

Chapter 15

The Transformative Ark



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Abstract As conservationists confront an accelerating extinction crisis, zoos are emerging as potentially significant players in the effort to protect global biodiversity, a role that will likely intensify in the coming decades. It's an agenda, however, that raises a number of ethical and practical questions as zoological parks seek to balance a growing conservation mission alongside their traditional recreation and entertainment pursuits. Many of these questions were first addressed in Bryan Norton's anthology, *Ethics on the Ark*, a milestone in applied ethics and zoo conservation published in 1995. In the decades since Norton's book appeared, the function of zoos as conservation educators and as centers of public transformation has come into sharper focus, with new fields such as conservation psychology measuring the impact of the zoo visit on public perceptions, attitudes, and conservation behaviors. In this chapter, we explore some of this recent empirical work examining zoo visitors' experiences and argue that Norton's early writing in environmental ethics and conservation, particularly his notion of "transformative value," offers a philosophical grounding for understanding the ethical potential of encounters with zoo animals. We close the chapter by discussing some of the challenges and tensions that emerge when Norton's argument, which was originally presented as a justification for protecting wild biodiversity due to its ability to "transform" consumer preferences to more ecologically enlightened attitudes, is adapted to the zoo setting.

Keywords Zoos • Conservation education • Transformative value
Conservation psychology

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S. Sarkar and B. A. Minter (eds.), *A Sustainable Philosophy—The Work of Bryan Norton*, The International Library of Environmental, Agricultural and Food Ethics 26, https://doi.org/10.1007/978-3-319-92597-4_15

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15.1 The Rise of Zoo Conservation

With the recognition that we are in the midst of a sixth mass extinction event on the planet (Kolbert 2015; Ceballos et al. 2017) it has become clear that protection of species in the wild will increasingly need to be supplemented by ex situ approaches; i.e., the propagation of animal populations within and by zoos, aquariums, and similar institutions (Conde et al. 2011; IUCN/SSC 2014). It's a vision that requires moving beyond the familiar understanding of zoological parks as isolated "arks" housing assurance populations to one promoting greater integration of captive and wild populations across landscapes and among conservation institutions (Redford et al. 2012; Minter and Collins 2013; Keulartz 2015). The hope is that by coordinating planning efforts for and management of wild and captive animals along the in situ-ex situ continuum we will improve their chances in the wild and also ensure the sustainability of animal populations throughout the global zoo network (Byers et al. 2013; Traylor-Holzer et al. 2018).

The emerging zoo conservation agenda is ambitious, especially for an institution that has long embraced, for its own sake as well as out of economic necessity, its recreation function. Despite a series of high profile animal care controversies over the decades (from elephants to orcas) zoological parks remain one of our most popular cultural institutions. A frequently cited survey by the World Association of Zoos and Aquariums (WAZA) found that, globally, more than 700 million people visit a zoo or an aquarium annually (Gusset and Dick 2011). An impressive number, it's a statistic that also gives a sense of the challenge of zoos' attempts to reconfigure themselves as bona fide conservation organizations—in their budgets, programs, and operating space—while also serving as a major entertainment destination for hundreds of millions of visitors every year (Conway 2011; Grazian 2015).

Although zoos have always been entertainment venues, wildlife preservation has been part of their *raison d'être* in the U.S. since at least the rise of the conservation movement in the late 19th century (Stott 1981). The Bronx Zoo in New York, for example, played a key role in the breeding and reintroduction of the American bison to the western plains in the early 1900s (Barrow 2009). Still, modern zoos' embrace of conservation as an explicit and significant part of their public mission arguably only became serious and systematic in the last quarter of the 20th century, a shift that was part of the institutional and policy response to public concern about animal welfare, endangered species, and environmental issues more generally (Kisling 2000). By the 1980s, many zoos began to develop Species Survival Plans (SSPs), programs that coordinated breeding and population management of threatened and endangered animals across the world zoo network (Hutchins and Wiese 1991). SSPs facilitated the recovery of the black-footed ferret and California condor, two of the great success stories in zoo conservation (WAZA 2012).

The zoo conservation agenda would gain steam in the 1990s following the publication of the World Zoo Conservation Strategy (IUDZG/CBSG (IUCN/SSC 1993), a document that encouraged the continuing evolution of zoos into full blown

“conservation centres.” The message was magnified in the revised 2005 WAZA Conservation Strategy, which emphasized the importance of securing animal populations in the wild rather than in zoo enclosures (WAZA 2005). And the past decade especially has seen a dramatic surge in and intensification of zoo conservation programs and initiatives, as well as the appearance of a series of major publications, reports, and vision statements committing zoological parks to an even stronger conservation and scientific mission in the coming decades (e.g., Zimmermann et al. 2007, Fa et al. 2011; Barongi et al. 2015).

Many zoo critics, however, view these developments as little more than a cynical spin campaign to rebrand what they argue is an ethically indefensible institution—a critique common among animal rights advocates (see, e.g., <https://www.peta.org/features/zoo-conservation-captive-breeding/>). The distance between the professionally-run and accredited zoos of today and the sorry menageries and roadside attractions of an earlier age, however, is vast, even if legitimate animal welfare concerns remain (Clubb and Mason 2003; Maple and Perdue 2013; Mellor et al. 2015). At the very least, we can say that the recent uptick in zoo conservation efforts indicates a growing desire within today’s zoo community to position these institutions as serious conservation organizations, both within the wildlife conservation professions and in the public eye.

In hindsight, one of the pivotal conversations that helped stimulate the emergence of a more articulate and reflective zoo conservation agenda was the appearance of Bryan Norton’s *Ethics on the Ark*, a pioneering collection of essays on zoos, animal welfare, and conservation published by the Smithsonian Institution Press (Norton et al. 1995). The volume flowed out of a workshop Norton co-organized in Atlanta in the early 1990s that convened a diverse group of applied philosophers, zoological professionals, and wildlife scientists to ruminate on the complex and often contentious intersection of zoo animal welfare and conservation. Co-edited with several leaders in the zoo community, including Terry Maple, then-president of Zoo Atlanta, the volume quickly became a benchmark for applied environmental and animal ethics.

The treatment of zoo conservation in *Ethics on the Ark* largely focused on conservation (née “captive”) breeding, wildlife reintroduction, and zoo-based conservation research; all direct activities undertaken by and within zoos to benefit wildlife health and survival in situ. Although these practices remain at the center of the zoo conservation agenda today, in the decades since *Ethics on the Ark* was published conservation education has become an increasingly powerful element of the zoo conservation portfolio (WAZA 2005; Sterling et al. 2007; Ogden and Heimlich 2009; Barongi et al. 2015). At the same time, the new field of conservation psychology has greatly expanded our understanding of the nature and impact of zoo education and the visitor experience, especially the perceptual, behavioral, and value dimensions of human-animal encounters and how these elements shape human interactions with species and places across wild and built landscapes (e.g., Saunders 2003; Clayton and Myers 2009). It’s a body of empirical research, moreover, that is helping zoos improve their educational programs and the efficacy of their public outreach efforts (Barongi et al. 2015).

Even though these educational and psychological perspectives didn't figure directly in *Ethics on the Ark*, we believe (again, in hindsight) that Bryan Norton actually anticipated them in some of his early writing on environmental value theory and the philosophy of biodiversity conservation. In particular, Norton's notion of "transformative value," which he developed most thoroughly in his 1987 book, *Why Preserve Natural Variety?*, suggests an intriguing way to think about the impact of encounters with wild species and ecosystems on the development of environmental values and attitudes. It's an idea we believe has implications today for zoos as they seek to broaden and deepen their conservation goals.

In fact, on our reading, Norton's theory, i.e., that transformative experiences with nature can lead to changes in environmental values and preferences, is mirrored in some of the newer psychological studies of the visitor encounter with zoo animals, especially work addressing its affective dimensions. As we will see, however, several questions and concerns remain regarding this particular intersection of environmental ethics and practice, including the transferability of Norton's original understanding of transformative value to the zoo context and the uniqueness and desirability of zoos as venues of public transformation.

15.2 Norton's Transformative Value

In *Why Preserve Natural Variety?* Norton presented a sharp critique of the established economic and ethical approaches to valuing wild species and undisturbed ecosystems. By appealing narrowly to only the demand values of species, that is, the ability of plants and animals to fulfill our immediate and unreflective desires, Norton argued that the traditional economic framing was too compromised by consumptive interests to serve as an adequate foundation for nature preservation. Yet, appeal to the intrinsic value of species and ecological systems, the dominant approach within environmental ethics, was also problematic. Intrinsic value arguments were too "ethically radical," Norton believed, and the non-anthropocentric worldview supporting them too underdeveloped, to offer a compelling rationale for sound conservation policy (Norton 1987: 186–187). Dissatisfied with both approaches, he outlined and defended an alternative construct, what he dubbed "transformative value," a liberal expansion of instrumental value that Norton argued was more supportive of the species preservationist position. It was a formulation, he claimed, that avoided the philosophical liabilities ensnaring the more familiar economic and non-anthropocentric expressions.

More specifically, Norton pitched transformative value as a dynamic form of environmental value that, although rooted in human preferences and interests, hinged on a critical distinction between different *types* of preferences, "felt" and "considered." Felt preferences were those desires or needs that could be satisfied by a specific experience; e.g., the unreflective desire for a consumer good that is sated by its acquisition. Considered preferences, however, were potential desires or needs "that an individual would express or otherwise exhibit after careful deliberation"

(Norton 1987: 9). It followed that an object or experience had transformative value if it provided “an occasion for examining or altering a felt preference rather than simply satisfying it” (Norton 1987: 10). Encounters with wild species and ecosystems, Norton believed, had this potential to trigger a questioning of our felt preferences, especially consumer ones:

Experience of nature can promote questioning and rejection of overly materialistic and consumptive felt preferences. Appeals to the transformative value of wild species and undisturbed ecosystems thereby provide the means to criticize and limit demand values that threaten to destroy those species and ecosystems while at the same time introducing an important value that humans should place upon them. (Norton 1987: 189)

The attribution of transformative value to an object assumed that not all felt preferences are equally preferable: some felt preferences stand the test of reflective scrutiny and become considered preferences, while others wither in the gaze of reflective interrogation (Norton 1987: 11).

Furthermore, it's clear that Norton believed the transformative value of nature was premised on the acceptance of a general environmental ethos understood to be, as he put it, “objectively better” than that supporting the demand values of materialism and consumerism (Norton 1987: 210). The comparatively high status of considered preferences was ultimately the result of their comportment with what Norton depicted as a “rational” ecological worldview, a vision that embraced: (1) the human interdependence with nature; (2) a post-Cartesian, Darwinian epistemology defined by an attitude of fallibility and caution in the face of grand ecological complexity; and (3) a value system defined by ecological humility and the search for a harmonious balance with nature (Norton 1987: 204–207). The superiority of considered preferences as the end product of an encounter or experience with an object of nature possessing transformative value was therefore relative specifically to the outlook and values of nature preservationists (rather than to those of, say, real estate developers). As he wrote: “If [species preservationists] believe that the ecological world view represents a more accurate picture of the world and that the value system suggested by it is objectively better than the value system of materialism and conspicuous consumption, then they will value endangered species and natural ecosystems for their role in transforming human world views and human value systems” (Norton 1987: 210).

There is more to it, and this quick review alone raises a host of questions (chief among them being what it means to describe an environmental worldview as “objectively better,” especially when conservationists today are divided over many of the values in Norton’s ecological vision; see, e.g., Minter and Pyne 2015). But for present purposes we can summarize by saying that Norton’s argument for transformative value as an alternative to both narrow instrumentalist approaches and non-anthropocentric projects hinged on the potential for experiences with environmental objects to catalyze reflection and deliberation over what individuals *should* prefer or want, a process he believed would ultimately move them toward a more enlightened ecological outlook supported by a deeper co-evolutionary understanding of our place in the natural order.

It was, in many respects, a quasi-transcendentalist appeal to nature's ability to lead us to our "higher selves" as Thoreau put it; or to "think like a mountain," as Aldo Leopold directed in *A Sand County Almanac*. Both writers, in fact, served as intellectual progenitors in Norton's account of transformative value, as he acknowledged in *Why Preserve?* and would expand on in subsequent discussions (e.g., Norton 1991, 1994). Norton would also enlist the American pragmatists C. S. Peirce and John Dewey, with their predilection for dynamic and deliberative notions of value, meaning, and truth, for support as his transformative project became folded into an epistemological method of social learning, experimentation, and adaptive management in the 1990s and beyond (e.g., Norton 1995, 1999, 2005, 2015).

As we've said, the idea of transformative value was clearly a departure from the dominant normative approaches in environmental ethics that emphasized, in one way or another, the intrinsic value of nature as part of an encompassing non-anthropocentric worldview. Indeed, even though Norton stopped just short of a complete dismissal of intrinsic value in his original defense of transformative value in *Why Preserve?*, as mentioned above he made it very clear that he didn't see its necessity for species preservationists, who:

...believe that encounters with wild species can precipitate changes in human consciousness, alterations in world views sufficient to create a new ontology, a new epistemology, and a new approach to value. If they also believe that the new, less materialistic values that are thereby created are objectively better than the materialistic, consumptive values they replace, they should value all wild species, including endangered ones, for their transformative value. On this anthropocentric basis they can argue that species should be preserved, regardless of whether they also believe that species have intrinsic value (Norton 1987: 211).

The "new, less materialistic values" Norton had in mind—those that flowed out of the ecological worldview summarized above—were in the end human values, a composite of goods and interests that terminated in the human benefit of a life lived in closer harmony with nature. As he concluded, "...If environmentalists believed that humans live more satisfying lives if they are not bound by excessive greed for material things, this belief would provide an adequate, anthropocentric support for transformative values" (Norton 1987: 238).

Given such views, it should come as little surprise that non-anthropocentric environmental philosophers greeted Norton's arguments for transformative value with what might charitably be termed deep skepticism. Holmes Rolston, a founder of modern environmental ethics and a writer known for his full-throated endorsement of an objectivist form of intrinsic natural value, discussed Norton's idea in his 1994 book *Conserving Natural Value*. There, Rolston openly wondered how a natural object that possessed only instrumental value could produce a morally significant transformation in people. "If the virtue of human character really comes from appreciating another, nonhuman form of life," Rolston asked, "then why not attach intrinsic value to this alien life?...Why praise only the virtue in the human beholder?" (Rolston 1994: 164). We wish to save species such as whales, Rolston argued, not because we seek to ennoble the human spirit, but because we recognize and seek to defend a life and a species with its own dignity and moral worth.

Fifteen years later, and referencing the opening hook and cover of Norton's 1991 book *Toward Unity Among Environmentalists* (which prominently featured a sand dollar), Rolston's view toward the concept hadn't grown much sunnier, though he now seemed to accept that transformative value could play at least *some* role in compelling environmental protection. It just wasn't the most foundational and important reason for preserving nature:

My problem is that I do not think it is high moral ground to celebrate something else in your own self-interests, no matter how enlightened those interests (analogously to helping others in order to get a kick out of it)...The enlightened environmentalist wants photosynthesis in place, freshwater in streams, a stable climate—and *spiritual inspiration*, transformative encounter with sand dollars. Nature preservation is justified because it leads to the fostering of multiple levels of values in human life and culture worth preserving. True, we can all agree about the basic, vital, lower-order values. But the convergence is toward nobler, higher-order values, equally vital to human well-being, and these are not reducible to the familiar anthropocentric array of demand or preference values. (Rolston 2009: 111)

If Norton's argument for transformative value didn't convince many non-anthropocentric environmental philosophers in the years following the publication of *Why Preserve?*, it fared much better among conservation biologists. Transformative value, for example, appeared as a key part of the normative framework for valuing biodiversity in a popular textbook by Perlman and Adelson (1997). Norton's proposal had also received validation the year before in the science studies scholar David Takacs's book, *The Idea of Biodiversity* (1996), in which the author interviewed nearly two-dozen prominent ecologists and conservation biologists about the meaning and value of biodiversity. Takacs asked his subjects specifically about Norton's concept of transformative value and whether it resonated with them as a way to think about the value of species and ecosystems. Most of the scientists he spoke with voiced support for Norton's idea, including well-known figures like Paul Ehrlich and E. O. Wilson [although the latter told Takacs he wished Norton had grounded it more in evolutionary biology à la Wilson's own biophilia hypothesis (Takacs 1996: 235)].

Interestingly, two of the interviewees, biologists Tom Lovejoy and Peter Brussard, made an explicit connection between Norton's understanding of transformative value and the role of zoos in educating and inspiring visitors to care about the natural world. Asked if he thought biodiversity possessed transformative value as Norton described, Lovejoy replied, "Oh, I think that's perfectly true, that's perfectly true. There is a magic in living things....That's why, you know, zoos and aquaria have a greater annual attendance than all major sports events..." (Takacs 1996: 233). Brussard agreed, but took it further: "I think that lack of support for biodiversity often springs from ignorance of biodiversity. And if you can get people to zoos, if you can get people to go to natural history museums here, they're not bored but actually entranced by what they see there, that's certainly going to help...." (Takacs 1996: 232).

15.3 Zoos as Centers of Transformation

Even though conservation biologists were making the link between the notion of transformative value and the zoo experience, Norton himself didn't explicitly connect the dots between his argument for caring for biodiversity in *Why Preserve Natural Variety?* and the subsequent exploration of zoos and conservation in his 1995 *Ethics on the Ark* anthology.¹ As we've said, however, in the decades since the *Ark* volume was published the zoo community (and zoo researchers) effectively filled this breach by vigorously promoting the educational (and often, "transformative") value of the zoo experience, including the argument that zoo visits, when met with effective educational programming and progressive, "best practices" animal exhibit-craft, can encourage both a connection to animals (in the zoo and the wild) and pro-conservation behaviors.

Consider, for example, the messaging of the Association of Zoos & Aquariums (AZA), the zoological organization supporting and accrediting zoos in the United States (<https://www.aza.org/conservation-education-standards-and-policies>). The AZA has made a point of emphasizing the role of zoos in educating and inspiring visitors, suggesting that zoological parks provide "animal and nature experiences that engender a sense of wonder" among the public (<https://www.aza.org/conservation-education-standards-and-policies>). Subscribing to the general biophilic view that "the human experience requires a connection to nature," the AZA's conservation education standards state that such connections "enrich our lives and inspire our choices for future generations," and that zoos in particular seek to "promote care and positive action for the natural world."

It's an outlook shared by the larger World Association of Zoos and Aquariums (WAZA), which in its most recent conservation strategy (*Committing to Conservation*) described the purpose of zoos globally as "Instilling in all visitors a strong sense of excitement about and a desire to care for life on earth will create a solid platform for fulfilling the promise to care for and conserve wildlife" (Barongi et al. 2015: 17). By creating a "culture of conservation," WAZA argues, "zoological facilities are able to open the hearts and minds of their visitors, providing a relevant venue to convey the threats to wildlife, and to inspire, engage and guide positive environmental action" (Barongi et al. 2015: 45). The framework increasingly

¹Norton's embrace of a more expansive pluralistic understanding of environmental values beyond the confines of the dualistic intrinsic-instrumental framework perhaps explains why he didn't continue to develop his earlier arguments for transformative value within the instrumentalist tradition, an evolution he discusses in his 2005 book *Sustainability*. But his growing emphasis on the linguistic dimensions of environmental deliberation is likely also implicated in this move away from traditional environmental value theory. In his 2015 book, *Sustainable Values, Sustainable Change*, Norton talks about "transformatives" in public debate as those "linguistic and cognitive tropes (e.g., metaphors, analogies, etc.) that can cause changes in perception and perspective regarding a situation or problem" (Norton 2015: 196). In other words, the dynamic use of language, rather than discrete encounters with wild species and ecosystems, now appears to serve as the key transformative agent in Norton's evaluative system.

adopted by zoological and other conservation organizations (including the International Union for Conservation of Nature, or IUCN) is often referred to in the shorthand of “connect, understand, act.” In this framing, visitors are connected to priority species via “emotionally engaging” zoo encounters with animals, educated via interpretive displays and guided programs, and inspired to act to alleviate pressure on threatened species and habitats through a range of pro-conservation behaviors and choices (IUCN 2011).

A good illustration of this framework in action can be seen in zoo campaigns to spread awareness about the impacts of palm oil production on biodiversity in South East Asia, particularly its effect on orangutans as native forests are fragmented and destroyed (Chamberlain 2013). Melbourne Zoo’s innovative conservation education program, “Don’t Palm Us Off,” developed a mixed-media approach to the problem, displaying video and interpretive materials in the visitor center attached to their orangutan exhibit, a program that connected information about deforestation and species endangerment with the consumption of palm oil in common consumer products (from soap to cookies). Researchers found that visitors who viewed the animals and the palm oil exhibit (which also linked to social media) reported significant increases in palm oil awareness, as well as more positive attitudes toward orangutans and greater support for labeling of palm oil products. There was also an increase in visitors’ reported desire to make different consumer choices based on this experience (Pearson et al. 2014).

The palm oil exhibit is a particularly interesting case given that the program seemed to be operating with a theory of reflective experience and attitudinal/behavior change that comes close to what Norton originally had in mind with transformative value. Here, an animal encounter, shaped by the provision of contextual information about the species in the wild and the threat of habitat conversion for commercial agriculture, is believed to have triggered, at least in some individuals, a change in conservation attitude and an evaluation of consumer demand values (i.e., a distaste for products made with palm oil). The process apparently spurred the adoption of more considered preferences for products not entangled in the destruction of orangutan habitat, desires more in line with an ecological worldview supporting the protection of biodiversity and native forest sustainability. The Melbourne example therefore seems to lend some real-world support to the basic logic of Norton’s theory of transformative value, at least in a generalized sense.

But how representative is it? The impact of zoo education programs on public biodiversity knowledge, attitudes, and conservation behavior remains a topic of considerable discussion and debate (see, e.g., Falk et al. 2007; Marino et al. 2010). The publication in recent years of several major studies providing empirical evidence backing up zoo conservationists’ more hopeful claims along these lines, however, has bolstered the zoo-as-conservation-catalyst argument, suggesting that when zoo education programs are well-designed and well-run, visitors do indeed display greater biodiversity knowledge and at least the intention to engage in more pro-conservation behaviors (e.g., Jensen 2014).

One of the more influential and widely cited studies along these lines appeared in the journal *Conservation Biology* in 2015. There, the authors reported on a survey

of more than 5600 zoo and aquarium visitors from more than two-dozen zoological parks around the globe (Moss et al. 2015). Their key finding was that their study sample demonstrated increased aggregate biodiversity understanding, as well as greater knowledge of behaviors to help protect biodiversity, over the course of their zoo visit.

In the past decade, a number of studies coming out of the emerging field of conservation psychology have greatly improved our knowledge about the dynamics of the connect-understand-act model by investigating the role of the personal connection to zoo animals in enhancing visitors' understanding of biodiversity and their motivation to engage in pro-conservation behaviors. Clayton et al. (2009), for example, surveyed more than 200 visitors at Cleveland Metroparks Zoo and found that their study participants were more inclined to report concern for zoo animals and for species as a whole when they felt a sense of connection to animals in exhibits—and when they had learned something about them and wanted to know more. More recently, Grajal et al. (2017), in a survey of nearly 3000 visitors to 10 zoos and 5 aquariums across the United States, uncovered a positive relationship between visitors' sense of connection to zoo animals and their self-reported pro-environmental behaviors (consumer choices, environmental support efforts, etc.) related to climate change, a relationship that existed regardless of participants' political orientations.

A significant thread in many of these social scientific studies of zoo visitors' connection to animals at zoological parks is the significance of emotion and a positive response to viewing zoo animals, including building a social identity that incorporates a relationship to animals and to nature generally (Swanagan 2000; Fraser et al. 2007; Clayton et al. 2011). In an important paper that parsed out some of the key elements in this process, Ballantyne, Packer, and Sutherland (2011) explored visitor experiences at four wildlife tourist venues in Australia, including a public aquarium and a marine park. In their post-visit surveys, the researchers uncovered four levels of response to animal encounters: sensory impressions (seeing and hearing), feelings (emotional attraction), reflection (cognitive processing of the event), and behavior. The interplay of emotional connection and reflection on the animal encounter by visitors proved especially significant in the study. As the authors put it, "It was the combination of emotional affinity with a reflective response that appeared to have the most powerful impact on visitors, leading to a concern and respect not only for the specific individuals encountered in the wildlife tourism experience, but the species as a whole" (Ballantyne et al. 2011: 774). The direct encounter and emotional connection with wildlife in their sample appeared to make conservation issues more personal and consequently more salient for people, which led the authors to suggest that such experiences may indeed be important for inspiring pro-environmental attitudes and actions in zoological parks and other wildlife viewing venues.

This general conclusion has been borne out in other work exploring the relationship among direct animal experiences in the zoo setting, emotional affinity, and behavioral intentions. Powell and Bullock (2014) studied public perceptions at three animal exhibits at the Bronx Zoo and found that zoo visitors who experienced

strong (positive) emotional responses to viewing the animals in their study (tigers, African wild dogs, and spotted hyenas) reported greater conservation mindedness, and that visitors' emotional connection was shaped by the sense of having a general "encounter" with animals, making eye contact with them, observing active animal behaviors, and other factors. Similar results have been reported by Luebke et al. (2016) and Hacker and Miller (2016), who found that having such up-close interactions with animals in zoos across a range of species (from spotted hyenas to elephants) and across different institutions produced a more intense positive emotional connection between visitors and zoo animals, one they believe to be a critical mediator among observation, reflection, and the desire to engage in behaviors that have positive conservation implications.

Obviously, much more remains to be learned about the meaning and impact of animal encounters in zoos on visitor perceptions and, especially, on post-visit attitudes, values, and behaviors relevant to conservation. The point we simply want to make here is that these and similar other studies of zoo visitors and their experiences with animals in zoological parks coming out of the field of conservation psychology seem to provide promising empirical evidence supporting, in a general way, Norton's theory of transformative value. That is, based on this work it seems possible that many professionally-run zoos offer a venue that facilitates, and in some cases actively encourages, the kind of reflection Norton argued is an important function of direct experiences with species in moving people toward a more ecologically enlightened outlook—one that prizes biodiversity and places great store in efforts to preserve it.

15.4 Concerns and Open Questions

If this association between Norton's notion of transformative value and zoos (as the context for such transformations) is plausible, we believe it suggests a compelling ethical and practical justification of zoos as "instruments" for pro-conservation value transformation. Drawing on empirical studies from conservation psychology and referencing Norton's argument surrounding value transformation, zoos can defend their identity as conservation organizations by appealing to a sound philosophical and experiential understanding of the value of public encounters with their animal collections. Moreover, the attraction of zoos as entertainment destinations, it could be argued, only enhances zoos' opportunity to connect large numbers of people to animals, and to get them to think and act in a way more congruent with wildlife conservation goals. This idea of zoos as agents of public transformation therefore joins other conservation-based justifications for zoological parks in the modern era, taking its place alongside the more traditional population management, research, education, and field support functions.

Yet, as mentioned above, Norton's argument for transformative value also raises several questions, including concerns stemming directly from its extension to the zoo setting. Indeed, the application of transformative value to zoo animals (and to

zoos as a whole) introduces a specific set of issues surrounding the scope, direction, and ethical implications of “enlightening” experiences in zoological parks, considerations that will need to be addressed before any final conclusion can be reached about the suitability and significance of Norton’s theory for defending zoos as centers of pro-conservation transformation.

For starters, there is a potential problem with the context. It is clear from Norton’s discussion of transformative value in *Why Preserve?* that the species and conditions he has in mind that trigger transformation are primarily “natural” or “wild” environments rather than the comparatively artificial and contrived ex situ environment of the zoo. As he put it, “*Wild species and pristine ecosystems... provide the occasions for forming and criticizing our values, as felt preferences are measured against the evolving [ecological] world view. In this way they have transformative value*” (Norton 1987: 212; emphasis added). Zoo animals obviously aren’t truly or fully “wild” given the condition of captivity, and zoo landscapes do not qualify as “pristine landscapes” in anything but a cosmetic sense. So, there is a lingering question about the suitability of Norton’s value concept in the zoo case and its portability outside of the in situ environment.² We will return to this point below.

Another worry is the impact of zoo visitors on the animals themselves. Studies have shown that visitor encounters, especially the more interactive experiences that produce strong (positive) emotional affiliations between the public and zoo animals, can result in increased stress on the latter, prompting a set of animal welfare concerns. (Davey 2007; Fernandez et al. 2009). In such cases the value and legitimacy of the transformative zoo experience will be rightly called into question if it is gained at the expense of duties to promote animal wellbeing. These are responsibilities the zoo community, despite the protestations of animal rights critics, takes very seriously (Mellor et al. 2015: 72).

Furthermore, there is a potentially troubling issue surrounding the ethical valence of the outcome of transformational experiences in zoos; namely, the possibility that transformative experiences in zoos may actually reinforce or introduce *negative* emotional or cognitive attitudes toward animals. There is some evidence, for example, that zoo education programs for children can promote negative associations with animals if not properly run (Jensen 2014).

²There is a potential further problem with the extension of transformative value in the zoo context, at least for achieving conservation goals. The personal identification with zoo animals and emotional affinity described in social scientific studies of visitor responses, in addition to (or rather than) catalyzing concern for the plight of wild populations and species, could reinforce anthropomorphic tendencies at the level of the individual animal that end up making population management (in both zoos and the wild) more contentious, as was the case with the controversial killing of Marius the Giraffe in the Copenhagen Zoo in 2014. Marius was deemed a “surplus animal” in the parlance of zookeeping and euthanized for zoo population control purposes (Minter 2014). At the very least, such cases suggest that the emotional and ethical connection to animals in the zoo setting is a complex affair, and that more individualistic ethical responses are possible alongside the population- and species-level attitudes and outcomes described in the conservation psychology literature and surveyed in this chapter.

The potential for Norton's transformative process to result in negative as well as positive value outcomes has been highlighted by Sahotra Sarkar, one of the few philosophers to have explored Norton's original argument in depth and to have carefully weighed its appeal as a justification for biodiversity protection. Sarkar describes this "directionality problem" besetting transformative value in his 2005 book, *Biodiversity and Environmental Philosophy*:

Even experience of biodiversity can have potentially negative transformative value. Imagine an individual visiting a wildlife preserve for the first time. An accidental encounter with a dangerous wild animal, such as a venomous snake, can potentially be terrifying. It may even lead to a lack of sympathy for that animal's conservation. What is important in this context is that an experience of this sort may result in a change in the felt preferences of an individual in a way that affects biodiversity conservation negatively even more generally. (Sarkar 2005: 97)

Although Sarkar refers to the context of the wildlife preserve, as mentioned above negative responses to animal encounters are also possible in zoos. These typically do not entail safety concerns, though as the recent case involving Harambe the gorilla in the Cincinnati Zoo reminds us, they can (McPhate 2016). Rather, the adverse reaction can be an aesthetic response to perceived sub-par zoo conditions or to certain taxa (e.g., reptiles), or simply visitor disappointment in encountering sleeping, out-of-sight, and/or inactive animals (Cushing and Markwell 2011; Godinez et al. 2013).

Sarkar identifies a further problem with Norton's argument, however: the challenge of delimiting the entities claimed to possess transformative value. That is, if objects other than wild species and ecosystems can trigger an evaluation of our felt preferences then the value of biodiversity in prompting this shift is considerably reduced. In the zoo context, we believe this "boundary problem," as Sarkar terms it, presents a two-pronged challenge.

First, the zoo case would seem to undermine protectionist arguments premised on the uniqueness of encountering wild species in their indigenous habitats and experiencing the more "pristine" environmental conditions described by Norton. If zoos (or more precisely, encounters with zoo animals) also have transformative value and the potential to help convert thoughtless consumers into thoughtful conservationists, then such arguments for protecting wildlife in situ, preserving nature from destructive human influence, and so forth, would seem to lose much of their normative force. At the very least, a case would have to be made that there is a tight and mutually supportive connection between the values and choices encouraged by the zoo experience and those relating to species and habitat protection in the field.

The boundary problem afflicting transformative value reveals another dimension in the zoo context, however, one that potentially undermines arguments defending the distinctive transformative value of zoological parks. If there is good reason to believe other experiences and encounters that do not require the exhibition of live animal collections can elicit a similar evaluation of preferences (and a positive attitudinal shift toward conservation), then the power of the zoo-as-transformer argument is, once again, weakened considerably. This is especially true in light of

persistent ethical objections to the practice of keeping animals in captivity and the presumption that, all things being equal, doing so reduces their freedom (Jamieson 1985). Consider, for example, the impressive work of wildlife photographers such as National Geographic's Joel Sartore, whose indelible portraits of endangered animals in his "photographic ark" project are some of the most visually arresting and emotionally moving images of wildlife ever created (Sartore 2017). Although Sartore photographs many of his animals in zoos, the photographs quickly come to possess their own value; the appreciation of them, in other words, does not require any indexing to the original photographic subjects in zoological parks. And then there is the ubiquitous video documentations of wildlife captured by the Discovery Channel, Animal Planet, and the steady stream of Imax documentaries that provide a degree of pictorial detail and immersion in animal worlds once thought impossible. The best of these do a masterful job of encouraging a sense of wonder and inspiration, and perhaps even transformation.

Finally, we believe the zoo context also courts a unique hybrid version of the directionality and boundary problems confronted by transformative value. As we've said, by transposing Norton's notion of transformative experience to the zoo we are shifting the environmental context in question from (as least comparatively) wild-and-free to captive-and-controlled, a process that could be criticized as changing the subject of what constitutes a proper biodiversity ethic by reinforcing an attitude of dominion over animals rather than a respect for nature—a worry that evokes Holmes Rolston's earlier criticisms of transformative value. As a result, we have either weakened the ethical content of the transformative experience by normalizing the human power over animals and nature in the zoo setting, or we've undercut the original transformative value-based argument for preserving biodiversity *in situ* by showing that other, *i.e.*, less wild and more artificial, conditions can serve as catalysts for reflection and environmental value reassessment. Perhaps we've even managed to do both at once.

These are all serious concerns. Although we can't possibly address them all in the remaining space we have here, we can at least offer a few preliminary thoughts that may help to soften a couple of them.

Regarding the objection that zoo encounters with animals, while they may be sufficient for transformative experiences, are not necessary (especially since virtual encounters can deliver the same results without running afoul of potential animal rights concerns related to captivity), we've discussed above how psychological research on zoo visitors has revealed the importance of direct interaction with zoo animals in forming emotional connections and encouraging pro-conservation perspectives. The intimate nature of the encounter and a personal identification with the animal, in fact, seem to be key in this process, including activities like making eye contact, which appears to play an important role in the positive affective response of zoogoers (Powell and Bullock 2014). Even in the digital age there is still a wide experiential gulf (albeit a narrowing one) between seeing an orangutan up close and personal and viewing a picture of an orangutan in a book or an image on a screen, however high the definition. Of course, one could still insist that these kinds of interactive and personal animal encounters are ethically and aesthetically

more desirable when they happen in the wild via safaris or other in situ wildlife viewing experiences; that is, in contexts where the animal is relatively free and the conditions are predominantly natural. But for those without the means or inclination to take part in these experiences (which describes a considerable segment of the population), the local zoo offers a far more accessible and democratic form of direct animal encounter, especially in an urban setting. Therein lies at least part of the promise and potential of zoos' transformative value.

The worry that the zoo experience could end up reinforcing an ethic of animal dominion, however, is real and is probably an unavoidable concern as long as humans run the zoo. At the same time, zoos' ongoing efforts to enhance the naturalism of zoo exhibits and to provide various exhibit enrichments that allow animals to engage in more natural and characteristic species behaviors remind us how far today's professionally-run and accredited zoos have come from the unpleasant concrete-and-bars era (Hanson 2002; Hancocks 2010). One of the more innovative and provocative visions in naturalistic zoo design to emerge in recent years is "Zootopia," a planned expansion of Denmark's Givskud Zoo expected to launch its first phase in 2019. A hybrid of the immersive zoo and safari park, Zootopia is envisioned as a (nearly) wall-less and cage-free zoo landscape in which the animals roam relatively freely in multispecies habitats, a design driven by the goal of significantly reducing and concealing the human presence. Visitors to Zootopia will be sequestered in an ingenious series of hidden viewing bunkers and moved through the air via mirrored pods suspended on a wire track. Elsewhere they'll use bicycles and boats to get close to the zoo's elephants and zebras, which will be separated by an inventive array of natural and undetectable barriers (Minteer 2018). Although the initial media response to the Zootopia concept was fairly overheated—e.g., one journalist went so far as to suggest that the Denmark plan "reverses the role of captor and captive" (Wainwright 2014)—Zootopia represents a potentially dramatic revolution in zoo design and a great step forward in the immersive zoo model. If the full plan is built out as envisioned and the new expansion is successful (at least by its own lights), it will raise the aesthetic and ecological bar for naturalism and wildness in zoological parks.

Ironically, however, the more zoos move in this direction (which we can either call "radical immersion" or "extreme naturalism"), the less they will resemble zoos as we traditionally understand them. They'll be closer to small, highly managed wildlife parks; venues capable, perhaps, of greater visitor transformation and inspiration but places that will still never be as natural or as wild (however we define these vexed terms) as the nature parks and reserves they emulate. Nevertheless, Zootopia and its institutional progeny may end up marking not only a new phase in zoo design, but a milestone in the ethical evolution of the zoo toward a less patently artificial and more ecologically inspired facility, one that could push the moral and ontological notion of "captivity" close to its breaking point.

15.5 An Enduring Legacy

As this volume ably demonstrates, Bryan Norton's career is distinguished by his deep and sustained engagement with a string of fields lying beyond philosophical shores, from conservation biology and ecological economics, to environmental management and sustainability science. More than any other environmental philosopher Norton deserves credit for pushing a field that has often struggled with its own intellectual insularity into a more interdisciplinary, experimental, and collaborative space. In the process, he's shown how environmental philosophers can thrive outside the hothouse of traditional philosophy departments and contribute something unique and even useful to programs in public policy, natural resources, environmental studies, sustainability, and the life sciences.

And Norton's work is still opening up avenues for interdisciplinary research and collaboration, including, as we've discussed in this chapter, a novel area of study bridging environmental philosophy and conservation psychology focused on how zoo animal encounters can shape environmental values and promote a desire to engage in conservation-supporting behaviors. Although we need to learn more about the nature and impact of these experiences on the values, attitudes, and especially, the behaviors of zoo visitors, we believe that Norton's work on transformative value provides a useful philosophical anchor for this emerging body of empirical and experimental research. We hope Norton's work will keep inspiring and pushing our thinking about the responsibilities and possibilities that emerge from our complex ethical and experiential relationships with other species wherever we find them: in zoos, in the wild, or in the places in-between.

Acknowledgements We thank Sahotra Sarkar for his helpful comments on and suggestions for an earlier version of this chapter.

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