

The Loss of Biodiversity in the Anthropocene and Its Representations in Literature and the Arts (Late 20th and Early 21st Century)

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1. Introduction

Nowadays an increasing ecological awareness is not only present in public and political discourse but can also be traced in European literature since the beginning of the 21st century. The rising interest in ecological topics has inspired a number of novels and best-selling books in the course of the last two decades. On the first image, I have arranged a selection of recent book covers illustrating the sudden emergence of ecology in contemporary literature (see figure 1). This is just a random collection of recently published titles, including fictional works and literary essays without any claim to completeness.

Among the favored topics of the last few years is the ongoing extinction of natural species due to climate change and the destruction of natural environment – a precarious development and phenomenon which scientists also call the loss of biodiversity.¹

Writing about these issues in fictional works evidently transcends the entertaining qualities of narratives usually expected when talking about popular fiction and other iconic aesthetic works. What exactly characterizes this new wave of narratives and aesthetic essays aiming at distributing knowledge or intensifying our awareness of the risks at stake if our natural environment and its seemingly abundant resources steadily diminish and disappear?

The topics of ecological concerns such as climate change, species extinction, and loss of natural habitats have inspired many writers and artists

1 See the illuminating multidisciplinary collection of articles in *Loss of Biodiversity*, ed. Sharon L. Spray/Karen Leah McGlothlin 2003.

Figure 1 showcases the surge in topical literature focusing on ecological problems like climate change and species extinction.



around the globe. Their works provide concise examples of a very productive and sometimes complex process of oscillation between fiction and fact.

Before I will discuss some of the most striking examples to illustrate this idea in more detail, it seems useful to briefly dwell on the notion of factuality and fictionality respectively. This raises the question in which sense the difference between the two concepts and their mutual interaction does apply to my material and my observations.

2. Factuality and Fictionality in Literary Texts and the Arts

When speaking about the fictional and factual aspects of literature and the arts in this article, I will resort to some implicit presuppositions and concepts which I would like to explain in the following part of my essay. We all have a common-sense notion of what is meant when talking about factuality or facts. This pre-scholarly, common idea is roughly summarized in the following definition in the *Collins Dictionary*: “Something that is factual is concerned with facts or contains facts, rather than giving theories or personal

interpretations. Synonyms are: true, objective, authentic.”² At first sight, this explanation sounds quite simple and straightforward. The current scholarly and philosophical definitions, however, are mostly much more subtle and far more comprehensive. As it turns out, the task of defining what exactly constitutes the ‘mere facts’ proves to be quite challenging when considered from a more philosophical perspective. The same holds true when approaching the problem from a narratological point of view. In their introduction to the recently published *Handbook of Factual Narrative* Monika Fludernik and Marie-Laure Ryan offer a diligent and complex definition including a considerable amount of critical reflection:

Another issue raised by the notion of factuality concerns the rigidity of the distinction between true and false information. In classical logic, true and false are regarded as binary categories that do not admit of degrees. But while a factual text is meant to elicit belief in the receiver, this belief can be either weak or strong. Depending on the genre, audiences will grant factual texts various degrees of credibility, and they will be more or less tolerant of unverified or unverifiable information. In oral narrative of personal experience, for instance, audiences accept exaggerations, embellishments, and free reconstruction of dialogue, regarding the story as true in its broad outline.³

Fludernik’s and Marie-Laure Ryan’s approach seems very plausible and differentiated in many respects, although some questions still remain open to further discussion: What exactly are the deductions from their findings with regard to the relationship between factuality and fictionality within narratives, especially with reference to fictional texts? If the concepts of fact and fiction can no longer be considered a binary opposition, as Fludernik and Ryan rightly assume, what, then, are the further implications of this insight?

As we have seen, the terms factuality and fictionality are not mutually exclusive. They are not directly opposed to each other, either. In which way, then, are we to conceive of their mutual relationship? Fludernik and Ryan suggest a gradation, a range of various degrees of credibility. What precisely does this mean with reference to literary texts or works of art? At first sight, one might conclude that the more fictional and aesthetic elements a text or

2 See the straightforward entry “factual” in the online edition of the *Collins Dictionary*: <https://www.collinsdictionary.com/dictionary/english/factual> (27.04.2020).

3 Fludernik/Ryan 2020b: 11.

an aesthetic representation includes, the less authentic it is. This conclusion, however, does not sound quite convincing. As we will see below, the examples from my sample point in quite a different direction.

In fact, I would like to argue that it is often quite misleading to assume that factuality and fictionality in a given text are inversely proportional, i.e. that the credibility of the facts would be diminished by the fictional framework. Employing aesthetic or poetic elements does not necessarily diminish the factual aspects of the representation, the attribution of authenticity. On the contrary, our awareness of the means of construction may even enhance the effect of authenticity, the impact of a narrative or a sequence of images.

Evidently, fictional and aesthetic elements in literary texts and other media prove to be more than a mere framework that could be isolated from its factual content. They are part of the aesthetic expression, which is in turn intricately interwoven with the factual core or meaning. The process of reception is often much more subtle than the simple choice between true or false, authentic or fictitious. Our disposition to believe in the authenticity of a given text depends on genre conventions and expectations as well as the cultural and historical context shared by the author and his or her readers.

In this sense, fictional works can be far more compelling and more poignant than reports and analyses. Their powerful appeal to our imagination, which is in turn rooted in a collective or cultural imaginary shaped by multiple artistic, literary and aesthetic traditions, exerts a considerable impact on our perspectives, our cognitive and emotional response. In so far, there can be no doubt that fictional texts substantially contribute to our cultural knowledge in general and to our individual knowledge in particular. Knowledge or insight can be considered as being based on a more or less convincing interpretation of facts,⁴ be it empirical observations or scientific experiments, whereas the 'bare facts' themselves are largely inaccessible to the human mind.⁵

Binary oppositions like the one between fact and fiction, or truth and invention, are theoretical constructions, whereas in reality the boundaries are fuzzy and fluid.⁶

4 Cf. for instance Danto 1984.

5 Cf. the interesting study on Nietzsche by Gori 2019: 62.

6 As Ryan has shown, narrativity itself is also characterized by a certain degree of fuzziness. (Cf. Ryan 2007)

In the following, the interrelatedness and various interactions between factual and fictional aspects can be explored in more detail with reference to the continuous loss of biodiversity which undoubtedly constitutes an urgent problem and a considerable social and political issue. In order to illustrate the impact of the issues and problems implied, let me quote from an extract from the European Commission's 2030 *Biodiversity Strategy Paper*:

Plant and animal species are disappearing at an ever faster rate due to human activity. What are the causes and why does biodiversity matter? Biodiversity, or the variety of all living things on our planet, has been declining at an alarming rate in recent years, mainly due to human activities, such as land use changes, pollution and climate change.⁷

The European Commission presented the new 2030 Biodiversity Strategy in May 2020, "following calls from the Parliament in January 2020 to address the main drivers of biodiversity loss and set legally binding targets."⁸

In how far and in which respect does this topic constitute a larger concern that is not only negotiated by politicians and sociologists but has also attracted much attention in recent cultural studies? In her seminal study *Imagining Extinction: The Cultural Meanings of Endangered Species* Ursula K. Heise points out aptly:

We are currently facing the sixth mass extinction of species in the history of life on Earth, biologists claim – the first one caused by humans. Activists, filmmakers, writers, and artists are seeking to bring the crisis to the public's attention through stories and images that use the strategies of elegy, tragedy, epic, and even comedy. *Imagining Extinction* is the first book to examine the cultural frameworks shaping these narratives and images.⁹

This conception of cultural imaginings, as proposed by Heise, is indeed very illuminating and entails further questions relevant for a detailed investigation.

How, when, and why do we invest culturally, emotionally, and economically in the fate of threatened species? What stories do we tell, and which ones do we not tell, about them? What do the images that we use to represent

7 <https://www.europarl.europa.eu/news/en/headlines/society/20200109STO69929/biodiversity-loss-what-is-causing-it-and-why-is-it-a-concern> (27.04.2022).

8 Ibid.

9 Heise 2016: Cover text.

them reveal, and what do they hide? What kind of awareness, emotion, and action are such stories and images meant to generate? What broader cultural values and social conflicts are they associated with?¹⁰

In her book, Heise draws attention to the circumstance that there is a large number of tales and documentaries on the mass extinction of species that participate in certain literary and aesthetic genres and thus employ typical literary devices and narrative strategies which can best be analyzed by literary historians. It is noteworthy that her focus is on stories and images – both constituting powerful means of aesthetic expression.

In the following second part of my article, I would like to take a closer look at some of the recent fictional texts on the extinction of species, the ongoing anthropocene and the human animal relationships involved. My examples have moreover in common that the visual experience is prominent, either on a level of figural language, including metaphors and imagery, or by the use of intermedial compositions of texts and images.

3. Forms of Storytelling Oscillating between Factual Documentation and Fictional Narrative

My first example is drawn from the iconic novel by the Norwegian best-selling author Maja Lunde, *The History of Bees* (*Bienen Historie*), which was first published in 2015. The time frame of the narrative is quite sophisticated and multidimensional, but the first part is clearly revealed as a dystopian outlook on the year 2024, because it starts by mentioning the name of the female narrator and by offering a precise specification of time and place: TAO, District 242, Shirong, Sichuan, 2098. The beginning of the first chapter presents a detailed depiction of the Chinese woman at work, performing her daily labor in a large field of fruit trees:

Like oversize birds, we balanced on our respective branches, each of us with a plastic container in one hand and a feather brush in the other. I climbed upwards, very slowly, as carefully as I could. I was not cut out for this, wasn't like many of the other women on the crew, my movements were often too heavy-handed. I lacked the subtle motor skills and precision required. This

¹⁰ Ibid.: 165.

wasn't what I was made for, but all the same I had to be here, every single day, twelve hours a day.¹¹

The powerful image of the human being moving as an oversized bird among the branches of a tree, in order to perform the task of pollination usually attributed to animal agents like bees and other insects, functions as an interesting metaphor for the anthropocene. The impact of the opening passage largely relies on the immediate visual presence of the somewhat grotesque and enigmatic bird-like figures clumsily moving on the branches and accentuates the precarious efforts taken by human beings in order to substitute animals and compensate for their loss. The readers are thus stimulated to visualize the scene and search for answers as to what has necessitated such actions. When first reading this passage, I regarded the image and the action described as a poetical invention typical of dystopian novels. As the discussion by readers and critics in social media and reviews reveals, many readers believed the idea of people climbing into trees in order to pollinate the blossoms to be purely fictional. This misleading conclusion is apparently inspired by the genre framework of the dystopian novel, stimulating the readers' expectation of a society controlled by a totalitarian regime and dealing with future inventions and cultural techniques yet unknown. Hand pollination, however, has become a common practice in the province of Sichuan in China after the bees became extinct in the region, as a prize-winning documentary *More than honey* (2012) has reported in detail. This documentary by Swiss director Markus Imhoof has been rightly praised for its revealing insights and diligent scientific research and has become known as "most successful documentary of the year."¹²

In an interview, Imhoof explained his motives and the methods of his investigation: "It was just a view I chose – of what would happen if we didn't have any bees. I travelled to four farms in China where they were doing hand pollination. I chose one employing mainly women."¹³ Imhoof's documentary film thus provided detailed information about the global situation of endangered honeybees and, to a certain degree, made the vanishing of the bees accessible to cultural knowledge.

11 Lunde 2017 (Kindle edition, no page numbers).

12 https://www.austrianfilms.com/news/en/more_than_honey_wins_lola_for_best_documentary (27.04.2022).

13 Interview with Markus Imhoof 2012.

The film has indeed been very successful, yet three years later Maja Lunde's novel almost immediately became an international bestseller and reached an even wider international audience. Lunde's book has attracted even more attention than the film and, especially in Germany, stimulated diverse activities and initiatives to save the bees as well as a veritable flood of novels and narratives dealing with the topic. Apparently, popular fictions like Lunde's novel are more liable to alert the readers' awareness and trigger their emotional and personal response than other discourses and sources of information.

As a second example, I would like to briefly touch upon another popular novel, entitled *Elefant*, by Swiss author and screen writer Martin Suter. In Suter's novel, significantly, the title figure is an animal agent, a pink miniature sized elephant which turns out to be the product of genetic manipulation, a so-called glowing animal well-known to specialists in this field of scientific research. Usually, glowing animals serve as indispensable instruments in the investigation of diseases like aids and cancer and the production of possible remedies: In 2011, researchers from the U.S. and Japan used the green protein to help them monitor the activity of a gene they had inserted into cats which helps them resist the feline form of Aids. Cats are one of the few animal species that are normally susceptible to such viruses and scientists say that the experiment is designed to help better understand Aids in both cats and humans.

These scientific data and facts have been presented to a larger public in diverse journal articles since their discovery around 2008. Let me quote an instructive passage from an article recently published in an internet journal:

Pigs that glow from inside out and glow-in-the-dark cats and dogs may sound, and look, pretty ridiculous, but scientists are increasingly using genetically modified animals in an effort to help them understand diseases that affect humans. One way they are doing this is by inserting fluorescent proteins, generally a green protein found in the *Aequorea Victoria* jellyfish, into animals, making them glow. The fluorescent proteins help scientists to monitor the performance of genes that they have altered. The pioneers of this method were even awarded the 2008 Nobel prize in chemistry for their efforts.¹⁴

14 Bloomfield 2013, in: <https://www.mic.com/articles/40527/7-genetically-modified-animals-that-now-glow-in-the-dark-thanks-to-science> (27.04.2022).

In the case of the glowing elephant in the novel, however, the motives of his origin were commercial and illegal. But this information is not revealed to the reader and the human protagonists of the novel from the very beginning. The first encounter of the elephant in the book, therefore, sounds like a passage from a fantasy novel and, consistently, it resorts to the typical genre characteristics of “hesitation,”¹⁵ as described by French critic Tzvetan Todorov in his famous introduction to fantastic literature. From the point of view of the human protagonist, a homeless person called Schoch who found the animal in his retreat, the appearance of the pink elephant constitutes a marvel and a mystery which he cannot easily explain, oscillating between thinking he is still drunk after a hangover or having indeed encountered a supernatural being. The opening passage is subtly recalling these literary components of fantasy with Schoch acting as an unreliable witness:

It couldn't be withdrawal syndrome as he'd had plenty to drink. Schoch tried to focus on the object. A child's toy, a tiny elephant as pink as a marzipan piglet, but more intense in colour. And glowing like a pink firefly, right at the back of the hollow, where the ceiling of the cave met the sandy ground. [...] He closed his eyes and tried to get something like sleep. But then he had a 'merry-go-round', which was what he called those states of inebriation when everything started spinning the moment he crawled into his sleeping bag. In all these years he'd never managed to put his finger on what caused drunkenness to become a merry-go-round. [...] everything was still spinning. Maybe it was something to do with the weather. [...] He'd never found out whether it was better to keep his eyes open or closed either.¹⁶

Significantly, the protagonist hesitates and seems to doubt the existence of the small pink elephant, while confronted with the enigmatic animal. He observes it more closely, yet he still cannot make up his mind about the nature of the phenomenon.

Schoch opened them. The toy elephant was still there, but it appeared to be a little further to the right. He closed his eyes again. For a moment the little elephant spun beneath his eyelids, leaving a streak of pink. He immediately wrenched his eyes open. There it was, flapping its ears and lifting its trunk into an S-shape. Schoch turned over onto the other side and tried to stop

15 Todorov 1975: 25.

16 Suter 2018.

the spinning. He fell asleep. Schoch crept out of his sleeping bag and tried to breathe deeply to calm the pounding of his heart. What he could see wasn't a hallucination. You couldn't touch hallucinations. But what was it? A miracle? A sign? Something mystical?¹⁷

While Schoch is still wondering and hesitating, the narrative exactly corresponds to the genre conventions of fantastic literature. According to Tzvetan Todorov, the protagonists of fantastic tales and the readers find themselves in a situation of uncertainty about the nature of the phenomena encountered or described. Thus, they experience a characteristic process of oscillation between confirming the observations and doubt, a hesitation that can be perpetuated till the end of the narrative. In this respect, Martin Suter's novel toys with the genre expectations of fantasy and speculative fiction without ultimately confirming them. Again, scientific phenomena and factual aspects are disguised as fictitious and while we primarily consider them as typical elements originating in the vivid imagination of an ingenious novel writer, they are gradually revealed as realistic elements – whose real-life counterparts are forming part of our contemporary reality. The text establishes an interesting relationship between the scientific discourse on glowing animals and the prototypical genre expectations of fantastic literature as described by Todorov. On the whole, the retardation of insights into the factual phenomena seems to enhance the impact of the knowledge rather than to diminish its effect, because it comes to most of the readers as a sudden revelation.

4. Representations of the Loss of Biodiversity in Contemporary Artist Books

As we have seen above, rhetorical and metaphorical techniques serve a double function in the narratives focusing on biodiversity loss. On the one hand, they underscore the aesthetic quality of the text and intensify the reading experience. On the other, they also trigger a cognitive process in the readers that ultimately leads to insights into the scientific aspects of the phenomena in question. When popular novels negotiate issues originating from scientific research, they contribute to the dissemination of expert knowledge and

17 Ibid.

stimulate their readers to participate in the discussion of the possible consequences and implications.

Apart from the novel, there is another very successful and more subtle literary genre which presents and illuminates the extinction of species in the age of the anthropocene, namely the 'bestiary'¹⁸ in the form of the artist book. In this literary genre, texts are accompanied by images, paintings or photographs, which greatly enhances their impact on the reader. The intermedial framework provides a very powerful means of commemorating and retracing the extinction of species caused directly or indirectly by the agency of human beings in the anthropocene.

Fascinating examples of the mutual interaction and interplay of facts and aesthetic elements can be found in the work of Errol Fuller, a British writer, artist and animal painter, who has published a whole series of artist books dedicated to the subject matter of endangered animals. These artist books combine zoological texts and personal observations with outstanding drawings and paintings. The book design is expensive and also artistically designed.

Fuller's recent book *Lost animals* surprisingly dispenses with colorful illustrations. Instead, it is based on a collection of black and white photographs from the early twentieth century. The author elaborately explains his motivation and the reasons for this choice of rather inconspicuous images:

When friends or acquaintances thumbed through the book a peculiar and unexpected thing became very noticeable. They were attracted by the high quality of the paintings, of course, but they were truly riveted by the photos. They would pause over them and just gaze, sometimes even raising the book towards their eyes in the vain hope that this action would allow them to see more – more than there really was to see! Almost always the same question cropped up. "Is this real or have you just faked it?" All this was despite the fact that most of these images were, inevitably, poor in quality (for many were taken in difficult circumstances in the early days of photography), and showed little detail.¹⁹

He further elaborates this idea with reference to the special aura encapsulated within ancient photographs, poignantly enhancing the sense of irretrievable loss:

18 Cf. Simonis 2017a.

19 Fuller 2014: 8.

It seems that a photograph of something lost or gone has a power all of its own, even though it may be tantalisingly inadequate. But despite all of the handicaps, these photos are evocative and moving records of creatures that are gone. They are close enough to touch – almost, but not quite!²⁰

The passage quoted above also explains why Fuller refused to digitally remaster the pictures. The aesthetic design and selection of media, i.e. in this case the choice of old photographs, are crucial and interwoven with the central functions of cultural memory, the slow and incomplete process of reconstruction by memory:

A photograph of an animal long-gone evokes a feeling of loss more than a painting ever can. Often tinted sepia or black and white, these images were mainly taken in zoos or wildlife parks, and in a handful of cases featured the last known individual of the species.²¹

The book includes rare black and white photographs of various extinct mammals and birds like Tasmanian wolves, ivory-billed woodpeckers, and the quagga which looks like a hybrid of horse and zebra. (See figure 2 and 3)

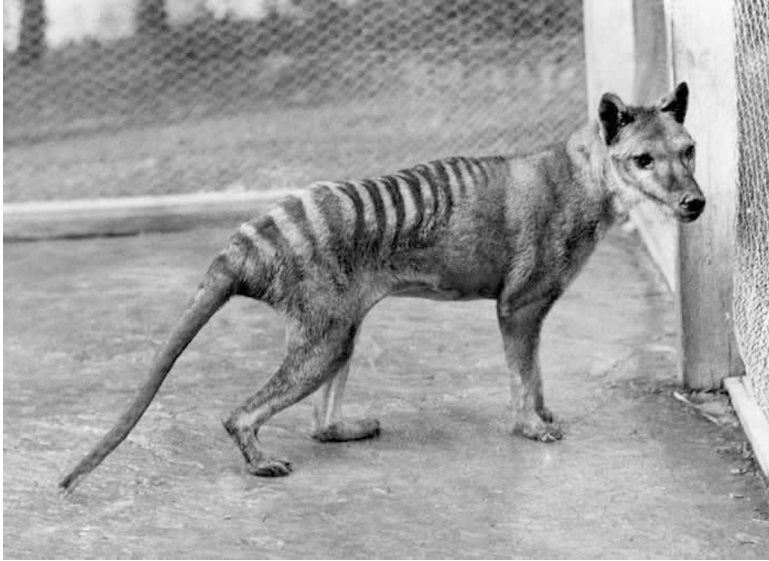
Another book about endangered or mostly extinct animals, which is to a certain extent comparable to Fuller's collection, has been published by the author Luc Semal and the photographer Yannick Fourié. The work is entitled *Le Bestiaire disparu. Histoire de la dernière grande extinction*, assuming the role of providing a chronicle of recent species extinction. The considerable size and expensive design of the volume indicate that the genre, again, is the artist book. Each double page offers a complex intermedial composition which consists of a small miniature picture, i.e., a painting of the animal species in question, followed by a larger text on the left page while the page on the right contains a full-size photograph of a museum exhibit, a stuffed animal, also called taxidermy. Notably, the background color of the photos is frosted black throughout the book.

The photographic images were taken by Yannick Fourié in the Dutch museum *Naturalis* in Leiden. Apart from the expected naturalist descriptions of the species, their scientific Latin name, their appearance, distributions, natural habitats, etc., the texts often include small narratives, mostly anecdotes about the fate of individual animals. They tell memorable stories with comic

²⁰ Ibid.

²¹ Ibid.

Figure 2: Tasmanian wolf (Thylacinus cynocephalus) Image of a juvenile male thylacine at Hobart Zoo taken by B Sheppard in 1928. Sadly, the animal died the day after it was photographed.

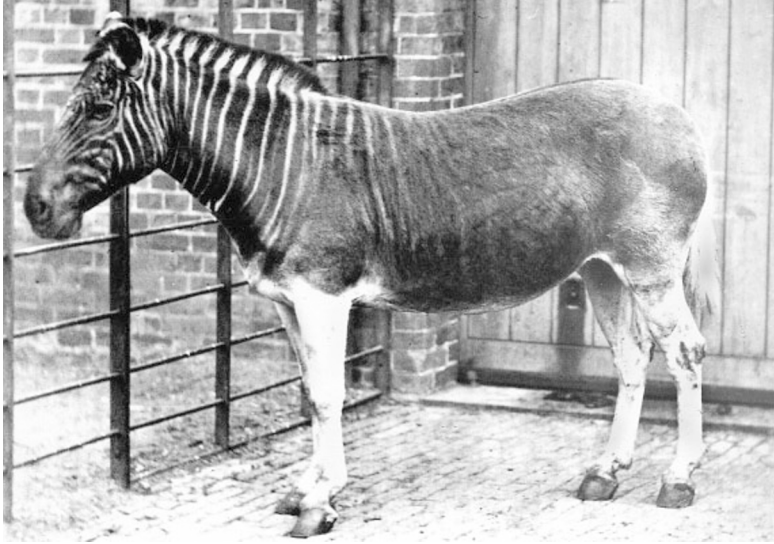


or tragic elements often illustrating the human animal relation before the species became finally extinct. These fictional elements are characteristic of Semal's bestiary. At the same time, the photographs enhance the impression of constituting a well-designed work of art beyond mere embellishments. They are aesthetic objects, employing subtle techniques to attain special effects. The overall impression conveyed by the dark background color is that of melancholy and mourning.²² The photographs thus testify the irreversible loss of species (involving numerous individual deaths), the loss of biodiversity, and, at the same time, they appeal to the readers' imagination and initiate a process of collective mourning or cultural commemoration.

One critic has noted that the lighting of Fourié's photographs is sparse and selective, sometimes leaving part of the animals' face in the dark as is the

22 Cf. Simonis 2017b.

Figure 3: A quagga mare at the London Zoo in 1870; this is said to be the only specimen photographed alive. Contributed by Harvard University, Museum of Comparative Zoology, to the Online Biodiversity Library: <https://www.biodiversitylibrary.org/page/28201475/#page/209/mode/1up>



case in the picture of the Java tiger.²³ The critic considered this as a technical deficiency, not noticing the aesthetic aim of the strategy. The shadowy part of the pictures and the highlighting of selective parts of the animal body are intentional because they contribute to the dominant impression of fragmentation, defiguration and decomposition. Since the species presented in Semal's bestiary cannot be revived, there seems to be a cultural need of commemorative work, a kind of collective grief work ("Trauerarbeit"). When examining the anecdotes more closely, this crucial impression is confirmed on the textual side of the volume.

The small narratives often recall a harmonic relationship between the human beings and animals before the contact is disturbed and disrupted by

23 Alberti 2014, in: <https://www.spektrum.de/rezension/buchkritik-zu-bestiarium/1322037> (20.04.2022).

death or the moment of extinction. It seems that those species which appeared trustful and friendly to humans were on the whole even more prone to extinction.

Here are two examples highlighting this fatal relationship:

There is an anecdote about a laughing owl (*Ninox albifacies*) from New Zealand who proved a Musical Owl: "He could still be lured from his hiding place in the rocks after dark by the sound of an accordion. The bird would then pass silently over the musician and, finally landing nearby, would listen until the music stopped."²⁴ (See figure 4)

The anecdote quoted above is embedded in an elaborate account of the species' characteristics, the date and particular circumstances of its first discovery, and the multiple reasons for its extinction. Similar embedded narratives about the interactions of individual animals with human beings can be found throughout the volume. Some of them showcase the deplorable outcome of these interactions and the premature deaths of the animals.

Then, for instance, a highly revealing anecdote about a Falkland Fox from the Falkland Islands can be found:

Captain John Strong and his crew there discovered a curious canine, half wolf, half fox, the only land mammal on this uninhabited archipelago. The animal was so docile that they tamed one and embarked it as a mascot on their ship, the *Welfare*. He lived like this for several months with the sailors, until an encounter with the French fleet ended up in a violent cannonade: terrified, the beast jumped overboard and drowned.²⁵

In the case of the Falkland Fox the death of the individual animal serves as a metaphor and anticipates the moment of species extinction.

In Semal's bestiary of extinct animals, the structure of the texts as a whole turns out to be quite complex. They provide scientific biological information as well as fictionalized material in the form of snapshots of individual memories which include fictional and subjective aspects. Accompanied by the powerful visual dimension of artistic photographs, the function of the book clearly goes beyond providing factual information, though this might have been the primary intention of its authors. The elaborate structure and design of the

24 Semal 2014: 86.

25 Ibid.: 66.

Figure 4: Male laughing owl mount from the collection of Naturalis Biodiversity Centre, Naturalis Biodiversity Center/Wikimedia Commons



book seek to involve the readers in a multidimensional cultural process of commemorative work, appealing to their imagination and provoking an emotional as well as an intellectual response.

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