

Artificial narratives for bat conservation

Designing a campaign for bats in Berlin based on narratives

Svea Rogge (TU Berlin), Maria Fritzsche (TU Berlin), Tigga Kingston (University of Illinois) and Tanja M. Straka (Hochschule Weihenstephan-Triesdorf)

Abstract *Attitudes, emotions, and moral concepts can be shaped by narratives; hence, this topic is currently attracting increasing interest in conservation efforts. The image of bats suffers from a negative reputation in European stories stored in cultural memory (e. g., Dracula). However, there are also positive attributes that are constructed and transmitted via fictional narratives, especially in Asian cultures (e. g., bats as symbols of fertility). How can we identify these attributes in artificial narratives and incorporate them into strategic communication about bats, and potentially have a positive impact on bat conservation?*

Based on an ad-hoc data set of fictional stories, we trace out how bats are conceptualized in existing narratives to gain initial insights into cultural perception. We also adapted a preliminary codebook to artificial narratives of bats for which we apply and extend existing categories on wildlife perception. We found a wide range of concepts of bats in our data set of 27 artificial narratives, which shows that these animals are conceptualized in various ways. Based on a closer look at three examples, we conclude that the anthropomorphized image of bats as misunderstood but 'cool misfits' with dualistic properties could be useful for identification and strategic communication in conservation storytelling. This is illustrated by an initial draft for a concept of a poster campaign for the city of Berlin. Other region-specific adaptations are possible due to the diversity of bat concepts.

Keywords *bat conservation, Chiroptera; conservation narratives; human dimensions of wildlife; narrative analysis; narrative strategies*

Schlagworte *Chiroptera, Fledermausschutz, menschliche Dimensionen der Wildtierforschung, narrative Strategien, Narrationsanalyse, Naturschutz-Narration*

1 Introduction

Applied biology has recognized the potential of strategic storytelling to raise awareness of urgent environmental issues (e. g., Bilandzic et al. 2020; Dahlstrom 2014; Guenther

and Shanahan 2020): Narratives enable people to communicate their experiences or impressions to one another in a vivid and comprehensible way (Van Dijk 1976, 289). That stimulates emotional engagement and imagination, thus promoting the internalization or change of attitudes, evaluation patterns, or moral concepts (Green and Dill 2013, 452; Bilandzic et al. 2020, 155).

The power of collectively internalized narrative patterns becomes clear with considering two groups of animals that both provide important ecosystem services in the form of pest control and pollination – bats and bees (Kunz et al. 2011, 13; Matias et al. 2017, 460) – and yet evoke contrasting images: On the one hand, the protection of bats, which are threatened in many places, is countered by narratives and media portrayals that depict them as disgusting, scary, and ominous (Kingston 2016, 579), while bees, on the other hand, are generally liked (Sumner et al. 2018, 841), shaped by stories such as *Maya the Bee* (Bonsels 1912). This has concrete consequences, as reflected in the willingness of many US consumers to pay more for ‘bee-friendly’ products (Chishimba-Musonda and Larochelle 2022, 16–17).

Since attitudes, emotions, as well as intentions to engage in conservation efforts can be perpetuated and influenced by narratives (Green and Dill 2013, 452; Jacobs and Harms 2014, 13; Bilandzic et al. 2020, 155), narratives may be a useful tool to engage with a broad audience, and transfer information and increase empathy for the benefit of bat conservation. However, little is known about the potential of narratives for bat conservation, nor is there a systematic understanding of the conceptualizations of bats that are transmitted through stories stored in cultural memory.

This paper offers an exploration that could serve as a kick-off for systematic long-term research in the interdisciplinary field of linguistic narrative analysis for conservation narratives (concerning bats). In this, we focused on artificial narratives, meaning spatiotemporally manifested fictional stories told by a narrating voice (Van Dijk 1976, 289–291) presented in written text, in which a bat is the main character or one of the important plot-leading figures.

As a first step, we compiled an ad-hoc data set of existing bat narratives by researching databases, bookstores, and by conducting a survey among the international bat community. An expansion of this data set for future research is planned. We developed interdisciplinary methods to analyze these artificial narratives about bats.¹

This is intended to lay the foundation for exploring the complexities of human-bat relationships through artificial narratives that capture the nuances of these relationships. With that, we provide a version of a code book adapted to bats (see Table 2) in artificial narratives to be extended by future research.

- I** With this work, we aim to understand how bats are conceptualized in artificial narratives and how to use these concepts to construct ‘effective’ new bat narratives and campaigns in outreach endeavors.

1 Another part of the data set consisting of natural narratives is subject to a different contribution, where we apply a similar method adapted to spontaneously produced stories about authentic experiences with bats.

- 1a** We approach the construction of potentially 'effective' strategies through an analysis of three narratives from the data set and provide initial insights into possible strategies for effective communication about bats.
- 1b** To illustrate how these findings could be applied in a campaign, we drafted a potential concept of a poster that could raise awareness of bats, specifically in the city of Berlin.

2 Theoretical bases from ecological research

In order to satisfy these interdisciplinary aims, we first introduce some biological facts about bats, followed by reflections on how cultural perceptions of bats are influenced by narratives, some of which are inconsistent with the facts. We then present the state of research regarding the potential of storytelling for conservation.

2.1 Biological facts about bats

Bats are a globally abundant and diverse group, with nearly 1400 species formally described (IUCN 2025). They exhibit remarkable taxonomic and ecological diversity and make a significant contribution to global mammalian biodiversity (Frick et al. 2019). In Germany, 25 bat species occur, 18 of which are found in Berlin; this has led to Berlin being dubbed the 'Bat Capital of Germany' (Schulze 2025).

Bats have several attributes that can be perceived as 'unusual' and that are crucial for the concepts and images that are placed upon them: Bats are nocturnal, hunt by using echolocation, and hang upside down in caves and other dark places during the day. They are the only actively flying species of mammals that we know of. They have leathery wings, fur, teeth, and claws, which make their properties a confusing mix of those of birds and mammals. Bats belong to the order Chiroptera (Greek for 'hand winged') that consists of two suborders, Yanpterochiroptera and Yinpterochiroptera (Hawkins et al. 2018). A leathery skin extends between their long finger bones.

Today, bat diversity faces numerous threats primarily caused by humans and human actions, with 18,2 % being threatened and 16,9 % listed as data deficient (IUCN 2025). This is mainly due to habitat loss through farming, recreational activities, mining and quarrying, and urban development (IUCN 2025).

As their main source of threats, it is our responsibility to protect bat populations. Bats are valuable in general, just as all living beings are of value, which cannot be measured. But furthermore, they provide important 'ecosystem services' such as pollination, pest control, guano, research on medication, anti-aging, power of the immune system, and viruses (Kunz et al. 2011, 22–24) – this list might help determine their value or the cost of their loss for humanity. Moreover, higher diversity leads to more stable and resilient populations and ecosystems that need to be able to adapt in a changing environment.

That said, protection and conservation efforts for bats often suffer from a negative image or ‘public blindness’ towards bats (Lunney and Moon 2011, 1). This work aims to give some insights into possibly effective communication about bats, which helps to strengthen an image that is not hindering but hopefully contributing to bat conservation.

2.2 Culture-dependent perception of bats

Conceptualizations of bats vary around the world, with cultural differences often tracking back to narratives that have been perpetuated through time. Across the Asia-Pacific region, for instance, bats have historically been perceived rather positively: In China, bats symbolize good fortune; people in Malaysia and Samoa associate bats with courageous warriors and protectors, to name just two examples (Low et al. 2021, 21). Elsewhere, a negative and mystic image surrounds them, especially in Europe, created by myths, folktales, and narratives in which bats are presented as dangerous, spooky, or disgusting creatures (Eklöf and Rydell 2021). Bats represented ‘the evil’ in the Middle Ages, typified by the devil, who was presented with bat wings in artworks, in contrast to the angels, who were presented with bird wings, including feathers (Riccucci 2023, 137). Bram Stoker’s *Dracula* (1897) had a large influence on the image “of bats as dark, evil, bloodsucking monsters” (Lunney and Moon 2011, 51). Studies with European children show that they see bats as ‘bad’ animals, due to associations with blood sucking (Kubiak 2012, 3183; Prokop and Tunnicliff 2008, 91), while other studies started to suggest a more diverse and positive view of bats among European adults (Straka et al. 2024). Clearly, perceptions of bats are multifaceted, with bats being conceptualized differently depending on the type of narrative and the cultural and social context.

2.3 The potential of storytelling in conservation

As ‘Homo narrans’ (sensu Fisher 1984), we not only enjoy good stories, but we also learn, form our opinions, organize and coordinate thousands of people together, and make sense of the world through narratives (El Quassil and Karig 2021; Harari 2014, chapter 1). Narratives facilitate information processing by fostering motivation and interest, reducing the cognitive resources required for comprehension, and accelerating the information transfer to memory, and even enhancing persuasion (Glaser et al. 2009, 429–430; Dahlstrom 2010, 866–868). This suggests that narratives could be a promising tool for sharing knowledge central to conservation issues, although caution is warranted as support for the link between knowledge and attitudes is variable (Kingston 2016, 579–582). Nonetheless, several studies have demonstrated the power of narratives or storytelling to influence conservation-relevant attitudes, or intentions to engage in wildlife conservation of different wild animals (Lin and Li 2018; Guenther and Shanahan 2020; Knackmuhs et al. 2019). Some suggest that emotion activated through stories is the most effective mediator of narratives in influencing attitudes, beliefs, and behaviors (Bilandzic et al. 2020; Jacobs and Harms 2014, 15–16). A lot of research on the important role of entertainment in ecological education, norm-setting, shaping attitudes, and behaviors already exists. This is often referred to as ‘ecotainment’ or ‘ecological entertain-

ment' (Moyer-Gusé 2008; Rhodes et al. 2016; Schneider-Mayerson et al. 2023; Vorwerk and Nilsson 2023).

If readers can identify with the narrative and feel 'transported' into the story, a phenomenon referred to as the Transportation Effect, they may temporarily reassess their views and attitudes toward the subject matter (Green and Dill 2013, 6–12).

Jenna Ibrahim et al. (2024, 11) found that presenting demystifying facts about bats in a survey could not change perceptions about bats of the participants in a positive direction. This shows the power of myths, folktales, and other narratives that seem to have formed strong beliefs about bats that are resistant even towards facts. Further, this underlines the importance of so-to-say 'counter-storytelling' in favor of bat conservation.

While recent work suggests more ideas, guidelines, and concrete examples of optimized education on and mediation of facts about bats through information presentation and participation in bat-workshops (Miranda-Cruz et al. 2024; Ibrahim et al. 2024; Coops 2025), research on storytelling strategies in favor of bats or measuring the actual effects of it is still insufficient. This paper aims to contribute to the former and present concrete strategies for preparing the latter.

3 Exploration: bat narratives for conservation

Biological research has thus demonstrated that awareness of wildlife conservation can be raised through storytelling. We follow the premise that storytelling is particularly effective when the image conveyed builds on existing narrative concepts. For this reason, we collected stories about bats as part of a pilot study, evaluated them according to conceptual and evaluative patterns, and reflected on the potential of these narratively conveyed characteristics for strategic use. The structure and results of this initial empirical approach to narrative conceptualizations of bats in artificial narratives are presented in this chapter.

3.1 Data collection and description

To record a range of narratives about bats, we sought stories from three sources:

1. Internet search: We searched with online search engines (e. g. google.de and ecosia.de) using the search terms 'bat story', 'stories/narratives with bats', 'stories/narratives about bats', 'stories/narratives including bats', also combined 'bats' with 'movies', 'song lyric' and 'poems', in both English and German. The searches were repeated over 14 weeks, between 13.08. and 07.12.2020.
2. Bookstore search: With the support of an employee in a German bookstore, we searched for any German story on bats of any genre that was not a scientific text or other factual text in the bookstore database (Hugendubel – one of the largest German bookstores).
3. Social media requests: We disseminated a survey in English, German, Spanish, Portuguese, and French via Twitter (now 'X') with the support of GBatNet – Global Union of Bat Diversity Networks (<https://twitter.com/GlobalBatNet>), and distributed it

among our peers and student groups via WhatsApp and Facebook. We requested published bat stories as well as recounts of orally transmitted folktales and, as mentioned in footnote 1, personal experiences including bats or encounters with bats, that are examined separately in another paper.

The three sources generated 83 references (28 via the survey call and 55 from the internet and bookstore search). The 83 references included stories, poems, lyrics, movies, plays, retold oral traditions, and personal experiences. We sorted them following our working definition of artificial narratives, leaving 27 narratives in our ad-hoc data set (Table 1). The narratives were provided in the five languages mentioned under 3) and were translated for further examination with the help of DeepL.com. Native speakers were consulted regarding differences and uncertainties to verify the conventional meaning of expressions.

Table 1: Origin and genre of the sample references (N = 27 artificial narratives).

N = 27	GENRE	Fa- bles	Folklore/ Folktale	Short novels (for chil- dren)	Short stories	Lyric (poems & song lyrics)
ORIGIN	TOTAL	3	6	5	11	2
Germany	7			4	3	
USA	4			1	2	1
France	3	2				1
NA	3				3	
Madagascar	2		2			
Malaysia	2		2			
Native-America / Indian	2		1		1	
Mexico	1				1	
Greece	1	1				
Papua New Gui- nea	1				1	
Sudan	1		1			

As summarized in Table 1, we collected 27 narratives deriving from 10 different countries (plus three unknown origins). Most of the texts were short stories (n = 11), but we also collected folktales (n = 6), short novels for children (n = 5), fables (n = 3), and poems or song lyrics (n = 2). In the future, our goal is to expand this data set to include stories from all continents, particularly South America, Asia, and Australia, which are currently underrepresented (Table 1).

3.2 Detecting narrative conceptualizations of bats: codebook and overview

3.2.1 Theory-based coding

We determined the conceptualization of bats in our data set presented in Table 1 by adapting and extending thematic categories of Linda Kalof et al. (2015, 13–14), who developed them to understand the perception categories of university students towards wild animals. Kalof et al. (2015, 6–13) presented 31 pictures of different wild animals to 51 students, who filled out personal meaning maps on the term ‘animal’ before and after the picture presentation. The pictures did not show the animals in natural situations but presented them in an art style that can be described as a portrayal situation, to create a more anthropomorphized perception (Kalof et al. 2015, 9–12). Five short poetry lines were part of the presentation as well. The stimuli used by Kalof et al. (2015, 9–12) can be characterized as artistic and artificial; we therefore expected these findings to present a suitable basis for a codebook for conceptualizations conveyed within artificial narratives as well. Kalof et al. sorted the mentioned terms from 51 personal meaning maps provided by the research subjects into categories by convenient grouping (Kalof et al. 2015, 12–14). We used these categories as a starting point for our codebook, adapting them data-driven or adding new categories if needed. The following conceptualization categories were prevalently present in our data set of artificial bat narratives:

Table 2: Conceptualization categories – according to Kalof et al. (2015, 13–14) and our adaptation to artificial bat narratives in italics, presented in alphabetical order

Biological / wild nature	Meanings that referenced animals as biological entities participating in biological processes and the natural environment and included terms that conceptualize animals through their physical attributes, their species or group classification, or presence in the wild, natural world. Some of the words and phrases that operationalized this theme included wild, large, furry, smelly four legs, carnivores, felines, canines, reptiles, mammals, flocks, packs, herds, survival, evolution, instinct, food chain, nature, predators, circle of life, reproduce, <i>scientific interest, re-search objects, providing data, (part of) ecosystem</i>
Commodity / resource	Representation of ‘Animal’ as a resource for humans, conceptualizing animals primarily through the goods or monetary value they provide or the institutions or activities that use ani-mals, words and phrases that operationalized this theme included sources of leather, clothing, food, meat, game, hunting, controlled as property, market, circus, zoo, farm, business, <i>fertility treatment, medication, provide ecosystem services, eating insects, pollination, helper or servant, work for humans or other animals</i>
Dangerous	Interpretation of animals as threatening, dangerous or vicious included the words vicious, fe-rocious, violent, fear, <i>beast, painful injuries, painful diseases, but also independent, ‘cool’, powerful dangerous creatures / heroes, terms that mention a need of caution in dealing with wild animals, pre-caution, just in case, thoughtfully, carefully, dealing with, being informed, skills, techniques, gloves, vaccination, attentive, careful</i>

Dualism	<i>Terms that mention the question or confusion if bats are mammals or birds, (social) affiliation, feeling or being excluded/included due to certain attributes (wings, fur, teeth, claws nocturnal, behavior), membership, classification, wondering/being irritated about or giving artificial explanations for their behavior, e. g. hanging upside down, flying, creation of bats by god or the devil, where are they coming from, ambiguity, dualism, duality, not complete, fall out of categories, fall in more than one category, being displaced, being homeless</i>
Free /majestic	<i>Terms that defined animals as possessing admirable traits, animals as beyond human control, animals that elicit care, empathy, and curiosity and animals as superior to humans. Some of the words and phrases included in this category were dignity, power, free, beautiful, mystery (what's going on in their heads?), interesting, empathy, respect, interesting, better than humans, not selfish, happier than humans, more free than humans or other animals, fascination, admiration, able to fly, character is extremely interested/exalted, being awed, deify, worship or idolize bats, other characters like to be like bats or even want to be a bat themselves</i>
Kinship	<i>Represented the interpretation of 'Animal' as close to humans and included terms that emphasized the similarities between humans and animals, such as humanistic features, same feelings as humans, facial expressions like humans, human emotion, human behavior in society and culture, stereotypical properties of human social gender roles, includes kinship between animals (similarities, relationship) as well as the human-animal relationship</i>
Mistreated / endangered	<i>Animals as vulnerable, innocent, endangered or in need or protection from human cruelty or misunderstanding, and terms that mentioned or endorsed animal rights views or organizations. Some of the terms included in this category were vulnerable, innocent, endangered, cruelty, neglect, captivity, misunderstanding, dominated, taken for granted, caged, PETA, must be given rights, should not be eaten, vegetarians, Adaptation (endangered): this category focusses on general bat populations, threatened, extinction</i>
Pets	<i>Terms that mentioned pets and their attributes, including animals as loving pets, amusements, and cute/infantilized creatures. Some of the words and phrases that operationalized this theme included playful, cuddly, cute, folklore, muppets, cartoons, stuffed animals, mascot, pets, feeling or presenting humans or other animals superior to the bat, perceiving bats as favorite animals, cool, fascinating, annoying, immature, ridiculous</i>
Sentience / individuality	<i>Captured terms associated with animals as thinking, feeling creatures and unique and diverse individuals rather than members of a group or species. The terms that operationalized this category included emotions, thoughts, thinking creature, sad, lost, hurt, aware, individual, different thoughts/emotions/intuitions, diversity, personality, unique, special, unusual, emotionally connected, friend(ship) between human/animal and bat, behavior that differs from other bats/a group of bats</i>
Symbols / deeper meaning	<i>Meaning given to animals that included fictional, representational or symbolic animals or mediums, terms that mentioned themes like luck and bad luck, peace, love, fear, darkness, death, devil, souls, nightmares, mystic happenings, the evil, magic, vampires, fertility and menstruation, powerful helper, strength, bats as metaphors and visualizations of deeper contexts of meaning</i>

Vulnerable / In trouble	Animals as vulnerable, innocent, endangered or in need of protection from human cruelty or misunderstanding, and terms that mentioned or endorsed animal rights views or organizations. Some of the terms included in this category were vulnerable, innocent, endangered, cruelty, <i>Adaptation (in trouble)</i> : this category focusses on individuals in a problematic situation/in need for help
----------------------------	--

We further differentiated each of these categories into positive, neutral, and negative subcategories depending on the framing of the concept within the narrative. The evaluation was coded with consideration of the specific context regarding the specific framing, the tone of the narrating voice, or the attitude fictional main characters showed towards the bat (Schwarz-Friesel 2013; Labov 1972). We did not measure the intensity levels of evaluation.

In addition to these categories derived from Kalof et al. (2015, 13–14), we coded all narrated actions and properties of the bats. These actions and properties could be biological like flying, or hanging upside down, or having fur and teeth. But also, deliberate actions and personality traits of the bat as a fictional character, like being a good friend, a trader, or a liar, were coded in this category. As in the categories, the evaluative component was recorded in subcodes: The actions and properties of the bat could be evaluated in context as positive, neutral, or negative from the perspective of the implied narrator or (artificial) narrator if present (Chatman 1975, 147–151). This was helpful to understand the overall tone of the narrative voice and the image of the bat in the whole story.

With this coding of evaluations, one can also detect reevaluations and turning points within the narrative, if existing. A turning point is a certain section in the story that indicates an event that led to a change in the character's attitude, perception, or even identity (Wieselander and Löfgren 2025, 18). The change can happen gradually over time, but needs to be linked to a concrete event as a starting point that triggers more than a temporary mood swing (Reeve et al. 2004, 9).

Each category coded was counted once per text. For example, if the bat was perceived as dangerous at the beginning and end of the narrative, this category was measured only once, as the intensity of concepts and evaluations could not be assessed due to the lack of comparability in terms of narrative length. In other words, we recorded only whether a category occurred in each narrative, not how frequently it was mentioned.

The building of the code book, as well as the coding of the described concepts themselves, was done in Catma (<https://catma.de/>), a free program for markups and text analyses, and then transmitted into DOCX later for collective access.

3.2.2 Overarching results

The summary of the distribution of the described codes presented in Table 3 provides a first overview of the narrative conceptualizations of bats in our ad-hoc data set. We observe that most of the categories can be framed as negative, neutral, or positive.

Table 3: Conceptualizations and evaluations of the bat.

Categories	Negative	Neutral	Positive
Actions and properties of the bat	23	6	21
Kinship	0	2	2
Sentience / individuality	1	0	4
Pets	1	0	8
Free / majestic	0	0	7
Symbols / deeper meaning	1	0	2
Dualism	5	5	3
Commodity / resource	0	0	5
Mistreated / endangered	0	1	4
Vulnerable / in trouble	1	4	1
Biological / wild nature	0	0	7
Dangerous	6	0	0

Some concepts adapted from Kalof et al. (see Table 2) appear in our dataset inherently positive ('free/majestic'), and just one occurred in a negative evaluation only ('dangerous') (Table 3). However, most of the categories allow a diverse pattern of evaluative framing. Through several concepts, the bat can be evaluated positively, negatively, or neutral ('dualism', 'vulnerable/in trouble') or positively and negatively ('symbols/deeper meaning', 'pets', and 'sentience/individuality'). The concept 'sentience/individuality' received a negative evaluation because the bat was described as childish and disobedient to its parents. The emphasis of this unique character trait led to the plot of the whole story (Pierson 1998).

When bats were described as 'free/majestic' and 'biological/wild nature', these narrative portrayals also led to only positive evaluations (Table 3). This seems to be related to the inherently positive nature of the concept of being free, as the absence of restrictions and limitations², the latter stems from the fact that when stories about bats aim to educate people, the positive role these wild animals play in the ecosystem is emphasized.

The valuation of described actions and properties of the bat were quite evenly distributed; we coded 23 negative and 21 positive narrative descriptions (Table 3).

In five out of 27 narratives, turning points occurred, which triggered a (gradual) change in the perceptions and attitude of a main character in response to a narrative event, showing that a change in perspective is possible.

Although quantifying these results is not valid, since the data set is limited in size and the narratives differ in length, genre and style, we can conclude based on the overview in

2 See: https://www.oed.com/dictionary/free_adj?tab=meaning_and_use#3662750 (25/09/20).

Table 3, that there is a large diversity in the conceptualization and evaluation of bats as narrative figures: these animals are represented in stories in diverse and contradictory ways and are not associated with rigid evaluations.

3.3 Dualism: a narrative conceptualization with potential for strategic communication

Building on the premise that animals are often anthropomorphized in narratives and associated with inherently human characteristics, our reflection on the potential of the found narrative conceptualizations for strategic communication was led by the question: Which are the features attributed to bats in artificial narratives that hold a high potential for identification and could therefore be used to find convincing strategies for conservation? We will provide three examples from our sample, firstly describing and reflecting on the newly established conceptualization 'dualism' in general, followed by the potential adaptation of a campaign in the city of Berlin, where the findings could be used for strategic communication.

3.3.1 Using narrative conceptualization for conservational strategies: three examples

The attribute 'dualism', presented in Table 3, is outstanding for two reasons: Firstly, it is not mentioned by Kalof et al. (2015), but is present in our small data set about bats. Secondly, it seems to allow diverse evaluations, as we detected 5 negative, 5 neutral, and 3 positive variations. By 'dualistic' we mean attributes that place bats between categories, combining seemingly contradictory features such as flying like a bird but nursing like a mammal (also see Table 2). Looking at these features, they could be interpreted positively as being special and individual or negatively as being weird and not belonging to a desired group. These are emotions humans are familiar with, especially while growing up and forming their peer groups through shared properties, feelings, and behavioral rules, and leaving and changing the peer group while disagreeing with the emotional appraisals of the former (Von Salisch 2001, 315). Thus, we expect this characteristic to have a high potential for identification.

We will now turn to the category 'dualism' by presenting three narratives from different cultural backgrounds that focus on bats as primarily dualistic creatures. After describing each narrative, we consider the potential that this specific conceptualization has for conservation communication, focusing on its ability to facilitate identification. All three examples can be found in the appendix in full text.

Example 1: Malagasy folktale The Malagasy folktale was introduced into our data set by the online survey. In this example, two different versions of the folktale are told by the Bet-sileo people, explaining 'typical' bat properties, using dualistic concepts. For reasons of space, we discuss only one version here, which we found more useful for strategic communication in bat conservation. At the beginning of this cosmogonic folktale, bats are described as belonging to the group of birds that are, like all creatures, under the control of a 'creator'. These 'bird-bats' are attributed with positive properties and actions:

Following an order of the creator, they are putting out a fire with their large wings and sacrificing their (previously possessed) feathers in the process:

[1] “The Creator called all birds. When they arrived, he started a large fire and said: “The one that puts down the fire will be the crowned king”. All the birds tried to stop the fire but only bats (Angavo), with their large wings, were successful. In the process they burned their feathers and their skin turned wrinkled.” (Anonymus, Malagasy folktale version 2, 1)

The folktale creates a myth that explains why bats have no feathers on their wings and black, leathery skin. Thus, they are different from birds. Ignoring the selfless act of the bat, which stopped the fire, the ‘creator’ believes the lie of the black-feathered Drongo, who falsely claims to be the one stopping the fire, and pronounces him ‘king of the birds’. But the bats do not accept this unfair treatment silently; instead, they decide to turn their backs on the creator:

[2] “Angavo was angry and disappointed with the Creator because he had been the one that actually stopped the fire. Since that day, all bats decided to turn their back to the Creator as he had ignored their actions.” (Anonymus, Malagasy folktale version 2, 1)

Although the bat’s ‘burned’ wings are a disadvantage and not intended to be that way, the animal is nevertheless evaluated positively through its actions and portrayed as rebellious – a trait that can foster identification.

Building on this Malagasy folktale, a more elaborate version could be developed for conservation communication. The unjust treatment by the ‘creator’ and the depiction of the bat as a selfless, courageous hero – who should have been ‘the king of the birds’ – can evoke compassion, a potential mediator in perceptions of wildlife (Greving and Kimmelerle 2021). Presenting bats as misunderstood may further enhance this effect, particularly when they are framed as brave, strong, rebellious, or witty figures who defy unfair treatment – even when it comes from an omnipotent creator. Such characteristics can inspire admiration and identification in the reader, while also offering room for amusement.

Example 2: Why Bats Hang Upside Down – Allison Cox In this retold Sudanese oral tradition added to our data set by online research, a bat tries hard to be included and either join a party of mammals or of birds. However, it fails every time due to the prejudices of the other animals. Neither of them lets the bat celebrate with them, highlighting the properties of the other species in both situations:

[3] “Oh no you don’t! This party is ONLY for animals and YOU are NOT an animal!’
 ‘Oh, but I am!’ insisted Bat. ‘See, I’ve got fur and teeth – only animals have that.’
 ‘And you’ve got wings! Only birds have wings. Now get out of here before I stomp you!’”
 [...]
 “Stop right there, Bat! You can’t go in there!’
 ‘Why not? It’s the bird’s party and I’M A BIRD! See, I’ve got wings – one, two, one on each side!’

'You also have dark fuzzy fur and sharp little fangs,' hissed Vulture. "Birds have feathers and beaks – not fur and teeth. Now get out of here before I peck you!" (Cox 2002, 1–2)

Excluded from both parties, the bat is devastated: it weeps, clings upside down to a branch, and is far too sad to care. In this state, it remains hanging while tears fall from its face. This serves as an artificial explanation for why bats hang upside down – a behavior rarely found among animals.

The story then offers two slightly different conclusions: the original ending from the oral tradition and a variation by Allison Cox (2002). The traditional version, however, would be ill-suited for bat conservation in today's context, as it underscores the negative evaluation of the bat's dualistic nature, portraying exclusion and loneliness as inevitable outcomes:

[4] "We don't want to be bats. We want to find our place. To be either an animal or bird so that we can be happy." (Original oral version of a fable from Sudan (Cox 2002, 2)

The modified ending, suggested by Cox (2002), presents the bat as misunderstood rather than as a misfit. It also portrays the bat as not being lonely, but rather as belonging to a community of nocturnal 'outsiders':

[5] "And ever since that day, Bats have always stayed to themselves, and they only go out late at night when most of the other creatures are asleep. And they still hang upside down – so their tears will fall to the ground – to this very day." (Cox 2002, 2)

This retold oral tradition tugs at the heartstrings and could potentially evoke compassion again (Greving and Kimmerle 2021). The element of dualism, as being discredited and seeking a peer group, offers great potential for identification, as we all know the longing to be accepted by others.

Still, another example from our sample shows how these elements can be transferred in an even more positive message: In *Stellaluna* by Janell Cannon (1993), the baby flying fox Stellaluna becomes the new 'sibling', respectively close friend, of three young birds, because of the early loss of her own mother:

[6] How can we be so different and yet feel so alike? [...] And how can we feel so different and yet be so alike? [...] but we are friends. And that's for sure." (Cannon 1993, 44)

The attempts of Stellaluna to behave like her bird-friends are presented in a funny way. For example, Stellaluna tries to sit on a branch together with the three birds upright but slips all the way down with each attempt, which is accompanied by cute and funny pictures in the book (Cannon 1993, 23). This narrative presentation of dualistic characteristics holds potential for compassion but amusement at the same time.

By drawing on the positive effects of identification (Sukulla 2023) and the appeal of entertaining stories (Moyer-Gusé 2008), such narratives can convey the message that, despite individual differences, it is possible to find community and experience accep-

tance within a diverse group. Here, the entertainment value of the narrative is key in fostering positive emotions (Green et al. 2004, 314).

Example 3: The fable of Aesop In the often-retold fable of Aesop – here cited in the adaptation of Jean de La Fontaine – a bat tricks two weasels that both want to feed on it. One of the weasels only eats birds, the other eats only mice. The bat is pretending to be the other species in each case and can fool both carnivores. La Fontaine presents the dualistic properties of the bat as an advantage that it uses cleverly to survive: The fact that it does not fit into two stereotypical groups is turned into its survival strategy. While the true nature of bats is not revealed in the end, the bat is presented as the smart hero in this fable:

[7] “the Weasel [said]; ‘I give no quarter to Birds.’
‘Birds!’ cried the Bat. ‘I am no Bird. I am a Mouse. Look at my body.’ And so she got off that time.” (La Fontaine 2020, 1)

La Fontaine and Aesop demonstrate that the bat can be cast as the central figure in an entertaining adventure plot, conveying the message that unfavorable circumstances and perceived weaknesses can be turned to one’s advantage through wisdom and cleverness. Embracing and skillfully using one’s traits can thus become the foundation for a story that is both engaging and instructive, particularly for children.

As a heroic figure, the bat could serve as a role model or even as a flagship species (Jarić et al. 2024, 1), introducing readers to broader contexts and mediating knowledge about nature, ecosystems, and ecosystem services, embedded within the entertaining dynamics of an adventure narrative. This approach is well established in the fields of entertainment-education and eco-entertainment (Rhodes et al. 2016; Vorwerk and Nielsen 2023).

3.3.2 Berlin: capital of bats

The examples discussed suggest that the narrative characterization of bats as dualistic creatures has great potential for identification through:

1. the outsider’s rebellious behavior;
2. fragmented group identities and finding one’s peer group; and
3. using one’s ‘flaws’ as an advantage and being a clever role model.

In the following, we link the concept of the bat’s dualism to the image of the city of Berlin, Germany, to illustrate a possible local campaign for bat conservation. However, we acknowledge that the corpus was collected internationally. Berlin was chosen as an example for a ‘dummy campaign’ to explore the applicability of our findings, since the city is often referred to as the ‘bat capital of Germany’: 18 of the 25 German bat species are found here (Schulze 2025). This reputation (although likely not very well known) of Berlin as the ‘bat capital of Germany’ could be emphasized to raise awareness and to frame bat conservation as a shared responsibility of Berlin’s citizens. For the possible local campaign, we put shared properties of the narrative concepts of bats and of Berlin on display.

Berlin is perceived as very different from the rest of Germany due to its political views, societal composition, and degree of internationality, diversity, and eventful history. This can be used as a connection to the bat as 'being the odd one, but cool one' among the birds and other mammals. Being 'different' and falling out of categories makes bats unique. Likewise, a lot of people who feel uneasy in their rural or other urban societies are attracted to Berlin, which has the image of being open-minded and including 'unique' or 'different' people:

[8] "Seid willkommen in Berlin
Ihr Verrückten gehört da hin
Komm, wir brauch'n den Wahnsinn
Die neue Bühne ist gebaut
Lass die Toleranz tanzen" (Lindenberg 2000)
Welcome to Berlin
You crazies belong there
Come on, we need madness
The new stage is built
Let tolerance dance
(Lyrics from "Welcome to Berlin" by Udo Lindenberg, a known German singer)

[9] "Und wenn Stefan plötzlich Steffi ist
Berlin Berlin Berlin" (Römer 2017)
And when Stephen suddenly becomes Stephanie
This is Berlin, Berlin, Berlin
(Lyrics from "This is Berlin" from the Project 'Endlich August', laudation to the city, Berlin)

[10] „Und wenn egal ist, wo du herkommst, dann gehörst du hierhin" (dpa 2024)
And if it doesn't matter where you come from, then you belong here. (Image campaign for Berlin in 2024)

In this campaign, individuality should be presented as a good quality that is not only accepted but even appreciated. As shown in [8], [9], and [10], Berlin is framed as a city where everyone can be their 'true selves', even if they stand in between categories like Stefan who becomes Steffi from time to time [9] – this image could be connected to its important role as habitat for bats, which are also perceived to fall outside of categories.

Furthermore, bats and Berlin are perceived to be 'dirty', 'smelly', 'annoying', 'dark', 'spooky', and 'ugly'. These negative properties have the potential to be turned in a positive direction because they can be reframed as a 'cool', 'unique', and 'special' flair that many people find interesting and attractive. This works greatly for Berlin, for example:

[11] Wowereit 2003: „Berlin ist arm, aber sexy" (Focus Online-Redaktion 2006)
Berlin is poor but sexy. (former mayor of Berlin, Klaus Wowereit, 2003)

[12] „Du so: Berlin stinkt.
Ich so: Berlin nervt.
Wir beide so: Beste Stadt der Welt." (Theobald 2020)
You: Berlin stinks.

*Me: Berlin is annoying.
 The both of us: Best city in the world.
 (Poster slogan of an image campaign in Berlin)*

[13] Guten Morgen, Berlin, du kannst so hässlich sein
 So dreckig und grau
 Du kannst so schön schrecklich sein
 Deine Nächte fressen mich auf
 [...] Doch ich weiß, ob ich will oder nicht, dass ich Dich zum Atmen brauch.“ (Fox 2009)
Good morning Berlin
You can be so ugly, so dirty and gray
You can so wonderfully terrible
You're nights are devouring me
 [...] *And I know, if I want to or not,*
That I need you to breathe.
 (Lyrics from “Black to Blue” by Peter Fox, a known German singer)

These examples explicitly emphasize the dualistic image of Berlin as an ‘ugly’, ‘dark’ and ‘dirty’ but ‘sexy’, ‘special’ and ‘fascinating’ place, which is an image that suits bats perfectly. The adoption of bats as symbols in Gothic scenes (Stout 2024, 1) illustrates how these animals can be portrayed in a positive light without necessarily being viewed as stereotypically positive. This is also demonstrated by the association with *Batman*³ as a ‘gloomy hero’ in a big and dystopian city. Being the ‘good guy’ with the ‘bad’, respectively ‘bat’ attitude is a property playing with controversy, thus dualistic features.

A campaign featuring images could be conducted to promote Berlin as the ‘capital of bats’. By drawing parallels between the city’s image and the narrative conceptualization of bats, it would aim to spark public interest, raise awareness, and foster engagement with bat protection and conservation measures. As bat conservation suffers from the negative image of bats (Lunney and Moon 2011, 60), we expect people living in Berlin to associate with bats through a newly framed image adapted to the specific characteristics of the city to be beneficial. This campaign could use posters in public places, such as seen in figure 1, which is inspired by the cited examples from song lyrics and famous quotes.

3 Firstly, created by Bob Kane (drawing) and Bill Finger (author), published by Detective Comics 1939, *Batman* is an internationally known figure, appearing in various movies, books, games and other storytelling or marketing formats.

Figure 1: Draft of a possible campaign poster, text by Maria Fritzsche, picture generated with Canva AI. Translation into English can be found in the Footnote⁴



4 Discussion: Sensible storytelling for bat conservation

Stories are a promising tool to engage people in conservation efforts. In this paper, we focus on artificial narratives, because fables, folklores, and successful stories like *Dracula* and *Batman* shaped strong opinions and beliefs about bats – at least in Western societies. As Kurt Braddock and James Price Dillard (2016, 460) demonstrate, the persuasive impact of narratives appears to be largely independent of their degree of fictionality. Moreover,

4 Translation of the central banner: Berlin: City of queer birds, oddballs and fluttering mice. Learn more about Berlin's 18 species of bats! Translation of the speech bubbles: (starting from top left): Birds be like: „We have got wings!“, Mammals be like: „We have got teeth!“, We're like: "Just hold my beer." / Let's hang out together! / What happens when you put a whole bunch of outsiders together? A great party! / We turn the night into day! / Berlin: When little mice become black angels.

artificial narratives allow for the inclusion of diverse conceptualizations of bats and enable these to be highlighted from different perspectives.

Narratives have the capacity to elicit emotions, immerse audiences in imagined worlds, and present complex information in a memorable way. They even alter beliefs, attitudes, and behavioral intentions to a small but measurable extent (Dahlstrom 2010, 866–868; Braddock and Dillard 2016, 460). Being transported into and able to identify with the story provokes emotions that may lead to a reassessment of views and attitudes (Green and Dill 2013, 6–12). This is why campaigns that connect bats with local contexts and shared human experiences and properties could be particularly effective in raising awareness of this species.

At the same time, it is important to acknowledge the limitations of narrative persuasion. Deeply entrenched attitudes are often resistant to change (Kingston 2016, 577). Moreover, the effects of the Transportation Effect (TPE) are not always long-lasting and difficult to record, as the effect only occurs while engaging with the narrative (Green and Dill 2013, 5). While Matthew Schneider-Mayerson et al. (2023, 44) found that effects of a narrative may diminish to statistical non-significance after four weeks, others suggest that the narrative experience of the reader may trigger a reflective process that influences the reader's attitudes over time (Green and Dill 2013, 6). Indeed, Marijke Lemal and Jan Van den Bulck (2010, 180) found effects on health behavior lasting at least four weeks beyond initial exposure to narrative content.

The point of view from which the story is told seems to have an impact on the persuasive effects, but the current state of research shows diverse and partly contradictory results on the effects of concrete strategies (Sukulla 2023, 27–29). Systematic empirical research across different cultural and demographic contexts is therefore crucial to identifying the strategies that are most effective for bat conservation.

Emotion-driven elaboration of the topic and social sharing, which increases with highly emotional narratives, may strengthen reader-involvement over time (as described in the 'Emotional Flow'-Theory by Robin Nabi and Melanie Green 2015, 143–149). Some theories further distinguish two central mechanisms: transportation through engagement with the narrative plot, and identification with the narrative's characters (Sukulla 2023, 29–30). Both transportation and identification can be leveraged in strategic communication about bats, for example, by presenting them as heroic and unorthodox figures in entertaining adventures, or by eliciting compassion through their dualistic qualities. The concept of dualism offers particular potential for identification here, as stories can explore emotional highs and lows associated with difference, belonging, self-discovery, and the re-framing of perceived flaws.

Not only might dualism be useful in strategic communication, but also other categories were not inherently positively or negatively evaluated, which might hold potential for identification in a story with the bat as a complex multidimensional character. The narrative portrayal of bats as symbols with deeper meaning might hold a lot of potential also in the international context because the symbolic meaning of bats varies greatly from luck and good fortune to nightmare, death and devil (Low et al. 2021, 18–19). The conceptualization of bats as symbols rather emphasizes and plays with the fact that these creatures appear to be special, strange, and somewhat mysterious, rather than shushing these associations down, which are rooted deep in collective memory, by e. g., portray-

ing bats as cute and adorable commodities (or other stereotypical positive images of wild animals).

Looking ahead, more research on specific design would be helpful for optimizing communication in bat conservation, using their diverse conceptualizations. For instance, to design effective campaigns, the power of images should not be overlooked: Pictures might enhance the power of narratives in bat conservation, as shown that even independently, photographs of bats foster small but measurable changes in attitudes toward bats and intentions to support conservation (Straka et al., 2020, 3–5). For this reason, campaigns should consider combining narrative strategies with visual media such as posters such as the draft in Figure 1, comics, or graphic novels, and disseminating them through image-based platforms like social media.

5 Conclusion

By adapting a codebook to artificial bat narratives, this work demonstrates how identifying cultural concepts by analyzing these narratives can inform the design of context-sensitive conservation campaigns. In our relatively small dataset of artificial narratives from more than ten countries, no unified concept of bats emerged. This absence of a consistent image makes them both fascinating and challenging subjects for strategic conservation communication. The variety of concepts – likely even broader than our limited sample suggests – opens opportunities for tailoring effective campaigns to specific target groups, locations, and regions.

Their role as a misunderstood ‘misfit’ with dualistic qualities carries strong potential for identification. Rather than being a weakness, this ambivalence can serve as a strategic resource for conservation storytelling. However, the other analyzed concepts (e. g.: ‘free/majestic’; ‘biological/wild nature’; ‘mistreated/endangered’) hold potential for identification in multiple ways in a story, with the bat as a complex and dimensional character as well.

This initial exploration highlights the value of systematically examining how artificial narratives shape conceptualizations of these animals. It also illustrates how such insights can inform strategic communication to raise awareness of creatures that are endangered, often misperceived, yet ecologically vital.

We argue that conservation communication may benefit from embracing complexity and ambiguity instead of relying on stereotypically positive portrayals. While illustrated here through a local example from Berlin, the approach is transferable to other regions and species. Future research should empirically test the effects of specific narrative strategies, such as dualistic framing, across different cultural contexts, media formats, and target groups.

6 Literatur

- Bilandzic, Helena, Susanne Kinnebrock, and Magdalena Klingler. "The emotional effects of science narratives: A theoretical framework." *Media and Communication*, vol. 8, 2020, pp. 151–163, doi:10.17645/mac.v8i1.2602.
- Bonsels, Waldemar. *Die Biene Maja und ihre Abenteuer*. Deutsche Verlags-Anstalt, 1912.
- Braddock, Kurt, and James Price Dillard. "Meta-analytic evidence for the persuasive effect of narratives on beliefs, attitudes, intentions, and behaviors." *Communication Monographs*, vol. 83, no. 4, 2016, pp. 446–467. doi:10.1080/03637751.2015.1128555
- Chatman, Seymour Benjamin. "Real author, implied author, narrator, real reader, implied reader, narratee." *Story and discourse: narrative structure in fiction and film*, Cornell University Press, 1975, pp. 146–151.
- Chishimba-Musonda, Elisabeth, and Catherine Larochelle. "Are U.S. consumers willing to pay a premium for bee friendly beef?" *Selected Paper prepared for presentation at the 2022 Agricultural & Applied Economics Association Annual Meeting*, 2022.
- Coops, Dina. *Bat-Man and the Modern Smart Neighborhood: Exploring more-than-human participatory design and perception shifting*. Master Thesis, Aalto University, 2025.
- Dahlstrom, Michael. "The role of causality in information acceptance in narratives: An example from science communication." *Communication research*, vol. 37, no. 6, 2010, pp. 857–875, doi:10.1177/0093650210362683.
- Dahlstrom, Michael. "Using narratives and storytelling to communicate science with nonexpert audiences." *Proceedings of the National Academy of Sciences of the United States of America*, vol. 111, 2014, pp. 13614–13620, doi:10.1073/pnas.1320645111.
- dpa. „Wir können unfreundlich: Das ist die neue Imagekampagne für Berlin.“ *Berliner Zeitung*, 2024, <https://www.berliner-zeitung.de/news/laeuft-nicht-alles-rund-das-ist-die-neue-imagekampagne-fuer-berlin-li.2251254>, accessed 22 september 2025.
- Eklöf, Johan, and Jens Rydell. "Attitudes towards bats in Swedish history." *Journal of Ethnobiology*, vol. 41, no. 1, 2021, pp. 35–52, doi:10.2993/0278-0771-41.1.35.
- El Quassil, Samira, and Friedemann Karig. „Der Homo narrans.“ *Erzählende Affen: Mythen, Lügen, Utopien – Wie Geschichten unser Leben bestimmen*, 2021, Ullstein, pp. 80–86.
- Fisher, Walter. "Narration as a human communication paradigm: The case of public moral argument." *Communication Monographs*, vol. 51, no. 1, 1984, pp. 1–22, doi:10.1080/03637758409390180.
- Focus Online-Redaktion. „Wowereits Berlin-Slogan ‚Arm, aber sexy‘.“ *Focus*, 2006, https://www.focus.de/politik/deutschland/arm-aber-sexy-wowereits-berlin-slogan_id_1759408.html, accessed 22 september 2025.
- Fox, Peter. „Schwarz zu Blau.“ *Schwarz zu Blau*, Downbeat Records, 2009. Lyrics: <https://www.songtexte.com/songtext/peter-fox/schwarz-zu-blau-13cc913d.html>, accessed 22 september 2025. English translation: <https://lyricstranslate.com/en/schwarz-zu-blau-schwarz-zu-blau.html>, accessed 22 september 2025.
- Frick, Winifred, Tigga Kingston, and Jon Flanders. "A review of the major threats and challenges to global bat conservation." *Annals of the New York Academy of Sciences*, 2019, pp. 5–25, doi:10.1111/nyas.14045.

- Glaser, Manuela, Bärbel Garsoffky, and Stephan Schwan. "Narrative-based learning: Possible benefits and problems." *Communications*, vol. 34, 2009, pp. 429–447, doi:10.1515/COMM.2009.026.
- Green, Melanie, Timothy Brock, and Geoff Kaufman. "Understanding Media Enjoyment: The Role of Transportation Into Narrative World." *Communication Theory*, vol. 14, no. 4, 1, 2004, pp. 311–327, doi:10.1111/j.1468-2885.2004.tb00317.x.
- Green, Melanie, and Karen Dill. "Engaging with stories and characters: Learning, persuasion, and transportation into narrative worlds." *The Oxford Handbook of Media Psychology*, ed. Karen Dill, Oxford University Press, 2013, pp. 449–461, <https://doi.org/10.1093/oxfordhb/9780195398809.013.0025>.
- Greving, Hannah, and Joachim Kimmerle. "You poor little thing! The role of compassion for wildlife conservation." *Human Dimensions of Wildlife*, vol. 26, 2021, pp. 115–131, doi:10.1080/10871209.2020.1800146.
- Guenther, Sara, and Elisabeth Shanahan. "Communicating risk in human-wildlife interactions: How stories and images move minds." *PLoS ONE*, vol. 15, no. 12, 2020, doi:10.1371/journal.pone.0244440.
- Harari, Yuval Noah. *Sapiens: A Brief History of Humankind*. Translated by Harvill Secker, Random House, 2014.
- Hawkins, John, Maria Kaczmarek, Marcel Müller, Christian Drosten, William Press, and Sara Sawyer. "A metaanalysis of bat phylogenetics and positive selection based on genomes and transcriptomes from 18 species." *Proceedings of the National Academy of Science*, vol. 116, no. 23, 2019, pp. 11351–11360, doi:10.1073/pnas.1814995116.
- Ibrahim, Jenna, Han-Jiun Ke, Anna Praski, Pascal Riley, and Victoriia Tryfonova. *Bats and Perception: Enhancing Human-Bat Interactions Through Bat-Related Facts*. UBC Campus and Community Planning, 2024.
- IUCN, "The IUCN red list of threatened species." IUCN, 2025, <https://www.iucnredlist.org/search/stats?search=bats>, accessed 22 september 2025.
- Jacobs, Maarten and Michel Harms. "Influence of interpretation on conservation intentions of whale tourists." *Tourism Management*, vol. 42, 2014, pp. 123–131, doi:10.1016/j.tourman.2013.11.009.
- Jarić, Ivan, Iran Normande, Ugo Arbieu, Franck Courchamp, Sarah Crowley, Jonathan Jeschke, Uri Roll, Kate Sherren, Laura Thomas-Walters, Diogo Veríssimo, and Richard Liddle. "Flagship individuals in biodiversity conservation." *Frontiers in Ecology and the Environment*, vol. 22, no. 1, 2024, doi:10.1002/fee.2599.
- Kalof, Linda, Joe Zammit-Lucib, Jessica Bella, and Gina Granter. "Fostering kinship with animals: animal portraiture in humane education." *Environmental Education Research*, vol. 22, 2015, pp. 203–228, doi:10.1080/13504622.2014.999226.
- Kingston, Tigga. "Cute, creepy, or crispy – How values, attitudes, and norms shape human behavior toward bats." *Bats in the Anthropocene: Conservation of Bats in a Changing World*, eds. Christian Voigt and Tigga Kingston, Springer Open, 2016, pp. 571–595, doi:10.1007/978-3-319-25220-9.
- Knackmuhs, Eric, James Farmer, and Doug Knapp. "The Relationship between narratives, wildlife value orientations, attitudes, and policy preferences." *Society & Natural Resources*, vol. 32, 2019, pp. 303–321, doi:10.1080/08941920.2018.1517916.

- Kubiátko, Milan. "Kindergarten children's perception of animals focusing on the look and fear of animals." *Educational Sciences: Theory and Practice*, vol. 12, 2012, pp. 3181–3186.
- Kunz, Thomas, Elisabeth Braun de Torrez, Dana Bauer, Tatyana Lobova, and Theodore Fleming. "Ecosystem services provided by bats." *Annals of the New York Academy of Sciences*, vol. 1223, no. 1, 2011, pp. 1–38, doi:10.1111/j.1749-6632.2011.06004.x.
- Lemal, Marijke and Jan van den Bulck. "Testing the effectiveness of a skin cancer narrative in promoting positive health behavior: A pilot study." *Preventive Medicine*, vol. 51, no. 2, 2010, pp. 178–181. doi:10.1016/j.ypmed.2010.04.019.
- Labov, William. "Narrative syntax." *Language in the inner city: Studies in the black english vernacular*, University of Pennsylvania Press, 1972, pp. 354–397.
- Lin, Chi-I and Yuh-Yuh Li. "Protecting life on land and below water: Using storytelling to promote undergraduate students' attitudes toward animals." *Sustainability*, vol. 10, 2018, pp. 2479–2494, doi:10.3390/su10072479.
- Lindenberg, Udo. „Seid willkommen in Berlin.“ *Der Exzessor*, Sony Music Entertainment, 2000. Lyrics: <https://www.songtexte.com/songtext/udo-lindenberg/seid-willkommen-in-berlin-13da75fd.html>, accessed 22 september 2025. English translation: <https://www.songtexte.com/uebersetzung/udo-lindenberg/seid-willkommen-in-berlin-englisch-73d7a291.html>, accessed 22 september 2025.
- Low, Mary-Ruth, Hoong, Zhi Wong, Zihyuan Shen, Baheerathan Murugavel, Nikki Mariner, Lisa Marie Paguntalan, Krizler Tanalgo, Moe Moe Aung, Bansa Sheherazade, Alan Lawrence, Tuanjit Sritongchuay, Jason Hideki Preble and Sheema Abdul Aziz. "Bane or blessing? Reviewing cultural values of bats across the Asia-Pacific region." *Journal of Ethnobiology*, vol. 41, no. 1, 2021, pp. 18–34, doi:10.2993/0278-0771-41.1.18.
- Lunney, Daniel and Moon, Chris. "Blind to bats – Traditional prejudices and today's bad press render bats invisible to public consciousness." *The Biology and Conservation of Australasian Bats*, edited by Bradley Law, Peggy Eby, Daniel Lunney, and Lindey Lumsden. Royal Zoological Society of New South Wales, 2011, pp. 44–63, doi:10.7882/FS.2011.008.
- Matias, Denise Margaret, Julia Leventon, Anna-Lena Rau, Christian Borgemeister, and Henrik von Wehrden. "A review of ecosystem service benefits from wild bees across social contexts." *Ambio*, vol. 46, no. 4, 2017, pp. 456–467, doi:10.1007/s13280-016-0844-z.
- Miranda-Cruz, Lorena, Jorge Ortega-Reyes, and Xavier López-Medellín. "The importance of socio-environmental perceptions of a bat colony in the Mayan ruins of Uxmal to promote environmental awareness and sustainable tourism." *El Periplo Sustentable: revista de turismo, desarrollo y competitividad*, vol. 46, 2024, pp. 201–219.
- Moyer-Gusé, Emily "Toward a theory of entertainment persuasion: explaining the persuasive effects of entertainment-education messages." *Communication Theory*, vol. 18, no. 3, 2008, pp. 407–425, doi:10.1111/j.1468-2885.2008.00328.x.
- Nabi, Robin, and Melanie Green. "The role of a narrative's emotional flow in promoting persuasive outcomes." *Media Psychology*, vol. 18, no. 2, 2015, pp. 137–162. doi:10.1080/15213269.2014.912585.

- Prokop, Pavol, and Sue Dale Tunnicliffe. "Disgusting' animals: primary school children's attitudes and myths of bats and spiders." *Eurasia Journal of Mathematics, Science and Technology Education*, vol. 4, 2008, pp. 87–97, doi:10.12973/ejmste/75309.
- Reeve, Charlie, Christiane Spitzmuller, Steven Rogelberg, Alan Walker, Lisa Schultz, and Olga Clark. „Employee reactions and adjustment to euthanasia-related work: Identifying turning point events through retrospective narratives.“ *Journal of Applied Animal Welfare Science*, vol. 7, no. 1, 2004, pp. 1–25, doi:10.1207/s15327604jaws0701_1.
- Riccucci, Marco. "Bat wings in the devil: origin and spreading of this peculiar attribute in art." *Lynx*, series nova, vol. 54, no. 1, 2023, pp. 137–146, doi:10.37520/lynx.2023.009.
- Rhodes, Nancy, Jennifer Toole, and Laura Arpan. "Persuasion as reinforcement: Strengthening the pro-environmental attitude-behavior relationship through eco-tainment programming." *Media Psychology*, vol. 19, no. 3, 2016, pp. 455–478, doi:10.1080/15213269.2015.1106322.
- Römer, Alex. „Das ist Berlin.“ *Endlich August*, 2017. Lyrics: <https://genius.com/Endlich-august-das-ist-berlin-lyrics>, accessed 22 september 2025. English translation: <https://lyricstranslate.com/en/das-ist-berlin-berlin.html> - o accessed 22 september 2025.
- von Salisch, Maria. "Children's emotional development: Challenges in their relationships to parents, peers, and friends." *International Journal of Behavioral Development*, vol. 25, no. 4, 2001, pp. 310–319, doi:10.1080/01650250143000058.
- Schneider-Mayerson, Matthew, Abel Gustafson, Anthony Leiserowitz, Matthew Goldberg, Seth Rosenthal, and Matthew Ballew. "Environmental literature as persuasion: An experimental test of the effects of reading climate fiction." *Environmental Communication*, vol. 17, no. 1, 2023, pp. 35–50, doi:10.1080/17524032.2020.1814377.
- Schulze, Nicole. „Fledermaus-Hauptstadt: So lassen sich die Tiere in Berlin beobachten – und retten.“ *Berliner Zeitung*, 28.08.2025, <https://www.berliner-zeitung.de/ratgeber/fledermaus-hauptstadt-so-lassen-sich-fledermaeuse-in-berlin-beobachten-und-retten-li.2351949>, accessed 22 september 2025.
- Schwarz-Friesel, Monika. *Sprache und Emotion*. Francke, 2013.
- Stout, Victoria. *The Influence of Perceptions, Media, Outreach, and Culture on Bat Conservation in the United States*. Diss. University of Colorado, 2024.
- Straka, Tanja, Hannah Greving, and Christian Voigt. "The effects of bat photographs on emotions, attitudes, intentions, and wildlife value orientations." *Human Dimensions of Wildlife*, vol. 26, no. 6, 2020, pp. 596–603, doi:10.1080/10871209.2020.1864068.
- Straka, Tanja, Joanna Coleman, Ewan Macdonald, Svea Rogge, Tigga Kingston, and Maarten Jacobs. "Beyond biophobia: positive appraisal of bats among German residents during the COVID-19 pandemic – with consequences for conservation intentions." *Biodiversity and Conservation*, vol. 33, 2024, pp. 2549–2565, doi:10.1007/s10531-024-02872-3.
- Sukulla, Freya. „Narrative Persuasion – theoretische Ansätze und empirische Ergebnisse zur Überzeugungskraft von Narrationen.“ *Soziale Passagen*, vol. 15, 2023, pp. 23–37, doi:10.1007/s12592-023-00458-4.
- Sumner, Seirian, Georgia Law, and Alessandro Cini. "Why we love bees and hate wasps." *Ecol Entomol*, vol. 43, 2018, pp. 836–845, doi:10.1111/een.12676.
- Theobald, Tim. „#WirSindEinBerlin – Das ist die Imagekampagne zum neuen Berlin-Logo von Jung von Matt.“ *Horizont*, 2020, <https://www.horizont.net/agenturen/nac>

- hrichten/wirsindeinberlin-das-ist-die-imagekampagne-zum-neuen-berlin-logo-von-jung-von-matt-185709, accessed 22 september 2025.
- Van Dijk, Teun. "Philosophy of action and theory of narrative." *Poetics*, vol. 5, no. 4, 1976, pp. 287–338, doi:10.1016/0304-422X(76)90014-0.
- Vorwerk, Rachael and Danie Nilsson. "What role does Entertainment-Education play in the adoption and maintenance of sustainable behaviours: a case study of reusable coffee cups in millennials." *Communication Research and Practice*, vol. 9, no. 4, 2023, pp. 428–447, doi:10.1080/22041451.2023.2250541.
- Wieselander, Malin and Håkan Löfgren. "Turning points as a tool in narrative research. A tentative typology as exemplified by a case on police identity." *Narrative Inquiry*, vol. 35, no. 1, 2023, pp. 26–46, doi:10.1075/ni.22021.wie.

7 Sample references

- Anonymous; folktale retold by male working group, work title: "Malagasy folktale version 1".
- Anonymous; folktale retold by female working group, work title: "Malagasy folktale version 2".
- Bräunling, Elke. „Die Fledermäuse von Burg Schattenfels.“ *Elkes Kindergeschichten*, 2015, <https://www.elkeskindergeschichten.de/2015/05/18/die-fledermaeuse-von-burg-schattenfels/>, accessed 30 september 2020.
- Cannon, Janell. *Stellaluna*. Beltz & Gelberg, 2007 (German). [English Original: Harcourt Brace Jovanovich, 1993].
- Cox, Allison. *Why Bats hang upside down*. Healingstory, 2002, <https://healingstory.org/why-bat-hangs-upside-down/>, accessed 20 october 2020. [Original edition: Wilkes, Sybella. "The Party". *One Day We Had to Run*, Millbrook Press, 1994].
- Dickerhoff, Heinrich. „Die Beutelratte, die sich fledermauste.“ *Märchenbasar*, <http://maerchenbasar.de/klassische-maerchen/amerika/3342-die-beutelratte-die-sich-fledermauste.html>, accessed 05 november 2020.
- von Diemar, Thomon. *Nelly – Fledermäuschens Abenteuer im Küstenwald*. Books on Demand, 2020.
- English for Students. *A short story: The cunning bats*. English for Students, <http://www.english-for-students.com/The-Cunning-Bats.html>, accessed 20 october 2020.
- Feeney, Anna (A). *The bat-trackers of Mexico*. Lost & Found Nature, <https://www.lostandfoundnature.com/species/844/>, accessed 08 october 2020.
- Feeney, Anna (B). *Unearthing the bat – Sue Bulmer and her fossil*. Lost & Found Nature, <https://www.lostandfoundnature.com/species/bulmers-fruit-bat/>, accessed 08 october 2020.
- Fersen, Thomas. "La chauve-souris." *La Cigale des grand jours*, produced by Thomas Fersen and Bruno Savaistre, 1999. Lyrics: <https://www.songtexte.com/songtext/thomas-ferse/la-chauve-souris-5bd48304.html>, accessed 20 october 2020.
- Flechsig, Dorothea. *Sandor – Fledermaus mit Köpfchen*. Glückschuh, 2019.
- Goldberg, Jerry. *The Caped Crusader*. Smilesforall, <https://www.smilesforall.com/the-caped-crusader-bat/>, accessed 20 october 2020.

- Kaiblinger, Sonja. *Vincent flattert ins Abenteuer*. Loewe, 2020.
- de La Fontaine, Jean. *Die Fledermaus und die zwei Wiesel*. Projekt Gutenberg, <https://www.projekt-gutenberg.org/fontaine/fabeln1/chap028.html>, accessed 09 november 2020.
- English version: DABOSS. "The bat an the weasels." *Fables of Aesop GBR collection*, <https://fablesdfaesop.com/the-bat-and-the-weasels.html>, accessed 20 august 2025.
- Lochmann, Christiane. *Die Fledermaus Carlo*, Zitronenbande, <https://www.zitronenbande.de/fledermaus-carlo/>, accessed 30 september 2020.
- Mcfee, Michael. *The Bat*. *Poetry*, August, 1995, pp. 259–260, <https://www.poetryfoundation.org/poetrymagazine/browse?volume=166&issue=5&page=15>, accessed 27 september 2025.
- Pierson, Clara Dillingham. "The little bat who wouldn't go to bed." *Clara Dillingham Pierson's Complete Among the People Series*, Start Publishing LLC, 1998, https://www.google.de/books/edition/Clara_Dillingham_Pierson_s_Complete_Amon/MO3sAgAAQBAJ?hl=de&gbpv=1&dq=The+little+bat+who+wouldn%27t+go+to+bed+clara+dillingham+pierson&pg=PT40&printsec=frontcover, accessed 20 october 2020.
- Rath, Barbara. *Der Gurkenvampir*. BVK, 2010.
- rimbareserach (A). "Legend of Zhon Kui." (retold), *Instagram*, <https://www.instagram.com/p/CGypc2qpLQe/>, accessed 30 january 2021.
- rimbareserach (B). "Princess Leutogi and the flying foxes" (retold), *Instagram*, <https://www.instagram.com/p/CGypc2qpLQe/>, accessed 30 january 2021.
- Schöner, Caroline, Michael Schöner, Robin Schöfer, and Claudia Spitzkopf. *Batty and Pitty*, 2013, https://www.researchgate.net/publication/269464352_Batty_and_Pitty, accessed on 05 november 2020.
- Scouts BSA. *Bat story*. Boyscouttrail, <https://www.boyscouttrail.com/content/story/bat-883.asp>, accessed 20 october 2020.
- Thorne, Toby. "Roost one." *Twinkel twinkel little bat*, 2013, <https://tobythorne.wordpress.com/2013/08/18/roost-one/>, accessed 28 october 2020.
- Welker, Glenn. *The story of the bat*, <https://www.indigenouspeople.net/bat.html>, accessed 20 october 2020.
- Wittler, Marco. „Was flattert denn da?“ 366 *Geschichten*, 2010, <https://366geschichten.de/325-was-flattert-denn-da/>, accessed 30 september 2020.

Appendix

Full text of the three examples:

Malagasy folktale

(anonymous working group)

"The Creator called all birds. When they arrived, he started a large fire and said: "The one that puts down the fire will be the crowned king". All the birds tried to stop the fire but only bats (Angavo), with their large wings, were successful. In the process they burned their feathers and their skin turned wrinkled. Nonetheless, the Creator called

all the birds and proclaimed the drongo the king of the birds, because the drongo had been very fast in reaching the Creator and telling him that he had stopped the fire. In the eyes of the Creator, the drongo was the king of the birds. Angavo had burned his wings, so he could not fly fast enough. The drongo, with his intact wings, was faster. As a consequence, the drongo became the king of the birds for the Malagasy people. Angavo was angry and disappointed with the Creator because he had been the one that actually stopped the fire. Since that day, all bats decided to turn their back to the Creator as he had ignored their actions."

Why Bats Hang Upside Down

Cox, Allison. 2002, URL: <https://healingstory.org/why-bat-hangs-upside-down/>
 Primary source from Cox: "The Party" in *One Day We Had To Run* by Sybella Wilkes, Brookfield, CT: Millbrook Press, 1994.

Long ago, when the world was new, the Creator called all the creatures together and told them, "The earth is filled with wondrous places – go out and find the place that you would call home."

So all the creatures went out and at first, all the animals decided to live together over in one place over here and all the birds decided to live together in another place over there.

Now – to celebrate their new home, the animals decided to have a party. Word went out that the animals would all gather that evening in a nearby clearing. When Bat heard about the party, he was very excited. He got so busy brushing his fur and shining his wings! And when he finally arrived, Bat fluttered to the branch of a nearby tree and looked down toward the clearing. Ooooh! All the animals were having a good time!

There were all sorts of tasty foods and sweet drinks laid out for everyone. And the animals were making their own music. Some were playing drums and reeds, roaring, barking, bellowing, howling and trumpeting – everyone singing. There were dancing in a line and stamping their feet. The place was hopping! Bat shivered with anticipation and fluttered down to the entrance where Zebra stood guard.

"Evening Zebra," Bat squeaked. "Fine night for a party!"

"Stop right there, Bat!" neighed Zebra. "Where do you think you're going?"

"We-, We-, Well into the animals party..." stammered Bat.

"Oh no you don't! This party is ONLY for animals and YOU are NOT an animal!"

"Oh, but I am!" insisted Bat. "See, I've got fur and teeth – only animals have that."

"And you've got wings! Only birds have wings. Now get out of here before I stomp you!" Zebra raised his hoof and Bat quickly fluttered out of the way, back up to that tree.

He sadly watched the animals feasting and singing and dancing... and the tears began to run down his fur, all the way to his feet. And Bat began to slip this way and that way... until he slipped all the way around and hung upside down. Bat was too sad to care. He just stayed upside down and his tears fell down to the ground.

Well, when the birds heard about the animals party, they decided this sounded like a great idea. They decided to have a party of their own! When word went out that all the birds would gather that night in a nearby clearing, Bat thought, "Now's my chance to have some fun!" He spiffed himself up, shined his wings, buffed up his feet – he was ready!

He fluttered over to the clearing and landed in a nearby tree. The party was already in full swing. There were tables of wonderful seeds and berries and big seashells filled with sweet nectars to drink. The best singers of the bird kingdom were hooting, cawing, whistling, warbling and crooning away. The long legged birds were high stepping with the smaller birds dancing between their legs. And everyone was shaking their wings – feathers flying everywhere!

Bat couldn't wait to get in there! He fluttered down to the entrance where Vulture stood guard.

"Evening Vulture" Bat said nonchalantly as he hurried inside.

"Stop right there, Bat! You can't go in there!"

"Why not? It's the bird's party and I'M A BIRD! See, I've got wings – one, two, one on each side!"

"You also have dark fuzzy fur and sharp little fangs," hissed Vulture. "Birds have feathers and beaks – not fur and teeth. Now get out of here before I peck you!" And Bat barely missed being pecked by Vulture as he quickly fluttered back up to the tree.

Bat was still trembling as he sadly watched the birds feasting and singing and dancing...and the tears began to run down his fur, all the way to his feet. And Bat began to slip this way...and that way...until he slipped all the way around and...hung upside down. But Bat was too sad to care. He just stayed upside down and his tears fell down to the ground.

And ever since that day, Bats have always stayed to themselves, and they only go out late at night when most of the other creatures are asleep. And they still hang upside down – so their tears will fall to the ground – to this very day.

(c) Allison Cox 2002

My source for this tale is "The Party" in *One Day We Had To Run* by Sybella Wilkes, Brookfield, CT: Millbrook Press, 1994. In this book, refugee children tell their stories in words and paintings. Abraham Marial Kiol, an fourteen-year-old boy from the Dinka Bor Tribe of Sudan told Wilkes this tale. He ended with: "Tell the children of the world. We don't want to be bats. We want to find our place. To be either an animal or bird so that we can be happy."

Fable of Aesop: The bat and the two weasels

German version: Fabel: Die Fledermaus und die beiden Wiesel Livre II – Fable 5, URL: <https://www.lafontaine.net/lesFables/fableEtr.php?id=496>

English version: <https://fablesfoaesop.com/the-bat-and-the-weasels.html> GBR collection, DABOSS

A Weasel seized upon a Bat, who begged hard for his life. "No, no," said the Weasel; "I give no quarter to Birds." "Birds!" cried the Bat. "I am no Bird. I am a Mouse. Look at my body." And so she got off that time.

A few days after she fell into the clutches of another Weasel, who, unlike the former, had a stronger antipathy to Mice than to Birds. The Bat cried for mercy. "No," said the

Weasel; “no mercy to a Mouse.” “But,” said the Bat, “you can see from my wings that I am a Bird.”

And so she escaped that time as well.