



The Political Ecology of German Wolf Management

Narrowing Ideological Divides through Ex Ante
Incentives

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Abstract

Conflicts over wolf management in Germany and the species itself have become increasingly politicized, raising the question of whether wildlife management can influence voting behaviour. This thesis explores whether an alternative wolf management scheme based on ex-ante incentives could affect the voting preferences of German pastoral livestock owners. The study focuses on developing a suitable methodology to answer the research question and creating an adapted ex-ante incentive scheme inspired by Swedish carnivore management. A questionnaire was designed to collect data on demographics, wolf perceptions, and political affiliations. This was combined with a Vignette Design-Discrete Choice Experiment (VDCE), which framed the management proposals in radical-right, centre-right, and centre-left political styles while assessing preferences for specific management features. A pilot study tested the methodology, yielding 11 usable datasets. The study provided valuable insights into the practical challenges of reaching livestock owners and collecting sufficient responses. Though the dataset is limited, the findings suggest that ex-ante incentives could appeal to German livestock owners. However, significant refinement of the program design is necessary to address the remaining uncertainties. While this thesis demonstrates the complexity of linking wildlife management with political voting behaviour, it also highlights the potential of ex-ante incentives as a management tool. It underscores the importance of further research in this field.

Keywords: Political Ecology, Wolf Management, German Politics, Ex-Ante Incentives, Radical-Right, Livestock Owners

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Abbreviations

Abbreviation	Description
AI	Artificial Intelligence
AfD	Alternative for Germany [=Alternative für Deutschland]
BSW	Sahra Wagenknecht Alliance [=Bündnis Sahra Wagenknecht – Vernunft und Gerechtigkeit]
CE	Choice Experiment
CDU	Christian Democratic Union [=Christlich Demokratische Union]
CSU	Christian Social Union [=Christlich-Soziale Union] - Part of the CDU but operating in the federal state Bavaria
DCE	Discrete Choice Experiment
EU	European Union
FDP	Free Democratic Party [=Freie Demokratische Partei]
PLO	Pastoral Livestock Owner - We understand this term broadly, focusing on animals who are (partly) present on meadows, paddocks or in gardens and, therefore, potentially to be predated on by wolves.
SLU	Swedish University of Agricultural Sciences
SPD	Social Democratic Party of Germany [=Sozialdemokratische Partei Deutschlands]
VD	Vignette Design
VDCE	Combination of Vignette Design [VD] and Discrete Choice Experiment [DCE].

Agenda

For 25 years, wolves have been present in the German landscape again, and the population has increased exponentially. In the monitoring year 2022/23, the wolf population included 184 packs, 47 pairs and 22 territorial individual wolves (Reinhardt et al., 2023). The population is primarily concentrated in eastern and northern Germany and is expected to continue growing.

“When wolves returned to places where they had been absent for decades, or even centuries, they became trapped in an already-existing web of social tension. More than human-wildlife conflict, what we see are social conflicts: they are conflicts between people over wolves” (Skogen et al., 2017).

The public’s stance on German wolf management can be broadly categorized into two positions following Niedziałkowski (2023):

1. Advocates for passive wolf management support the current high protection status, emphasizing the species’ ecological significance within the ecosystem. They argue for habitat expansion and minimal human intervention, suggesting that lethal removal should be restricted to problem wolves. This approach aligns with the existing policy path, focusing on coexistence and conservation.

2. Advocates for active wolf management challenge the current policy, emphasizing the potentially severe consequences for local communities and the environment due to uncontrolled wolf expansion. They call for reducing the protection status of wolves, implementing wolf density limits, and removing wolves from human-dominated areas through lethal control. This approach prioritizes managing wolf populations to mitigate conflicts and protect human interests.

My background and evolving perspectives shape my position on wolf management. Growing up as a farmer’s daughter in rural Bavaria, a conservative region, I was initially exposed to the concerns of rural communities and land users. However, after moving to urban areas and pursuing an education in nature conservation, I developed a broader understanding of conservation principles. As a result, I find myself neither fully aligned with the farmer’s perspective nor the conservationist’s but rather adopting the role of a manager who seeks a balanced approach.

I believe the wolf is here to stay. Even with its protected status downgraded, we must relearn how to coexist with this species by adapting certain behaviours. However, my primary concern is not the wolf itself but the increasingly polarized conflict between those holding divergent positions on this issue. The debate has escalated to the point where it is less about the wolf and more about broader societal questions of wildlife management, governance and more. I am particularly troubled by the way the radical right-wing party AfD has exploited this conflict to gain support in rural areas. I view the increasing influence of populist, radical and

extremist parties as a much greater threat to our society and democracy than any species of wildlife could be.

Therefore, this thesis aims to contribute to narrowing the ideological divides in our society by applying my knowledge of wildlife management. I propose a wolf management scheme based on ex-ante incentives, a concept not yet discussed in the German context, which could offer a viable compromise to the existing positions.

1. Introduction

Evidence from Germany links wolf attacks on livestock with increased votes for the radical right-wing party, Alternative for Germany (AfD), highlighting the political dimensions of conflicts surrounding wildlife (Clemm von Hohenberg and Hager, 2022).

The country's current wolf management system relies on ex-post¹ compensation, a tool criticized in Europe for prioritizing the reimbursement of incurred damages over preventive measures (European Commission; Directorate-General for Environment; Blanco, 2023). This compensation-focused approach may heighten tensions surrounding wolf management, particularly concerning livestock predation. The AfD has utilized the conflict to gain votes by appearing

"as a party that cares for the needs and worries of the rural population, while simultaneously tapping into widespread anti-immigration, anti-urban and anti-government resentments" (Pates and Leser, 2021).

However, the AfD's proposed management strategy, which involves significantly reducing the wolf population and creating wolf-free zones, starkly contrasts public opinion (AfD, 2021). - Surveys reveal that 76% of Germans support coexistence with wolves (Nature and Biodiversity Conservation Union, 2021).

While Clemm von Hohenberg and Hager (2022) analyzed historical voting patterns linked to wolf-related conflicts, this thesis investigates how an alternative wolf management approach might shape the future voting behaviour of pastoral livestock owners. It aims to answer whether wildlife management can significantly influence party preference. Given the wolf's highly polarizing and politicized status, it serves as a focal species for this research. Pastoral livestock owners, who are directly impacted by wolf presence, represent the key stakeholder group.

The study begins by establishing a baseline, examining livestock owners' perceptions of wolves and the existing wolf management system in Germany to evaluate the necessity of alternative approaches. It then explores their willingness to participate in an adapted ex-ante² incentive program inspired by Swedish carnivore management practices, which employ Conservation Performance Payments. Finally, the research integrates a political dimension by presenting livestock owners with the proposed incentive scheme framed in radical-right, centre-right, and centre-left narratives.

To realise this, an online questionnaire was developed and disseminated using the snowball sampling method. The survey incorporates a VDCE table, combining vignette design [VD], to integrate the political phrasing of the management

¹ Compensation AFTER livestock is injured or killed

² Payments for the predation risk BEFORE livestock is killed or injured

proposals, with a discrete choice experiment [DCE] to analyze perceptions of the incentive program's attributes. This approach facilitates an analysis of how political phrasing and program attributes influence livestock owners' preferences and potential voting behaviour.

The primary goal of this thesis is to establish a robust methodology to address the research questions and conduct a pilot study to test its feasibility. The pilot study offers initial insights into livestock owners' willingness to engage in ex-ante incentive schemes, serving as a test case for more extensive future research.

The thesis is structured to provide an overview of the threat posed by right-wing extremism to democracy and the role of the AfD, the status of wolves in Germany, and current management practices. It explores the politicization of wolf management, particularly the connection between livestock owners and the AfD. The theoretical framework of political ecology is introduced, followed by a review of existing research on the intersection of wolf conflicts and politics, carnivore management methodologies, and relevant attributes for management strategies. The methodology is then described in detail, including the design of the ex-ante incentive scheme and its attributes. The thesis concludes with a summary of the pilot study results and an interpretation of the findings in the discussion including a conclusion section.

2. Background

This chapter sets the stage for the multidisciplinary nature of this thesis. It begins by explaining the motivation behind the thesis in relation to right-wing radicalism and extremism. The political context and current wolf management in Germany are then outlined, followed by an exploration of the connection between our research group, German livestock owners, and the intersection of wolf management with radical-right politics.

2.1 Right-Wing Extremism and Its Threat to German Democracy

This thesis explores how wildlife management, specifically with regard to the conflict species wolf, could contribute to addressing social divisions in Germany. One indicator of this division is the increasing orientation towards the extreme right. Therefore, this subsection will provide background information on the potential dangers, current trends, and key political party involved, offering essential context to understand the political and social dynamics that influence wolf management.

Around the world, democracy is facing critical challenges, leading to democratic backsliding or even collapse in some cases (Berman, 2021). Populists and extremists, particularly those on the right, are often identified as primary threats to democratic stability (Berman, 2021; Levitsky and Ziblatt, 2018; Milner, 2021; Zick et al., 2023). Given these circumstances, the growing support for right-wing populist parties across Europe is concerning (Milner, 2021), particularly in Germany, where such trends have led to a very dark chapter in history less than a century ago.

The current main actor in Germany classified as right-wing and populist is the political party Alternative for Germany [AfD] (Hansen, 2022), which has seen increasing support, reaching 15.9% in recent European Parliament elections (ARD-aktuell/ tageschau.de, 2024). This summer, for the first time since its formation, the AfD also became the strongest party in a federal state (Thuringia) by securing more than 30% of the votes (Tagesschau, 2024). The European Union labels the party as a 'radical right-wing party' (European Parliament et al., 2022), and the German National Intelligence Service has classified the party as a 'Verdachtsfall' [= a subject of an extended investigation to verify suspicion] for being a right-wing extremist party (Federal Ministry of the Interior and Community, 2024). The most recent Constitution Protection Report by the Federal Ministry of the Interior and Community (2024) estimated 11,300 AfD members as having right-wing extremist potential - an increase compared to previous years. The total right-wing extremist potential in Germany is increasing as well with 33,900 in 2021 and 40,600 in 2023,

with 14,500 [2023] being violence-oriented (Federal Ministry of the Interior and Community, 2024). The potential unconstitutionality of the party is regularly discussed in calls for a ban, with the most recent proposal receiving support from 113 members of parliament in November (Deutscher Bundestag, 2024a). To clarify what extremism entails, Parliament et al. (2022) explain:

“The main feature of right-wing extremism, which distinguishes it from right-wing radicalism, is its rejection of the fundamental values of democracy and the rule of law.”

Consequently, right-wing extremists may justify the use of violence to achieve their goals. This includes “terrorist attacks][, hate crime, spontaneous violence, as well as hate speech and incitement to violence or hatred” (European Parliament et al., 2022) – detailed definitions can be found in appendix 7.

This description aligns with the increase in right-wing extremist acts of violence in Germany, which rose by 13% from 2022 to 2023 (Federal Ministry of the Interior and Community, 2024). The challenges to democracy in Germany are heightened as support for right-wing extremist views grows, particularly in mainstream society (Zick et al., 2023)

The AfD has its strongest supporter base in Eastern Germany, a region that also exhibits the highest wolf density. The radical-right party strategically leverages this overlap by positioning the wolf as a central figure in its politics of fear. Fear serves as an important and effective driving force in politics and plays a pivotal role in fueling rising nationalism. (Pates and Leser, 2021)

2.2 Wolf Recolonization, Conservation, and management in Germany

2.2.1 Recolonization and Conservation: The Status of Wolves in Germany

To address the varying public perceptions regarding the wolf population in Germany, this subsection will present current data on wolf numbers, along with an overview of their history and distribution. In addition, it will outline the mechanisms that govern their protection status, particularly in light of ongoing discussions about potential changes to this status.

For 150 years, Germany had no resident wolves because humans eradicated them (Reinhardt, 2007). Only with the introduction of legal protection, first in 1980 in the Federal Republic of Germany and later, after reunification in 1990, in the regions of the former German Democratic Republic, did wolves have the opportunity to recolonize their former habitats naturally (Reinhardt, 2007). Ten years later, in 2000, the first wolf pack was confirmed in Saxony [a federal state of Germany], marking a significant milestone in the recovery of the species. By 2005, a second pack had been documented, and since then, the wolf population has

continued to grow exponentially and expand throughout Germany [Figure 3] (Reinhardt et al., 2023).

"In the monitoring year 2022/23 for Germany, 184 wolf packs, 47 scent marking pairs and 22 single resident wolves were confirmed" (Reinhardt et al., 2023).

More than half of these are concentrated in just three of Germany's 16 federal states. During the same monitoring year, at least 1,339 individual wolves were recorded in Germany, around 500 of them being adult wolves [Figure 4] (Reinhardt et al., 2023).

Based on current research, there are estimated 700 to 1,400 potential wolf territories in Germany, each averaging approximately 200 km² in size (Kramer-Schadt et al., 2020). Given these conditions, further positive development of the wolf population is anticipated without a change of legislation.

The protection status of the wolf in Germany is not only determined by national legislation but is also influenced by the commitments of Germany as a member of the European Union [EU]. In 1979, Germany signed the Convention on the Conservation of European Wildlife and Natural Habitats, commonly known as the Bern Convention, which lists the wolf [*Canis lupus*] under Appendix II as a strictly protected species (Council of Europe, 2024). Additionally, the EU's Council Directive on the Conservation of Natural Habitats and of Wild Fauna and Flora [Habitat Directive], enacted in 1992, further reinforces this protection (European Union, 1992)³. Under this directive, the wolf is included in both Annex II, which requires the designation of special conservation areas, and Annex IV, which mandates strict protection.

Germany's Federal Nature Conservation Act aligns with these directives at the national level by classifying the species listed in Annex IV of the Habitat Directive as strictly protected [§ 7 Paragraph 2 No. 13 and 14 BNatSchG]. The law prohibits the capture, harm, or killing of wolves and any damage to their reproductive or resting sites [§ 44 Paragraph 1 No. 1, 2, and 3 BNatSchG].

³ "Today [03.12.2024], the Standing Committee of the Bern Convention voted in favour of the EU proposal to adapt the protection status of the wolf from 'strictly protected' to 'protected'. The change will enter into force on 7 March 2025. After this date, the EU will be able to adapt the corresponding annexes of the Habitats Directive" (European Commission, 2024).

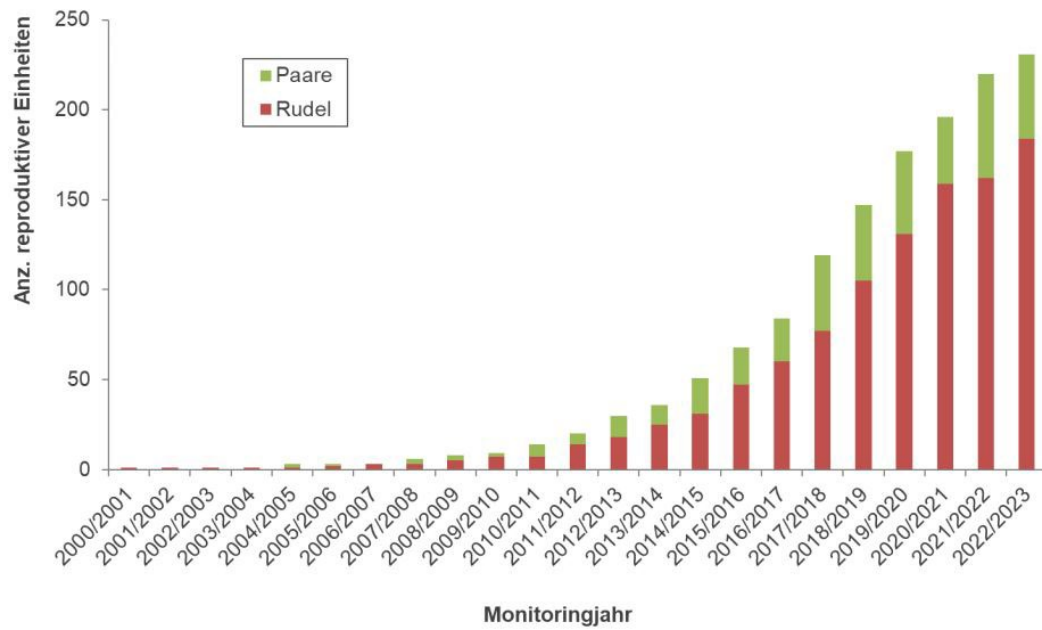


Figure 1: Population growth of wolves in Germany from 2000 to 2022 (red = packs, green= pairs). Number of reproductive units per monitoring year. Date: October 2023. @DBBW, Statusbericht 2022/23

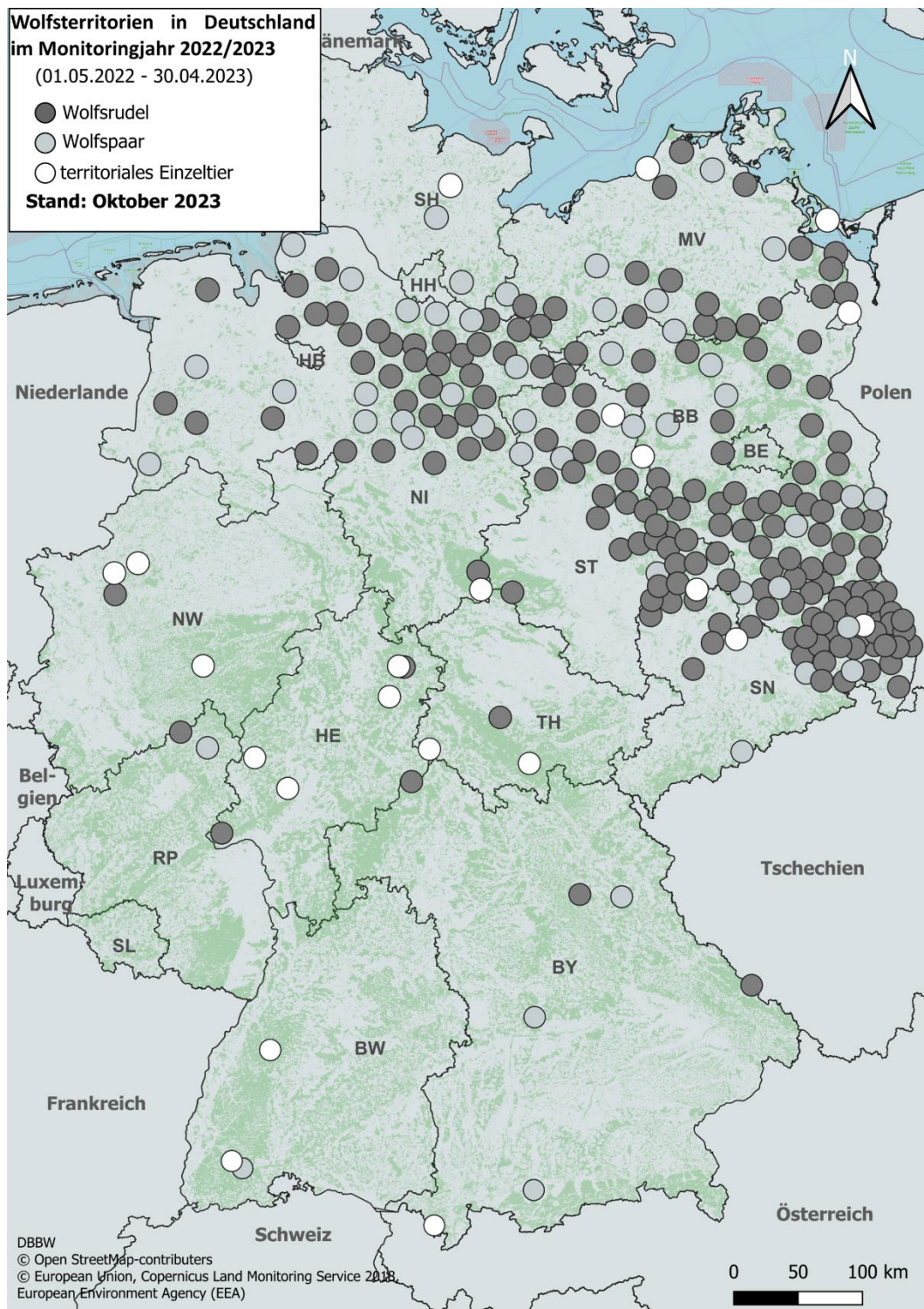


Figure 2: Confirmed wolf territories in Germany in the monitoring year 2022/23 (dark grey = pack, light grey = pair, white = single resident wolf).

2.2.2 Current Wolf Management Practices in Germany

Wolf management in Germany is shaped by the high protection status of the species [chapter 2.2.1]. Under current regulations, wolves can only be removed lethally if they exhibit conspicuous behaviour toward humans or have repeatedly breached recommended herd protection measures, posing a significant risk of economic damage (Federal Ministry for the Environment, Nature Conservation, Nuclear Safety and Consumer Protection, 2024).

Management responsibilities lie primarily with Germany's 16 federal states, each of which has developed its own wolf management plan that provides guidelines. The Saxony management plan serves as a baseline for these efforts (Köck, 2017). Across states, the primary focus is on ex-post compensation - providing reimbursement for damages caused by wolves – and financial support for implementing herd protection measures. However, the eligibility criteria for these measures vary significantly between states (DBBW, 2024).

The federal government supports states by offering financial subsidies and providing scientifically grounded data. This collaboration is facilitated, among other means, through the Federal Documentation and Consultation Centre on Wolves, which serves as a central body for research and coordination.

2.2.3 Criticisms and Challenges of Ex-Post Compensation in Wolf Management

"Schemes that provide ex-post compensation to livestock owners for losses to predation have been implemented in many places around the world, but they have not proven to be widely successful" (Zabel and Holm-Müller, 2008).

- Moral hazard
- High transaction costs
- Long time lags
- Issues of trust and transparency

In Germany, dissatisfaction with the current approach to wolf management is evident among stakeholders in the hunting and livestock sectors. This discontent is particularly pronounced as the number of wolf attacks and livestock losses continues to increase alongside the growing wolf population (DBBW, 2024).

The German Hunting Association has called for active wolf management, including population regulation through the culling of wolves. They also advocate for the establishment of wolf-free zones (Deutscher Jagdverband, 2022). In addition to that, the German Farmers Association has voiced demands for reduced bureaucracy in compensation payment processes and improvements in subsidies for herd protection measures (Deutscher Bauernverband, 2019).

2.3 The Impact of Language on the Politicization of Wolf Management

2.3.1 Why Wolves Aren't the Source of the Conflict

The term 'human-wildlife conflict,' in our context, human-wolf conflict, is often misused (Peterson et al., 2010). Conflict, by definition, involves

“expressed disagreements among people who perceive incompatible goals and potential interference in achieving these goals”⁴ (Peterson et al., 2010).

This implies that wildlife would need to be aware of both their own and human goals and intentionally act to undermine human efforts - a scenario that is not accurate. In reality, what are termed human-wildlife conflicts are predominantly human-human conflicts, where disagreements arise over how to manage wildlife and mitigate perceived threats to human property, health, safety, or development objectives (Peterson et al., 2010). These conflicts typically occur between those who advocate for conservation and those who prioritize livelihood objectives (Redpath et al., 2015).

Framing these conflicts as 'human-wolf conflicts' positions the wolf as an antagonist, which can lead to misplaced anger and frustration being directed toward the species (Peterson et al., 2010)⁵.

"Further, labeling human-human conflicts as human-wildlife conflicts may limit opportunities for conflict resolution by diverting attention from addressing conflicts within human political systems until they escalate to self-reinforcing levels that are much more difficult to resolve"⁶ (Peterson et al., 2010).

One can argue that this is exactly the issue around the wolf in Germany. In this thesis, we will use terms similar to 'the conflict about wolves' to reflect the true nature of the conflicts.

2.3.2 From Conservation to Controversy: The Wolf's Role in German Politics

Germany has traditionally viewed the wolf as an

"adaptive, self-regulating species that can be accommodated within cultural landscapes with very limited lethal control," (Niedziałkowski, 2023)

⁴ after Pearce & Littlejohn 1997; Peterson et al. 2002:947; Pruitt & Kim 2004

⁵ after Conover, M.R. (2002) Resolving human-wildlife conflicts: the science of wildlife damage management. Lewis Publishers, Boca Raton, F

⁶ after Peterson, M.N., Peterson T.R., Peterson M.J., Lopez R.R., Silvy N.J. (2002) Cultural conflict and the endangered Florida Key deer. J Wildl Manage 66, 947-968

adhering to a strict protection regime supported by EU legislation. However, as the wolf population has grown, this policy has faced increasing criticism from hunters, farmers, and local land users (Niedziałkowski, 2023).

These disagreements have spread beyond professional groups, with the wolf⁷ becoming a symbol of deeper human-human conflicts (Skogen et al., 2017). The wolf topic is frequently covered in German media, with headlines⁸ such as 'At night, the wolf digs in the playground and bathes in the pool' (Lutz, Cosima, 2024), 'The order to shoot is pure symbolic politics' (Spiegel Panorama, 2024), and 'Wolf allowed to live on in Altmühltal' (Sebald, 2024), reflecting the public interest in the issue.

Given this increasing public and media attention, it is not surprising that the management of wolves has also become a significant political issue. The radical right-wing party AfD was the first German party to include the wolf management⁹ in their election program, advocating for active management, including culling (Niedziałkowski, 2023). This position has influenced other parties, leading to a division in which left-wing parties [SPD, Alliance 90/The Greens, and The Left] support the current protection policies, while conservative, radical and liberal parties [CDU/CSU, AfD, FDP] oppose them (Niedziałkowski, 2023).

A plenary session in the summer of 2024 further highlighted these political divisions. The CDU/CSU and AfD pushed for downgrading the wolf's protection status to allow active management (Deutscher Bundestag, 2024b), while the Greens and SPD emphasized improving herd protection measures, establishing clear legal definitions, and gaining more scientific data. The FDP, in coalition with the Greens and SPD at that time, appeared to align with this approach, although their position remains somewhat ambiguous. The Left did not participate in this session.

The plenary session (Deutscher Bundestag, 2024b) revealed these differing political positions and suggests that the wolf issue is being leveraged for electoral purposes¹⁰. The statements of this session, some of them summarized in Appendix 1, underscore this point. Below are some key quotes¹¹:

⁷ The wolf is Germany's primary top predator, and fear of it has deep historical roots, dating back to tales like Little Red Riding Hood and the Big Bad Wolf. In comparison, the lynx population is relatively small and has less interaction with the cultural landscape. Brown bears are not native to Germany. The closest comparable political impacts to the wolf are conflicts involving species such as beavers, which can flood farmland, or cormorants, which prey on fish.

⁸ The headline are freely translated from German to English.

⁹ After their recolonization

¹⁰ While it is the role of politics to address such matters, the focus here is on leveraging the topic for electoral gain rather than prioritizing conflict resolution. For example, the politics of fear is employed in the wolf debate, amplifying emotions and complicating the situation for wildlife managers and other stakeholders involved in finding solutions.

¹¹ The quotes are freely translated from German to English.

'I know our wolf romantics in the green-red ranks have a hard time understanding this, but the wolf has become a problem. It's time for politics to step in' (Klaus Mack, CDU/CSU).

'The wolf is not targeting humans. Please stop with your fairy tales that unnecessarily stir up fears! And I mean you too, dear Union, specifically. What we need now is proper public education. We are committed to a good information policy to reduce fears, not to unnecessarily inflame them' (Jürgen Kretz, The Greens).

'In rural Brandenburg, there are now more wolves than Greens. So, it's not the wolf that needs protection there, but the Greens. It's a different story in urban Berlin, where it's the Greens causing problems, not the wolf' (Andreas Bleck, AfD).

2.4 Farmers, Wolves, and the AfD: A Nexus of Rural Discontent

With party positions clarified, a key question emerges: who do these parties represent in society? Our focus on extremism and radicalism leads us to examine the role of the AfD in the wolf management debate, particularly their connection to farmers and livestock owners. We aim to explore whether these groups, who might currently support the AfD, would shift their allegiance if another major party proposed an alternative wolf management policy. This analysis will help determine if changes in policy could influence party support.

According to Heinisch and Werner (2019), the AfD positions itself as a representative of rural inhabitants and farmers. This claim is supported by the party's visible presence and support during the farmer protests in January 2024 - a movement that some observers have described as the AfD 'infiltrating' rural grievances for political gain (ARD-aktuell / tageschau.de; Siggelkow, 2024). The following statements from the AfD, documented by Schroeder (2024), further illustrate their appeal to the farming community¹²:

'Who will protect our natural living environment when family farms have disappeared? Who will tend to our beautiful cultural landscapes? Who will uphold tradition and customs and thereby maintain regional identity? Who will assist in disasters such as floods? It is clear: Our homeland needs its farmers.' (Rinck, AfD, January 18, 2024)

'We reject subsidies handed out indiscriminately by the EU. We believe that farmers should not rely on subsidies for adhering to green policies but should focus on economic self-responsibility and entrepreneurial action.' (Keuter, AfD, January 17, 2024)

Despite this rhetoric, the main farmers' organization [=Deutscher Bauernverband] has distanced itself from the AfD's efforts during the protests (ARD-aktuell / tageschau.de; Siggelkow, 2024). However, when it comes to wolf management, there appears to be a significant alignment between the AfD's

¹² The quotes are freely translated from German to English.

program and the concerns of farmers. Both AfD and many farmers disagree with the current policy path, as outlined by Niedziałkowski (2023), who describes the opposition as a "land use coalition" that believes that co-existence with wolves imposes excessive costs on rural communities, particularly farmers, and is not a viable option.

Farmers in Germany face widespread criticism, particularly regarding the environmental and animal welfare aspects of their production practices, from NGOs, the media, and society at large (Balmann, 2016).

As a result, they often struggle to garner public support for the challenges they face, including structural changes that have been ongoing for decades. For instance, the number of farms in Germany has drastically declined from 1.8 million in 1949 to just 256,000 in 2022, with the average farm size increasing from approximately 7.4 hectares to 64.8 hectares during the same period. This trend, known in German as farm dying [= Höfesterben], is expected to continue, with projections suggesting that by 2040, the number of farms will more than halve, with an average size of 160 hectares. (Niegsch, 2024)

Small family farms, in particular, face significant challenges due to digitization, succession problems, environmental and animal protection regulatory measures, and intense price competition (Niegsch, 2024). These pressures make it difficult for them to survive, and many farmers report feeling overwhelmed and at risk of burnout (Buhne, 2019). In this context, the wolf may become a symbol of their struggles and a focal point of their frustrations. For livestock owners who rely on pasture farming, the wolf represents a symbolic threat and a tangible one, potentially being the final blow that forces them to abandon their farms.

At this juncture, the AfD's politics of fear may resonate with these farmers. The party's portrayal of the wolf as a central figure in their narrative of rural decline allows them to position themselves as the representative of rural concerns

"while simultaneously tapping into widespread anti-immigration, anti-urban and anti-government resentments" (Pates and Leser, 2021).

As Pates and Leser (2021) notes:

"The wolf here stands not just for a predatory animal but for an occasion for urban dwellers to patronize, belittle and pick on hunters and other 'good country folk'"

—a sentiment that resonates with farmers who feel marginalized and under siege.

3. Political Ecology

3.1 What is Political Ecology?

Political Ecology is a multidisciplinary approach that examines environmental issues in relation to political, economic, and social factors. Its essence lies in its adaptability and experimental nature, mixing conceptual genres and methodological approaches to understand and transform socio-ecological relationships (Perreault et al., 2015). The field resists a fixed definition, reflecting its dynamic and evolving character.

Despite the lack of a universally accepted definition, various scholars have contributed to understanding Political Ecology. As Perreault et al. (2015) summarized, Political Ecology is described by integrating "the concerns of ecology and a broadly defined political economy" [Blaikie and Brookfield, 1987], having "a development discourse" for contemporary times [Peet and Watts, 1996], serving as "an explicit alternative to apolitical ecology" [Robbins, 2004], and by being viewed as "the study of power relations and political conflict over ecological distribution and the social struggles for the appropriation of nature" [Leff, n.d.]. In addition, Robbins (2019) summarized the definitions while additionally providing the aim of political ecology at the time. I added his table in Appendix 2.

Moreover, Breslow (2014)¹³ identified four key themes frequently explored within political ecology to improve understanding this interdisciplinary approach. Political Ecology works with:

1. ... the perspectives and social contexts of diverse actors, including local resource users, government officials, and scientists.
2. ... social hierarchies and injustices, focusing on the experiences of marginalized communities facing inequitable resource access.
3. ... meaning-making practices, examining place-based livelihoods, diverse ideas of nature, and environmental discourses and knowledge systems, including science.
4. ... historical contexts, with special attention to colonial legacies and the genealogies of prevailing cultural narratives.
5. ... multi-scalar political and economic forces, with particular attention to market integration, economic globalization, and state decentralization, reflecting the current global neoliberal order.

Historically, Political Ecology emerged in the 1970s and 1980s at the intersection of geology, anthropology, and history (Cichanowicz, 2024). However, its intellectual roots are older and more diverse than commonly acknowledged,

¹³ Slight adjustments but otherwise direct quotation

stemming from Marxist scholarship, post-positivist approaches to nature-society relations, and the growing acceptance of feminist and postcolonial scholarship and politics (Perreault et al., 2015).

3.2 Why is my thesis rooted in Political Ecology?

Political ecology provides a valuable framework for examining conflicts surrounding wildlife, including wolves. I am not the first to explore this connection. For instance, Anderson (2022) investigated this topic in his dissertation, titled "Killing for Coexistence: The Bio- and Necro-Political Ecology of Wolf Conservation and Management in Washington State." Similarly, Komi (2023) examined wolf management in their work, "Bad Wolves? Political Ecology of Responsibility and More-Than-Human Perspectives in Human–Wildlife Interactions." These studies demonstrate the relevance of political ecology to conflicts surrounding wildlife, providing a foundation for situating my thesis within this interdisciplinary field.

To situate this thesis within the framework of political ecology, we utilize the key elements identified by Breslow (2014) to analyze its alignment with this interdisciplinary approach:

1. **Actors and social contexts:** Our research focuses on pastoral livestock owners in Germany, highlighting their experiences and challenges, as discussed in chapter 2.4. Additionally, we consider the role of political parties whose positions on wolf management were outlined in the Background Chapter. This approach incorporates the perspectives of local resource users and government officials, as emphasized in political ecology.
2. **Social hierarchies and injustices:** Chapter 2.4 also addresses the struggles of farmers who feel marginalized and unheard in discussions surrounding wolf conservation. These social dynamics reflect broader patterns of inequitable access to resources and power imbalances. Furthermore, we clear up in chapter 2.3.1 that the wolf itself cannot actively participate in the conflict as it is not human.
3. **Meaning-making and traditional knowledge:** By proposing a management concept designed for practical implementation, this thesis recognizes the importance of place-based knowledge and traditional practices. This aligns with the political ecology's focus on diverse knowledge systems and their role in shaping environmental management.
4. **Historical contexts:** The thesis situates the wolf conflict within its historical context, demonstrating that the species itself is not inherently responsible for the controversy. Instead, historical narratives and cultural legacy play an important role in shaping these conflicts.

5. Multi-scalar political and economic forces: Finally, this research considers the economic dimensions of wolf management through the development of an economic scheme. By gathering input from pastoral livestock owners on such schemes, the thesis is in accordance with the emphasis of political ecology on market integration and decentralized governance.

In summary, this thesis incorporates all the key elements of political ecology outlined by Breslow (2014). It examines the interactions between diverse actors, addresses social inequities, acknowledges the importance of traditional knowledge, situates the conflict in its historical context, and evaluates economic and political dimensions. Together, these aspects firmly position this research within the framework of political ecology.

4. Literature review

4.1 Wolf Conflict and Party support

One key study closely related to the topic of this Master's thesis has provided significant inspiration for further exploration. Clemm von Hohenberg and Hager (2022) investigated whether the return of wolves to Germany affects voting behaviour. Their study, titled "Wolf Attacks Predict Far-Right Voting", clearly reflects their findings. Using a difference-in-differences approach, Clemm von Hohenberg and Hager (2022) analyzed the interaction between wolf attacks on livestock at the municipal level and voting data at the same level over a period of approximately 30 years. Their results show that after a wolf attack, the far-right party Alternative für Deutschland [AfD] gains between 1 and 2 percentage points in federal elections. In state elections, this effect exceeds 5 percentage points. The authors summarize their findings as follows:

"the evidence points to wolf attacks as one potential driver of electoral radicalization" (Clemm von Hohenberg and Hager, 2022).

Although their work provides valuable information, this thesis adopts a different methodological approach (see Chapter 6). First, this thesis focuses on predicting future voting behaviour rather than analyzing past trends. Secondly, the difference-in-differences approach, or more specifically, the two-way fixed effects method, was not considered the most suitable method due to the complexities introduced by heterogeneous treatments, multiple time periods, and staggered treatment timings, which can complicate the analysis in this context.

Another paper linking wolves with political votes was conducted by Ditmer et al. (2022) in the USA, where they used spatial linear regression models to evaluate the relationship between the support for the restoration of wolves and the presidential vote, along with other influencing factors. Their results indicated a significant correlation between support for wolf restoration and political support for the Democratic presidential candidate in the 2020 election. Furthermore, people living in regions inhabited by wolves, probably rural areas where livestock farming is more prevalent, were less inclined to support wolf restoration. Even when political affiliation was excluded to avoid overshadowing other correlations, the study revealed that areas with higher livestock densities were associated with more negative perceptions of wolves. These findings highlight the critical role of livestock owners in shaping wolf politics. Ditmer et al. (2022) leveraged data from a ballot initiative on gray wolf restoration in Colorado, which provided a robust data set for their analysis. However, the absence of similar voting data in Germany limits the applicability of such methodological approaches in this context. Nevertheless, we can connect our thesis research to their emphasis on the

significant impact of polarization on public conservation actions and the need to develop strategies to mitigate its effects.

Potential future wolf management strategies in Colorado and Washington, USA, with an emphasis on the sociopolitical conflicts underlying these approaches, were examined by Hoag et al. (2023) and van Eeden et al. (2021). Both studies used choice experiments, which inspired us to further explore this method in chapter 4.3.1.

Berg and Solevid (2015) analyzed the political cleavage associated with conflicts surrounding wolves in Sweden. Their findings indicated that individuals opposing an increased wolf population share many characteristics with groups more vulnerable to globalization and European integration, aligning with specific political interest groups. Moreover, Berg and Solevid (2015) identified a consistent relationship between positive attitudes towards wolves and a higher likelihood of voting for the Swedish Green Party compared to the Swedish Social Democrats. They also investigated the correlation between negative attitudes and political party preference, but the relationships identified were weak, likely due to the complexity of the issue and limitations in the available data. From Sweden, not only is this paper relevant to this thesis, but also the Swedish carnivore management in the north, which will be elaborated on in the following chapter.

4.2 Ex-Ante Wolf Management

4.2.1 The Swedish Case: Conservation Performance Payments

This section introduces the Swedish carnivore management system in northern Sweden, which inspired our proposed management approach in Germany.

To mitigate conflicts between carnivores and reindeer, Sweden implemented Conservation Performance Payments as part of their conflict management strategy in 1996 (Zabel and Holm-Müller, 2008). This initiative marked the first large-scale payment scheme of its kind in the conservation of carnivores (Zabel et al., 2014). Conservation Performance Payments fall within the broader category of Payments for Environmental Services [PES] and are paid ex-ante in the Swedish case, meaning the payments are made before any predation occurs (Zabel et al., 2014).

A defining characteristic of these payments is their linkage to specific environmental goals, in Sweden's case, the number of carnivore offspring – details can be found in Table 1 in the Method section. The Swedish state provides incentives to Sami villages based on the documented number of carnivore offspring within their reindeer grazing grounds (Zabel and Holm-Müller, 2008). According to Zabel and Holm-Müller (2008):

"If payments are set high enough to assure full compensation, the internal payment-distribution scheme needs to create a situation in which each individual herder has an incentive to refrain from killing carnivores to reduce the risk of predation incidents."

Linnell and Cretois (2018) evaluate the Swedish approach as a valuable alternative to traditional ex-post compensation, noting its success in facilitating the recovery of the wolverine population (Persson et al., 2015). Similarly, Zabel and Holm-Müller (2008) recommend further research to assess the potential applicability of this payment scheme in addressing wildlife-livestock conflicts in other contexts.

4.2.2 Advantages and Disadvantages of Ex-Ante Incentives

The following advantages and disadvantages are associated with Conservation Performance Payments in Sweden. Some are primarily linked to the "performance" aspect, while others are tied to the "ex-ante" nature of the incentives.

Ex-ante incentives emphasize the prevention of depredation over documentation (Linnell and Cretois, 2018), as payments are not tied to the actual number of predated livestock. Consequently, resources previously allocated to searching for carcasses are no longer required. This approach shifts the focus to prevention, eliminating the need to wait for predation events to receive compensation. Another benefit is that compensation is provided immediately without delays (Zabel and Holm-Müller, 2008). In addition, this system encourages conservation efforts by mitigating moral hazards (Zabel and Holm-Müller, 2008). For example, the presence of predators in grazing areas could represent additional financial opportunities under this scheme rather than being exclusively perceived as a negative factor due to increased predation risk.

Another advantage is the facilitation of innovation and adaptability (Zabel et al., 2014)¹⁴, since the recipients have the freedom to allocate the funds without adhering to strict protocols. Furthermore, Linnell and Cretois (2018) highlight that ex-ante incentives significantly reduce transaction costs, although the overall cost-efficiency remains debated (European Commission; Directorate-General for Environment; Blanco, 2023).

However, there are also notable disadvantages. According to (European Commission; Directorate-General for Environment; Blanco, 2023), the economic costs of ex-ante payments can exceed those of ex-post schemes. While carcass documentation is no longer necessary, accurate monitoring of carnivore distribution becomes crucial (European Commission; Directorate-General for Environment; Blanco, 2023). Furthermore, determining the payment amount is more complex, as it is based on risk rather than direct economic losses (Linnell and Cretois, 2018). Most importantly, the acceptance of such schemes among livestock owners appears to be low (European Commission; Directorate-General for Environment; Blanco,

¹⁴ Secondary source

2023). The topic of stakeholder acceptance will be explored further in the following sub-chapter.

4.2.3 Research on Implementing Ex-Ante Incentives in European Carnivore Management

As noted, the most significant case study for ex-ante incentives in carnivore management is in Sweden (4.2.1). For those seeking deeper insight into the Swedish model, the work of Zabel et al. provides comprehensive analyzes (Zabel et al., 2014; Zabel and Holm-Müller, 2008; Zabel et al., 2010).

Milheiras and Hodge (2011) investigated the acceptance of wolf management schemes among Portuguese hunters and livestock owners through a telephone survey. In 2011, livestock owners expressed disapproval of replacing ex-post payments with ex-ante payments. However, a substantial portion of respondents held neutral opinions, which the authors suggest might result from a lack of sufficient information. Despite these findings leaning towards non-acceptance, Milheiras and Hodge (2011) propose that ex-ante incentives could improve carnivore-livestock conflict management in specific regions, such as mountainous areas with free-ranging livestock.

Efforts have also been made to adapt the Swedish carnivore management approach to Norway and Finland, where semi-domesticated reindeer are prevalent. However, these attempts were met with protests (Linnell and Cretois, 2018).

To our knowledge, no attempts have been made to adapt this management approach to the context of Germany.

4.3 Preferences for Conservation Programs

This thesis investigates the preferences of pastoral livestock owners with respect to a wolf management scheme that prioritizes co-existence over hunting. To achieve this, we reviewed previous literature that explores farmers' preferences in similar contexts. Particular attention was paid to two methodological approaches: choice experiments and vignette design.

4.3.1 Choice Experiments

A Choice Experiment [CE] is a survey-based method commonly used to measure the marginal value of attributes of a good, policy, or management approach by presenting the respondents with a set of options defined by varying attributes. Through statistical analysis of these responses, CEs allow for the estimation of individuals' willingness to pay, participate, or accept specific attributes and the evaluation of alternative options. This method is often applied in non-market valuation studies (Ruto and Garrod, 2009; Estifanos et al., 2020).

Although CEs are frequently used to assess the public's willingness to pay for wolf conservation (Dunn-Capper et al., 2024; Notaro and Grilli, 2022; van Eeden et al., 2021; Hoag et al., 2023), our focus shifts to the 'willingness to participate' of individuals directly affected by wolves. As highlighted by Dunn-Capper et al. (2024) in Germany, the degree of potential impact from wolves significantly influences these individuals' responses.

Before delving into CEs role in predator management, it is important to first examine how stakeholders such as farmers, who are directly affected by predators, position themselves toward incentive-based environmental conservation programs in general, and which management attributes they perceive as relevant.

Determinants of German Farmer's Participation in Incentive-Based Conservation Programs

Ruto and Garrod (2009) investigated European farmers' preferences regarding attributes in agri-environmental schemes, revealing that farmers tend to demand higher financial incentives for participation in schemes with longer contract duration's, less flexibility, or increased paperwork. To address these concerns, Lienhoop and Brouwer (2015) recommended offering short-term contracts or opt-out options to increase farmers' control over their land in their research on German farmers' contract preferences. Additionally, they highlight the importance of allowing farmers to submit program applications throughout the year rather than on fixed annual dates (Lienhoop and Brouwer, 2015).

Both Lienhoop and Brouwer (2015) and Ruto and Garrod (2009) emphasize the importance of reducing bureaucratic burdens and minimizing the time required for participation. Moreover, Lienhoop and Brouwer (2015) found that farmers would accept lower financial incentives if they received technical advice to assist in the practical implementation of the conservation program.

Program-specific attributes do not solely influence the willingness to participate in or accept conservation programs but are also affected by general farm characteristics, such as farm size and number of livestock (Danne and Musshoff, 2017). Furthermore, psychological factors play a role, as demonstrated by Villamayor-Tomas et al. (2019), who found that the phrasing of the conservation program - whether presented as a biodiversity, soil or water program - influenced farmers' participation, even when the program attributes remained unchanged. This idea of phrasing was also picked up by Kreye et al. (2017), which researched Ranchers' Willingness to Conserve Florida Panther Habitat as they recommended:

"linking incentives with habitat conservation (rather than panther conservation) may also provide a cognitive degree of separation from species recovery efforts, which may be more appealing to landowners who are critical about how species recovery efforts are being conducted."

Which brings us to the topic of predators.

Understanding Farmer Preferences in Predator Conservation: The Role of Trust and Program Design

In the context of predator conservation, the study by Kreye et al. (2017) offers valuable insights into farmers' willingness to participate in such programs. Their research focuses on "Creating Voluntary Payment Programs" to encourage cattle ranchers to participate in Florida panther recovery efforts by analyzing their preferences for various program attributes. The study's findings are particularly relevant to understanding the factors influencing participation in predator conservation initiatives. Kreye et al. (2017)'s analysis revealed that among the various attributes evaluated, technical assistance was the most relevant, followed by incentives, percentage of eligible acres enrolled, monitoring agency, and contract duration. Ranchers valued technical assistance most, which the authors connected to their desire to "express their cultural values about personal autonomy." Furthermore, the attribute of the monitoring agency was particularly significant for ranchers who were more adversely affected by the program. This importance was linked to their distrust in government and agencies, indicating that trust played a crucial role in shaping participation decisions. The study concludes that successful predator management programs must balance the cultural and political values of landowners with public conservation needs. This suggests that programs designed to engage farmers in predator conservation should offer financial incentives and address concerns around autonomy and trust in implementing agencies.

The issue of trust was also a central factor in the study by Højberg et al. (2017), which explored landowners' preferences for illegal actions in response to wolf sightings on their property. Conducted in Denmark, this study examined landowners' "willingness to act" ¹⁵ if they encountered a wolf. Notably, Højberg et al. (2017) employed a choice experiment incorporating full sentences in the design, resembling a vignette approach. Their findings revealed that "60% of the sample preferred illegal measures over moderate measures," while the remainder chose inaction. A latent class model was used to segment respondents into four groups based on preference similarities. Those expressing a preference for illegal lethal actions were primarily concerned with: (1) negative economic impact, (2) competition over game, (3) safety of humans and domestic animals, and (4) distrust in authorities.

Moreover, trust in decision-making processes was a significant theme. Højberg et al. (2017) reported that

"77% of the respondents indicated that those best suited to make decisions regarding wolf management are people living in the areas where wolves appear,"

¹⁵ Own wording

underscoring the local nature of this trust-related concern. This suggests that landowner trust, or lack thereof, in government authorities directly influences their preferred course of action regarding predator management.

4.3.2 Vignette Designs (VD) and Predator Management

A Vignette Design is similar to a Discrete Choice Experiment, with the key difference being that, instead of presenting participants with a table containing manipulable numerical values, they are shown, for example, a text with manipulable words. Skilling and Stylianides (2020) define the Vignette Design as follows:

"In research contexts, vignettes are descriptive episodes of specific situations that simulate real events or problems, usually presented in written or visual formats. These episodes might concern people, situations, or events. A common purpose of using vignettes is to elicit information by inviting responses, encouraging discussions, and probing understandings to gain insights into participants' beliefs, emotions, judgments, attitudes, and values regarding the phenomenon central to the research."

Simmons et al. (2021) employed Vignette Designs in their study on the acceptability of invasive shark management among Australian ocean users. They conducted an experimental scenario study involving 48 vignettes about shark-human interactions, asking participants to assess the acceptability of 20 shark management strategies available to authorities.

Similarly, Lute (2017) used Vignette Designs in their research in the USA to explore public preferences for conservation strategies, including questions about wolves.

As we hypothesize that the political phrasing of a management approach significantly influences its perception, we decided to adopt the Vignette Design in our study. Before we elaborate on our method in chapter 6, we will first review an example of how Vignette Designs have been applied in political contexts.

4.4 Political Phrasing

Using a Vignette Design, Simonsen (2022) examined the polarizing effects of moralized political rhetoric in the USA and Denmark. Participants were presented with political messages about immigration, framed either in moralized or neutral language, such as using 'immigrant' instead of 'foreigner' or 'damage' instead of 'have a negative impact on' (Simonsen, 2022). Although the vignettes conveyed the same underlying message, they were experimentally manipulated to include either moral or neutral wording. The authors selected these words based on insights from previous research on moral language and analyses of speeches and texts from contemporary political parties.

5. Research Questions

The primary objective of this thesis is to investigate whether the implementation of an alternative wolf management strategy could influence the voting behaviour of German pastoral livestock owners. This research is framed within the broader context of a potential link between wolf attacks, farmers' experiences, and the growing support for the radical-right party AfD in Germany. Addressing this complex and multidisciplinary research question requires collecting information on the necessity of alternative wolf management strategies, developing an alternative wolf management approach and investigating political affiliations.

While a comprehensive investigation of these interconnected topics exceeds the scope of a single master's thesis, this study serves as an exploratory analysis and a learning opportunity for the student, with a focus on the intersection of wildlife management and political science.

Throughout the research, it became apparent that collecting a sufficiently large dataset within the available timeframe was not feasible. Consequently, the focus shifted towards establishing a methodology to answer the research questions and designing an ex-ante incentive program. These components were evaluated based on initial survey results, offering first insights for potential follow-up research.

Is the methodology employed in this thesis adequately designed to address the research questions, and how can the proposed ex-ante management scheme be refined based on feedback from survey participants?

- 1) How do German pastoral livestock owners perceive wolves, and which factors (farm and personal demographics, wolf experience and political affiliation) influence their perception?
- 2) To what extent are German pastoral livestock owners willing to participate in an ex-ante wolf management scheme?
 - a. What attributes of the wolf management scheme influence the participants' willingness to participate?
 - b. [What are the estimated costs of implementing the ex-ante incentive scheme for wolf management?]¹⁶

¹⁶ The methodology should be designed to address this question as well; however, it is not explored further within the scope of this thesis.

- 3) Can a wolf-management approach featuring ex-ante incentives influence the voting behaviour of German pastoral livestock owners?**
- a. What are the current political affiliations of German pastoral livestock owners?
 - b. Does the political phrasing of the management approach influence participants' responses?
 - c. Which management attributes and political affiliations contribute to changes in voting behaviour?

6. Methods

6.1 Adapting the Swedish Model: A First Overview of the Management Approach in Germany

Our wolf management approach, or more accurately, the human management approach, draws inspiration from the Swedish Carnivore Management in Sápmi, which utilizes Conservation Performance Payments – chapter 4.2.1. However, due to the differing circumstances in Germany, this approach required adaptation. A key distinction lies in the presence of a “performance” factor in Sweden, which is absent in the German context. Specifically, in Sweden, protected carnivore species such as bears, lynxes, wolverines, and wolves can be legally hunted under licensed hunting or the so-called protection hunting (Naturvårdsverket, 2024a,b; Ouro-Ortmark, 2023)¹⁷.

In this Swedish Case, the conservation “performance” refers to a reduction in hunting, including poaching, allowing the targeted species to achieve favourable reproduction levels (Zabel et al., 2010). In contrast, hunting protected carnivores in Germany is currently subject to much stricter regulations – chapter 2.2.1¹⁸. As a result, Germany lacks the central “performance” factor in the Swedish case, although both approaches share the goal of conflict mitigation. Accordingly, our management approach does not rely on the concept of Conservation Performance Payments but is instead grounded in the framework of ex-ante incentives.

Based on the table by Zabel and Engel (2010), we also created a comparison of our management approach in Germany and the Swedish model –1.

¹⁷ It should be noted that these hunting practices have faced international criticism and do not fully comply with EU legislation at the time of writing. - European Commission, Infringement number: INFR(2010)4200.

¹⁸ With the wolf’s protection status being downgraded, the situation may evolve, potentially necessitating an adaptation of the management approach to align more closely with the Swedish model.

Table 1: Comparison between Swedish and German management approaches. The category and Sweden column are from Zabel and Engel (2010).

	Sweden	Germany
Policy goal	80 lynx offspring and 90 wolverine offspring annually in reindeer herding area	Increased acceptance of wolf presence
Secondary goal	No	No
“Service buyer(s)”	Government	Federal states
“Service seller(s)”	Sami reindeer herder villages	Pastoral livestock owners
Policy context	Ban an penalty on illicit poaching of lynx and wolverines	Anger with wolf management
Baseline	167 lynx offspring in 1997, 69 wolverine offspring in 1997	265 wolf territories in the monitoring year 2022/23
Indicators	Number of certified carnivore offspring	Wolf territories
Monitoring	Cooperation between reindeer herders and officials	Federal Documentation and Consultation Centre on Wolves
Targeting	No special targeting	Pastoral livestock within 16 km range to wolf territories
Payment amount	SEK200,000 (20,000€) per certified lynx or wolverine offspring	See chapter 6.5
Payment timing	Annual payment split into two or three transfers	Every 4 or 8 years
Payment vehicle	Cash	Cash + technical assistance
Payment modality	Continuos	Continuos
Payment to groups	Yes, group has authority to decide on use and distribution of payments	No, to individuals.
Duration	No time restriction on funding availability	No time restriction on funding availability
Side effects	None reported	-

6.2 Technical Description of Adapted Wolf Management Approach

6.2.1 Technical Description presented to Participant

This is the technical description of our management approach, which is presented to the participant in a table format. The numbers were not visible to the participants:

(1) With this program, you receive payments based on the number of wolf territories within a 16 km radius of your pastures/paddocks. (2) The responsible authorities will contact you if you are eligible for compensation payments. (3) These payments cover the average costs that could arise from wolf attacks (**compensation for predation risk**) and protective measures (**support for herd protection**) and are valid for a specific **contract period**. (4) These payments replace all previous subsidies for wolf damage and herd protection measures. (5) You are free to use the funds as you wish; there is no obligation to invest them in herd protection. (6) You also do not need to report or document wolf-related incidents, such as injured or killed animals. (7) Free advice on herd protection measures and additional **technical support** are available as part of the program. (8) Additionally, a hotline is available to guide you through the application process if needed. ¹⁹

On Limesurvey²⁰ this help text was added to clear up the design:

Only the "Compensation for Predation Risk" is paid per year AND per wolf territory. Example: If the pastures or paddocks are located within two wolf territories, the predation risk doubles — and so does the payment.

6.2.2 Argumentation for Management Design

The argumentation follows the numbering presented in 6.2.1.

(1) Wolf territories were chosen as an indicator instead of the total number of individuals or offspring. This decision is based on several factors. First, territories are already documented annually by Germany's Federal Documentation and Consultation Centre on Wolves. Second, monitoring individual wolves requires more resources and the reported numbers are often disputed. For instance, the 2022/23 status report indicates a minimum of 1,339 wolves in Germany, with the actual number remaining unknown (Reinhardt et al., 2023). In contrast, the farmers' association estimates that the population ranges between 1,400 and 2,500 individuals (Deutscher Bauernverband, 2024), while some agricultural websites suggest up to 3,000 wolves (Top Agrar, 2024). Additionally, wolf territories exhibit less fluctuation compared to offspring numbers, reducing the need for extensive documentation. Monitoring individual wolves, particularly dispersing ones, is

¹⁹ The materials presented to the participants were originally in German, reflecting the study's focus on German livestock owners. For the purpose of this thesis, they have been translated into English. The original text can be found in Appendix 3.

²⁰ Online survey tool by LimeSurvey GmbH

challenging, as they may travel distances of up to 2,000 km to establish a territory (Albrecht, 2022). For simplicity, dispersing wolves are excluded from this approach. Furthermore, we do not differentiate between territories occupied by individuals, pairs, or packs, given the limited research on the influence of social structures on livestock predation. A 16 km radius around paddocks and meadows was selected to ensure that the area potentially overlaps with neighbouring wolf territories, as the average wolf territory size is approximately 200 km², corresponding to a circular area with a diameter of about 16 km (Federal Documentation and Consultation Centre on Wolves, 2024a).

(2) To reduce the mental load on pastoral livestock owners [PLOs], we propose direct outreach to owners rather than requiring them to initiate contact.

(3) To minimize bureaucratic requirements, average wolf-related costs for PLOs were chosen as the basis for compensation. This approach supports conflict mitigation by addressing situations where wolf predation may pose an existential threat, which is more likely for smaller farms. As a result, smaller farms benefit more from this approach compared to larger farms, which generally have more resources and are less vulnerable to severe impacts from wolf predation. An alternative approach linking compensation to the number of animals owned would necessitate additional documentation and administrative work. Our approach prioritizes simplicity and efficiency. Further details on the attributes can be found in chapter 6.5.

(4) The proposed payments will replace all existing wolf-related subsidies provided by federal states.

(5) The flexibility of using the payments as desired is inspired by the Swedish case. This component aims to empower PLOs and acknowledge their academic and traditional expertise. Allowing individuals to adapt measures to their specific needs fosters innovation, which rigid protocols can hinder. For instance, some may choose to allocate funds for personal purposes, such as a holiday, while accepting occasional risks of wolf predation. However, we hypothesise that most PLOs will invest these funds in livestock protection.

(6) Exempting PLOs from reporting wolf-related accidents saves time and reduces administrative burdens. Additionally, it is not always possible to prove that wolves are the cause of issues such as economic decline. For example, due to health problems in livestock, such as stress-related fertility issues and miscarriages, which are raised concerns Böttinger et al. (2024).

(7) Free herd protection consultations are already available and should not be limited. Instead, we propose their expansion. Further details on additional support measures are provided in chapter 6.5.

(8) To streamline participation, the sign-up process for the program will be designed to be as simple and accessible as possible.

6.3 Methodological / Technical Approach

6.3.1 VDCE: A Combination of Vignette Design (VD) and Discrete Choice Experiment (DCE)

In this thesis, we combine a Vignette Design (VD) with a Discrete Choice Experiment (DCE), which will be referred to as VDCE. The VDCE was integrated into a questionnaire comprising five main sections, where it was positioned as the fourth section, preceding the ‘personal questions’ block.

The VDCE was presented to participants in the form of a table, structured into three parts:

1. Upper Section: Designed in the style of a Vignette Design, this part proposed the management approach in three distinct formulations aligned with the radical-right party AfD, the centre-right party CDU/CSU, and the centre-left party The Greens. Details on the phrasing can be found in chapter 6.4.
2. Middle Section: This section contained the technical description of the management approach, which remained consistent across all tables. Further details are provided in chapter 6.2.1.
3. Lower Section: This part represented the DCE, where participants evaluated four attributes with varying levels. The selected attributes and levels are detailed in chapter 6.5.

This method aimed to address the following research questions:

- 2.a. What attributes of the wolf management scheme influence the participants' willingness to participate?
- 3.b. Does the political phrasing of the management approach influence participants' responses?

The VDCE consisted of 10 choice sets, each containing two VDCE tables. These choice sets were replicated for each of the three political formulations, resulting in a total of 30 choice sets. However, each participant was only presented with one choice set containing the same political phrasing – see appendix 3.

The following 2 illustrates the distribution of attribute levels across the VDCE tables. In each choice set, the two table versions were designed to have opposite levels, maximizing the differences and facilitating clear participant decisions.

Table 2: Distribution of attribute levels across choice sets. (y. = year)

Choice sets	Alternative VDCE tables	Compensation predation risk	Support herd protection	Contract term / payment interval	Technical assistance
1	1	2	2	1	3
1	2	1	1	2	2
2	1	1	2	1	2
2	2	2	2	2	3
3	1	2	2	1	3
3	2	1	1	1	2
4	1	1	2	2	3
4	2	2	2	2	2
5	1	1	2	2	3
5	2	2	2	1	2
6	1	1	2	2	3
6	2	2	2	2	1
7	1	1	1	2	3
7	2	2	2	1	2
8	1	2	2	1	3
8	2	1	2	2	2
9	1	1	1	2	3
9	2	2	2	2	1
10	1	1	2	1	3
10	2	2	2	1	2
		1=400€/y. 2=1.600€/y.	1=600€/y. 2=1.500€/y.	1=4 y. 2=8 y.	1=Diversifying Income 2=Cooperation and Networking 3=None

In LimeSurvey, each choice set was assigned a group relevance number (2–31) using the command ‘(random==2)’. Participants were assigned a random number through an invisible question named *random*, with the command ‘rand(2,31)’.

Each VDCE table was accompanied by follow-up questions. Participants were initially asked: ‘Would you participate in the described wolf management program with your farm under these contractual conditions?’

- If the response was *yes*, participants were reminded not to compare tables and were then presented with the second VDCE table of the choice set, following the same structure.

- If the response was *no*, participants were asked: “You answered that you would not accept the proposal. Could you please indicate how satisfied or dissatisfied you were with the individual components of the program?” Participants rated their satisfaction with the four attributes, the political phrasing, and the overall management concept on a 5-point scale from *very satisfied* to *very dissatisfied*. This additional question enables us to identify which components of the proposed management approach are well-received and which contribute to disapproval. Afterwards, participants were reminded not to compare tables and were presented with the next VDCE table.

After the participant answered both VDCE tables, three conditions were applied. If the participant disapproved of both management proposals, they were directed to the final questionnaire block, thus ending the VDCE section. If the participant approved of both proposals, they selected their preferred option and were subsequently directed to the same path as those who approved only one proposal, leading to the control question. This control question, "Which party would most likely propose your preferred wolf management?" was designed to verify the participant's reception of the political phrasing and ensure it aligned with the intended political formulations. Following this, participants answered the core question of the survey: "Would you vote for this party if it had proposed your preferred suggestion?"

After answering this, the participant was directed to the final questionnaire block.

6.3.2 Questionnaire

The full questionnaire in German language can be found in appendix 4. This section outlines the structure of the questionnaire and highlights some questions which are relevant to describe further.

The questionnaire is divided into four of the main five sections of the survey, with three question blocks positioned at the beginning and one at the end. Between these sections is the VDCE. The questionnaire structure is as follows: (1) farm information, (2) questions related to wolves, (3) political orientation, [(4) VDCE] and (5) personal information. This sequence was chosen based on the assumed sensitivity of the topics. In the first two blocks, farm information and questions related to wolves were deemed to have relatively low sensitivity. The political orientation and VDCE blocks are considered more sensitive, with the personal information section being the most sensitive, as it connects the responses to identifiable groups, potentially diminishing the perceived anonymity.

The questions in blocks 1 and 5 are particularly relevant for analyzing group behaviour. Therefore, we ask questions about their personal and farm demographics.

Question block 2 is associated with research question 1, in which wolf experience is a factor we hypothesise that affects the perception of wolves. Furthermore, the answers to this block will give us insights into how satisfied the livestock owners are with the current wolf management and whether a new approach (research question 2) is needed.

The entirety of question block 3 is designed to figure out the German pastoral livestock owners' political affiliation, which is a factor in research questions 1, 3.a and 3.c. Understanding livestock owners' current political affiliations is crucial for comparing their responses to the question, "Would you vote for this party if it had proposed your preferred suggestion?" This comparison helps assess whether there is any shift in behaviour based on the new management proposal.

Five questions in the questionnaire were adapted from existing studies for specific purposes. The question "To what extent do you agree with the following statement? 'Wolves should be allowed to live in Germany, even if it occasionally leads to problems.'" was borrowed from a study conducted by Forsa on behalf of Nature And Biodiversity Conservation Union (2021). This question was asked in 2015, 2018, and 2021 forsa (2021a, 2018, 2021b). This allows for a comparison of our collected data with these previous studies, offering insights into how opinions on wolves differ between livestock owners and the general German population. The entire question block (3) was adapted from the CSES (2016). CSES is a global collaboration of election study experts - a background that does not align with the thesis author's expertise. We therefore borrowed questions Q22a, Q22b, Q22c, and Q22d and adhered to their "Collaborator Instructions for the administration of the CSES questionnaire." The political parties included in the survey were selected to represent those that collectively garner over 90% of the votes. It is relevant to add that the party BSW was founded this year but has already received significant support.

The question "How many confirmed wolf territories do you believe exist in Germany?" aims to assess the participants' knowledge about wolves. This indirect approach is employed because direct questioning about knowledge levels can be unreliable, making it challenging to define participants' actual awareness.

The question "Do you believe that the presence of wolves could be a factor that drives you out of business?" addresses the hypothesis that individuals who feel more threatened by wolves tend to exhibit more negative attitudes toward them. Additionally, this question is linked to the technical consulting attribute, as one of the response options is "No, the existence of my business is threatened by other factors."

6.3.3 Survey

An online survey was conducted using LimeSurvey, accessible via a unique link. The survey was available from December 5th 2024 to January 1st 2025, and required approximately 15 minutes to complete. The target audience consisted of German pastoral livestock owners, broadly defined as individuals keeping animals that spend part or all of their time outdoors, such as on pastures, paddocks, gardens or in barn outdoor areas. These animals, which are potential prey for wolves, included species like chickens, sheep, pigs, cows, horses, and fenced game. Livestock ownership could be either for hobby or business purposes. To ensure relevance and adherence to data protection policies, the survey incorporated three filter questions:

1. Are you the owner of grazing animals? By this, we mean animals that are not kept exclusively inside a closed building but also spend time outdoors, for example, on a pasture, paddock, or in the outdoor area of a barn. Possible animals include horses, cows, sheep, llamas, chickens, and deer. It is not relevant whether you own 1 or 1,000 animals.
2. Are you 18 years old or older?
3. Do you agree that the collected data may be used anonymously for scientific analysis and publication?

Given the target audience's location, the questionnaire was presented in German. Distribution employed a snowball sampling method, encouraging participants to forward the survey link to other pastoral livestock owners. To initiate the snowball effect, contacts within the researcher's personal and professional networks were reached primarily via email.

Before launch, the survey underwent a pre-pilot phase in a Word document format. Four German participants tested the pre-pilot: an expert in researching German farmer behaviour, a master's graduate in natural sciences, a bachelor's graduate in natural sciences, and a pastoral livestock owner from a wolf region in Germany whose characteristics closely matched the expected target audience. Feedback from the pre-pilot phase led to several adjustments, including refining question formulations and answer options to enhance clarity and specificity. Additionally, minor technical and structural modifications were implemented. Key changes included:

- Adding the university logo to increase trustworthiness.
- Offering a gift voucher as an incentive to participate.
- Emphasizing participants' critical role in shaping the discussion on wolf management.
- Requesting data collection permission and ensuring legal compliance.

- Revising the gender question by removing the “diverse” option, which was identified as potentially triggering for the target audience.
- Adding “management/payment concept” as a reason for declining participation in management proposals, addressing reported mistrust in state-provided territory numbers.

From a technical perspective, the survey consisted of 292 items divided into 42 question blocks, although each participant encountered only 13 blocks due to conditional question sets. Questions were predominantly multiple-choice to save time and facilitate clear analysis. Most items were mandatory, and no option to revisit previous questions was provided. The loading bar was removed as it inaccurately represented progress due to varying question sets.

At the end of the survey, participants were asked if they wanted to take part in the voucher draw and receive information about the survey results. They could then provide their contact information. A note was included to assure participants that their contact details would be separated from the survey responses before analysis, ensuring anonymity.

6.4 VD: Political Phrasing

The political phrasing component is integrated with the vignette design approach in the survey and represents the first part of the VDCE table.

We decided to introduce the management concept as if proposed by a political party. These party-specific proposals are designed to sound similar to the rhetoric of political parties from the radical-right [AfD], center-right [CDU/CSU], and center-left [The Greens]. The aim is to evaluate whether the political phrasing of the management concept influences participants’ perceptions. Specifically, we are interested in whether the concept persuades protest voters to shift their voting preferences from the radical-right towards the political center.

The rationale for selecting these three political orientations is as follows:

- AfD: Positions itself as a representative of farmers and supports active wolf management, including the culling of wolves. It opposes the current policy path and is of particular interest in this thesis.
- CDU/CSU: Also opposes the current policy path by supporting active wolf management. They might represent a plausible alternative for AfD voters, as they address similar topics and are also positioned on the right of the political spectrum.
- The Greens: As part of the current government coalition, they support the current policy path. Farmers engaged in organic farming might be more inclined towards this party.

We do not claim that our language formulations exactly replicate the style of these parties but rather use them as inspiration to craft proposals reflecting the radical-right, center-right, and center-left political spectrums. Artificial intelligence (AI) was employed to generate these fictional party proposals. Initially, we planned to collaborate with political language experts, but due to time constraints, we adapted our approach. We used GPT-4o for this purpose.

First, we created a politically neutral version of our management approach. Then, we provided the AI with the plenary protocol section of the 171st session of the German Bundestag, where the downgrading of wolf protection was debated (Deutscher Bundestag, 2024b). This document clarified the positions and language used by the parties in the wolf debate. Additionally, we supplied the AI with word clouds for each party, based on their central terms from the 2021 election programs, derived from a study conducted by the University of Hohenheim Brettschneider (2021). With these inputs, the AI was tasked with writing a management introduction in the style and phrasing of each party, constrained to 100-130 words. Detailed instructions and chat logs are included in appendix 5.

After receiving the AI-generated results, we selected three core sentences from the AfD version that strongly reflected the party's rhetoric. These sentences were embedded into the neutral formulation. Subsequently, we asked the AI to adapt these sentences to the styles of the other two parties. The results were then adjusted to align with our objectives.

The following neutral management approach served as the foundation, with party-specific sentences inserted into the numbered placeholders:

Under the new wolf management program, inspired by the Swedish model of performance-based conservation payments, (1). The program provides incentive payments for compensation and livestock protection measures, replacing current subsidies and reducing administrative burdens. Farmers have full control over how they use these funds to meet the individual needs of their operations. (2). (3).²¹

For the radical-right version, we included the following sentences:

- (1) We secure the livelihoods of our farmers and strengthen rural areas.
- (2) This is how we take responsibility: simple solutions that empower our farmers and preserve our homeland.
- (3) We work for a strong Germany that prioritizes the interests of its citizens.

²¹ The materials presented to the participants were originally in German, reflecting the study's focus on German livestock owners. For the purpose of this thesis, they have been translated into English.

For the centre-right version, we chose these sentences:

- (1) We secure the livelihoods of our farmers and strengthen rural areas.
- (2) This is responsible leadership: effective solutions that empower our agricultural communities and secure our future.
- (3) We work for a strong and more resilient Germany.

For the centre-left version, we included these sentences:

- (1) We promote a harmonious balance between farmers²² and nature.
- (2) This reflects our commitment to sustainability: innovative solutions that align the needs of people and nature.
- (3) We work for a future where both coexist in harmony.

The specific text passages were marked in bold to highlight their inclusion.

6.5 DCE: Attributes and Levels

The Discrete Choice Experiment (DCE) is located at the bottom of the VDCE table. Participants are presented with four attributes, three of which have two levels, and one attribute has three levels. These attributes and their levels will be described in this chapter, following the sequence in which they are presented in the VDCE table from left to right.

6.5.1 Compensation for Predation Risk

Compensation for predation risk refers to the monetary compensation required to cover the average number of livestock likely to be injured, killed, or missing due to a wolf attack. This attribute is connected to the number of wolf territories within a 16 km radius around the farm's meadows for its livestock. This means that if three wolf territories surround these areas, the predation risk increases by a factor of three, and the amount is adjusted to three times the base payment as well.²³ The idea behind this is that the appearance of a new wolf territory is associated with an increase in monetary compensation, which may lead to it being perceived more positively.

In Sweden, the risk of predation is calculated based on scientific data estimating that wolverines and lynx each consume approximately 40 reindeer during their lifetime (Zabel et al., 2010). Consequently, Conservation Performance Payments

²² Use of gender-sensitive phrasing, German: Landwirt*innen

²³ In the survey, a help note was added to the VDCE table indicating that "Only the "Compensation for Predation Risk" is paid out annually and per wolf territory. Example: If the pastures or enclosures are located within two wolf territories, the predation risk doubles—and so does the payment."

are set at SEK 200,000 (20,000€), compensating for lost reindeer while also providing an additional incentive to deter predator hunting (Zabel et al., 2010).

A different calculation method is necessary for our management approach because Germany monitors wolf territories rather than individual wolves or their offspring. Additionally, the concept of a wolf's "lifetime" is ambiguous due to limited data on their average lifespan in Germany. Therefore, we base our analysis on annually documented data.

In 2023, 5,727 livestock were killed, wounded, or went missing due to 1,268 wolf attacks, resulting in a total compensation payout of €637,971 (DBBW, 2024). With 253 wolf territories, this translates to an average of five wolf attacks per territory during the 2022/23 monitoring period, with an average of 23 livestock losses per attack requiring compensation (Reinhardt et al., 2023). However, the distribution of damage is uneven: Some farms in wolf territories do not experience attacks, while others become damage hotspots, often linked to insufficient or improperly implemented herd protection measures (DBBW, 2024).

For simplicity, we base our analysis on the average compensation, which indicates that €2,522 per wolf territory was required in 2023. However, critical information remains unclear, such as the number of farms affected and the radius of livestock attacks around each wolf territory. These data are essential to calculate the average risk of predation per farm.

For this study, we assume that three farms are within the predation range of a wolf territory, as Germany is densely populated. This assumption implies a compensation cost of approximately €800 per farm for potential wolf predation. Given the assumed low response rate for the survey, we selected two compensation levels around the predicted amount to ensure clear responses that reveal trends. Furthermore, to account for the uncertainty in the three-farm assumption, we chose values of €400 and €1,600, representing half and double the predicted amount, respectively, to trigger clearer participant reaction.

6.5.2 Support for Herd Protection

The attribute support for herd protection represents the monetary incentive designed to cover the average costs of herd protection measures, such as fences or guard dogs. Farmers are not obligated to use these funds specifically for herd protection; they are free to allocate the money according to their needs. This approach acknowledges farmers' expertise in managing their farms and encourages the development of innovative and tailored solutions that suit the specific needs of each operation.

Unlike the Swedish model, where herd protection includes the shooting of predators, such measures are not available to German farmers. State authorities remove problem wolves in Germany, although this occurs infrequently. In 2023 only six wolves were culled, while the number of wolves illegally killed for

management purposes exceeded legal removals (Federal Documentation and Consultation Centre on Wolves, 2024b).

Each federal state in Germany sets its own guidelines and requirements for compensating herd protection measures, leading to considerable variation in implementation. In total, Germany spent 30 times more on herd protection than on damage compensation in 2023, a total of € 21,263,081 (DBBW, 2024). This financial support funded 3,593 prevention cases, with an average of €5,918 per case (DBBW, 2024). The primary objective of this support is to foster acceptance and co-existence between farmers and wolves.

For simplicity, our analysis assumes that each prevention case corresponds to one farm and that each farm receives funding only once. This raises questions about the maintenance costs of protective measures and the number of farms that still require upgrades. Assuming that herd protection measures are effective for 10 years, the annual maintenance cost would amount to approximately €600. Although investments such as guard dogs require higher upfront costs compared to one-time fence installations, our approach aims to simplify the funding process, reducing bureaucratic overhead for both the state and farmers.

Given the anticipated low response rate for the survey, we selected two levels for the support of herd protection: a lower level of €600, based on the predicted maintenance costs, and an upper level of €1,500, which reflects our assumption that the participants are expecting higher costs.

6.5.3 Contract Renewal and Payment Interval

The attribute ‘contract renewal and payment interval’ specify both the duration for which the management scheme remains valid and the frequency of payments. This attribute has been explored in several Discrete Choice Experiment studies (Ruto and Garrod, 2009; Lienhoop and Brouwer, 2015; Kreye et al., 2017). Research indicates a general preference for shorter contract durations (Ruto and Garrod, 2009; Lienhoop and Brouwer, 2015), and Lienhoop and Brouwer (2015) recommend including an opt-out option. However, given that our study already adopts relatively short contract lengths compared to the durations of up to 50 years explored in these studies, we determined that an opt-out option would be unnecessary.

For the contract lengths, we drew inspiration from the Swedish case, particularly with reference to the lifespan of predators. Although no specific studies definitively state the average lifespan of wolves in Germany, it can be estimated at around 8 years. Consequently, we selected 8 years as the upper level and 4 years as the lower level for this attribute. The rationale behind these durations is that they may be more likely to accommodate potential changes in wolf territories during the contract period.

6.5.4 Technical Assistance

The attribute ‘technical consultation’ has been examined in previous studies, such as those by Kreye et al. (2017) and Lienhoop and Brouwer (2015), both of which found it to be significant. In the study by Lienhoop and Brouwer (2015), farmers were willing to accept 219€ less per hectare if they received technical advice. Similarly, in Kreye et al. (2017), technical assistance emerged as the most preferred attribute, although the specific type of assistance (i.e., the level) was less important. The authors attributed this preference to the "freedom to choose" whether to implement the recommended practices, reinforcing farmers’ sense of personal autonomy (Kreye et al., 2017).

We came up with different levels and, therefore, different technical consultations. The first one, technical consultation of herd protection, we however included as a fixed part in the technical design – chapter 6.2.1. Therefore, it is not a part of the DCE approach.

The ‘herd protection’ refers to the technical assistance provided to farmers in determining the most suitable herd protection measures for their individual farms. This assistance includes an assessment of various protection strategies, outlining their respective advantages, disadvantages, and maintenance requirements. It is the closest level regarding the topic of our management approach, similar as Lienhoop and Brouwer (2015) used one close to their management approach. This level of support is crucial to ensuring the effective implementation of herd protection measures. The importance of this level becomes evident when considering that significant wolf attacks can still occur on farms with existing protection. Often, the issue is not the absence of protection but rather the improper or unprofessional application of measures. For example, an electric fence that makes contact with tall grass can lose voltage, making it easier for wolves to breach. While such advice may already be available through local authorities, these offices are frequently overworked and understaffed, limiting their ability to provide timely and comprehensive support.

Reaction to the External Threat

In the survey, participants are asked whether they perceive wolves as a genuine threat to the survival of their farm. This question is based on the assumption that the wolf is often viewed as a tipping point for farms already facing significant challenges, particularly due to the ongoing structural changes in agriculture over several decades. These changes have contributed to the "farm die-off" phenomenon, where many small farms struggle to remain viable - see chapter 2.4.

We hypothesize that farms experiencing these broader challenges — such as economic pressures and a lack of successors — may respond more positively to technical consultations that address systemic issues rather than focusing exclusively on the wolf issue. These consultations could offer guidance on adapting to the

evolving agricultural landscape and ensuring long-term durability. However, due to the complexity of issues such as succession planning, it was not feasible to cover these topics comprehensively within this project's scope.

As a result, we refined our focus and developed two specific levels aimed at addressing the financial challenges faced by smaller farms. These levels are designed to provide targeted support, particularly in stabilizing the finances of these more vulnerable farms. In the survey, these levels are presented by title without further explanation.

Diversifying Income

One key strategy for improving the economic viability of small farms is diversifying income sources. Technical consultations in this area may explore strategies such as developing online businesses, introducing alternative products, establishing self-service stands, and opportunities for farm-based tourism, such as farm camping. By broadening income streams, these strategies aim to increase resilience to external challenges, such as the presence of wolves.

Cooperation and Networking

Cooperation and networking are vital strategies for enhancing the resilience of small farms. These strategies include sharing resources and costs, such as machinery, facilitating knowledge exchange, and engaging in joint marketing efforts. Farmers can pool resources, reduce individual costs, and access larger markets through collaboration. The German government also recognises the importance of such strategies, by supporting the development of farmer organizations as an integral part of rural development (Ministry of Economic Cooperation and Development, 2024). In the context of wolf management, these strategies could be applied by merging animal herds to reduce resource demands for herd protection measures. For instance, with merged herds, only two guarding dogs might be needed instead of four, thereby improving cost-efficiency while maintaining effective protection.

6.6 Analysis

The data obtained from the survey was analyzed using Microsoft Excel. This software was chosen due to the low survey response rate, which allowed for a manageable dataset and provided a clear overview of the data. Microsoft Excel was primarily used for data sorting and basic statistical calculations, including the computation of mean, minimum, and maximum values.

The results generated from the VDCE tables were analyzed using logic specification models. These models estimate the probability of participants selecting the proposed ex-ante incentive scheme over the status quo (the current ex-post compensation program) as a function of the attributes and political phrasing

presented in the VDCE tables. Additionally, model suitability was assessed using the Akaike Information Criterion (AIC) and Bayesian Information Criterion (BIC), providing a comparative evaluation of the selected model's fit to the data.

7. Results

7.1 Description of Survey Dataset and Participants

During the survey period of approximately one month, 17 survey interactions were recorded. Of these, four interactions were incomplete, as participants only responded to initial filter questions, which provided no further data. Of the remaining 13 interactions, 2 participants exited the survey prematurely. One participant exited at question Q12, leaving question Q13, which pertained to herd protection measures, unanswered. The other participant left during question Q17, leaving question Q18, which inquired about feelings of closeness to a political party, unanswered. Consequently, the data set for analysis comprised 11 complete survey interactions, which were subsequently processed for further analysis.

The average time required to complete the survey was 11 minutes, with response times ranging from 7 minutes to 16 minutes.

Most of the survey participants were men [10 out of 11]. The age distribution of the participants was as follows: 4 participants were 60-69 years old, 3 participants each were 20-29 years old and 30-49 years old, and 1 participant was 50-59 years old. Geographically, most of the participants [8] resided in southern Germany, a region characterized by low wolf abundance. The remaining 3 participants were from northern Germany, where the abundance of wolves is higher. In terms of educational background, 7 participants reported holding an academic degree ranging from bachelor's to a doctoral level, while the remaining participants had completed secondary education. Regarding professional qualifications, the majority [9 out of 11] held advanced professional titles such as master craftsman [=Meister] or business administrator [=Betriebswirt].

Participants owned an average of two different livestock species. Their livestock spent between 4 and 12 months outdoors annually, with the majority reporting outdoor durations of 7 to 9 months. Over half of the participants managed their livestock using conventional production systems, while the remainder operated under organic or mixed production systems. The primary income sources associated with livestock keeping were evenly distributed: 4 participants reported it as their main income source, 4 as a side income, and 3 as a hobby.

7.2 Participants' Views on Wolves and Their Management

All participants reported that their administrative district is either within a wolf territory [7 participants] or has experienced wolf sightings [4 participants]. Five participants indicated that they had personally seen a wolf, while four stated that

someone they knew had observed a wolf. The remaining three participants reported no contact with wolf sightings within their circle of acquaintances.

Two participants reported direct experience with wolf attacks on their livestock. Herd protection measures varied among respondents: half of the participants employed recommended or extended protective measures, while the other half reported having no herd protection measures in place.

The surveyed pastoral livestock owners exhibited a tendency to disagree with the statement, “Wolves should be able to live in Germany, even if this occasionally leads to problems.” Three participants strongly disagreed, highlighting notable resistance to the concept of coexistence with wolves. Dissatisfaction with the current wolf management system was widespread, with 9 out of 11 participants describing themselves as rather or very dissatisfied. Additionally, 8 participants reported actively expressing their views on wolves and wolf management through petitions, flyers, or protests.

When asked about the impact of wolves on their business, the majority [7 out of 11] considered wolves to be a small to moderately relevant factor contributing to the potential closure of their operations. A control question regarding the documented number of wolf territories in Germany assessed participants’ knowledge about the wolf population in Germany. Slightly more than one-third of participants correctly identified the documented number of wolf territories, while the remaining responses were evenly distributed across other options, indicating variability in participants’ awareness of the actual wolf population.

7.3 Participants’ political affiliation

Among the 11 participants, two chose not to disclose their political affiliation, and another two indicated that they did not feel a sense of closeness to any particular party. The remaining seven participants reported affiliations with four different parties: CDU/CSU (3), The Greens (2), Freie Wähler (1), and SPD (1).

We were not able to test whether people would vote for a given party if the party proposed the compensation programs as several of our already limited participants did not respond to the according question, and we had little variation to begin with.

We would, however, be able to do that with an increased sample size.

7.4 Participant’s reaction towards the management approach

The logit specification estimates the probability of respondents choosing the proposed ex-ante incentive program over the status quo (current ex-post compensation program), based on the attributes and political framing of the VDCE. The analysis is based on 22 observations, as each of the 11 participants responded to two VDCE tables. As the standard errors (reported in parentheses) indicate, none

of the parameters show statistically significant differences from zero. Detailed interpretations of the results presented in 3 will be addressed in the discussion, as no direct significant outcomes were observed. Therefore, we will not present estimates of willingness to accept that arise from the parameters.

Table 3: Logit specifications on stated choices of livestock owners.

choice	(I)	(II)
Compensation for risk of predation (Euros)	0.0144 (2.763)	0.0142 (2.079)
Compensation for herd protection (Euros)	0.0201 (3.684)	0.0198 (2.773)
Contract period (years)	4.715 (828.8)	4.791 (623.8)
1 if assistance with cooperation and networking	-18.65 (3315.4)	-18.80 (2495.4)
1 if assistance with income diversification	-0.327 (1.308)	-0.207 (1.361)
1 if presented to CDU or AfD framing		1.664 (1.121)
Status quo (current compensation program)	-55.04 (9946.1)	-55.69 (7486.1)
Observations	22	22
Log-Likelihood	-11.87	-10.66
Akaike Information Criterion (AIC)	35.75	35.33
Bayesian Information Criterion (BIC)	42.30	42.97
Standard errors in parentheses		
* p < 0.10, ** p < 0.05, *** p < 0.001		

8. Discussion on the Methodology

8.1 Sample size

We aimed for a larger sample size divided into three regions characterized by varying political orientation and wolf density levels, all with an agricultural focus on pastureland – appendix 6. To achieve this, we engaged with two professional survey companies, both advising that reaching a sufficient number of German pastoral livestock owners was unlikely. Due to time and budget constraints, we adopted the snowball sampling method, which yielded a small sample size. This sample does not represent the pastoral livestock owner community in Germany. Still, it is sufficient to test the functionality of our methodological approach and provide trends to inform future research building upon this thesis.

The limited sample size constitutes the primary limitation of this study, necessitating its classification as a pilot study. Future research should allocate more resources to improving the accessibility of pastoral livestock owners. For instance, even including the survey link in a newsletter sent to 275 livestock farmers resulted in few responses. One reason might be the timing of the survey in December, a period when people are either offline with family or busy preparing for the holidays. Another potential issue is the technical equipment of this stakeholder group. Feedback from one participant indicated the lack of a computer, and the survey was incompatible with mobile devices. When the participant accessed a computer running Windows 7, the survey still failed to function, possibly due to the outdated operating system. Furthermore, four of these participants' contacts also experienced issues opening the survey, suggesting broader technical problems.

To improve engagement with this stakeholder group, alternative approaches should be considered. In-person visits equipped with a suitable tablet device might provide a viable solution.

8.2 Stakeholder group

One key insight from this pilot study is that pastoral livestock owners are an appropriate stakeholder group to address questions regarding wolf management, as they appear to hold strong opinions on the topic. Among respondents, 55% [6 out of 11] disagreed with the statement that wolves should be allowed to live in Germany, even if this occasionally leads to problems, and 82% [9 out of 11] expressed dissatisfaction with current wolf management. In contrast, disagreement with this statement among the general German population has been reported at only 21% (Nature And Biodiversity Conservation Union, 2021). Additionally, 73% [8 out of 11] of respondents actively expressed their beliefs through actions such as participating in protests, hanging up flyers, or signing petitions. However, one

should consider the potential bias that individuals already engaged in wolf-related activism are more likely to participate in a survey about wolf management, such as this one.

The filter questions at the beginning of the survey and the use of the snowball method appeared effective, as participants were indeed pastoral livestock owners. However, the study did not include any fenced game livestock owners, representing a 'natural' prey for wolves. This group's input would be valuable for future research. We hypothesize that fenced game livestock owners may belong to a different social group²⁴ compared to other pastoral livestock owners, who align more closely with the farmer demographic. Future studies could consider directly targeting fenced game livestock owners to explore their perspectives. No participant in this pilot study indicated political affiliation with the radical-right AfD party, contradicting our hypothesis of a potential connection between AfD support and the farming community. However, due to the small sample size, this result does not indicate a trend and may be attributable to random variation.

8.3 Political affiliation

Participants demonstrated a willingness to disclose their political affiliation despite initial concerns encountered during the survey design phase. The approach was based on the methodology outlined by CSES (CSES, 2016). For future research, it may be beneficial to include questions for individuals who do not feel aligned with any particular party, asking them about their voting behaviour in the last election. Such questions could help identify whether these individuals are protest voters who may be more inclined to support radical parties. Additionally, including a question for non-voters could provide insights into whether a newly proposed wolf management approach might motivate them to participate in the next election.

8.4 Wolf management design and description

In the management description, we stated that it would not be necessary to further document wolf attacks on livestock in order to reduce the workload for livestock owners. However, if such data are no longer reported, the state's wolf monitoring system would lose access to essential information, particularly on problem wolves that may require lethal removal. Identifying and managing problem wolves is critical, as their negative impacts can disproportionately influence the perception of the entire wolf population among livestock owners. We propose the implementation of an obligatory reporting system facilitated through an easily accessible app. We assume that livestock owners have an intrinsic motivation to report these incidents

²⁴ For example the hunting community

and would do so willingly if the process is simplified and not directly tied to bureaucratic hurdles or financial compensation pressures.

Additionally, the technical description of the wolf management program specifies that other subsidies would be cancelled for participants in this program. For future research and program clarity, it may be beneficial to explicitly state that only wolf-related subsidies are affected to avoid any potential misunderstandings.

8.5 General survey design

The lengths with an average of 11 minutes to answer seems rather feasible. Furthermore, people stated that they were interested in the voucher and the results of the survey.

8.6 Interpretation of the VDCE results

The following section provides interpretations rather than definitive results due to the limited number of livestock owners who responded to the survey. Consequently, this study serves as a pilot survey, with the findings offering insights that can inform adjustments in future research. While the numbers in Table 3 do not provide conclusive evidence, they help identify general trends worth exploring further.

The negative value associated with the status quo suggests that livestock owners have a need for an alternative compensation program. This indicates that the research focus is well-placed. Participants responded positively to attributes related to compensation for risk of predation and herd protection, as well as to the proposed contract periods. These findings support the selection of these attributes for the study and suggest that they resonate with livestock owners.

Surprisingly, participants' reactions to technical assistance were negative. They preferred the baseline option of no assistance over the two technical assistance scenarios presented. This finding contradicts the literature discussed in chapter 4.3.1. For future research, it may be worth testing only one technical assistance option or revising one option to focus more explicitly on wolf-related support.

Regarding the political phrasing of the program, the center-left phrasing was used as the baseline. Due to the small sample size, the centre-right and radical-right phrasing versions were combined for analysis, as only four participants (two for each version) were randomly exposed to these phrasings. The results suggest that centre-right or radical-right phrasing increases the likelihood of livestock owners participating in the proposed program. This is particularly interesting as it indicates that livestock owners resonate more with right-leaning phrasing.

The lower acceptance of centre-left phrasing aligns with participants' stated political affiliations: two of seven identified with the Green Party, while four identified with centre-right parties. This suggests that participants who did not

disclose their affiliations may lean more conservatively, as stronger support for Green Party phrasing would otherwise be expected.

8.7 Conclusion

This research aimed to examine the willingness of German livestock owners to participate in a wolf management scheme based on ex-ante incentives and to provide insights into the political context surrounding this issue. However, during the study, it became evident that reaching this specific group via an online survey is challenging, resulting in a sample size too small for definitive conclusions.

As a result, this study is best understood as a pilot project designed to test the developed method, create a first draft of an ex-ante scheme for the German wolf management context, and identify areas for improvement in future surveys. Overall, the VDCE method and survey questions proved effective and appropriate, showing potential to provide the anticipated insights. However, the distribution strategy must be refined to ensure a representative sample size in follow-up research and the ex-ante scheme has to be refined with a focus on details.

Despite its limitations, the pilot results indicate that this topic is valuable and warrants further investigation.

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Popular science summary

This thesis is a trial run for future research. The goal was to test a combination of research methods to see if they could answer our research questions and to find out what might need to be improved.

The combined methods were designed to answer three questions:

1. Do livestock owners in Germany want to live alongside wolves, and are they happy with the current wolf management and compensation system?
2. What could an alternative system look like, where farmers are paid in advance for the risks of having wolves nearby instead of after their animals are harmed?
3. Does wolf management affect which political party livestock owners vote for?

To answer these questions, we created an online survey and sent it to livestock owners who keep animals outdoors, like cows in pastures, horses in paddocks, or chickens in gardens. The survey included a questionnaire and a table explaining an alternative wolf management system. The table had two main parts:

- **Political Style:** The system was described using language similar to how different political parties—far-right, center-right, or center-left—might present it. This was to see if it matters who suggests the idea.
- **Compensation Details:** Each person saw a version of the table with different details, like payment amounts. For example, some were offered €400 per year, while others were offered €1,600 per year and per wolf territory within 16 km of their farm.

The main results showed two things:

- It's hard to reach enough livestock owners to get solid results. Future research will need more time and resources to find and contact participants.
- The method works and suggests that livestock owners are interested in alternative wolf management. However the management design still needs work, as some questions are not fully answered yet.

This study also shows that it's worth looking more into how wolf management connects to political preferences, especially given Germany's current political situation.

Appendix 1

Table 4: Positions and Statements of Political Parties on Wolf Management; CDU/CSU = Christian Democratic Union / Christian Social Union, Bündnis 90/Die Grünen = Alliance 90/the Greens, SPD = Social Democratic Party, AfD = Alternative for Germany, FDP = Free Democratic Party; (German Bundestag, 20th electoral term, 171st session. Berlin, Wednesday, June 5, 2024 - Proposal from CDU/CSU 'Downgrading the Protection Status of the Wolf in the Bern Convention – COM(2023) 799 final')

Party	Position	Statements
CDU/ CSU	Disagreeing with policy path; For reduction of protection status; For active management (Opposition)	'It is not the wolf that is under threat in Germany, but livestock grazing' (Anja Weisgerber); 'I know our wolf romantics in the green-red ranks have a hard time understanding this, but the wolf has become a problem. It's time for politics to step in.' (Klaus Mack); 'I suspect that the Minister isn't interested in finding solutions at all. On the contrary, she is pursuing her own wolf expansion strategy. That's the real scandal!' (Klaus Mack)
Bündnis 90 / Die Grünen	Agreeing with policy path; Fokus on better herd protection; More support for pasture animal keepers (Government)	'That's why we reject the re-eradication of wolves, which is sometimes demanded, or a general limitation on the number of animals. Our goal is to ensure the long-term coexistence of humans and wolves through concrete measures' (Jürgen Kretz); 'The wolf is not targeting humans. Please stop with your fairy tales that unnecessarily stir up fears! And I mean you too, dear Union, specifically. What we need now is proper public education. We are committed to a good information policy to reduce fears, not to unnecessarily inflame them' (Jürgen Kretz); 'Because in reality, once again, it's not about actually solving the problem, but rather about dividing people and pretending to have a solution' (Zoe Mayer)
SPD	Agreeing with policy path; Defining "reasonable herd protection"; More scientific data required (Government)	'It is a successful nature conservation project that the wolf is settling here again.' (Franziska Kersten); 'We need to clarify how we define the protection status for legally secure removal, and we also need to define "reasonable herd protection". We need a data basis that shows an increased predation.' (Franziska Kersten); 'But—let's be honest—wolves that repeatedly overcome reasonable herd protection measures must be able to be removed quickly and effectively. [...] European law allows us to do this in

such cases.’ (Lina Seitzl); ‘And we also know that indiscriminate quota shooting only leads to weakened wolf packs preying on even more livestock.’ (Lina Seitzl)

AfD	Disagreeing with policy path; For reduction of protection status; For active management (Opposition)	‘The truth is: the federal government doesn’t actually want any wolf population management. To this day, it refuses to quantify the "favorable conservation status". But with this refusal, the societal acceptance of wolf reintroduction is at risk.’ (Andreas Bleck); ‘In rural Brandenburg, there are now more wolves than Greens. So, it’s not the wolf that needs protection there, but the Greens. It’s a different story in urban Berlin, where it’s the Greens causing problems, not the wolf.’ (Andreas Bleck)
FDP	Unclear (Government)	‘This increase is, on the one hand, evidence of the success of previous protection measures, but on the other hand, it also highlights the need to readjust our strategies in dealing with this predator.’ (Ulrike Harzer); ‘Minister Lemke has proposed a fast-track shooting procedure that aims to establish the urgently needed balance in coexistence with the wolf, without downgrading its protection status.’ (Ulrike Harzer); ‘In light of this, your recent proposals, just before the conclusion of the EU election campaign, seem more like political image management than a long-term strategic measure, dear colleagues of the Union.’ (Ulrike Harzer)

Appendix 2

12

Political versus Apolitical Ecologies

Table 1.1 Defining political ecology.

Author/source	Definition of “political ecology”	Goal
Cockburn and Ridgeway (1979)	“a useful way of describing the intentions of radical movements in the United States, in Western Europe and in other advanced industrial countries ... very distant from the original rather sedate operations of the ecolobby” (p. 3)	Explicate and describe first-world urban and rural environmental degradation from corporate and state mismanagement; document social activism in response.
Blaikie and Brookfield (1987)	“combines the concerns of ecology and a broadly defined political economy. Together this encompasses the constantly shifting dialectic between society and land-based resources, and also within classes and groups within society itself” (p. 17)	Explain environmental change in terms of constrained local and regional production choices within global political economic forces, largely within a third-world and rural context.
Greenberg and Park (1994)	A synthesis of “political economy, with its insistence on the need to link the distribution of power with productive activity and ecological analysis, with its broader vision of bio-environmental relationships” (p. 1)	“Synthesize the central questions asked by the social sciences about the relations between human society, viewed in its bio-cultural-political complexity, and a significantly humanized nature” (p. 1).
Peet and Watts (1996b)	“a confluence between ecologically rooted social science and the principles of political economy” (p. 6)	Locates “movements emerging from the tensions and contradictions of under-production crises, understands the imaginary basis of their oppositions and visions for a better life and the discursive character of their politics, and sees the possibilities for broadening environmental issues into a movement for livelihood entitlements, and social justice” (pp. 38–39).
Forsyth (2003)	“the politics of ecology as a scientific legitimization environmental policy” (p. 4)	To “establish the political forces behind different accounts of ‘ecology’ as a representation of biophysical reality” (p. 4)

Figure 3: Definitions of Political Ecology collected by Robbins (2019) – part 1.

Table 1.1 (Continued)

Author/source	Definition of “political ecology”	Goal
Heynen, Kaika, and Swyngedouw (2006b)	“formulating political projects that are radically democratic in terms of the organization of the processes through which the environments that we (humans and non-humans) inhabit become produced” (p. 2)	To “untangle the interconnected economic, political, social and ecological processes that together form highly uneven urban socio-physical landscapes” (p. 16)
Bridge, McCarthy, and Perreault (2015a)	An environmental research field marked by a set of “common commitments” to “critical social theory”, to “in-depth, direct observation involving qualitative methods”, and a “normative political commitment to social justice and structural political change” (pp. 7–8)	“not just to explain social and environmental processes, but to construct an alternative understanding of them, with an orientation to social justice and radical politics” (p. 8)

Figure 4: Definitions of Political Ecology collected by Robbins (2019) – part 2.

Appendix 3

<p>Unter dem neuen Wolfsmanagement-Programm, das vom schwedischen Modell der leistungsbasierten Naturschutzzahlungen inspiriert ist, sichern wir den Lebensunterhalt unserer Landwirte und stärken ländliche Gebiete. Das Programm bietet Anreizzahlungen für Schadensersatz und Herdenschutzmaßnahmen, wodurch die aktuellen Subventionen ersetzt und administrative Aufwände verringert werden. Landwirte haben die volle Kontrolle darüber, wie sie diese Mittel einsetzen, um die individuellen Bedürfnisse ihres Betriebs zu erfüllen. So übernehmen wir Verantwortung: einfache Lösungen, die unsere Landwirte stärken und unsere Heimat bewahren. Wir arbeiten für ein starkes Deutschland, das die Interessen seiner Bürger in den Vordergrund stellt.</p>			
<p>Mit diesem Programm erhalten Sie Zahlungen basierend auf der Anzahl der Wolfsterritorien in einem Umkreis von 16 km um Ihre Weiden/Koppeln. Die zuständigen Behörden melden sich bei Ihnen, wenn Sie für die Entschädigungszahlungen in Frage kommen. Diese Zahlungen decken die durchschnittlichen Kosten, die durch Wolfsangriffe (<u>Kompensation Rissrisiko</u>) und Herdenschutzmaßnahmen (<u>Unterstützung Herdenschutz</u>) entstehen könnten, und gelten für eine bestimmte <u>Vertragslaufzeit</u>. Diese Zahlungen ersetzen alle bisherigen Subventionen für Wolfschäden und Herdenschutzmaßnahmen. Sie können die Mittel frei verwenden, es gibt keine Verpflichtung diese in Herdenschutz zu investieren. Sie müssen auch keine Vorfälle mit Wölfen, wie verletzte oder getötete Tiere, melden oder dokumentieren. Kostenlose Beratung zu Herdenschutzmaßnahmen sowie weitere <u>technische Beratung</u> stehen Ihnen im Rahmen des Programms zur Verfügung. Außerdem gibt es eine Hotline, die Sie durch den Antragsprozess begleitet, wenn benötigt.</p>			
Vertragskonditionen:			
Kompensation Rissrisiko:	Unterstützung Herdenschutz:	Vertragslaufzeit / Zahlungsintervall:	Technische Beratung:
1.600€ / Jahr	1.500€ / Jahr	4 Jahre	Keine

Figure 5: Original VDCE table showcasing the radical-right version (VD) alongside the attributes of choice set 1, alternative 1 (DCE).

<p>Unter dem neuen Wolfsmanagement-Programm, das vom schwedischen Modell der leistungsbasierten Naturschutzzahlungen inspiriert ist, sichern wir den Lebensunterhalt unserer Landwirte und stärken ländliche Gebiete. Das Programm bietet Anreizzahlungen für Schadensersatz und Herdenschutzmaßnahmen, wodurch die aktuellen Subventionen ersetzt und administrative Aufwände verringert werden. Landwirte haben die volle Kontrolle darüber, wie sie diese Mittel einsetzen, um die individuellen Bedürfnisse ihres Betriebs zu erfüllen. Dies ist verantwortungsbewusste Führung: effektive Lösungen, die unsere landwirtschaftlichen Gemeinschaften stärken und unsere Zukunft sichern. Wir arbeiten für ein starkes und resilanteres Deutschland.</p>			
<p>Mit diesem Programm erhalten Sie Zahlungen basierend auf der Anzahl der Wolfsterritorien in einem Umkreis von 16 km um Ihre Weiden/Koppeln. Die zuständigen Behörden melden sich bei Ihnen, wenn Sie für die Entschädigungszahlungen in Frage kommen. Diese Zahlungen decken die durchschnittlichen Kosten, die durch Wolfsangriffe (<u>Kompensation Rissrisiko</u>) und Herdenschutzmaßnahmen (<u>Unterstützung Herdenschutz</u>) entstehen könnten, und gelten für eine bestimmte <u>Vertragslaufzeit</u>. Diese Zahlungen ersetzen alle bisherigen Subventionen für Wolfschäden und Herdenschutzmaßnahmen. Sie können die Mittel frei verwenden, es gibt keine Verpflichtung diese in Herdenschutz zu investieren. Sie müssen auch keine Vorfälle mit Wölfen, wie verletzte oder getötete Tiere, melden oder dokumentieren. Kostenlose Beratung zu Herdenschutzmaßnahmen sowie weitere <u>technische Beratung</u> stehen Ihnen im Rahmen des Programms zur Verfügung. Außerdem gibt es eine Hotline, die Sie durch den Antragsprozess begleitet, wenn benötigt.</p>			
Vertragskonditionen:			
Kompensation Rissrisiko:	Unterstützung Herdenschutz:	Vertragslaufzeit / Zahlungsintervall:	Technische Beratung:
1.600€ / Jahr	1.500€ / Jahr	8 Jahre	Erweiterung der Einkommensquellen

Figure 6: Original VDCE table showcasing the centre-right version (VD) alongside the attributes of choice set 8, alternative 1 (DCE).

<p>Unter dem neuen Wolfsmanagement-Programm, das vom schwedischen Modell der leistungsbasierten Naturschutzzahlungen inspiriert ist, fördern wir ein harmonisches Gleichgewicht zwischen Landwirt*innen und der Natur. Das Programm bietet Anreizzahlungen für Schadensersatz und Herdenschutzmaßnahmen, wodurch die aktuellen Subventionen ersetzt und administrative Aufwände verringert werden. Landwirt*innen haben die volle Kontrolle darüber, wie sie diese Mittel einsetzen, um die individuellen Bedürfnisse ihres Betriebes zu erfüllen. Dies spiegelt unser Engagement für Nachhaltigkeit wider: innovative Lösungen, welche die Bedürfnisse von Menschen und Natur in Einklang bringen. Wir arbeiten für eine Zukunft, in der beide in Harmonie koexistieren.</p>			
<p>Mit diesem Programm erhalten Sie Zahlungen basierend auf der Anzahl der Wolfsterritorien in einem Umkreis von 16 km um Ihre Weiden/Koppeln. Die zuständigen Behörden melden sich bei Ihnen, wenn Sie für die Entschädigungszahlungen in Frage kommen. Diese Zahlungen decken die durchschnittlichen Kosten, die durch Wolfsangriffe (<u>Kompensation Rissrisiko</u>) und Herdenschutzmaßnahmen (<u>Unterstützung Herdenschutz</u>) entstehen könnten, und gelten für eine bestimmte <u>Vertragslaufzeit</u>. Diese Zahlungen ersetzen alle bisherigen Subventionen für Wolfschäden und Herdenschutzmaßnahmen. Sie können die Mittel frei verwenden, es gibt keine Verpflichtung diese in Herdenschutz zu investieren. Sie müssen auch keine Vorfälle mit Wölfen, wie verletzte oder getötete Tiere, melden oder dokumentieren. Kostenlose Beratung zu Herdenschutzmaßnahmen sowie weitere <u>technische Beratung</u> stehen Ihnen im Rahmen des Programms zur Verfügung. Außerdem gibt es eine Hotline, die Sie durch den Antragsprozess begleitet, wenn benötigt.</p>			
Vertragskonditionen:			
Kompensation Rissrisiko:	Unterstützung Herdenschutz:	Vertragslaufzeit / Zahlungsintervall:	Technische Beratung:
400€ / Jahr	1.500€ / Jahr	4 Jahre	Erweiterung der Einkommensquellen

Figure 7: Original VDCE table showcasing the centre-left version (VD) alongside the attributes of choice set 10, alternative 2 (DCE).

Appendix 4

Survey title:

Befragung von Weidetierhaltenden zu Wolfsmanagementkonzepten in Deutschland

Welcome message:

[SLU LOGO]

Vielen Dank, dass Sie sich die Zeit nehmen, an dieser Umfrage teilzunehmen!

Diese Umfrage der „Schwedischen Universität für Agrarwissenschaften“ (SLU) untersucht die Perspektiven von Weidetierhaltenden zu einem alternativen Entschädigungsmodell im Wolfsmanagement, inspiriert vom schwedischen Raubtiermanagement. Abgesehen von Schweden wurde solch ein Entschädigungsmodell schon in Finnland, Norwegen und Portugal untersucht. Sie haben nun die Möglichkeit die Perspektive der deutschen Weidetierhaltenden zu ergänzen. Ihr Beitrag wird helfen, die wichtigen Faktoren für Weidetierhaltende zu identifizieren, um das Wolfsmanagement künftig besser auf Ihre Bedürfnisse abzustimmen.

Die Beantwortung der Umfrage dauert etwa 15 Minuten. Ihre Antworten sind anonym und können dementsprechend nicht auf Sie zurückgeführt werden. Die Ergebnisse werden auf einer wissenschaftlichen Konferenz in den Niederlanden präsentiert sowie in weiteren wissenschaftlichen Formaten veröffentlicht.

Sie können bis zum **31. Dezember** teilnehmen. Unter den Teilnehmenden wird ein Engelbert Strauss-Gutschein im Wert von **100€** verlost. Mehr Information dazu am Ende der Umfrage.

Vielen Dank für Ihren wertvollen Beitrag!

Bitte beantworten Sie die folgenden drei Fragen, damit wir prüfen können, ob Sie zur Zielgruppe der Umfrage gehören und die rechtlichen Voraussetzungen erfüllt sind.

***Sind Sie im Besitz von Weidetieren?** Darunter verstehen wir Tiere, die sich nicht nur in einem geschlossenen Gebäude, sondern auch draußen aufhalten, zum Beispiel auf einer Weide, einer Koppel oder im Außenbereich eines Stalls. Mögliche Tiere wären z.B. Pferde, Kühe, Schafe, Lamas, Hühner, Gatterwild, etc. Es ist an dieser Stelle nicht relevant, ob Sie 1 Tier oder 1000 besitzen.

☒ Ja ☐ Nein

***Sind Sie 18 Jahre oder älter?**

☒ Ja ☐ Nein

***Sind Sie damit einverstanden, dass die erhobenen Daten anonymisiert für wissenschaftliche Zwecke analysiert und veröffentlicht werden?**

☒ Ja ☐ Nein

Figure 8: Filter questions.

Description:

Sie gehören zur Zielgruppe, und wir freuen uns, dass Sie an unserer Umfrage teilnehmen! Die Umfrage besteht aus drei Teilen: einem Fragebogen mit drei Themenblöcken, einer Darstellung von Wolfsmanagement-Programmen und abschließenden Fragen zu Ihrer Person. Die Antworten werden aus vorgegebenen Optionen gewählt, um Ihre Zeit effektiv zu nutzen. Falls Sie Fragen haben, schreiben Sie uns gerne unter reat0001@stud.slu.se (Rebecca Albrecht, Masterstudentin) oder adan.martinez.cruz@slu.se (Adan L. Martinez-Cruz, Professor).

Description:

Sie beginnen nun mit dem ersten Abschnitt der Umfrage. Bitte lesen Sie jede Frage sorgfältig durch und antworten Sie so genau wie möglich. Für einige Fragen haben wir die Auswahloption „möchte ich nicht angeben“ bereitgestellt.

Betriebsinformation

Welche Tierarten, inklusive Jungtiere, halten Sie und wie viele von jeder Art? Bitte markieren Sie die entsprechende Zelle für jede Tierart. Haustierte wie Hunde und Katzen sind ausgeschlossen. Geben Sie keine Antwort wird dies als 0 Tiere interpretiert.

	Rinder	Milchkühe	Pferde	Gatterwild	Schweine	Schafe	Ziegen	Geflügel	Andere
1-10	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
11-50	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
51-100	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
101-500	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
501-1.000	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
1.000<	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Keine Antwort	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>

Wie viele Monate verbringen die meisten* Ihrer Tiere pro Jahr auf der Weide oder Koppel? Bitte markieren Sie die entsprechende Zelle für jede Tierart. Geben Sie keine Antwort wird dies als 0 Monate interpretiert. (*mehr als 75 % jeder Tierart)

	Rinder	Milchkühe	Pferde	Gatterwild	Schweine	Schafe	Ziegen	Geflügel	Andere
1	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
2-3	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
4-6	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
7-9	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
9-12	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Keine Antwort	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>	<input checked="" type="radio"/>

Figure 9: Question block 1 – Farm demographics – questions 1 and 2.

*Welches Produktionssystem hat Ihr Betrieb?

Bitte wählen Sie eine der folgenden Antworten:

☐ Konventionell

☐ In Umstellung

☐ Gemischt

☐ Bio (zertifiziert)

*Welche Rolle spielt das Einkommen aus Ihrem Betrieb für Ihr Gesamteinkommen?

Bitte wählen Sie eine der folgenden Antworten:

☐ Haupteinkommen

☐ Nebeneinkommen

☐ Hobby

Figure 10: Question block 1 – farm demographics – questions 3 and 4.

Fragen mit Wolfsbezug

***Wie sehr stimmen Sie folgender Aussage zu?** "Wölfe sollen in Deutschland leben können, auch falls es teilweise zu Problemen kommt."

📌 Bitte wählen Sie eine der folgenden Antworten:

☐ Ich stimme voll und ganz zu

☐ Ich stimme eher zu

☐ Ich stimme eher nicht zu

☐ Ich stimme überhaupt nicht zu

***Wie viele bestätigte Wolfsterritorien, glauben Sie, gibt es in Deutschland?** (Bestätigte Wolfsterritorien = von Wölfen im Monitoring Jahr 2022/23 besetzte Territorien.)

📌 Bitte wählen Sie eine der folgenden Antworten:

☐ 48

☐ 132

☐ 265

☐ 374

☐ 1027

Figure 11: Question block 2 – wolf related questions – questions 1 and 2.

***Sind Sie zufrieden mit dem derzeitigen Wolfsmanagement?**

📌 Bitte wählen Sie eine der folgenden Antworten:

☐ Sehr zufrieden

☐ Eher zufrieden

☐ Neutral

☐ Eher unzufrieden

☐ Sehr unzufrieden

***Haben Sie bereits eine oder mehrere der folgenden Aktivitäten ausgeübt?**

📌 Bitte wählen Sie die zutreffenden Antworten aus:

☐ Ja, ich habe eine Petition zum Thema Wolf unterzeichnet.

☐ Ja, ich habe Plakate, Flyer, etc. zum Thema Wolf aufgehängt.

☐ Ja, ich habe schonmal an einem Straßenprotest zum Thema Wolf teilgenommen.

☐ Nein, ich habe keine der genannten Aktivitäten ausgeübt.

Figure 12: Question block 2 – wolf-related questions – questions 3 and 4.

***Wissen Sie von Wolfssichtungen oder Wolfsterritorien in Ihrem Landkreis in den letzten fünf Jahren? Wenn Sie von Sichtungen und Territorien wissen, dann wählen Sie bitte eine Territoriums Antwort.**

Bitte wählen Sie eine der folgenden Antworten:

☐ Nein

☐ Ja, ich weiß von einer Wolfssichtung.

☐ Ja, ich weiß von mehr als einer Wolfssichtung.

☐ Ja, ich weiß, dass es ein bestätigtes Wolfsterritorium in meinem Landkreis gibt.

☐ Ja, ich weiß, dass es mehr als ein bestätigtes Wolfsterritorium in meinem Landkreis gibt.

***Wer aus Ihrem Bekanntenkreis hat bereits einen oder mehrere freilebende Wölfe gesehen?**

Bitte wählen Sie die zutreffenden Antworten aus:

☐ Ich selbst

☐ Ein Familienmitglied

☐ Ein Freund oder eine Freundin

☐ Ein Nachbar oder eine Nachbarin

☐ Ein Bekannter oder eine Bekannte

☐ Niemand

☐ Sonstiges:

Es sind nur die Singularformen aufgelistet. Wählen Sie diese bitte ebenfalls aus, wenn die Pluralform zutrifft.

Es ist nicht relevant, wo die Wölfe gesichtet wurden, solange die Sichtung in freier Wildbahn erfolgte.

Figure 13: Question block 2 - wolf-related questions – questions 5 and 6.

Wurde in den folgenden Jahren nachgewiesen, dass ein Wolf Ihre Tiere getötet oder verletzt hat? Wenn ja, wie viele? Bitte markieren Sie die entsprechenden Zellen. Geben Sie keine Antwort wird dies als 0 Tiere interpretiert.

	1-5	6-10	11-25	26-50	51-100	100<	Mehrere Wolfsüber- griffe	Keine Antwort
2000-2004	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
2005-2009	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
2010-2014	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
2015-2019	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
2020-2024	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>

***Welche Herdenschutzmaßnahmen haben Sie umgesetzt?**

Bitte wählen Sie die zutreffenden Antworten aus:

☐ Keine

☐ Drahtzäune

☐ Elektrozäune

☐ Abschreckungsmethoden (blinkende Lichter, akustische Abschreckung, etc.)

☐ Herdenschutzhund

☐ Andere Schutztiere (Lamas, Esel, etc.)

☐ Betriebsmaßnahmen (Nachtpferch, Zusammenlegung von Betrieben, Umstellung der Tierarten, etc.)

☐ Sonstiges:

Figure 14: Question block 2 – wolf-related questions – questions 7 and 8.

***Welches Schutzniveau erfüllen Ihre Herdenschutzmaßnahmen gemäß den Vorgaben Ihres Bundeslandes? (Wählen Sie mehrere aus, wenn das Schutzniveau je nach Tierart auf Ihrem Betrieb unterschiedlich ist.)**

Bitte wählen Sie die zutreffenden Antworten aus:

☐ Keine Schutzmaßnahmen

☐ Minimale oder grundlegende Schutzmaßnahmen

☐ Empfohlene oder erweiterte Schutzmaßnahmen

☐ Weiß ich nicht

***Glauben Sie, dass die Anwesenheit von Wölfen ein Faktor sein könnte, der Sie aus dem Geschäft drängt?**

Bitte wählen Sie eine der folgenden Antworten:

☐ Ja, Wölfe werden der Hauptfaktor sein.

☐ Ja, Wölfe werden ein wesentlicher Faktor sein.

☐ Ja, Wölfe werden ein geringer Faktor sein.

☐ Nein, die Existenz meines Betriebes ist durch andere Faktoren gefährdet.

☐ Nein, die Existenz meines Betriebes ist nicht gefährdet.

Figure 15: Question block 2 - wolf-related questions -questions 9 and 10.

Politische Orientierung

***Stehen Sie einer bestimmten Partei nahe?**

● Bitte wählen Sie eine der folgenden Antworten:

☐ Ja

☒ Nein

☐ [Möchte ich nicht angeben]

***Fühlen Sie sich einer der politischen Parteien etwas näher als den anderen?**

● Bitte wählen Sie eine der folgenden Antworten:

☒ Ja

☐ Nein

☐ [Möchte ich nicht angeben]

Figure 16: Question block 3 – political affiliation – questions 1 and 2 (conditional).

***Welcher der aufgeführten Parteien fühlen Sie sich am nächsten?**

● Bitte wählen Sie eine der folgenden Antworten:

☐ AfD

☐ BSW

☐ CDU/CSU

☐ Die Grünen

☐ Die Linke

☐ FDP

☐ Freie Wähler

☒ SPD

☐ [Möchte ich nicht angeben]

***Fühlen Sie sich dieser Partei sehr nahe, etwas nahe oder nicht sehr nahe?**

● Bitte wählen Sie eine der folgenden Antworten:

☐ Sehr nahe

☐ Etwas nahe

☐ Nicht sehr nahe

☐ [Möchte ich nicht angeben]

Figure 17: Question block 3 – political affiliation - conditional questions 2 and 4.

Description:

Sie beginnen nun den zweiten Abschnitt der Umfrage. In diesem Abschnitt werden Ihnen 2 Entschädigungsmodelle für das Wolfsmanagement vorgestellt, die von fiktiven Parteien als Wolfsmanagement-Programm vorgeschlagen werden. Stellen Sie sich vor, jedes Programm würde unter der Führung der jeweiligen Partei

umgesetzt werden. Für jedes dieser Programme beantworten Sie dieselben Fragen. Bitte lesen Sie jedes Programm sorgfältig durch und wählen Sie Ihre bevorzugten Antworten aus. Berücksichtigen Sie jeweils nur das vorliegende Wolfsmanagement-Programm.

Unter dem neuen Wolfsmanagement-Programm, das vom schwedischen Modell der leistungsorientierten Naturschutzzahlungen inspiriert ist, sichern wir den Lebensunterhalt unserer Landwirte und stärken ländliche Gebiete. Das Programm bietet Anreizzahlungen für Schadensersatz und Herdenschutzmaßnahmen, wodurch die aktuellen Subventionen ersetzt und administrative Aufwände verringert werden. Landwirte haben die volle Kontrolle darüber, wie sie diese Mittel einsetzen, um die individuellen Bedürfnisse ihres Betriebs zu erfüllen. So übernehmen wir Verantwortung: einfache Lösungen, die unsere Landwirte stärken und unsere Heimat bewahren. Wir arbeiten für ein starkes Deutschland, das die Interessen seiner Bürger in den Vordergrund stellt.

Mit diesem Programm erhalten Sie Zahlungen basierend auf der Anzahl der Wolfsterritorien in einem Umkreis von 16 km um Ihre Weiden/Koppeln. Die zuständigen Behörden melden sich bei Ihnen, wenn Sie für die Entschädigungszahlungen in Frage kommen. Diese Zahlungen decken die durchschnittlichen Kosten, die durch Wolfsangriffe (Kompensation Rissrisiko) und Herdenschutzmaßnahmen (Unterstützung Herdenschutz) entstehen könnten, und gelten für eine bestimmte Vertragslaufzeit. Diese Zahlungen ersetzen alle bisherigen Subventionen für Wolfsschäden und Herdenschutzmaßnahmen. Sie können die Mittel frei verwenden, es gibt keine Verpflichtung diese in Herdenschutz zu investieren. Sie müssen auch keine Vorfälle mit Wölfen, wie verletzte oder getötete Tiere, melden oder dokumentieren. Kostenlose Beratung zu Herdenschutzmaßnahmen sowie weitere technische Beratung stehen Ihnen im Rahmen des Programms zur Verfügung. Außerdem gibt es eine Hotline, die Sie durch den Antragsprozess begleitet, wenn benötigt.

Vertragskonditionen:

Kompensation Rissrisiko:	Unterstützung Herdenschutz:	Vertragslaufzeit / Zahlungsintervall:	Technische Beratung:
1.600€ / Jahr	1.500€ / Jahr	4 Jahre	Keine

Würden Sie mit Ihrem Betrieb unter diesen Vertragskonditionen an dem beschriebenen Wolfsmanagement-Programm teilnehmen?

Bitte wählen Sie eine der folgenden Antworten:

☐ Ja
 ☒ Nein

Nur die 'Kompensation Rissrisiko' wird pro Jahr UND pro Wolfsterritorium ausgezahlt.

Beispiel: Liegen die Weiden oder Koppeln innerhalb von zwei Wolfsterritorien, verdoppelt sich das Rissrisiko – und damit auch die Zahlung.

Figure 18: Example of VDCE Section – question 1.

***Sie haben geantwortet, dass Sie den Vorschlag nicht akzeptieren würden. Könnten Sie uns bitte mitteilen, wie zufrieden oder unzufrieden Sie mit den einzelnen Bestandteilen des Programms waren?**

	Risikorisiko	Mögliche Herdenschutzabdeckung	Vertragslaufzeit / Zahlungsintervall	Technische Beratung	Formulierung	Managements/ Zahlungskonzept
Sehr zufrieden	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Eher zufrieden	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Neutral	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Eher unzufrieden	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Sehr unzufrieden	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Ihnen wird nun ein weiteres Wolfsmanagement-Programm vorgestellt. Bitte lesen Sie die Beschreibung aufmerksam durch, da sie teilweise andere Informationen enthält. Konzentrieren Sie sich dabei ausschließlich auf das vorliegende Programm und ziehen Sie keine Vergleiche zu vorherigen.

Figure 19: Example of VDCE Section – conditional question 2 and description..

***Sie haben beide Wolfsmanagement-Programme akzeptiert:**
 1: 1.600€/Jahr, 1.500€/Jahr, 4 Jahre, Keine Beratung
 2: 400€/Jahr, 600€/Jahr, 8 Jahre, Erweiterung der Einkommensquelle
Welcher dieser Programm-Vorschläge ist Ihr Favorit?

Bitte wählen Sie eine der folgenden Antworten:

☐ 1

☐ 2

Reihenfolge: (1) Kompensation Risikorisiko, (2) Unterstützung Herdenschutz, (3) Vertragslaufzeit/Zahlungsintervall, (4) Technische Beratung

***Welche Partei würde Ihr favorisiertes Wolfsmanagement am ehesten vorgeschlagen haben?**

Bitte wählen Sie eine der folgenden Antworten:

☐ AfD

☐ BSW

☐ CDU/CSU

☐ Die Grünen

☐ Die Linke

☐ FDP

☐ Freie Wähler

☐ SPD

Figure 20: Example of VDCE Section – conditional questions 3 and 4.

***Würden Sie diese Partei wählen, wenn sie Ihren favorisierten Vorschlag gemacht hätte?**

Bitte wählen Sie eine der folgenden Antworten:

☐ Ja

☐ Nein

Figure 21: Example of VDCE Section – conditional question 5.

Description:

Sie beginnen nun den letzten Abschnitt der Umfrage, welcher 5 Fragen umfasst.

Personenbezogene Angaben

***Was ist Ihre höchste berufliche Qualifikation?** Falls Ihre Qualifikation nicht aufgeführt ist, wählen Sie bitte die am besten passende Alternative.

Bitte wählen Sie eine der folgenden Antworten:

☐ Keine abgeschlossene Berufsausbildung

☐ Abgeschlossene Berufsausbildung

☐ Fachwirt/Fachwirtin

☐ Meister/Meisterin oder Techniker/Technikerin

☐ Betriebswirt/Betriebswirtin

☐ [Möchte ich nicht angeben]

Figure 22: Question block 4 – personal demographics – question 1.

***Was ist Ihre höchste schulische/akademische Qualifikation?** Falls Ihre Qualifikation nicht aufgeführt ist, wählen Sie bitte die am besten passende Alternative.

Bitte wählen Sie eine der folgenden Antworten:

☐ Kein Schulabschluss

☐ Hauptschulabschluss

☐ Mittlere Reife (Realschulabschluss/Mittelschulabschluss)

☐ Fachabitur

☐ Allgemeine Hochschulreife (Abitur)

☐ Bachelorabschluss

☐ Masterabschluss / Diplom / Magister

☐ Promotion / etc.

☐ [Möchte ich nicht angeben]

***Welches Geschlecht haben Sie (nach Geburtenregister)?**

Bitte wählen Sie eine der folgenden Antworten:

☐ Männlich

☐ Weiblich

☐ [Möchte ich nicht angeben]

Figure 23: Question block 4 – personal demographics – questions 2 and 3.

***Welcher Altersgruppe gehören Sie an?**

Bitte wählen Sie eine der folgenden Antworten:

☐ <20 Jahre

☐ 20-29 Jahre

☐ 30-39 Jahre

☐ 40-49 Jahre

☐ 50-59 Jahre

☐ 60-69 Jahre

☐ >70 Jahre

☐ [Möchte ich nicht angeben]

***In welchem Bundesland befindet sich Ihr Betrieb?**

Bitte wählen Sie eine der folgenden Antworten:

Bitte auswählen...

Figure 24: Question block 4 – personal demographics – questions 4 and 5.

Sie haben das Ende der Umfrage erreicht!

Vielen Dank für Ihre Teilnahme. Sie haben nun die Möglichkeit, an der Verlosung eines Engelbert Strauss-Gutscheins im Wert von 100 € teilzunehmen. Der Gewinner oder die Gewinnerin wird von uns Mitte Februar kontaktiert.

Zusätzlich können Sie eine visuelle Zusammenfassung der Umfrageergebnisse sowie einen Link zur auf Englisch veröffentlichten Masterarbeit erhalten (verfügbar ab Frühjahr 2025).

***Möchten Sie an der Verlosung teilnehmen?**

☒ Ja ☐ Nein

***Möchten Sie Zugang zu den Umfrageergebnissen erhalten?**

☒ Ja ☐ Nein

Figure 25: Outro. If agreed we asked for their e-mail address to be able to contact them.

End message:

Vielen Dank, dass Sie an dieser Umfrage teilgenommen haben!

Ihr Beitrag ist äußerst wertvoll, um die Sichtweisen von Weidetierhaltenden in Deutschland besser zu verstehen und das zukünftige Wolfsmanagement an Ihre Bedürfnisse anpassen zu können.

Wir würden uns freuen, wenn Sie den Umfragelink an Weidetierhaltende in Ihrem Umfeld weiterleiten. Je mehr Personen teilnehmen, desto aussagekräftiger werden die Ergebnisse!

Die Umfrageergebnisse werden an der "Schwedischen Universität für Agrarwissenschaften" (schwedisch: Sveriges lantbruksuniversitet - SLU) ausgewertet.

Falls Sie Fragen haben, schreiben Sie uns bitte unter reat0001@stud.slu.se (Rebecca Albrecht, Masterstudentin) oder adan.martinez.cruz@slu.se (Adan L. Martinez-Cruz, Professor).

[SLU LOGO]

Appendix 5

Political phrasing with ChatGPT

This section describes how we got to our political phrasings for the Vignette Design aspect of our VDCE table using an AI tool: ChatGPT-40.

Input-Version 1, AfD Phrasing, Chat GPT was told the following:

- a) Forget what you know about my thesis project!
- b) I will provide you with data on how AfD talks about the wolf management and often used words by the AfD to help you getting a feeling for the party's communication style.
- c) AFTER I provided you with the documents, I want you to write a management introduction in the parties wording and phrasing style. With 100 to 130 words. One German version and the English translation.
- d) Here is the technical description of the management you need to write the introduction for: "Under this program, you will receive payments based on the number of wolf territories within a designated radius around your pastures. The relevant federal authorities will reach out to you if you're eligible. The payment will be calculated to cover the expected costs of predation risk and herd protection needs over a set period, referred to as contract renewal. These payments will replace any existing subsidies for wolf damage and herd protection measures. You will have complete freedom in how you use the funds—there is no requirement to invest them in herd protection, and you won't need to report or document any wolf-related incidents, such as injured or killed animals. In addition, there will be a helpline available to support you with the application process, and you'll also be eligible for technical assistance as part of the program."
- e) This management has several advantages, and I want you to include SOME of them in the introduction. Use the ones which you believe fit best for the AfD: Fosters innovative approaches, increases self-determination, recognizes farmers expertise and traditional knowledge, reduces administration processes, reduces time investment
- f) The management approach is inspired by the Swedish approach with Conservation Performance Payments – include this in the introduction
- g) The party is populist and radical-right winged, make sure you catch the vibe
- h) NOW wait for me to say GO, before you start writing.

Output-Version 1, AfD Phrasing

Unter dem neuen Wolfsmanagement-Programm nach schwedischem Vorbild sichern wir die Existenz unserer Landwirte und stärken den ländlichen Raum. Für jede Wolfsterritorium im Umfeld Ihrer Weiden erhalten Sie finanzielle Unterstützung, die die Kosten für Herdenschutz und das Risiko von Wolfsangriffen deckt. Die Auszahlung ersetzt alle bisherigen Subventionen und erfolgt unbürokratisch, ohne dass Sie Vorfälle melden müssen. Sie entscheiden selbst, wie Sie die Gelder nutzen – maximale Freiheit, weniger staatliche Einmischung! Mit diesem Ansatz schützen wir unser Deutschland, entlasten unsere Bürger und geben den erfahrenen Landwirten die Kontrolle zurück. Das ist der Weg, wie wir Verantwortung übernehmen: einfache Lösungen für die

Menschen in unserem Land. AfD – für ein starkes Deutschland, das seinen Bauern vertraut.

Under the new wolf management program based on the Swedish model, *we secure the livelihoods of our farmers and strengthen rural areas*. For each wolf territory around your pastures, you will receive financial support to cover herd protection and predation risks. The payments replace previous subsidies and are processed without bureaucratic hurdles, with no need to report incidents. You have full control over how to use the funds—maximum freedom, less government interference! With this approach, we protect Germany, reduce burdens on our citizens, and give experienced farmers the power back. *This is how we take responsibility: simple solutions for the people of our country. AfD—working for a strong Germany that trusts its farmers.*

Our utilization of the Output-version

We selected three phrasing we thought would fit the AfD party style well and provide a certain structure transferable to other party versions.

- (1) ... we secure the livelihoods of our farmers and strengthen rural areas.
- (2) This is how we take responsibility: simple solutions for the people of our country.
- (3).][... [We are] working for a strong Germany that trusts its farmers.

General management formulation (neutral):

Under the new wolf management program inspired by the Swedish model of Conservation Performance Payments, (1). The management program provides incentive payments for damage compensation and herd protection measures, replacing the current subsidies and therefore reducing administrative burdens. Farmers have full control over how to use these funds, ensuring the individual needs of your farm are met. This will not only strengthen farmers' self-determination and support them in implementing innovative herd protection measures, but also recognizes their expertise and traditional knowledge. (2). (3).

Output-Version 2 and 3, CSU/CDU and the Greens phrasing

Providing the same instruction as for the AfD phrasing with a change of the party-specific sources we got these outcomes:

CDU/CSU:

Dear Ladies and Gentlemen, Through this innovative program, we support our farmers with targeted payments based on the number of wolf territories surrounding their pastures. This initiative not only strengthens farmers' selfdetermination but also recognizes their expertise and traditional knowledge. By fostering effective herd protection, we reduce administrative burdens and allow for flexible use of funds. Our farmers will decide how best to allocate these resources to protect their herds effectively. Inspired by the Swedish model of Conservation Performance Payments, we are

providing a practical solution to the challenges posed by the growing wolf population. It is time to regain the trust of farmers and establish a sustainable wolf management system!

The Greens:

Our goal is to sustainably unite people and nature. With this new management approach, we focus on self-determination and support farms in implementing innovative herd protection measures. By introducing conservation performance payments, inspired by the Swedish model, we offer a clear alternative to previous subsidies. This not only reduces administrative burdens but also strengthens the traditional knowledge of farmers. Because we want a future-proof agriculture that makes room for wolves while ensuring the protection of grazing animals.

However, as the structure of the texts differed too much we could not find a common ground or formulation. Therefore we decided to use the AfD output as a template and give the AI new instructions.

Output-Version 4 and 5, CSU/CDU and the Greens phrasing

The AI was given the task to create phrasings based on the material for CSU/CDU and the Greens following the selected AfD sentences structure.

The Greens:

Under the new wolf management program based on the Swedish model, we promote a harmonious balance between farmers and nature, ensuring the livelihoods of our farmers and supporting rural communities in transitioning toward more sustainable practices.

For each wolf territory around your pastures, you will receive financial support to cover herd protection and predation risks.

The payments replace previous subsidies and are processed without unnecessary administrative barriers, allowing farmers to focus on innovation and resilience rather than bureaucracy.

You have the flexibility to decide how best to use the funds—empowering farmers to integrate sustainable solutions into their daily operations with minimal government interference.

With this approach, we strengthen ecological balance, reduce burdens on communities, and support forward-thinking agriculture that protects both people and wildlife. Together, we foster solutions that prioritize the well-being of all.

Die Grünen—working for a future where humans and nature coexist.

CSU/CDU:

Under the new wolf management program based on the Swedish model, we safeguard the livelihoods of our farmers and uphold the strength of rural areas as vital contributors to our country's prosperity.

For each wolf territory around your pastures, you will receive financial support to cover herd protection and predation risks.

The payments replace previous subsidies and are processed without unnecessary red tape, streamlining the process to reduce paperwork and reporting.

You retain the autonomy to manage how to best use these resources—granting farmers more freedom while maintaining accountability and oversight.

With this approach, we protect Germany's agricultural heritage, reduce burdens on our citizens, and restore farmers' ability to focus on their work with minimal state intervention. This is responsible governance: practical solutions that serve our country's future.

CDU/CSU—working for a strong and resilient Germany.

Our utilization of the Output-version 1, 4 and 5

First, we selected the specific phrasings of all parties and merged them into the neutral management formulation:

Under the new wolf management program inspired by the Swedish model of Conservation Performance Payments, *(1.AfD) we secure the livelihoods of our farmers and strengthen rural areas. (1.CDU/CSU) we safeguard the livelihoods of our farmers and uphold the strength of rural areas. (1.The Greens) we promote a harmonious balance between farmers and nature.* The management program provides incentive payments for damage-compensation and heard protection measures, replacing the current subsidies and therefore reducing administrative burdens. Farmers have full control over how to use these funds, ensuring the individual needs of their farm are met. *(2.AfD) This is how we take responsibility: straightforward solutions that empower our farmers and protect our land. (3.AfD) We are working for a strong Germany that trusts its farmers. (2.CDU/CSU) This is responsible governance: effective solutions that strengthen our agricultural communities and secure our future. (3.CDU/CSU) We are working for a strong and resilient Germany. (2.The Greens) This reflects our commitment to sustainability: innovative solutions that harmonize the needs of people and nature. (3.The Greens) We are working for a future where humans and nature coexist.*

To control if we are on the right track with the phrasings I checked with the AI in a new chat. I provided the AI with each party's version, without the party name and asked: "I have three more or less similar texts. Tell me which German party you would categorize them to." While the AI recognized the texts for The Greens and CDU/CSU correctly, it categorized the AfD text as a CDU/CSU text as well. Therefore we asked the AI to make the AfD text different: "Text 1 [AfD Version] should sound like AfD. What do I need to change? The outcome satisfied us:

(2) We take responsibility for our land and people: straightforward solutions that empower our farmers and safeguard our traditional values.

(3) We are committed to a strong Germany that prioritizes the interests of its citizens.

Complete texts after ChatGPT interaction

These were the final texts at the time. During the research phase, they underwent slight changes and were translated back to German. The final versions are depicted in chapter 6.

AfD:

Under the new wolf management program inspired by the Swedish model of Conservation Performance Payments, *we secure the livelihoods of our farmers and strengthen rural areas*. The management program provides incentive payments for damage-compensation and heard protection measures, replacing the current subsidies and therefore reducing administrative burdens. Farmers have full control over how to use these funds, ensuring the individual needs of their farm are meet. *This is how we take responsibility: easy solutions that empower our farmers and protect our land. We are working for a strong Germany that prioritizes the interests of its citizens.*

CDU/CSU:

Under the new wolf management program inspired by the Swedish model of Conservation Performance Payments, *we safeguard the livelihoods of our farmers and uphold the strength of rural areas*. The management program provides incentive payments for damage-compensation and heard protection measures, replacing the current subsidies and therefore reducing administrative burdens. Farmers have full control over how to use these funds, ensuring the individual needs of their farm are meet. *This is responsible governance: effective solutions that strengthen our agricultural communities and secure our future. We are working for a strong and resilient Germany.*

The Greens:

Under the new wolf management program inspired by the Swedish model of Conservation Performance Payments, *we promote a harmonious balance between farmers and nature*. The management program provides incentive payments for damage-compensation and heard protection measures, replacing the current subsidies and therefore reducing administrative burdens. Farmers have full control over how to use these funds, ensuring the individual needs of their farm are meet. *This reflects our commitment to sustainability: innovative solutions that harmonize the needs of people and nature. We are working for a future where humans and nature coexist.*

Chat GPT Chat History AfD Example

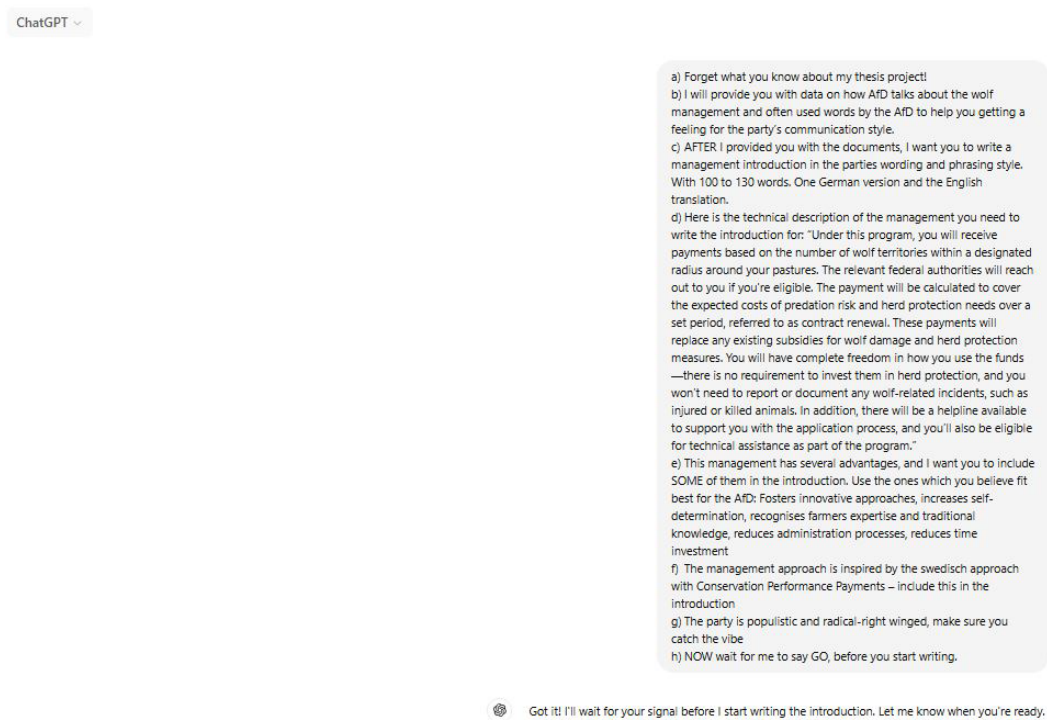


Figure 26: Snapshot 1 of the chat history with ChatGPT.

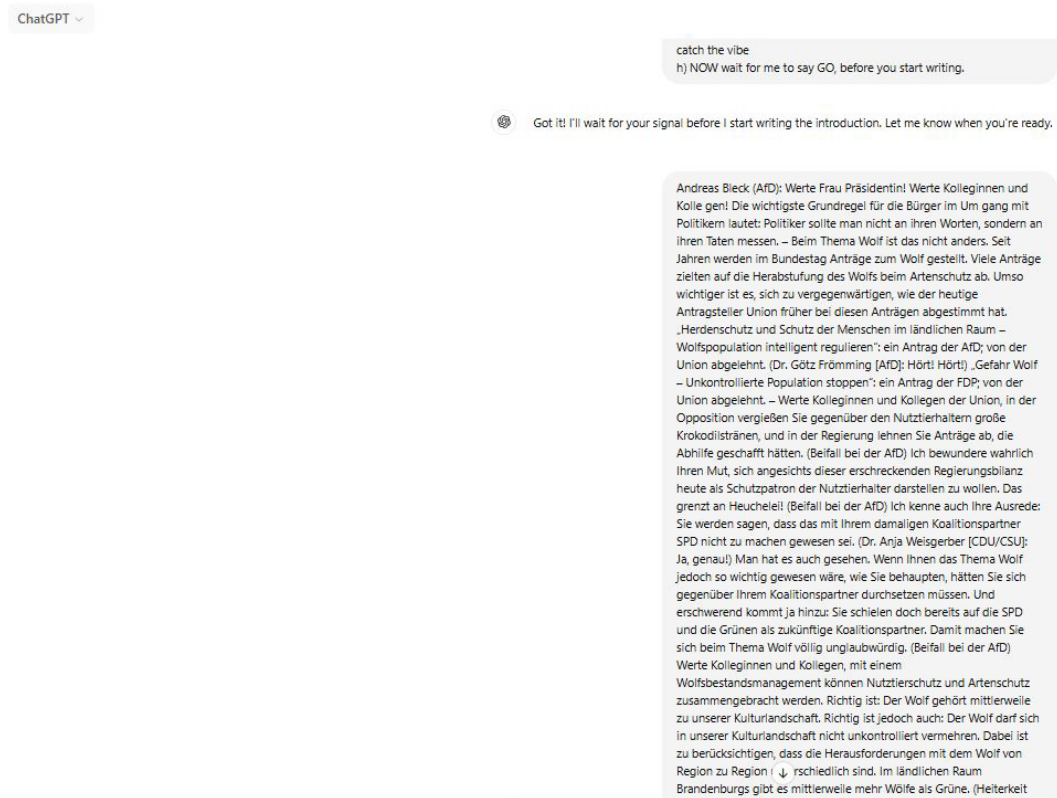


Figure 27: Snapshot 2 of the chat history with ChatGPT.

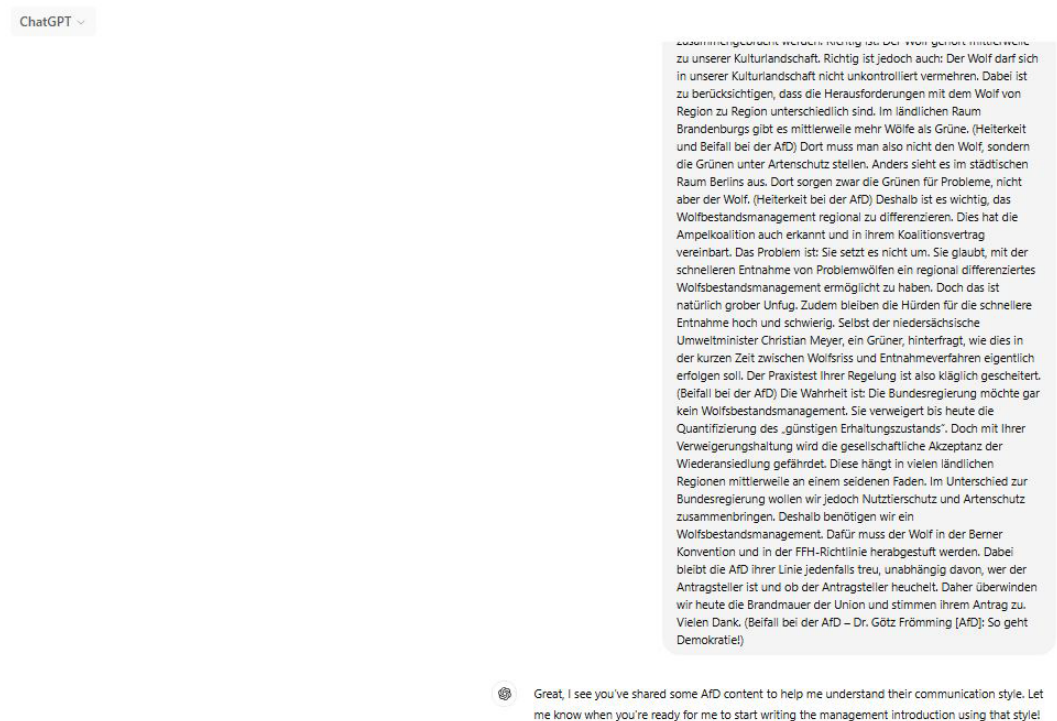


Figure 28: Snapshot 3 of the chat history with ChatGPT.

ChatGPT

Great, I see you've shared some AfD content to help me understand their communication style. Let me know when you're ready for me to start writing the management introduction using that style!



Thanks for sharing the word cloud from the AfD's program. It gives me a clearer sense of their core vocabulary. You can say "GO" whenever you're ready for me to write the management introduction based on these inputs!

GO

German Version:

Unter dem neuen Wolfsmanagement-Programm nach schwedischem Vorbild sichern wir die Existenz unserer Landwirte und stärken den ländlichen Raum. Für jede Wolfsterritorium im Umfeld Ihrer Weiden erhalten Sie finanzielle Unterstützung, die die Kosten für Herdenschutz und das Risiko von Wolfsangriffen deckt. Die Auszahlung ersetzt alle bisherigen Subventionen und erfolgt unbürokratisch, ohne dass Sie Vorfälle melden müssen. Sie entscheiden selbst, wie Sie die Gelder nutzen – maximale Freiheit, weniger staatliche Einmischung! Mit diesem Ansatz schützen wir unser Deutschland, entlasten unsere Bürger und geben den erfahrenen Landwirten die Kontrolle zurück. Das ist der Weg, wie wir Verantwortung übernehmen: einfache Lösungen für die Menschen in unserem Land. AfD – für ein starkes Deutschland, das seinen Bauern vertraut.

Figure 29: Snapshot 4 of the chat history with ChatGPT.

ChatGPT

Das ist der Weg, wie wir Verantwortung übernehmen: einfache Lösungen für die Menschen in unserem Land. AfD – für ein starkes Deutschland, das seinen Bauern vertraut.

English Version:

Under the new wolf management program based on the Swedish model, we secure the livelihoods of our farmers and strengthen rural areas. For each wolf territory around your pastures, you will receive financial support to cover herd protection and predation risks. The payments replace previous subsidies and are processed without bureaucratic hurdles, with no need to report incidents. You have full control over how to use the funds—maximum freedom, less government interference! With this approach, we protect Germany, reduce burdens on our citizens, and give experienced farmers the power back. This is how we take responsibility: simple solutions for the people of our country. AfD—working for a strong Germany that trusts its farmers.

Let me know if you'd like any adjustments!

Figure 30: Snapshot 5 of the chat history with ChatGPT.

Appendix 6

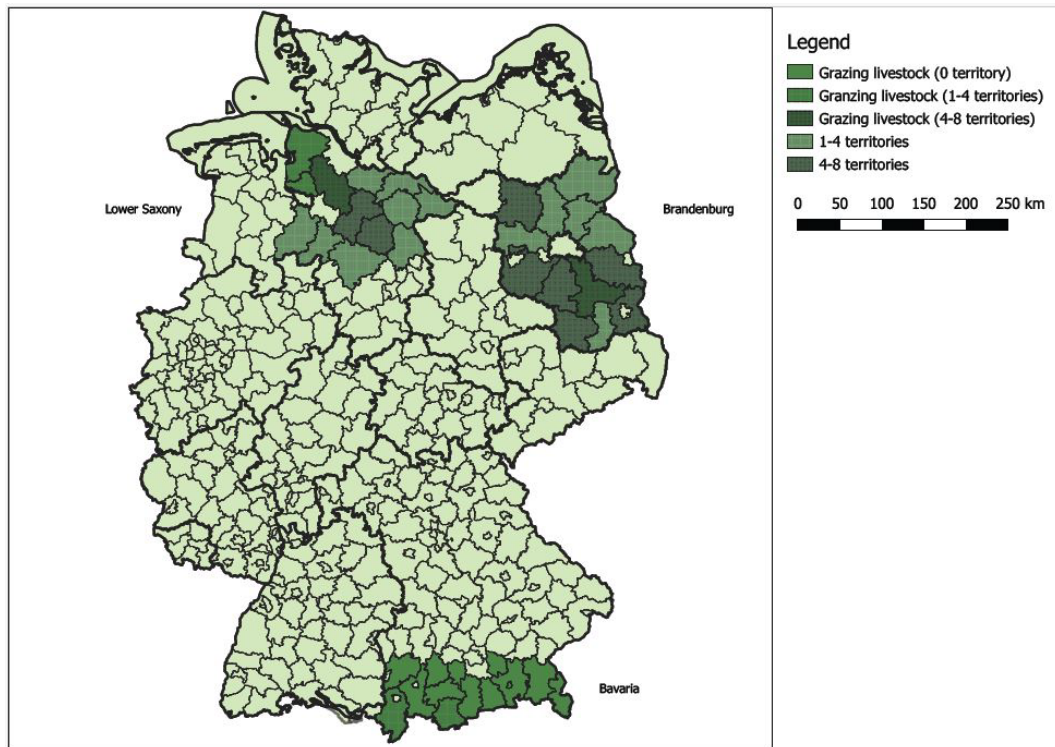


Figure 31: Potential Research Area: Overlay map showing the distribution of grazing livestock and wolf territories. Data sources include the 2020 Agricultural Structure Survey (Farm Census) by the Federal Statistical Offices and wolf monitoring data from DBBW for the 2022/23 monitoring year. Map created using QGIS.

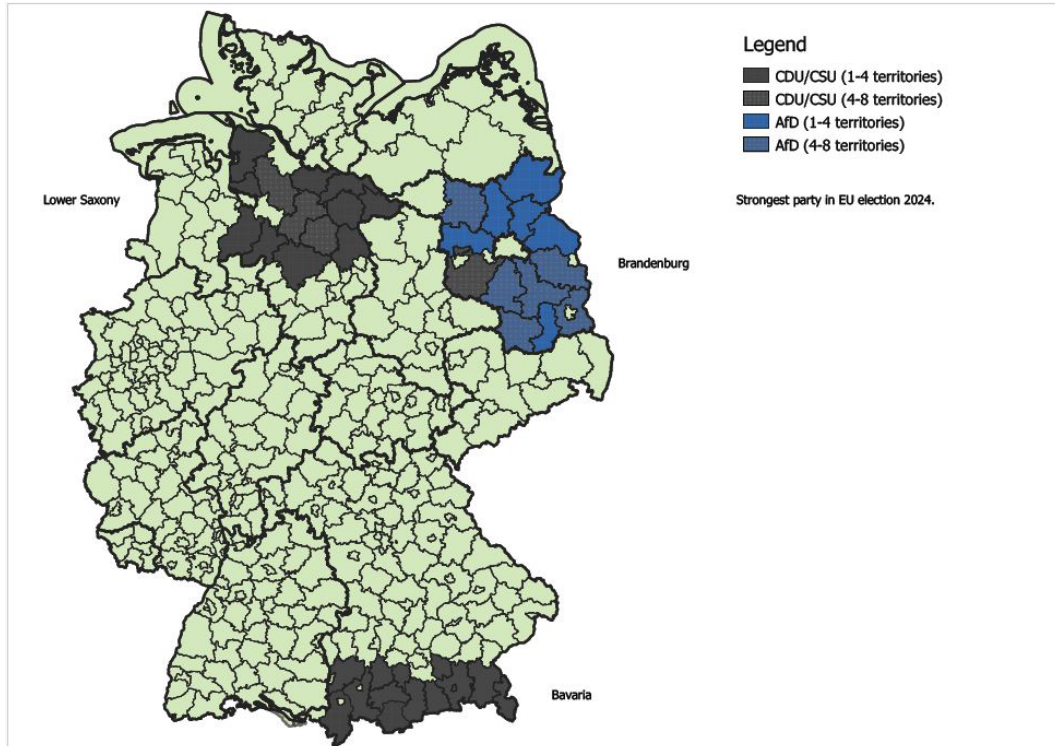


Figure 32: Potential Research Area: Overlay map displaying the strongest party voted for in the 2024 EU election alongside wolf territories. Wolf data provided by DBBW for the 2022/23 monitoring year. Map created using QGIS.

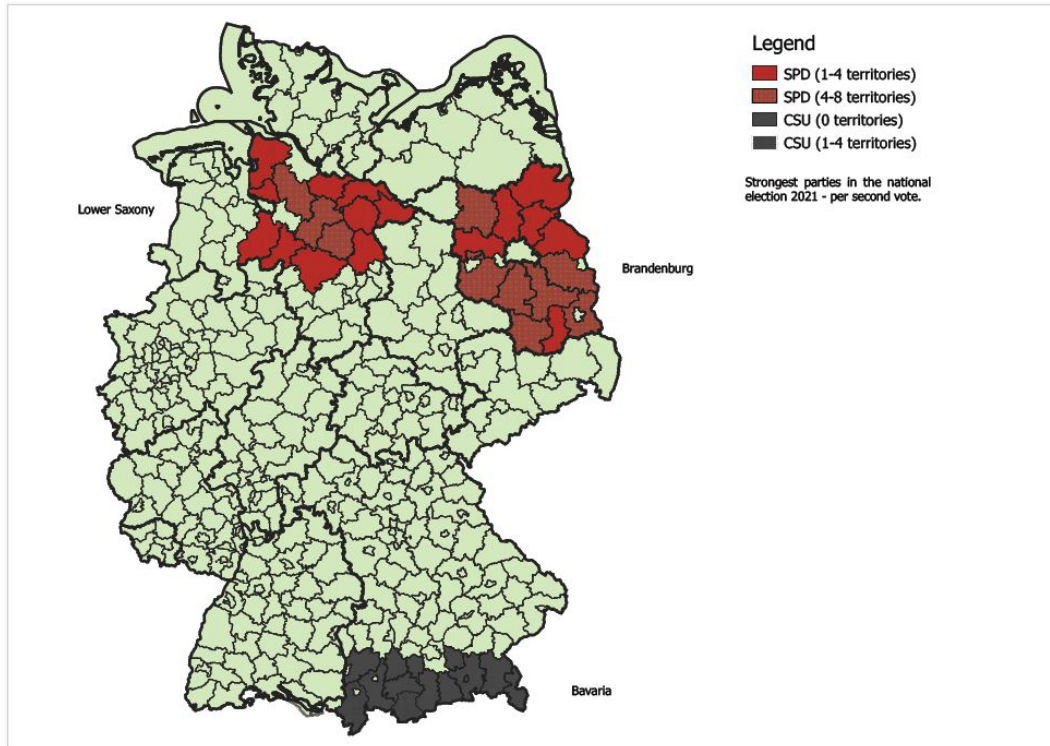


Figure 33: Potential Research Area: Overlay map displaying the strongest party voted for in the 2021 national election alongside wolf territories. Wolf data provided by DBBW for the 2022/23 monitoring year. Map created using QGIS.

Appendix 7

Table 1: Definitions of right wing populism, radicalism and extremism by the European Parliament. (Parliament European Parliament: Directorate-General for Internal Policies of the Union, Liger, Q. and Gutheil, M. (2022). Right-wing extremism in the EU. <https://data.europa.eu/doi/10.2861/462122>)

Concept	Definition
Radical right/ right wing radicalism	<p>"An ideology characterised by an illiberal opposition to equality. It valorises an ethnocentric conception of people and nation coupled with a rejection of liberal democracy and approving of authoritarian policies undertaken by a leader. An important distinction is the rejection of 'liberal democracy', not the concept of democracy. As such, while rightwing radicals may accept the rule of the majority, they would reject liberal aspects of contemporary democracies, such as minority rights, the independence of the judiciary, or the rule of law."</p>
Right wing extremism	<p>"Is distinguished from the radical right / right-wing radicalism in that the latter seeks to replace the ruling elites within the existing (or slightly amended) democratic system. The extreme right or right-wing extremism on the other hand seeks to replace democracy and in doing so legitimises the use of violence against enemies of the nation. Right-wing extremism includes specific concepts which are often used in the literature such as:</p> <ul style="list-style-type: none"> • Neo-Nazism – an ideology seeking to reinstate Nazi ideology, including the promotion of white supremacy. It contains elements of ultranationalism, racism (against other ethnic and religious groups, including anti-Semitism). This ideology rejects democracy, parliamentarism, and pluralism completely. • Neo-fascism - an ideology promoting racial superiority, ultranationalism, authoritarianism as well as opposition to liberal democracy."
Right wing populism	<p>"A political ideology which combines right-wing politics and anti-elitist sentiment. It is based on a perceived opposition between the "people" and a political and economic 'elite' or 'establishment' which is seen to control democracies. Themes common to right-wing populist movements include xenophobia, anti-immigration sentiments, nativism and ethnonationalism. Discussions about populism revolve around two key questions: first, whether it is democratic or not, second, whether it is an ideology, a strategy or a political style."</p>

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