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Phenomenology of Everyday Climate: An Ethnographic Approach to Metaphor, Affect, and the Nonhuman

Introduction

In Ian McEwan's novel *Solar*, Michael Beard, the director of the UK's National Center for Renewable Energy, is about to deliver a public lecture on the environmental crisis. As he prepares to give his speech, Beard suddenly feels sick: "he felt an oily nausea at something monstrous and rotten from the sea stranded on the tidal mudflats of a stagnant estuary, decaying gaseously in his gut and welling up, contaminating his breath, his words, and suddenly his thoughts. 'The planet,' he said, surprising himself, 'is sick'" (170–71). The passage is so powerful because it builds on a relatively common set of metaphors for climate change—the planet as a patient, climate change as illness (see Nerlich and Jaspal 141). McEwan revitalizes these metaphors through the creativity that is commonly associated with literary language. Guy Cook calls this literary strategy "schema refreshment": the metaphorical sickness of the planet is literalized by being inoculated into Beard's body, where it gives rise to a highly elaborate metaphorical scenario. The character's nausea is "oily" (a metaphor that recalls the oil at the root of the climate crisis), his body opens up like a natural

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landscape in which a sea monster is decaying—an image that tinges not only Beard’s affective experience of disgust and physical sickness but also his thoughts. A conventional metaphor—the planet is sick—is reactivated, “refreshed,” through McEwan’s metaphorical language. In the process, Beard’s bodily feelings are brought to the fore, and with them the role that affective experience plays in confronting today’s climate crisis.

This article argues that metaphorical language and affective responses are crucial to the narrative negotiation of the human-nonhuman divide in the face of climate change, in nonfictional discourse as well as in fiction like McEwan’s. We detail this idea by examining interviews containing stories of personal encounters with the nonhuman world (with a specific but not exclusive focus on the climate).¹ This is what we mean by “phenomenology of everyday climate,” a phrase that riffs on the title of a well-known contribution to qualitative psychology: *The Phenomenology of Everyday Life*, by Howard Pollio, Tracy Henley, and Craig Thompson. This book offers thick descriptions of experiences such as loneliness, romantic love, separation, and grief. Methodologically, the discussion is based on semi-structured interviews, an approach that the authors embrace because of its dialogic openness to experience and because of the broad range of intersubjective variation it can reveal. In this kind of ethnographic work, the value of an interview lies in the depth and particularity with which it engages with a participant’s worldview, not in the universal validity of the findings.

We adopted a similar philosophy in designing and conducting the interviews we examine in this article, which grows out of a research project titled “Narrating the Mesh” and funded by the European Research Council. “Narrating the Mesh” explores narrative strategies for channeling the connection between human societies and nonhuman realities. While grounded in narrative theory as it is practiced in literature departments, the project involves ethnographic work as a core component. One of the authors (Susannah Crockford), who has a background in anthropology and religious studies, conducted 35 interviews with participants mostly based in the UK and USA and belonging to three target groups: climate scientists, environmentalists, and climate change deniers. She asked the same questions in each interview, aiming to elicit stories—for instance—about extreme weather events, encounters with nonhuman animals, and shifts in weather patterns experienced by the participants (a full list of questions is included in the Appendix). She then used follow-up questions to invite the participants to elaborate on and specify their answers.

We selected these target groups because of their key position in contemporary debates on the climate crisis. “Climate scientists” (CS in

Table 1. An overview of the nine participants’ basic demographic details

	Climate scientists			Environmentalists			Climate change deniers		
	CS1	CS4	CS5	EN1	EN5	EN8	CD1	CD7	CD9
Gender	Male	Female	Male	Male	Male	Female	Male	Male	Male
Age	55	64	35	40	65	64	68	62	67
Nationality	UK	UK	UK	UK	UK	USA	UK	USA	USA

short) are scientists in a number of fields (oceanography, geology, meteorology, etc.) whose work bears on questions of climate change; environmentalists (EN) are individuals “who confess a concern for the nonhuman” (Evernden ix), whether this concern leads to political engagement and activism or not; climate change deniers (CD) voice doubt (which can be more or less radical) about the existence of climate change and/or its anthropic causes.² These categories can, of course, overlap: for instance, a scientist could affiliate with the environmental movement, or (much more rarely) express skepticism over the anthropogenic nature of climate change. In this article we decided to report on a sample of nine interviews (three for each target group) where overlaps of this kind are not pronounced. In line with the ethnographic goals of our study, these categories were not made explicit during the interviews or in our initial contact with the participants: the interviewees were encouraged to comment on the climate and a range of other environmental issues in personal terms, and not on behalf of a particular group. We selected the nine interviews discussed in this article based on their representativeness and the broad range of perspectives they express, but it is important to emphasize that our work is explorative and does not make claims to generalizability. Geographically, two of the deniers were based in the USA (Missouri and Louisiana), one in England; the three scientists work at British universities; two of the environmentalists are British (with one of them currently living in Sweden), the third is an American who resides in Mexico. We have included basic demographic details about the nine participants in [Table 1](#).

A number of stories emerged spontaneously in the dialogue between the participants and the interviewer. We define “story” broadly as an account of something having happened to the participants on a particular occasion. The article thus stages an interdisciplinary encounter between the social sciences and narrative theory in an effort to study the phenomenology of everyday climate in three key target

groups. We are working to extend the field of ecocriticism through a focus on formal and narrative strategies for integrating the nonhuman in narrative, along the lines of Erin James's "econarratology." Studying the form of nonliterary and nonfictional stories, such as those elicited through our interviews, brings into view rich overlaps among qualitative social science research, narrative theory, and ecocriticism. The next section examines the two foci of our analysis of the interviews—metaphor and affect—as well as the relevance of those concepts to human-nonhuman interactions. As the conclusion will detail, our discussion suggests that ecocriticism should pay closer attention to nonfictional narrative and how its metaphors and affective patterns shape people's understanding of the climate crisis. There is a great deal to learn from the cross-fertilization of literary analysis and ethnographic methods, and our article is only meant to open a conversation on those issues—building on but also differing in important ways from the empirical ecocriticism recently launched by Matthew Schneider-Mayerson, Alexa Weik von Mossner, and W. P. Malecki in the pages of this journal.

Metaphor, Affect, and the Nonhuman

As a formal device, metaphor has received a great deal of attention in literary and rhetorical analysis (see Semino and Steen; Caracciolo, "Creative Metaphor"). While metaphors are pervasive in all linguistic contexts, literary texts contain an unusually high concentration of creative—that is, striking and unconventional—metaphors and similes (see Goatly 333–40). Alongside literary scholarship on metaphor, work in psychology and cognitive linguistics has made a compelling case for metaphor's cognitive significance, in the wake of George Lakoff and Mark Johnson's *Metaphors We Live By*. In the terminology of cognitive linguistics, metaphor is based on a cognitive process of "cross-domain mapping": when, for instance, climate change is presented as an illness afflicting our planet, it creates a conceptual association between vastly different semantic domains—the Earth's climate and disease in living beings. The earth is not alive and thus cannot be "ill" in a literal way; yet the "sick planet" metaphor sheds light on climate change and its potentially deadly impact on the Earth's ecosystems. This kind of metaphor is more than rhetorical embellishment; it is a cognitive tool that allows language users to think about reality in ways that would not be available in purely literal discourse. Metaphor discloses new perspectives on the world and is thus central to knowledge production across a wide range of disciplines (see Ortony).

Certainly, metaphorical language abounds in discussions of climate change: in order to understand climate change and imagine its consequences, we need effective and emotionally impactful metaphors. As has been often remarked, climate change confronts us with spatio-temporal scales beyond our individual lives and experiences (see, e.g., Clark): the accumulation of quotidian actions—driving a car to work, taking a flight, throwing away a plastic bag—turns out to have long-term consequences for our planet. But these consequences, such as an increase in atmospheric carbon dioxide or average temperatures, tend to be invisible and abstract: typically, they cannot be experienced directly (although, of course, their catastrophic consequences are increasingly affecting people's experience). As a cognitive and linguistic strategy, metaphor seems well positioned to do the work of translating large-scale phenomena into human-scale entities and events, bridging the abstract with the embodied and familiar.³ This is precisely what the "sick planet" metaphor achieves by mapping the experience of illness onto something as intangible as our planet's ecosystems. Metaphors, of course, can become conventional and lose their emotional value in the process: think about "greenhouse effect," for instance, which hardly registers as a metaphor. Literary language, with its bias towards creative metaphors, can revitalize "dead" metaphors, as we have seen above, turning them into vivid affective scenarios: Beard's experience of nausea blends bodily feelings and concern over the fate of the planet, making sure that the emotional clout of the "sick planet" metaphor is not lost on the readers of *Solar*.

Yet metaphor carries significant risks. Linguist David Ritchie has studied the metaphors associated with climate change in the discourse of both environmentalists and climate change deniers. Ritchie offers an analysis of key speeches by James Hansen, the astrophysicist who played a central role in raising awareness of global warming in the 1980s, former US President Barack Obama, as well as Republican Senator Jim Inhofe. In a 2008 speech, for instance, Hansen used metaphors such as "time bomb" and "perfect storm" for the current state of the environmental crisis; in making a case for his environmental policies, Obama accused climate change deniers of obtuseness by comparing them to the "Flat Earth Society"; in contrast, Inhofe dismissed environmentalist discourse as "fear-mongering" and "climate porn" (see Ritchie 212). Ritchie argues that these metaphorical expressions, because of their rhetorical and largely hyperbolic nature, have the effect of polarizing the conversation on climate issues: "the dramatic metaphorical stories used by advocates on each side of the debate . . . are likely to be ignored, discredited, and dismissed by those who are convinced of the opposite position" (214). In this way, Ritchie

concludes, bloated metaphorical language effectively undercuts the possibility of meaningful dialogue between climate change deniers, scientists, and activists. Conceivably, the extended “sick planet” scenario in McEwan’s novel doesn’t run into the same problem: it is dramatic and emotionally impactful, but because it doesn’t serve a clear ideological function in the context of the novel it is more likely to provoke than to hinder discussion. All in all, metaphor has enormous potential when it comes to channeling the climate crisis, but its effects depend on broader contextual and ideological factors. Analyzing metaphor usage in speech by scientists, environmentalists, and climate change deniers brings to the fore a number of suggestive interactions between metaphor and individual worldviews.

Affective responses and attitudes towards the climate are an equally promising area of investigation. Many of the questions we asked about being immersed in nature, extreme weather events, and humanity’s overall impact on the climate have a clear affective significance. We don’t draw a clear-cut distinction between affect and emotion here, unlike affect theorists à la Brian Massumi. For our purposes, emotional attitudes have affective qualities that are experienced in the body; conversely, affects underlie emotional experience (see Leys). As recent work in ecocriticism demonstrates (Weik von Mossner; Bladow and Ladino), a wide range of affects structure our engagement with and imagination of the nonhuman world. Biologist Edward O. Wilson discusses under the heading of “biophilia” a basic form of emotional affiliation with nature and its diversity. Biophilia can include negative feelings such as fear, disgust, and a sense of being threatened by nature.⁴ Other responses are more culturally nuanced: ecocriticism has interrogated—and critiqued—the idealized harmony with nature, often shot through with nostalgia, which is the focus of the “pastoral” genre (Buell). The sublime is another complex feeling that involves wonder and fear over the scale of natural processes. Christopher Hitt explores the sublime as an emotion that can easily tip over into anthropocentric appropriation of the natural world, especially in Immanuel Kant’s version. But for Hitt the sublime, when understood ecologically, “offers a unique opportunity for the realization of a new, more responsible perspective on our relationship with the natural environment” (605). Ecological grief has also attracted attention lately (see Cunsolo and Landman): it combines biophilia and a deep sense of loss when faced with rapid species extinction or dramatic changes in ecosystems.

This broad gamut of affective engagements with the natural world is entangled at various levels with culture. Catastrophic narratives in fiction and nonfiction, for instance, feed into the imagination of natural disaster and contribute to its ideological stakes. Cultural

representations of biodiversity in nature writing or documentaries modulate and cultivate our biophilic impulses. The sublime is a literary feeling through and through, its history being closely bound up with the emergence of Romanticism at the turn of the eighteenth century (see again Hitt). Thus, even when literary or other cultural sources are not explicitly referenced by our interviewees, their affective stance towards the nonhuman reflects a complex interaction of cultural and psychological factors. This interaction resonates strongly with a “literary” analysis—that is, an analysis sensitive to how language and style convey emotional qualities that are in dialogue with culture but also express each participant’s unique experience.

In a narrative context, metaphors and affective attitudes become intertwined at multiple levels. This is hardly surprising, given the inherently affective nature of narrative form and the linguistic pervasiveness of metaphorical expressions (including both similes and metaphors proper). Metaphors carry affective meanings, as we have seen, and—conversely—an affective stance towards the natural world manifests itself in the choice of particular metaphors. Ultimately, both metaphor and affective responses are ways of negotiating our position vis-à-vis the nonhuman and the current ecological crisis. Our interviews afford insight into these negotiations and how they interact with each participant’s cultural and personal background in oral storytelling.

Metaphor Usage

For the purposes of the metaphor analysis, we proceeded to identify all metaphorical expressions in the sample of nine interviews (three per target group, as discussed above). This work was carried out independently by one of the authors (Marco Caracciolo) and a research assistant (Santi Luca Famà); whenever doubts arose regarding metaphor identification, we adopted the MIP method outlined by the Pragglejaz Group. The results were then compared to address potential blind spots in individual metaphor identification. Table 2 presents the numerical results, distinguishing between metaphor usage in general and creative metaphors. We coded as “creative” unconventional metaphors and similes that are not in widespread use in the linguistic system and were employed deliberately by the participants (of course, the bar for creativity was much lower than in the context of a literary novel such as McEwan’s *Solar*). For instance, the “climate wobbles around” (discussed below) was coded as a creative metaphor, but “underlying trend” (strictly speaking, a spatial metaphor) was not. After this initial quantitative comparison, we carried out a qualitative analysis.⁵

Table 2. Patterns of metaphor usage in the interviews

	Climate scientists			Environmentalists			Climate change deniers		
	CS1	CS4	CS5	EN1	EN5	EN8	CD1	CD7	CD9
Word count	8,950	5,458	6,966	7,166	8,821	3,880	5,151	8,464	4,273
Metaphor count	54	29	59	75	102	42	31	57	28
Creative metaphor count	8	5	3	9	3	5	2	1	2
Metaphor usage per 100 words	0.60	0.53	0.85	1.05	1.16	1.08	0.60	0.67	0.66
Creative metaphors per 100 words	0.09	0.09	0.04	0.13	0.03	0.13	0.04	0.01	0.05
Metaphor usage per category		0.66			1.10			0.64	
Creative metaphor usage per category		0.07			0.10			0.03	

The frequency and creativity of metaphorical language vary significantly across the interviews. Of the three target groups, environmentalists used the highest number of metaphors, including creative metaphors (relative frequency 0.10). The scientists' metaphor usage is roughly aligned with the climate change deniers, but the former employed twice as many creative metaphors (0.07 versus 0.03).

The scientists' language shows the highest degree of consistency in the semantic profile of the metaphors: most of them have a pronounced kinetic quality, which appears to be a feature of the scientists' sociolect when communicating research to a nonexpert audience. CS1, who specializes in the management of marine ecosystems, uses a number of technical metaphors implying motion or force dynamics: for example, he talks about "*upstream*" and "*downstream*" production for different stages of oil extraction and processing; he refers to "*coastal squeeze*" as a result of sea level rise. Further, he distinguishes between more static "*balance*" and the "*dynamic equilibrium*" of complex systems (such as humanity's entanglement with the climate), adding that "*you start perturbing a complex system and you're straying into risky territory*" (one of the rare instances in which motion is attributed to an implied human agent—"you"—and not to impersonal natural forces). CS1's kinetic language also informs his outlook on the ecological crisis. He raises the point that, contrary to the rhetoric of "*saving the planet*," climate change mainly puts the survival of humankind on the line, not the future of our planet's ecosystems: "*if we did screw up the atmosphere and humans devolved back down to a few million, perhaps, you know, that would be a terrible loss. The ecosystems would bounce back.*" The planet, CS1 reiterates, "*will bounce along nicely without us.*" This reframing of the ecological crisis makes use of kinetic metaphors to model humanity's fragility vis-à-vis a more-than-human world seen as inherently resilient.

CS4, a professor of atmospheric physics, uses twice the "*wiggle*" metaphor to describe temporary deviations from "*an upward trend*" in global temperatures—the kind of seasonal variation that is typically picked up by climate change deniers to argue that climate change is an invention. She also characterizes predictions about the price of renewable energy as "*moving forward in wedges.*" Likewise, CS4 explains that the "*climate wobbles around*" and that the vagaries of the English weather "*sit on top of an underlying upward trend* which is due to global warming." These highly dynamic metaphors suggest a conceptual mapping of the type "*climate is hidden*" (cf. "*underlying*"), "*weather is visible.*" This use of spatial metaphors is clearly influenced by data visualization in graphs, where climatological trends are plotted in geometric space. At the same time, CS4's metaphors seek to counter the

abstraction involved in the representation of scientific data. Via CS4's kinetic language, climate models become more vivid and concrete, their interpretation being grounded in embodied scenarios of interaction with the world.

CS5, a scientist specializing in ocean circulation, remarks that climate models are often too conservative and tend to underestimate the impact of the climate on oceanic currents: "I think models tend to be overly *stable*, that's the—from an ocean's *point of view*, the models, because you need to *spin them up*, you need to *get them running* and then you do an experiment to them." "*Spinning up*" a model means taking into account a higher number of variables, so as to make the model more sophisticated and realistic; but this operation comes at the cost of stability, in the same way as CS1 had separated dynamic equilibrium from a more linear concept of balance. "An ocean's *point of view*" is an overt personification of the ocean that remains an outlier in the scientists' speech, where the kinetic qualities ascribed to the natural world do *not* typically carry agential implications. Much more in line with the highly kinetic language discussed so far is how CS5 describes his attitude towards climate change mitigation: "I don't have *high* hopes. I think it [the crisis] could be solved, you know, I don't know, I can *flip back and forwards*." The image that emerges from these metaphorical choices in the scientists' language is that of a world in flux, where balance is precarious in both physical and psychological terms: the "*wiggling*" and "*wobbling*" of the climate and its meteorological manifestations reflect, and amplify, the internal "*flipping back and forwards*" of hope and pessimism as humanity teeters on the brink of ecological catastrophe.

The environmentalists' language is far more diverse with respect to both the semantic fields that are implicated in the metaphors and their overall conventionality. EN1, a writer and journalist, deploys a large number of creative metaphors (relative frequency 0.13), for instance, in describing his feelings towards the Swedish landscape after moving to Scandinavia from his native England. EN1's account centers on a sense of estrangement from nature: the Swedish landscape was initially "kind of *out of focus*" for him, but gradually he began "*tuning in to*" it. EN1 explains how a new understanding of the landscape was channeled by a geological feature, known as an "esker," that put him in touch with geological history. This esker is, in EN1's words, "the *ghost* of a subglacial river, it's the detritus of a massive river *running* under a mile of ice." But the "ghost" metaphor turns, in the space of a few lines, into an alternative metaphorical conceptualization: "it's a fairly awesome thing to think about that you're walking on this oh a *skeleton* of a river or whatever you want to call it." "*Skeleton*" is far more concrete

than “ghost,” while conveying similar—and potentially disturbing—connotations as a physical trace of death. In both cases, the deep temporality of geological history appears to haunt the landscape, and it is this connection that creates an imaginative bridge between the participant and the Swedish scenery. At the end of the passage, the same geological feature is described in geometric terms as “this *line* of this structure in the landscape,” reflecting a higher degree of abstraction as EN1 has fully acclimatized to his surroundings. We see in this passage a striking instance of how metaphor can perform, through ad-hoc variations, a work of imaginative adjustment to the natural world. This, of course, requires both skill in observing the landscape and expertise in metaphor usage.

The language of EN5 is characterized by the high frequency of metaphors in general, but a very low frequency of creative metaphors compared to both EN1 and EN8 (0.03 vs. 0.13 per 100 words). EN5 is a Protestant minister who is also involved in academic research on the “economics of ecosystem services and natural *capital*,” as he puts it. EN5 tends to reify and—to some degree—personify nature as a problematic factor in an economic system marked by anthropocentric conceptions of agency: “nature is not actually recognized as a *player* in the market, and for obvious reasons, because it isn’t—you know, who will be standing for nature?” Interestingly, for a Christian minister, his language leaves little room for a spiritual relationship with nature. Instead, EN5 favors a secularized, economic understanding of reciprocity in humanity’s use of natural resources, with a double personification: “It’s not just that *nature does things for us*, but we also have to *do things for nature*.” This understanding of human–nonhuman relations correlates with a factual language where metaphors are inconspicuous and largely conventional—unlike the elaborate metaphorical patterning of EN1’s discourse.

The language of EN8—a freelance corporate consultant who is also a neo-shamanic practitioner—provides a striking contrast to EN5 through the high frequency of creative metaphors and the overt spiritualization of nature. In describing a childhood experience of being in a forest, EN8 speaks of “*communing* with, you know, *Grandmother, Grandfather Pines*,” where kinship is metaphorically extended to the natural world. Likewise, EN8 returns regularly to the idea of a metaphorical “*connection*” between humans and nature—a familiar metaphor in the environmentalist movement that is thought to be the basis for an ethical engagement with the nonhuman: “when you’re *connected* you don’t have the same kind of fear of things that makes people wanna kill them.” Other metaphors are more vivid and express unique encounters with the nonhuman in emotional situations: “*sloshing*

through the fallen leaves on the way home from school" in a childhood memory colored by nostalgia, a large snake "*wrapped* its body around my arm," "I rounded a corner and came *face to face* with a mountain lion," and so on. These metaphors convey the raw intensity of being in the natural world, but they don't have the consistency of the scientists' kinetic language. Thus, the environmentalists' metaphor usage appears highly diversified and more subject to individual differences than the scientists'.

The discourse of climate change deniers is fairly literal-minded; metaphors are relatively infrequent, highly conventional, and usually involve concrete source and target domains. Mostly, the colorful metaphors of anti-environmentalist politicians such as Inhofe (as discussed by Ritchie) do not trickle down into these deniers' language. CD1, for instance, explains that extreme weather has "been *hijacked* by people who want to talk about climate change," with "*hijacking*" (repeated twice) being the only metaphor that truly stands out in the interview. Other widespread metaphors—"clouds *hanging over Middlesbrough*," "*pea-souper* fogs"—capture the day-to-day experience of the weather in a way that resists any broader conceptualization of large-scale climate patterns.

CD7, who lives in an area at risk from flooding in coastal Louisiana, also favors concrete metaphors that build on the world of everyday life. Talking about coastal erosion, CD7 remarks that "they're *pumping* millions and millions of dollars every year to try to *save* an island [Grand Isle] that's just gonna disappear sooner or later." An eagle's nest "*looks like a hot tub* it's so big." Equally concrete is a personification of the Atchafalaya River, which is "*building land like crazy*." Humans, he adds, are "*taking* nature . . . and *creating* it into an environment," where natural resources are presented as an object that can be physically shaped and manipulated. In a similar vein, CD7 uses multiple times words related to "*support*," a concrete metaphor grounded in political language, to articulate his views on energy: "I'm an energy *supporter* . . . I like *support* electric vehicles . . . I'm *supportive* of solar, I'm a big *supporter* . . . So back to energy, I *support* all of it, actually." Energy—an abstract concept—is thus turned into something that can be physically held up and politically endorsed.

CD9, a retired truck driver, also deploys a number of concrete metaphors: his employer "was *skimming* a hundred [dollars] *off the top* [of his pay]," "salt would *eat your car up*," etc. When asked about how human activity has affected the natural environment, CD9 denies any impact but singles out California as a place where "the smog, and the stuff" (i.e., the pollution) is "*pocketed*," an idea that emerges again later in the interview: "it's *pocket* there, and it's *trapped*, it can't *get away*, but

out here [in Missouri], we really don't affect it [the planet]." Two personifying metaphors stand out. Talking about a particularly hot summer in Missouri, CD9 remarks that "summer's been a *bear*, a *bear*." CD9 also refers several times to "*Mother Nature*" and explains: "*Mother Nature's gonna dictate* whatever, we've got no control over it [the climate], none whatsoever, I—and that's what aggravates me, you know, everybody keeps telling you that we're affecting it but we're not, we can't affect it, it's just too—there's too much *Mother Nature*." With a metaphor that echoes his experiences as a truck driver, CD9 adds: "I don't think we've got any control, I think we're just *along for the ride*"—another quotidian metaphor that translates a much more abstract concept of human–nonhuman relations. The scalar difference between natural processes and human activity is thus used to deny the possibility of anthropic impact on the environment. This is the only reference to more-than-human space and time in the climate change deniers' interviews, but it is of course a highly stereotyped image of human insignificance vis-à-vis a familiar "*Mother Nature*." The concreteness of the deniers' language resembles in some respects the scientists' kinetic metaphors, but while the latter employ embodied language to gain purchase on the intangible fluctuations of the climate, the deniers appear stuck in a human-scale worldview where things are deterministically shaped by other things, with very little room for abstraction or creativity (linguistic or otherwise). This finding could simply mirror the deniers' level of education, which was in this sample of nine interviews much lower than the scientists' or the environmentalists'.⁶ The link between climate change denial, education, and linguistic usage warrants further investigation, but does not invalidate the broader point our analysis is raising: namely, that metaphor is a crucial site for encountering the nonhuman, and interventions aimed at creating awareness of human–nonhuman connection should seek to foster and complexify metaphorical language.

Affective Patterns

We coded the transcripts for the affective responses towards the nonhuman that were expressed or strongly implied by the interviewees' words. The transcripts were first annotated independently by three of the authors (Marco Caracciolo, Shannon Lambert, and Gry Ulstein) and then discussed with Susannah Crockford, in order to work out disagreements and achieve intersubjective corroboration. This operation resulted in the affective "palette" displayed in Table 3, which also includes examples and (where necessary) our working definition of these affective responses and attitudes. Our goal was not to

Table 3. The codes used to study affective responses and attitudes in the interviews

Affective code	Examples and notes
Ambivalence	Used for mixed or complex responses to nature (for instance, “I’m . . . fascinated and horrified by nuclear weapons and nuclear power,” EN1).
Anger	“I’m very critical about the language of the environmental movement, having been part of it, I think a lot of it’s really quite screwed up” (EN1).
Biophilia	Conveys a basic emotional attachment to nature and a fascination with the forms of the natural world (e.g., “Arctic sea ice . . . I was connected with—it really—I felt part of that landscape and that world,” CS5).
Estrangement	Expresses a sense of alienation from nature (“the landscape was kind of out of focus for me,” EN1).
Excitement	“[You] could see the thunderstorms and the lightning and it’s so exciting” (CS4).
Grief	“[When] I was in the kayak looking at it [the sea ice] it’s like, this is really sad because I’m looking at it, this is one of the most beautiful things, best moments of my life, it was so tranquil and amazing, and it’s gonna go” (CS5).
Guilt	“The one that immediately springs to mind is the awful, awful time when I ran over a cat. . . . oh dear, now I’m feeling guilty” (CS4).
Humor	“I guess I was just on a St Francis [laugh] trip so I was having my mystical experience with Brother Ladybird [laugh]” (EN1).
Nostalgia	“[The seasons were] very distinct, you know the fall was remembering sloshing through the fallen leaves on the way home from school and looking at all the beautiful singular leaf patterns” (EN8).
Optimism	“[You] can be optimistic in a sort of rather unspecific sort of a way. . . . I hope—I choose to think that over-all—it’s for the good. But that may be naïve” (CS4).
Pastoral	Conveying a sense of harmony and balance in human-nonhuman relations: “I didn’t feel insignificant [in nature]. . . . I have a sort of, I don’t know how to say, it was proper to be there” (EN5).

Continued

Table 3. *Continued*

Affective code	Examples and notes
Pessimism	“I think it’s too late [to stop climate change]. I think we’re probably — we’re probably already there. I think I’m quite pessimistic” (CS5).
Sense of danger	“[With] diving there’s an awful lot that goes into you know recognizing when you’re in a situation that could suddenly slide and go into an incident” (CS1).
Sublime	Defined here as being confronted with vastness in either temporal or spatial terms (“I’ve really been struck about the enormity of time, I think probably when you look up at the stars,” CS5).
Vulnerability	Distinct from “sense of risk and danger” because of the greater emphasis on the <i>personal</i> stakes than on an external threat (“[discussing possible encounters with sharks] there’s always an awareness that yeah it’s like have I entered the food chain?,” CS1).

Table 4. Affective codes by participant

Codes	CS1	CS4	CS5	EN1	EN5	EN8	CD1	CD7	CD9
<i>Ambivalence</i>	X			X	X		X		
<i>Anger</i>				X		X	X		
<i>Biophilia</i>	X	X	X	X	X	X	X	X	
<i>Estrangement</i>				X					
<i>Excitement</i>	X	X	X				X		
<i>Grief</i>			X			X			
<i>Guilt</i>		X			X				
<i>Humor</i>		X		X		X		X	X
<i>Nostalgia</i>	X			X		X		X	
<i>Optimism</i>		X					X		
<i>Pastoral</i>					X				
<i>Pessimism</i>			X	X				X	
<i>Sense of danger</i>	X	X	X			X	X	X	
<i>Sublime</i>			X	X	X	X			X
<i>Vulnerability</i>	X			X		X	X		X
Code count per subject	6	6	6	9	5	8	7	5	3
Average code count per category		6			7.33			5	

offer a strict typology of emotional phenomena (for instance, by drawing distinctions between affects, emotions, and emotional attitudes), but rather to chart affective experience as it emerges from the participants’ language. Our identification of emotional patterns was thus shaped by the interviews themselves, in a bottom-up manner, and not by a particular philosophical agenda such as one may find in, for example, affect theory. [Tables 4](#) and [5](#) present the quantitative results ordered by participants and affective codes, respectively.

We will start by commenting on large-scale affective patterns before exploring a few passages in detail. One interview (CD9) stands out for the low number of affective cues it contains (3). At the opposite end of the spectrum, the interviews with EN1 and EN8 contained the largest number of affective cues (9 and 8, respectively). Thus, we can say that these environmentalists’ affective palette was broader (7.33 average code count) than both the scientists’ (6) and the deniers’ (5). The higher frequency of ambivalent feelings in the environmentalists confirms the idea of a more complex relationship with the nonhuman world than we find in the interviews with both the scientists and the deniers.

Table 5. Code count by category

Code	Count total	Count CS	Count EN	Count CD
Biophilia	8	3	3	2
Sense of danger	6	3	1	2
Humor	5	1	2	2
Sublime	5	1	3	1
Vulnerability	5	1	2	2
Ambivalence	4	1	2	1
Excitement	4	3	0	1
Nostalgia	4	1	2	1
Anger	3	0	2	1
Pessimism	3	1	1	1
Grief	2	1	1	0
Guilt	2	1	1	0
Optimism	2	1	0	1
Estrangement	1	0	1	0
Pastoral	1	0	1	0

A sense of attachment to the forms of nature (“biophilia”) is the most pervasive affect, appearing—with varying degrees of intensity—in all the interviews except for CD9. Even the deniers are appreciative of natural forms, and they all acknowledge that environmental pollution can be a significant problem; however, predictably, they dispute the reality of long-term climate change and its anthropic causes. Sense of danger and vulnerability, as discussed in Table 3, are related codes, but vulnerability has a more existential emphasis, whereas sense of danger foregrounds external circumstances: the former code is more frequent among scientists, the latter is evenly distributed across environmentalists and deniers. Likewise, humor and anger are reported by both deniers and environmentalists. At this level, the analysis shows a surprising degree of overlap in the environmentalists’ and deniers’ affective responses, suggesting that the difference between these ideological positions has to do with how anger, humor, and vulnerability become entangled with larger evaluative and imaginative structures (more on this below).

In contrast, scientists make more sporadic appeal to these emotions, in line with professional demands for impartiality. They seem unable or unwilling to fully articulate their affective responses to the environment, instead falling back on existing cultural templates: the three

responses expressed by *all* the scientists (biophilia, excitement, and sense of danger) are largely conventional ways of thinking about the natural world, as the scientists tend to admit. CS1, for instance, explains that he has always had a “romantic relationship with the sea,” and when talking about how people in the Western world eat certain animals and not others he adds: “it’s sentimentality, yeah, let’s accept that sentimentality comes into it.” Both “romantic” and “sentimentality” point to conceptions of nature that are taken at their emotional face value instead of being more critically addressed. Likewise, when asked about a “time beyond the human scale,” CS5 answers with a qualification about the stereotyped nature of his response: “I think probably when you look up at the stars, I mean that’s the clichéd one.” At times this refusal to break with culturally accepted ways of experiencing the nonhuman leads to a sense of affective restraint. A case in point is CS4, who seems reticent to express her biophilic feelings on two separate occasions: “Somewhere where you’re in the fresh air and uh in the um open skies and um away from the traffic uh I have a sort of feeling of [sighs]”; “it’s the greenness or the fresh air or something and it just makes you ahhhh [sigh] you know, it’s just different, it’s just different, and is that a connection? I don’t know.” The discourse markers and the repeated sighs signal that the affective response remains implicit and does not reach the level of self-awareness that is typical of the environmentalists, especially EN1 and EN8. Likewise, CS4 expresses optimism about the climate crisis but then qualifies it (again, with an abundance of discourse markers) as follows: “you can be optimistic in a—in a sort of rather unspecific sort of a way.” CS5 is a partial exception to the scientists’ affective restraint. One of the most intense emotions he reports is grief at the melting of Arctic sea ice (see the passage quoted in [Table 3](#) above), a feeling that is also articulated by EN8 and, tellingly, does not appear in the deniers’ interviews.

The sublime is more frequent in the environmentalists (3 instances) than in the scientists and deniers (1 instance each). One of the environmentalists, EN5, referenced the sublime in describing a seaside landscape experienced during his childhood, but presented it as a retrospective feeling that emerged with adulthood. As a child, he “didn’t feel insignificant. I [had] a sort of, I don’t know how to say, it was proper to be there.” Instead of the sublime, EN5 affirms a sense of propriety and harmony with nature that he explicitly characterizes (in the same section of the interview) as “pastoral.” Despite being a Protestant minister, EN5 denies the transcendental language of “connection”: “I don’t think I particularly feel myself at some sort of emotional level as a part of something greater than myself, as a Christian, as a theological person and minister, I have a relationship with God, but I don’t feel that I’m part of God.” In the interview with

EN5 the sublime is thus understood at a conceptual level rather than experienced directly. In the interviews with climate change deniers, the sublime was mentioned only once (CD9), and even there it is a tentative, inarticulate feeling: “CD9: I mean, how can you explain this? How did all of this happen? Susannah Crockford: All these wonderful trees and flowers? CD9: No, just this, what’s here, you know, the Earth itself. How do you explain that?” This finding is in line with the metaphor analysis: it indicates that the deniers’ imagination of deep time and vast spatial scales is severely limited.

Revealingly, climate change deniers consistently misunderstood the question about encountering a “time without humans,” which was meant to elicit responses to either the geological past or a posthuman future (i.e., a more-than-human time scale); instead, the deniers understood this question as focusing on experiences of loneliness or isolation from human society. Even in that restricted sense the question did not resonate with the participants’ truncated imagination: “I can’t think of a case where I’ve been stuck where I couldn’t access a human if I wanted to” (CD1); “Time without the presence of humans? Uh, not really [laugh]. I’m not a person that would ever wanna just be away by myself, no, no, I like having people around” (CD7); “CD9: Without humans? Susannah Crockford: Yeah. Without other people. CD9: On the farm [laugh] Driving truck. ... I wasn’t around people a lot. I was by myself a lot.”

The affective codes that only appear once in the interviews are equally significant. We have already mentioned the pastoral; estrangement is a similar case, with EN1 describing a sense of alienation from the natural environment after moving to Sweden (the metaphor-rich passage has already been discussed in the previous section). Estrangement is, of course, a quintessentially literary feeling (see Holquist and Klinger), in that literary texts excel at the de-automatization of perception, as famously argued by Viktor Shklovsky. It is telling that the only participant who expresses estrangement is also a writer and that his interview has both a high density of creative metaphors and the highest affective code count. We can speculate that exposure to the forms of literature can both expand our imagination of scale (which is limited in the climate change deniers’ interviews) and enrich and expand the affective gamut of our affective responses to the natural world (which the scientists could not always span fully). At the same time, the affective analysis confirms the results of the discussion of metaphor—namely, that the category of environmentalists is more internally diverse than either deniers or scientists, with EN8 following EN1 in affective patterns and metaphor usage far more closely than EN5.

Conclusion

This article aimed to demonstrate the potential of an approach that combines ecocritical concerns, in-depth formal analysis, and ethnographic research on the climate crisis. While literary studies and the empirically oriented social sciences have tended to take separate routes to the investigation of cultural engagements with the environment, the cross-pollination of these fields affords significant insight into the climate crisis and its cultural and psychological roots.

Schneider-Mayerson, Weik von Mossner, and Malecki have argued for the importance of bringing together ecocritical work and empirical methods under the heading of “empirical ecocriticism.” While their research program focuses on the psychological influence of literary (or artistic) engagements with the climate crisis, our approach suggests that methodology can be another promising area for dialogue between literary scholarship and social science. More specifically, narrative theory and metaphor studies underlie the attention to form we brought to bear on a non-literary object (the interviews); these theoretical frameworks can reveal patterns and connections that would not typically be considered in ethnographic work focusing on the level of “content.” We singled out narrative as a productive concept and method to use in approaching people’s lived experience of the nonhuman world. The main goal of ethnographic work is to offer thick descriptions of the participants’ attitudes towards the nonhuman world, based on the assumption that there are no shortcuts to the study of experience: only personal interaction and in-depth analysis can disclose aspects of a participant’s worldview. Even if the ultimate ambition of empirical ecocriticism is to produce generalizable results, generalization does not lead to genuine understanding if it is not preceded by thoughtful confrontation with the particularities of individual experience (see Caracciolo and Hurlburt).

In the stories told in the context of semi-structured interviews, a wide range of values and tensions come to the fore—entangled, as it were, with the participants’ narrativized memories and comments.⁷ This entanglement is directly reflected in the participants’ language, which we have studied in terms of metaphor usage and affective patterns. Metaphor is a key cognitive and linguistic tool to negotiate the divide between the human-scale world and realities beyond the human, such as geological or climatological phenomena; the choice of particular metaphorical expressions channels, whether the participants are conscious of it or not, a view of human–nonhuman relations. Likewise, the participants’ experience of the nonhuman is always bound up with affective qualities and attitudes, which can take on

vastly different forms depending on the interviewees' background and ideological presuppositions.

By tracing metaphor and affect in nine interviews, we have offered a revealing glimpse into how a sample of climate scientists, environmentalists, and climate change deniers understand humanity's implication in the ecological crisis. The three scientists we interviewed favored kinetic language translating abstract scientific models into an embodied account of climatological instabilities; affectively, they appeared restrained and unlikely to challenge existing cultural templates. The climate change deniers used concrete metaphors and reported localized affective responses that pushed back against abstract knowledge and the imagination of large-scale space and time. The three environmentalists were most likely to deploy creative metaphors and express diverse and ambivalent feelings towards the nonhuman. It is beyond the scope of this article to say whether these metaphorical and affective patterns are representative of these groups in general, but the findings are suggestive and provide inspiration for further research, which could yield more generalizable results. From our perspective, the most important takeaway of this article is theoretical rather than strictly empirical: metaphorical language and complexity of affective responses are key areas for ecocritical interventions aimed at nuancing the phenomenology of everyday climate, and oral narrative is a viable platform for studying the environmental attitudes that underlie experience.

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NOTES

1. For discussion and contextualization of the "nonhuman," see Grusin.
2. Climate change denial has been the subject of extensive discussion in the humanities and social sciences. See at least Garrard et al. and Norgaard.
3. On this point, see also Caracciolo, *Narrating the Mesh* chap. 6.
4. See the discussion in Kahn (30–33).
5. Throughout this section, metaphorical expressions are underlined for ease of reference.
6. This idea is also consistent with a well-known positive correlation between level of education and environmental concern (Olofsson and Öhman).

7. See also Caracciolo, *Experientiality* 67–71.

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Appendix: Interview Questions

- Describe a time and a place when you experienced being in nature.
- Tell me about the climate of the place you grew up in/or a place you know well [for example, a field-site you have studied for significant periods]. How has it changed within your lifespan [the time period you have studied it]?
- Describe a time and a place when you were affected by extreme weather.
- Describe an encounter you have had with an animal or other non-human creature.
- Tell me how you experienced the difference between you and that animal/creature in that encounter.

- Describe an encounter you have had with an insect or microscopic organism.
- Describe what “energy” has meant to you in your life [or work]?
- Describe a moment when you encountered time without humans.
- Tell me about a time and a place when you encountered “the environment.”
- Tell me what the difference between environment and nature is for you.
- How would you characterize the effects of humans on the planet?
- Have you ever felt connected to something larger than yourself? Can you describe that experience?