Denial of Death and the Relationship between Humans and Other Animals

Lori Marino[*] and Michael Mountain[†]

[*]Emory University, and The Kimmela Center for Animal Advocacy, Kanab, Utah, USA

[†]Best Friends Animal Society and Earth in Transition, Kanab, Utah, USA

Address for correspondence: Lori Marino, 4100 Kanab Canyon Road, Kanab, Utah 84741, USA. E-mail: lorimarino@kimmela.org

Abstract

The focus of this paper is to explore how cultural anthropologist Ernest Becker's claim that human behavior is largely motivated by fear of death may explain important aspects of our relationship with nonhuman animals. Terror Management Theory (TMT) suggests that when we humans are reminded of our personal mortality, we tend to deny our biological identity or creatureliness and distance ourselves from the other animals, since they remind us of our own mortal nature. In support of this, an abundance of peer-reviewed experimental literature shows that reminders of our own mortality create a strong psychological need to proclaim that "I am not an animal." We contend that the denial of death is an important factor in driving how and why our relationships with other animals are fundamentally exploitive and harmful. Even though today there are more animal advocacy and protection organizations than ever, the situation for nonhuman animals continues to deteriorate (e.g., more factory farming, mass extinction of wildlife species, and ocean life under severe stress). We also suggest that developing a new and more appropriate relationship with the natural world would be a key factor in resolving the question that Becker was never able to answer: How can we deal with the existential anxiety that is engendered by the awareness of our own mortality?

Keywords: animality, Becker, creatureliness, denial of death, terror management theory

Introduction

"Man is the only creature who refuses to be what he is."

Albert Camus, "*The Rebel*"

In this paper we present the novel argument that there is an important connection between human denial of death and our troubled relationship with nonhuman animals. We summarize the claim made by Ernest Becker (1973) that the awareness we humans have of our personal mortality creates a level of anxiety that drives much of our species' behavior, including our often problematic interpersonal relationships and cultural practices. Becker argued that we tend to suppress this anxiety by denying our biological identity and distancing ourselves from the other animals and therefore, we tell ourselves, our own "creatureliness."

This paper takes this claim a step further by arguing that mortality anxiety and denial lead us not only to having fraught relationships with each other, but also to an increasingly dysfunctional relationship with the rest of the natural world. More specifically, we present evidence that mortality anxiety has led to a disconnected and exploitive relationship with other animals, not only on a personal level but now on a global level, as manifested in the catastrophic rates of extinction, dramatic changes in climate, and toxic pollution of land, sea and air that are all being driven by human activity.[1]

We support our argument by bringing together diverse domains of knowledge—including mythological, historical, religious and cultural—to examine some of the key changes in the relationship we have had with the other animals from prehistory to modern times, and by also presenting some of the growing peer-reviewed experimental psychology literature that shows a link between mortality anxiety and the need to distance ourselves from the other animals.

Finally, we bring these domains together to discuss how a new and more constructive relationship with our fellow animals could help resolve the question Becker was never able to answer: How can we deal with the existential anxiety that is engendered by the awareness of our own mortality?

Our Present Relationship with Nonhuman Animals and the Natural World

The last 50 years have seen an enormous growth in animal protection organizations around the world. The Humane Society of the United States (HSUS), for example, claims a membership of 10 million people. However, with the single exception of homeless pets[2], the

situation for nonhuman animals in every sphere has actually deteriorated. Animal rights and welfare groups are largely at a loss to explain this. Certainly, as human population and developing nations expand, wildlife is crowded out, people expect to be able to eat more animal products, and the oceans are overfished. But these factors are a symptom of the fact that humankind, for all of its intelligence and ingenuity, has set in motion a process of extinction and planetary destruction that may be one of the most devastating and relentless in the history of the planet.

Meanwhile, the small achievements in animal protection are largely incremental and fail to address the underlying cause of exploitation and abuse. Examples of this include regulations against using double-decker trailers to transport horses who are, nonetheless, going to slaughter (HSUS 2009), or a recent agreement between HSUS and the United Egg Producers, which represents most of the large egg-producing factory farms, to seek legislation providing egg-laying hens with a few extra inches of space in the cages where, nonetheless, they will still spend their entire lives (Charles 2012).

In the case of wildlife, according to the World Wildlife Fund's *Living Planet Report 2014*, "the Living Planet Index, which measures more than 10,000 representative populations of mammals, birds, reptiles, amphibians and fish, has declined by 52 per cent since 1970." According to the Food and Agriculture Organization of the United Nations, more than 85% of the world's fisheries have been pushed to or beyond their biological limits (The State of World Fisheries and Aquaculture 2010, p. 8). And the UN's Global Environmental Outlook (GEO5) warns that "the world continues to speed down an unsustainable path despite over 500 internationally agreed goals and objectives to support the sustainable management of the environment and improve human wellbeing" (United Nations Environment Programme 2012, p. 1).

So, while people are more aware of issues to do with animal abuse and exploitation than ever before, our relationship with other animals, and indeed with the whole natural world, remains fraught with contradictions and abuses—to the point, indeed, where it threatens our own health and safety, and even our civilization (Taylor et al. 2008; Hsu 2010).

The Denial of Death

In 1973, cultural anthropologist Ernest Becker published his Pulitzer Prize-winning book *The Denial of Death*, in which he drew on the work of psychologists, philosophers, scientists and theologians to demonstrate how the terror of our own mortality leads us to deny our nature as animals. Becker laid out the fundamental paradox of human nature thus:

> [Man] is a symbolic self ... a creator with a mind that soars out to speculate about atoms and infinity ... This immense expansion, this dexterity, this ethereality, this self-consciousness gives to man literally the status of a small god in nature.
>
> Yet, at the same time ... man is a worm and food for worms. This is the paradox: he is out of nature and hopelessly in it ... He has an awareness of his own splendid uniqueness in that he sticks out of nature with a towering majesty, and yet he goes back into the ground a few feet in order blindly and dumbly to rot and disappear forever.
>
> ... The knowledge of death is reflective and conceptual, and [nonhuman] animals are spared it. They live and they disappear with the same thoughtlessness: a few minutes of fear, a few seconds of anguish, and it is over. But to live a whole lifetime with the fate of death haunting one's dreams ... that's something else. (Becker 1973, p. 26)

Becker asserted that "all culture, all man's creative life-ways are in some basic part of them a fabricated protest against natural reality. A denial of the truth of the human condition and an attempt to forget the pathetic creature that man is" (Becker 1973, pp. 32–33).

Animal advocacy efforts have largely neglected the core psychological issue, revealed by Becker's theory, that we humans have a desire (albeit largely unconscious) to separate ourselves from nature and the other animals. Those efforts cannot be successful since they fail to take into account the deep reasons why we feel the need to maintain superiority over our fellow animals and an ingroup/outgroup attitude with respect to them. In this paper, we argue that the deterioration of our relationship with other animals, the damage we inflict on the natural world, and the inevitable harm this has on our own lives are inextricably linked to our insistence that "I am not an animal" and to our denial of our fundamental nature.

Our species does not limit its destructiveness to other species. Most large-scale attempts to abuse or destroy members of our own species are characterized by describing and treating other humans, too, as "animals" in order to exert superiority over them. As Becker wrote in *Escape from Evil*:

> Mortality is connected to the natural, animal side of his existence; and so man reaches beyond and away from that side. So much so that he tries to deny it completely. As soon as man reached new historical forms of power, he turned against the animals with whom he had previously identified—with a vengeance, as

> we now see, because the animals embodied what man feared most, a nameless and faceless death. (Becker, 1975, p. 92)

The empirical support for this observation is described in more detail in the section "The Empirical Evidence" below.

Mortality Salience and Terror Management Theory

The empirical and experimental embodiment of Becker's premise is Terror Management Theory (TMT), a social psychological theory that asserts that much of human behavior is motivated by anxiety, however unconscious, about personal mortality and that mortality salience is a specific driver of attempts to alleviate this anxiety. Mortality salience is produced by situations that remind us of our personal mortality or that make the idea of it more accessible. Mortality salience affects attitudes, decision-making and the kinds of meaning systems we adopt (Solomon, Greenberg and Pyszczynski 1991).

While fully conscious thoughts of death invoke very direct and conscious efforts to remove thoughts of vulnerability, thoughts of death that are not within full consciousness (e.g., when there is a short delay after contemplating one's mortality) evoke less direct and more distal defenses, such as adopting religious and cultural worldviews, efforts that exist "under the radar" of our awareness (Greenberg et al. 1994; Pyszczynski, Greenberg and Solomon 1999). These thoughts are, therefore, more difficult to identify and make a conscious decision to change.

From the terror management perspective, the body reminds us of our animal limitations, in particular our certain mortality. TMT argues that any reminder of our corporeal existence and creatureliness is threatening, even though we may not be consciously aware of why that is. That means animals themselves are threatening, and TMT predicts that we should want to distance ourselves from them and work to convince ourselves of a qualitative difference from, and of superiority over, them. While we cannot entirely distance ourselves from the other animals while continuing to use them physically, the critical point here is that we can distance ourselves from them psychologically by transforming them into commodities, resources, tools, and symbols, or, in the case of pets, "furry people"—all ways that enable us to accept their existence without acknowledging who they (and therefore we) really are.

"I Am Not an Animal"

Authors Goldenberg and colleagues argue that "cultures promote norms that help people to distinguish themselves from animals" (Goldenberg et al. 2001, p. 1). They report that

"distancing from the rest of the animal kingdom helps humans defend against anxiety associated with awareness of death" (Goldenberg et al. 2001, p. 1). These findings are consistent with Becker's earlier claim that "all systematizations of culture have in the end the same goal: to raise men above nature, to assure them that in some ways their lives count in the universe more than merely physical things count" (Becker 1975, p. 4). Some cultures, the authors note, go to great lengths to distinguish themselves from animals. And even those that embrace nature "also tend to imbue nature with supernatural significance because this symbolic meaning strips nature of its more threatening mortality-related qualities" (Goldenberg et al. 2001, p. 433).

Moreover, the way in which human-animal comparisons are framed affects our ability to include other animals in our moral ingroup. That is, when animals are depicted as similar to humans there is less outgroup bias against them than when the direction of the relationship changes so that humans are depicted as similar to animals (Bastian et al. 2012).

It should be no surprise, then, that while corporations and even ships and other lifeless entities enjoy the status of being treated by our judicial system as "legal persons" with certain fundamental rights, no nonhuman animal has ever been recognized as a "legal person" with even the most basic right to bodily liberty and bodily integrity. And even though science has demonstrated unequivocally that there is no clear line separating humans from other animals when it comes to the experience of consciousness, emotions, self-awareness and the ability to experience pain, pleasure, joy and suffering (Bekoff, Allen and Burghardt 2002; Griffin and Speck 2004; Panksepp 2004; Balcombe 2006; Bekoff 2007; Marino 2010), the need to believe that we are distinct from nature reasserts itself again and again. In sum, human exceptionalism remains central to our sense of communal self-worth.

Mortality Awareness

Psychologists and anthropologists point to our advanced level of self-awareness as being both "a blessing and a curse"—a blessing in that we are endowed with a theory of mind more complex than any other species (at least as far as we know); and a curse in that this theory of mind burdens us with the constant awareness of our own mortality. As a result, we spend our lives in a persistent state of anxiety, struggling to give our lives "meaning" and to deny that our individual existence is purely temporary.

Much of human culture can be seen as an attempt to transcend our biological nature and to reach for some elusive form of immortality. In his 1979 book *The Broken Connection*, Robert Jay Lifton describes five ways in which we express our need to rise above our mortality:

a) Biologically: living in or through our own biological or adopted descendants;

b) Theologically: believing in an immortal soul or having some other sense of spiritual power over death;

c) Creatively: through works of art or science, or just by having an influence on other people that will live on after we die;

d) Through a relationship to nature: as in animistic beliefs, where humans can join with immortal nature gods and spirits. But more generally in the sense that while each of us individually will die, life itself continues;

e) Experiential transcendence: the "peak experience" that is achieved in ecstatic states brought on not only by physical deprivation, hallucinogenic drugs, intense religious ritual and sexual orgies, but also in wonder and awe in the face of nature or the divine.

In his 2012 book *Immortality: The Quest to Live Forever and How It Drives Civilization*, Stephen Cave offers a popularized version of Lifton's ways of death denial, but notes that none of them has successfully relieved the anxiety of our mortality salience. Quite the opposite, in fact, since when one person's immortality project conflicts with another's (e.g., the Christian path versus that of Islam), the end result is often conflict and aggression.

In this section, we've looked at the basic psychology of the denial of death and how it affects the relationship between humans and other animals. In the next section we examine how the fear of death has shaped the stories we tell ourselves about our origin and nature, and how it has influenced our relationship with the other animals over time.

The Historical Evidence

Evidence from both modern science and ancient literature suggests that the need to separate ourselves from nature (and therefore our own nature) was not always as strong and destructive as it is today.

Mortality Salience in Mythology

Creation myths from around the world suggest that we humans did not always see ourselves as being superior to other species. To the contrary, their stories tell of a time when humans lived in harmony with the rest of nature, and of a "fall" through which this benign relationship with the other animals was torn asunder by something humans did to bring pain, suffering, death and time itself into the world. Although this is obviously a wide generalization, it does typify the sentiments of many cultural mythologies.

Many of these creation stories also tell us that before the "fall" there was no death—that humans were immortal. Clearly, death has always been a part of life, however, so we would interpret this notion as referring to a time when our ancestors were not preoccupied with death and not suffering from death anxiety. Like the other animals, our ancestors lived in an "eternal present" that did not involve being obsessed with the past and the future, and where fear of death was only experienced in relation to immediate threats and not as an existential angst.

Perhaps the most insightful telling of the story of our "fall" into linear time from that "eternal present" is found in the Garden of Eden story as told in the Hebrew Bible. While this myth has been co-opted by many religions that have translated it and reinterpreted it for their own purposes, a fresh reading offers a dramatic picture of what happened as we humans developed a greater self-awareness. The man and woman are "naked and untouched by shame," living in harmony with the animals around them. Then they hear from two voices: one warning them not to eat of the "tree of knowing good and bad" lest they be "touched by death"; the other leading them forward to fulfill their potential for self-awareness, telling them they will become "as gods" (Rosenberg 2009, pp. 10–12).

Both voices, of course, are true. And so begins the story of civilization. The growth of self-awareness brings with it the duality of a god-like self-awareness together with the painful, ungod-like shameful awareness of our animal nature as naked, sexual, physical beings who are doomed to die. In the context of Becker's theory, we discover that we are "gods with anuses" (Becker 1973, p. 219). So catastrophic is this fall from innocence, according to the Hebrew Bible, that within a few brief generations, humankind has brought about the near-destruction of the entire planet by flood.

Almost every other known culture tells a similar story of a "golden age" that ends with the loss of innocence and a disconnection from the animals and nature. In his book *Memories and Visions of Paradise*, Richard Heinberg sums it up thus:

> From earliest times, humans have believed that there is a quality in themselves that sets them apart from the animals – a quality that manifests itself as a sense of alienation and insufficiency and as an abnormal capacity for destructiveness and cruelty. Ancient peoples insisted that evil in this ... sense has not always existed, and that it had a specific cause. ... [It] is described as having resulted from the Fall, the tragic end that brought the Golden Age to an end. (Heinberg 1989, p. 81)

In Ancient Greek literature, Prometheus, who represents foresight, offers humankind the

gift of fire—generally accepted as a metaphor for enlightenment. But in *Prometheus Bound*, he recognizes that the gift is a curse and takes away the pain of humans' mortality salience by enabling them to deny their own mortality:

> Prometheus: I prevented mortals from foreseeing their death.
>
> Chorus Leader: By finding what remedy for this malady?
>
> Prometheus: I caused blind hopes to dwell within them.
>
> Chorus Leader: In this you gave a mighty benefit to mortals!
>
> Aeschylus (2011)

In other examples, the Cheyenne people speak of a time when humans were naked and innocent before they received a gift of knowledge that led to war, famine and other disasters (Alexander 1916); the Mayan Popol Vuh echoes the Hebrew Bible in saying that the creators of the first humans were afraid that their creation would become "as Gods" (Alexander 1920); and many African myths describe a time when "people lived forever and never died—they understood the language of animals and lived at peace with them" (Baumann 1936). All these stories suggest the innocence of living in an eternal present without the existential terror of death.

In another analysis of the rise of self-awareness, Mircea Eliade writes about the "terror of history" (Eliade 1971), arguing that in pre-history, humans saw time as being cyclic, rather than progressing toward an end point. The "fall," then, is a fall into linear time, and once you enter history, you are inevitably aware of your own past and future—and, most of all, your approaching end. Eliade says that modern humans yearn for that pre-fall, mythical age, seek to escape linear time, and experience a "terror of history." This, he writes, is a key reason for our modern anxieties (Eliade 1971).

Much of the story, then, that's told in creation myths around the world focuses on our "fall" into self-awareness, the growth of our dual nature (animal self and symbolic self), and our consequent desire to become separate from the "innocent" world of nature and the other animals.

Mortality Salience in History

History also records the change in our relationship with the other animals over the millennia. And while this is obviously a long and complex story, the following are examples of some of the key points in that history.

Early cave art, dating as far back as 30,000 BP, suggests that humans saw other animals essentially as equals. Even as they were developing hunting skills with ever more sophisticated weaponry, their depictions reflect a level of respect for every animal, not just as a food source but as an individual in his or her own right, with whom one was intimately connected through the cycle of nature. The empathy that enabled them to think like their prey when on a hunt—for example by literally entering their skins and exploring what it might be like to be one of them (Tompkins 2010)—also made them more aware that in feeding themselves they were also ending the life of another.

By 11,000 BP, however, according to recent archeological finds in Turkey, the relationship between humans and other animals had changed dramatically, with humans assuming a belief in their superiority. Advanced hunting technology had already led to greater human dominance over other animals and the first human-caused extinction of other species, including megafauna (Wright 2005). And this change is reflected at the ruins at Gobekli Tepe, seen by many as the world's oldest-known temple (www.smithsonianmag.com/history-archaeology/gobekli-tepe.html), where T-shaped pillars, clearly representing humans, are contrasted with depictions of other animals, whose much smaller size and low positioning on the pillars suggest a relationship that is no longer one of equality (Schmidt 2010). Such dominance was linked in time to more "psychological baggage": the presence of human skulls that appear to have been buried and then dug up, along with wall carvings of headless men, indicate a preoccupation with death which fueled further efforts for dominance and separation from other animals and so on.

The agricultural era brought with it the increasing domestication of animals and a fundamental shift in our relationship to them. In this new relationship, the animals ceased to be beings of great mystery and power, and started to become, instead, commodities. The animal deities of the new religions were less embodiments of sacred animal power and more representations of the growing human power over nature. Again, this increasing separation from nature comes at a price: Ancient Egyptian civilization demonstrates an obsession with death. Stephen Cave (2012) notes that Egypt was, for thousands of years, totally preoccupied with all four forms of immortality project outlined in his book.

In addition to serving as food and transport, domesticated animals were still viewed symbolically as the gods and goddesses of the new agricultural societies. But these divinities were increasingly under the control of humans. As an example, a young bull representing Osiris, the god of death and rebirth, was kept in captivity his entire life before being sacrificially killed and then replaced by another young bull. While considered a symbol of

great power, the bull god spent his life languishing in captivity, awaiting execution and replacement (Rice 1998), and was therefore more importantly a symbol of humankind's great power over nature.

Much of the modern Western world's relationship to nonhuman animals was forged in Ancient Greek thought, where, for example, Aristotle argued that, "the divine intellect, of which each man has a potential share and which distinguishes man from other animals, is immortal and transcendent" (Tarnus 1993, pp. 60–61).

For the ensuing Christian world, there was simply no place in the symbolic realm of heaven for nonhumans. Augustine argued that in heaven "there will be no animal body to weigh down the soul in its process of corruption" (Saint Augustine 410, in Halsall 2011).

But the notion that only humans had a soul reached its apotheosis in the work of 17th-century philosopher René Descartes, who asserted that since "animals" (as compared with humans) have no self-awareness and don't "think," they are therefore simply biological machines that don't have to be treated as living beings at all (Cottingham 1991). Descartes' work represents the culmination of the separation of humans from the mortal, corporeal world of other animals.

Today, nonhuman animals are routinely used in ways that disguise who they are or reinforce our ostensible superiority. We buy meat in shrink-wrapped packages, use other animals as biomedical "models" or "systems" in research, and force them to perform for our entertainment. All of these ways of using other animals as spare parts, commodities and property are so embedded in most cultures that they are not typically questioned.

Animal Rights and Protections

Pushing back against the commoditization of nonhuman animals, the "animal rights" movement took hold in the mid-20th Century, pressing for various protections through legislation. The Animal Welfare Act of the United States, for example, regulates the treatment of animals in research, exhibition, transport and other commercial arenas (Animal Welfare Act of the United States 1966). State legislatures pass laws that address certain forms of cruelty and neglect.

But these laws rarely consider the animals as individuals in their own right. Mostly they are based on how we already relate to certain species. So while it may be illegal to keep a dog in a crate for her whole life, it's entirely legal to cage a pig at a factory farm in a way that

prevents her from even being able to turn around or lie down. Basically, these laws fail to acknowledge the inherent value of the animals themselves. Indeed, entire species, including mice, rats and all birds, are excluded from the provisions of the Animal Welfare Act by the convenient workaround of not classifying them as "animals" at all. In other words, we offer protection to nonhuman animals only to the extent that these protections do not impinge on the needs and wants of our own species.

The very term "animal rights" is, in fact, an oxymoron since nonhuman animals have no legal rights whatsoever. Steven Wise of the Nonhuman Rights Project (http://www.nonhumanrightsproject.org/) explains:

> In Western law, every nonhuman animal has always been regarded as a legal "thing." We can buy, sell, eat, hunt, ride, trap, vivisect, and kill them almost at whim. The reason is that legal things don't exist in law for their own sakes. They exist for the sakes of legal "persons," which we humans are. (http://www.nonhumanrightsproject.org/are-you-a-legal-person-or-a-legal-thing)

Today, while science has demonstrated unequivocally that certain nonhuman animals share a number of morally-relevant qualities with humans, such as self-awareness, intelligence, sensitivity and emotional attachments, they remain legal things, completely invisible to the law and therefore with no capacity for the most basic rights to bodily liberty and bodily integrity (Wise 2010).

In today's world, the idea of human exceptionalism—that we humans are fundamentally different from and superior to all other animals—is critical to a culture and way of living that is consumed with protecting itself from the reality of its mortal animal nature.

The Empirical Evidence

In the previous section we have described compelling historical examples of cultural constructs and practices linked to strategies for terror management that involve placing humans in a superior position to other animals. We now examine the empirical and experimental evidence supporting a relationship between mortality salience and our psychological need to disconnect from other animals.

TMT argues that if psychological structures like worldviews, religions and cultural practices provide protection from concerns about death, then people will tend to cling to those structures and embrace ingroup practices and characteristics. Likewise, they will attempt to diminish or destroy representations (e.g., people, religions, cultures, species) that appear to

be inconsistent with that protective structure, i.e. outgroup practices and characteristics (Greenberg et al. 1994; Pyszczynski, Greenberg and Solomon 1999).

"I Am Not an Animal": The Experimental Evidence

Empirical support for the general claims of TMT comes from over 300 peer-reviewed experiments (Solomon, Greenberg and Pyszczynski 2004; Landau et al. 2007; Greenberg, Solomon and Arndt 2008 for reviews of the TMT literature) conducted in at least 15 different countries (e.g., Heine, Harihara and Niiya 2002; Halloran and Kashima 2004; Pyszczynski et al. 2006). The work has supported hypotheses concerning a wide range of areas of human behavior, including prejudice, self-esteem and social judgment. Becker's basic premise has been validated in a variety of experimental situations and appears to have predictive value for various facets of human psychology. Here we examine the experimental support for the specific hypothesis that enhanced mortality salience increases negative views of other animals.

Strong direct experimental evidence for our argument comes from Goldenberg et al. (2001), who show that human subjects distance themselves from animals as a defense against death anxiety. In the first of two studies, they found that enhancing mortality salience increased disgust sensitivity toward animals and animal body processes, specifically over other non-animal related types of disgust, for example, food. In the second study, they found that mortality salience increased preference for arguments that humans are unique among all life forms, compared with a control condition. Essays emphasizing differences between humans and other animals were preferred to those targeting similarities. Goldenberg et al. suggest that participants may have found the essay portraying humans as unique as particularly helpful in the face of increased mortality salience.

These findings are consistent with earlier studies by Rozin and Fallon (1987) supporting the view that disgust is elicited by animals and body products because these concepts blur the distinction between humans and other animals. The authors suggest that disgusting stimuli can be a salient reminder of death because of their association with creatureliness. Cox et al. (2007) also found a relationship between mortality salience, disgust and priming with human-animal similarities, supporting the view that bodily processes are often considered disgusting because of their similarity to creatureliness and the decay of death.

Further support for Goldenberg's findings comes from very recent studies in which the authors tested the relationship between mortality salience and resistance to the notion that another animal might share or exceed our superior human status (Soenke and Greenberg

2013). In the first study, they investigated whether reminders of death lead people to react against information that members of another species, in this case dolphins, are smarter than humans. The authors found that participants reminded of death report lower liking for and are less persuaded by reading an article stating that dolphins are more intelligent than humans, compared with an article that focuses on dolphin intelligence without making any comparison to humans. Participants not led to think about death, that is, not in the mortality salience group, were much less negative toward the article advocating dolphin superiority.

In a second study, they investigated whether reading an article stating that dolphins are more intelligent than humans is an existential threat. They found that participants who read an article about how dolphins are more intelligent than humans show higher levels of death-related thoughts compared to participants who read an article about the characteristics of dolphin intelligence. Both of these studies provide potent evidence of the relationship between mortality salience and the need to remain unique and separate from the rest of the animal kingdom.

Extending these insights to another domain of human and nonhuman animal behavior, Goldenberg et al. (2002) examined the relationship between mortality salience and attitudes toward the physical aspects of sexuality. In one series of experiments, when subjects were primed with an essay that described the similarity between humans and other animals, the physical aspects of sex (shared with other animals) became less appealing than the romantic (and supposedly uniquely human) components of sexuality, like love and commitment. Subjects who read an essay about how culture distinguishes humans from other animals found the physical side of sex to be more appealing.

Beatson and Halloran (2007) showed that the effects of mortality salience on defenses against creatureliness are moderated by self-esteem. Mortality salience leads subjects with low self-esteem to have more negative responses toward animals under conditions where they are primed about creatureliness. In a follow-up study, Beatson, Loughnan and Halloran (2009) found that even companion animals are not exempt from eliciting negative attitudes when mortality salience is very high. This is interesting in light of the evidence that companion animals are generally regarded more positively than other animals. Goldenberg et al. (2009) reviewed empirical evidence that mortality salience triggers psychological defenses against both other animals and other humans, extending its reach to the widespread and robust psychosocial phenomena of objectification and subhumanization. From this perspective, “humanness” is typically defined as that which distinguishes humans from other animals (Leyens et al. 2000), and the twin phenomena of objectification and

subhumanization are well known to all who have studied the many historical examples of one race or nationality of people attempting to annihilate another. Examples include Nazi propaganda images of Jews as hordes of rats and American citizens posing for "trophy photos" with African Americans who have been lynched (Zimbardo 2008). Objectification takes this concept further by stripping away the animal and any shared characteristics with humans and viewing members of the outgroup as lifeless objects.

Terror Management Theory argues that in order to manage challenges to the veracity of one's defenses against mortality that derive from outgroup behavior, viewpoints, cultures and religions, we denigrate members of the outgroup, thereby diminishing their importance and distancing ourselves from them. Leyens et al. (2001) demonstrated a direct link between one's ingroup and humanness: Priming the human ingroup led to faster recognition of the word "human" versus the words "ape" or "chimpanzee," but the outgroup prime led to faster recognition of animal faces. And Goldenberg et al. (2009) reviewed 37 empirical demonstrations of a similar effect in a dozen different countries and concluded that people have a general tendency to attribute most of the essence of humanness to one's ingroup and less of it to others.

Related to the sub-humanization effect on outgroups described above, additional research has shown that viewing humans as infrahuman increases aggression and support for violence against them (Bandura, Underwood and Fromson 1975; Castano and Giner-Sorolla 2006). Plous (2003) has provided evidence that there are important connections between prejudice toward human outgroups and speciesism. Both are driven by an increase in ingroup-outgroup distinctions (Plous 2003). Consistent with these findings are those of Motyl, Hart and Pyszczynski (2010) showing that when mortality salience is increased, people scoring high on a scale of right-wing authoritarianism tend to have a less supportive attitude toward violence against outgroups when the violence is portrayed as something instinctual and animalistic. Thus, any implied connection between humans and other animals is enough to decrease one's outgroup aggression toward other humans.

Finally, there is evidence that terror management concerns increase negativity toward nature in general. Exposure to wilderness can promote physical and psychological well-being (Hartig et al. 2003; Van den Berg, Koole and Van der Wulp 2003), and many have argued that people have a "biophilia" motive, a biologically based affinity for life (Ulrich 1993; Wilson 1994). But wilderness is also associated with death and uncontrollability since the "forces of nature" are typically viewed as more powerful and unpredictable than oneself (Bixler and Floyd 1997; Van den Berg and Ter Heijne 2004). In a series of experiments, Koole

and van den Berg (2005) found robust support for this idea, finding that increased mortality salience led to less favorable aesthetic views of the wilderness than cultivated and artificial environments. Importantly, people did not have a uniformly negative reaction to nature, but rather only when thoughts of death were enhanced.

The evidence, then, is that mortality salience has a strong and consistent connection with psychological mechanisms that serve to devalue and separate nature (including animals) from our own species. This phenomenon acts on several levels and across a broad range of contexts.

Conclusions and Discussion

In this paper we have provided empirical evidence suggesting that a strong assertion of humankind is "I am not an animal," and that this affirmation is driven by the fact that animals remind us of our own creatureliness and mortality. We have also shown that, consistent with this evidence, our relationship to nonhuman animals over the last approximately 30,000 years has changed from one of equality to one in which we claim superiority. This history is consistent with the notion that as we have become more and more conscious of our own mortality, we have tried to disconnect from other animals, relating to them increasingly as little more than commodities, resources, and spare parts that can gain us, at very least, a few more years in which to fight off the specter of death.

But while Becker's theories and the supporting evidence of TMT have shown us the extent to which the human condition is rooted in the denial of death, they have not been able to offer a way through. To understand TMT is not to be able to rise above it.

Our own conclusion is that just as our attempt to separate ourselves from the world of nature has driven us to the brink of global catastrophe, so any true resolution of our terror of death has to lie in establishing a new and more meaningful relationship with the world of nature—and therefore with our own true nature.

The Way Forward

It has been argued that death anxiety can lead to positive outcomes under circumstances in which self-esteem is made contingent upon embracing values and beliefs with beneficial outcomes, including pro-environmental concerns (Vail III et al. 2012). But this psychological approach is inevitably a temporary fix because it appeals primarily to our anxieties and our desire to be separate from the world of nature. So while it may result in limited positive

behaviors in the short term, it's unlikely to bring about change in any fundamental or lasting way.

Becker's dark view of nature and of the human condition led him to complete *The Denial of Death* and his other writings without being able to see a way through the terror that is inspired by the knowledge that we are mortal animals. In his closing chapter he writes:

> There is no way to overcome creaturely anxiety unless one is a god and not a creature ... Men are doomed to live in an overwhelmingly tragic and demonic world ... Creation is a nightmare spectacular taking place on a planet that has been soaked for hundreds of millions of years in the blood of all its creatures ... Therapeutic religion will never replace traditional religions ... that have held that man is doomed to his present form, that anything he might achieve can only be achieved from within the real nightmare of his loneliness in creation ...Whatever man does on this planet has to be done in the lived truth of the terror of creation, of the grotesque, of the rumble of panic underneath everything. Otherwise it is false. (Becker 1975, pp. 283–284)

But while nature is clearly "red in tooth and claw," this is by no means the whole picture. Ironically, it has become part of the propaganda we feed ourselves in order to support the notion that "I am not an animal." We tell ourselves, for example, that people who are behaving badly are "behaving like animals." But that is a serious misrepresentation of what life in the wild is like. Most animals live in a pleasurable world that's punctuated by violence, not the other way round (Balcombe 2006). And the violence is driven by specific, limited survival needs—very different from the way people behave when they're "behaving like humans." [For example, while humans kill approximately 100 million sharks a year globally (Worm et al. 2013), sharks, by comparison, kill, on average, about 5 humans each year (National Geographic Channel), and mostly by accident.]

In fact, the more we try to distance ourselves from the natural world, the more unnatural, irrational and destructive our behavior becomes. We are not outside of nature; we are part of it. And life becomes a lot more comfortable when we stop trying to defend ourselves against nature.

While we may not be able to dissolve altogether our existential terror, we can gain great comfort by embracing the world of nature rather than constantly trying to transcend it. This means acknowledging that we, too, are animals, and it means ceasing to exploit nonhumans as commodities in our quest for personal immortality.

From a psychological perspective, then, when it comes to trying to alleviate mortality anxiety, it may be more productive to look outside ourselves, rather than probing those seemingly bottomless depths of anxiety. In changing our relationship to the external world of nature, we would also be changing our relationship to our own inner nature.

Albert Einstein wrote:

> A human being is part of a whole, called by us the "Universe"—a part limited in time and space. He experiences himself, his thoughts, and feelings, as something separated from the rest—a kind of optical delusion of his consciousness. Our task must be to free ourselves from this prison by widening our circles of compassion to embrace all living creatures and the whole of nature in its beauty. (Sullivan, 1972)

Such a transformation in attitudes is clearly speculative at this point, so we would suggest that because the studies and research conducted by those involved in Terror Management Theory have so fully demonstrated the predictions made by Becker, it would be worthwhile, as a next step, to conduct further research into how a more positive and embracing relationship with the world of nature can alleviate our fear of our own mortality, and what the nature of that relationship would be.

At a time when human civilization is being impacted more and more by climate change, conflict over food and water, zoonotic diseases, and all the other effects and consequences of our attempts to control nature, our relationship to the other animals and to the planet overall is arguably the single most important issue facing humankind.

While we obviously cannot predict what will transpire over the rest of this century, we would suggest that, one way or another, the only viable future for humankind lies in achieving some level of acceptance of our own mortality and developing a more humble, and ultimately more satisfying, relationship to our fellow animals and the natural world.

Acknowledgements

The authors thank Kevin Corrigan, Jonathan Crane, Jeff Greenberg, Hal Herzog, Melissa Soenke, and Paul Root Wolpe for their valuable comments on this paper.

Notes

1. The 2013 summary report from the Intergovernmental Panel on Climate Change (www.ipcc.ch)—the IPCC's fifth major assessment—finds it "*extremely likely* that human influence on climate has been the dominant cause of the observed warming since the mid-

20th Century" (Climate Change 2013—Summary for Policymakers WGI_AR5_SPM_brochure[1].pdf).

2. One area, perhaps the only one, in which substantial progress has been made is in the number of dogs and cats killed at animal shelters in the United States, which has dropped from approximately 17 million a year in the early 1990s to below four million today (PetPoint 2012). We would suggest that this supports the predictions and tenets of TMT in that we have come to think of these animals as companions and family members who are part of our in-group (Katcher et al 1983; Voith 1985; Hirschman 1994; Risley-Curtis, Holley and Wolf 2006). Companion animals are more favorably rated on a variety of dimensions, including attractiveness and mental complexity than other animals (Eddy, Gallup and Povinelli 1993; Hills 1995; Herzog and Galvin 1997). Thus, pets seem to represent a special category of animal who, according to Hirschman (1994) "reside in an intermediate position between nature and culture" (p. 623).

References

Aeschylus. 2011. *Aeschylus' Prometheus Bound and the Seven Against Thebes*. Kindle Edition.

Alexander, H. B. 1916. North American mythology. In *The Mythology of all Races*, *Vol. 10*, 308. Boston: Marshall Jones.

Alexander, H. B. 1920. Latin American mythology. In *The Mythology of all Races*, *Vol. 11,* 165. Boston: Marshall Jones.

Animal Welfare Act of the United States. 1966. http://awic.nal.usda.gov/public-law-89-544-act-august-24-1966. Accessed on March 1, 2013.

Balcombe, J. 2006. *Pleasurable Kingdom: Animals and the Nature of Feeling Good.* New York: Palgrave Macmillan.

Bandura, A. Underwood, B. and Fromson, M. E. 1975. Disinhibition of aggression through diffusion of responsibility and dehumanization of victims. *Journal of Research in Personality* 9: 253–269.

Bastian, B., Costello, K., Loughnan, S. and Hodson, G. 2012. When closing the human–animal divide expands moral concern: The importance of framing. *Social Psychology and Personality Science*. doi: 10.1177/1948550611425106.

Baumann, H. 1936. *Creation and the Primal Era of Mankind in the Mythology of African Peoples*. Berlin.

Beatson, R. M. and Halloran, M. J. 2007. Humans rule! The effects of creatureliness reminders, mortality salience and self-esteem on attitudes towards animals. *British Journal of Social Psychology* 46: 619–632.

Beatson, R. M., Loughnan, S. and Halloran, M. 2009. Attitudes towards animals: The effect of priming thoughts of human–animal similarities and mortality salience on the evaluation of companion animals. *Society & Animals* 17: 72–89.

Becker, E. 1973. *The Denial of Death.* New York: Free Press.

Becker, E. 1975. *Escape from Evil*. New York: Free Press.

Bekoff, M. 2007. *The Emotional Lives of Animals: A Leading Scientist Explores Animal Joy, Sorrow and Empathy—And Why They Matter*. Novato, CA: New World Library.

Bekoff, M., Allen, C. and Burghardt, G. 2002. *The Cognitive Animal: Empirical and Theoretical Perspectives on Animal Cognition*. Cambridge, MA: MIT Press.

Bixler, R. D. and Floyd, M. F. 1997. Nature is scary, disgusting, and uncomfortable. *Environment and Behavior* 29: 443– 467.

Castano, E. and Giner-Sorolla, R. 2006. Not quite human: Infrahumanization in response to collective responsibility for intergroup killing. *Journal of Personality and Social Psychology* 90: 804–818.

Cave, S. 2012. *The Quest to Live Forever and How It Drives Civilization*. New York: Random House.

Charles, D. 2012. How two bitter adversaries hatched a plan to change the egg business. http://www.npr.org/blogs/thesalt/2012/02/10/146635596/how-two-bitter-adversaries-hatched-a-plan-to-change-the-egg-business. Accessed on March 1, 2013.

Cottingham, J. G. 1991. *Descartes*. Oxford: Wiley-Blackwell.

Cox, C. R., Goldenberg, J. L., Pyszczynski, T. and Weise, D. 2007. Disgust, creatureliness and the accessibility of death-related thoughts. *European Journal of Social Psychology* 37: 494–507.

Eddy, T., Gallup, G. and Povinelli, D. 1993. Attribution of cognitive states to animals: Anthropomorphism in comparative perspective. *Journal of Social Issues* 49(1): 87–101.

Eliade, M. 1971. *The Myth of the Eternal Return, or Cosmos and History*. New York: Bollingen.

Goldenberg, J. L., Cox, C. R., Pyszczynski, T., Greenberg, J. and Solomon, S. 2002. Understanding human ambivalence about sex: The effects of stripping sex of meaning. *Journal of Sex Research* 39: 310–320.

Goldenberg, J., Heflick, N., Vaes, J., Motyl, M. and Greenberg, J. 2009. Of mice and men and objectified women: A terror management account of infrahumanization. *Group Processes and Intergroup Relations* 12(6): 763–776.

Goldenberg, J. L., Pyszczynski, T., Greenberg, J., Solomon, S., Kluck, B. and Kornwell, R. 2001. I am *not* an animal: Mortality salience, disgust, and the denial of human creatureliness. *Journal of Experimental Psychology: General* 130(3): 427–435.

Greenberg, J., Pyszczynski, T., Solomon, S., Simon, L. and Breus, M. 1994. Role of consciousness and accessibility of death-related thoughts in mortality salience effects. *Journal of Personality and Social Psychology* 67: 627–637.

Greenberg, J., Solomon, S. and Arndt, J. 2008. A uniquely human motivation: Terror management. In *Handbook of Motivation Science*, 114–124, ed. J. Shah and W. Gardner. New York: Guilford Press.

Griffin, D. R. and Speck, G. B. 2004. New evidence of animal consciousness. *Animal Cognition* 7(1): 5–18.

Halloran, M. J. and Kashima, E. S. 2004. Social identity and worldview validation: The effects of ingroup identity primes and mortality salience on value endorsement. *Personality and Social Psychology Bulletin* 30: 915–925.

Halsall, P. 2011. In Internet Medieval Sourcebook. http://www.fordham.edu/halsall/source/aug-city2.asp. Accessed on March 10, 2013.

Hartig, T., Evans, G. W., Jamner, L. D., Davis, D. S. and Gärling, T. 2003. Tracking restoration in natural and field settings. *Journal of Environmental Psychology* 23: 109–123.

Heinberg, R. 1989. *Memories and Visions of Paradise*: *Exploring the Universal Myth of a Lost Golden Age*. Los Angeles: J.B. Tarcher.

Heine, S. J., Harihara, M. and Niiya,Y. 2002. Terror management in Japan. *Asian Journal of Social Psychology* 5: 187–196.

Herzog, H. and Galvin, S. 1997. Common sense and the mental lives of animals: An empirical approach. In *Anthropomorphism, Anecdotes and Animals*, 237–253, ed. R. Mitchell, N. Thompson and H. Miles. Albany, NY: State University of New York Press.

Hills, A. 1995. Empathy and belief in the mental experiences of animals. *Anthrozoös* 8: 132–142.

Hirschman, E. 1994. Consumers and their animal companions. *Journal of Consumer Research* 20: 616–632.

Hsu, J. 2010. Mass extinction threat: Earth on verge of huge reset button? http://www.livescience.com/8557-mass-extinction-threat-earth-verge-huge-reset-button.html. Accessed on March 1, 2013.

Humane Society of the United States. 2009. New USDA transportation regulations for slaughter-bound horses applauded. http://www.humanesociety.org/news/press_releases/2011/09/usda_regulations_09072011.html. Accessed on March 1, 2013.

International Union for Conservation of Nature. 2012. The IUCN Red List of Threatened Species. http://www.iucnredlist.org/news/securing-the-web-of-life. Accessed on March 1, 2013.

Katcher, A. H., Friedmann, E., Goodman, M. and Goodman, L. 1983. Men, women and dogs. *California Veterinarian* 2: 14–16.

Koole, S. and Van den Berg, A. E. 2005. Lost in the wilderness: Terror management, action orientation, and nature evaluation. *Journal of Personality and Social Psychology* 88(6): 1014–1028.

Landau, M. J., Solomon, S., Pyszczynski, T. and Greenberg, J. 2007. On the compatibility of terror management theory and perspectives on human evolution. *Evolutionary Psychology* 5(3): 476–519.

Leyens, J., Paladino, M. P., Rodríguez-Torres, R., Vaes, J., Demoulin, S., Rodríguez-Pérez, A. et al. 2000. The emotional side of prejudice: The attribution of secondary emotions to ingroups and outgroups. *Personality and Social Psychology Review* 4: 186–197.

Leyens, J., Rodríguez-Pérez, A., Rodríguez-Torres, R., Gaunt, R., Paladino, M. P., Vaes, J. et al. 2001. Psychological essentialism and the attribution of uniquely human emotions to ingroups and outgroups. *European Journal of Social Psychology* 31: 795–803.

Lifton, R. J. 1979. *The Broken Connection: On Death and the Continuity of Life.* Washington, DC: American Psychiatric Press.

Marino, L. 2010. Sentience. In *Encyclopedia of Animal Behavior*, *Vol. 3*, 132–138, ed. M. Breedlove and J. Moore. Oxford: Academic Press.

Motyl, M., Hart, J. and Pyszczynski, T. 2010. When animals attack: The effects of mortality salience, infrahumanization of violence, and authoritarianism on support of war. *Journal of Experimental Social Psychology* 46: 200–203.

National Geographic Channel. Shark attack facts. http://natgeotv.com/ca/human-shark-bait/facts. Accessed on February 24, 2014.

Panksepp, J. 2004. *Affective Neuroscience: The Foundations of Human and Animal Emotions*. Oxford: Oxford University Press.

PetPoint. 2012. Year-end report. http://www.petpoint.com/reportspage/reportdata/2012/PetPointComm-PetPointReport-YearEnd2012.pdf. Accessed on March 1, 2013.

Plous, S. 2003. Is there such a thing as prejudice toward animals? In *Understanding Prejudice and Discrimination,* 509–528, ed. S. Plous. New York: McGraw-Hill.

Pyszczynski, T., Abdollahi, A., Solomon, S., Greenberg, J., Cohen, F. and Weise, D. 2006. Mortality salience, martyrdom, and military might: The Great Satan versus the axis of evil. *Personality and Social Psychology Bulletin* 32: 525–537.

Pyszczynski, T., Greenberg, J. and Solomon, S. 1999. A dual-process model of defense against conscious and unconscious death-related thoughts: An extension of terror management theory. *Psychological Review* 106: 835–845.

Rice, M. 1998. *The Power of the Bull*. New York: Routledge.

Risley-Curtiss, C., Holley, L. and Wolf, S. 2006. The animal–human bond and ethnic diversity. *Social Work* 51: 257–268.

Rosenberg, D. 2009. *A Literary Bible*: *An Original Translation.* Berkeley, CA: Counterpoint.

Rozin, P. and Fallon, A. E. 1987. A perspective on disgust. *Psychological Review* 94: 23–41.

Schmidt, K. 2010. Göbekli Tepe—the Stone Age sanctuaries: New results of ongoing excavations with a special focus on sculptures and high reliefs. *Documenta Praehistorica* XXXVII: 239–256.

Soenke, M. and Greenberg, J. 2013. Are you smarter than a cetacean? Investigating the relationship between reminders of death and concerns about human intelligence. Poster

presented at the 14th annual conference of the Society for Personality and Social Psychology, New Orleans, LA, USA (January 17-19, 2013).

Solomon, S., Greenberg, J. and Pyszczynski, T. 1991. A terror-management theory of social behavior: The psychological functions of self-esteem and cultural worldviews. In *Advances in Experimental Social Psychology*, 91–159, ed. M. P. Zanna. San Diego: Academic Press.

Solomon, S., Greenberg, J. and Pyszczynski, T. 2004. The cultural animal: Twenty years of terror management theory and research. In *Handbook of Experimental Existential Psychology*, 13–34, ed. J. Greenberg, S. L. Koole and T. Pyszczynski. New York: Guilford Press.

Sullivan, W. 1972. The Einstein Papers: A Man of Many Parts Was Long Involved in the Cause of Peace. New York Times, March 29. Accessed on March 16, 2013.

Tarnus, R. 1993. *The Passion of the Western Mind: Understanding the Ideas That Have Shaped Our World View*. New York: Random House.

Taylor, K., Gordon, N., Langley, G. and Higgins, W. 2008. Estimates for worldwide laboratory animal use in 2005. *Alternatives to Laboratory Animals* 36: 327–342.

"The Living Planet Report, 2014" from World Wildlife Fund, available for download at http://wwf.panda.org/about_our_earth/all_publications/living_planet_report/

Accessed on October 7, 2014.

The State of World Fisheries and Aquaculture. 2010. http://www.fao.org/docrep/013/i1820e/i1820e00.htm. Accessed on March 1, 2013.

Tompkins, P. 2010. *The Divine Life of Animals.* New York: Three Rivers Press.

Ulrich, S. R. 1993. Biophilia, biophobia and natural landscapes. In *The Biophilia Hypothesis*, 73–137, ed. S. R. Kellert and E. O. Wilson. Washington, DC: Island Press.

United Nations Environment Programme. 2012. World remains on unsustainable track despite hundreds of internationally agreed goals and objectives. Press Release, June 6, 2012. http://www.unep.org/newscentre/Default.aspx?DocumentID=2688&ArticleID=9158

Vail III, K. E., Juhl, J., Arndt, J., Vess, M., Routledge, C. and Rutjens, B. T. 2012. When death is good for life: Considering the positive trajectories of terror management. *Personality and Social Psychology Review* 16: 303–329.

Van den Berg, A. E., Koole, S. L. and Van der Wulp, N. 2003. Environmental preference and restoration: (How) Are they related? *Journal of Environmental Psychology*, 23: 135–146.

Van den Berg, A. E. and Ter Heijne, M. 2004. Fear versus fascination: An exploration of emotional responses to natural threats. *Journal of Environmental Psychology* 25: 261–272.

Voith, V. 1985. Attachment of people to companion animals. *Veterinary Clinics of North America: Small Animal Practice* 15: 289–295.

Wilson, E. O. 1984. *Biophilia.* Cambridge, MA: Harvard University.

Wise, S. 2010. Legal personhood and the nonhuman rights project. *Animal Law* 17: 1–12.

Worm, B., Davis, B., Kettemer, L., Ward-Paige, C. A., Chapman, D., Heithaus, M. R. et al. 2013. Global catches, exploitation rates, and rebuilding options for sharks. *Marine Policy* 40: 194–204.

Wright, R. 2005. *A Short History of Progress.* New York: Avalon.

Zimbardo, P. G. 2008. *The Lucifer Effect: Understanding How Good People Turn Evil*. New York: Random House.