

Presence of absence, absence of presence, and extinction narratives

Dolly Jørgensen

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Am I truly the last?

The Last Unicorn – an animated fantasy film from 1982 directed by Jules Bass and Arthur Rankin Jr. based on the 1968 book by Peter S. Beagle – centres on the quest by what is identified as the last unicorn to find out if any other unicorns survive in the world. In the opening sequence, two hunters appear in the unicorn's forest and pronounce that they will not find game there because of the unicorn's protection, but that the unicorn had better stay put because it is the last. The unicorn then reflects on that information:

That cannot be. Why would I be the last? What do men know?! Because they have seen no unicorns for a while does not mean that we have all vanished. We do not vanish! There has never been a time without unicorns. We live forever. We are as old as the sky, old as the moon. We can be hunted, trapped. We can even be killed if we leave our forests, but we do not vanish. Am I truly the last? (*The Last Unicorn* 1982)

Two important ideas appear in this soliloquy that carry through the story. First, there is the problem of seeing and knowing. 'Because they have seen no unicorns for a while does not mean that we have all vanished', the unicorn says. Later when a farmer, then a cart driver, see her but think she is a mare instead of a unicorn because the horn is invisible to them, the unicorn ponders to herself: 'I had forgotten that men cannot see unicorns. If men no longer know what they are looking at, there may well be other unicorns in the world yet, unknown and glad of it'. The question is: Can one be sure that something is not there simply because one doesn't see it?

Second, there is the idea that a species lives forever. ‘There has never been a time without unicorns,’ she says. The unicorn, as well as a harpy which the unicorn encounters at a circus, are immortal. The immortality of the unicorn is contrasted with the mortality of the human body when halfway through the story the unicorn is turned into a young woman in order to avoid detection. While there is an element of the fantastical in the immortality issue, there is also the more general idea of lack of change – that nature will remain as it always has been; in the unicorn’s forest, it is always springtime and the hunters cannot kill the animals. In the unicorn’s world, nature is constant and unchanging.

This chapter will address where these issues – the problem of not seeing at a certain time and the idea of a static nature over time – converge in two historical searches for the last: the European beaver (*Castor fiber*) in Sweden at the end of the nineteenth century and the thylacine (*Thylacinus cynocephalus*) of Tasmania in the twentieth. Significantly these searches appear on the fringes of the modern developed world: the northern forests of the northern nation of Sweden and the island of Tasmania off the southeastern coast of Australia. These mountainous sparsely populated areas encouraged both physical and conceptual distance from city dwellers. They were remote and difficult to access. There were internal frontiers on these edges of Europe and Australia, long after the American frontier had been declared conquered (Griffiths 1997).

Standing at the edge of civilization is standing at the edge of the known. As such, people moving beyond the frontier’s edge are always confronted with ignorance. Within the field of environmental history, managing the unknown has attracted attention as a way of explaining what people do in their environment and why (for example Uekötter and Lübken 2014). For example, Susan Herrington has explained how ignorance of Canadian forests was perpetuated by the convergence of practical challenges of getting precise numbers about the extent and type of tree cover with cultural ideas of ‘a cornucopia of natural resources’

hampering knowledge (Herrington 2014, p 53). Until the forests could be conceptualised as a finite good, there was little impetus to quantify or conserve it. The same holds true with many marine resources, which because of difficulties assessing fish stocks and exploring the marine environment, have historically often been thought of as limitless (Sparenberg 2014). Just as in the unicorn's forest where it is always spring and death never comes, unknown environments are often imagined as expansive and inexhaustible.

When places are difficult to access, the contents of those places – whether people, animals, plants, or geographical features – can be difficult to know. Combating ignorance of place and its contents may require surveys, scouting parties, knowledge sharing, and other data collection, but the knowledge gained is still only partial and inexact (Zilberstein 2013). Environmental data, in particular, is always based on collection at a certain place at a certain moment in time. Even large sample sets, which may be able to represent the most probable aspects of the environment in question, are not all inclusive. There are always outliers. Animal populations are particularly problematic to capture because animals are mobile and surveys by necessity are time/space bound. It is tempting to see the failure to record an animal in a survey as proof of its non-existence, but as the unicorn muses, 'Because they have seen no unicorns for a while does not mean that we have all vanished'. The presence of an absence does not necessarily equate to an absence of presence, but in some cases it does.

In the two histories presented here, I explore how the presence of an absence (no known animals) became understood over time as an absence of presence (extinction) through narrative. Swedish beavers and Tasmanian thylacines had both become rare and then finally unseen, which led some people to claim their extinction. Others, however, claimed that the animals had survived, that they continued to exist in the wild fringes beyond civilization. Contentious conclusions resulted from the uncertainty of knowledge and management of the unknown. Consensus on the extinction of the beaver was more easily reached than the

thylacine, but in both cases, extinction narratives became fixed and paved the way for efforts to reverse the extinctions. These histories reveal how extinction narratives are built on the acceptance of presence of absence as a sign for absence of presence.

Beavers in the backwoods

The story of the European beaver is the story of a near tragedy. By around 1880, there were probably 1200 beavers in all of Europe and these were restricted to small pocket populations: one in Norway, one in the Rhine valley, one on the Rhône, one in Ukraine, and a few in Russia (Nolet and Rosell 1998). Most people think there is one kind of beaver globally. Actually, the beaver of Eurasia (*Castor fiber*) and the beaver of North America (*Castor canadensis*) are different species. In fact, they are very different species. They have a different number of chromosomes (48 in the European and 40 in the North American). There is no known hybridization between the two species and it is assumed that they cannot produce viable offspring. They diverged genetically about 7.5 million years ago after the early beaver migrated from Asia to North America (Horn et al. 2011).

The decline in the population of European beaver in Sweden was a long time in the making. As early as 1756, the naturalist Nils Gissler, a student of Carl Linnaeus, expressed concern that the beaver was being overhunted in Sweden. Before ‘they never caught all of the pairs in each place, and never touched the young’, he wrote, but now ‘they kill all they can’ with the result that the numbers were diminishing (Gissler 1756, p. 221).¹ In the nineteenth century, authors continued to remark on the dwindling beaver numbers, although they always assumed that the beaver was still present on the outskirts of civilization. G. Swederus, author of a major book on Scandinavian hunting, noted that the beaver was found ‘only in the northern part of the country and in the wild tracts’ since the animal was being pushed there

¹ All English translations of Swedish sources are by the author.

by growing colonization (1832, p. 133). Professor of Natural History S. Nilsson (1832, plate 10) wrote that the beaver was then found only in the northern half of the country and ‘there is no place that he is numerous, and he seems to become more rare each year. ... A generation ago, one found them there [in Jämtland/Norrland] in smaller colonies of 12-16 individuals; now one finds never more than a pair together, or a female with her young’. In these remarks, there was a sense of environmental change, yet the beaver was assumed to still exist somewhere in Sweden. Just as there had never been a time without unicorns in *The Last Unicorn*, in Sweden, there had never been a time without beavers.

Increasing rarity might be easy to recognise, but what about admitting something is no longer present at all? In 1873, Ferdinand Unander, the head of the agricultural school in Västerbotten County, wrote an article for the *Svenska Jägarförbundets Nya Tidskrift* with the title (translated as) ‘One of Swedish hunting’s lost precious animals’ about the beaver. He noted that:

People outside of Norrland still believe that the beaver exists in the vast and forested regions of northern Sweden in single streams that have not yet been visited by man. This view finds support in the zoological handbooks, that this animal is found in our country in these wastelands, however nowadays these are in all directions traversed by both Sami and Swedes, sometimes even by some tourists, and are more known to the inhabitants themselves than you usually imagine. (Unander 1873, p. 28)

Unander contrasted the idea that beaver must be in the unknown places with the fact that there are no unknown places anymore in Sweden. He questioned the standard assumption that the beaver must still exist on the fringes of civilization because he believed there was abundant knowledge of the animals on that fringe. Going through the evidence of beaver sightings, he found that the latest evidence was from the far north in 1864, although the journal’s editor added a footnote that beaver was seen in Jämtland up to 1866. Unander

concluded ‘that as long as no proof is shown that beaver is found in the Swedish dominion and by which refute the before given facts and figures, he [beaver] must be regarded as an animal extinct from the Swedish fauna’ (1873, p. 33)

Unander’s article was the first definitive statement of the beaver’s extinction from Sweden. It was based on a lack of evidence for beaver after 1864 as well as the belief that Sweden was not in fact an unknown wilderness. Unander made the claim that the countryside was known intimately by this time: because the countryside was greatly crossed by locals and visitors alike, their failure to report beavers meant that the beaver was no longer present. Knowledge of the rural spaces equated to knowledge of extinction. Those familiar with the North would continue to make this claim. Cultural historian Eric Modin, for example, wrote in 1911 that:

The last wild living beaver, which was confirmed seen in Sweden, was observed in 1866 at Lake Juveln in Kall parish in Jämtland. Reports have been provided that the beaver survived even later in this landscape, where he in any case appears to have remained the longest, but these have not been confirmed. There is no hope that he, as was supposed, still survives in some unknown mountain region, so crossed and known as the Norrland wilderness and mountain regions are now. (Modin 1911, p. 192)

Modin, like Unander before him, argued that the north was not unknown, thus the beaver’s extinction could be documented. An absence of presence was confirmation of the presence of absence.

After Unander’s 1873 article, there was a hunt to identify which animal had been the last beaver in Sweden. Stories upon stories were recounted about the extinction of beavers in different parts of the country. A long multi-part article published in 1884 recounted the beaver’s extinction history in Sweden, including a detailed account of numbers of beavers

hunted over time in each county and the last beaver sightings in each (Anonymous 1884). Careful documentation was made of the situation in which each beaver was seen and the authority who reported it. Although there were reports of beavers in the 1870s in Jämtland, the lack of a skin subjected to ‘scientific verification’ meant that ‘a misidentification was possible’ (Anonymous 1884, p.142). Yet even without this scientific evidence, the report concluded that beavers had probably been in Jämtland even in the 1870s (Anonymous 1884, p. 143). According to the director of the Jämtland county museum Eric Festin (1922), Modin was right that the last beaver in Lake Juveln was taken in 1866, but the last beaver in Sweden was killed ‘according to reports’ by a local man, Abraham Abrahamsson, in 1871. Festin (1922, p. 58) noted with great irony that this was two years before the total ban on beaver hunting in Sweden in 1873! Some accounts hinted that beavers might have lived on much longer than 1873. Sven Ekman (1910, pp. 211-212) wrote a book about hunting and fishing in northern Sweden, which included several pages about the extinction of the beaver, including sightings in the 1880s. Festin (1921, p. 148) also mentioned later sightings, noting that some claimed a beaver died as late as 1892, although it was ‘not certain’. In these reports there is a clear questioning of the evidence – how much confirmation should there be to prove the beaver was still alive? Or more pressing, can lack of evidence mean the beaver is really extinct? As in *The Last Unicorn*, just because no person has seen it does it mean that there are no more?

Although there was controversy about which beaver had been the last, no one doubted that they were extinct in Sweden. Yet the European beaver was not extinct everywhere – it lived on in the neighbouring nation Norway where it had been afforded protection earlier than in Sweden (Collet 1883, p. 44). Because beavers still existed somewhere else, they could be reintroduced from those populations. Along with his pronouncement that beavers were indeed extinct in Sweden, Unander proposed ‘importation from abroad and reintroduction of

beaver' (1873, p. 32). It would take 50 years for this proposal to become reality. By the 1920s, a concrete movement was afoot to bring the beaver back to Sweden (Festin 1921, 1922). The first Swedish release of beavers from Norway took place in 1922. Based on its success reintroductions spread throughout central and northern Sweden with a total of about 80 animals released in 19 different locations (Fries 1940, p. 139–144).

[insert Figure X.1 here – portrait]

Figure X.1 A taxidermied beaver on display at the Västerbottens Museum, Umeå, Sweden, 2012. This beaver was caught locally and was one of the descendants of the beavers reintroduced from Norway.

Source: Photograph by author.

In publications reporting on the reintroduction efforts, stories about the last beaver previously in Sweden were always highlighted in the discourse because the extinction provided the grounds for the action. So for example when Sven Arbman wrote about the first reintroduction, he framed it within an extinction story about the last:

There is beaver in Sweden, wild, free, Scandinavian beaver, since June 6th 1922, 3:30 in the morning. It is more than half a century since that could last be said. In 1871 the last was shot in a stream near Sjougnäs. (1922, p 274)

Highlighting the previous last beaver gave these new beavers significance. It is particularly telling that Arbman, as well as all the others writing in the 1920s, chose the 1871 beaver as the last. Although more beaver reports trickled in from remote places in Sweden after this date, confirmation of sightings became an issue and the consensus was to discount these. The rejection of later sightings was rhetorical – it makes for a better story if the last beaver died before full Swedish protection in 1873.

Thylacines in the hills

Unlike the European beaver where the species became extinct only in some areas so that it could be reintroduced later from remnant populations, the thylacine of Australia (*Thylacinus cynocephalus*) died out completely. Or did it?

In a way similar to the Swedish beaver story, people had long noted the decline in thylacines, known colloquially as the Tasmanian wolf, tiger or hyena. In his *History of Tasmania* from 1852, John West predicated that ‘as every available spot of land is now occupied, it is probable that in a very few years this animal, so highly interesting to the zoologist, will become extinct’ (West 1852, p. 323). In Richard Lydekker’s book on Australian animals, he acknowledged that ‘a relentless war of extermination’ of thylacines by settlers protecting their sheep ‘has resulted in the almost complete extinction of this, the largest of the Australasian Carnivores, in the more settled portions of the country’ (1896, p. 152). The end of this sentence is worth noting – Lydekker assumed that the thylacine was only extinct from the ‘more settled’ part, implying that it could still be numerous in other areas.

When photos of a thylacine in the Beaumaris zoo in Hobart were published in January 1934, the zoo held the only captive specimen in the world (Fleay 1934). Thylacines had been held at thirteen zoos globally, including the Smithsonian National Zoo in Washington DC and Zoological Society of London, but those specimens had all died. The Hobart thylacine died on 7 September 1936. In March 1937, the City Council of Hobart offered £40 to anyone who could bring in a live thylacine in good condition for the zoo (*Examiner* 1937). The zoo had to quickly retract the offer, however, as it did not have the required permits from the Tasmanian Animals and Birds’ Protection Board (TABPB, later to become the National Parks Service) which had approved a complete ban on thylacine hunting in 1936, only a few months before the Beaumaris zoo specimen died. While newspaper articles admitted that the

thylacine was ‘rapidly becoming extinct’ (Travelling correspondent 1937), it was claimed to still exist in the mountains and could thus be captured to repopulate the zoo.

The TABPB undertook expeditions to find thylacines in light of its ban on hunting and the demands for new zoo specimens. An expedition to count the thylacines in the mountainous region was organised in 1938 and a report of that search was published in 1939 (Sharland 1939). The report included descriptions of the search and photographs showing the expedition making plaster of paris casts of footprints of the thylacine, as well as recording other evidence of thylacine presence. No thylacines themselves, however, were spotted. This did not deter Sharland from believing that the species still survived: ‘It must be emphasised, however, that its failure to reveal itself more frequently is not necessarily indicative of approaching extinction. Great areas of this game country are devoid of human inhabitants, while others are only sparsely inhabited’ (Sharland 1938, p. 20). Because of the inaccessibility of the terrain and the tendency for animals to see a man first and ‘get out of his way without itself being seen’, Sharland believed the thylacine was still present in the remote areas of Tasmania (1938, p. 20). The conclusion of the report was that thylacines were indeed still present in the wild and thus sanctuaries should be declared in areas with encroaching settlements to protect the remaining thylacines (Sharland 1939, p. 36–38).

Newspaper accounts over the next 50 years sporadically reported thylacine sightings, footprints, and other evidence from the remote countryside. There was still enough faith that the thylacine existed that the Taronga Zoological Park in Sydney received a permit from the Tasmanian Animal and Bird Protection Board to catch a pair of thylacines for conservation breeding purposes in 1949 (*Mercury* 1949). The hunt for the thylacine in February 1949 on the west coast of Tasmania turned up empty handed (*Examiner* 1949).

In July 1953, the Australian naturalist David Fleay, the same scientist who had provided the photographs of the last known living thylacine from the Hobart zoo, asked ‘Has

the remarkable marsupial wolf finally become extinct?’ (p.7). He noted that he had been on an expedition in 1945–46, which managed to track down ‘but one solitary individual in four months’ intensive search only to have the animal escape the night it was caught in a carefully laid trap. Since then in 1948 a prospector cobbler recorded his discovery of an undoubted Thylacine footprint’ (Fleay 1953, p. 7). Fleay’s article was a sobering report, yet he still held out hope that ‘a philanthropist really interested in our much-vaunted fauna’ could save the few remaining animals (1953, p. 7).

Narratives of extinction would be countered by newspaper proclamations like ‘Tasmania’s Tiger is not extinct!’ (*Argus* 1957) and ‘Wolf may not be extinct’ (*Canberra Times* 1968) throughout the second half of the twentieth century. A strong claim was that the searches for thylacines, which had concentrated on the West Coast, were looking in the wrong place. The Northeast Coast might be more likely according to some who claimed to have seen tracks and baits had been taken from snares (*Examiner* 1953). Even at the end of the twentieth century, some people still argued that the thylacine was present in the remote northeastern region; there is even a website cataloguing sightings in the area from 1953 to 1990 (Emberg and Emberg 2001). Officials likewise continued to hold out hope. The Sydney Zoo again applied in 1954 for a permit to catch a thylacine. The permit was denied, but not because the thylacine was extinct, but because ‘the capture of the rare animal’ was inappropriate (*Mercury* 1954, p. 3). The World Wildlife Fund organised a new search in 1980 (Brass 1980) and the media magnate Ted Turner offered \$100,000 for a proven thylacine sighting in 1984 (*Canberra Times* 1984). Neither search found any animals.

[insert Figure X.2 here – portrait]

Figure X.2 The thylacine at the Natural History Museum, Oslo, Norway, 2014. This display features a map with lights to indicate former and present (as of 2009) ranges of extinct and vanishing species. When the thylacine (*pungulv*) button is pushed, a green

light appears in Tasmania, indicating that the thylacine is still present there, although by 2009 it had long been declared extinct by the IUCN.

Source: Photograph by author.

The thylacine was eventually declared extinct by the International Union for the Conservation of Nature in 1982 and by the Tasmanian government in 1986 – the absence of presence was officially declared as a presence of absence. In the wake of this move, narratives to name the last Tasmanian tiger appeared. The narrative of extinction adopted in official documents has converged upon the identification of the Hobart zoo thylacine as the last. In 1996, Australia established National Threatened Species Day to commemorate the 60th anniversary of the death of the Hobart thylacine (Australian Department of the Environment and Heritage 2003). In many official statements about National Threatened Species Day, this zoo animal is called the ‘last Tasmanian tiger’ (Queensland Department of Environment and Heritage Protection 2014, New South Wales Office of Environment and Heritage 2015). The National Museum of Australia presents the thylacine as becoming extinct as a species on 7 September 1936 with the death of the Beaumaris zoo specimen, which has become known as ‘Benjamin’ although there are many questions about where this name originated (see Paddle 2000, p. 198–200 for the controversy). When the Tangled Destinies exhibit, now known as the Old New Land exhibit, opened at the museum in 2001, Benjamin was described as the ‘endling’, the last of a species, in the exhibit text and pedagogical material accompanying it (Lewis and Arnold 2001). News stories about National Threatened Species Day also say the species became extinct with the death of Benjamin (for example, Raabus 2007).

There has, thus, been a rhetorical convergence on 7 September 1936 as the extinction of the thylacine, despite reports of animals alive in the wildlands of Tasmania long after that date. Like the Swedish beaver extinction, this choice has narrative power because of two

aspects to the story: first, the Tasmanian government had protected thylacines only two months before the individual's death, and second, the animal apparently died from cold exposure through neglect. Both aspects stress the avoidability of the extinction and make the extinction visible and deliberate.

Such a rhetorical position is useful for those who are working to bring the thylacine back from the dead. Not long after the extinction was declared, interest in resurrecting the thylacine through genetics appeared. The Evolutionary Biology Unit of the Australian Museum proposed in 1999 to extract DNA from a preserved thylacine pup in the museum archives. The grand idea was to reconstruct the thylacine genome and then implant a cloned embryo into a surrogate species. The team did manage to replicate individual gene fragments in 2002. But the project ended in 2005, primarily due to the poor quality of available DNA (see Fletcher 2008 and Turner 2007). Yet, the thylacine has become a poster-child for 'deextinction' possibilities, which reached fever pitch in 2013 after a large TEDxDeExtinction event in Washington DC. Rarely does a publication about using genetic manipulation to recreate extinct species fail to mention the thylacine along with the passenger pigeon and woolly mammoth (for example Sherkow and Greenly 2013). The Tasmanian tiger has been classified as having 'un-dead status' (Smith 2012). This is all the more true in the twenty first century as the thylacine's extinction is classified as potentially reversible.

While there has been official agreement on the end of the thylacine, sighting reports continue to this day. The Unicorn's statement haunts the thylacine story: 'Because they have seen no unicorns for a while does not mean that we have all vanished'. The remoteness of the geography of Tasmania calls into question the known and the unknown. The question of how to read the lack of a thylacine body and whether that means extinction has been heavily contested in the thylacine history.

Extinction stories and the unwillingness to let go

Northern Sweden and Tasmania may be on opposite sides of the globe, but their positions on the edges of civilization created remarkable similarities in knowledge about nature. As these two histories reveal, many thought of these places as wild and unknown. Any failure to find a particular animal in these places was attributed to the observers simply being in the wrong place at the wrong time. The populations of beaver and thylacines, while potentially under threat, were thought inexhaustible in these remote and unknowable locations. At the same time, these woodlands on the frontier were colonised and criss-crossed more and more often by hunters and trappers. The geographies and animals within were not as unknown as some contended, thus the failure to find particular animal species was a sign of its extinction.

Confirmation of extinction is difficult because it assumes that if humans do not see the animal or signs of living animals, then the species must be extinct. This may prove to be a wrong conclusion. The presence of absence is not always equal to the absence of presence. Rediscovery of supposedly extinct species has become a regular occurrence. Examples range from the Lord Howe Island stick insect (*Dryococelus australis*) believed extinct since 1930 until a colony was found in 2001, to the flightless takahē bird (*Porphyrio hochstetteri*) of New Zealand thought extinct in 1898 and then rediscovered after a planned search effort in 1948, to the coelacanth (*Latimeria* spp.) which had only been found in the fossil record 65 million years ago until a live one was discovered in 1938 (Nelson n.d.). The unicorn had warned that failure to see unicorns should not be interpreted as their failure to exist. People want to believe that species live forever, and in the face of extinction, sometimes they are right that a species has survived. Examples like these, however, make it even harder to accept a real extinction event, when there is a complete absence of presence.

In both histories in this chapter, persons converged on one extinction story that became the standard narrative – the last Swedish beaver died in 1871 and the last thylacine

died in 1936. Both convergences happened fifty to sixty years after the death of the particular animal identified as the last. This delay reveals the difficulty of identifying the last of a kind as sightings continue to be reported. Decisions were made to reject later evidence, partially because the evidence was deemed ‘unconfirmable’ but also because it failed to fit the extinction narrative. Both stories have politically-charged conservation messages: the last Swedish beaver is said to have died two years before the species was legally protected and the last thylacine is said to have died of neglect in a zoo only two months after the species was protected. On a narrative level, these stories were powerful messages about the failure of political and social systems to protect animal species. Kathryn Yusoff observed that ‘the last of a species marks a juncture; it is a *being that stands for non-being*’ (2012, p. 589, emphasis in original). By narratively confirming that the last individual of a species has died, the animal should then change status; it should become a non-being that is lost for all time.

Yet staring at potential non-beings, humans of the twentieth and twenty-first centuries have shown a remarkable unwillingness to let go. Some have been reluctant to let time run out on seemingly extinct species. Like the thylacine’s extinction which has prompted physical searches for survivors, the alleged rediscovery of the ivory-billed woodpecker (*Campephilus principalis*) in 1999, 55 years after the previous confirmed sighting in 1944, prompted an intensive multi-year search and scientific publications about the woodpecker’s potential survival (Heise 2010). Although the search ended without positive confirmation, the U.S. Fish and Wildlife Service released a *Recovery Plan for the Ivory-billed Woodpecker*, rather than recognise the species as extinct (USFWS 2010). In other cases, there are searches for survivors to put into conservation breeding programs and later reintroduce into former habitats, like the European bison (*Bison bonasus*) (Deinet et al. 2013). De-extinction efforts using genetic recovery and cloning or back-breeding are being used not only for the thylacine but also passenger pigeons (*Ectopistes migratorius*), gastric brooding frogs (*Rheobatrachus*

spp.) and more (Zimmer 2013). The common rhetoric of decline that accompanies species extinction in the modern era (Heise 2010) is countered by both rhetorical denials of extinction and concrete actions to bring species back.

The unwillingness to let a species go can have tangible effects on conservation actions. The amount of time and money available for conservation activities is limited and therefore activities must be prioritised (Mace, Possingham and Leader-Williams 2007). For this reason, some conservation biologists have accepted that the goal of zero extinction is unrealistic (Bottrill et al. 2008), although others have vehemently objected to that position (for example Parr et al. 2009). Searches for remnant populations of thylacines or ivory-billed woodpeckers, as well as reintroductions and complicated genetic species reconstruction efforts, consume time and resources that possibly could have been reallocated elsewhere if the species was assumed gone forever. The decision to recover a lost species comes with a cost. The decision to bring a species back is also predicated on recognizing the animal's extinction in the first place.

The histories of the Swedish beaver and Tasmanian thylacine reveal that extinction events become real to us through the stories we tell. It is in narrative that a species' presence or absence is determined. In these stories, storytellers search the record to identify the last in order to come to grips with the finality of extinction, even if it ends up not so final after all.

References

- Anonymous. 1884. Bäfvern (Castor Fiber), Linné. *Svenska Jägarförbundets Nya Tidskrift* 22, 83–84, 136–143, 236–245.
- Arbman, S. 1922. När bäfvern återinfördes i Bjurälven. *Svenska Jägareförbundets Tidskrift* 60, 274–280.

- Argus* (Melbourne). 1957. Crosbie Morrison hails the good news of Tasmania's wildlife, 12 January, p.17. <http://nla.gov.au/nla.news-article71776004>
- Australian Department of the Environment and Heritage. 2003. *Threatened Species Day fact sheet*. <http://www.environment.gov.au/resource/protecting-australias-threatened-species>
- Beagle, P. 1968. *The Last Unicorn*. New York: Viking.
- Bottrill, M. C., Joseph, L. N., Carwardine, J., Bode, M., Cook, C., Game, E. T., Grantham, H., Kark, S., Linke, S., McDonald-Madden, E., Pressey, R. L., Walker, S., Wilson, K. A., and Possingham, H. P. 2008. Is conservation triage just smart decision making? *Trends in Ecology and Evolution* 23(2), 649–654.
- Brass, K. 1980. The \$55,000 search to find a Tasmanian tiger. *The Australian Women's Weekly*. 24 September, pp.40–41. <http://nla.gov.au/nla.news-article47229295>
- Canberra Times*. 1968. Wolf may not be extinct. 26 April, p.3. <http://nla.gov.au/nla.news-article107048547>
- Canberra Times*. 1984. Offer for wolf sighting. 1 January, p.3. <http://nla.gov.au/nla.news-article116382208>
- Collett, R. 1883. Om Bæveren (Castor fiber), og dens udbredelse i Norge fordem og nu. *Nyt Magazin for Naturvidenskaberne* 28, 11–45.
- Deinet, S., Ieronymidou, C., McRae, L., Burfield, I. J., Foppen, R. P., Collen, B., and Böhm, M. 2013. *Wildlife Comeback in Europe: The Recovery of Selected Mammal and Bird Species*. London: Zoological Society of London.
- Ekman, S. 1910. *Norrlands jakt och fiske*. Uppsala and Stockholm: Almqvist and Wiksells.
- Emberg, B. and Emberg, J. D. 2001. Thylacine sightings 1953-1990 in areas of north eastern Tasmania adjacent to the Panama forest. <http://www.tasmanian-tiger.com/thylfiles.html>

- Examiner* (Launceston). 1937. Wanted, a wolf! 9 March, p.6. <http://nla.gov.au/nla.news-article52127793>
- Examiner* (Launceston). 1949. Unsuccessful search. 7 March, p.3. <http://nla.gov.au/nla.news-article52667880>
- Examiner* (Launceston). 1953. They looked in the wrong place for Tas. tigers. 19 September, p.4. <http://nla.gov.au/nla.news-article61095067>
- Festin, E. 1921. Bäverns återinplantering i Jämtland. *Sveriges Natur* 12, 148.
- Festin, E. 1922. Fridlysning av Bjurälvdalens karstlandskap och återinplantering av bävern: En samtidig lösning av två viktiga naturskudsfrågor. *Sveriges Natur* 13, 32–62.
- Fleay, D. 1934. Hobart zoological collection. *The Australasian*. 20 January, p.43 plus photo essay in Pictorial Section p. iii. <http://nla.gov.au/nla.news-article141398749>
- Fleay, D. 1953. Has the remarkable marsupial wolf finally become extinct? *The Courier-Mail* (Brisbane). 1 July, p.7. <http://nla.gov.au/nla.news-article51090120>
- Fletcher, A. L. 2008. Bring ‘em back alive: taming the Tasmanian tiger cloning project. *Technology in Society* 30, 194–201.
- Fries, C. 1940. *Bäverland. En book om bävern och hans verk*. Stockholm: Nordisk Rotogravyr.
- Gissler, N. 1756. Rön och berättelse om Bäfverns natur, hushållning och fångande. *Kungl. Svenska vetenskapsakademiens handlingar* 17, 207–221.
- Griffiths, T. 1997. Ecology and empire: towards an Australian history of the world, in *Ecology & Empire: Environmental History of Settler Societies*, edited by T. Griffiths and L. Robin. Edinburgh: Keele University Press, 1–16.
- Heise, U. 2010. Lost dogs, last birds, and listed species: cultures of extinction. *Configurations* 18, 49–72.

- Herrington, S. 2014. The forests of Canada: seeing the forests for the trees, in *Managing the Unknown Essays on Environmental Ignorance*, edited by F. Uekötter and U. Lübken. New York: Berghahn Books, 53–70.
- Horn, S., Durka, W., Wolf, R., Ermala, A., Stubbe, A., Stubbe, M., and Hofreiter, M. 2011. Mitochondrial genomes reveal slow rates of molecular evolution and the timing of speciation in beavers (*Castor*), one of the largest rodent species. *PLoS ONE* 6(1), e14622. doi: 10.1371/journal.pone.0014622
- Lewis, R. and Arnold, D. 2001. *Tangled Destinies: Exploring Land and People in Australia Over Time Through the National Museum of Australia*. Canberra: National Museum of Australia.
- Lydekker, R. 1896. *A Hand-book to the Marsupialia and Monotremata*. London: E. Lloyd.
- Mace, G. M., Possingham, H. P., and Leader-Williams, N. 2007. Prioritizing choices in conservation. In *Key Topics in Conservation Biology*, edited by D. MacDonald and K. Service. Oxford: Blackwell, 17–34.
- Mercury* (Hobart). 1949. Attempt to preserve native tiger. 19 February, p.8.
<http://nla.gov.au/nla.news-article26500580>
- Mercury* (Hobart). 1954. We'll save that tiger. 27 August, p.3. <http://nla.gov.au/nla.news-article27222708>
- Modin, E. 1911. Bör ej något göras för bäfverns återinförade i vårt land? *Svenska Jägareförbundets Tidskrift* 40, 192–194
- Nelson, B. n.d. Lazarus species: 13 'extinct' animals found alive. Mother Nature Network.
<http://www.mnn.com/earth-matters/animals/photos/lazarus-species-13-extinct-animals-found-alive/rediscovered>
- New South Wales Office of Environment and Heritage. 2015. Threatened Species Day.
<http://www.environment.nsw.gov.au/threatenedspecies/ThreatenedSpeciesDay.htm>

- Nilsson, S. 1832. *Illuminerade figurer till Skandinaviens fauna*, vol. 1. Lund: UTI Academie-Boktryckeriet.
- Nolet, B. A. and Rosell, F. 1998. Comeback of the beaver *Castor fiber*: an overview of old and new conservation problems. *Biological Conservation* 83(2), 165–173.
- Paddle, R. 2000. *The Last Tasmanian Tiger: The History and Extinction of the Thylacine*. Cambridge: Cambridge University Press.
- Parr, M. Bennun, J., L., Boucher, T., Brooks, T., Chutas, C. A., Dinerstein, E., Drummond, G. M., Eken, G., Fenwick, G., Foster, M., Martínez-Gómez, J. E., Mittermeier, R., and Molur, S. 2009. Why we should aim for zero extinction. *Trends in Ecology and Evolution* 24(4), 181.
- Queensland Department of Environment and Heritage Protection. 2014. National Threatened Species Day. <https://www.ehp.qld.gov.au/wildlife/threatened-species-week/index.html>
- Raabus, C. 2007. Remember Benjamin on National Threatened Species Day. *ABC Hobart*. 7 September. <http://www.abc.net.au/local/stories/2007/09/06/2026235.htm>
- Sharland, M. S. R. 1939. In search of the thylacine: society's interest in the preservation of a unique marsupial. In *Proceedings of the Royal Zoological Society of New South Wales for the Year 1938-9*. Sydney: Royal Zoological Society, 20–38.
- Sherkow, J. S. and Greenly, H. T. 2013. What if extinction is not forever? *Science* 340, 32.
- Smith, N. 2012. The return of the living dead: unsettlement and the Tasmanian tiger. *Journal of Australian Studies* 36(3), 269–289.
- Sparenberg, O. 2014. Perception and use of marine biological resources under national socialist autarky policy. In *Managing the Unknown: Essays on Environmental Ignorance*, edited by F. Uekötter and U. Lübken. New York: Berghahn Books, 91–121.

- Swederus, G. 1832. *Skandinaviens Jagt: Djurfänge och Vildafugl*. Stockholm: P.A. Norstedt & Söner.
- The Last Unicorn*. 1982. [film] Directed by J. Bass and A. Rankin Jr. USA: Rankin/Bass Productions.
- Turner, S. S. 2007. Open-ended stories: extinction narratives in genome time. *Literature and Medicine* 26(1), 55–82.
- Travelling correspondent to The Mercury. 1937. The Tasmanian tiger. Early accounts of peculiar characteristics. *The Mercury*. 8 June, p.2.
- U.S. Fish and Wildlife Service. 2010. *Recovery Plan for the Ivory-billed Woodpecker (Campephilus principalis)*. Atlanta: U.S. Fish and Wildlife Service.
- Uekötter, F. and Lübken, U., Eds 2014. *Managing the Unknown: Essays on Environmental Ignorance*. New York: Berghahn Books.
- Unander, F. 1873. Ett från svenska jagtbanan försvunnet dyrbart djur. *Svenska Jägarförbundets Nya Tidskrift* 11, 28–33.
- West, J. 1852. *The History of Tasmania*, vol. 1. Tasmania: Henry Dowling.
- Yusoff, K. 2012. Aesthetics of loss: biodiversity, banal violence and biotic subjects. *Transactions of the Institute of British Geographers* 37, 578–592.
- Zilberstein, A. 2013. The natural history of early northeastern America: an inexact science. In *New Natures: Joining Environmental History with Science and Technology Studies*, edited by D. Jørgensen, F. A. Jørgensen and S. B. Pritchard. Pittsburgh: University of Pittsburgh Press, 21–36.
- Zimmer, C. 2013. Bringing them back to life. *National Geographic*. April.
<http://ngm.nationalgeographic.com/2013/04/125-species-revival/zimmer-text>