

## 1. Introduction

Two decades have passed since the return of wild wolves to Germany. Yet, wolf recovery is still subject to intense public debate (Carter and Linnell 2016). To farmers and hunters, the grey wolf (*Canis lupus*) is a competitor (Kaczensky 2006) for livestock and game, and there is also the socio-cultural construct of the ‘big black wolf’, passed on through ancient mythology and fairy tales (Fritts et al. 2003). It is even known that the fear or perceived threat posed by an apex predator is engrained in our very own genetics signalling biophobic responses of the past (Ulrich 1993). By contrast, to some, wolves are a symbol of returning wilderness (Fritts et al. 2003) and environmentalists emphasize the wolves’ ecological value (Beschta and Ripple 2016). In densely populated countries like Germany, there are few retreat areas for wolves, so humans and wolves must share landscapes (Arbieu 2019). Yet, despite the dense population, recent wolf habitat models suggest that there is still a sufficient amount of space for many more wolves to come (Kramer-Schadt et al. 2020). However, it is known that a higher exposure to wolves may result in a more negative attitude towards wolves (Kaczensky 2006). Successful coexistence in Germany therefore strongly depends on whether people will accept their return (Kaczensky 2006). Thus, it is important to monitor people’s attitudes, beliefs, and judgments towards wolves, to gain a better understanding of the public debate (Lehnen et al. 2021). This can help to address human-wolf conflicts (Koenig et al. 2020), to improve educational programs for children (Randler et al. 2020) and to aid wolf management decisions more effectively (DeCesare et al. 2018).

## 1.1 Attitudes and the Media

When people are concerned with a subject, they want to increase their knowledge about it and stay well-informed by tracking the most recent information. It is the foundation for open discussion and debate about issues. A shared interest in solving problems at hand is important to ensure a well-functioning community (Skogen and Krangle 2003). Knowledge, however, is a strong modifier of attitudes (Glikman et al. 2011), and we draw upon various sources of information to obtain it. For Germans, the preferred information source for the topic of wolves is the news media (Arbieu et al. 2019). While the media does not dictate public opinion about wolves, as an agenda setter, it affects its audience's values, attitudes, and beliefs (Shrum 2008). By telling its readers/viewers/listeners what to think about, and focusing public attention towards particular subjects, the media has the ability to shape public discourse (McComb 2017). However, the media is also affected by public opinion (Brosius and Kepplinger 1990). It was found that if a certain awareness of an issue precedes media coverage, the media echoes public perception rather than to dictate it (Hopkins et al. 2017). It is therefore reasonable to believe that in its role as an information source to the public, it also becomes a reflection of the public debate (Bengston 2005) that expresses public attitudes towards wolf return.

## 1.2 Attitudes, Beliefs, Judgments

Eagly and Chaiken (1993) define an attitude as “a psychological tendency that is expressed by evaluating a particular entity with some degree of favor or disfavor” (p. 1). Thus, in the context of this study, an attitude towards wolves can be understood as an evaluation of wolves being either ‘good’ or ‘bad’. Attitudes are closely intertwined with what a person believes (p. 106) and his/her judgment (p. 367) over an issue. Beliefs are “associations or linkages that people establish between the attitude object and various attributes” (Eagly and Chaiken 1993), which in short can be interpreted as what a person holds to be true. A judgment expresses a consequence of an attitude and the associated beliefs, so, how something, or someone

should be dealt with or treated. In an attitudinal context, beliefs, when they contain evaluative remarks or express emotions, can be interpreted to express an attitude (Eagly and Chaiken 1993). Following the authors Karlsgren et al. (2004), these will further be termed 'attitudinal expressions.'

### 1.3 Attitudes and Wolves

From a psychological perspective, negative information tends to have a greater influence on attitudes than positive information (Soroka 2006). The media, with its need to sensationalise, often through presentation of conflict (Happer and Philo 2013) has become increasingly aware of the emotionality surrounding the topic of wolves (Fritts et al. 2003) returning to Germany after over 150 years (Reinhardt et al. 2020). There is a variety of research about wolf recovery, ranging from topics such as monitoring and management (Fechter and Storch 2014; Reinhardt et al. 2020; Kramer-Schadt et al., 2020), of wolf ecology and behaviour (Wagner et al. 2012; Reinhardt and Kluth 2016) and of coexistence between wolves and humans (Ronnenberg et al. 2017; Arbieu 2020). Research also exists on attitudes towards wolves among the German public (Naturschutzbund Deutschland e. V. (NABU) 2018; Arbieu et al. 2019; Arbieu et al. 2020; Randler et al. 2020; Kaczensky, P. (2006); Lehnen L. et al. (2021)), with varied conclusions. The research company 'Forsa' conducted a survey on behalf of the NABU investigating attitudes towards wolves in Germany and found that a majority of Germans welcome wolf recovery, whereas Randler et al. (2020) studied a group of second grade students, in which girls showed a higher level of fear of wolves than boys, and boys showed a higher level of knowledge about wolves. In research regarding attitudes and exposure to information sources, Arbieu et al. (2019) concluded that indirect experiences with wolves – such as exposure to media – can have a strong influence on people's attitudes and opinions and that attitudes from people who received their information about wolves from the TV or news press, were generally more negative compared to information retrieved from other media sources (such as books and documentaries). Lehnen et al. (2021) performed a meta-analysis of all attitudinal studies so

far. In 2006, Kaczensky performed a combined media analysis and acceptance study that statistically measured media presentation and public attitudes towards wolves in the German print media from 2001–2005. Data was collected at different levels – via phone surveys, questionnaires, and print news articles. However, wolves had only begun spreading out from Saxony in 2006, to one other federal state (DBBW 2021) and the concept of wolf recovery was, so to say, ‘brand new’ with little public experience throughout the country. Now, after 20 years of wolf recovery, wolves have spread to 11 out of 16 federal states with an emerging time trend – those areas where wolves had initially settled have now become wolf areas with long experience, whereas those regions where wolves have appeared only recently are just beginning to learn what it means to live alongside wolves. This highly interesting concept of analysing a time trend of attitudes towards wolves among the public, coupled with a comparison across different regions, has been explored in other countries, such as the U.S. and Canada (Houston et al. 2010), and France (Chandelier et al. 2020), but so far has not been endeavoured in Germany over an extended period. Following the concept of time trend analysis performed in these studies, this research will fill this gap and address the following questions: Are attitudes towards wolves changing over time? Also, is there a difference in attitudes towards wolves between regions with no wolves and no wolf experience, some wolves and short wolf experience or many wolves and long wolf experience?