



The return of an old acquaintance: stakeholder perspectives on the coexistence of humans and wolves in the Netherlands

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Abstract

After more than a century of absence, the return of wolves (*Canis lupus*) to the Netherlands has sparked controversy due to the diverse stakeholder perspectives on human–wolves coexistence. These perspectives are complex, based on multiple variables and vary both within and between stakeholder categories. This study uses Q-methodology to explore these perspectives among different stakeholder categories in the Netherlands: animal keepers, conservationists, site managers, scientists and government officials. Q methodology identifies shared viewpoints by grouping individuals based on how they rank statements about various aspects of coexisting with wolves. We identified four distinct perspectives: 1: *Wolves have intrinsic value, prevention is the solution*; 2: *Wolves contribute nothing, management through culling is needed*; 3: *Wolves cause damage and stress, prevention doesn't work*; 4: *People and their emotions about wolves are central*. Across these perspectives, stakeholders differ in their views on human–nature relationships, wolf–management and the acceptability of a range of societal impacts. However, there are also multiple points of consensus, including a realistic stance about the presence of wolves and its implications, and the shared sense that societal polarization over this topic is counterproductive. These elements of consensus provide a basis for constructive dialogue regarding human–wolves co-existence. Since no perspective rejects compromise, these commonalities can support the development of human–wolf coexistence strategies. At the same time, differences in priorities highlight issues on which dialogue is urgent, helping shape mutually acceptable and context-sensitive wolf policies.

Keywords Human–wildlife–coexistence · Human–wolf–conflict · Polarization · Q-methodology · Wolf management

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Introduction

Worldwide, wolf populations have recently increased after decades of population declines. After their eradication in most of north-western Europe 150 years ago, wolves returned thanks to protective European legislation (Bern Convention (1979) and Habitats Directive (1992) (Trouwborst 2010; Niedzialkowski & Putkowska-Smoter 2020). From the remaining enclaves, wolves have steadily expanded their territories westward over the past decades (Van Heel et al. 2017). In countries where wolves had long disappeared, both humans and animals had to get used again to the presence of this top predator. In countries like the Netherlands, showing high human population density and high urbanization levels, people's reactions to the return of wolves have varied from enthusiasm over conservation successes to resistance and concerns about livestock depredation or risks to human safety (Lute and Carter 2020; De Bie et al. 2022; RDA(a) (*Raad voor Dierenaangelegenheden*, Council on Animal Affairs) 2024).

Differences in stakeholder perspectives occur globally in contexts where humans and wildlife interact (Auster et al. 2021; Bredin et al. 2018; Yee et al. 2021). Stakeholder perspectives are shaped by social, cultural, and contextual variables, which may vary both within and between stakeholder categories (Chong 1996). Unresolved disputes between proponents and opponents of conservation measures, or of coexistence with specific species, pose significant challenges to the protection and management of wildlife worldwide (IUCN 2023). Therefore, human–wildlife conflict has been described as “*one of the most critical threats facing many wildlife species today*” (Dickman 2010, p. 458).

Sustainable conservation requires maintaining wildlife populations and habitats while addressing human needs (Miao et al. 2021; Vogel et al. 2023). In regions where wildlife shares space and resources with humans, achieving sustainable coexistence is crucial for conservation (Vogel et al. 2023). Carter and Linnell (2016 p 575) define coexistence as a “*dynamic but sustainable state in which humans and large carnivores co-adapt to living in shared landscapes where human interactions with carnivores are governed by effective institutions that ensure long-term carnivore population persistence, social legitimacy, and tolerable levels of risk*”. Additionally, minimizing interactions that threaten the safety of humans or wildlife increases willingness to coexist (Vogel et al. 2023).

In the literature on human–wolf relations, and on human–carnivore relations, the focus is often on conflict rather than coexistence (Lozano et al. 2019). Zimmermann et al. (2020) describe three levels of wildlife-related conflicts: level one involves tangible issues like livestock or property loss with generally neutral relationships, level two arises when unresolved incidents foster distrust and “us versus them” attitudes, and level three occurs when conflicts become tied to identities and broader social/political tensions. Although such focus on wildlife conflicts is useful for understanding underlying processes, it may inadvertently amplify tensions rather than contribute to their mitigation (Lozano et al. 2019). Therefore, it is important to also consider benefits (Bruskotter and Wilson 2014) and potential solutions when examining human–wolf coexistence (Nyhuis 2016; Lozano et al. 2019).

Individuals and groups who are directly or indirectly affected by the presence of wolves in the Netherlands—hereafter referred to as stakeholders (e.g. animal keepers, scientists, conservationists)—approach the presence of wolves from divergent perspectives (De Bie et al. 2022). A perspective shapes how an individual interprets a situation, determining what is perceived as a problem and which solutions are considered appropriate (Stöhr and Coimbra

2013; Halfman 2019). Perspectives are influenced, among other factors, by shared ways of thinking within groups or societies. Individuals can hold nuanced views on a topic yet communicate it as a problem. Media outlets tend to emphasize conflict and controversy, as these are considered engaging and therefore profitable (Wright 2024). Furthermore, political actors and interest organizations may strategically exploit conflict. Such strategic communication can contribute to polarization—a phenomenon also evident in the debate surrounding wolves in the Netherlands (RDA(a) 2024; De Bie et al. 2022).

Consequently, the public debate does not necessarily constitute an accurate representation of broader societal perspectives on wolves. As Bredin et al. (2018, p 10) found in their Q-methodology study on the conservation of jaguars (*Panthera onca*) in Brazil: “... we found no evidence of clear “pro” and “anti” jaguar conservation groups, and the respondents did not fall into predictable stakeholder clusters”. In a recent study among Europeans probing support for large carnivore recovery, Chapron et al. (2025, p 1) also found that “...large carnivores are less polarizing than often portrayed.” It is therefore of particular relevance to investigate the nuanced perspectives of stakeholders for a more comprehensive understanding of the debate surrounding wolf re-establishment (Lauret et al. 2020; Zscheischler and Friedrich 2022; De Bie et al. 2022; Breyné et al. 2021).

Research on people’s attitude towards wolves tends to focus on either mean values of attitudes or proportional differences in attitudes (Barmoen et al. 2024). While general attitudes towards wolves can be neutral or even positive, people’s attitudes towards coexistence with wolves in their home region could be more negative, especially for those who risk directly being affected by wolves such as animal keepers or hunters (Barmoen et al. 2024; Koshkina et al. 2025). Owning livestock or being a hunter or a member of a nature conservation organisation can influence people’s attitude towards wolves (Karlsson & Sjöström 2007). Moreover, within stakeholder categories there could be a diversity in perspectives (Vervaecke et al. 2025).

The present study aims to move beyond generalizations by assessing differences and similarities in perspectives regarding interactions and coexistence between humans and wolves in the Netherlands, and to further advance the understanding of the diversity of perspectives on wolves. It provides an in-depth analysis of perspectives on coexistence with wolves in the Netherlands, using Q-methodology—a mixed-method approach combining quantitative and qualitative techniques (Zabala et al. 2018). Q-methodology is suitable research for studying subjectivity (Brown 1993). Using this method, we identify, describe, and compare distinct, coherent perspectives and examine their similarities and differences. Within the subjectivity of perspectives, we can uncover unexpected agreements between stakeholder categories, which can contribute to debates on wolf conservation and management. Zabala et al. (2018) observed that Q-methodology is increasingly being used in conservation research, including human–wildlife conflict, to better understand the nuances underpinning stakeholder perspectives. “Through these applications, researchers found hidden views, understood opinions in depth and discovered points of consensus that facilitated unlocking difficult disagreements.” (Zabala et al. 2018, p 1185). This will allow us to disentangle the underlying elements that shape perspectives on wolves and to identify where major differences and possible points of convergence lie. We identify, describe, and compare distinct coherent perspectives, examine their similarities and differences, and assess how they are distributed across stakeholder categories. By doing so, this study aims to provide deeper insight into stakeholder perspectives on human–wolf coexistence. These

findings offer insights that may contribute to the Dutch wolf debate and help foster a constructive and balanced dialogue about human–wolf coexistence.

Although Jansman et al. (2021) consider the situation in the Netherlands to be relatively unique, the high adaptability of wolves (Frýbová et al. 2024; Jansman et al. 2021), as well as their return to landscapes with a high human footprint indicates that the findings of this study may be transferable to other densely populated regions where wolves are expected to re-establish or have recently re-established.

Methodology

Study context

After the first wolves in the Netherlands were observed in 2015, they were considered ‘established’ from 2019 onward (Jansman et al. 2021). ‘Established’ means a wolf remains in the area for six consecutive months, according to criteria of the Dutch national government (Rijksoverheid n.d.). Currently (2026), there are 14 established packs in the Netherlands, mainly in the larger protected areas (BIJ nd).

The Netherlands is one of the most densely populated countries in Europe (Eurostat 2025), and protected natural areas are small. The return of wolves in the Netherlands has generated considerable societal debate and extensive media coverage (Jansman et al. 2021; De Bie et al. 2022). Although the wolves have settled in these natural areas, villages, farms with livestock and/or zones with intensive human recreational activities are never far away. Encounters between wolves and members of the public are common and attacks on livestock occur regularly (BIJ12 nd), also because preventive measures are insufficiently implemented (RDA(b) 2024).

Compiling the Q-set

In Q-methodology, participants rank statements on a ranking continuum which is determined by the sorting criterion (Zabala et al. 2018). In this study, the participants ranked a set of statements from ‘most agree’ to ‘most disagree’. To determine which statements were ultimately presented to the participants, first a broad collection of relevant expressions on the topic was gathered: the so-called *concourse*. From the *concourse*, a representative selection of statements, the *Q-set*, was subsequently chosen. To compile the *concourse*, we consulted a wide range of sources. Sources included: (i) scientific literature through a systematic search in Scopus using: “*human*” + “*wolf*” + “*perspectives*” + “*conflict*”; (ii) a recording of a public consultation evening of the Committee of the Provincial Council of Gelderland named “*Limits to the wolf*” (January 17, 2024); (iii) political position statements through a search in the parliamentary questions on “*the wolf*” by the Dutch House of Representatives between 2022 and 2024; (iv) sources related to a societal dialogue conducted by the Council on Animal Affairs, and related reports and position papers e.g. for the Roundtable discussion in the Agriculture, Nature and Food Quality Committee of the House of Representatives on April 24, 2024; (v) other sources like news reports, newspaper and professional journal articles, podcasts, and videos. This yielded an initial longlist of 340 statements.

To reduce this longlist to a manageable *Q-set* we divided the original statements into themes drawn from scientific articles on perspectives on ‘wildlife’ or ‘wolves’ (Marshall et al. 2007; Halfman 2019; Lozano et al. 2019; Van Herzele et al. 2015; Vogel et al. 2023). Five themes were retained: A. Fundamental views on the human–nature relationship; B. Wolves and their significance for the Dutch natural environment; C. Wolf deterrent measures and management; D. Impacts of wolf presence on animal keepers; E. Information and communication. In order to create a balanced *Q-set* we classified the statements within each theme as either ‘pro-wolf’ or ‘anti-wolf.’ We further divided each of these into ‘very outspoken / extreme statements,’ ‘nuanced statements,’ and ‘neutral statements’.

The literature offers various recommendations regarding the size of the *Q-set*, with an average of around 40 (Zabala 2014; Watts and Stenner 2005; Minkman and Molenveld 2020; Newman and Ramlo 2010; Sneegas et al. 2021). Too few statements may not capture the full range of opinions, while too many statements can result in a complex sorting process (Watts and Stenner 2005; Minkman and Molenveld 2020). Building on these considerations we proposed a *Q-set* consisting of 47 statements: 8 ‘explicit’ statements pro-wolves; 8 ‘explicit’ statements anti-wolves; 12 nuanced statements pro-wolves; 12 nuanced statements anti-wolves; 7 neutral statements. Examples of pro-wolf statements include: “*It is wonderful that there are wolves in the Netherlands.*” And “*Compensation for damage should only be provided if the animal keeper has implemented recognized and properly applied preventive measures.*” Examples of anti-wolf statements include: “*The wolf population should be actively managed, with culling accepted as a legitimate measure.*” And: “*Wolves are a major threat, not only to our animals but also to ourselves.*” For the classification of the statements into the themes and into pro- and anti-wolves and neutral statements see Table 1. The complete *Q-set* can be found in Table 3.

Selection of participants

Q-methodology requires the inclusion of participants who collectively reflect the widest possible diversity of perspectives, regardless of whether some of these represent minority viewpoints (Zabala 2014; Watts and Stenner 2005; Sneegas et al. 2021). As the aim of *Q-methodology* is to identify perspectives, regardless of their proportional representation,

Table 1 Classification of the *Q* statements into themes: (A) Fundamental views on the human–nature relationship; (B) Wolves and their significance for the Dutch natural environment; (C) Wolf deterrent measures and management; (D) Impacts of wolf presence on animal keepers; (E) Information and communication and into ‘explicit’ or nuanced pro- and anti-wolf and neutral statements

Characteristics	<i>Q</i> Statement numbers
Theme A	5,13,22,34
Theme B	1,2,4,9,10,12,18,19,21,30,33
Theme C	6,7,14,15,23,24,25,26,28,31,35,36,740
Theme D	3,11,17,20,29,32,38,42
Theme E	8,16,27,39,41,43,44,45,46,47
‘explicit’ pro-wolf	1–8
‘explicit’ anti-wolf	9–16
nuanced pro-wolf	17–28
nuanced anti-wolf	29–40
neutral	41–47

Full statement list can be found in Table 3

participants' demographic backgrounds do not determine the interpretation of the results (Zabala and Pascal 2016). It is therefore not necessary to select a large number of respondents. We selected 30 participants (called the P-set in Q terminology), which falls within the range ($n=26-43$) and within the Q-set/P-set ratio as proposed by Zabala et al. (2018).

To identify stakeholder categories, we looked at the initial data which was used to compile the concourse. The broad range of sources yielded the names of 85 individuals or organizations that had publicly expressed positions on wolves. We categorized these into five stakeholder-categories: 'Animal keepers and agriculture' (hereafter referred to as 'animal keepers'); 'Nature and animal conservationists' (hereafter referred to as 'conservationists'); 'Nature site managers' (including a hunter representative) (hereafter referred to as 'Site managers'); 'Scientists'; and 'Government officials' (hereafter referred to as 'government'). In selecting participants, attention was given to: i) balanced representation - six participants from each of the five stakeholder categories as we expect they could have different viewpoints; ii) inclusion of both directly and indirectly involved stakeholders - ranging from animal keepers and forest rangers to policy advisors and managers; iii) diversity - maximizing variation in participants' backgrounds. For example, the sample included a wide range of scientific backgrounds related to (coexisting with) wolves (e.g. nature-conservation-law, ecology, livestock farming and society, philosophy, human-environment interactions), representatives from small and large nature organizations, and animal keepers with 50 to 1,500 animals (mostly sheep)—ranging from hobbyists to professional farmers and shepherds. To reach the target number of 30 participants, we added a few participants through snowball sampling within the relevant stakeholder categories.

Data collection

Data collection consisted of each participant ranking the statements of the Q-set on a fixed distribution matrix, producing an individual Q-sort. Following the ranking, participants explained the reasoning behind their specific arrangement of statements. Data collection was conducted face-to-face with each participant at a location of their choice between January 14 and April 4, 2025. Participants ranked the statements according to their personal degree of agreement, in a matrix with as many cells as statements, ranging from -4 (strongly disagree) to $+4$ (strongly agree) (see Fig. 1). We asked each participant first to sort the statements into three piles: agree, disagree, and neutral/less important, to facilitate the sorting process. The ranking resulted in a unique Q-sort per participant. After sorting, participants were asked to elaborate on their reasoning, particularly for statements placed at $+/-3$ and $+/-4$, to support interpretation during analysis. This process took approximately one hour per participant.

Data analysis

The resulting quantitative data were analyzed using factor analysis to identify patterns among the Q-sorts. This process yields clusters of participants who ranked statements similarly. The factor analysis provided quantitative outputs, such as the number of factors, Q-sorts per factor, reliability and inter-factor correlations. Factors were then interpreted using both these quantitative results and participants' explanations, resulting in a descrip-

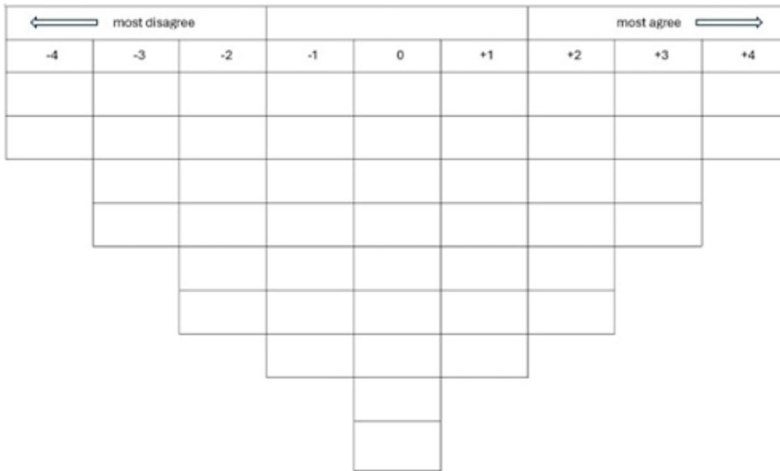


Fig. 1 The fixed distribution matrix used, ranging from -4 (most disagree) to $+4$ (most agree)

tion of each perspective. Each perspective was labeled with a concise name summarizing its defining features.

For the statistical analysis of the data, we used Ken-Q Analysis (Choudhury et al. 2023; Auster et al. 2022), version 2.0.1 (KenQ). KenQ enables the identification of factors, which represent perspectives shared by multiple participants. We used Principal Components Analysis to extract factors, and Varimax rotation to clarify the factor structure (Zabala et al. 2018). We used the following guidelines to decide how many factors to retain in the further analysis: (i) the factors need to have an eigenvalue of at least 1 (the Kaiser–Guttman criterion). This means that the factor explains more of the variance in the data than a single original variable (the Q-sort of one single participant) (Leong et al. 2022); (ii) there must be two or more Q-sorts that correlate significantly with the factor (Watts and Stenner 2005); (iii) together the factors must explain as much variance in the data as possible. It is customary to use a minimum of 50% explained variance (Sneegas et al. 2021). We aimed to exclude solutions which explained less than 50% of the variance and we selected the solution with the highest variance, taking the other criteria into account. To determine which *Q-sorts* correlate with the different factors we used the automatic flagging-procedure in Ken-Q Analysis, which is based on $p < 0.01$. For 47 statements, this corresponds to a threshold of > 0.38 . Only loadings higher than those on other factors were retained, avoiding confounded loadings. These flagged Q-sorts were used to calculate the weighted averages which capture the pattern characteristics of each factor (Watts and Stenner 2005). The Q-sorts that did not correlate significantly with any factor were excluded from further quantitative analysis (Watts and Stenner 2005).

An ideal-typical Q-sort was generated for each factor. This is referred to as the *factor array*. In Q-methodology, the interpretation of quantitative results essentially involves summarizing the perspectives represented by each factor array, providing insight into stakeholder viewpoints and their interrelationships. We based these descriptions on statement scores per factor array and the post-sorting interviews with participants whose Q-sort correlated with each factor. On each of the five themes mentioned earlier, we compared state-

ments ranked significantly differently across factors, as well as identified areas of consensus between perspectives (Watts and Stenner 2005; Auster et al. 2021).

Results

Factor analysis

A four-factor solution was chosen because it met the criteria explained in Sect. 2.5 and had the highest explained variance (64%). Although a three-factor solution also met the criteria, it explained less variance (60%). In both solutions, four Q-sorts did not load on any factor, meaning they do not correlate significantly ($p < 0.01$) with any factor (GO4, AK5, AK3, and GO3). These *Q-sorts* were excluded from further quantitative analysis. The correlation of each Q-sort with the factors can be found in the Appendix. We used auto-flagging by KenQ, with $p < 0.05$.

Table 2 provides an overview of all statements, along with the factor-array scores for each factor. Statements that receive a rating of $-/+3$ or $-/+4$ within a factor array indicate items with which participants strongly disagree or agree within that factor. For more detailed information on the highest and lowest factor-array-scores within and between the factors, see the *crib sheets* included in the Appendix.

Based on the z-scores, Fig. 2 presents the statements in order from the highest level of agreement across factors, to the greatest level of differentiation between factors. The z-score is a standardized score indicating a statement's relative importance within a specific factor, transforming the raw Q-sort rankings (-4 to $+4$) into a normalized scale. It shows how many standard deviations a statement's score lies above or below the factor's average, enabling comparison between factors. The z-score shows which statements are most salient for each of the four factors. This is important for assessing, within each perspective, the relative significance of different aspects of coexisting with wolves. The Appendix includes a table presenting the factor Q-sort values and statement rankings, sorted according to the degree of consensus versus disagreement across factors.

Table 3 shows the correlation between the factors. Factor 1 is negatively correlated with the other three factors, which in turn are all positively correlated with one another.

Table 4 provides information on the statistical analyses. The reliability of the four perspectives was assessed using composite reliability (CR) and the standard error (SE) of the z-scores for each factor. CR reflects the internal consistency of each factor, indicating how reliably the items measure the underlying construct. SE of the z-scores shows the precision of the factor scores, with smaller values indicating more stable estimates. Eigenvalues indicate the amount of variance each factor captures from the data, helping to identify meaningful factors. Explained variance shows the proportion of total data variability accounted for by the factors, illustrating how well the factor model represents the dataset. CR values ranged from 0.889 to 0.986, exceeding the commonly cited threshold of 0.8 (Rahma et al. 2020), indicating that all four factor arrays reliably represent the participants' perspectives. The SE of the z-scores, which reflects the precision of the scores within each perspective, varied across perspectives. Perspective 1 had the lowest SE (0.118), indicating higher reliability, while Perspective 2 had an SE of 0.243, and Perspectives 3 and 4 both had SEs of 0.333.

Table 2 List of the statements used in the Q methodology application, and the scores in the factor arrays for respectively the factors 1,2,3 and 4 (F1, F2, F3, F4), and consensus and distinguishing statements. Statements marked with asterisk (*): in KenQ indicated statements for which the perspectives show consensus, with no significance observed at either $p < 0.01$ or $p < 0.05$ Distinguishing statements with $P < 0.01$ are marked with “DS”

No.	Statement	F1	F1 DS	F2	F2 DS	F3	F3 DS	F4	F4 DS
1	It is wonderful that there are wolves in the Netherlands	1	x	-2		-3		-1	
2	Problematic wolf behavior is caused by human behavior	1		-3		0		-1	
3	For coexisting with wolves, it is acceptable that this requires some people to make significant adjustments that affect their daily lives	1	x	-2		-3		-1	
4	Wolves are of great value for maintaining natural balance and biodiversity in the Netherlands	2	x	-2		-2		-2	
5	Nature has intrinsic value	4		1		-1		1	
6	Compensation for damage caused by wolves should only be provided if the animal keeper had implemented recognized and properly applied wolf deterrent measures	1	x	-1		-2		-4	
7	Shooting wolves does not protect sheep; without a proper fence, another wolf will simply take its place	3	x	-3		-2		-1	
8	Opponents of wolves know too little about wolf behavior	0		-2		-2		-1	
9	There is no place for wolves in the Netherlands	-4		-2		0	x	-3	
10	Wolves are a major danger, not only to our animals but also to ourselves	-3		0		0		-3	
11	Wolves dominate the daily life of animal keepers in wolf areas	-1		0		1		3	
12	Wolves do not make a meaningful contribution to the natural or cultural landscape	-2	x	0		2		1	
13	Humans are above nature	-4	x	0		-1		4	x
14*	If animal keepers protect their animals from wolf attacks, they are yielding to the wolf	-2		-3		-1		-2	
15	The wolf population should be actively managed, with culling as an accepted method	-2	x	4		1		3	
16	Information from scientists about wolves cannot be trusted	-3	x	-1	x	1		0	
17	Attention to wolf damage is striking, because at least ten other wild species cause more damage to agriculture	1	x	-1		-4		-3	
18	It is in everyone's interest to find ways to coexist with wolves	2		2		-3		0	
19*	Conflicts over wolves can only be resolved through compromise and cooperation between groups with differing opinions	0		2		0		0	
20	A pony club riding through the forest makes so much noise that wolves leave well in advance	-1		-3	x	2		0	
21	Wolves manage deer and wild boar better than we ever could	0	x	-4		-2		-2	
22	The wolf debate is really not about wolves, but about the importance of nature versus the importance of humans	4		2		0		-2	
23	The fact that few animal keepers in wolf areas comply with their duty to protect animals complicates a solution	2	x	-1		-4		-2	
24	Animal keepers have a legal obligation to protect their animals, including from predators	3	x	-1		0		-2	
25	We have a shared responsibility to teach wolves that livestock is not easy prey	3		1		-3	x	2	

Table 2 (continued)

No.	Statement	F1	F1 DS	F2	F2 DS	F3	F3 DS	F4	F4 DS
26	By ensuring a healthy international wolf population, a new situation arises and joint agreements on wolf management become possible	0		3		3		0	
27	A National Wolf Information Point, providing objective and expert information about wolves, would reduce polarization over wolves	0		0		-1		-1	
28	More ecological connections between nature areas in the Netherlands and Europe are needed so that wolves have access to more habitats and natural prey	2		-4	x	2		2	
29	Wolves pose a threat to the current way of life in rural areas	-2		0		1		-4	
30	I am willing to coexist with wolves, but not in the way it is currently happening	-1		0		0		1	
31	Preventive wolf deterrent measures are not effective	-3		-2		0		2	
32	Concerns about possible wolf attacks cause so much stress for animal keepers that it affects their wellbeing	0		1		3		1	
33	The wolf population in the Netherlands will remain too small to contribute to wildlife management	-1		1		-2		2	
34	Protecting wolves should not be prioritized over the economic security of animal keepers	-2	x	-1		1		1	
35	Wolf deterrent fences and barriers pose risks to humans and other animals besides wolves	-2	x	0	x	4		3	
36	Direct, generous, and large-scale investment in implementing wolf deterrent measures is necessary	2		3		-1		0	
37	It is good that steps are being taken to reduce the protected status of wolves	-3		4	x	-1		-1	
38	There is a need to recognize the emotions of animal keepers in wolf areas	0		2		1		4	
39	The government knows too little about the reality of residents and animal keepers in wolf areas	-1	x	1		2		1	
40	Installing and maintaining wolf deterrent fences requires too much manpower	-1	x	3		4		2	
41*	Polarization of the debate does not contribute to a solution	3		1		3		1	
42*	Coexisting with wolves is acceptable even if there is a small risk of attacks on sheep and other small livestock	1		2		1		0	
43	Local communities (especially animal keepers and rural residents) bear the disadvantages of wolves, while other stakeholders (such as wolf-tourists and conservationists), often living elsewhere, enjoy the benefits	0	x	3		3		2	
44	There is a lot of misinformation about wolves	2		0		-1		-3	
45	Stakeholders (both for and against wolves) are insufficiently involved in decisions about wolf management	-1		1		0		3	
46	I have little confidence that the government will come up with good solutions	0		-1		2		0	
47	All stakeholders are responsible for resolving the controversy over wolves	1		2		2		0	x



Fig. 2 Z-scores per factor for each Q statement, ordered by level of participant agreement / disagreement between factors

Table 3 Correlations between the identified factors in the Q method application. The correlation coefficients indicate the extent to which the four factors are similar

	Factor 1	Factor 2	Factor 3	Factor 4
Factor 1	1	-0.0793	-0.2324	-0.2219
Factor 2	-0.0793	1	0.3219	0.3934
Factor 3	-0.2324	0.3219	1	0.4107
Factor 4	-0.2219	0.3934	0.4107	1

Table 4 Composite reliability (internal consistency of factors), standard error of z-scores (precision of factor scores), eigenvalues (variance captured by each factor), and explained variance (proportion of total variability accounted for by the factors) of the factors identified in the Q methodology application

	Factor 1	Factor 2	Factor 3	Factor 4
Composite Reliability	0.986	0.941	0.889	0.889
SE of z-scores	0.118	0.243	0.333	0.333
Eigenvalue	12.75	3.8854	1.6022	1.3385
Explained variance	42	13	5	4

Description of the perspectives

The following section presents the four factor arrays, hereafter referred to as ‘perspectives’ using the terminology defined in the introduction. The statement numbers are presented within parentheses, followed by their corresponding factor array scores and z-scores. Statistical significance is indicated by asterisks: one asterisk denoting $p < 0.05$, and two asterisks denoting $p < 0.01$. For example, a score for statement 5 with a factor array value of 4, a z-score of 1.54 and $p < 0.05$ is represented as (5: +4, +1.54, *). If a statement is mentioned but no p-value is reported, this means it is not a distinguishing statement, but the statement

is still included because of the high factor array-score and z-score and/or its substantive relevance within the perspective. Table 3 provides an overview of the statements with their numbering. Participant quotes from post-sorting interviews are italicized and the corresponding participant code is provided.

When only a few Q-sorts correlate with a factor, the factor array represents the perspective on statements less accurately if there are widely divergent scores on certain statements. However, these statements are still valuable for highlighting where differences exist within the perspective. Statements meeting this criterion (based on a difference of 5 or more between scores, as this reflects a clear ‘agree–disagree’ aspect) have therefore been noted in the descriptions of perspectives 2, 3, and 4.

We did not submit the written perspectives to participants (or other stakeholders) for feedback, however after completing the study we presented our results to those respondents who voiced interest in them and have not received any feedback indicating misrepresentation of viewpoints.

Perspective 1: Wolves have intrinsic value; prevention is the solution.

Eighteen Q-sorts correlate significantly with this perspective, including Q-sorts from all stakeholder-categories. Two Q-sorts (GO4 and AK5) correlate equally with this perspective and with another one; these two Q-sorts were therefore not included in the calculation of the *factor array*.

A. Fundamental views on the human–nature relationship.

This perspective emphasizes the intrinsic value of nature (5: +4, +1.54, *) and considers it a precondition for human well-being. The view that humans hold dominance over nature is strongly rejected (13: -4, -2.06, **). Participants argue that the societal debate surrounding wolves reflects deeper ideological tensions between human-centered and nature-centered values (22: +4, +1.42). As one participant explained, “*That is, at its core, what explains the excitement and polarization. People feel deeply challenged or even attacked in what they truly believe about the bigger picture — about human responsibility and place within the larger whole*” (SC4).

B. Wolves and their role in Dutch nature.

Participants supporting this perspective assert that wolves have a place in the Netherlands (9: -4, -2.06, **), since they returned naturally and established themselves without human intervention. While wolves are considered valuable for biodiversity and ecological balance (4: +2, +1.07, **), there is recognition that their return has sparked social tensions and ambivalence among the public. This tempers the enthusiasm about their presence (1: +1, +0.77, **).

C. Wolf-deterrent measures and management.

The perspective also highlights the importance of non-lethal management and preventive measures. Although wolf-deterrent measures do not offer absolute protection, the belief that such methods are ineffective is not supported (31: -3, -1.39). The notion that active population control through culling is necessary is rejected (15: -2, -1.10, **). One participant clarified that “*management*” should refer primarily to preventive measures and stated that targeted interventions should be reserved for exceptional cases (SC5), rather than use routine culling, which would disrupt pack structures and potentially increase conflicts. The conviction that killing a wolf only opens space for another, often younger and inexperienced individual — thereby increasing livestock attacks — is widely shared (7: +3, +1.41, **). Reducing the wolf’s protected status is opposed (37: -3, -1.52, *).

From this perspective, responsibility for livestock protection lies primarily with animal keepers. The statement that keepers have a legal duty to protect their animals, including from predators, receives strong support (24: +3, +1.11, **). While opinions differ on who should bear the costs of preventive measures, there is consensus that teaching wolves to avoid livestock is a shared societal task (25: +3, +1.32).

D. Impacts on animal keepers.

As preventive measures can protect livestock, this perspective considers the consequences of the presence of wolves for keepers as neutral or less important (32: 0, -0.05, *; 43: 0, -0.12, **). Fear of wolves is considered unnecessary (10: -3, -1.71). One participant stated: *"I believe the wolf poses no danger to humans. It simply means we must adapt our behavior—such as keeping dogs on a leash or avoiding forests with a dog in heat. We must relearn to share our nature"* (GO6).

E. Information and communication.

Within this perspective, participants strongly emphasize that the polarization of the debate does not contribute to finding solutions (41: +3, +1.1). They also argue that scientific information should be more widely utilized, including by policymakers and politicians, as it is regarded as a reliable basis for policy and discussion (16: -3, -1.63, **).

Perspective 2: Wolves contribute nothing; management through culling.

Four Q-sorts correlate with this perspective, including Q-sorts from animal keepers and site managers. Statements for which there is a difference of 5 or more between the scores of the correlating Q-sorts are specifically mentioned.

A. Fundamental views on the human–nature relationship.

Similar to Perspective 1, participants recognize that the wolf debate reflects broader human–nature issues (22: +2, +0.9), though the factor array-score shows this is seen as a less important aspect of the debate. Also, the specifics of human–nature relationships are considered relatively unimportant (5: +1, +0.57; 13: 0, +0.26, *).

B. Wolves and their role in Dutch nature.

Wolves are generally regarded as having a place in the Netherlands (9: -2, -1.08), though less emphatically than in Perspective 1. Participants argue, *"There is space for the wolf in the Netherlands... they have established themselves and are thus part of Dutch nature and landscape"* (SM6). Unlike Perspective 1, however, wolves are not considered valuable for natural balance or biodiversity (4: -2, -1.19). Participants believe wolves cannot manage populations of wild boar or deer better than humans (21: -4, -2.04, *). Problematic wolf behavior is attributed to their adaptation to densely populated areas rather than to human behavior (2: -3, -1.23), exemplified by AK6: *"Wolves get used to where they live. If they live near a pony club, they adapt to the noise and won't run away if they pass by"* (20: -3, -1.35, **).

C. Wolf-deterrent measures and management.

This topic generates the strongest reactions. Lowering the wolf's protected status is supported (37: +4, +2.2, **). Active population management, including culling, is widely accepted (15: +4, +2.15; 7: -3, -1.42). SM1 explains: *"...you can protect sheep by shooting wolves, just like managing forests by shooting deer or wild boar. It is possible if you want to."* International coordination for wolf management is seen as a solution (26: +3, +1.16), while expanding ecological corridors is rejected (28: -4, -1.43, **). Wolf-deterrent measures are seen as effective but resource-intensive (31: -2, -1.1; 40: +3, +1.26).

D. Impacts on animal keepers.

Rural communities are recognized as bearing the brunt of wolf impacts (43: +3, +1). Participants emphasize the need for immediate, large-scale investment in wolf-deterrent measures while acknowledging the substantial labor and resources required (36: +3, +1.29). Perceived threats to humans or livestock are deemed of minor importance (10: 0, +0.17).

E. Information and communication.

Scientific information is generally trusted but not considered central (16: -1, -0.76, **). Polarization is not seen as highly relevant (41: +1, +0.63). Trust in government to provide effective solutions is relatively high compared to the other perspectives (46: -1, -0.87, *). There is no consensus regarding the extent of misinformation about wolves; Q-sort-scores range from slight disagreement to strong agreement. (44: Q-sort scores -1, +3 and +4).

Perspective 3: Wolves cause damage and stress; prevention does not work.

Two Q-sorts correlate with this perspective (from animal keepers and site managers). Two additional Q-sorts were excluded from the factor array due to overlap with other perspectives (AK3, GO3). Statements showing large divergence between correlating Q-sorts (difference ≥ 5) are specifically noted.

A. Fundamental views on the human–nature relationship.

According to this perspective human–nature considerations are of limited importance. The intrinsic value of nature (5: -1, -0.36, *), human dominance over nature (13: -1, -0.73, *) and whether the debate is about wolves or about human versus nature (22: 0, +0.18) are not deemed important.

B. Wolves and their role in Dutch nature.

Whether or not there is place for wolves is not seen as relevant (9: 0, 0, **), but there is no enthusiasm about the fact that wolves exist in the Netherlands (1: -3, -1.35): “*I do not think it is great... the forests are so small that a large part of the farmland automatically becomes part of the wolf’s territory*” (AK2). Living alongside wolves is not seen as in everyone’s interest (18: -3, 1.32, *).

C. Wolf-deterrent measures and management.

Preventive measures are viewed negatively: they are labor-intensive (40: +4, +1.71) and can pose risks to humans and livestock (35: +4, +2.1, *). Effectiveness is considered secondary (31: 0, +0.02, *) The idea of a collective responsibility to train wolves to avoid livestock is rejected (25: -3, -1.53, **) and the fact that only few animal keepers in wolf areas comply with their duty to protect animals is not considered a complication in reaching a solution (23: -4, -1.55). Support exists for international agreements on wolf management as soon as a favorable conservation status is achieved (26: +3, +1.32). Opinions diverge on scaling up domestic deterrent measures (36: Q-sort scores -3 and +2) and on reducing protected status (37: Q-sort scores +1 and -4).

D. Impacts on animal keepers.

Rural communities experience stress and concern due to wolves (32: +3, +1.53), while urban populations perceive only benefits (43: +3, +1.71). Extensive damage by other animal species is acknowledged, but is considered less emotionally salient (17: -4, -1.74). Adaptations imposed on daily life to make coexistence with wolves possible are largely rejected (3: -3, -1.32).

E. Information and communication.

No strong opinions emerge on this theme. Opponents are deemed adequately informed (8: -2, -1.14), and the trustworthiness of scientific information is considered of limited relevance (16: +1, +0.39). Misinformation is not seen as a major concern (44: -1, -0.21), but

polarization of the debate is viewed as not contributing to a solution (41: +3, +1.55). Trust in government is the lowest among the supporters of this perspective (46: +2, +1.12, *).

Perspective 4: Humans and their emotions towards wolves are central.

Two Q-sorts correlate with this perspective, from the stakeholder-categories animal keepers and scientists. Statements showing large divergence between correlating Q-sorts (difference ≥ 5) are noted.

A. Fundamental views on the human–nature relationship.

Participants strongly affirm human dominance over nature. SC1: “*The idea that humans stand above nature is a matter of principle. That’s how I view life.*” (13: +4, +2.3, **). The debate is understood as being specifically about wolves rather than broader human–nature conflicts (22: -2, -0.82, *).

B. Wolves and their role in Dutch nature.

Wolves are seen as having a place in the Netherlands (9: -3, -1.3) and not posing major danger to humans (10: -3, -1.24), but their ecological value is considered limited (4: -2, -0.91). Opinions differ regarding wolves’ role in controlling deer and wild boar populations (21: Q-sort scores -4 and +1).

C. Wolf-deterrent measures and management.

Wolf deterrents are perceived as hazardous to people and other animals (35: +3, +1.15, *), not fully effective (31: +2, +1, *), and resource-intensive (40: +2, +0.91). Active population management including culling is supported (15: +3, +1.48). Compensation for livestock losses is considered necessary even if deterrents were not applied. “*...you can’t place all the responsibility on the farmer. Losing a sheep now and then, fine. But when there’s a lot of damage, you can’t expect them to bear that. That’s unfair.*” (SC1) (6: -4, -2.3, *). Opinions diverge on scaling up deterrent measures (36: Q-sort scores -2 and +2) and on creating ecological corridors (28: Q-sort scores +4 and -2).

D. Impacts on animal keepers.

Although wolves are not perceived as threatening daily life (29: -4, -1.73, *), they dominate the lives of animal keepers (11: +3, +1.06). Emotional impacts are central, with recognition of stress and safety concerns. AK4: “*...those people have lost a sense of safety because of the wolf. And they’re very worried about it.*” (38: +4, +1.97, *). Acceptance of a small risk to livestock varies (42: Q-sort scores +2 and -3).

E. Information and communication.

Within this perspective, it is not believed that there is a great deal of disinformation about human-wolves interactions (44: -3, -1.15, *). The trustworthiness of scientific information (16: 0, +0.33) and opponents’ knowledge (8: -1, -0.33) is not considered relevant. Polarization is also not viewed as important (41: +1, +0.48).

Perspective 1 ‘*Wolves have intrinsic value; prevention is the solution*’ explains most of the variance: most Q-sorts correlate with it, and all stakeholder categories are represented within it. Nature conservationists, scientists, and government employees are primarily associated with this perspective. Site managers are evenly divided between perspective 1 ‘*Wolves have intrinsic value; prevention is the solution*’ and perspective 2 ‘*Wolves contribute nothing; management through culling*’, and animal keepers appear across all four perspectives.

Discussion

Nuanced views on human-wolf coexistence

We identified four shared perspectives on human-wolf coexistence in the Netherlands. The identified perspectives reveal how stakeholders perceive the presence of wolves, which aspects of wolf-human coexistence they consider to be (un)problematic, and which societal solutions they consider (un)acceptable. The distribution of perspectives across stakeholder categories shows that no single perspective is held exclusively by one category. Similarly, there is no stakeholder category in which only one perspective is represented. This indicates that there is more diversity -both within and between stakeholder categories- in perspectives on coexisting with wolves than the apparent polarization in the debate would suggest. This also underlines the value of Q-methodology as its findings challenge an assessment and management strategy based on pre-existing stakeholder categorisations, which may not reflect reality but rather reinforce stereotypes. These findings align with those of Bredin et al. (2018) in their study on jaguar conservation in Brazil, who similarly found no clear “pro” and “contra” groups and observed that identified perspectives did not align with pre-established stakeholder categories. Chapron et al. (2025, p 3) also found no “*opposing social groups - such as rural versus urban populations - ...*” in their study on public support for various species of large carnivores in Europe. Digging more deeply into the perspectives identified in the current study allows us to identify differences and commonalities across the four perspectives.

Differences and commonalities across perspectives

Differences and commonalities in general

The correlations between the four perspectives provide an initial general impression of the similarities and differences among perspectives. Perspective 1 ‘*Wolves have intrinsic value; prevention is the solution*’ shows a weak negative correlation with the other three perspectives, making it the most distinct perspective. Since the correlation is only slightly negative, this indicates some overlap with the other perspectives. The other three perspectives correlate slightly positively with each other, indicating shared features while remaining sufficiently distinct to be interpreted separately. Perspective 3 ‘*Wolves cause damage and stress; prevention does not work*’ and perspective 4 ‘*Humans and their emotions towards wolves are central*’ correlate most strongly, indicating they share quite some characteristics. The higher SE values for these perspectives suggest greater variability in opinions within these perspectives, meaning conclusions should be drawn more cautiously. These findings already hint at the presence of common ground across perspectives. Opinions among our respondents diverged on where wolves should be allowed to live yet across all perspectives the presence of wolves in the Netherlands was accepted, albeit sometimes reluctantly. This aligns with the findings of Chapron et al. (2025), indicating that the majority of Europeans support the recovery of wolves, as long as there is no further population growth, although of the twenty-four countries included in that study, the Netherlands showed the highest level of support for a decrease in the current wolf population. These findings are partly mirrored in our findings, where only supporters of perspective 2 ‘*Wolves cause damage and stress;*

prevention does not work' are in favour of wolf population management through culling. The perspectives we found are mostly characterized by moderate views, indicating that the attention to contrasting stakeholder views is an overly biased representation of the 'conflict'.

The influence of scientific knowledge

Differences in fundamental views on the relationship between humans and nature are also reflected in the different perspectives on wolves. Regarding wolves and their significance in Dutch nature, there were notable differences between perspective 1 '*Wolves have intrinsic value; prevention is the solution*' and the other three perspectives. Although multiple scientific sources attribute various positive ecological benefits to wolves (Tanner et al. 2019; Brandell et al. 2022; Pongen 2024; Jansman et al. 2021; TEEB 2010), this knowledge does not have a strong influence on the perspectives on wolves in the Netherlands. This is reflected in the ranking of the statement on the reliability of scientific information (S16), which is considered less important or neutral by supporters of three of the four perspectives. Information and communication in general elicited moderate responses for all perspectives. This aligns with Lino et al. (2024) and Sjölander-Lindqvist (2017) who respectively state that knowledge about wolves did not play a decisive role in attitudes or in shaping public opinion on wolves. This is reflected in the factor arrays for statement 27 "*A National Wolf Information Point, providing objective and expert information about wolves, would reduce polarization over wolves*" (respectively 0, 0, -1, -1). The insight about the limited influence of scientific information on certain stakeholders is relevant for managing expectations and for the further development of the national information center. Almarcha et al. (2022) similarly state that against 'the political wolf' (which refers to the wolf being used as a political symbol and as a scapegoat for multiple issues) the best available science is not enough. In our study, even proponents of perspective 1 '*Wolves have intrinsic value; prevention is the solution*' acknowledge that values and ideology play a key role in shaping perspectives on wolf-human interactions (S22). However they do call for a stronger reliance on scientific knowledge to inform wolf management and policies, as do Ordiz et al. (2024).

The protection of livestock

Substantial disagreement emerged concerning wolf-deterrent measures and wolf management options. The only point of consensus across perspectives was that protecting livestock does not imply yielding to wolves. On this aspect, the Council on Animals Affairs found nonetheless that some stakeholders in the Dutch media landscape use this as a key argument against preventive measures (RDA(c) 2024). The prominence of livestock-related issues is also reflected in the media coverage in neighboring countries such as Germany, where lethal control, wolf monitoring and livestock depredation were the most frequent topics identified by Braun et al. (2025). Lino et al. (2024) report about dominant negative attitudes towards wolves and a 'not in my backyard' stance among animal keepers. In our study, perspective 1 '*Wolves have intrinsic value; prevention is the solution*' differed from the other three perspectives regarding: the obligation to protect livestock, the importance of fulfilling these obligations for resolving conflicts, the labor involved in preventive measures, and the associated risks for humans and animals. The impacts of wolves on animal keepers were considered most salient by proponents of Perspective 3 '*Wolves cause damage and stress*;

prevention does not work' and Perspective 4 '*Humans and their emotions towards wolves are central*', particularly in terms of emotional and financial consequences.

Differences were evident regarding the acceptability of culling wolves for population management or sheep protection, although only supporters of perspective 2 '*Wolves cause damage and stress; prevention does not work*' explicitly support culling. This divergence of views regarding culling is also apparent in other European countries (such as Sweden (Sjölander-Lindqvist, 2017) and Spain (Ordiz et al. 2022)).

Given that the factor arrays for statement 42 "*Coexisting with wolves is acceptable even if there is a small risk of attacks on sheep and other small livestock*" are neutral (with a slight positive tendency), they suggest that none of the identified perspectives is fundamentally opposed to coexisting with wolves. Perspectives differ on who bears responsibility for preventing wolf damage, and whether such damage is a business risk for animal keepers or a collective societal burden. In this context, it is worthwhile to mention that Bautista et al. (2019) warn that damage compensation alone will often fail to build tolerance towards predators, although it can de-escalate conflict situations. Our results show how aspects of livestock protection measures and damage compensation are weighed across the different perspectives, potentially providing insights for policy decisions regarding the management of these issues.

Scope for dialogue

Multiple studies have highlighted that different perspectives on wolves (may) lead to strongly polarized debates (Konopka and Niedzialkowski 2025; Almarcha Martínez et al. 2022; Chapron et al. 2025). However, our study shows that, despite the diversity of perspectives on wolf-human interactions in the Netherlands, agreements across perspectives are common and extreme positions are not broadly shared. Each stakeholder considers certain issues to be more important than others, and most understand that other stakeholders may have a different perspective. Even if stakeholders disagree on some points, there are opportunities for constructive dialogue: what is crucial for one group but less important for another, can allow flexibility on points where the other group is firm and the first is neutral. Key areas where this applies include: (i) wolf-related damage; (ii) the costs of wolf-deterrent measures; (iii) participation in policy-making; (iv) the value of nature; (v) the reliability of scientific information. These first three topics play a key role in conflict (de-) escalation (Zimmermann et al. 2020).

Our findings suggest that the situation in the Netherlands is currently best characterised as a level 1 conflict according to the framework of Zimmerman et al. (2020). Stakeholders have concerns, focussing on different issues, but are mostly proposing solutions that promote co-existence. The findings also indicate that most stakeholders are of the opinion that governments should design and implement effective measures that help avoiding human-wildlife conflicts, including fencing and if necessary, culling. Such proactive approach should prevent conflicts from escalating and become deep-rooted. Our study does not uncover a deep-seated cultural polarization regarding wolf-human relationships; none of the identified perspectives perceives the presence of wolves as a threat to the rural way of life. And although the diversity of perspectives does reflect the politicization of wolf-human relationships (as outlined in Sjölander-Lindqvist et al. 2018; and Chakrabarti et al. 2023), no major polarization is apparent and multiple areas of consensus could be identified. With

this in mind, a focus on an imagined dichotomy between pro-wolf and anti-wolf stakeholder groups is not scientifically accurate and is not socially useful, as it tends to polarize rather than contribute to developing shared perspectives and corresponding actions.

Nevertheless, policy makers should be aware of the potential risk of escalation and support transdisciplinary approaches whereby stakeholders and scientists together develop an approach that fits stakeholder needs and combines the protection of wolves with prevention of incidents. Dutch wolf policy focusses on a coherent approach among responsible authorities, prevention of incidents, sharing of knowledge and information, taking into account that the Netherlands has a legal obligation to protect the wolf (IPO, 2025). Furthermore, policy makers should ideally give more attention to the social aspects of co-existence with wildlife and to the potential risks of polarization. Effective policies should therefore not only include measures for protecting wolves and livestock, but should also include measures aimed at avoiding escalation.

Conclusion

We have identified and described four distinct perspectives on human-wolf co-existence in the Netherlands. These perspectives do not overlap with any pre-existing stakeholder categories, suggesting that the divide in perspectives between stakeholder categories is less pronounced than expected based on the media coverage of the public debate. Our findings add nuance to the pervasive impression of polarization, and instead indicate multiple areas of agreement, creating opportunities for dialogue and for broadly supported wolf policies. For instance, all identified perspectives reflect an acknowledgement that wolves are here to stay and that eradication is not supported. Furthermore, consensus emerges on the usefulness of a National Wolf Information Point; the need for compromise and cooperation to resolve conflicts; the acceptability of a small potential risk of wolf attacks; a shared responsibility for resolving controversy; the level of knowledge of local realities in government organizations; polarization as a hindrance to finding solutions. Disagreements still exist regarding how to deal with wolf-related damage (to livestock), the acceptability and sharing of costs of wolf-deterrent measures, the value of nature, and the importance of the reliability of scientific information. The fine-grained Q-analysis of perspectives identified the specific elements on which the four perspectives differ and where common ground can be found.

Together, these insights offer an opening for continued dialogue toward a diverse range of management decisions and policies to shape wolf-human coexistence across perspectives. The findings not only shed light on the Dutch context but also provide lessons learned that may apply in other densely populated areas or countries where wolves have recently returned and may return in the near future. As human-wolf-co-existence remains a contentious issue, this study could serve as input for fostering constructive conversations, facilitating collaborative solutions and preventing or reducing polarization.

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