

REVIEW

Reports on badgers *Meles meles* in Dutch newspapers 1900–2013: same animals, different framings?

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ABSTRACT

1. Culling wild badgers *Meles meles* in an attempt to control the spread of bovine tuberculosis (bTB) infections in domestic cattle has provoked a long and fierce debate in the UK. Research has shown that the controversy over badger culling exists because of fundamental differences in how badgers and their relationship with humans are framed (viewed and described) by various people and groups. However, these different framings pre-existed the bTB badger culling debate.
2. In the Netherlands, bTB is absent in cattle. Until the 1980s, the badger population showed a strong decline, due to persecution and increasing road traffic intensity. Since the 1990s, the badger population has increased substantially, which has led to more confrontations with humans (more collisions with vehicles, more damage to crops, etc.). Yet badgers seem far less controversial than in the UK. Moreover, cases of persecution are now seldom reported. This suggests that badger framings in the Netherlands are less extreme than those in the UK, and have become less focused on negative aspects of badgers.
3. Badger framings can facilitate or hinder badger protection. We identify badger framings in the Netherlands, provide explanations for these framings and how they change over time, and explore the consequences of framings in terms of how humans act towards badgers. We then compare the Dutch badger framings to the UK badger framings.
4. The paper is based on an analysis of over 1400 reports in almost 1200 articles that were published during the last century in Dutch newspapers.
5. Dutch badger framings are more nuanced than those in the UK. The specific situation of badger–human interaction appears to have an important influence on badger framings, and thus on the protection of badgers.

INTRODUCTION

Badgers *Meles meles* often give rise to controversy, which has become particularly evident in the UK debate about badgers in relationship to bovine tuberculosis (bTB) in domestic cattle. Culling wild badgers in an attempt to control the spread of bTB infections in cattle has been discussed since the 1970s and has provoked a fierce debate among scientists, and among government officials, farmers, conservationists

and other stakeholders. The reported evidence of the effects of culling is inconclusive, and the method is heavily contested by stakeholders (Cassidy 2012).

Cassidy (2012) explains the controversy around culling badgers by the existence of two largely irreconcilable framings of badgers in society. The first is the ‘good badger’ framing, which recognizes badgers as strong, brave and aesthetically pleasing animals that symbolize the typical English countryside. The second is the ‘bad badger’ framing,

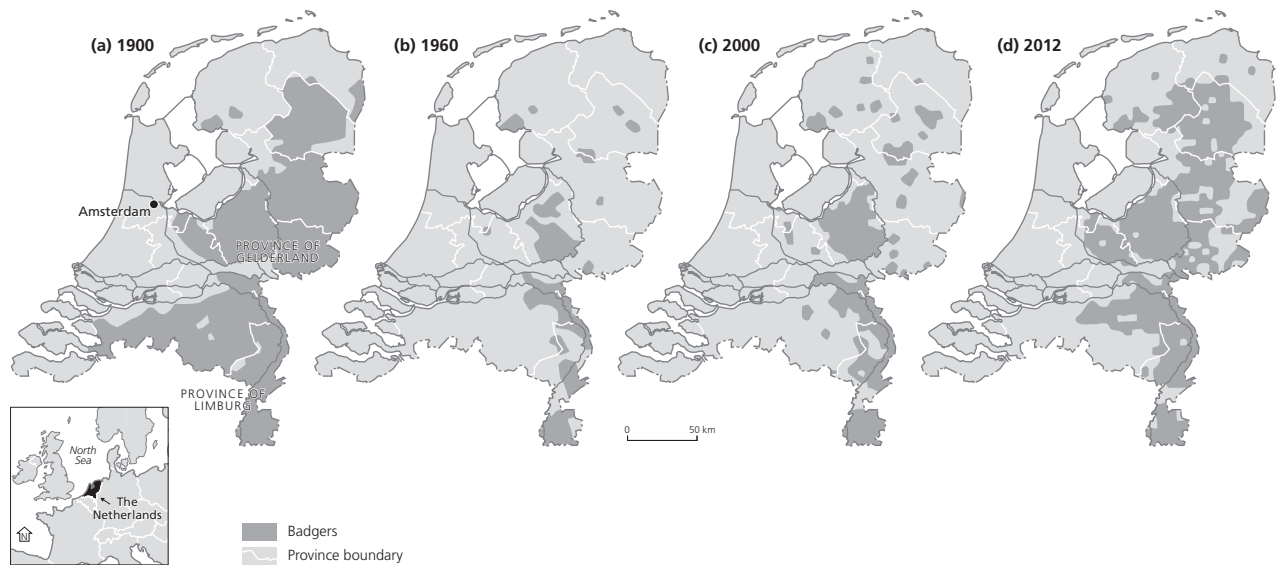


Fig. 1. Changes in the distribution of badgers in the Netherlands from 1900 to 2012. Historically, the provinces of Gelderland and Limburg (indicated) have had the highest concentrations of badgers. Data for (a), (b) and (c) are from *Das en Boom* (<http://www.dasenboom.nl>; redrawn with permission); (d) shows the presence of occupied badger sets, from <http://www.waarneming.nl> (a public website where people can report observations of wildlife), the database of the Zoogdierenvereniging (association for mammals) which includes observations of volunteers, and observations of H. Vink. The inset map shows the position of the Netherlands in Europe.

which focuses on those badger behaviours that bring them into conflict with humans; think of digging, damage to crops, aggressive behaviour, etc. Cassidy identifies the historical and cultural roots of these framings; the role of badgers in children's books, for instance, has supported the 'good badger' framing. She shows that the two framings pre-existed the culling controversy. In other words, the bTB debate and the culling measures triggered the manifestation of the two opposite framings, and perhaps intensified these, but did not create them.

In contrast to in the UK, in the Netherlands badgers seem far less controversial. Since the 1980s, the badger population has increased substantially (Fig. 1, Appendix S1) and, as would be expected in a densely populated country like the Netherlands, the increase in badgers has led to various confrontations with humans – collisions with vehicles, damage to crops and gardens, etc. Nevertheless, negative reporting in the media is nearly absent. Moreover, hunting, poisoning and the deliberate destruction of badger setts, which contributed to the strong decline in badgers between 1900 and 1950 (Fig. 1), are now seldom reported (Appendix S1). Cassidy's analysis suggests looking for explanations beyond the obvious fact that, in contrast to in the UK, cattle in the Netherlands are officially bTB free (Anonymous 2010). This raises questions about how badgers and their relations to humans are framed in the Netherlands and also to what extent these framings differ from those in the UK. The

observation that persecution of badgers is now seldom reported raises an additional question, namely whether or not badger framings have changed over time in the Netherlands.

The aim of this paper, therefore, is to investigate in more detail badger framings in the Netherlands. We use the term 'badger framings' to refer to the ways in which people think and talk about badgers, that is, what themes they address, the tone they use in talking about badgers and how this influences people's practices towards badgers. We analysed almost 1200 newspaper articles about badgers that have been published since the early 1900s. With our analysis, we aimed to identify badger framings as well as trends in these framings over time, and to search for explanations for framings and how they change over time. We also aimed to explore the consequences in terms of how the relationship between badgers and humans is shaped, as well as associated controversies. By comparing Dutch badger framings with the UK framings identified by Cassidy (2012), we aimed to deepen our understanding of the context-specificity of human–wildlife relationships as well. Our paper is expected to inform studies of human–wildlife conflicts. Such conflicts are considered a key challenge in nature conservation and a threat to biodiversity (Vitali 2014). An analysis of the framings that underlie human–wildlife conflicts can provide a better understanding of the nature of these conflicts, and help us to mitigate or avoid them.

METHODS

What are framings?

In the literature, framings are usually defined as selection devices with which people interpret and give meaning to particular phenomena (Dewulf et al. 2009), and are usually presented as concepts or storylines that reflect what people consider the most salient aspects of the subject at issue. Framing theory and methodology is developed and applied in various disciplines, including social psychology, communication studies, policy studies and political science (Dewulf et al. 2009, Nisbet 2009). As a consequence, a variety of theoretical and methodological approaches is taken in the analysis of framings (Entman 1993, Dewulf et al. 2009). In literature on human–wildlife interaction and conflict, we find some framing analyses as well. Vitali (2014), for instance, analysed framings of wolves in Italy in order to explain the problematic wolf management.

Key questions in framing analysis

WHAT IS FRAMED?

Framing can apply to many aspects of an issue. Ghanem (1997) distinguishes between the specific subtopics at issue, ‘framing mechanisms’ such as placement and size, the tone (positive, neutral or negative), and other dimensions, such as the social actor(s) (people or agencies) involved. Entman (1993) provides a framework which is more problem oriented, and considers frames as a combination of a problem definition, a causal interpretation, a moral evaluation and/or a preferred solution.

Cassidy’s analysis of badger framings shows that they are not so much about the badgers themselves, but about their relationship with humans. From the literature on badger–human interactions in the Netherlands and elsewhere (e.g. Van Wijngaarden & Van de Peppel 1960, Delahey et al. 2009, Cassidy 2012), we identified the following situations in which interactions occur:

- arable and dairy farming;
- poultry farming;
- hunting;
- illegal killing of badgers or disturbance of setts;
- traffic;
- development or construction (new residential areas, bungalow parks, etc.);
- close to humans (in gardens, allotments, sports grounds etc.);
- bTB in the UK;
- in the countryside.

In each of these situations, different actors may be involved, addressing distinct themes or aspects of badgers or badger–human interactions.

WHAT ARE THE CONSEQUENCES OF FRAMINGS?

In policy studies, framing analysis helps us to understand how people define problems, explain their causes, bring forward appropriate solutions and appoint responsibilities for implementing these solutions (Entman 1993, Benford & Snow 2000). Returning to Cassidy’s (2012) study, a logical consequence of the ‘good badger’ framing is the introduction of protection and a ban on culling badgers in order to reduce the spread of bTB. In contrast, from a ‘bad badger’ framing, badgers should logically be managed, controlled or even exterminated as vermin. Framings also provide insight into the nature of controversies over policy problems and stalemate situations – these are often based on irreconcilable framings regarding one or more of the situations listed above, or on framings that address different aspects of a problem, resulting in ‘dialogues of the deaf’ (van Herten & Runhaar 2013; see also Nisbet 2009 for the role of framing not only in explaining but also in resolving scientific controversies).

WHAT EXPLAINS FRAMINGS?

The typical situations in which humans are confronted with badgers provide important clues for explaining badger framings. However, the literature suggests that there are other factors that influence wildlife framings. Glikman et al. (2012) showed how important people’s level of knowledge is in determining how they view wolves *Canis lupus* and bears *Ursus arctos*. König (2008) focused on people’s fear of zoonotic diseases carried by urban foxes *Vulpes vulpes*. This focus already characterizes a particular framing of urban foxes (comparable with badgers being framed as ‘reservoirs of bTB infections’). People’s fear of zoonotic diseases carried by urban foxes is related to whether or not they have children who play outside, and to the information they have about foxes and disease. Vaske et al. (2011) examined the ‘value orientation’ of members of the Dutch public towards wildlife, and distinguish between ‘domination’, the belief that wildlife should be managed for the benefit of humans, and ‘mutualism’, the belief that wildlife deserves rights and care. These orientations also point to a particular framing of wildlife–human relationships, namely in terms of relative positions. People adhering to the ‘dominance’ orientation were statistically older, whereas ‘mutualism’-oriented people were more often female and living in urban areas. Educational level was not found to play a significant role. Dandy et al. (2011), however, came to a partly contrary conclusion. They conducted a survey on preferred wildlife management methods ranging from fencing to culling, which again can be assumed to depend on an underlying framing of wildlife. The authors concluded that preferences for these methods do not co-vary with age, gender or familiarity. In conclusion, knowledge/information, personal experiences,

age, gender and place of residence may influence framings of wildlife or particular aspects thereof, but not in the same intensity in each situation.

Identifying and articulating framings

In the literature, a variety of approaches is taken to identify and articulate framings. Whereas some authors take an open, grounded-theory inspired approach (e.g. Cassidy 2012), others start from specific sensitizing concepts or categories (e.g. Entman 1993). We opted for the latter approach, because we intend to build on earlier studies on wildlife–human interactions, such as that of Cassidy (2012), in which relevant and potentially relevant aspects of Dutch badger framings are identified.

NEWSPAPER ARTICLES AS THE MAIN DATA SOURCE

Our analysis was based on newspaper articles in which badgers feature. Media analysis provides an understanding of how the public perceives a subject (Bohensky & Leitch 2014). The media are not neutral transmitters of information, however, and sometimes appear to provide a distorted picture of reality (e.g. Taylor et al. 2013). Moreover, the media have been found to influence perceptions, framings and the relative intensity of positions (Miller et al. 2012), although other researchers found this influence to be limited or ambiguous (Chung & Yun 2013). Finally, the media may not represent all actors involved in an issue in a balanced way, as some actors are more willing and able to communicate with the media and consequently more often appear in the media (Schäfer 2011). A media analysis was nevertheless chosen because it allowed us to collect historical and recent data in a comparable, systematic and reproducible way. This allowed a longitudinal analysis.

COLLECTION OF NEWSPAPER ARTICLES

For the collection of newspaper articles, we drew on two partly overlapping databases. The first database was the digital LexisNexis Academic database (<http://academic.lexisnexis.nl>), which consists of articles from national and regional newspapers that have appeared since 1980. We collected newspaper articles that were published between 1980 and October 2013, using the search terms ‘badger’ and ‘badgers’ in Dutch.

The second database was the personal archive of the third author H. Vink, who has over 30 years of field experience (Dirkmaat 1988) and is recognized as one of the most informed badger experts in the Netherlands (Anonymous 2007). Since 1975, Vink has collected a variety of publications, including newspaper articles, about badgers. Vink’s archive was based on three sources. Firstly, the archives of D. Kruizinga, a badger expert in the 1960s and 1970s, archives

from the Research Institute for Nature Management (now Alterra), which contained newspaper articles until 1975, and archives from the Dutch National Museum of Natural History (now Naturalis), which contained many old newspaper articles (published before 1960). Secondly, newspaper articles that Vink collected systematically since 1978 onwards, as part of his work as documentalist for the Central Scientific Archive at the National Forestry Service; in this position, he is responsible for keeping records of, among other things, badgers, and for providing information. From 1978 until 2009, Vink collected newspapers about badgers from a professional press-cutting service; from January 2010, this service was replaced by the LexisNexis database. Thirdly, newspaper articles that Vink collected himself since 1975 onwards, by manually checking several newspapers (alongside the Lexisnexis database) and articles he received from colleagues from elsewhere in the Netherlands who knew of his interest in badgers.

There is some overlap in these sources, and Vink manually checked for duplications. There was also some overlap between the two databases we employed (Vink’s archive and LexisNexis). We manually checked for duplications and irrelevant articles, which were then removed. The overlap also allowed us to check the comprehensiveness of both databases. In the comparison, we found that the LexisNexis database did not contain all regional newspapers between 1980 and 1997; some were included later in this database. In this respect, Vink’s archives filled a gap. We expect that our sample is fairly complete. The oldest newspaper article dates from 1900; we collected newspaper articles up to October 2013. Eventually, we collected a total of 1188 articles.

CODING OF NEWSPAPER ARTICLES

Per article, a maximum of two badger reports was identified, as we decided to focus on a maximum of two actors per article. In total, 1431 badger reports were identified in the 1188 articles. In order to identify the framings in these reports, we interpreted the coded variables and their interrelationships, which resulted in several abstract ‘storylines’, for example, ‘badgers as victims of habitat loss’.

The coding scheme (Appendix S3) was developed iteratively. For each report, we collected the following variables (in bold) from our analytical framework (e.g. tone), as well as some general variables (e.g. year):

- **Year** in which the newspaper appeared (1900–2013);
- **Type of newspaper** (national or regional);
- The **province** within the Netherlands that was central to the newspaper article (12 provinces, or the whole country);
- The specific **situation** in which badger–human interactions were described (9 categories);
- The **actor** central to the newspaper report (7 categories);

- The specific **theme** or aspect of badgers or badger–human interactions that was highlighted in the article (12 categories);
- The **tone** in which actors talked about or acted towards badgers (positive or negative);
- The **consequences** of badger framings: how have actors acted or what do they claim should be done with badgers in the article (7 categories)?

Each of the first two authors analysed a sample of 30 articles independently. We then compared results and calculated the inter-rater reliability. We started by calculating the percentage of agreement in terms of articles coded similarly. However, the percentage of agreement is likely to be an overestimation of the agreement between the raters, as it does not take into account the number of categories to choose from for each variable; fewer categories make it easier to reach agreement. Therefore, we also used Cohen's kappa, a measure to calculate inter-rater reliability when nominal and categorical data are used (Landis & Koch 1977), as is the case in our research. Cohen's kappa reflects the amount of agreement above the amount of agreement that is to be expected based on chance alone. In our research, we aimed to reach an inter-rater reliability of at least 0.61 for each variable (this indicates substantial up to almost perfect agreement; Landis & Koch 1977). We coded samples of articles, calculated inter-rater reliability, compared results and revised our coding scheme in multiple rounds until substantial agreement was reached (Appendix S2). Then the articles were divided between the two raters. When about half the articles had been rated, again 30 articles were rated by both authors to calculate the inter-rater reliability. This was done in order to prevent a drift in rating styles over time. This comparison did not reveal a change in coding, however. The variable 'tone' was difficult to measure objectively and reliably, and was removed from the coding scheme (Appendix S3). The variables 'theme' and 'consequences' provided indirect but more nuanced impressions of the tone in which actors talk and think about badgers, so we used these variables to reconstruct the tone indirectly (see the Results and Discussion section).

ANALYSIS OF CODED NEWSPAPER REPORTS

After we coded the reports in all articles, the data were analysed by means of descriptive statistics. We were particularly interested in which actor groups had which framings and which situations, and whether or not these framings changed over time. As the sample size (n) was often too small to test for significant changes, we assessed changes in a more qualitative way. The connection between actors' framings and their claims (the consequences of framings) was made during the coding. The framing analysis was conducted at three levels: 1) a meta-level analysis, considering

dominant framings and dominant actors featured in the newspaper articles in the period 1900–2013; 2) comparing badger framings found in specific human–badger interaction situations; and 3) comparing framings of specific actors and any trends in these framings over time.

RESULTS AND DISCUSSION

Badgers in newspaper articles: a meta-level analysis

Until the late 1970s, only a few reports about badgers were published, but since 1980 a substantial increase in reports has occurred (Fig. 2). The oldest articles we analysed mainly report on badgers found in areas where they were not common. In most of these reports, the badgers ended up being caught or shot. The increase in reports since 1980 is related to the foundation of the *Das en Boom* ('badger and tree') association in 1981. The main goal of *Das en Boom* is to protect and restore the Dutch badger population (see Appendix S1), and the founders of this association have actively sought media attention. The increase in media attention for badgers is probably also related to the growing political and societal concerns for the environment and the gradual institutionalization of environmental policy in the Netherlands since the late 1960s (van Tatenhove & Goverde 2007). Media attention around 1990 has in part to do with the construction of the A73 motorway in the two 'badger provinces' of Limburg and Gelderland, which threatened a substantial proportion of the badger setts and badger population existing in the Netherlands at the time, and against which the *Das en Boom* association strongly protested. Since 2000, the number of articles has decreased; this is probably due to the recovery of the badger population, which may have led to fewer concerns about badgers.

Over time, we see a clear increase in numbers of reports published in regional newspapers as opposed to in national newspapers. Moreover, Fig. 2 shows that since 1980, there is a clear increase in numbers of reports on badgers in provinces outside the traditional 'badger provinces' of Limburg and Gelderland (see Appendix S1). This trend runs in parallel with the gradual increase in the badger population since 1980 and with badgers repopulating former territories (Fig. 1). We imagine that observations of badgers in provinces where they were not common are interesting to report on. Reporting on badgers killed in traffic in the 'badger provinces' probably occurs less often than in provinces that have been repopulated by badgers. To confirm this would require further analysis, however, and perhaps different methods, such as surveys. Our data set is too small to detect any significant changes in badger framings between provinces or, in particular, over time. Detecting such changes would also require further analysis. Our observations do

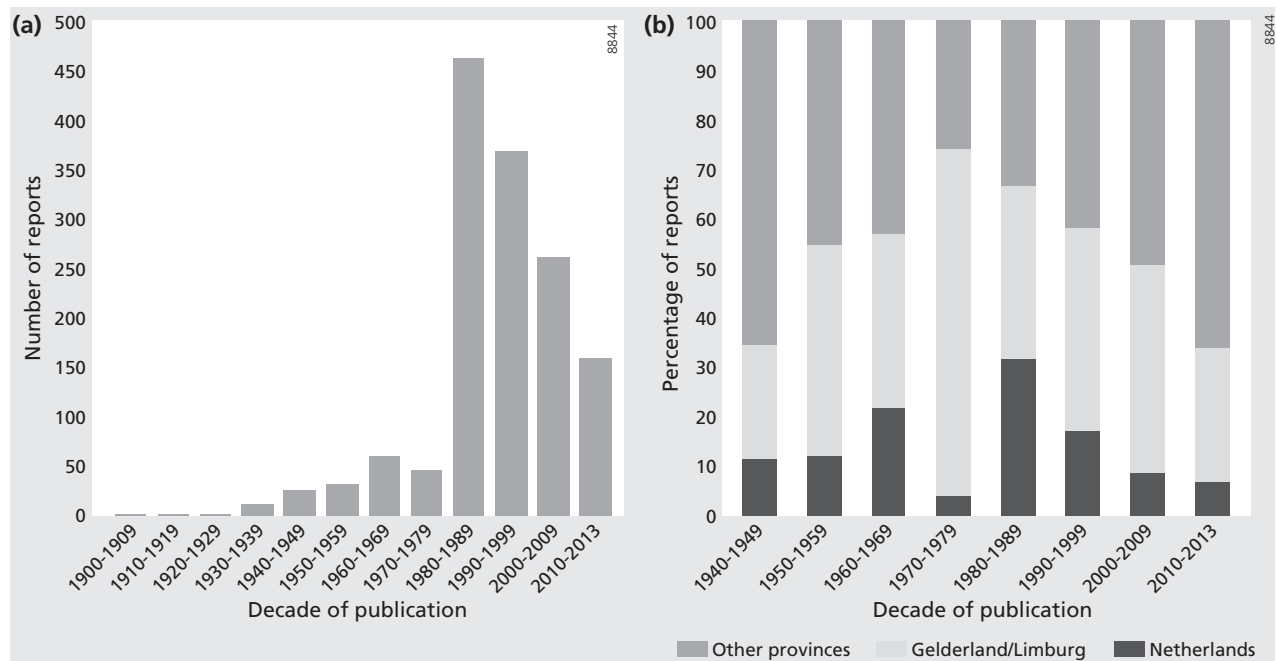


Fig. 2. Reports about badgers in Dutch newspapers 1900–2013: absolute numbers (a), and the provinces central to the 1416 reports published since 1940, as percentages of the number published each decade (b). The 15 reports published before 1940 are excluded from (b).

indicate an increasing familiarity with badgers over time in large parts of the Netherlands. This is also reflected in our observation that people featuring in articles seem to have become more informed about badgers. In old articles, more often than in recent articles, incorrect statements were made. For instance, in an article published in 1900, badgers were considered primarily carnivores; articles that were published in the 1940s and 1960s stated that badgers hibernate during winter; and in articles published up to the late 1970s, badger fat was presented as a cure against all kinds of diseases.

Figure 3 shows the main situations in which human–badger interactions occur and the main themes addressed in reports. We focus on reports published since 1940, because only 15 reports were published before 1940. Figure 3a shows that a relatively large and increasing proportion of reports is devoted to badgers in situations relating to traffic. Until 2009, we observe an increase in reports about badgers in relation to the construction of new developments. After 2010, the economic downturn resulted in fewer construction projects.

Figure 3b shows the specific themes addressed in the reports. The theme ‘damage caused by badgers (digging, crops, etc.)’ is addressed in only a minority of reports. Since the 1970s, a dominant theme has been what we labelled as ‘damage inflicted on badgers (traffic, persecution)’; within this theme, traffic is the main sub-theme. Between 1985 and 2010, another important theme was ‘damage inflicted on

badgers (habitat loss)’; this mainly relates to badgers as the victims of structural habitat changes, in part related to the construction of the A73 motorway.

To explore the ‘consequences’ of badger framings, we analysed the behaviours of the actors as reported in the reports or, if applicable, the claims that were made. The main claim in reports since 1980 is to protect badgers (Appendix S6); this claim is primarily related to situations in which badgers were portrayed as victims of road traffic accidents, illegal killing, or habitat loss. Since 1980, more often the replacement of badgers is asked for; in 80% of the reports this claim is made in relation to new developments or to specific situations such as badgers digging setts in dykes. Suggestions of killing or removing badgers are hardly observed in articles since 1985; these consequences are mainly related to themes in which badgers had caused damage, were considered game or were hunted as a resource.

In terms of trends in badger framings over time, our analysis suggests that ‘bad badger’ framings (*sensu* Cassidy 2012) have gradually been replaced by the ‘good badger’ framings which dominate newspaper articles today. These good badger framings specifically emphasize badgers as victims of traffic and habitat loss. A logical explanation for this dominant framing is that nature conservationists, in particular representatives of the *Das en Boom* association, dominate articles (see Appendix S4). As a consequence, other framings may have been given less attention in

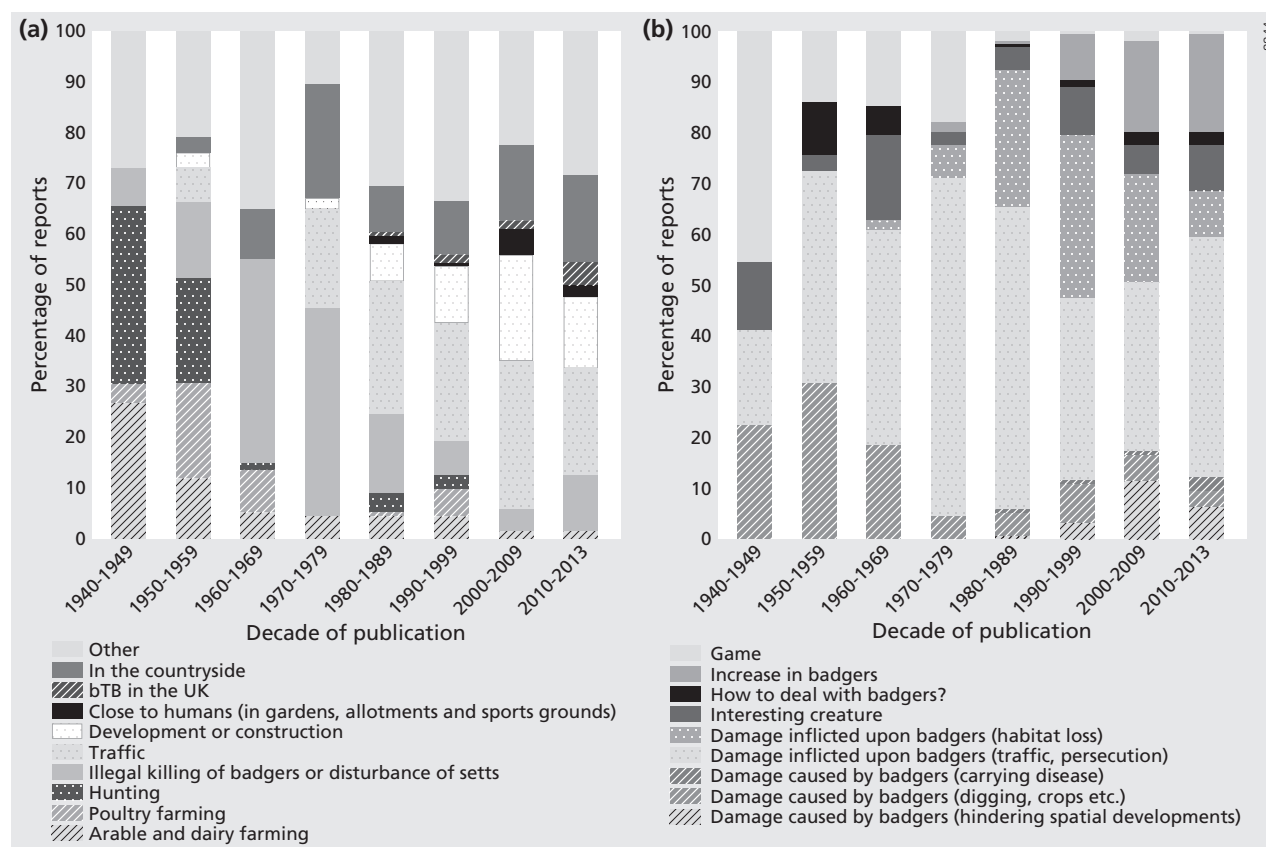


Fig. 3. Situations in which badger–human interactions occur (a) and specific themes (b) addressed in newspaper reports. Sample sizes per decade are as in Fig. 2a; the 15 reports published before 1940 are excluded.

newspaper articles (cf. Schäfer 2011). A possible explanation for the decrease in ‘bad badger’ framings in newspapers is that social attitudes towards practices have changed in view of the growing environmental concerns among the Dutch.

In order to reconstruct the variable ‘tone’, we considered that the following themes corresponded with a positive tone: ‘damage inflicted on badgers’ (e.g. persecution, traffic, habitat loss) and ‘badgers as interesting creatures’. Themes that we associated with a negative tone included ‘damage caused by badgers’ (e.g. badgers hindering new developments, digging, killing chickens and carrying disease). Farmers tend to address themes that we label as negative, such as damage, whereas nature conservationists tend to focus on those themes that we associate with a more positive tone, such as badgers being in need of help. For other actors, we see a more mixed picture (Appendix S5).

Surprisingly, not all events that could be considered as key events likely to trigger media attention for badgers appeared in our newspaper article database. For instance, only a few articles were found about the studies that were published in 1960 and 1982 on the decline in the badger population (Van Wijngaarden & Van de Peppel 1960, Wiertz

& Vink 1983), or about the intention, in 2011, to abolish the legal protection of badger setts as part of a revision of the Nature Conservation Act.

Badger framings in specific human–badger interaction situations, framings by specific actors and trends over time

ARABLE AND DAIRY FARMING

Badgers are often found on or near arable and dairy farms, where they forage for earthworms on grasslands and, in autumn, for maize *Zea mays* (Roper 2010). Of the 1431 badger reports in newspaper articles, 66 were about farmers (as actors) in the arable farming situation. These reports were found in 54 articles. No reports related to badgers and beef cattle farming. The number of reports on badgers and the arable and dairy farming situation has decreased since 2000, which is remarkable given the increase in the badger population and the resulting likely increase in confrontations between farmers and badgers, for example, in terms of damage to maize crops. The number of framings is small

and no trends were observed; therefore, no statistical analyses of changes in framings over time or differences between actors were carried out. Descriptive statistics provide a rough indication, though.

Various themes are focused on, but the categories 'damage caused by badgers' and 'damage inflicted on badgers' (e.g. killing badgers) appear relatively often. These two categories, representing different badger framings that are well characterized by these labels, are sometimes related. For instance, farmers experience damage caused by badgers, subsequently destroy setts, and then are caught and warned. Farmers' framings dominate ($n = 36$), followed by those of nature conservationists ($n = 16$) and public actors ($n = 10$). Farmers focus on 'damage caused by badgers'; nature conservationists and public authorities primarily address 'damage inflicted on badgers'. This seems to be explained primarily by their experience (see the section 'What explains framings' above) – farmers experience damage, in contrast to nature conservationists.

Considering the consequences of the contrasting badger framings described above, in 16 of the 23 badger framings about badgers causing damage to crops or land, farmers had killed or removed badgers (or had asked for this to be done). The large majority of the articles in which these framings feature, however, predate 1989. Nature conservationists mostly ask for the protection of badgers. Public actors are mostly legal authorities, that is, police officers or judges, and in the six cases where a consequence could be detected, these authorities caught and warned farmers or hunters who had killed badgers or disturbed setts.

Overall, the number of reports about badgers in relation to arable and dairy farming is small, and illegal killing of badgers or disturbance of setts is seldom reported today. Possible explanations include the legal protection of setts since 2003; the existence of the *Das en Boom* association and local and regional badger protection groups whose volunteers have actively monitored badger setts; the financial compensation scheme for damage caused by badgers and for tolerating setts on private land since the 1990s; and research showing that the increase in the badger population has not resulted in a proportional increase in damage caused by badgers in arable land (Hollander & la Haye 2013).

POULTRY FARMING

We identified a total of 30 badger reports in 22 articles relating to poultry farming. The majority of the badger reports related to poultry (77%) addressed damage caused by badgers, in this case by killing chickens, and concerned the province of Friesland, where a small population of badgers has resided for a long time. The dominant consequence of this 'badger damage' framing is financial compensation.

Killing of badgers was a consequence in only one specific case. Here, badgers had been released to repopulate a particular area, but started feeding on chickens. Later it appeared that these badgers, which included orphans and the victims of road traffic accidents, had become used to chicken meat as this was what they were fed on during their care. They were caught and killed. Apparently, badgers are no longer a real issue in relation to poultry farming, perhaps for the reasons described above for arable and dairy farming.

HUNTING

Fifty-four reports were found about badgers in relation to hunting, in a total of 46 articles. Twenty articles were published between 1918 and 1951 and mainly discussed badgers being caught or shot by hunters, in some cases at the request of farmers. We identified three different framing themes in these reports, which are closely related to the situation in which interactions occur (hunting; see our coding scheme in Appendix S3): 'damage caused by badgers' to farmers or to game, 'badgers as game', and 'badgers as a resource'. The following quotes from a 1951 newspaper article are illustrative (authors' translation; in this case the actor is not made explicit):

This hunt is forbidden, because the badger is a protected species, but the police tolerate it, because otherwise this animal could become a pest. (. . .) Why? Simply to satisfy the age-old hunting instinct that resides in every man and to measure one's strength and slyness against the strength and slyness of the wild animal. The hunt is not very beneficial for other reasons. The animals are caught alive, killed at home and stripped of their fat. This fat seems to be an excellent cure against sores and all kinds of skin eruptions and is still frequently used by farmers. Often it is only about the hunt, in which case the animals that are caught are released the next day'. 'It is nevertheless a fact that every real man is a hunter and that civilisation means biological degeneration. (. . .) These are strong men, strong as fur-trappers, and they need a sport that requires the extreme of their senses, muscles and endurance.

We also identified more nuanced framings. The following quote from a 1935 newspaper article is illustrative: 'Whether or not it is harmful is something I do not dare to decide upon; this completely depends on the perspective taken when looking at this animal. It eats nearly everything: insects, earthworms, snails, carrots, grapes, mice, eggs, etc. The badger appears in many fairy-tales and is then called Grimbert'.

This report is a response of a citizen to a badger that was caught and killed in an area where badgers had almost disappeared at the time. 'Grimbert' (meaning grey beard)

refers to the badger character in the medieval tale 'Le Roman de Renart', one of the many tales about the fox Reynard in European folklore.

Since 1951, we observe an increasing number of 'damage inflicted on badgers' themes in newspaper articles relating to the situation 'hunting'. In 1951, some articles were devoted to a hunter who was caught and warned after having shot a badger; since 1947, badgers were protected by law. A similar incident was reported in 1984. Five hunters and a farmer had admitted that they had flooded a sett. Five articles appeared about this incident. In the 1990s, some articles appeared about a covenant between the Dutch state department for Nature Conservation and hunters, about hunting foxes. Badgers often were disturbed, caught or shot during fox hunts, in part because hunters used to send dogs into badger setts, which were mistakenly considered fox earths or that were occupied by both badgers and foxes. After 1997, no more articles about badgers and hunting have appeared, suggesting that badgers are no longer a big issue in relation to hunting, despite the fact that they have increased in numbers, and though, in the past, hunters considered badgers harmful and thus usually shot them (Van Wijngaarden & Van de Peppel 1960). Perhaps the problem has declined for the reasons described above for arable and dairy farming.

ILLEGAL KILLING OF BADGERS OR DISTURBANCE OF SETTS

Since the legal protection of badgers in 1947, catching or killing badgers is illegal. We found 171 reports in 130 articles about badger illegal killing since 1951. The majority of these reports (76%) deal with the theme 'damage inflicted on badgers' and represent 'badgers as victims' framings. Twenty reports (12%) are about catching badgers in order to use them for badger baiting (fights between dogs and badgers) or for their fat, representing 'badgers as resource' framing themes.

Between 1951 and 2012, several different themes related to illegal killing were addressed. In the 1960s, 1970s and early 1980s, relatively many articles were devoted to illegal killing in the province of Limburg, in particular addressing badger baiting. In 1981, a representative of the *Das en Boom* association stated in an interview that efforts to protect badgers were useless as long as badger baiting practices continued in this province. Eleven articles were about a person from Limburg who caught badgers for their fat, which was thought of as a cure, in particular for miners with respiratory problems. In this province, coal mines were in use until the end of the 1960s (Huizenga et al. 2010). In the early 1980s, several articles appeared about badgers being killed in order to be stuffed. Various nature conservationists expressed their concerns about this practice. In 1989, 30

articles appeared about Westerbork, a village in the province of Drenthe, where badgers had been poisoned in their setts. Nature conservationists used this case in order to plead for better protection of setts. In 1991 and 1992, the *Das en Boom* association expressed concern about a revival of baiting. The state department of Nature Protection started an investigation into this subject.

In most cases, utterances of nature conservationists and public actors appear in the newspapers. Associated consequences are 'condemn, catch or warn offenders' (66% of the framings) or 'protect badgers' (12%). Since the 1980s, offenders do not appear as actors in articles anymore. Our sources suggest that illegal killing has been reduced substantially (Appendix S1). What explains this predominantly positive framing of badgers in relation to illegal killing? Apart from the better legal protection of setts and active monitoring of setts by the *Das en Boom* association and local and regional badger protection groups, at least three other explanations seem plausible. Firstly, as shown by our meta-level analysis, (openly) killing or injuring badgers or catching them for baiting no longer seems to be compatible with social attitudes towards cruelty to animals, hunting, conservation, etc. In contrast, in the past, not only police officers but also foresters sometimes tolerated these practices (Van Wijngaarden & Van de Peppel 1960, Dirksmaat 1988; see also Appendix S1). The sharp decrease in the badger population due to persecution, the growing environmental awareness among the public in general and the growing awareness of the situation badgers were in, probably all contributed towards illegal killing being incompatible with social attitudes towards these practices. Secondly, people today seem better informed about badgers; the 'badger fat myth' is not heard of anymore, and the demand for badger fat has probably declined due to closing of the mines and better medical care. Thirdly, more people than in the past seem to be informed about and interested in badgers, including a larger number of people who never saw a badger themselves, or were confronted with what are considered to be negative aspects of badgers, such as digging and causing damage to crops; this will probably result in more positive attitudes towards badgers. The other factors that we derived from the literature do not seem to be relevant in explaining badger framings.

TRAFFIC

In total, 329 reports in 287 articles were found about badgers in situations relating to traffic. Various newspaper articles published between 1953 and 1988 describe 'rare' or even 'the last' badgers being killed by collisions with vehicles. Eighty-five per cent of the reports focus on the theme 'damage inflicted on badgers': badgers being killed by collisions with vehicles or threatened by the construction of

new motorways – that is, ‘badgers as victims’ framings. In 96% of the reports where an explicit consequence or claim was stated or an action was described, this consequence was to ‘protect badgers’. Nature conservationists – in particular those of the *Das en Boom* association – dominate the reports (82%). Eight per cent of the reports are from public authorities, mainly from representatives of the National Road Authority that constructed many badger tunnels under motorways. The predominantly positive tone about badgers can be explained by the dominance of nature conservationists as actors. The protection measures taken by public authorities seem to be logical consequences of the legal protection of badgers and of national policies that have been implemented to protect badgers since the 1980s. The costs of the construction of badger tunnels are discussed in 18 reports. In a 1985 newspaper, a farmer who is confronted with the construction of a badger tunnel under a road that separates his fields from his farm stated: ‘Badger tunnels? Nonsense! I would prefer that they construct cow tunnels instead!’

DEVELOPMENT OR CONSTRUCTION

Badgers in the context of the construction of new developments, mostly new residential areas, are controversial. We found 155 reports in 125 articles relating to badgers in this situation, the first of which was published in 1978. The number of reports including framings of badgers in relation to developments has increased since 2003 (on average 5.9 a year, against a yearly average of 3.6 before 2003); we expect that this is related to the legal protection of badger setts in 2003, combined with the increase in the badger population.

The two dominant themes addressed, representing badger framings, are ‘damage caused by badgers’ (hindering new developments etc.; 25% of the reports, the oldest of which dates from 1978) and ‘damage inflicted on badgers (habitat loss)’, in which badgers are portrayed as victims of new developments due to habitat loss or loss of foraging areas (64%). Badger framings by public actors, in this case usually representatives of municipalities, more often address the former theme (in 55% of their reports), whereas logically, nature conservationists’ framings are almost always about the latter theme (93%). The claims of public actors vary; 33% of their reports are about badgers hindering developments, the desired consequence is to ‘remove, relocate or translocate badgers’; in 30% of reports, the consequence is to ‘protect badgers’ by revising plans or sometimes temporarily or permanently stopping construction. Although the number of reports is low, it seems that public authorities face a dilemma when confronted with badgers in areas they want to develop. For instance, in a 1995 newspaper, a local politician from the city of Epen was interviewed about 100 new houses being removed from a housing

project because of the presence of badgers. The politician stated: ‘The animal is protected. We have our backs against the wall’.

CLOSE TO HUMANS

Only 23 reports in 18 articles were found relating to badgers in situations close to humans. Eight reports were from citizens or property owners (as actors) being confronted with a badger. The consequences were: ‘raise interest in badgers’ as interesting creatures (three times), ‘protect the badger’ (three times), ‘tolerate the badger’ (once); in one report, the consequence was unclear.

In relation to badgers close to humans, we expect some bias in reports as they appear in the newspapers. Personal communications from the *Das en Boom* association and from the badger protection group in the province of Utrecht have taught us that in the last few years, there have been increasing reports of badgers in the vicinity of people, mostly gardens and allotments in the province of Utrecht. Badgers seem to visit these sites mostly in dry periods, when their favourite food, earthworms, is not available in large quantities, and badgers thus forage in larger areas, searching for other types of food. We also learned that people respond in mixed ways to badgers. Some people enjoy seeing them and tolerate them (or provide them with food). Others worry about damage caused by digging and want to get rid of them, either by means of ‘badger friendly’ measures, such as fencing, or less ‘badger friendly’ measures, such as removing badgers or destroying nearby setts. The latter framings are probably related to the consequences of badgers that people experience. As the badger population is still increasing and more observations are reported in urban areas (personal communication, Mr Marc Moonen from the *Das en Boom* association), badgers close to humans may become more controversial in the future.

bTB IN THE UK

Twenty-one badger reports in 16 articles were about bTB in the UK and the badger culling controversy. The oldest article was published in 1980; a total of seven articles of the 16 were published over 15 years ago.

The newspaper articles report in a nuanced way about the UK badger culling controversy, as in almost all these articles, framings of both farmers and nature conservationists are discussed. Farmers focus on badgers spreading the disease and ask for the cull, while nature conservationists plea for the protection of badgers and alternative means to combat bTB.

IN THE COUNTRYSIDE

We found 165 reports of badgers in the ‘countryside’ situation (145 articles). Reports of nature conservationists

dominate (64% of reports). These actors emphasize the themes 'damage inflicted on badgers' (24%) (including by habitat loss, 24%) and 'badgers as interesting creatures' (22%). Twenty-eight reports of public actors were found, which mostly dealt with 'damage inflicted on badgers'. The main consequences include 'protection of badgers' and their setts and foraging areas (78%) and 'raise interest in badgers or inform people about badgers' (23%).

In some reports, the recovery of the badger population and the repopulation of nature reserves are discussed. In a report published in 1990, a gamekeeper warned of a 'badger pest', and was contradicted by various nature conservationists. In two other reports from the early 1990s, the recovery of the badger population was considered indicative for nature values: 'if there are badgers in a particular area, this means it is in order for other animals as well'.

In terms of developments in framings over time, the theme 'damage inflicted on badgers (habitat loss)' was found in the 1980s and 1990s, but not since then. This is logically related to our observation that since the late 1980s and early 1990s, but in particular since 2000, the repopulation of the countryside by badgers is increasingly addressed in newspaper reports. This runs in parallel with the dynamics in the badger population (see Appendix S1).

Badgers in the Netherlands and in the UK: same animals, different framings?

The framings we identified were specified for nine specific situations of human–badger interactions, and for seven categories of actors. This resulted in less polarized badger framings than the 'good badger' framing and the 'bad badger' framing identified by Cassidy (2012). By and large, however, the same patterns emerge: some actors emphasize negative aspects of badgers and other actors emphasize positive aspects. There are also many reports that are more neutral; in 20% of the reports we identified, for instance, no explicit claim was made about what should be done with badgers (there was no stated consequence).

Cassidy's (2012) analysis suggests that the 'good badger' and the 'bad badger' framing existed in the UK before the bTB badger culling controversy, and that this controversy only triggered their manifestation and perhaps intensified them. We wonder how badger framings would develop if a bTB outbreak was to occur in the Netherlands. Two groups of actors that showed more or less extreme framings were farmers and nature conservationists. We imagine that in the case of a bTB outbreak in the Netherlands, their framings would probably be intensified, and would become more in line with the 'good badger' and the 'bad badger' framings found in the UK. In turn, the 'bad badger' framing in the UK among farmers would probably be less extreme in the

absence of bTB and in the presence of (currently lacking) financial compensation schemes for damage caused by badgers.

CONCLUSIONS

The way in which people think and talk about wildlife matters for the support for and effectiveness of nature conservation, and thus for the coexistence of humans and wildlife. Framing analysis is a useful tool for understanding how wildlife is perceived by people. Outcomes of framing analyses can be used to enhance communication in cases of incorrect assumptions about wildlife, or to implement measures in cases where wildlife causes problems.

In this paper, we analysed badger framings in the Netherlands. The starting point was our observation that badgers seem to be far less controversial in the Netherlands than in the UK. In the UK, the debate about culling badgers in order to control bTB is polarized due to the presence of two opposite badger framings. Earlier research suggests that these badger framings pre-existed the bTB badger culling controversy. In the Netherlands, badgers are far less controversial. This suggests that Dutch badger framings are more nuanced. Moreover, persecution of badgers in the Netherlands, which led to a substantial reduction in the Dutch badger population in the past, is now rarely reported. This suggests that badger framings have changed over time, and are now much more in favour of badgers.

We identified and analysed over 1400 badger reports expressed in almost 1200 newspaper articles that were published between 1900 and 2013. Although the newspaper report analysis allowed us to reconstruct badger framings systematically over a long time frame, a limitation is that the framings of particular actors, in particular offenders, are probably under-represented in newspaper reports (cf. Schäfer 2011). On the other hand, if we assume that newspapers select those items that are considered salient to their readership, the particular badger framings included and not included can be considered an indication of which framings are acceptable and which are not. This, of course, does not automatically imply that 'bad badger' framings have disappeared – they may still exist, but be uttered in other arenas. Our analysis of badger framings of two particular actors who, in the past, seemed to emphasize negative aspects of badgers and badger behaviour and as a consequence tended to remove or kill badgers, that is, farmers and hunters, shows that they have become more positive towards badgers, however. This requires further analysis, also in the light of the small number of newspaper reports relating to farmers and hunters.

Our analysis shows that Dutch badger framings are indeed more nuanced than UK framings. It also shows how badger framings have changed over time: whereas the oldest

newspaper articles often reported on badgers being caught or shot, sometimes as a consequence of damage that they caused, since the 1970s a dominant framing is that of badgers being the victims of road traffic accidents or habitat loss. In addition and as a consequence, badger framings have become predominantly in favour of badgers in terms of tolerating and protecting them. We expect that this is related to a growing general environmental awareness among the Dutch since the late 1960s; the strong decline in the badger population at that time; the emergence of the *Das en Boom* association in 1981 and local and regional badger protection groups since the 1990s (Appendix S1); the public becoming more knowledgeable about badgers, among other things, due to media attention that the *Das en Boom* association received; and practices such as illegal killing and baiting being no longer acceptable, and being more intensely monitored by, for example, *Das en Boom*. The presence or absence of bTB, however, does seem to make a difference to how extreme badger framings are. Our analysis suggests that when directly confronted with badgers and their behaviour, in particular digging or causing damage to crops, people's responses are more mixed and less positive, which in turn suggests an 'unknown, unloved' effect. Further framing analysis of urbanizing badgers would be interesting in this respect.

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SUPPORTING INFORMATION

Additional supporting information may be found in the online version of this article at the publisher's web-site.

Appendix S1. Badgers in the Netherlands: a brief introduction.

Appendix S2. Inter-rater reliability measures for the coding of newspaper reports.

Appendix S3. Coding scheme for the analysis of reports on badgers in Dutch newspaper articles.

Appendix S4. Social actors in newspaper reports on badgers.

Appendix S5. Overall tone in newspaper reports on badgers, and associated actors.

Appendix S6. Consequences of framings: claims regarding how badgers are or should be dealt with.

Appendix S7. Themes addressed in newspaper reports about badgers in the 'development or construction' situation.