is not surprising that sensory methodologies have much to offer to environmental anthropology. This field studies the complex interactions between human societies and their environments, including how people perceive, utilize, and transform their natural surroundings. Sensory methodologies can enhance this research by providing new insights into how people experience and engage with their environments through their senses.

One of the key contributions of sensory methodologies to environmental anthropology lies in their ability to capture the embodied and experiential aspects of human–non-human–environment interactions. Traditional approaches to environmental anthropology have often focused on material practices, such as resource use, subsistence strategies, and environmental management. While these aspects are important, they do not fully capture the sensory and emotional dimensions of people's relationships with their environments. For example, sensory methodologies can help researchers understand how people perceive and experience different landscapes, climates, and ecosystems. This includes all the senses—how people see, smell, hear, taste, and touch their environments. These sensory experiences are often deeply intertwined with cultural beliefs, practices, and values. For instance, the smell of a particular plant or the sound of a river may evoke specific cultural meanings and memories that are crucial to understanding people's relationships with their environments.

A multisensory approach is particularly valuable for environmental research (Classen, 1993, 1998; Howes, 2019). The interplay of the senses is a key area of interest in sensory anthropology and has important implications for environmental anthropology. Sensory experiences are often multisensory, involving the simultaneous engagement of multiple senses. In the context of environmental anthropology, this means that people's experiences of their environments are not limited to a single sense but are shaped by the interaction of multiple senses. For instance, the experience of a forest may involve the visual perception of trees, the sound of birdsong, the smell of earth and plants, the feel of the ground underfoot, and even the taste of wild berries. These multisensory experiences are often deeply interconnected and cannot be fully understood in isolation. Understanding the

interplay of the senses is crucial for environmental anthropologists who seek to capture the complexity of human-environment interactions. By incorporating sensory methodologies that account for the multisensory nature of experience, researchers can achieve a more holistic understanding of how people perceive and engage with their environments.

As noted earlier, even subtle alterations in sensory models and orders may indicate serious social transitions. The reconfiguration of the sensory order equally applies to environmental changes. Sensory methodologies, therefore, can shed light on how environmental changes—such as climate change, deforestation, or pollution—impact people's sensory experiences of their surroundings. For example, changes in air quality can influence how people perceive and interact with their environments through smell. Similarly, changes in water quality can affect people's sensory experiences of taste and touch. Natasha Fijn and Laffan Julian curated the exhibition “More than Human: The Animal in the Age of the Anthropocene” (2020), in which various contributors use sensory approaches to convey the agency and subjectivity of the animal perspective on the anthropocentric changing world. In her dual video screening “Mongolian Snowstorm | Australian Drought” (2020), Fijn shows two different landscapes in Mongolia and Australia through film segments played within a gallery context.² She concurrently compares how extreme weather affects different species in various landscapes. By documenting the sensory experiences of horses and humans in different climates, Fijn's work illustrates how environmental changes impact multispecies interactions. This type of sensory ethnography helps visualize the tangible effects of climate change on both human and more-than-human lives. By incorporating sensory methodologies, environmental anthropologists can gain a more nuanced understanding of how environmental changes have been experienced and interpreted by different communities and in different contexts. Based on archival documents and firsthand accounts, the way the environment has been sensed in the past can be further explored.

² See a shortened version of the contrasting footage here: <https://vimeo.com/447999435>. [Accessed on August 15, 2024, 16:00 CET].

Multispecies Ethnography and the Senses

With the growing interest in ecological topics, anthropology sought to transcend the limitations of the anthropocentric perspective. Multispecies anthropology emerged with post-humanist analysis to address the complex interrelations between humans, nonhuman animals, plants, and ecosystems, emphasizing the entangled and co-dependent lives of different species. This shift was influenced by environmental concerns, the recognition of the Anthropocene (the current geological era where human activity significantly impacts the Earth), and critiques of anthropocentrism—the idea that humans are the central or most important beings in the world.

Multispecies ethnography moves beyond studying humans in isolation, focusing instead on ‘more-than-human’ worlds and the ethical, political, and ecological dimensions of living alongside other species (see e.g. Fijn, 2018; Govindrajana, 2018; Chao, 2019; Doron & Broom, 2019; Kavesh, 2021a, 2021b; Peemot, 2024). Within this framework, nonhumans are viewed not merely as resources or symbols, but as active agents in social, ecological, and cultural processes. Donna Haraway's work (2003) on ‘companion species’ challenges the notion of humans as separate from or superior to other species, advocating instead for the recognition of interspecies relationships as essential to understanding human life. Anna Tsing (2015) highlights how the survival of certain species is intertwined with human practices, using the example of matsutake mushrooms to explore human-nature relations in global capitalism.

The subfield has gained momentum through debates surrounding climate change, conservation, and biodiversity loss, emphasizing the need to rethink human interactions with the environment and nonhuman life. Recently, to broaden the scope of understanding the perspectives of other species and the complexities of life on Earth, multispecies anthropology has found inspiration in sensory methodologies. This prompts the question: How exactly can combining sensory ethnography with multispecies anthropology (Howes, 2019, p. 24) stimulate a better understanding of the entanglement with more-than-humans and better capture the subtleties of more-than-human engagement, connection, and relatedness?

The sensory approach merges the realms of the intelligible and the sensible by exploring vision, sound, smell, touch, and taste within a more-than-human

context. In multispecies anthropology, the integration of sensory approaches is crucial for capturing the full complexity of interactions between humans and more-than-human beings (Fijn & Kavesh, 2021). These sensory dimensions offer a nuanced understanding of how different species experience and relate to their shared environments. While humans often emphasize communication through language, other beings rely on multiple sensory modes as an essential part of their social life. The sensory-focused approach in multispecies anthropology opens a pathway to engage with other beings as communicative subjects, going beyond language to foster richer interspecies knowledge-making.

One strand of such endeavor focuses on animal training; for example: Whitney (1982) on Buzkashi, Marvin (1988) on bullfighting, Cassidy (2002) on English horse racing, Khalaf (2000) on camel racing, Jerolmack (2013) and Kavesh (2021b) on pigeon flying, Macdonald (2014) on goshawk training, Schroer (2019) on falconry and Fijn on horse archery (2021). These studies illustrate how animal training is pivotal in cultivating a sensory-based, sensuous understanding of the 'Other's' body. By developing sensitivity to the diverse sounds animals make, their touch, scents, rhythms of breathing etc., humans develop cooperative relationships rooted in shared physical histories and learn how to interact with animals.

The project "Sensory Acts"³ (Oehler & Abbott, 2022–2024) focuses on human–non-human non-discursive communication in the context of Circumpolar North. It explores the shared capacity of humans and other beings for sensory, nonverbal communication. Through the study of posture, gesture, scent, and sound, and drawing on both northern Indigenous and non-Indigenous experiences with animals and plants, the project expands current knowledge of the material and intangible heritages of multispecies collaboration across the Circumpolar North.

It also draws on previous intensive research on land use in Siberia and the Russian Far North in the 1990s, as well as the ongoing interest in mobility in tundra and taiga in the 2000s. The issue of human-animal interaction has been central to Siberian and Arctic studies. In addition to studies on whales (Kishigami, 2016), dogs (Jensen, 1961; Laugrand & Oosten, 2002, 2014), insect (Laugrand & Oosten, 2012) etc., a significant body of literature portrays the local forms of reindeer herding. I will draw on this strand of research in the coming paragraphs, as I believe the sensory approach is particularly useful in research on pastoralism.

3 <https://www.sensoryacts.ca/> [Accessed on August 15, 2024, 16:30 CET].

The Sensory Exploration of Multispecies Entanglements in Pastoralism

A subfield where the knowledge of sensory anthropology and sensory methodologies could find fruitful application is the study of pastoralism. Herding animals across landscapes represent a complex, multispecies relationship that transcends mere economic activity. It involves deep, sensory interactions between herders, animals, and the environment, forming a web of connections and co-creating the pastoral world that can be explored through the lens of multispecies anthropology.

In the context of pastoralism, the relationship between herder and animal is profoundly sensory. As Viktoria Soyan Peemot (2024) highlights in her studies, horse owners rely heavily on their senses—sight, sound, touch, and even smell—to manage and understand their animals. These sensory engagements are not one-sided; they involve a mutual exchange, where both herders and animals respond to each other's cues. For instance, a herder might use visual signals or specific vocalizations to guide the animals, while the animals' movements and behaviors provide the herder with critical information about their health, mood, and needs. Horses, as sentient beings, form complex relationships with herders. These relationships are marked by affection, understanding, and mutual dependency, challenging the conventional human-animal hierarchy.

By incorporating sensory analysis and drawing from what Tsing (2015, p. 37) calls 'the arts of noticing', multispecies anthropology offers a deeper appreciation of the shared lifeworlds of humans and more-than-humans. This integration allows us to better understand the unfolding of life across various multispecies worlds through critical description (Tsing, 2015). By sensing with more-than-human beings, we enter a 'contact zone' where human lives become interwoven with other species, creating a reciprocal process of becoming-with (Haraway, 2008, p. 244; Kavesh, 2021a). This process of kin-making transcends human relationships, forming multispecies connections (Govindrajana, 2018, p. 6) even on sensory and emotional levels. Peemot (2024, p. 8) argues that Soyan horsemen negotiate their identities through a continuous process of becoming-with their horses and homelands. Identity and existence of individual agents—whether they are humans, animals, land or even other entities—are not fully formed or independent before entering relationships with others. Through a joint commitment, humans, animals, and the landscape among Tozhu herders (Stépanoff, 2017, p. 376) create interspecies

knowledge, enabling the coordination of movements and transhumance routes of herders and reindeer herds in the taiga (Stépanoff, 2012).

Non-human animals in pastoral systems are recognized as having their own forms of knowledge and agency. They are not merely passive recipients of human care but active participants in the herding process. For example, reindeer in Siberian pastoralist communities often navigate and identify the best grazing areas on their own, demonstrating deep knowledge of the landscape that herders learn to trust and follow (Istomin & Dwyer, 2009). This dynamic underscores the concept of more-than-human worlds, where human and non-human lives are intertwined in ways that make it difficult to separate their respective agencies and contributions.

The landscapes discussed above in the context of herders' perception and categorization are viewed anew through the combined lens of multispecies anthropology and sensory ethnography: in pastoralism, the landscape is not merely a physical space but a sensory environment co-constructed by humans, animals, and ecological elements. This sensory relationship is embedded within the landscape, which itself plays an active role in shaping these interactions. The terrain, climate, and vegetation influence the sensory experiences of both herders and animals. For example, the smell of certain plants may indicate to the herder the presence of good grazing areas, while the texture of the ground underfoot can affect how livestock move and how herders perceive their route. Thus, the landscape is not a passive backdrop but an active participant in the multispecies relationship.

Landscapes are understood as sentient beings capable of experiencing sensations and emotions. In Peemot's words, they are “respected and superordinate to human–nonhuman communities” (2024, p. 8). They connect humans and nonhuman beings and form the sociality of their shared kinship. Such ‘land-based human–nonhuman kinship’ is based on numerous practices that maintain relationships with sentient landscapes and nonhuman animals. This is how a sense of belonging emerges and is maintained: it is a homeland, a place of numerous pastoralist practices (pasture, watering, hay-cutting, transhumance routes), a source of edible and healing plants, a ground for interactions between domestic, non-domestic animals, birds, insects, etc., as well as a source of spiritual beliefs, shared knowledge, and reciprocal relationships.

The senses play a crucial role in navigating and understanding this environment. For instance, herders rely on their auditory senses to listen to the sounds of their herds, distinguishing between different types of calls or movements that indicate calmness, distress, or the need for attention. Similarly, animals respond to environmental sounds and the vocal commands of their herders, creating a soundscape that is integral to the herding process. Vision is another critical sense in these multispecies landscapes. The ability to see and interpret the land and the herd from a distance allows herders to make decisions about movement and grazing. Animals, too, rely on their sight to navigate terrain, avoid predators, and remain within the herd. This visual relationship is also about recognizing and responding to the subtleties of the landscape—such as the color and texture of vegetation—that signal environmental changes.

Sensory Ethnography in the Russian Arctic and Slovak Carpathians

In the research project on visual documentation of the transformation, loss, and absence in the Russian Arctic through archival photography, I employed a methodology rooted in sensory anthropology and multispecies ethnography. It revealed the intricate relationships where various species—animals, plants, humans, and the inanimate tundra—engaged in centuries-old non-verbal, sensory communication patterns. By examining these interactions as captured by historical photographers, the research deepened our understanding of environmental change and highlighted the irreversible losses we face. Archival photographs served not only as objects of study but also as powerful tools for fostering environmental awareness. They demonstrated how visual documentation can bridge temporal and spatial divides, making the invisible impacts of climate change tangible.

The findings pointed to the need for strategies that enhance our perception and understanding of ecological phenomena before their consequences manifest in crises. Photography emerged as a unique medium to refine existential skills and ecological literacy, offering a way to cultivate an ‘eco-eye’ capable of feeling and understanding the environment on a deeper level. The research also significantly contributed to biodiversity protection knowledge through sensory and visual inquiry. Analyzing the non-verbal, visual narratives embedded in historical photographs provided insights into the delicate interdependencies within Arctic ecosystems. This approach highlighted the role of sensory research in appreciating and safeguarding biodiversity, emphasizing the value of an empathetic and perceptual connection to nature.

In the fieldwork phase of my research on the Carpathian grasslands, conducted in Nová Bošáca (population 1,019 in 2021), I employ a sensory approach and multispecies ethnography to study how local ecological knowledge supports grassland biodiversity. Pastoralism is just one dimension of the complex rural livelihoods in the region. Although livestock farming was a vital part of subsistence in the past, it has undergone radical transformations over recent decades. The former peasant changed to a farming factory worker (Sk. *kovorolník*) (Panáková, 2021, p. 112) and/or mechanized collective farmer under socialist modernization. Farmers maintained small plots (Sk. *záhumienky*) alongside factory jobs through informal land-sharing after collective farms were introduced in the late 1950s.

After 1989, the social regime and ownership systems transformed again. Today, two cooperative farms—including one owned by an ecological NGO—and small farmers manage the largely leased land.

Although social regimes influence grassland biodiversity, inquiries in Eastern Europe have predominantly adopted a natural-scientific perspective. Only a few studies have explored local grassland practices (Bürge & Kizos, 2015; Dahlström et al., 2013; Babai & Molnár, 2014). These studies, however, focus on farmers' skills, management practices, or restraints in farming. Human-mediated grassland diversity distribution has often been reduced to management techniques, primarily categorized as pro-diversity techniques, such as corralling, or ecologically unfavorable practices, like mulching. This approach is unfortunate because as human behavior cannot be limited to a specific set of management practices applied in grassland areas at particular times and in specific sequences. I assume that the drivers of local and regional grassland biodiversity extend beyond grassland management regimes and their legacies. In fact, the mere shift from the term management regime towards soft-skilled, relational, often non-verbal ties to the land, hidden behind terms like care or concern, can be helpful in our understanding of land protection.

In contrast to the earlier studies on Carpathian landscape management (Valachian colonization and mountain shepherding—Kopczyńska-Jaworska, 1959, 1969; Podolák, 1982; livestock farming—Podolák, 1962; grassland management practices and typology of pastures—Podolák, 1965, 2008; parallels between the Carpathian and Alpine pastoral practices—Dunare, 1968; agro-pastoralism—Vincze, 1980), I will not restrict my inquiry to so-called 'traditional rural culture' and 'traditional management techniques.' Instead, drawing on more recent anthropological work in the area and so-called post-agrarian economic models (Buzalka, 2018), I aim to explore specific types of ecological knowledge.

Such local ecological knowledge cannot be misinterpreted as anthropocentric. It emerges from multispecies interactions and entanglements—including humans, domestic animals, wild animals, plants, and meadows. Therefore, anthropological in-depth sensory ethnography must be an essential part of such explorations. As a result, protective measures and large-scale policy assessments must account for in-depth cultural data on ecological knowledge (Bürge et al., 2017; Janišová et al., 2021). Local ecological knowledge can be key to restoring and enhancing biodiversity on grassland-dominated landscapes (Cousins et al., 2009).

In my study, I aim to explore human–non-human interactions on Carpathian grasslands as integral components of local, intimate knowledge of the environment. To gather location-specific information about diversity-supporting land use, the project focuses on the non-verbal, sensory and deeply intimate communication of the various entities present on the land. The holistic approach is not limited to interactions with local farmers. To obtain ground-truth samples describing relationships on the grassland and with grassland, I consider more-than-human relationships equally important.

Both I. non-verbal and II. verbal aspects of human–non-human communication on the grasslands are considered.

I. In this section, I focus on what humans and non-humans have in common: a shared capacity for non-verbal (i.e. through posture, gesture, scent, sound, etc.) communication. In-depth observational exploration will be used as the primary method. In theoretical literature, it is also described as intensive, long-term immersive 'being there', leading to experiential, embodied knowledge, termed 'knowing from the inside' (Ingold, 2013). I aim to examine interspecies communication through sensory collaboration, including sound, animal tracking, and film recording. I seek to understand how animals, plants, and humans engage their senses to establish shared meaning and how diverse species contribute to the formation of certain habits and practices. Understanding embodiment, immersion, and experiential apprenticing allows me to further analyze the culturally specific idea of animal/plant knowledge transmission. I shall also investigate different ways the species relate to the grassland and how their specific use of the landscape enables or hinders interspecies relationships. The Carpathian grasslands offer numerous historical and ethnographic records of local practices engaging more-than-human perspectives, requiring systematic and long-term ethnographic fieldwork.

These non-verbal experiences are recorded in HD video, documenting the process of apprenticing with the farmers, including the sensory worlds of other-than-humans as seen and heard by the apprentice. In this context, I draw inspiration from numerous films on pastoralism, particularly two that stand out as especially insightful:

In their 2009 film "Sweetgrass", Lucien Castaing-Taylor and Ilisa Barbash document the droving of sheep across Montana's mountain ranges. The film does not spotlight individual actors or animals; rather, it captures the collective movement of horses and humans through the landscape, enveloped by the continuous flow of sheep. Instead of relying on dialogue, the film emphasizes the bodily experience of the journey, giving careful attention to the soundscapes and sensory qualities that define human interaction with the environment.

Another example of filmic, sensory, and multispecies entanglement is "The Last Transhumance" by Dragoş Lumpan (2022). Spanning over fifteen years and covering six countries—Italy, Albania, Greece, Turkey, Wales, and Romania—the author chronicles the fading of a millennia-old tradition through photography and film. This project focuses on shepherds who uphold the ancient practice of transhumance, migrating seasonally with their livestock over vast distances between mountain and lowland pastures in search of sustenance and safety. The film mirrors this journey, alternating between long, patient observations and time-lapse sequences, capturing the work through classic folk imagery, still portraits, and shepherds' monologues. Unlike "Sweetgrass", this film is more verbal, seeking to articulate the cultural rationale behind preserving a practice threatened by abandonment as more families

move away from it. While the observational approach accords equal attention to nonhuman life, the spoken elements restore the human voice, emphasizing that human identity and agency are deeply rooted in ongoing relationships with other species, forming what Tsing (2015, pp. 22–24) calls ‘assemblages.’

In section II of my research, I employ sensory methods typically used in laboratory settings and adapt them to everyday contexts. I explore how people on the grasslands verbally express their sensory knowledge. In this strand of inquiry, I recognize the human capacity to speak and express abstract thought to gain a linguistic understanding of what learnable (intergenerational) verbal communicative acts can be (and have been) observed in grassland settings. My focus is on vision and olfaction. The Free Naming Task (Majid & Burenhult, 2014), Exemplar Listing Task (Wnuk & Majid, 2012), and Offline Rating Task of Smell Terms (Wnuk & Majid, 2014) are used to explore how, if at all, farmers, compared to non-farmers, identify and elicit smell- and vision-related terms. Using Simpson's Diversity Index, I calculate consistency between these two groups of speakers.

I recognize that the differences between farmers and non-farmers may now be quite nuanced. This is largely due to the disruptions caused by socialist regimes in farming, which led to a rupture in the intergenerational transmission of farming jobs and the emergence of the ‘farming worker’—a partially urbanized villager who may have grown up among farmers but, in adulthood, worked in a factory (and possibly even moved to a town), and returned to part-time or full-time farming only in the 1990s or later, often after retiring from factory work. In contrast, the younger generation, born after 1989, was not raised in the farming context but began farming in adulthood, alongside another profession. These social contexts are crucial for critically evaluating what the tests will reveal, as they are designed for nuanced differences in the way they verify the numerous dimensions of olfactory perception (pleasantness, edibility, familiarity, dangerousness, cosmetic value, and intensity) (Wnuk & Majid, 2014). The sensory aspects of farming will be further explored through lengthy observations and ‘on the go’ interviews during walks with farmers. For example, in hay evaluation, farmers use touch, smell, and sight to assess the quality and key characteristics of the hay, deciding the amount and timing of its distribution to cattle for feeding.

All the aforementioned methods will provide in-depth data that would otherwise be unattainable. Local knowledge, studied through immersive sensory approaches, allows for revealing cross-situational and intra-cultural variations in farming practices and their impact on grassland well-being. This way, it is possible to identify both the drivers of grassland biodiversity and the social constraints that may hinder sustainable grassland farming practices. In my research, by identifying and mapping conviviality patterns, sensory acts and regimes inscribed to the place, and local models of grassland care and knowledge, I aim to deliver evidence-based guidelines to support the ecological restoration, conservation, and management of grasslands.

Concluding Remarks on Further Developments

As the field of environmental research evolves, there is a growing recognition of the need to incorporate sensory methodologies into its research framework. The integration of sensory approaches will likely become increasingly central to the study of human–non-human–environment relationships. This is because the senses mediate human experience, offering a profound connection to the world around us.

Sensory methodologies offer a valuable tool for understanding how humans perceive and interact with their environments. They allow us to capture the full range of human–environment interactions, revealing the deep cultural meanings and practices that shape how people perceive, engage with, and impact their surroundings. For example, the way a community smells, sounds, or feels can provide crucial insights into how that community experiences and interprets its surroundings. The sensory experiences of a place—such as the smell of earth after rain, the sound of wind through trees, or the texture of soil—are deeply embedded in cultural practices and beliefs. These sensory experiences not only shape individual and collective identities but also influence how people relate to their environment and make decisions about its use and conservation.

This sensory engagement is not only inevitable but essential for a holistic understanding of how humans interact with and perceive their environments. By exploring the full spectrum of human senses—sight, hearing, taste, touch, and smell—and examining their orchestration and order within particular cultural contexts, scholars can gain deeper insights into how different cultures understand, engage with, and transform their environments.

Understanding pastoralism, whether in the Siberian tundra or the Carpathian meadows, through the framework of multispecies anthropology and sensory relationships reveals a world where humans, animals, and landscapes are deeply interconnected. The sensory interactions between herders and animals demonstrate embodied, intuitive, and relational knowledge, challenging the dominance of abstract, human-centered reasoning. By recognizing the agency of non-humans and the active role of the landscape, we gain a more nuanced understanding of pastoralism as a multispecies practice that thrives within a more-than-human world.

The proposed concept of 'eco-sensorism' encourages us to rethink the natural scientists' view of pastoralism as merely landscape (mostly meadow) management, approaches and measures to increase biodiversity. By recognizing the importance of sensory knowledge—be it as delicate as it is—we can appreciate the complexity of the relationships that sustain pastoralist societies and reflect on the ecological interactions between species anew. This way, we can better combine this intimate knowledge with the latest biotechnologies, digital technologies, and AI to create policies promoting ecosystem resilience. This position has the potential to reform the whole strand of knowledge on biodiversity enhancement.

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