The Meaning of Animal Portraiture in a Museum Setting: Implications for Conservation

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Abstract

There have been numerous studies documenting the meaning of popular culture texts that depict animals, but no research has examined the impact of animal visual representations on museum visitors. We document the changes in visitors' perceptions of animals after viewing an animal portraiture exhibit at the National Museum of Natural History in Paris, France. Our hypothesis was that using an approach that presented the animal in a context that is, culturally, usually associated with human representation, viewers' sense of kinship with and respect for animals can be enhanced. The exhibit consisted of 29 photographic prints, the participants were 50 visitors, and the instrument used was the Personal Meaning Map. Sixty-six percent of visitors changed, added or deleted meaning to their perception of animals after viewing the animal portraits and a further twenty percent reported changes to the aggregate intensity of the pre-exhibit themes that they associated with the concept of "Animal.". Pre-exhibit, the visitors thought about animals primarily in terms of "Nature" and "Wild/Free" creatures; whereas post-exhibit the visitors' meanings of "Animal" emphasized "Personality" and "Kinship." Our findings indicate that certain types of visual representations of animals in a museum environment can change visitors' perceptions of animals thus having a potential influence on human-animal relations. We raise questions about today's prevalent approaches to the visual culture of animal representation in conservation and the conservation value of exposing people to animals in a captive setting.

Keywords: animal, art, conservation, personality, portraiture, museum visitor studies

The Meaning of Animal Portraiture in a Museum Setting: Implications for Conservation[1]

Introduction

The shaping and reshaping of the social world is accomplished in large part by cultural representations, and one of the most popular and provocative cultural icons is the visual depiction of other animals. Animal representations are particularly salient cultural tracers because their presence reflects historically-specific social norms and values (Kalof 2007). But animal representations also serve to reinforce or change established cultural norms. According to Burt (2002), animal imagery not only reflects human-animal relationships but can also be used to bring about change in the position of animals in human culture. He argues that "the position of the animal as a visual object is a key component in the structuring of human responses towards animals generally, particularly emotional responses" (Burt 2002, 11). For example, animal iconography is often used by fundraisers, animal advocates and journalists to mobilize popular attitudes, with animal images designed to invoke empathy, sympathy or anger for the animals depicted (Myers, Saunders and Bexell 2009). The protection and conservation of threatened and endangered animals has long been important to some prominent individuals and organizations in modern Western culture. For example, in the late 1800s, Henry S. Salt and The Humanitarian League actively rejected the dichotomization of humans and other animals, promoted the idea of kinship of all sentient life and fought for laws to protect wild animals (Clark and Foster 2000).

While there have been numerous studies documenting the meaning of animal representations, the cultural meaning of animal portraiture and its impact on conservation attitudes has not been examined. Our study is designed to fill that gap. We examine changes in visitors' perceptions of animals after viewing an exhibit of animal portrait photography at the National Museum of Natural History in Paris, France.

Background

Museum representations of nature do not reflect stable truths, but rather are historically contingent constructs that facilitate the needs of museums and their visitors (Luke 2000, 307). Timothy Luke has written extensively on how museums shape cultural attitudes and values (1997, 2000, 2002). He argues that the study of the representations of nature in museums is important because museums are "mapping centers that meld ontological meanings with cultural terrains" (Luke 2002, 100). On the other hand, Rosa (2009) questions what he calls the liberal notion that art, by affecting social values, can impact individual and institutional behaviors and argues that influence may, in fact, flow primarily in the opposite direction.

However, it has been well documented that museum experiences have an impact on visitors (Coffee 2007, Cunnell and Prentice 2000, Griggs and Alt 1982, Soren et al. 1995, Soren 2000, Falk et al. 1998, Packer 2008, Stainton 2001, Weil 2003). But there are special research challenges in assessing the impact of museum experiences on visitors because the effects of the experience may be subtle rather than obvious. Since the consumption of any cultural text (such as classical art, contemporary photographs, written narratives, or moving pictures) is a dynamic, interpretative process, cultural

representations must be understood as multi-layered messages that are read or consumed in an interactionist framework (Lerner and Kalof 1999).

The subtleties of the visitor experience begin within the dialectic exchange, such as when the goals of the artist converse with the visitor's frame of reference. In other words, an engaged visitor participates in a form of reciprocity with the work of art. Falk and Dierking (2000) discuss this process as "a socially mediated form of culturally specific conversation between the producers of that medium…and the user" (41). According to Stainton (2001, 213), visitors are in a dialogue with a work of art, and through this process a sense of meaning emerges that is linked to particular kinds of artwork. Stainton emphasizes the process of meaning-making as museum visitors draw on pre-existing knowledge and experiences to make connections with the exhibit.

The effect of a museum experience is enhanced when the visitor has a prior interest in the exhibit on display (Griggs and Alt 1982, Cunnell and Prentice 2000, Falk et al. 1998). Soren et al. (1995) studied three different museum venues and found that visitors' prior experiences coalesced with the museum experience and added to an individual's "memory bank" (45). Engaging the visitors' emotions is another way museum experiences influence visitors (Falk and Gillespie 2009), and emotions have been found to be critical in the visitor's ability to recall the museum experience (Cunnell and Prentice 2000). Learning in museums is also important. Adams and O'Ryan (1999) documented that visitors move from a general to an enriched level of understanding with a museum experience, and Packer (2008) found that museum learning consisted of both "gaining new knowledge, [and] reinforcing or challenging prior knowledge" (46). Over half of the participants Packer interviewed had an introspective experience, with the

meaning gained from the experience used to reflect on self-meaning; the "focus [was] on private feelings and experiences, such as imagining, reflecting, reminiscing and connecting" (2008, 35).

Viewing Animals in Animal Attraction Settings

Unlike most museum exhibits, live animal attractions (such as zoos, aquariums, animal theme parks and wildlife parks) expose large numbers of people to actual animals. Zoos and aquariums have long promoted their educational and conservation missions, and showing people live animals is an important objective. The American Zoo and Aquarium Association considers conservation of wildlife as its highest priority; its goal is to increase public awareness and appreciation of wildlife and to display animals in ways that convince viewers that the animals have reasons for being and rights to exist (Hanson 2002, 178).

Zoo visitors are likely to be different from visitors to museums or from others who have an interest in animals and nature. Adelman and colleagues (2000) found that zoo visitors "were generally more knowledgeable about, more concerned about, and more involved in conservation-related issues than the general public … (h)owever, they were far from conservationists" (34). This validates earlier work that found "zoo goers much less knowledgeable about animals than backpackers, hunters, fishermen, and others who claim an interest in animals, and only slightly more knowledgeable than those who claim no interest in animals at all" (Kellert, cited in Acampora 1998, 2).

Some research has found that zoos and aquariums do indeed influence visitors' conservation attitudes and feelings of connection with animals. For example, Falk et al. (2007) surveyed 5,500 visitors to institutions accredited through the Association of Zoos

and Aquariums and found that visitors believed zoos and aquariums provide an important service in educating for conservation and the care of wild animals. Visits to zoos and aquariums prompted visitors to reconsider their role in environmental problems and conservation action and to see themselves as part of the solution (Falk et al. 2007). Further, while visitors have knowledge about basic ecological concepts and zoos and aquariums support and reinforce visitor values and attitudes, visitors arrive with specific identity-related motivations that shape the meanings derived from the experience (Falk et al. 2007, 3). In a survey of 209 zoo visitors and analysis of 1,900 overheard visitor conservations, Clayton et al. (2009), concluded that visits to the zoo were positive emotional experiences that encourage visitors to learn more about animals.

However, some scholars challenge the conclusions that zoo visits have a positive influence on conservation action and education about animals. Marino et al. (2010) criticized the Falk et al. (2007) study identifying "at least six major threats to methodological validity that undermine the authors' conclusions" (Marino et al. 2010, 126). They conclude that "to date there is no compelling or even particularly suggestive evidence for the claim that zoos and aquariums promote attitude change, education, and interest in conservation in visitors" (137). Investigating the potential impact of visitors to the Conservation Station in Disney's Animal Kingdom, Dierking et al. (2004, 338) found that "in all cases the discernible changes were not as significant as had been hypothesized." Studies of the impact of conservation messages on visitors to the Monterey Bay Aquarium (Yalowitz 2004) yielded a number of findings. Many of the exhibits and accompanying narratives did result in visitors being better informed and expressing greater interest in conservation issues. Responses to direct questioning, on the

other hand, showed that most visitors were more interested in the welfare of the captive animals than they were in the conservation issues. Additionally, the impact on long-term conservation-related behaviors seemed to be more dependent on the quality of the post-exhibit literature rather than on the exhibit itself. Detailed evaluation of the Congo Gorilla Forest exhibit at the Bronx Zoo (Hayward, 2004) concluded that the exhibit was successful in conveying information about conservation issues and the work of conservation scientists. However, asked about what they liked best about the exhibit, the interpretative media (films, text panels and other "educational" information) included in the exhibit came a distant third (mentioned by 35% of visitors), well below visitors' interest in the gorillas themselves (81%) and in the whole exhibition setting (57%) – including the fact that the animals seemed to be held in a large, naturalistic setting.

These studies suggest that the captive environment creates challenges in terms of conveying conservation messages, either because of visitors' primary interest in the animals themselves rather than the attached conservation messages or because of visitors' concerns about the welfare of the captive animals. Following on Berger's (1980) classic critique of zoos as animal spectacle because of the context of confinement, scholars have established that zoo environments do indeed influence how captive animals are perceived by visitors. Rhoads and Goldworthy (1979) documented increased visitor appreciation for wildlife conservation when the exhibitions allow the animal to be in a more natural setting. In a comparison of three different environments for animals (animals in captivity, a more naturalistic setting and in the wild), Finlay et al. (1988) found that animals in captive zoo environments were described as "restricted, tame, and passive" while animals in the wild were "free, wild, and active" (508). It is also argued that zoos

might convey to visitors the impression that zoo animals are "glorified pets," so that while compassion might arise from visitor observations of zoo caretakers interacting with animals, visitors might also develop an erroneous belief in the tameness of wild animals (Kreger and Hutchins 2010, 7). Finally, Bruni et al. (2008) argue that while zoo experiences promote "an increased implicit connectedness with nature … self-reported explicit connectedness with nature" remained unchanged (139).

Some scholars join Berger (1980) as outspoken critics of zoos and their mission of conservation. Kellert (1997) argues that zoo experiences convince visitors that humans dominate the natural world, and Acampora (1998) writes that visits to the zoo reinforce the message that animals are there to entertain humans. According to Randy Malamud (1998), watching animals in zoo environments constitutes a spectatorship that is "passive, minimally imaginative, cheaply vicarious … and inhibitive, rather than generative, of the creative experience and appreciation of nature" (225-226).

In summary, animal attraction settings present animals "to be seen, heard, met, and [in animal theme parks] usually literally touched in some way" (Desmond 1999, xv). These arenas are important cultural sources in shaping people's attitudes toward conservation, animals and nature (for better or worse). Next we discuss other visual cultural contexts where real animals are never encountered but still shape the multi-layered meanings of animals and the natural world.

Viewing Animals in Visual Media

To understand the multiple social constructions of animal meaning, scholars have examined animal images in a wide variety of visual cultural media, including film (Bousé 2000, Cris 2006, Hirschman and Sanders 1997), television (Church 1996, Lerner and

Kalof 1999, Paul 1996), magazines (Kennedy and McGarvey 2008), comic art (Carmack 1997), internet advertisements (Grauerholz 2007), political cartoons (Baker 1993/2001) and photographs (Arluke and Bogdan 2010, Kalof and Fitzgerald 2003). These scholars have produced a large, interdisciplinary body of knowledge on the social and cultural messages encoded in the visual representation of animals. But there is a paucity of literature addressing the question of how animal representation in turn affects – changes or reinforces – cultural perceptions of animals. In this section we first discuss the broad literature on the visual representation of animals and then we address the specific topic of our study – animal representations in photographs.

Many scholars have studied visual media representations to identify major thematic portrayals of human-animal relationships. For example, a study of comic strips with human-companion animal portrayals found three major themes: affection and companionship, obligatory/necessary aspects of interaction (such as training and grooming), and nuisance or stressful aspects of companion animal ownership (such as property destruction or barking) (Carmack 1997). A study of animal imagery in US tabloid publications found nine thematic categorizes that symbolized human-animal relations: animals as loved one, savior, threat, victim, tool, sex object or sexual aggressor, imaginary, person and object of wonder (Herzog and Galvin 1992).

Paul's (1996) study of British children's television examined the different portrayals of companion animals, farm animals and wild animals in the programs. She found companion animals were typically portrayed as good, farm animals as neutral, wild animals as bad (although more likely to be main characters), mammals, birds and reptiles were portrayed as more human-like and more good than were either fish or invertebrates.

Another study of animal representations in prime-time television documented that animals were portrayed much more often as villains, nuisances, and threats than were humans (Church 1996). Hirschman and Sanders (1997) examined animal depictions in films about companion animals. They found the films focused on the 1) identification of some animals as human-like and others as separate from humans, 2) encouragement of traditional gender roles, the nuclear family, having children and the values of equality and democracy, and 3) portrayal of dogs as surrogate parents. Hirschman and Sanders (1997) also documented that the film animal portrayals fell into three categories: utility/farm animals (portrayed as objects not individuals), wild animals (portrayed as friendly and helpful, dangerous and harmful, food/prey or representing nature outside human control), and pets (portrayed as most similar to humans and given voice and gendered status).

Lerner and Kalof (1999) examined the dominant messages about animals in a random sample of television commercials during the late 1990s. They documented that six primary themes captured the portrayal of animals in the advertisements: animals as loved ones (member of a family), symbols (representation of logos or ideas), tools (animals for human use or consumption), allegories, nuisances and animals in nature. Many of the portrayals had multiple themes, indicating the varied, multi-layered messages about animals in visual culture and the different value and use categories that humans assign to them. Also, most of the animal portrayals were not given human characteristics (such as attributes or behavior) and when they were, it was primarily when animals were portrayed as allegories and rarely when shown as a tool for human use or consumption. This pattern suggests that humanizing an animal used for food, labor or

recreation would upset our need to maintain a distance from the animals we consume.

Indeed, in a recent content analysis of Internet imagery, Grauerholz (2007) found further evidence of the need for humans to maintain distance from food animals. She found that animal food and drink advertisements on the Internet "camouflaged" any resemblance to actual animals. This transformation of animals into meat is "the ultimate disassociation: consumers not only bear no responsibility for killing animals for food, there is little to remind them that their food or drink is linked to an animal source" (Grauerholz 2007, 347-348). It is interesting that Paul's (1996) study also addressed empirically the invisibility of the suffering of most food animals. She found that when animal suffering was portrayed in children's televised programs, it was generally only condemned when a mammal was suffering; otherwise the suffering went "without comment or judgment" (Paul 1996, 176). She concluded that animal images in the electronic media send multiple messages: some animals should be protected and sometimes loved, particularly mammals, and that meat eating is acceptable and normal (Paul 1996).

A number of scholars have studied the link between the visual representations of animals and other key cultural, political and gendered narratives. For example, Baker (1993/2001) explored how political cartoons used animals as visual stereotypes of contemporary political parties and personalities. Magdoff and Barnett (1989) found that advertising consumers liked ads that used animals to symbolize valued qualities, such as loyalty and strength (those ads appealed more to men than women). Women liked ads that showed animals in relationships and appreciating human attention, such as affectionate pets. The affinity between women and companion animals was recently

confirmed in a longitudinal study of the depiction of companion animals in women's magazine advertising (Kennedy and McGarvey 2008). In a content analysis of four decades of advertisements that included both people and pets, they found that the depiction of companion animals moved from outdoor tethered protectors to indoor loved family members.

Central to our study are those scholars who have focused on the connection between prevailing cultural narratives and the representation of wildlife in visual media. For example, Mitman's (2009) study of wildlife films found that the romantic nostalgia for a racially pure America was linked to representations of pristine wilderness and that pictures of animal life provided reinforcement of moral values such as parental devotion to offspring. Bousé's (2000) research on nature films documented that animals are usually depicted living in social groups based on the ideal of the human nuclear family and working in idealized social communities. Chris (2006) found wildlife documentaries were preoccupied with animal mating and kinship while also creating an image of a peaceful, ordered and resilient natural world by depicting animals in their "natural" environments.

In the arena of visual culture, photography has considerable significance. Photography has completely changed the global visual environment and means of information exchange (Gaskell 1991), and while nonstop imagery is everywhere, Sontag (2003) argued that we remember photographs best, with the single image serving as the basic unit for apprehending and memorizing something.

Viewing Animals in Photographs

In a beautifully illustrated book, Arluke and Bogdan (2010) examined the depiction of animals in real photograph postcards from the first three decades of the 20th century. Arguing that real photo postcards capture a unique record of the meaning of animals during that time in the US, the authors found contradictory and inconsistent messages about animals and the human-animal relationship in 11 thematic categories: pets, mascots, workers, food/goods, patients/needy, vermin, game, trophies/specimens/furs, spectacles, sports and symbols. Animals were illustrated as "both loved and hated, wild and tame, caressed and abused, commoditized and anthropomorphized, distanced and embraced, both builders and destroyers of relationships" (Arluke and Bogdan 2010, 248). The authors concluded that similar ambivalences about animals exist in contemporary human-animal relationships in the US.

Kalof and Fitzgerald (2003) examined the photographs of animals published in a random sample of contemporary hunting magazines and found that the visual representations of animals (traditionally embedded in taken-for-granted stories of love and affection for nature and wildlife) were in fact pictures of animals objectified, marginalized and elaborately reassembled to appear live after death.

Finally, Finis Dunaway's (2008) important research examined the links between environmental images and 20th century American cultural traditions including the frontier myth, Puritanism, and romanticism. While Dunaway was interested primarily in the photographers and the filmmakers who produced images of environmentalism, his work reveals important aspects of specific animal photographs in the culture of environmental

reform. For example, Dunaway describes Charles Pratt's 1964 "Black Cow" photograph as a revolutionary image of authenticity, one that

> respects the integrity and separateness of the animal, revealing its substance and materiality, offering a close study of its bone structure and facial features … The image reveals a landscape shaped by people but not ultimately created by them, a place altered by human labor but still tied to natural cycles and governed by forces beyond human control … By detaching the cow from this larger landscape, a setting that most likely contains fields and fences, the photograph encourages viewers to contemplate the cow itself and to study its details … its intense and total *cowness* (2008, 205).

In summary, while animal visual imagery has been the focus of a substantial body of research, there is only one study on the impact of animal imagery on viewers (Magdoff and Barnett 1989), three studies of animals in photography (Arluke and Bogdan 2010, Dunaway 2008, Kalof and Fitzgerald 2003), and no research on the impact of animal portraiture photography on museum visitors. To our knowledge there are no studies that have collected empirical data on whether animal visual imagery has the potential to change cultural perceptions of animals. Our study is designed to fill that gap. We ask: what impact does a specific approach to animal portraiture mounted in a museum setting have on visitors' perceptions of animals? To answer this question we evaluated visitor experiences of *Monde Sauvage: Regards et Emotions,* an exhibit of animal portraits by photographic artist Joe Zammit-Lucia on display during Fall 2008 and Winter 2009 at the National Museum of Natural History in Paris, France.

The Exhibit

"Animal Portraiture" is a broad term that can cover a multitude of artistic approaches each having potentially different effects on viewers. Our study evaluated the specific approach taken to animal portraiture by photographic artist Joe Zammit-Lucia (to

view images please visit www.jzlimages.com). Zammit-Lucia explores the use of animal portraits to examine the human ability to see animals as individuals with character and personality rather than as generic specimens of species (see also Zammit-Lucia 2008a). The artist employs the techniques of classical human studio portraiture and applies them to animals. The artist's hypothesis is that viewer perceptions of animals can be altered by adopting a representational approach that (i) alters the context in which the animal is presented (i.e., a studio-like setting vs. in the wild or in a captive setting), and (ii) frames the animal representation in a way that is culturally more often associated with human representation. The artist further hypothesizes that, using these and other artistic devices such as direct eye contact and creating a tension between who is the observed and who is the observer in the viewer-portrait interaction, and without resorting to anthropomorphic representation, the viewer's sense of kinship with and respect for animals can be enhanced while maintaining respect for the animal for what it is (Zammit-Lucia 2008b).

Our study was intended to test these hypotheses among viewers attending the artist's exhibit. The exhibit consisted of 29 of the artist's large scale (40 in x 60 in) fine art photographic prints mounted at the National Museum of Natural History in Paris, France. The prints were mounted in a setting with a darkened background and spot-lighting of the individual images. Subjects for the portraits were all large mammals except for two portraits of birds (see a sample of the images in Appendix 1).

For the viewer, the setting in this particular museum was somewhat incongruous in that *Monde Sauvage: Regards et Emotions* was a fine art exhibit in a museum where all other exhibits focused on didactic learning in a scientific framework. Our study therefore also examined whether, using such a relatively small scale fine art exhibit, it is

possible to achieve emotional engagement among visitors to a museum where the primary context is one of scientific and intellectual engagement.

Method

Instrument: Personal Meaning Map

John Falk and researchers at the Institute for Learning Innovation developed the Personal Meaning Map (PMM), a data collection instrument valuable in evaluating museum (or learning) experiences. The PMM is designed to measure how a specified learning experience uniquely affects each individual's understanding or meaning-making process. It does not assume that all learners enter the exhibit with comparable knowledge and experience nor does it require than an individual produce a specific right answer in order to demonstrate learning (Xanthoudaki, et al. 2003). The PMM assessment assumes that it is the norm, rather than the exception, that free-choice learning experiences have an effect on the underlying structure of an individual's understanding. However, exactly what an individual might learn as a consequence of a specific learning experience will vary considerably depending upon the individuals themselves and the social, cultural and physical context of the experience (Falk and Dierking 1992).

Although a qualitative instrument, the PMM can be analyzed both qualitatively and quantitatively. The Personal Meaning Map model evolved out the constructivist-relativist framework of learning, where "learning is seen as a continuous, highly personal process. Learners start from different cognitive frameworks and build on learning experiences to create unique, highly individualised schemas" (Adams et al. 2003, 2). The constructivist model views learning as a contextual process in which "prior knowledge,

experience, interests and motivations all comprise a personal context, which is imbedded within a complex socio-cultural and physical context (Adams et al. 2003, 3).

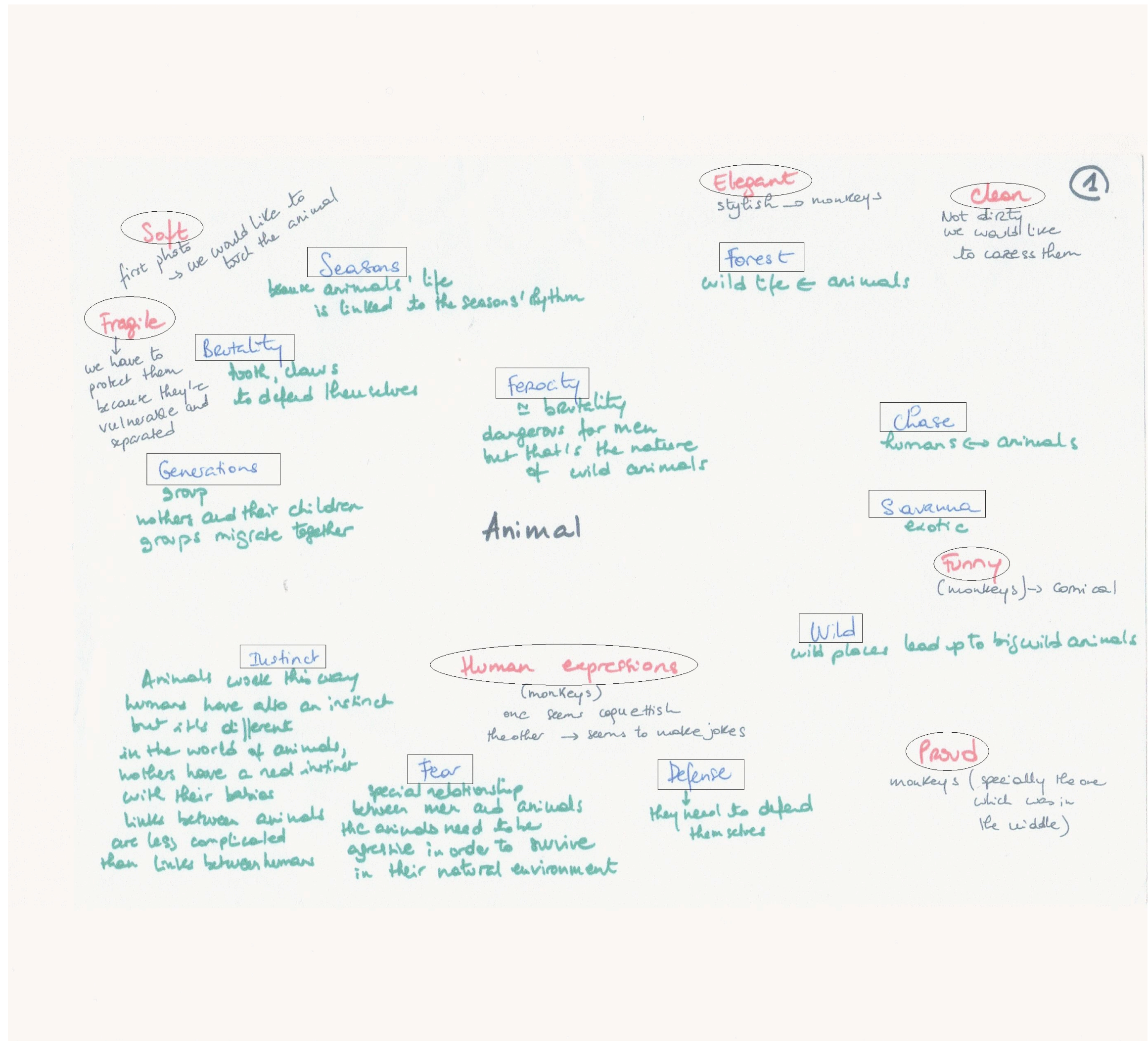
Participants

The participants in the study were 50 visitors to the *Monde Sauvage: Regards et Emotions* exhibit at the National Museum of Natural History in Paris, France, during Fall 2008 and Winter 2009.[2] Of the 50 visitors who participated in the study, 34% were males and 66% were females. The majority of the visitors were French (88% of the respondents), but other nationalities were a part of the sample, including Irish, Turkish, Greek, Lithuanian, and English.[3] Over half of the visitors who participated in the study ranged from 20-29 years old, with 22% of visitors in the 30-39 age group, 8% in the 40-49 age group, 4% in the 50-59 age group, 6% in the 60-69 age group, and another 6% were in their late teens. Twelve percent of the visitors were members of conservation groups.

Procedures

A bilingual female data collector approached the potential participants prior to their entering the exhibit. She asked, "We are conducting a research study on this exhibit, would you like to help us by participating in the study?" No benefits were presented or promised to the participants, and there were participants who were approached and declined participation in the study.[4] When a visitor agreed to participate, the data collector read the consent form which explained their task in the study and provided them with a copy of the form. Before viewing the exhibit, the participants were then given a PMM, which consisted of one sheet of paper with the word "Animal" centered in the middle of the paper (see Figure 1). The participants were also asked to fill in the

demographic questions on the back of the PMM. Visitors were asked to write on the Animal side of the paper (in blue ink) as many words, ideas, images, phrases or thoughts as come to mind related to animal. Participants were given as much time as they needed, or wanted, to write down all of their words, thoughts, phrases, and ideas related to animal on the meaning map.



A Sample completed animal meaning map

Once they indicated that they were finished and before viewing the exhibit, the data collector encouraged the participant to explain why they wrote down what they did

and to expand on their thoughts or ideas. This discussion allowed individuals to articulate and negotiate their perceptions and understandings of "Animal," and to provide more specific understandings from their own cognitive frames of reference. Their expanded responses were recorded by the data collector on the same piece of paper, using the visitors' own words and thought processes. To permit discrimination between unprompted and prompted responses, the data collected by the data collector was recorded in a different color than were the initial words, images and phrases recorded by the individuals themselves.

When visitors emerged from the exhibition, the data collector returned their meaning maps and asked them to revisit their initial meanings to the word "Animal." Specifically, they were asked to look over their earlier thoughts, ideas, images, and phrases and decide if was anything they would change, delete, or add to what is on their paper regarding the prompt "Animal." To distinguish between their pre-experience responses and their post-experience responses, visitors were given a pen with red ink to make changes or adjustments in the original responses to the concept "Animal." When they were finished, the data collector again conducted an open-ended interview, probing any changes or enhancements in their understanding indicated by their post-viewing responses. These responses were written in yet a different color of ink. When participants were finished, the data collector gathered the personal meaning maps and confirmed that the demographic information was correctly filled out on the back of the sheet. All 50 visitors participated in the study both pre- and post-exhibit.

Measures

In categorizing the visitors' meanings of "Animal" we first developed conceptual themes or categories based on visitors' responses that represented the different ways respondents gave meaning to the word "Animal. This analysis stage was devoted to developing a set of thematic categories that was fully representative of the visitors' meanings of "Animal," both pre- and post-exhibit. The analysis was conducted by two of the authors (Kelly and Kalof) who discussed potential categorizations based on the responses and finally came to agreement on the multiple themes that emerged from the 50 personal meaning maps. One of the strengths of the personal meaning map is that clusters and patterns in the data can be observed while preserving the participants' original meanings. There is no imposition of researchers' predetermined meanings onto the meaning maps. Further, it is important to clarify that our categories were not developed as our own original concepts, nor were they interpretative in nature, rather they were simply convenient groupings of the actual responses from the participants. We used broad representational concepts as themes that captured the multiple and multi-layered descriptions of "Animal," and six thematic categories emerged from the visitors' own descriptors and characterizations:

- *"Nature"* centered animals in nature and as part of the ecosystem. Some of the words that operationalized this category included evolution, life, instinct, and survival.
- *"Kinship"* was the view that humans and other animals are connected through kinship. This category was operationalized with words and

phrases such as equal being, very close to us, human, and distant parents in a family tree.

- *"Wild/Free"* was the view that animals are wild and free of social constraints. Words used included wild, independent, and free.
- *"Personality"* focused on specific attributes and sentiments that respondents saw in animals, such as elegant, proud, innocent, and beautiful.
- *"Vulnerable"* was used to classify the ways of thinking about animals in need of protection and/or conservation, such as defense, disappearance, threatened, preserved, fragile, and endangered.
- *"Violence"* was the interpretation of animals as dangerous, such as ferocious, brutal, predator, and dangerous.

Next, we recruited two female graduate students specializing in the university's animal studies graduate curriculum to independently code the data. Each coder was given an instruction sheet detailing the operational definitions of the six themes that emerged from the PMMs (see above). Then they independently coded the 50 meaning maps, placing all words, phrases and descriptors into one of the major themes, pre- and post-exhibit. After their independent coding of the data, they came together and discussed all disagreements. After discussion, they were able to come to agreement on thematic placements for 100% of visitors' responses to "Animal" for the six major themes. A Miscellaneous category was composed of concepts that did not fit into the six major themes.[5]

Next we determined the proportion of visitors who thought of animals in any of the major themes. We termed this phase "*Breadth"* to be consistent with the PMM literature. In other words, how many visitors mentioned any of the major themes pre-exhibit and how did this change post-exhibit? Finally, we analyzed the *"Intensity"* of response within each major theme. In other words, for those visitors who mentioned each of the themes pre- and/or post-exhibit, what was the aggregate change in *intensity*, including both *depth* and *emotion*, with which those themes were felt/described across the whole sample pre- and post-exhibit?

Breadth was simply the presence or absence of the concept in the visitor's personal meaning map (i.e., visitor #1 mentioned nature, wild/free, kinship and violence in the pre-visit map). *Breadth* was therefore analyzed as a binary function measuring whether a theme was present or absent. *Breadth* was used as a gate: respondents could enter the gate depending on whether they mentioned a particular theme before and/or after viewing the exhibit.

Intensity was defined as the aggregate level of *depth* and *emotion*. Here *intensity* uncovered the level of involvement of those respondents who mentioned a particular theme. Below is a breakdown of *intensity* by way of its evaluative structure.

Depth revealed the detail and complexity of the meanings given the word "Animal." We used a four point scale for depth, where one point was given when the visitor provided a word or phrase, but didn't include any explanation or elaboration; two points were given when a visitor used one word or phrase with minimal explanation or elaboration or more than one word or phrase with no explanation; three points were given when a visitor used one word or phrase with substantial explanation or elaboration

(where at least one sentence with several words was included) or more than one word with at least one sentence of explanation or elaboration. Finally, four points were given when a visitor used more than one word or phrase with elaborate explanation.

Emotion included magnitude and strength-of-feeling attributes. We used a three point scale, where one point was given when there was no emotion or the statement was simply an objective one; three points were given when there was a deep personal attitude of caring and concern and understanding often accompanied by a sense of urgency or a subjective statement was used. Additionally, three points were given to the emotion dimension when a visitor used different ways to describe the category or a clear and concise wording, demonstrating a thorough mastery of the concept; two points were given when the statement fell between the two poles.

Results

A total of 50 museum visitors participated in the study both pre- and post-exhibit. Eighty-six percent of visitors exiting the exhibit reported changes to their pre-exhibit perceptions of "Animal" as a result of viewing the exhibit; 66% changed, added or deleted specific themes; and a further 20% reported changes to the aggregate intensity of the pre-exhibit themes that they associated with the concept of "Animal." Seven of the 50 visitors reported no changes whatsoever post-exhibit either to the specific themes or to the depth or emotion associated with those themes. Prior to the exhibit visitors discussed animals mostly in terms of “Nature” and “Wild/Free.” After the visit the discussion of animals shifted in focus toward “Personality,” “Kinship” and “Vulnerable.” Overall, the findings indicate that the exhibit helped reveal animals in a different light,

with visitors coming away from the exhibit with a different understanding of the concept "Animal."

Stage 1: Presence of Major Themes

"Nature" and "Wild/Free" were the dominant themes present pre-exhibit, having been mentioned pre-exhibit by 68% and 50% of respondents respectively. Themes of "Kinship," "Personality" and "Vulnerable" were mentioned by 34%, 30% and 24% of respondents respectively. "Violence" was present as a theme in 14% of respondents pre-exhibit (see Table 1).

The exhibit led to changes in viewer perceptions regarding the meaning they assigned to "Animal." The presence of themes relating to "Kinship" increased to 52% of visitors while themes relating to "Personality" and "Vulnerable" increased to 58% and 30%, respectively. Additionally, post-exhibit responses showed a marked decrease in the two dominant pre-exhibit themes of "Nature" and "Wild/Free." The presence of these themes decreased to 36% and 28%, respectively. The "Violence" theme decreased to only 6% of visitors from a pre-exhibit level of 14%.

These results are summarized in Table 1. It can be seen that, in spite of the relatively low number of respondents in this study, the shifts in perceptions were so marked as to reach statistical significance in three of the major themes: "Nature," "Wild/Free" and "Personality."

Table 1. Effect of viewing images on personal meaning maps, n=50*

Theme	% Respondents mentioning category before exhibit	% Respondents mentioning category after exhibit	Percentage point difference	Significance
Nature	68%	36%	-32	<0.0001*
Wild/Free	50%	28%	-22	0.0034*
Kinship	34%	52%	+18	0.0931
Personality	30%	58%	+28	0.0043*
Vulnerable	24%	30%	+6	0.6072
Violence	14%	6%	-8	0.1250

Note: Significance of change estimated by an exact McNemar test using Stata 11. Using the Bonferroni correction for seven tests we consider significant results with $p < (0.05/7) = 0.007$

Stage 2. Intensity of Perceptions

While the first stage of our analysis was concerned merely with the presence or absence of particular themes, the second stage involved an examination of the intensity with which respondents held their views.

Intensity points were assigned in "*Depth*" and "*Emotion*" dimensions for each of the major themes that emerged. All respondents who had referred to pre-exhibit themes in the post-exhibit, but did not expand on those themes after viewing the animal portraits, received only 1 point for depth and 1 point for emotion (a total of 2 points for intensity).

Theme 1: Kinship

Emotion: Two points were assigned to visitors who began to see animals and humans as kin after the exhibit, but did not elaborate on the connection. This category also enlisted visitors who said the photographs brought out the human aspect in each animal, but didn't fully acknowledge the intensity of that kinship. If they had a more

enhanced understanding of the human aspect they were given three points, such as one visitor who added the word humanity because she thought that it was important to look at the part of humanity which is in each person and each animal, in their look and their temper.

Depth: This dimension ranged in complexity from some elaboration, such as one visitor who said the animal photos humanized animals, this response was assigned one point, where a visitor who received four points demonstrated a greater understanding of animals. For example, one visitor who received four points said that they were under the impression that animals could think like humans. This visitor went on to say that animals were very close to humans.

Theme 2: Vulnerable

Emotion: Two points were assigned to the descriptions of animals as fragile or vulnerable, with no elaboration. Three points were assigned to meanings that included elaboration, such as an indication of fragility in terms of the need for animal protection, conservation, or preservation or when deep emotional intensity was emphasized in the response. For example, one visitor said the word "*fragile* because the photos make her feel the need to protect them because they're vulnerable and isolated," thus revealing an emotional concern for the care of animals in a subjective statement.

Depth: If the visitors indicated some sign of the vulnerability of animals, but didn't reveal any explanation they were given one point. Whereas, a visitor who indicated that they were more concerned about the animals as a result of viewing the photos received three points. One example of this was a visitor who said that the exhibit

made her realize how sad it was to know that so many species are threatened.

Theme 3: Personality

Emotion: Two points were given when a visitor described certain characteristics of an animal. For example one visitor used the words very sad when referring to the cheetah. If a visitor used more than one characteristic to explain the animals in the photographs they were assigned three points. For example, one visitor referred to strength and beauty (strength because animals have to struggle in order to survive and beauty because all animals are beautiful). Additionally, if the visitor referred to personality they were given three points. Finally, three points also represented deep emotion, where the mastery of the concept category may not have been clear, but the emotional commitment to the concept was relevant. A good example of this is a visitor who indicated "serenity" for the word "Animal" (the exhibit gave a peaceful image of animals; the shots make us contemplate the animals and think about them; the animal beauty made us do some soul-searching).

Depth: One point was assigned to a response that indicated the animal had a personality. Four points were assigned to visitor responses that provided extensive elaboration in the post response. One response that received four points indicated: soft because the photos made her want to touch the animals, clean because on the photos, the animals seemed clean, she would have liked to cuddle them if she had been able to, funny because she thought the chimpanzees were really funny, and elegant and proud as the Iberian Lynx.

The results of the aggregate intensity analysis are shown in Table 2. It can be seen that changes in the presence/absence of the major themes as analyzed in Stage 1

were mirrored in the intensity of visitors' perceptions. Themes of "Nature," "Wild/Free" and "Violence" showed large decreases (69%, 63% and 69%, respectively) in aggregate intensity across the study population. Conversely, "Kinship" and "Vulnerable" revealed 41% and 27% respective increases in aggregate intensity across the study population. Post-exhibit, "Personality" showed the largest increase of all: an 84% change over the pre-exhibit aggregate intensity level.

Table 2. Aggregate intensity of response on personal meaning maps (n=50)*

	Aggregate intensity of response across study population		
Theme	Pre-Exhibit	Post Exhibit	% Change**
Nature	194	60	-69%
Wild/Free	131	48	-63%
Violence	39	12	-69%
Kinship	97	137	+41%
Vulnerable	62	79	+27%
Personality	81	149	+84%

*These aggregate scores reflect the sum of scores in "Depth" and "Emotion" for all respondents in whom each particular theme was present.
** % Change represents the change in score post- *vs* pre-exhibit expressed as a percentage of the pre-exhibit value, calculated as ((Pre score – Post score)/Pre score) x 100.

Discussion

As a result of visiting the *Monde Sauvage: Regards et Emotions* exhibit, museum visitors gave a different meaning to the word "Animal" compared to the meanings they expressed before entering the exhibit. The biggest single change was seen in the significant increase in the attribution of "Personality" to animals. This finding alone confirms that exposure to this particular artwork seems to have the effect desired by the artist – encouraging viewers to see animals as individuals with character and personality rather than as generic specimens of species. The emergence of "Personality" as a dominant theme in the evaluation of the animal portraits also corroborates prior research documenting that many people perceive themselves and nonhuman animals as remarkably similar, in spite of the cultural narratives that exacerbate the human perception of animals as dissimilar, exploitable others (Kalof 2003). Noting that this perception of similarity takes place in a borderland of blurred boundaries where human identity and the relational self are shaped in association with nonhuman others, Kalof (2003) concluded that the recognition of both our similarities with and our differences from other animals is an essential first step in the development of coalitions to resolve some of our most serious social and environmental problems.

However, the impact of this artwork was seemingly much broader than the increased attribution of Personality to the concept of "Animal." We see a wholesale shift from the Animal being perceived as something wild, natural and hostile – and therefore separate from the Human – to a perception of closeness and kinship between animal and human. Pre-exhibit, the thematic cluster of "Nature," "Wild/Free" and "Violence" accounted for 60% of respondents' aggregate intensity scores. Post-exhibit, the relevance

to visitors of this cluster fell to 25%, with the combination of "Personality," "Kinship" and "Vulnerable" now accounting for a full 75% of the aggregate intensity scores. These changes suggest that the effect of the exhibit went beyond isolated changes to perceptions around individual themes to changes in the overall cultural perception of the Animal and the nature of the relationship between the Human and the Animal. This lends credence to the hypothesis that certain approaches to animal representation in a museum setting can impact visitors' fundamental perceptions of animals and potentially impact human-animal relations.

How Should the Animal be Seen?

It has long been the assumption of many in the environmental movement that a romanticized representation of nature – representations of animals in their natural habitat doing whatever it is that animals do – and the presentation of scientific information as part of a didactic learning process are the most important elements on which to build coalitions focused on environmental conservation. As Baker (1993) has argued, some go even further, making demands "for a morally or politically correct image of animals, an image of *animals as they should be seen*, of animals running free in our imaginary and mythical wild" (194).

Our findings combined with previous research serve to raise questions about these assumptions. The first question that arises is: are approaches that culturally position animals as wild, free and violent creatures who are part of nature more or less likely than themes of kinship and vulnerability to encourage the development of the sort of human-animal relationships that could resolve some of our most devastating exploitations of other animals? It has been suggested that humans have "nested communities" of

relations to animals, some of which are closer to us and some further away (Callicott 1992). An ethics of care approach to this issue would suggest that it could be productive to explore ways that encourage humans to extend their more intimate circles of care outwards, developing greater kinship with those animals that are threatened or endangered. "Appropriate" animal representation may be a valuable tool to achieve this for animals with whom we cannot so easily develop a day to day relationship based on direct contact. A similar concept arises in Warwick Fox's Theory of General Ethics (Fox 2006) where, as part of a much broader theory of ethics, he proposes that we have "an obligation to offer saving help only to supersignificant and significant others" (3838). While it is unlikely that we can elevate endangered animals to the status of significant others, cultural constructs that emphasize concepts of personality, kinship and vulnerability are more likely to move us in that direction than the more distancing concepts of wild, free and violent creatures who belong in a distant, non-human Nature.

Which is the Best Form of Learning?

In thinking about how to influence fundamentally the underlying structure of an individual's understanding and attitude, a second question arises: what are the relative roles and degrees of effectiveness of the didactic, fact-based learning approach compared to the free-choice learning experience stimulated by an ambiguous work of art? For instance, some have suggested that philosophical reflection acts as a deflection that actually distracts us from the immediacy of our encounter with animals with the effect of distancing people from animals (Diamond 2008). Scientific or documentary explorations are, like philosophical reflection, intellectual exercises that can lead to emotional disengagement and potentially increase distance in human-animal relations. There may

be fundamental flaws in the assumption that “education” through didactic scientific communication is either universally effective or the best way of persuading lay people of the merits of conservation efforts. For instance among visitors exiting a recent, highly sophisticated exhibit about climate change at the Science Museum in London, England, a majority of 2:1 stated that, having visited the exhibit, they did not believe that human-driven climate change was a significant issue to be dealt with (Jones 2009).

How deeply embedded is the belief in the primacy of didactic communication is reflected, for example, in the comprehensive and detailed evaluation undertaken by the Wildlife Conservation Society of its highly successful “Congo Gorilla Forest” Conservation Exhibition (Hayward and Rothenberg 2004). The authors open with this statement: “Most zoo visitors are primarily motivated by the joys of watching animals, which may preclude attention to major ecological issues that are the focus of research in biodiversity, habitats, and other matters pertaining to the survival of wild animals” (261). Here, rather than visitors’ own natural motivations being seen as opportunities to enhance the human-animal relationship, they are seen as obstacles potentially getting in the way of “introducing basic concepts of environmental science and conservation biology” (Hayward and Rothenberg 2004, 266) – in other words the scientists’ own desire to produce scientifically educated people.

Because of their expressive qualities, works of art affect viewer perceptions in a different way compared to knowledge-based or documentary communication. Especially when ambiguous or counter-cultural, a work of art operates to engage viewers at the immediate, emotional and subconscious level. There is no attempt to force on the viewer a specific viewpoint. Rather, the viewer is launched on his or her own individual thought

processes, part intellectual, part emotional, and reaches personal conclusions in a "free-learning" environment. The exhibit that we evaluated was totally "fact-free." It consisted of a series of images with no advocacy or other factual information promoting the animals or their conservation. Yet the impact on visitors' expressed views was substantial.

Currently, the use of fact-based, scientific information remains the dominant form of communication within the conservation community. Indeed, among some, there is deep suspicion about any alternative approach. Yet, "(t)he poetic as distinct from the prosaic, esthetic art as distinct from scientific, expression as distinct from statement, does something different from leading to an experience … It constitutes one." (Dewey 2005, 88). This statement points to a complementarity of art and science that, combined, may provide a more effective route to influencing the cultural environment in which decisions on human-animal relationships and their conservation implications are made. This approach requires a recognition that, apart from attempting to produce scientifically informed citizens, effective communication efforts "must also address motivation to act, which is closely related to feeling and emotion" (Myers 2009, 39).

Finally, we would like to discuss the widespread perception that providing people with the opportunity to view live, captive animals (i.e., in zoos or nature parks) is an important element in the overall "education" efforts designed to influence conservation endeavors. The impact of most zoos' effectiveness in creating a positive conservation culture continues to be a matter of debate. Some consider zoos "embassies in which ambassadors of other species reside" (Rabb 2004, 243). They see zoos progressively evolving into conservation centers and places where the opportunity for aesthetic

appreciation of individual animals helps conservation efforts by leading to a wider appreciation of the entire species (Kagan and Veasey 2010). Others see talk of conservation as a mere fig leaf and argue that zoo visits are more about family entertainment than environmental education (Hyson 2004). Here our interest lies not in zoos' potential in traditional, didactic educational efforts but rather in their potential impact on the human-animal relationship. In addition, we are interested in the potential impact of the zoo exhibit itself rather than the many research and field conservation projects that zoos and zoological societies now support but that have little or nothing to do with the animal as public exhibit.

In this regard, our study may provide an alternative framework for thinking about ways to connect people to animals in need of protection. It serves to raise two important questions for discussion. First, our study has shown that the device of placing animal representations in a visual context that is usually associated with human representation had the effect of enhancing feelings of kinship. What, therefore, are the effects of continually exposing people to animals in a captive setting? As suggested by Berger, Kellert, Acampora and Malamud, does viewing animals in zoos only reinforce and enhance feelings of human dominance over other living beings? Rather than enhance feelings of kinship, is captive subjugation merely "… a demonstration of the dualism at the very origin of the relation between man and animal" (Berger 1980, 28), one that increases the perceived distance between the human and the animal and continues to legitimize the exploitation of the animal for the purposes of mere entertainment? Or do zoo encounters generate positive or negative emotional experiences that merely reinforce

preconceived cultural perceptions of the particular type of animal involved (Myers, 2004)?

Second, if appropriate visual representation has the potential of effectively enhancing feelings of kinship and attitudes towards conservation, what opportunities might this present to decrease the number of animals in captive settings and replace – at least in part – viewers' experiences with appropriate visual imagery? Pekarik (2004) argues that an important and often neglected element of the zoo experience is the ability to reflect on what it means to be alive and to be human and to realize that "(a)nimals are simultaneously 'like us' and 'not like us' " (257). He stresses that this questioning takes place through metaphor. If this is so, could combinations of live animal experiences and more metaphorical art-based experiences serve to enhance such questioning?

What We Have Learned and What Remains

Our study was intended to address one narrow question – does one specific form of animal representation have the potential to change viewers' perception of animals and the human-animal relationship and to influence positively people's attitudes towards conservation? While providing a positive response to this question, the natural limitations of any single study raise further questions that could benefit from more research. What would need to be done for the changed perceptions we have documented to be sustained over long periods and lead to changed behaviors among viewers? Would the impact be different if these images were to be presented in settings other than a Natural History Museum – a setting where other exhibits may also have influenced respondents' perceptions? Are these findings reproducible in other cultural contexts – for instance in other countries or among individuals who were not self-selected as those who chose to

visit a Natural History Museum? All these questions could provide productive avenues for further work.

What our study does clearly show is that, in the right form, animal representation can have a substantial influence on viewers' cultural attitudes and feelings about animals. In modern urban culture, animal representation and live animal attraction settings are the only significant forms of contact that exists between the majority of humans and other animals, with the exception of companion animals. Animal representations are therefore central to the future development of human-animal relationships. The form of these representations will determine the direction in which the human-animal relationship will develop – for better or for worse. Yet, in the absence of empirical information about the impact of different forms of representations, we are left with Baker's (2001) contention that any discourse about the animal "as it should be seen" becomes nothing more than a matter of personal preference.

Rather than focusing on a preferred form of animal representation, it may be more productive first of all to understand how different forms of representation may affect meaning. In this, we should consider the important point that viewers first of all process images in terms of their global, meaning-laden qualities rather than their content details (Myers, 2006). This distinction between meaning and content is analogous to what some art philosophers have described as matter versus form, arguing for a unity of matter and form in works of art. In providing a very specific combination of matter and form, the images we have studied here seem to have generated a meaning that goes far beyond the literal, and to have done so without the need for additional narrative support.

Alternative approaches to animal representation – such as traditional wildlife and nature photography or wildlife documentaries – may have effects on viewers opposite of those we have found here. For instance, traditional wildlife photography that places animals in a naturalistic setting, may enhance themes of nature, wild and free potentially to the detriment of feelings of kinship and vulnerability. Kill scenes, which have seemingly become an obligatory component of traditional wildlife documentaries, may enhance a concept of the animal as a violent, ferocious and brutal predator, further undermining concepts of kinship and vulnerability. These approaches may be more in tune with a view of conservation that sees Culture and the Human as somewhat separate from, and a destructive intruder upon, a Nature that must be protected, rather than a belief in the primary importance of positive human-nature relationships as the vital underpinnings of successful conservation efforts.

Any form of animal representation is a cultural artifact. One group or another may prefer one form of representation over another. But every preferred form "of seeing and understanding is itself cultural and in a sense no more a true picture of the animal than any other" (Mullan and Marvin 1987, 6-8). For these reasons, our study is not concerned with trying to establish a preferred form of representation. Rather, our interest is in providing evidence of whether one specific form of representation changes viewers' understanding of the concept of "Animal" and whether the changes achieved are likely to help or hinder conservation efforts. It is possible, indeed likely, that untested but established assumptions about the desirability and acceptability of different forms of animal representation may have unwittingly created a visual culture that might serve to distance us further from non-domesticated, threatened and endangered animals. More

empirical information about the ways different forms of animal representation impact cultural meaning and human behaviors may give us the better understanding needed for the future development of effective approaches towards improved human-animal relations.

The particular animal portraits we have examined intensely emphasize the animality and individuality of the represented subjects and artificially place those subjects in a setting culturally associated with human representation. This seems to create among viewers a type of engagement and change in perceptions – a meaning – that may not happen when animals are presented in other, more prosaic, naturalistic or scientific settings. As has been postulated in the context of similar juxtapositions in the zoo setting, "Removed from the intensity imposed by the ... artificial exaggeration of similarity and difference, only the poets are likely to find the sight of an animal penetrating, and to appreciate the opportunity that animals provide us to realize what life is" (Pekarik 2004, 259).

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[2] The research design was reviewed by the university's Institutional Review Board (IRB) for evaluation prior to distribution. The informed consent guidelines for the IRB were followed for the appropriate ethical considerations of social research.

[3] 44 visitors were French, 2 Irish, 1 Turkish, 1 Greek, 1 Lithuanian, and 1 English.

[4] Unfortunately, we do not know how many visitors approached refused to participate.

[5] Nine respondents mentioned one or more miscellaneous concepts pre-exhibit (none of the nine changed or deleted these concepts post-exhibit, although five of them added concepts that fit into one of the major themes). The Miscellaneous concepts were glitter, cat, art, perfect, soul, mystery, hope, fascination, passion, joy, caught, hairy and curiosity (because humans are curious to know animals).

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