

4. Discussion

4.1 General Observations

In the sample of total publications, aggregated results of positive and negative attitudes towards wolves show a strong spike in negative attitudinal expressions from the year 2016 to 2017. There are several factors that may have led to this climb. For one, this spike in total negative attitudes is driven by increases in five negative categories during that period. Parallel to this finding, data provided by the Federal Documentation and Consultation Centre on Wolves (DBBW) – the body that advises ‘federal and state authorities regarding all questions concerning wolves in the wild’ (DBBW, 2021a) – shows that wolf territories expanded by 71 % in that year, from 87 to 122 territories (DBBW, 2021). It is worth noting that one positive category, ‘cattle is well-protected’, was among the categories that increased. This can be explained by the definition of the category to include expressions of improved governmental support for cattle protection, meaning that governments sensed the need for more sufficient financial support for livestock-keepers. The time trend for the category is also accompanied by increasing ambivalence, polarization and uncertainty, expressing the worries, complaints and discussions about wolf return in Germany. Another event that may have led to the spike in negative attitudes in 2016–17 surrounds an alleged wolf attack on a tourist in Greece that circulated in the media outlets at the time (Sueddeutsche Zeitung, 2017). Although this claim was widely disputed by experts (Radinger 2018), the incident may have tarnished the image of wolves, causing greater ambivalence and uncertainty among the public.

Reflecting the findings of the NABU survey, the results of this study show a majority of positive attitudinal expressions across all samples over the measured period. However, where the NABU survey reflects a snapshot of 2018, this study follows a time trend over the past decade, and there is a clear change in attitudes over time: In newspapers from all across the country, negative attitudes significantly increased over the examined decade. Likewise, national news publications show a significant decrease in positive attitudinal expressions. Parallel to these findings, the number of wolf packs expanded strongly throughout the measured period at an average rate of 78 % per year (DBBW 2021). So, it can be said that over time, with increasing wolf populations, attitudes towards wolves in the news media are becoming more negative. This is consistent with the findings that experiences with wolves among livestock-keepers and hunters were more negative (Arbieu et al. 2020) and that people who access information about wolves from the news media generally show a more negative attitude towards wolves (Arbieu et al. 2019).

The most frequent news media coverage of wolf return to Germany took place in 2019 ($n=1327$). In that year, the German Parliament passed a controversial law in wolf management that allows for easier killing of wolves (controversial, as it contradicts EU law). By then, there were 128 territories spread from the north-east to the north-west of Germany and wolves were beginning to make their way southwards (DBBW 2021). Wolf attacks on livestock were constantly on the rise throughout the period peaking in 2019 with approximately 900 attacks (DBBW 2021b). It is possible that the response of policymakers to growing protests of farmers may have contributed to the sharp drop in the number of news publications in 2020, signalling successful appeasement. However, another contributing factor to this drop in coverage most certainly was the emergence of Sars-Cov-2 in Germany, resulting in a stronger focus of the media on covering the pandemic and due to social distancing measures in place. Likewise, it was the year of the U.S. presidential election, and after a controversial presidency, this event may have also garnered more media attention. The potential impact of wolf recovery on ecosystems was the least mentioned category throughout all samples ($< 5\%$). It appears that people were more concerned with how wolves affect daily livelihoods, as these were the cat-

egories most expressed. This is interesting, because the German Federal Agency for Nature Conservation (BfN) biannually publishes a study measuring nature consciousness among Germans and found that Germans are becoming increasingly nature conserving (BfN 2021). Compared to the 2017 survey, the 2019 Nature Awareness Study shows that, on average, there have been significant increases in the population's expressed willingness to adopt a more nature-conserving behaviour (2019: 63 percent; 2017: 56 percent) and attitude (2019: 60 percent; 2017: 54 percent), signalling a potential receptiveness for conservational matters. These findings have implications and could help shape communication strategies for state services and/or conservation NGOs (Chandelier et al. 2018); for example, to further emphasize to the public the wolves' 'usefulness' to nature, so to say, the ways in which wolves positively impact ecosystems by hunting diseased animals and increasing overall biodiversity (Ripple and Beschta 2012; Beschta and Ripple 2016; Beschta et al. 2018).

Regarding the regional differences, the results of this study indicate that the number of positive attitudinal expressions is proportionately high for all three regions. In the context of Berlin and North Rhine-Westphalia, this may be related to the observation that urban regions and regions in Germany with no wolves are generally more enthusiastic about the return of wolves than rural areas (Kaczensky 2006; Arbieu et al. 2019). The proportion of positive attitudinal expressions towards wolves exhibited by the region with a long history of wolf presence may be attributed to the fact that regions with a long history of wolf presence possess a greater level of knowledge about wolves (Kaczensky 2006; Arbieu et al. 2019). This may have a positive effect on attitudes in Saxony-Anhalt, where individuals are more accustomed to wolves and therefore exhibit less fear. This also reduces the likelihood of risky behaviour and personal concern (Kaczensky 2006), thus further enhancing positive attitudes towards wolves.

The region with long wolf experience (ST) exhibits a higher prevalence of negative attitudes than the region with some wolf experience (NRW). This may be attributed to the observation that in areas where large predators are a regular feature of local life, negative attitudes tend to prevail (Arbieu et al. 2020). Similarly, experience with attacks on livestock (Ericsson and Heberlein 2003) and higher exposure to news media (Arbieu, 2020) have

been found to lead to increasing negative attitudes. In Saxony-Anhalt, the number of wolf kills reached its highest point in 2017 (DBBW 2021c), a year which also witnessed the most newspaper publications and the year with the most negative attitudinal expressions about wolves.

While reading the articles, it became increasingly clear that alongside the attitudinal expressions that fall under the three generic categories, there was a sentiment spanning the articles that conveyed an indecisiveness about wolf recovery. Also, there was a clear polarization of opinions evident and a sentiment of uncertainty that would not clearly fall under positive or negative expressions. These terms were included into the analysis and coded as ‘wolves cause ambivalence/ polarization/ uncertainty’. According to Eagly and Chaiken (1993), a person is ambivalent, when he/she is ‘holding inconsistent beliefs or harboring inconsistent emotions’ (p. 124) – in short, mixed feelings. The importance of these sentiments cannot be underestimated, as it may be the case that by including ambivalence in this analysis, positive and negative attitudinal expressions are less distinct from one another. Kaplan (1972) believed that in order to measure ambivalence, it is necessary to measure positive and negative attributes of an attitude object (= what is under evaluation, in this case wolf recovery) separately, which will increase ambivalence. This increase in ambivalence will result in more polarized attributes of wolf recovery, which in turn will balance the evaluative meaning in the number of positive and negative expressions (Eagly and Chaiken 1993). Similarly, Conner and Sparks (2002) argue coherently that high levels of ambivalence represent weak attitudes and are less stable over time compared to lower levels of ambivalence (p.51). In this context, it is worth noting that the category of ‘ambivalence, polarisation and uncertainty’ remained relatively stable throughout all samples, between 10–15 %, reflecting a constant notion of public fear, polarisation, and indecision towards wolves. While the temporal effect may not be as moderating towards positive and negative attitudes, it is yet an important aspect: Since ambivalent attitudes are based on opposing evaluations and conflicting information, they should be more tenuous and thus more flexible than positive or negative attitudes (Conner and Sparks, 2002), and while the gap between positive and negative attitudes is widening, the number in this category reflects the pro-

portion of the public with less strong opinions and with the potential to be swayed in a positive direction towards wolf recovery.

