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Flanders' First Wolf Pack: Publics' Sensemaking and Place-Based Knowledge in Social Media Conversations

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Abstract
This interpretive qualitative study addresses publics' sensemaking in relation to ecological changes that they had not known or experienced before. The context is the current recolonization by gray wolves in Europe, which led to the first wolf pack in the Flanders Region (Belgium) in two centuries. Ethnographic observation of the conversations that took place on government social media, after surprising events—from the arrival of a she-wolf to the raising of her young—reveals a recurring pattern of four sensemaking activities: (1) creating welcoming, protective sentiments, (2) assessing future survival chances for wolves, (3) anticipating disruptions by wolves, and (4) explaining raisons d'être of wolves. By elaborating on and discussing these activities, we highlight the self-triggering dynamics of the unfolding sensemaking process, and the diversity of knowledge sources and approaches involved. In this ongoing process, social media participants increasingly relied on abstract knowledge, analogies and past-time representations that, however, do not resolve the uncertainties and ambiguities encountered. Yet, despite the unprecedented circumstances, our findings suggest potential for place-based knowledge to support the publics' sensemaking in ways that open up relevant experiential perspectives –including those of the wolves—to deal with the daily challenges of human-wolf coexistence on the ground.

Keywords Ecological sensemaking · Unprecedented ecological change · Environmental signs · Place-based knowledge · Human-wolf coexistence · *Canis lupus*

Introduction

At times when our natural environment is changing rapidly, it may present us with surprises we are not prepared for, that challenge our expectations and certainties and lead us to question what we know, what we do and what we should do. Think, for example, of unforeseen consequences of climate change (floods), biodiversity loss (bee deaths) or the return of wildlife in Europe (including wolves). Sensemaking, then, is a way to deal with surprise and confusion, uncertainty and ambiguity (Weick 1995; Gioia and Thomas 1996; Maitlis 2005). As a concept it refers to how we "structure the unknown" (Waterman 1990) to create "a plausible sense of what is happening" (Weick et al. 2005) and to be able to act in and on it. Thus, practically speaking, sensemaking involves the activities that answer the questions of what's going on here and what do I do next? (ibid).

Sensemaking is a well-established perspective in strategic management and organization studies, especially in shifting and challenging contexts where the need to develop coherent understandings that enable collective action is important (Weick 1993; Maitlis 2005; Maitlis and Sonenshein 2010). Reviews and other contributions (e.g., Maitlis and Christianson 2014; Sandberg and Tsoukas 2015, 2020; Kudesia 2017; Cristofaro 2022) have shown that sensemaking is a variable phenomenon, comprising different types and levels of sensemaking and taking place in specific practice worlds (Sandberg and Tsoukas 2020). Until now, sensemaking has remained relatively underexplored regarding the natural environment. There is, however, a small literature—mostly inspired by the concept of *ecological sensemaking*, developed by Whiteman and Cooper (2011)—which extends sensemaking to include "material landscapes and ecological processes". The greater emphasis on materiality (as opposed to textuality) and material entities involved is well in line with the wider renewed interest

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in phenomenological approaches in organization and geographic studies, among others (Orlikowski and Scott, 2015; Ash and Simpson 2016). Examples of ecological materialities in sensemaking research include forest and bush fires (Weick 1993; Dwyer and Hardy 2016), elephant crop raiding (Bond 2015), weather extremes (Boudes and Laroche 2009, Tisch and Galbreath 2018), and fish aggregations in the sea (Good 2018).

Such ecological approaches to sensemaking encourage recognition of the vital role of local ecological knowledge in making sense of the natural environment and any changes therein. Clearly the natural environment not only provides the background and triggers for sensemaking but also affects and informs sensemaking. This is because there is a great diversity of physically manifested signs that we (and other animals) perceive and interpret—Maran (2017) for an overview—such as for example those that reveal oncoming extreme weather (Tisch and Galbreath 2018) and the movement of wild elephants (Bond 2015). Actively observing and interpreting these signs and cues—possibly with the help of knowledgeable others who draw attention to them—are key to interact with (or escape from adverse) ecological conditions. Whiteman and Cooper (2011) argue that actors who are ecologically embedded, i.e., physically and culturally "rooted in the land", are better attuned to changes in ecological conditions than those who are not (unless they have expertise in specific processes such as fire). It is notable here that ecological sensemaking research has usually focused on the actors at the "frontline" of interaction—firefighters, subsistence hunters, trawl captains, farmers—actors who can rely on local experiential knowledge or certain professional knowledge, or both. However, little is known about how others make ecological sense, namely those who are more distant from the frontline and may have less experience.

The enabling role of locally gained knowledge must not be overestimated. In many circumstances people have no or little direct experience with their natural surroundings, and even when they know the local ecology and landscape, their prior knowledge may prove of little merit when faced with events or phenomena they have never seen before. Yet it is precisely in these circumstances that sensemaking is triggered. As Weick points out, people try to find a plausible explanation for anything novel and previously unexperienced in their environment to create meaning (Weick et al. 2005). At the same time, this process is constrained where gaps and lags of knowledge occur, while prior knowledge becomes outdated or irrelevant. This creates a sort of paradox: extraordinary or unprecedented natural events trigger a need for explanation but the fact that the change is unprecedented—i.e., not known or experienced before—makes it hard to explain and act on it.

The present paper departs from the challenging yet realistic circumstances of this paradox in the current context of expanding wolf populations in Europe. Here, the successive events that led to the formation of the first wolf pack in Flanders Region (Belgium) and the prompt online responses, offered a unique opportunity to study publics' sensemaking in relation to ecological change they had not known or experienced before. By focusing on the unfolding sensemaking process, including the specific sensemaking activities being performed, the paper seeks to examine the diversity and workings of knowledge inputs and to illuminate the potential of place-based knowledge and experience in these unprecedented circumstances.

Wolf Comeback in the European Context

The gray wolf (*Canis lupus*) is making its comeback across Europe. Wolves return to many areas where they have been absent for decades or even centuries and they consolidate their presence in areas where they had declined (Chapron et al. 2014; Linnell and Cretois 2018). The recolonization of wolves is broadly explained by decreases in human persecution, eventually combined with environmental factors such as increased forest cover, abundance of wild ungulates (hoofed animals like red deer, roe deer, moose and wild boar), and agricultural land abandonment (Chapron et al. 2014; Boitani and Linnell 2015; Cimatti et al. 2021). Another less mentioned factor is the wolves' ability to adapt to a variety of landscapes or ecological conditions. Wolves even thrive in human-dominated landscapes (Llaneza et al. 2012).

While Europe's wolves and their habitats have been given legal protection for years—notably under the 1979 Bern Convention and 1992 Habitats Directive which mandate the conservation of large carnivores across Europe—the current wolf expansion was unforeseen at the time these legal acts were drawn up (Trouwborst 2014). On May 8, 2025, the European Parliament lowered the EU's wolf protection status from "strictly protected" to "protected". Considering that wolves require vast territories for their living, experts are calling for a new conservation strategy that focuses on the integration of wolves into multifunctional landscapes outside protected habitats. Such a challenge of "coexistence" implies that humans and wolves will co-adapt to living in shared landscapes (Carter and Linnell 2016).

Although coexistence shows the way forward, it is realized that success will much depend on people's willingness and ability to share the landscape with wolves. Survey studies across Europe often show majority support among publics (e.g., Heberlein and Ericsson 2008; Arbieu et al. 2020; Breyne et al. 2021) but results may differ widely across studies, also depending on time, place and context. Coexistence is particularly challenging when wolves return to places from which they have been absent for a long time (Pettersson et al. 2021; Zscheischler and Friedrich 2022).

Here people are not used to living alongside wolves and any practical experience of coexistence passed on through generations is probably lost. Dressel et al. (2015) estimated through a meta-analysis of surveys that attitudes toward wolves' return become more negative over time, that is, the longer people coexist with them. Whereas people most often respond positively at first, this appears to change as soon as wolf populations grow, and encounters with people and livestock become more likely (Røskaft et al. 2007; Eriksson et al. 2015; Dressel et al. 2015), which also reveals the interactive and dynamic nature of human-wolf relationships (Lescureux et al. 2018).

Across Europe, governance initiatives towards coexistence tend to strongly focus on avoiding and reducing adverse impacts of wolves on people's livelihoods and livestock production. Common measures include compensation payments, subsidies for wolf-proof fences and livestock guarding dogs, control of wolf populations and removal of trouble-causing wolves. Volunteers such as "wolf consultants" in Lower Saxony, Wolf-Fencing Nederland and Wolf Fencing Team Belgium (https://environment.ec.europa.eu/news/wolf-fencing-team-belgium-catalyst-peaceful-coexistence-wolves-2024-03-14_en) practically assist livestock keepers to safeguard against predation. There are increasingly collaborative projects (involving stakeholders, policy makers and scientists) that aim to enhance local communities' capacity to adapt to the return of wolves. Examples are the EU-funded projects Med-Wolf (www.medwolf.eu), LIFEstockProtect (www.lifestockprotect.info), WolfAlps (www.lifewolfalps.eu) and Euro Large Carnivores (www.eurolargecarnivores.eu). Such projects also act as learning platforms as they facilitate the exchange of practical expertise and experience within and between wolf-populated regions. However, while most of the effort goes into damage prevention and control—livestock farmers and herders are indeed at the frontline of coping with wolves—other settings and experiences remain less documented. Moreover, there is still limited reporting on how wolves are adapting to live in proximity to humans (Lescureux et al. 2018; Kuijper et al. 2019; Van Liere et al. 2021) and vice versa. The return of the wolves provokes changes in husbandry and hunting practices, which will in turn influence wolf behavior (Lescureux et al. 2018). Adaptation to human practices by wolves can also be conditioned, e.g., electric wolf fences keep wolves away from sheep, while at the same time teaching wolves that sheep are not easy prey. Although wolves in Europe may have to live more and more in highly human-dominated landscapes, research in this context is still in its beginning.

Concepts and Methods

The methodological orientation of this research is qualitative and fundamentally interpretive. In *interpretive research,* meaning construction and contextuality are central: its purpose is to understand how specific people in particular times and places make sense of their worlds (Schwartz-Shea and Yanow 2012). People think together about what is going on and what needs to be done, forming higher order patterns of interpretation and action that are irreducible to one individual (Kudesia 2017). As sensemaking is viewed as a social, collective process (Weick 1995; Maitlis 2005; Kudesia 2017) an ethnographic interpretive method is appropriate for its study "in context".

Sensemaking

Sensemaking is defined as a situated, inherently social process in which individuals interact with their environment and with others to create meaning and enable action (Weick 1995; Maitlis 2005; Christianson and Barton 2021). The present study adopts the variant concept, *ecological sensemaking*, with its focus on ecological processes (Whiteman and Cooper 2011), in this case the formation of a wolf pack. The notion of *environmental signs* refers to the material cues or physically manifested signs that humans (and other animals) may notice and interpret in the natural surroundings (Maran 2017). Because sensemaking responds to disruption—it is especially explicit when people confront events that are novel, surprising, confusing, or in some other way deviate from or disrupt the "normal situation" (Weick et al. 2005; Maitlis and Christianson 2014)—it is important to identify such occasions in the unfolding process. This study will therefore use "uncertainty" and "ambiguity" (Weick 1995, pp.91-100) as sensitizing concepts to alert analysis to this important aspect (Bowen 2019). According to Weick, *uncertainty* is produced by ignorance due to the inability to extrapolate current actions and to foresee their consequences, while *ambiguity* occurs when people are confused by events having multiple meanings or being unclear as to meaning. Identifying such triggers is empirically useful as they provide clues to differing knowledge needs. While more and better information can reduce uncertainty, it cannot resolve ambiguity, which rather requires facilitation of social interactions that foster mutual understanding and cooperation (see also Dewulf and Biesbroek 2018). Following Weick (2015), we propose that a "workable level of ambiguity" provides a broader range of inputs, allowing more publics to understand more of the situation without oversimplifying interpretations.

Local Ecological Knowledge

Whiteman and Cooper (2011) point at the enabling value of locally embedded ecological knowledge to make sense of and develop "effective responses to ecological change and surprise". This certainly applies to adaptive approaches to wildlife management, where the context of knowledge generation is highly localized, and the issues change over time and across regions (Defries and Nagendra 2017). As part of a wildlife-focused citizen-science project, Taylor et al. (2024) document diverse ways in which *local ecological knowledge* is developing among landholders: "By living alongside native species and observing wildlife and their habitats, including changes in species composition and behavior over time, landholders generate experiential knowledge through interpretation and meaning-making. Landholders may also gain local ecological knowledge through directed hands-on experiences and trial-and-error experimentation (…) Local knowledge can also be gained through interactions with others." It is thus emphasized that "local ecological knowledge is inseparable from an active process of experiential learning embedded in local contexts" (Taylor et al. 2024). In this paper, the terms local and *place-based* are used interchangeably, the latter emphasizing the close association with a place and its embedded relationships. Place-based knowledge may also refer to newly developed, not yet "standardized" knowledge derived from environmental governance and scientific study in that place. By the latter is meant knowledge not yet translated into generalized results presented according to the applicable standards and jargon in the policy or science concerned. One example is results of on-site monitoring by experts that are shared on the Internet. Furthermore, local knowledge can be passed on through education, social ties, and from one generation through the next. In addition, participating in collaborative research or practical work in the natural environment can also be an opportunity to acquire and exchange local ecological knowledge (Buizer et al. 2012; Berkes 2017; Taylor et al. 2024).

Research Context and Setting

The context of this study is the Flanders Region (Belgium), where the first wolf pack settled after an absence of probably two centuries. Wolves lived in Flanders until the first half of the 19th century (Tack et al. 1993, pp.160–162). This milestone in Flanders' natural history has surprised many and resulted in lots of concerned questions and comments from the publics and press (Van Den Berge and Gouwy 2021). On-site monitoring started shortly after the first wolves were spotted in 2018 and focused on collecting camera trap images, paw prints, wolf feces, and DNA to generate place-based knowledge about the genetics, ecology and behavior of the wolves (see Gouwy et al. 2020). Most of this work concentrated on the 400 square kilometers large wolf territory, which has its core area on a wooded military training ground (Leopoldsburg) but is otherwise fragmented by busy roads and built-up areas. In the meantime, Flanders' Environment Minister, Zuhal Demir and the government bodies involved—Agency of Nature and Forest (ANB) and Research Institute for Nature and Forest (INBO)—communicated newsworthy events in the wolf territory via their social media channels, especially Facebook (Twitter was used only occasionally and there was very little interaction between users on this platform). These government posts were the original news source of the formation of the wolf pack for a year. Television stations and major newspapers often picked up on these posts and provided a direct link to them (particularly the Minister's Facebook post), which is likely to have encouraged more people to read and share comments online. Together, the Facebook platforms provided sufficient conversational material to address the research questions.

Flanders' annual Digimeter survey (www.imec.be/digimeter) (indicates that at the time of the study, 60% of Flemish people used social media to follow the news in the last week. Facebook was the most popular, with 61% of Flemish people using it daily. It was also suggested that part of the popularity of those social media must be attributed to the ability to socially process and respond to the news consulted. Social media platforms allow users to express and share their thoughts, concerns and opinions about the same news content (Ohme et al. 2020), that is, to actively make sense of it. See also Castells (2007) on the converging of mass media and interactive horizontal communication networks, and the rise of a new communication space, called *mass self-communication*.

Given the significance of social media sites in publics' sensemaking about current news events, those sites play a meaningful role in their everyday interactions and as such offer "research sites that converge into a space for social action" (Dumont 2023). Accordingly, in this study we used the mentioned government Facebook pages to construct the "field" or research setting primarily as a space for social action. As Garcia et al. (2009) explain, the setting of the online research will depend on the phenomena of interest, in this case, the way publics collectively make sense of the formation of a first wolf pack. Thus, the setting consists of both the Facebook news posts by the mentioned government bodies and the publics' response to each of these posts. Because this is a series of news items, it also implies a demarcation of time, namely those events that indicate or are related to the formation and establishment of the wolf pack, i.e., from the arrival of a she-wolf to the raising of her young (see Table 1).

The government news posts were usually worded positively, contained evidence and interpretation of environmental signs such as a photo of a paw print or a video from a camera trap and may end with a warning that small livestock should be protected, for which subsidies are available. The publics' response—posted on the Facebook

Table 1 Overview of posted news events

Date	News message	Ecological signs	Facebook page	Comments
Dec 19, 2019	New wolf arrives in Flanders; it is welcome	Photo of paw print with measuring tape	Minister ANB INBO	375 57 22
Dec 31, 2019	It's a female; she walks around in the male's territory	Camera trap photo of new wolf in existing territory	Minister ANB INBO	796 220 9
Jan 14, 2020	Wolf and she-wolf are joining together	Camera trap video of interacting wolves; Crossing wolf tracks	ANB INBO	220 8
April 27, 2020	She-wolf is pregnant	Camera trap photo of wolf with round belly	Minister ANB INBO	380 58 17
May 10, 2020	She-wolf has given birth and is in good health	Observation that her round belly disappeared	Minister ANB INBO	95 129 23
June 23, 2020	First images of the cubs; they are four	Camera trap video and photos of playful cubs near breeding site	Minister ANB INBO	691 441 132
July 31, 2020	New images of the cubs; they are doing well	Camera trap video of playing cubs	Minister ANB INBO	396 120 25
Oct 9, 22, 2020	Young wolf was killed in road accident; it was a healthy female	Photo of a dead wolf; Video of autopsy	ANB INBO	4 21

pages of the Minister, ANB, and INBO—was conveyed mainly by text, sometimes visual representations in the form of a JPEG image, emoji, or video were added. Table 1 shows the distribution of the comments across the three pages and the eight events. Furthermore, each comment has a full name and date and is linked to a personal Facebook profile, including demographic and other relevant data that can be used for characterizing participants in a particular conversation (see further below).

Occasional consultations of these profiles, as well as unsolicited information given by participants, point to a diverse group: living both close to and far from the wolf territory, various kinds of professions, having a special interest or expertise in a particular aspect of wolf return (livestock farmer, hunter, horse-riding school, wildlife rehabilitation, etc.), and more. Such diversity matters because participants engage in sensemaking from a variety of positions, histories and backgrounds that create divergent frames of reference (Maitlis 2005). As such, the different life-worlds in which the participants operate expand the range of perspectives and knowledge used in the sensemaking conversations (Van Herzele and Aarts 2013). It must be noted that due to varying completeness and the possibility of incorrect and not up to date personal information, there is a clear limitation on the use of the profile data for numerical purposes, such as a demographic overview of participants. This, however, is not necessarily a problem when the focus, as in this study, is on processes of social interaction rather than individual behavior.

Ethnographic Fieldnote Analysis

Interactions were accessed in their original Facebook environment, which implies that the researcher, like other visitors to the page can experience this digital environment, including the original comment texts, number of likes, commenters' names and profiles, and any embedded pictures. Such experience may facilitate a form of sensory "immersion" (Gregory 2018), which in traditional ethnography "involves both being with other people to see how they respond to events as they happen and experiencing for oneself these events and the circumstances that give rise to them" (Emerson et al. 2011). Either way, immersion encourages the researcher to embrace the participants' ways of thinking to access their conceptualizations and understandings of the situation (Dumont 2023). *Fieldnotes* are central to this approach and consist of both descriptive notes of the researcher's experiences and observations, and reflexive notes of the researcher's reflections and interpretations with respect to the research interest (Bogdan and Biklen 2007; Emerson et al. 2011; Dumont 2023). The fieldnotes in this study primarily focus on the process and activities through which participants developed or expressed understanding of the novel situation and eventually moved to conclusions, choices or actions. This is basically how they answer the core questions of sensemaking: "what's going on here?" and "what do I do next?" (Weick et al. 2005).

A separate Word document was created for each news event and associated conversations (see Table 1) and split vertically in two to allow for a distinction between descriptive and reflexive notes as defined above. Given the process orientation of this research, the fieldnotes were written chronologically, thus closely following the natural course of the conversations. On the left side, descriptions were recorded of the course and content of interactions (how issues emerged and developed, references to knowledge sources, typical expressions used, etc.). Verbatim quotes were included from participant responses and conversation threads that engaged with a sensemaking question. Furthermore, some information was obtained from the comments and/or Facebook profile of the quoted participants to include in brief contextualizing notes. The right side offered space for reflection and interpretation, as well as possible questions and issues in need of follow-up. Here, conceptual and analytical ideas were added regarding the emerging activities of sensemaking, informed in part by related literature and all with a view to conceptualizing the regularities and patterns found in the data. By maintaining the activity sequences as they unfolded, preliminary categories could be delineated by simply marking them with colored underlines in the descriptive notes. That was possible for most conversations, i.e., those conversations that lasted long enough to generate reasonable interaction. The categories were then further developed and delineated through comparison across the conversations in the "iterative-recursive" process of interpretive research (Schwartz-Shea and Yanow 2012), that is, in an interplay between "empirical materials and theoretical literatures" (ibid). The final categories in turn provided the basis for revisiting the fieldnotes to build a documented picture of each sensemaking activity, including its drivers and triggers, interpretive approaches and knowledge sources. Finally, instructive quotes were translated from Dutch into English and used to illustrate the findings.

Research Ethics Account

No institutional ethics board approval was required for this study. The research data are conversations that are publicly available. We have anonymized the participants' contributions. We are not interested in their personal opinions but in the sensemaking (interpretations) that they negotiate and interactively construct with each other.

Results

Ethnographic field note analysis reveals a recurring pattern of sensemaking activities (creating a welcoming sentiment, assessing future chances for wolves, anticipating disruptions to everyday practice, and explaining wolf's raison d'être), which we describe below. These activities do not always flow neatly from one to the other. Iterations to previous activities might occur (mostly when new participants join) and occasionally, participants post their preset opinion without participating in the interaction. In the four subsections below, we will take the sensemaking activities performed as a starting point to describe the dynamics of the unfolding process and the knowledge practices involved.

A Welcoming, Protective Sentiment

The posted events (except the road accident) were generally received positively. Conversations usually began with a stream of short responses expressing pleasant surprise and positive feelings:

> We welcome you wolves 💕👍🏻🐾
>
> Yessss 💖💖💖
>
> I wish them a long and good life ahead.
>
> How beautiful and sweet.

The positive feelings generated by the event were further reinforced by sharing them with others, thereby increasing the perceived salience and significance of the event (Choi and Toma 2014) and providing the emotional energy that fuels its sensemaking (Maitlis et al. 2013). Sharing positivity helped create and sustain a collective sentiment that is favorable, even welcoming to the wolves and committed to giving them a fair chance. We use the term *sentiment* to underline the entanglement of participants' thinking and feeling. As Bens and Zenker (2019, p.96) put it, "the concept of sentiment connects cognitive processes of forming opinions and judgments with affective and emotional dynamics". That does not mean that the participants' affective engagement with the wolves was unequivocally positive or negative. The events surrounding the formation of the wolf pack brought about a sense of joy and celebration, but that was always accompanied by concern for immediate threats to the wolves. Indeed, brief warnings and calls to action were frequently given:

> I don't want to be negative now, but besides foxes, wolves can now also be chopped up on the highways.
>
> Keep an eye on the hunters.
>
> Keep it quiet.
>
> Protect them well.

So, there is an emotional discrepancy within the welcoming sentiment: participants must deal with a situation that both brings them joy and causes them worry. A question, then, is how to manage the concern and still maintain a sense of positivity? A common approach was to focus on the possibility of threats and actions to combat them. Preventing unwanted threats from occurring is an obvious way to reconcile the discrepancy because it ensures that there is no longer much concern.

> Take more control! Local residents can still hear gunshots at night! 😡

To identify the immediate threats, participants relied on place-based experiences, especially with fatal events that had recently occurred (the killing of the first wolf was often referred to) and any cues observed in the local environment (e.g., gunshots, malicious people, road-killed foxes). Based on this, they called on the government to take protective measures, such as closing the wolves' territory to hunting. In effect, they imagined the wolves in the local and social context they know, including the behaviors of specific individuals or networks, as well as perceptions about the attitudes of a population in general:

> Now let's hope they won't do anything to this wolf because people can no longer tolerate anything from animals.

Locally gained knowledge can enable participants' engagement with the situation but also their disengagement. While knowing the local threats helped in suggesting ready to hand solutions, this knowing - along with a lack of confidence in the social context - may also restrain participants from advocating for the wolves. With this approach, marked by skepticism and despair, they seemed to give up what they feel is a practically unattainable outcome:

> Preferably no wolves in Belgium. Those animals are not safe anywhere, or they get killed or run over.

An issue of special concern was the government's communication about place-based monitoring data on its social media platforms. Many participants called to stop posting news and details about the wolves because they worried that this information would be used by those with malicious intent. In response, a wolf expert pointed out that it would not endanger the wolves but would stimulate social control in the wolf territory. Furthermore, some wolf opponents used the online platform to post shocking images of animals killed by wolves, trying to stir up negative emotions, and perhaps turn public sentiment against the wolves, but the response was quite low.

Future Survival Prospects for Wolves

While the initial sensemaking focused on the here and now, the scope soon widens from current events to the broader phenomenon of wolf return. At the time of the conversations, the settlement of the wolf pack was at its beginning, and it still had to be seen whether it would succeed. In this circumstance, prospective sensemaking prevailed and focused on the unknown future, in the first place whether there is a future for the wolf, that is, will the wolf be able to settle down and thrive? Because wolves have not lived in Flanders for centuries and the landscape has changed a lot since then, this is a question of great uncertainty:

> I am also in favor of these animals… but here with us they have no future I think.

> I just ask myself, how are they going to feed their young? Is there enough prey? I don't think so.

Uncertainty was not so much about what the relevant variables are but about their outcomes and probabilities (Schrader et al. 1993). While there was clear awareness that wolves need sufficient space and prey to survive and raise young, there was much doubt that those needs will be met. The participants appealed to observable features of the current landscape that were thought to signal unsuitability for wolves: densely populated, fragmented and poor in forests. Such observations of environmental signs were then compared with a reference image of a suitable habitat, usually a spacious landscape in the distant past or the vast nature in the wolves' homeland. However, this implies standards that the current landscapes in Flanders cannot meet. Skeptics therefore expressed their disbelief in a future for wolves and argued that wolves do not belong in Flanders. Unlike in the previous sensemaking activity where participants brought up threats on the ground to stimulate protection of wolves, such problematization of the landscape resulted in only a few proposals for action (e.g., wildlife bridges).

A completely different way of dealing with the unknown future was based on a greater recognition of the agency and self-organization of wolves. In response to the skepticism of others, some participants pointed out that wolves decide for themselves whether an area is suitable for them. So instead of applying the logic and assumptions of a reference landscape, the participants tried to imagine how the wolves would handle the situation on the ground (thinking like a wolf, so to speak):

> If they don't think it is good enough here, they will move on by themselves.

> Roe deer, wild boars, etc. plenty there. They don't start a nest [sic] if there isn't enough food, and the four cubs look very healthy.

A similar approach was taken when some participants engaged in prospective simulation while imagining a wolf trying to capture (or not) a wild boar:

> One wolf might not dare, although a wolf is intelligent enough to pick out the weakest animal. But with a pack of wolves that overpopulation of wild boars is quickly resolved.

> I think a tame ball of wool on four legs [meaning sheep] is a much easier and less dangerous prey.

Basic knowledge of the ecology and behavior of the animal species, supplemented with knowing that wild boars were abundant in the local area and sheep were mostly unprotected, served as input for future simulations. These were a form of scenario thinking or "pre-factual reasoning" (Mackay 2009) that uses "what if" questions to figure out what is likely to happen on the ground and where the wolves' perspective and agency play a guiding role: what will happen if the wolf tries to hunt a wild boar alone? What if it hunts in a pack? What if it goes for the easier prey? Such reasoning starts from what is known to build plausible but often tentative scenarios, which can be given up or modified as new information turns up (Van Herzele and Aarts 2019). In this case, the prey issue became less problematic as more place-based knowledge was brought into the conversation. This was usually based on environmental signs (e.g., hunters returning with a rich catch). Moreover, pre-existing views or speculations on habitat suitability could be challenged based on place-based experience.

> If hunters can shoot hundreds of game animals, the wolf can get a bite to eat, too 😉

Signs from the Facebook post were also used, for example the video showing that the playing cubs were well fed and healthy. Here, through camera traps, ecological sensemaking (Whiteman and Cooper 2011) could be based on such signs or cues. The news post text probably helped discover and interpret them. All this provides a stimulating way of engaging with the new wolves.

Anticipations of Disrupted Practice

The establishment of a wolf pack was increasingly seen as an outcome with consequences for people's daily lives. The predatory nature of the wolf was central to this, as it would make current habitual practices such as outdoor play for children and raising sheep on pasture too risky, difficult, or irresponsible. So, in Weick's vocabulary, sensemaking was activated in a situation where "an expectation of continuity is breached" (Weick et al. 2005). There were two common ways in which participants sought to anticipate the discontinuity. The first was articulated in terms of risk estimate and prediction about future occurrences. A frequent approach was to put the risk into proportion by comparing the probability of a wolf attack with another, very common threat (usually domestic dogs), making it either less or more probable:

> The chance that your child will be bitten by a dog is a thousand times greater. And beware, I am a dog lover.

> You forget that this is a wild animal that must kill to survive, while there are even plenty of cases where domestic dogs attack humans.

Except in the distant past (some participants pointed to historical statistics of people killed by wolves), there was no experience with wolf attacks on humans and very little on domestic animals. So, participants came with experiences in other countries with wolves and engaged in analogy-making: the foreign case illustrates a particular situation from which they draw (or implicitly suggest) inferences for the situation in Flanders:

> Two proven cases of wolf attack on children in Poland. And yet there is a sea of space compared to here. Here a wolf pack, because that is what it will be, must make do with an area of few tens of hectares where it has hundreds of hectares in Poland. Know that these tens of hectares here are segmented by many roads and constantly frequented by hikers. In Poland there are contiguous forests, without roads and practically no hikers.

> And I have family in the States, they live near a large pack of wolves, never been a problem, also the neighbors, who have sheep, … human and wolf live next to each other and leave each other alone.

Foreign cases and probability estimates may seem conclusive as an argument or warning, but due to obvious imprecision, simplification through analogy, divergent interpretation and questionable intent, they have limitations in reaching understanding. However, resolving future uncertainties is of direct importance for enabling owners of grazing animals at risk (sheep, cattle, horses, ponies, etc.), to adapt in time.

A second way to deal with discontinuity points to ambiguities in terms of causes and responsibilities. Participants with grazing animals, anticipating the need to adapt their practices, often raised questions of practicality (effectiveness, cost, etc.). Above all, they wanted to have stability and continuity in their practice, but at the same time they felt pressured to change that practice. Comments from other participants urged owners to protect their animals with (subsidized) wolf-proof fences.

> Subsidies have been made available to install a solid fence and there is a volunteer team ready to help. If a farmer does not protect his animals now, it is almost ill will.

> We want to just keep doing our work and also relax on the other side of these foolish concentration camp-like measures. Why do we have to give up everything?

There was a mix of feedback on the above comment by a (Dutch) sheep breeder/herder. Several participants expressed their disbelief or blamed him for his "lack of will to make an effort" and "lack of flexibility to deal with a changing reality", while others tried to convince him to take action by giving practical advice. For example, an owner of horses explained how she uses permanent and mobile electric fences and concluded "once work, never worried again, more time for relaxation so". But the sheep breeder got irritated by her advice and raised his "real" objection:

> So, you put the burden on me? Nature conservation, take that responsibility yourself.

Vague or unclear responsibilities in a changing situation are an important source of ambiguity (McCaskey 1982, p.93) and thus create an occasion for sensemaking (Weick 1995). It was common that owner and herder participants refused to be held responsible for the harm the wolf - an animal they never wanted - will cause to their sheep. Rather, they placed the responsibility on those who had wanted the wolves ("You want wolves, so you're responsible"). Participants with grazing animals also shared practical advice and user experience with technical feasibility. However, it cannot overcome confusion created by ambiguous responsibilities. In fact, as in this example, information and advice can have the opposite effect if interpreted as an imposition of (preventive) responsibility.

Explanations Concerning the Wolf's Raison d'être

The previous two sensemaking activities were concerned with what comes next (prospective) and how to prepare for it (anticipatory). In the meantime, however, participants may still wonder what's the point of having wolves. There was a sense of indeterminacy as to the wolf's raison d'être that could be observed in critical "why" questions.

> Why do we have to have wolves in our densely populated Belgium, what is the added value of that?

Part of the questioning came from prior future-oriented sensemaking activity that made them aware of foreseeable problems for both the survival of wolves and the continuation of human practices. In anticipating practical difficulties, participants realized (and sometimes complained) that it would require effort, money and risk, even though they were pleased with "those beautiful animals" being preserved. One participant introduced the term "multi-millions costing animal" to cast doubt on the societal legitimacy of the presence of wolves:

> For a few wolves, citizens must cough up millions of euros to protect thousands of sheep.

Some recommended relocating the wolves to a specially demarcated and secured area. While these actions were also meant for the good of the wolves, a relocation would leave the wolves in an ambiguous position: they are welcomed but at the same time excluded.

> Don't kill this beast, instead, capture them and put them in a demarcated area, before they do any more damage.

But along with the expectation of many costs and difficulties that will accompany the protection of both wolves and sheep, the conversations evolved into a more principled questioning. By far the most popular explanation—often given unsolicited—was the story of the wolf's extermination. It works as a narrative that moralizes the past to create obligations in the present:

> They were here before us, we chased them or killed them.

> Given how much space we've already taken away from them, it's only natural that they now get the protection they deserve.

The return of the wolf was seen as morally right in retrospect of two historical facts: (1) wolves lived here before humans colonized the area and (2) humans chased the wolves away. That the wolves were the first and were deprived of "their habitat" or natural environment gives them "the right to be here" and condemns their extermination. The facts were barely documented, if at all, and details mattered only insofar as they supported the moralizing power of the explanation, that is, arousing a sense of guilt and the will to rectify historical wrongdoing. Perhaps in reaction, there was also moral discontent about the wolf's perceived privileges and the resulting inequities and inconsistencies in the treatment of other animals, in particular sheep:

> To me the life of a farmer's sheep is of equal value to the life of a wolf.

> All dogs must be kept on a leash in nature. Right. Why are these "little rascals" [so called by the Minister] allowed to roam freely and tear our animals to pieces while they are still alive?

In defense of wolves (or sheep), there was frequent appeal to the so-called "right of every animal to exist". As we observed at the beginning of the conversations (first sensemaking activity), the claim that the new wolves should be protected and given a chance was driven by favorable sentiment. But when participants engage in explanations, such sentiment remains usually unarticulated. Participants rather tend to generalize and substantiate their concern for the future of the wolf with a reason that involves an accepted abstract idea, such as a moral right or an ecological concept.

Ecological concepts and models are performative in different ways, depending on context and setting (Van Herzele et al. 2019). In this case, the "food chain" model could resolve the above indeterminacy by giving the wolf a natural place and role, specifically as (apex) predator at the very top of the food chain. From a sensemaking perspective, the model's structured representation brings some order and clarity to the novel situation but also makes it possible to produce a rational explanation, that is, to specify a reason why it is important for the wolf to have a future. For instance, one expert participant explicates that "wolves and other top predators do complete ecosystems", while others (like the beekeeper below) emphasize the wolf's role in keeping nature in balance. In a way they are appealing to ecological integrity (Hughes 2021):

> If they live here, it is a good sign that nature will keep things in balance. You can hardly expect a nature with only herbivores, then their population becomes too high, which is not good for plants. If there is not enough food, the wolf will move on again, so the herbivores will grow back and the strongest and healthiest will survive.

Furthermore, these model-based explanations may seek to normalize the presence of wolves and de-problematize their predatory behavior through the given role. But—although plausible and rational—such generalized ideas turned out to have limited applicability to the local context, preventing them from being widely followed in the conversations. Perhaps the abstracted, idealized representation of nature is too far from perceived reality on the ground, which is characterized by spatial fragmentation, dense population, and poor natural habitat. In any case, despite humans and domestic animals being crucial components of the local landscape, they remain absent in mainstream ecological concepts.

Discussion and Conclusion

In this work we have examined how social media publics were responding to the events that signaled the formation of a first wolf pack in Flanders, with the latter representing a case of unprecedented ecological change. In such a case, there is the paradoxical circumstance that the change events create a need for explanation but the fact that they were not previously known or experienced makes them difficult to explain. We used Weick's notion of sensemaking to understand the situation from the publics' perspective, that is, how participants on government social media, in the face of the above paradox, sought to make sense of the renewed presence of wolves. Based on an ethnographic fieldnote analysis of the conversations observed, we identified a recurring pattern of sensemaking activities aimed at generating 1. welcoming, protective sentiments; 2. future survival prospects for wolves; 3. anticipations of disrupted practices; 4. explanations of the wolf's raison d'être. Below, we highlight key findings on the unfolding processes and activities of sensemaking, and the various knowledge sources and approaches involved.

Sensemaking as a Self-Triggering Process

Taken as a whole, the study's findings encourage attention to the self-triggering nature of the sensemaking process. For once the process is set in motion by the surprise of the event and the urge to get a grip on what is happening, participants involved in conversations try to find their way into understanding, but often with the effect of generating new occasions or triggers for sensemaking. Accordingly, the sensemaking activities cannot be understood as merely a response to the triggering event and its immediate consequences, for they also respond to the drivers and triggers inherent in that response. These concurrent dynamics came into play early in the conversations, as sentiment was formed and action incited, but became especially apparent when communicating uncertainty, confusion, or ambiguity.

Occasions of uncertainty were most evident when conversations expanded from an initial focus on the sentiment towards the event to a focus on the unknown future caused by the event or phenomenon. That is, whether the wolf has a future in this place and how it will affect the continuity of existing practices in that place. There is a tension in combining these two main questions, where the former refers to the survival of returning wolves (the unknown) and the latter to the continuation of human practices (the known). Both should be protected against each other, a difficult combination (see also Ingold 2005). During the conversations these two questions were usually addressed separately, but due in part to the growing awareness of the many difficulties associated with the two endeavors, an additional question was triggered: why is it important that wolves have a future? (see further below: indeterminacy of the wolf).

Typically, responses to the two main questions were fragmented across different variables of relevance, including availability of space and prey, landscape suitability, risk of wolf attacks, effectiveness of fences, and more. It was common to start estimates of these variables by bringing local observational data into the conversation and possibly leveraging it with other sources, such as basic knowledge of wolf ecology and behavior. While this helped generating some plausible prospects, it also brought new questions that required new data and knowledge, which were not always available. For example, a recent study into the diet of the first settled wolves (Van Der Veken et al. 2021) provides evidence of a rich wild prey base with over a quarter of the feces samples containing wild boar. Although highly relevant to solving the prey issue, these facts were not yet known because the sample collection was still ongoing at the time of the conversations. Overall, there were hardly any direct experiences with the wolf, which led to participants relying on more indirect ways of interpreting the variables and signs. Three typical interpretive approaches are discussed below:

Normative Reference

This classic approach relates the relevant features observed in the landscape to an evaluative standard. The rather vague but widely shared reference image - inspired by local landscapes of the ancient past or the homeland of wolves - encompasses a vast, unfragmented, wooded space. That the wolf thrived in those former landscapes was confirmation of their suitability as both a reference landscape and a guidance to consider the current landscape unsuitable for wolves. Furthermore, intended or not, this normative interpretation supports the oft-repeated claims that the wolves "are out of place" and "do not belong": statements that problematize the presence of wolves. See also Drenthen (2021) in the Netherlands and Lähdesmäki (2020) in Finland on such claims. Van Herzele et al. (2015) and Van Herzele and Aarts (2019) analyzed how debates about the return of foxes and wild boars in Flanders polarized along the belonging/nonbelonging divide. Furthermore, Anderson (2021) and Martin (2024) describe how much of the wolf question in the American West is about belonging (who and what belongs in which spaces?). Given the prevailing positive sentiment in our study, it may well be that behind the normative reference lies what has been described as a deeper human concern for harmony between wild animals and their environment (Cooper 1993). Yet the normative reference approach can be criticized for its inflexibility, which tends to overlook the agency and adaptation of wolves, and possibly that of humans as well. Some participants invoked the fact that the wolf itself had chosen where to settle as proof of habitat suitability, in effect recognizing that wolves too engage in ecological sense-making: they use the set of environmental features to determine whether the area is suitable as a place to live (Maran 2017).

Explorative Scenario

The focus of the exploration is on the possibilities in terms of what might be, and not what should be based on a reference landscape. So, basically this approach scans the environment for opportunities that wolves can take advantage of. This involves perspective-taking to imagine and explore the local environment from the perspective of a wolf, while flexibly combining place-based data with general knowledge of wolf ecology and behavior. For example, while prey availability was initially confirmed by observation of abundant wild boars, doubts were raised about the wolf's ability to catch the boars. The tentative scenario was altered—a wolf alone won't do this, but if the wolf hunts in a pack, it will—but again questioned by observation of abundant unprotected sheep in the same area (wouldn't the wolves opt for the easier to catch sheep?). The provisional nature of this approach allows but also requires the continued input of relevant place-based data and updates (e.g., on the agency and self-organization of the wolves).

Learning-by-Analogy

In such approach, data or experiences acquired elsewhere are transferred to the current case. It is the unfamiliarity and surprise of the current crisis-like situation which makes the use of analogies so common (Houghton 2020). To anticipate disruptions, participants were particularly interested in probability, which involved assessing the risk of wolf attacks (on humans, livestock animals, and more) based on the likelihood of them occurring. This ranged from simple comparison with another risk (dog attacks) to drawing inferences from a foreign case. But besides inherent limitations, the analogies were poorly substantiated and what was inferred from the foreign cases varied so much—from near-peaceful coexistence to severe conflict—that this approach seemed more confusing than it helped facilitate interpretation and understanding.

Occasions of ambiguity also triggered contributions of knowledge and experience from participants, but as shown below with widely differing intentions:

Emotional Discrepancy

A common approach to reducing the discrepancy of pleasure and concern (within the welcoming sentiment) was to focus on the possibility of threats and feasible actions to combat them. To identify specific threats, participants drew on recent, direct experiences in the wolf area (of their own or hearsay). Their contextual knowing enabled participants to relate with the situation but could equally hinder their affective engagement due to lack of confidence in the tolerance of the local population and/or the willingness and ability of the government to safeguard the wolves. This is crucial because affective engagement was a driving force for participants to request future opportunities for them.

Ambiguous Responsibilities

In their search for acceptable grounds for the assignment of responsibility (Maitlis 2005), many participants argued that owners have a duty to protect their animals because subsidies and technical solutions are available. But several owners refused to be held responsible and attributed responsibility to those who "wanted the wolf". This also led them to ignore the practical advice that others shared with them. In this perspective, information and advice may represent an unwarranted interference (Van Herzele and Aarts 2013), and installing wolf-proof fences can mean a disruption of habitual practice and meaning (the fences no longer just serve to keep the grazing animals in, but also to keep predators out).

Indeterminacy of the Wolf

In response to doubts about the raison d'être of the wolf, two narratives were propagated. The first (moralization of the past) is a story representing the extermination of the wolf in the past as a violation of its right to belong here, while the second employs ecological abstractions (biodiversity, food chain, etc.) to make essential the presence of the wolf. Thus, both explanations follow a classic way of dealing with ambiguity, that is, the search for assurance in what is already known (Weick 2015). The right to exist and the benefit to nature are among the most cited reasons to care about wildlife (Cooper 1993). Although these reasons offered some guidance, participants continued to bring various other elements into the discussion, widening the field of interpretation, but also increasing ambiguity, whether intended or not. For example, ambiguity was used to expose perceived inconsistencies in the treatment of wolves and domestic animals ("sheep also have rights").

It is notable that in the last two occasions of ambiguity, participants seem to implicitly adopt Ingold's notion of *taskscape*, defined as "the array of practices that human and non-human beings carry out in the temporal process of inhabiting their environment" (Ingold 2000). Through information, subsidies and technical assistance with fencing, several farmers and herders felt to being thrown into practices they are not familiar with and they themselves did not ask for. Other examples are the moralization of the past and ecological abstraction, which can be seen as attempts to give the wolves a place and task in the landscape.

The Incompleteness of Sensemaking

As shown above, participants used several interpretive approaches and tools to derive meaning from environmental variables and cues and thus develop understanding or impose their understanding on others. For various reasons, participants only partially succeeded in this. As regards the relevant variables, there was generally a significant lack of direct experience, and the conventional methods used to fill or circumvent these "gaps" proved to be insufficiently effective. This became clear during their use when new questions arose for which the necessary knowledge was lacking. These are usually very practical questions such as how wolves arrive at their prey choice decision (see "Explorative Scenario"). Furthermore, the methods and their use suffered from obvious shortcomings, such as inflexibility in the normative reference approach, reliance on overly simplistic analogies and overlooking the adaptive capacities of wolves (and humans).

In short, the limitations of these conventional interpretive approaches and the lack of direct experience with wolves leaves the sensemaking unfinished. The incompleteness of sensemaking implies that interpretation of the variables and signs remains fragmented and often inadequate, and the increased ambiguity is not reduced to a workable level, all of which would leave little room for creating understanding and coming up with a coherent answer to the first key question of sensemaking: what's going on here? In the absence of this, the logical consequence may be that the step towards action is even harder to decide upon.

Indeed, with two notable exceptions, there was relatively little talk of action in the conversations. The first one is in the initial activity of sensemaking: the participants were keen to indicate immediate threats to the wolves and urged to take actions to protect them. There was unanimity on which actions, as well as on who should carry out those actions: the government. Participants followed the logic that decisions are guided by institutionalized rules that describe what needs to be done (Dewulf et al. 2020). In the second example, participants were divided over the grounds of responsibility for the damage caused by wolves, but they blended this discussion with practical issues such as the effectiveness of electric fences. What these two examples have in common is that some recent experience had been accumulated—contextual (current threats to wolves) and technical (installing/maintaining fences)—which enabled to give a consistent answer to the second key question: what should we do about it?

Conclusion and Recommendations

Recognizing ecological sensemaking as a continually evolving process implies the need for continuous and shared development of place-based knowledge. This especially applies to unprecedented phenomena where data regarding the relevant variables are still fragmented or absent, and new questions arise continuously. In such circumstances, place-based knowledge helps to gradually get a grip on what is happening, while at the same time overcoming reliance on inflexible standards, simplistic analogies and abstract representations that do not help to resolve the uncertainties and ambiguities encountered. As shown, place-based observations of what wolves do, eat, and interact with, can challenge previous assumptions and speculations.

Further research and experimentation are required for operationalizing the potential of place-based knowledge in the context of wolf return, so that relevant experiential perspectives (also including those of the wolves) can be generated and articulated to make sense and solve any challenges on site. The following is recommended:

(1) Intensify on-site monitoring; Explore opportunities to take advantage of the tools already in place (e.g., camera trap videos and photos) to make environmental signs observable and interpretable by various publics; Involve "digital volunteers"—preferably with good connection to the location (Pettersson et al. 2021)—to assist in data collection and interpretation; Integrate monitoring in government communication, including via social media.

(2) Facilitate place-based learning experiences where various publics can interact with the environment of the wolf pack's territory and learn to appreciate how the wolves live and relate to their environment, and possibly "find ways to co-shape the landscape" (Boonman-Berson et al. 2016, see also Gieser and von Essen 2021). All this could form part of a broader wildlife-focused citizen science project (e.g., Taylor et al. 2024).

(3) Develop and test methods for integrating place-based data, reducing ambiguity of responsibility, and facilitating collective processes of sensemaking and learning. For this purpose, the integrative potential of Ingold's concept of "taskscape" could be assessed (Ingold 2000).

(4) Encourage volunteer groups that aid with wolf-proof fencing. In addition to material solutions, they can foster understanding, solidarity and responsibility between people with different interests. Over time, communities of practice may develop that work towards the coexistence of humans and wolves (see also Drenthen 2021).

(5) Develop tools and guidelines to prevent unwanted encounters with wolves. An example is an application for assessing the presence of wolves at a given location. Experiential knowledge could be developed for the purpose of guidelines for certain groups (farmers, visitors to nature areas, and more).

Data Availability

No datasets were generated or analyzed during the current study.

Author Contributions AVH designed the study; AVH performed the ethnographic analyses with support from LL; AVH discussed the results with support from NA; AVH wrote the manuscript, which was reviewed by LL and NA.

Compliance with Ethical Standards

Conflict of Interest The authors declare no competing interests.

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