

The Role of Zoos in Creating a Conservation Ethic in Visitors

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Abstract

This research project addresses the role of zoos in creating a conservation ethic in their visitors, with a focus on Taronga Zoo in Sydney, Australia. The zoo educates visitors about animals, species, and habitats as well as conservation and threats to biodiversity. Interactive exhibits encourage the visitors to reflect upon the relationship between humans and animals and humans and nature, as well as solidify the zoo experience in the visitors' minds. By providing an entertaining experience, the zoo renders visitors more receptive to conservation messages. Other messages increase respect for animals, species and habitats. Individual connections with animals are facilitated to encourage respect and a sense of relatedness. With certain species, similarities between humans are emphasized to increase human's sense of connection to these species. Personal responsibility to aid in conservation efforts is stressed, and the zoo gently flatters the visitors' egos to make them feel like capable agents of change. Through education about its own various conservation efforts, the zoo sets a precedent for pro-conservation behavior. Suggestions for specific actions that people can take further encourage pro-conservation attitudes. The habitat orientation and immersive exhibits serve to encourage greater understanding of and respect for whole ecosystems rather than just individual animals. Lastly, experiences that evoke emotions create a sense of care and connection for individual animals, species and habitats. One potential critique of zoos, that they reinforce anthropocentrism, is explored, as well as the overall effectiveness of zoos in creating a conservation ethic in visitors. I conclude that zoos can be meaningful tools for increasing the conservation ethics of their visitors, but generally, local and personal connections with nature are more valuable.

ISP Topic Codes: 209, 232, 906
Psychology, zoos, conservation ethic

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1. Acknowledgments

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3. Introduction

Zoos are very popular and draw a lot of visitors. They can be important conservation tools, and a means of educating people about wild animals and inspiring the general public to take a greater interest in their protection. It is important to determine whether they influence people to be more aware of the importance of conservation. Pros are that they provide exposure to wild animals that city dwellers might not otherwise get. It is difficult to have a sense for the importance of something if one is never exposed to it. Cons are that it could be considered cruel to imprison animals against their will for the sake of human amusement and profit. Because this issue has such serious ethical implications, it is important to try to establish whether or not these establishments are true to their supposed conservation goals.

The study can be approached from an environmental psychology perspective, in which people's experiences and thoughts as they visit these places are researched. Emotion is an important human motivator, and so it is key to research what kind of emotions humans experience in the wildlife parks and if these influence their attitudes towards conservation. A sense of connectedness to nature is an important component of resolving environmental problems (Frantz, 2005). Humanity has been removed from contact with wilderness and other animals, and because of this disconnect, we are less likely to feel a connection to them and deem important their conservation. We have separated ourselves from animals with the belief that we are superior and that they experience no emotion and lack any beyond rudimentary intelligence (Jensen, 2007). According to Frantz, "the origin of environmental problems is in the way that modern individuals conceive of their relationship to nature" (2005, 427). It is in the sense that one is separate and distinct from the world around them. Theory and research on helping behavior proves that a sense of resonance or relatedness is important for helping to occur, so it follows that humans need to establish such a bond with nature in order to care for it (Frantz, 2005). This does not mean that humans need to love nature or incorporate it into their sense of personal identity, but they need to have a feeling of "we-ness," similarity, group identification, and sense of interdependence (Frantz, 2005). Environmental identity research by Clayton shows that "when people extend their self-definitions to include the natural world, they are more likely to act in an eco-friendly manner towards the environment" (Frantz, 2005). Mayer and Frantz have likewise found a link between connectedness to the environment and eco-friendly behavior

(2005, 428). Promoting pro-environmental personality characteristics will lead people to experience a greater sense of connectedness with nature (Frantz, 2005). Although, the authors do question whether an increased sense of interdependence with nature will always lead to eco-friendly acts (Frantz, 2005). Jensen (2007, p. 3) argues that we need contact with animals to remind us of the complexity of life and that we are not at the center of the universe. If children do not experience wild animals, they will have a warped sense of the world and themselves. In order to determine how visits to zoos influence visitors, it is necessary to understand if a connection is established between humans and animals when they visit the zoo, and what the nature of that connection is.

Vining posits that zoos allow people to have contact with animals, reconnect with the natural world, and approach it in a spirit of conservation (2003, p. 90). Vining (2003, pp. 93-94) questions, though, whether the contact with animals that zoos provide fosters a sense of connection to animals that leads us to care for them as individuals, and whether caring for individuals leads to caring for ecosystems. He accepts this as a possibility that needs to be further studied. The author of "After the Ark" questions whether the main focus of zoos' conservation efforts should be the individual, the species, or the ecosystem (Mazur, 1997). This relationship is crucial to my research. If humans do not establish a connection with animals when they visit the parks, they will not care for the individual animals, the species or the habitats, rendering a conservation ethic impossible.

A study done by the Association of Zoos and Aquariums (Falk, 2007) found that visits to zoos and aquariums prompt individuals to reconsider their role in environmental problems and conservation action and to see themselves as part of the solution. Research on visitors to the National Aquarium in Boston does show that they exhibited strong emotional responses, an increase in motivation to engage in environmentally beneficial activities, increased support for conservation, and increased understanding about marine environments and conservation (*The impact of science and discovery centres*, 5). Visitors also believe that zoos and aquariums play an important role in conservation education, and they report experiencing a stronger connection to nature as a result of their visit (Falk, 2007). Interactive exhibits, interpretive tours and educational programs that allow people to experience face-to-face contact with living animals influence visitors in significant ways (Falk, 2007). It can be hard to measure the effects on

attitudes and behaviors that zoos and aquariums have on their visitors because many visitors already possess pro-environmental attitudes and therefore do not exhibit changes in their attitudes and behavior as a result of the visit, although the visit does reinforce existing attitudes (*The impact of science and discovery centres*, 5).

Some literature suggests that zoos may actually emphasize separation and anthropocentrism, because animals are behind bars against their will instead of roaming free in the wild (Vining, 2003). Zoos encourage a skewed view of our place in the natural order, when what we really need is to learn to live as one species among many (Jamieson, 1985). They establish the relationship that animals are there, humans are here, and we have power over them (Jensen, 2007). Zoos offer a superficial relationship based on hierarchy and dominance, and therefore do not provide a healthy kind of contact with animals (Jensen, 2007). If you have never seen that animal in the wild, you have not really seen that animal (Jensen, 2007). We cannot get the intimate connection we need with wilderness and wild animals through zoos. The world will be better off if zoos are abolished (Jamieson, 1985). Deep psychological and perceptual flaws cause us to imprison animals for our enjoyment (Jensen, 2007). If anthropocentrism is indeed increased by a visit to the zoo, then a conservation ethic will most definitely be difficult to generate.

Another potential problem with zoos addressed by previous research is that zoos might create a connection between humans and individual animals, but not foster concern for the species and their habitats. The almost universal practice of giving animals names highlights their individual personalities and anthropomorphizes, thereby failing to generate respect for non-human nature (Mazur, 1997). Visitors are more concerned with the characteristics, behavior or welfare of individual animals rather than species conservation (Mazur, 1997). Furthermore, many zoos are hesitant to actively push conservation messages because of the need to maintain a relaxing and entertaining atmosphere for the zoo goers and avoid overwhelming them with depressing information (Mazur, 1997).

Others question the educational value of zoos. Zoo goers' knowledge of zoos is lower than that of hunters, backpackers, fisherman, etc., and that they display the usual prejudices about animals (Jamieson, 1985). Most visitors spend little time at the cages and only express interest in baby animals or those behaving in entertaining ways (Jamieson, 1985). Studies have

shown that most zoo goers seek a safe, attractive and entertaining social experience, rather than a serious learning opportunity (Mazur, 1997). Informational signs and graphic can lead to attitudinal changes, but most visitors do not read them (Mazur, 1997).

Modern zoos have made modifications that may increase their effectiveness in creating a conservation ethic in visitors. Contemporary, naturalistic exhibits (as opposed to the traditional caged model) stimulate visitors to make a connection between the zoo animals and their wild counterparts, and more interactive exhibits foster a deeper understanding and appreciation of the animals (Mazur, 1997). Tour guides and keeper talks can deliver environmental messages that might facilitate cognitive and affective changes (Mazur, 1997).

4. Methodology

I conducted the study at the Taronga Zoo in Sydney, Australia. I originally planned on researching at four different locations, Taronga Zoo, Sydney Aquarium, Wildlife World, and the Ocean World. As I began the project, though, I realized that it would be impossible to perform more than superficial and hurried research if I studied all of the locations. I chose to focus on the Taronga Zoo because they were the first to contact me and seemed interested in my research, and Paul Maguire, my advisor, supplied me with several valuable contacts. Furthermore, the ferry wharf provided the perfect opportunity to survey zoo visitors.

I chose to study the development of a conservation ethic in adults rather than children for several reasons. First of all, the process of getting approval for research with children is much more tedious, and I did not consider it imperative to my research. Also, I assumed that children would be less likely to have developed conservation ethics, or if they do, then they are not part of their conscious awareness. Thus, most of the data gathering would have to be implicit rather than explicit. These complications would render research much more difficult, so I chose to abstain from interaction with children for my project.

I employed several methodologies of data gathering. I interviewed several volunteer tour guides and staff members at the zoo as well as a staff member of the Sydney Aquarium. I attended all of the shows, keeper talks, and animal feed times that the zoo offered. I analyzed the content of the Taronga Zoo website, pamphlets, interpretive and informational signs. I observed visitors' behavior and what kind of questions they posed to keepers during keeper talks. As for direct data gathering from visitors, I conducted 210 surveys in the zoo and on the ferry wharf. I recorded all of the data in my ISP journal. Practically all of the data was qualitative with the exception of the quantitative analysis of the survey results.

Limitations of the data include my own biases and subjectivity, as well as the standard shortcomings of surveys and interviews. I did the content analysis of the various media myself, and obviously there could be biases here in how I interpreted information. I might have approached the observation component thinking that the average person cares less about conservation than I do, and then have subconsciously selectively filtered information to substantiate this bias. With observation, I did not gain a deep understanding of the conservation ethic of visitors. It is based purely on comments that I hear, body language, what kind of

questions visitors pose, and how long I observe them reading the informational signs and standing at the exhibits. Difficulties I came across with surveying included couples filling out one survey for the both of them, which could yield inaccurate results, and many people not filling out the open ended questions, or just writing one word. Also, many people answered inconsistently. They would rate their knowledge of conservation as low, but then write later on that they already had a high interest in conservation. Many people also did not read the questions carefully, and their responses did not give me much valuable data. Self-report data is notorious for its questionable reliability. Just because people say they feel a certain way, it does not mean that they actually do. If people perceive a strong conservation ethic as a positive thing, they will overstate the strength of their conservation ethic.

Interviewees

- Claudette Rechterik
 - Sydney Aquarium Conservation Fund

- David Smith
 - Taronga Conservation Society Australia
 - Taronga Zoo

- Judy Gibson
 - Manager of Education and Volunteers
 - Zoo Friends
 - Taronga Zoo

- Anonymous volunteer tour guide
 - Zoo Friends
 - Taronga Zoo

5. Discussion

5.1 Increasing general understanding

The zoo focuses on simply increasing understanding of animals, which is the first step to caring about animals, species and their habitats. This is achieved by general informational signs at all of the exhibits, explaining where the animal is from, stating its classification, and giving a description of the species. Keeper talks gave general information about animal husbandry, such as what the animal eats, how the keepers care for it, its behavior, gestation periods, general anatomy/physiology, etc. The zoo also attempts to dispel myths and stereotypes about animals. A sign near the seals describes the difference between seal and sea lions, and a keeper mentions during the keeper talk that dogs are seals' closest relatives. During the seal show, different types of seals are presented, which helps to avoid creating a stereotype of one type of 'seal' in people's minds. Keepers also reject the stereotype that all seals do is eat and sleep. People often mistake chimpanzees for monkeys, and the chimp keeper stressed the difference between monkeys and apes, explaining that chimps belong to the latter.

The zoo also aims to decrease fear towards animals that are traditionally perceived as scary or ugly and make visitors more comfortable with them. Judy Gibson, Manager of Education and Volunteers at Taronga Zoo, explains that it is harder to inspire a conservation ethic towards animals that people are frightened of or perceive to be ugly (pers. comm., 17 November 2008). By breaking down some of the negative stereotypes surrounding crocodiles, spiders, and snakes, the zoo encourages a conservation ethic towards them as well. A sign near the saltwater crocodile exhibits breaks down myths about crocodiles and explains why we find them so scary. "Crocs have a reputation as ferocious man-eaters though on average in Australia they only kill about one person per year" explains an informational board. Other information includes that a 7 meter saltwater crocodile is rare (5 meters is the average), jump attacks are unlikely and humans can actually outrun a crocodile. It goes on to list safety tips on how to avoid an attack. The spider keeper explained that spiders are actually terrified of us, the chances of being bitten are low, and anti-venoms are available should one be bitten. A sign in the reptile house notes that snakes are shy animals and their first inclination is to escape and hide rather than bite, and that if one comes across a snake the smartest thing to do is be still and let it go by. By giving visitors tips on how to be safe, the zoo hopes to make people more confident and less

fearful and hateful towards these creatures. A volunteer tour guide at the zoo thinks that for animals which people are traditionally scared of, such as snakes, allowing visitors to handle the animal while keepers tell them about what a wonderful animal it is and why it is important will lead people to look at the snake in a different way (pers. comm., 17 November 2008).

5.2 Conservation messages

The most obvious and heavily used method of instilling a conservation ethic in the visitors is posting information about threats to species' survival. "Poaching and loss of habitat are seriously reducing elephants' numbers and affecting their vital role in the forest" reads a sign next to the elephant exhibit. In the Wild Australia walkabout, there are signs describing how European settlement has affected the kangaroos and their kin (the bush was cleared and rabbits, cats, and foxes were introduced). A sign near the booth where visitors can take a picture with a koala talks about the destruction of koalas' habitat as a result of development, and the need for native wildlife corridors. This is a high traffic area, and the designers took advantage of this opportunity to educate visitors. A huge, beautiful mural near the platypus exhibit details the threats to platypus populations. The following message is next to the Malayan Tapir exhibit: "logging of their forest home has forced Malayan Tapirs into the higher mountain regions that are unsuitable for agriculture." Another board describes the threats of the illegal bush meat trade, and how even if animals are confiscated they cannot be returned to the wild. "Threats to animals increase as remote areas of forest habitat are opened up by mining and timber companies. Workers hunt for bush meat to eat in the forest camps and poachers use the new roads to access once secluded colonies" it reads. Another board asks "Why do rock wallabies need our help?" It then describes the various threats to Wild Bush rock wallabies (competition from rabbits and goats for food, farmlands, and foxes and cats).

One of the bluntest conservation messages in the zoo is in the chimp exhibit. A sign plainly states that "humans are the threat" and that "chimps are not thriving in the wild." It does not say that humans are *one* of the threats, or that chimps are having *difficulty* thriving in the wild. Another high-impact message near the big cat exhibits states that "big cats are disappearing in the wild." This creates a sense of immediacy; the problem is *now*.

Keeper talks heavily stressed the importance of conservation, and the keepers educated the public about threats to biodiversity. The chimpanzee keepers talked about the threats to the species in the wild (habitat loss, human diseases against which they have no immunity, the bush meat trade and the pet trade). During the seal keeper talk, the keepers talked about the many marine species that have already gone extinct, and the need to protect our oceans. They also mentioned the importance of disposing of rubbish properly, and told the visitors about the many dangers that trash poses to life in the oceans. The koala keeper outlined the threats to koalas (habitat destruction, cars, koala Chlamydia).

Unfortunately, I did not notice many people reading the interpretive and informational signs, a concern that was expressed in background literature. Young people especially did not seem to stop by very often, and if they did it was very briefly. People were more inclined to look at pictures rather than read the information. Parents were much more interested in taking pictures of their children next to the animals. David Smith, a staff member at the Taronga Conservation Society at Taronga Zoo, thinks that people come to the zoo primarily for a fun, entertaining day out, and that conservation messages are becoming more important but are still not the main objective (Pers. comm., 17 November 2008).

Visitor survey responses indicate that the shows and keeper talks had a big impact on many of them. Examples of responses include “[the] bird show was very moving-interaction was superb! Also the seal show and exhibit were favorites” and “loved [the] bird show, really great.” Another visitor wrote that the something that strengthened his attitudes towards conservation was the seal show, which incorporated the message of non-pollution regarding our waterways.

One issue with zoos expressed in the background research was that many people rate their conservation attitudes as high before their visit, and thus the zoo visit does not change their attitudes. The results of the survey indicate that most people rate their knowledge of conservation, species extinction and biodiversity as average (see table 1). Thus, the zoos messages on conservation are necessary and should be making a big impact on visitors (if they read them, of course). If visitors were above average in their knowledge of these conservation issues, these messages would be not as important. Most visitors did, though, report that they considered conservation of biodiversity to be very important prior to their visit to the zoo (see table 2). Many of the comments made by visitors in response to the question “Describe how the

visit has changed your attitudes toward conservation of biodiversity (care and concern for other species, interest and motivation to protect them and their habitats)” indicate that the visitors perceive their own conservation ethics to be quite high prior to their visit to the zoo. Comments include “[I was] always aware of saving endangered species,” “conservation has always been important to me, this visit just re-affirmed that,” and “I was already really interested in biodiversity, it hasn’t changed my attitude but will increase it.” These results were puzzling, because on one hand most people believed their knowledge of biodiversity to be average, yet their consideration of its importance was high.

Table 1

Responses to Survey Question:

“How would you rate your knowledge of conservation, species extinction and biodiversity before your visit to Taronga Zoo?”

Very Low	Low	Average	High	Very High
4 (1.9%)	27 (12.9%)	120 (57.4%)	46 (22.0%)	12 (5.7%)

Table 2

Responses to Survey Question:

“How important did you consider conservation of biodiversity prior to your visit?”

Unimportant	Somewhat Important	Very Important
4 (1.9%)	81 (39.1%)	122 (58.9%)

5.3 Interactive exhibits and reflection

Interactive exhibits within the zoo are designed to encourage visitors to have deeper, more meaningful experiences than they would if they passively filed past the exhibits. They promote reflection upon our relationship with the animals, similarities and differences between us and the

importance of conservation of biodiversity. One of the most effective signs (next to the Victoria crowned pigeons) explained that this is the biggest living pigeon, and that the Dodo was the biggest, but it was hunted to extinction. It reads, “If only our forefathers had been a bit more sensible...let’s hope our children don’t say the same about us.” This message encourages the visitor to reflect upon humanity’s effects on biodiversity, as well as the kind of world we want to leave to our children. Another such sign next to the lion exhibit asks, “Man and Lion – can we live together?” Below are listed the issues surrounding lion conservation (numbers have plummeted, losing homes to agriculture, national parks are not big enough and conflicts between humans and lions arise as lions search for food). In a gazebo structure next to the elephant exhibit there are mock news articles from the “Village Times” which feature stories about elephants losing their jungle. “Elephants’ future is uncertain as their traditional roles change and their jungle homes shrink” it reads. Framing the information as a current news article makes the issue seem more urgent and real. It is not just something that the zoos are preaching, it is actually happening. Outside of the Francois’ langur exhibit there is a big picture board of the monkeys with the faces cut out. Visitors can take a picture with their face instead of the monkeys. This encourages visitors to step inside the animals’ shoes. A sign near the chimp exhibits encourages visitors to watch the chimps. “Do they seem happy and relaxed in the sun? Are others getting up to mischief? Is tension building in the group?” it asks. The phrase “stay while the chimps sleep, groom, explore, play or fight...and then make up” encourages visitors to be patient, and to stay for more than just a few seconds. These questions are encouraging visitors to take a more active role in their visit rather than just passively milling by. A more active interaction with the animals in the exhibits creates a more salient memory of the zoo visit, hopefully prompting people to consider the animals, species, habitats, and conservation messages they were exposed to. The more vividly the zoo visit can be solidified in visitors’ minds, the greater impact it will have upon their conservation ethics.

5.4 Entertainment

It is important to be tactful in presenting pro-conservation messages to people. The experience has to be fun so that visitors stay interested and retain more information. “Fun facts” about animals are spread throughout the zoo, including on trains and construction site banners.

Some examples include: a group of frogs is called an army, frogs absorb water through their skin by osmosis, eucalyptus leaves are so low in energy that koalas sleep up to 20 hours per day, and Asian elephants have only one “finger” on their trunk while African elephants have two. Keeper talks also feature lots of “fun facts” about animals. During the giraffe keeper talk, the keeper explained that giraffes’ tongues are dark because of melanin, which protects them from sunburn, and that they have the highest blood pressure of all land animals.

Zoos have to be discreet in their presentation of conservation messages for several reasons, a problem addressed in the background literature. First of all, most visitors think conservation is boring (D. Smith, pers. comm., 17 November 2008). There has to be ethical entertainment so that visitors stay engaged (J. Gibson, pers. comm., 17 November 2008). As Judy pointed out, the ‘fun facts’ are important because they spark interest; zoos cannot separate conservation from a great day out (pers. comm., 17 November 2008). The zoo volunteer explained that conservation messages not be too wordy or heavy, because people have a “saturation point of knowledge” after which their “eyes will glaze over” (Pers. comm., 17 November 2008). People cannot be ‘fed’ conservation messages straight; they need to be included in information that is entertaining (J. Gibson, pers. comm., 17 November 2008). The zoo “can get into the environmental stuff by starting out with fun, random trivia; silly things relax people [and] makes them more receptive” (J. Gibson, pers. comm., 17 November 2008). Trivia gets people thinking and intrigues them, leading them to ask questions (J. Gibson, pers. comm., 17 November 2008). The zoo keeper talks are informative and entertaining, they provide “simple conservation news” (D. Smith, pers. comm., 17 November 2008). The zoo volunteer thought that such information improves understanding and empathy (pers. comm., 17 November 2008).

Also, the zoo’s messages cannot be too harsh or confrontational because people do not want their values questioned (Zoo volunteer, pers. comm., 17 November 2008). Attitudinal and behavior changes have to be suggested (Zoo volunteer, pers. comm., 17 November 2008). “[We] don’t want to evangelize, show people horrible messages/pictures all the time...[or else] people will shut down. [We] don’t preach to them (J. Gibson, pers. comm., 17 November 2008).” “People don’t even know that they’re getting conservation messages...[we] need to ‘smuggle’ it in, make it subtle” (D. Smith, pers. comm., 17 November 2008).

5.5 Respect for animals and habitats

The zoo encourages respect towards animals and habitats. During the seal shows, the keepers talked about the importance of respect, and that they need to gain trust and build a relationship with the seals, which takes times. In the tiger and lion exhibits, there is a sign that lists and describes the symbolism of these big cats throughout history (see table 3). This increases their importance to humans and portrays them as majestic and deserving of reverence. Comments on informational signs throughout the zoo seek to increase respect for animals by inspiring awe (see table 4). “Don’t tap on the glass-we don’t like it” reads a sign in front of the gorillas. This sentiment is expressed from the point of view of the gorilla, encouraging perception of it as an individual with emotions and preferences. Keepers stress during the gorilla keeper talk that behavior training is for the benefit of the animals, not the people. That is why it takes place behind the scenes rather than in the public eye. At the end of the bird show, keeper encourages people to “enjoy what nature has to offer.” The slogan on the zoo map is “be inspired by wildlife!” Written on the boards with times for talks and feeds is the phrase “creating experiences that inspire us to care for wildlife.” Seeing the individual animals does increase respect for them, as demonstrated by visitors’ survey comments: “you forget that animals have emotions too, it makes you happy,” “I last went to the zoo in high school, so seeing these animals in real life was a strange and humbling experience,” and “[the visit] reaffirmed my care for all animals and belief that they are as important as humans.” A large amount of visitors reported a sense of interrelatedness, connection, and care for the animals (see Table 5).

Table 3

Tigers and Lions: Symbols throughout History

Animal	Culture	Role
Tiger	India	King of the Forest
Lion	China	Defender of law and guardian of sacred buildings

Table 4

Encouraging Respect towards Animals by Inspiring Awe

Animal	Information
Crocodile	“The world’s largest living reptile”
Kimodo Dragon	“The world’s largest living lizard”
Ostrich	“The largest, heaviest and tallest living bird”
Bongo	“One of the largest and most beautiful species of antelope”
Sun Bear	“The smallest bear in the world...very strong for its size”

Table 5

Responses to Survey Questions 3-7

Question	Strongly Disagree	Disagree	Agree	Strongly Agree
Did you feel a sense of connection, interrelatedness to the animals you saw on your visit?	2 (1.0%)	18 (8.6%)	147 (70.0%)	43 (20.5%)
Has this visit caused you to care more about the individual animals that you saw?	1 (0.5%)	19 (9.0%)	141 (67.1%)	49 (23.3%)
Has this visit caused you to care more about the species that you saw?	1 (0.5%)	13 (6.2%)	150 (71.8%)	45 (21.5%)
Has this visit caused you to think/care more about the protection of the natural habitats of these animals?	1 (0.5%)	9 (4.3%)	119 (56.9%)	80 (38.3%)
Did your visit to the zoo increase your respect for non-human nature?	1 (0.5%)	14 (6.9%)	110 (54.2%)	78 (38.4%)

Respect for habitats is also encouraged. “You are about to enter one of the oldest habitats in the world!” is written outside of the Australian Rainforest aviary. Banners as you walk in read “unique,” “fragile” and “mystical.” “Rainforests predate the arrival of humans by about 60 my” reads another sign in the reptile house. This reminds humans that rainforests were established long before humans, making them worthy of our care and concern. In the Wild Asia exhibit, a voice recording says “rainforests belong to all of us,” and “listen to the forest.” A sign in the reptile house reads (in reference to rainforests) “easy to destroy-hard to replace” and “we can’t afford to lose them...or the animals which live there.” These messages encourage respect for rainforests with the intention of leading to an increased conservation ethic. In response to the survey question “What kind of emotions did you experience in the zoo,” some visitors replied that they experienced greater respect for nature. Slightly more than half of the visitors responded that their visit caused them to care more about habitats and increased their respect for non-human nature (see table 5). A zoo volunteer stressed that increasing respect for species will work only if people are attentive and interested in learning more (pers. comm., 17 November 2008).

Although the zoo has plenty of messages encouraging respect for animals and habitats such behavior persists. Many children tapped or banged on the glass of the enclosures and the teachers leading the groups often did not reprimand the children for doing so. This is a great shame. Respecting people’s peace and their homes are basic values that society teaches children, but somehow it does not seem to translate to the treatment of animals in zoos. This is extremely rude behavior, and if people allow their children to act this way, how are they supposed to develop strong pro-conservation attitudes, which hinge upon respect for other beings in the natural order? Respect is the first step towards conservation.

Quite a few visitors expressed discomfort, distress, and sadness at idea and sight of animals in captivity. One visitor said that it “did not feel right that animals were not in natural habitat” and he felt a “bit guilty.” Another expressed “some sadness at animals being ‘viewed.’” “I have never agreed with “caging” animals in a zoo.” Hopefully, such emotions encourage people to protect natural habitats so that there is no need to put animals in zoos.

5.6 Individual connection

Taronga Zoo focuses a lot of attention on animals’ individual characteristics. Animals’ names are posted on informational signs, and many exhibits, such as the seals, had signs with

names, pictures, and descriptions of the individual animals. With the exception of the spiders, most keeper talks also focused a lot on the individuals. Their names, personality traits and distinguishing characteristics were the first thing that the keepers discussed. Visitors can take a picture with some animals, and some of the keeper talks provide an opportunity to pet and feed them. After the seal show, a couple of children were allowed to come up to pet a seal. Giraffes could also be fed after the keeper talk. Judy talked about the importance of interaction with individual animals. She believes that having a close encounter with an animal strongly impacts the visitor (pers. comm., 17 November 2008). Seeing a living creature, and following an elephant's pregnancy through, for example, leads to greater appreciation for the elephants in the wild (J. Gibson, pers. comm., 17 November 2008).

David Smith thinks that personification gives people, especially young people, a way to relate to the animal (pers. comm., 17 November 2008). The zoo volunteer agreed that names are especially important for children (pers. comm., 17 November 2008). It helps to localize the experience and build a relationship, because humans are better able to relate to something they understand (D. Smith, pers. comm., 17 November 2008). "Humans have a need to categorize," says David Smith, but "there's a fine line; can't dress them [animals] up in monkey suits." In the zoo volunteer's opinion, naming animals is harmful because it anthropomorphizes, and they should be numbered instead (pers. comm., 17 November 2008). On the other hand, though, people ask what animals' names are, and "if they don't have one, it distances people from the animals" (pers. comm., 17 November 2008). The survey results show that interaction with individual animals had a big impact on people. More than half of visitors agreed that they felt a sense of relatedness and interconnectedness with the individual animals they saw on their visit, and a slightly smaller amount replied that the visit caused them to care more about the individual animals that they saw (see table 5). Many of the survey responses to questions about visitors' emotions in the zoo concerned individual animals. Examples include:

- Happy to see that the animals are being protected and looked after by the zoo and that the animals have enough area to live in.
- Sorry for some of the animals in their homes.
- Happy [emotions] as all the animals appeared to be enjoying their surroundings.
- Glad to see the animals looked content and well looked after in great surroundings.
- Enjoyment at being able to see and get close to the animals.

Focusing on individual animals may create a greater sense of connection and care for those individuals. As indicated by background literature, a sense of relatedness is necessary for helping to occur. The connection with individual animals, though, is not particularly valuable for conservation. While people may be moved to act on the behalf of an individual animal, it will not increase respect for species and habitats. No true conservation ethic will be established. The survey results do indicate that people experienced the greatest sense of connection to species (see table 5), which is an encouraging finding.

5.7 Similarities between Humans and Animals

With the great apes, the zoo placed a great deal of emphasis on their similarities to humans and their high mental capabilities. The chimpanzee keeper mentioned in the talk that humans share 98% of their DNA with chimps, and that people could feasibly receive a blood transfusion from chimps. The keeper also discussed chimps' sophisticated use of tools. A board near the chimp exhibit talked about "intermingled destinies." It read "chimpanzees are our closest relatives. Our brains are similar, our bodies are similar and our emotions are similar. If you watch the chimps you'll see how often they behave like us." There were pictures of chimpanzees engaging in various activities to show the visitors how similar they are to us. "Young chimps and young humans both love to play and explore-they also like to push boundaries" reads a sign. This encourages visitors who are parents to extend some of the affection they have to their own children to young chimps. Signs also talked about how chimpanzees have a culture similar to ours. Outside of the gorilla enclosure there was a family tree showing the evolution of humans, apes and monkeys, demonstrating how closely related we are to the apes. It showed that humans, chimps and gorillas had a common ancestor 5.8 million years ago. One visitor's response to "What kind of emotions did you experience in the zoo?" was "empathy with higher primates," so apparently the zoo is successfully reaching some people when it emphasizes the similarity between apes and humans. This creates a stronger connection to apes and thus a stronger conservation ethic towards them. Problems with such a focus are explored in section 5.16 on anthropocentrism.

5.8 Personal responsibility

Many of the messages in the zoo are intended to increase the visitor's sense of personal responsibility to contribute to conservation. A sign near the big cats stresses the threats from the fur trade, and adds that "Buying fur only makes it fashionable. Whether you're overseas or at your local market, your choice can affect animals' survival in the wild." Another sign asks, "How can you help a threatened species?" The use of "we" also creates the expectation of action on the part of the individual. "We all need to play a part in protecting the great southern oceans" is written in big letters in the great southern oceans exhibit. Next to the elephant exhibit, there is a large gazebo type structure with information about elephants and the threats to their survival. A sign reads "conservation programs are essential if we want to stop elephants from disappearing all together." It makes it clear that everyone needs to play a role in this endeavor, that it should not just be the work of a few dedicated environmentalists. It goes on to say "with your help we can continue our support for wild Asian elephant conservation." Below, written in big print, is "Donate Now to Taronga's Asian Elephant Conservation Programs." Surrounding the shrine-like donation stand is the inscription "Let's try to save a species," another call to action. Near the Corroboree Frog is a sign that reads, "Can we save the Corroboree Frog?" This is a personal challenge and call to action. We *all* need to play a part. David Smith stresses that the zoo should not make visitors think that conservation is not their problem (pers. comm., 17 November 2008). A goal of the seal show, stated at the very beginning, was to get people to think about how they can positively influence the animals' future. During the show, keepers reminded visitors that "their [the seals'] future depends on us," and that we need to "make a positive difference to our marine environment."

5.9 Flattering the Visitor

Another important factor in engendering a conservation ethic in visitors is flattering their ego enough to make them feel like they are capable of making a positive difference. The keeper told the visitors that their entrance fees help to save the chimps. Judy called this the "feel good" factor; the visitor thinks that the money they paid is actually helping (J. Gibson, pers. comm., 17 November 2008). This is crucial, because it makes the visitors feel like they already did something and paves the road to further action. People need to be flattered just enough to be

made to think that they can do something significant (Zoo volunteer, pers. comm., 17 November 2008). If conservation does not seem like such an unattainable feat, people are more likely to look favorably upon it.

5.10 Precedent for Conservation

Taronga Zoo also attempts to set a precedent for conservation. A picture of a child donating serves as stimulus. At the end of the bird show, the keeper mentioned that last year \$60,000 were donated to conservation programs at Taronga. The donation box brought out after this. The message is that others are donating, so you should too. Throughout the exhibits signs acknowledge the corporate sponsors of the zoo, setting a precedent for aid to conservation and thereby encouraging visitors to do their part as well. Information about the zoo's own role in conservation is another method of encouraging visitors to play a more active role in conservation (see table 6). The zoo constantly reminds visitors about its breeding programs, many of them in partnerships with their sister zoo, Western Plains, and other organizations. They are mentioned in nearly all of the keeper talks. The website has a conservation news section that talks about breeding successes, fundraisers, conservation programs, etc. at the zoo. There is a link to the Taronga Conservation Society's website, and a description of its contributions to the conservation of biodiversity. They are: educational activities with a conservation focus, long-term breeding programs, recovery and protection of species in the wild, stewardship (environmental management of the properties for conservation) and conservation biology research projects. Calling attention to the zoo's role in conservation encourages visitors to join in.

Many visitors mentioned the breeding programs in their responses to the last question of the survey (Describe how the visit has changed your attitudes toward conservation of biodiversity (care and concern for other species, interest and motivation to protect them and their habitats)). One example is "the success of the breeding programs (hippos and chimps particularly) proves that zoos are useful tool in expanding diversity and improving conservation." Information about Taronga Zoo's contribution to conservation clearly had a big impact on visitors. It sends the message that conservation is an active process.

Table 6

Information about Taronga Zoo’s Conservation Efforts

Animal	What Taronga Does To Help
Lion	“In 2003, Taronga Zoo successfully bred African Lions for the first time in 20 years. The recent and rapid decline of African lions has increased the importance of breeding programs in the zoos.”
Tiger	“Zoos in Australia have committed resources to support the Sumatran Tiger,” as well as playing a role in breeding programs and providing financial support to conservation projects in Sumatra, explains a sign next to the tiger exhibit.
Red Panda	The zoo is the record keeper for all Australia and New Zealand zoos, meaning they keep track of all births and recommend the correct homes for all Red Pandas.

One negative result of emphasizing Taronga Zoo’s role in conservation is that some visitors seemed to be under the impression that the animals were better off in the zoo than in the wild. Survey comments include “[I had] a realization that some of the animals are better off in the zoo environment where they can be looked after properly and breed to increase numbers of threatened species,” “[species] need to be protected; the zoo provides protection” and “without zoos animals would die out.” Perhaps the zoo should try harder to remind visitors of the importance of protecting animals in the wild, and that the zoo has a limited role in conservation.

5.11 Specific Action

In addition to creating a sense of responsibility, flattering the visitors’ egos to make them think that they can make a difference, and setting a precedent of pro-conservation behavior, the zoo empowers individuals by providing them with specific actions that they could take to aid conservation. Information about the threats facing species are placed near the exits of exhibits, along with donation boxes with suggestions about what individuals can do to help the species. In

the chimpanzee exhibit, for example, there is a donation box for money to support conservation organizations, and by it, a description of threats to chimps (disease, poachers, competition for decreasing habitat). Listed below the threats are suggestions for what people can do to help apes in the wild. Lots of signs ask, “What can you do?” and then go on to list suggestions. Several concrete tips for helping species found throughout the zoo are shown in table 7. A sign near the big cats exhibits not only encourages individuals to abstain from buying fur, it tells them how to differentiate real fur from fake fur (feel it, look closely, pinch it). At the end of the lion keeper talk, the zoo provides a direct opportunity for action: staff and volunteers walk around with a petition to the Chinese government urging it to phase out the farming of bears for their bile. A voice recording in Wild Asia says “you can help, buy recycled timber” in reference to the destruction of the rainforests. The use of “you” is key to empowering the individual; it speaks directly to the visitor. The seal keepers emphasized the dangers of fishing lines and nets, and encouraged people to be mindful of towing in their hooks and nets after fishing. During the bird show, the keepers reminded visitors that humans have the power to do things to make a difference, and encouraged proper waste disposal and support for conservation laws. There is a “Take Action” tab on the website with suggestions on how to save and create wildlife habitats, be a responsible pet owner and buy environmentally friendly products (*Take Action*). These are perfect example of empowering the individual by telling them something concrete and easy they can do to aid in the conservation of biodiversity.

Table 7

Taronga Zoo's Suggestions for Individual Action to Aid Conservation

Species	What the individual can do to aid in species' conservation
Chimpanzee	<ul style="list-style-type: none">- Abstain from buying wooden furniture that comes from old growth trees- Purchase recycled/plantation timber furniture instead
Tiger	<ul style="list-style-type: none">- Ask before you buy- don't buy paper or furniture made from tropical hardwoods and only use recycled paper
Big cats in general	<ul style="list-style-type: none">- Refuse all animal medicine products and souvenirs- Choose sustainable timber- Support sustainable industries- Donate time and money to conservation programs.- Don't buy fur
Long-nosed Bandicoot	<ul style="list-style-type: none">- Lock up pets at night
Any threatened species	<ul style="list-style-type: none">- Get a recovery team together- Write a recovery plan- Carry out the plan.- Find out what is going on in your local area and get involved

Giving individuals concrete solutions is important, because according to much psychological research on behavioral change, people need to be quickly presented with solutions after the statement of the problem. Otherwise they become dejected and hopeless. David Smith talked about the importance of immediacy: if someone can do something right then and there, they more likely to do it (pers. comm., 17 November 2008). "People ask what they can do as individuals to make a difference; they think that they're too small to make a difference" (D. Smith pers. comm., 17 November 2008). One of the responses to the survey question "Describe how the visit has changed your attitudes toward conservation of biodiversity (care and concern for other species, interest and motivation to protect them and their habitats)" was that it did not change the visitor's attitude because "[there is] really nothing we can do!" The key is to give people a solution and empower them (D. Smith, pers. comm., 17 November 2008). Zoos can encourage even action on behalf of animals that are far removed from the visitors. "People donate to animals they are never going to see in the wild" (D. Smith, pers. comm., 17 November

2008). The key is to give people a solution right away. The longer the gap goes on, the weaker the bonds are between emotion, caring, and conservation (D. Smith, pers. comm., 17 November 2008).

The zoo encourages positive attitudes towards conservation by showing people that conservation does not have to be hard. “Bringing back butterflies is easy” reads a sign near Backyard to Bush. It explains that butterflies used to be everywhere, but chemicals in gardens have driven them away, and humans have destroyed places where they live and eat. It encourages us to grow the right types of grasses and flowers in order for them to come back. This is a good example of a statement which makes conservation sound feasible, making people feel like they *can* actually do something, that individuals *are* capable agents of change.

Some visitors certainly internalized the messages encouraging individual action. Examples of survey responses to the question “Describe how the visit has changed your attitudes toward conservation of biodiversity (care and concern for other species, interest and motivation to protect them and their habitats)” are “I’ll think more carefully the next time I go shopping about the products I buy and if they are environmentally friendly” and “I will always dispose of my litter more carefully now!”

5.12 Habitat oriented

The map demonstrates one very important aspect of the zoo. It is organized by habitats (Wild Asia, Wild Australia, African Waterhole, Backyard to Bush and Great Southern Oceans). This plays an important role in creating a conservation ethic in visitors. By designing the zoo according to habitats, the zoo is able to present people with information and conservation messages dealing with whole systems rather than individual animals. The habitat orientation also allows the zoo to create a connection with, and engender respect for, whole ecosystems. This makes much more sense ecologically; a threat to the tiger is not just limited to that animal. It most likely affects many other creatures in the tigers’ habitat. One could walk through the Amazonian rainforest and be surrounded by different species of animals that would all truly be present in the rainforest. There are several informational boards in the zoo devoted entirely to habitats and ecosystems. This could not be done if the animals were organized by phylogeny. There is an informational sign about wetlands near the Wild Australia section. It focuses on

wetlands as an ecosystem and why they are important. Mentioned are the unique plants and animals that wetland support, their crucial role in water filtration and supply, the protection they give to young fish, frogs, yabbies, and their use as resting and nesting places for migrating birds. Outside of the rainforest exhibit, there is a sign noting that “rainforests play a vital role in sustaining all life on earth. They are home to millions of plants and animals, protect us from floods and drought and hold many unique qualities which are still being discovered. We can learn a lot about living in harmony from this ancient environment.” In the Wild Asia exhibit, there is another sign with graphics about rainforests which explains the different layers of the rainforest (emergent, canopy, understory, shrub layer and forest floor). It explains that “each layer has its own unique plants and animals that interact with the ecosystems around them.”

For the most part, the zoo was good at engendering respect for habitats and ecosystems. One area where it failed was in the design of the seal show stage. It was not at all naturalistic; it was meant to resemble a fisherman’s wharf. The visitors were already seeing the animal outside of its environment, and the stage design further removed the seal from its natural habitat in the minds of the visitors. Judy says that most of the graphics talk about animals, and that the zoo could do better at educating people about the environment (pers. comm., 17 November 2008). Looking at the survey results, visitors generally cared less about habitats than species and individual animals (see table 5).

5.13 Immersive exhibits

The immersive style of exhibit is widespread in Taronga Zoo. A huge, ongoing renovation has remodeled the zoo to include more of this type of exhibit. It makes a significant difference in the way one feels when visiting. Immersive exhibits provide an opportunity for seclusion and greater connection with nature. They are more open, there is greenery all around, the visitors can get closer to the animals and they do not seem to be so much in captivity. The animals move around as they please, and the visitor has to be patient, respectful and quiet if they want to see the animal up close. It encourages a more proper, respectful relationship with wildlife. Rude, loud, boisterous behavior is automatically discouraged.

The Rainforest Aviary was particularly moving. The birds are absolutely gorgeous, and there is foliage all around. It is a wonderful place to sit, observe, listen and enjoy. If the visitor is

patient enough, they can observe the birds' natural behaviors. One can almost forget they are in the middle of the zoo. There is a walkabout in the Wild Australia where the visitors have to walk into a large fenced in area in which kangaroos, wallabies and emus roam (relatively) freely. In the immersive exhibits, it is nearly possible to forget that you are in the zoo.

The immersive exhibits increase respect for animals and species. Judy says that the purpose of the immersive exhibits is to “approximate an environment” and unconsciously make people appreciate it (pers. comm., 17 November 2008). David Smith thinks that these are much more effective at engendering respect (pers. comm., 17 November 2008). “In the new immersive environments, it’s harder to see the animals, but they are happier” says David Smith (pers. comm., 17 November 2008). “People realize this, and it encourages greater respect for the animals...because [they] have to be patient to see [them]” (D. Smith, pers. comm., 17 November 2008). As Judy explains, the “public gets disappointed if they don’t see the animals, but when you explain the animals behavior, tell people that they have to work a little bit harder to see the animal” then they seem to understand (pers. comm., 17 November 2008). Visitors’ behavior was markedly different in the immersive exhibits than in the rest of the zoo. People were behaving much more respectfully – they were sitting or standing quietly and observing the animals, waiting for them to approach. Of course, this could be more a result of self-selection rather than behavior elicited by the exhibit. Impatient people who want a quick, entertaining experience are less likely to enter the immersive exhibits. One visitor commented that “[the] enclosures where you can walk close to animals help you to understand how we can mutually live together,” which shows that the immersive style of exhibit is at least somewhat successful in fostering an ethical and respectful relationship between people and nature.

5.14 Emotions

Seeing animals being fed incited great applause and admiration from visitors. Some animals attracted more visitors than others, obviously (chimps vs. spiders, for example). People were absolutely enraptured when the gorillas and chimps were fed and when the animals did something “exciting” (fighting, playing, etc.). People were clearly very entertained and the ‘cute’ seals visibly and audibly evoked emotions in people. Visitors often mentioned the shows and keepers talks in their survey responses. One man admitted that he cried during the bird show

because seeing the beautiful diversity was very moving. Survey results show that people experienced a wide range of emotions at the zoo: happiness, appreciation, love, concern, sadness, sympathy, fascination, respect, excitement, understanding, shock, humor and awe are some examples.

Emotion plays an important role in creating a conservation ethic. The zoo volunteer did think that emotional connections are important for caring to be established, which in turn is necessary for a stronger conservation ethic to develop (pers. comm., 17 November 2008). Judy mentioned the “cute connection” to the adorable, fluffly animals, and said that “cuteness immediately engages” (pers. comm., 17 November 2008). It is simple to enthuse people about elephants and iconic animals (J. Gibson, pers. comm., 17 November 2008). It is harder to elicit emotions towards the Koraboree frog, for example, which needs our protection just the same (J. Gibson, pers. comm., 17 November 2008). Generally, the degree of affection for animals is highest for mammals, then birds, then reptiles (zoo volunteer, pers. comm., 17 November 2008).

David is of the opinion that people do experience emotions and a sense of connection and caring towards the animals; the question is whether or not they take it to the next level of conservation (pers. comm., 17 November 2008). According to the zoo volunteer, evoking emotion in people is important because if people care about one animal or species they will care about others (pers. comm., 17 November 2008). “If a visitor is really genuinely interested, then the emotion will broaden to the whole animal kingdom” (zoo volunteer, pers. comm., 17 November 2008). She does not think it is accurate to say that a connection is formed just between the individuals (zoo volunteer, pers. comm., 17 November 2008). The survey results indicate that people care most about the species, and then individual animals, and then habitats as a result of their visit to the zoo (see table 5). Several visitors commented that they felt a stronger connection to animals and nature as a result of their visit. Many visitors reported sadness related to habitat destruction and species extinction in response to the survey question “What kind of emotions did you experience in the zoo?”

David Smith does say that it is hard to encourage a conservation ethic to animals that are completely out of context for visitors (zebras in Australia, for instance) (pers. comm., 17 November 2008). This is an argument against the inclusion of exotic animals in zoos. “If you understand your own environment you are better able to understand the needs of another

locality” says David Smith (pers. comm., 17 November 2008). Perhaps if zoos focused only on native animals they would be more effective and increasing visitors’ conservation ethics. People would not develop a skewed impression of where animals belong, and a connection between people and their native fauna would potentially be expanded.

One of the most effective means of eliciting emotion on the part of visitors is by focusing attention on the plight of baby animals. They receive the most affection. The zoo volunteer says that you cannot forget about the emotional “orphaned baby” stories which help the visitors to build connections with the animals. As an example, a board describing the bush meat trade states that the practice results in many orphans, which is certainly expected to appeal to people’s heightened sensitivities to baby animals. Near the big cat exhibits, a sign describing the threats of the fur trade reads that “in many countries wild cats are illegally hunted for their fur which is sold on the black market. When adult mothers are killed, cubs often starve. Observing people at the exhibits makes it clear that visitors are particularly enraptured by baby animals. They became visibly moved whenever a baby appeared, and the exhibits with baby animals attracted a lot more visitors than exhibits without babies. The emotions that babies elicited on the part of visitors are important because they increase a sense of care and connection to those animals, which is necessary for a conservation ethic to be created. But, they also indicate that people do not understand the greater importance of protecting all species and habitats. The plight of a baby animal may be moving to a visitor, but seeing the cute babies should not be the main focus of a visit to the zoo. Individuals are less important in biodiversity than species and habitats.

5.15 Anthropocentrism

One concern expressed in the literature about zoos is that they increase anthropocentrism and skew humans’ sense of place in the natural order. Taronga Zoo both promotes and discourages anthropocentrism, and whether or not a message is perceived as anthropocentric depends a lot upon the individual. In many exhibits, visitors are encouraged to care more about the animals because of their “service” to humans. The portrayal of the tigers and lions as symbols throughout human history is one example. Although the zoo is just trying to make people care more about the species, this practice could encourage anthropocentrism by linking the value of a species to its service or importance to humans.

Another theme in the zoo was emphasizing the similarities between apes and humans. On one hand, humans will doubtlessly care more about an animal and its species if they feel like it is similar to them. On the other hand, it sends the message that the extent to which we should care for other living beings is contingent upon their similarity to us, which reinforces anthropocentrism. The protection of species is important regardless of how similar the animal is to humans. The focus on certain species' similarity to humans might also decrease the conservation ethic towards species which are not similar to humans, because visitors learn to base the strength of their conservation attitudes towards a species on its relatedness to humans.

I noticed comments made by visitors that were indicative of anthropocentric attitudes. One man in the gorilla exhibited was impatiently murmuring "come on, stand up" to the silverback gorilla. Clearly, the attitude behind this is that the animal should be entertaining the human. It is a means to an end, a picture opportunity. Many visitors expressed delight at watching the animals playing, eating, and interacting. If people are entertained by the animals at the zoo but do not also leave with a stronger conservation ethic and a sense of respect and understanding for species and habitats, anthropocentrism is increased. An association is formed between zoos and fun, which although is good for zoos revenues, does not particularly help their main goal of increasing pro-conservation attitudes and behavior. Yes, people need to have fun in order to learn, as explored above in the section 5.4 on entertainment. But fun cannot be all that the visitors gain from the zoo.

There are instances when the zoo actively discourages anthropocentrism. During the gorilla keeper talk, for example, staff emphasized that behavioral training is for the benefit of the gorillas, not for presentation. It makes it easier to take medical care of them. This message decreases anthropocentrism by stressing that human entertainment is not the sole purpose of the zoo.

David does not think that zoos reinforce anthropocentrism, because the animals are promoted as advocates or ambassadors for their species (pers. comm., 17 November 2008). Judy thinks that whether or not zoos promote anthropocentrism "depends on how much work is put into the message of the importance of breeding, the fact that we can breed but can't put them back in the wild until we humans protect their habitats, the fact that we can bring animals back from extinction if there is the will" (pers. comm., 17 November 2008). "People need the full

story about why the environment is degraded...[they] need to understand the conflict between humans and animals in environments like elephant habitats in Africa” (J. Gibson, pers. comm., 17 November 2008). If the zoo reiterates that we cannot put koalas, etc. back in the wild because we are destroying their habitat, anthropocentrism will be minimized (J. Gibson, pers. comm., 17 November 2008). “Some people say that they would rather see them die in Thailand rather than be in the zoo, unnatural environment” (J. Gibson, pers. comm., 17 November 2008). But, if zoos stress that the animals are ambassadors for their species, and make people care about the animals and the environment, and understand the threats to biodiversity in the wild, then they are of value (J. Gibson, pers. comm., 17 November 2008).

Putting animals on display, using them for shows and allowing humans to interact with them is not natural for animals, and could be considered to increase anthropocentrism. Judy, though, believes that there has to be a balance between what is natural and what is good for education and conservation (pers. comm., 17 November 2008). As long as the animals’ welfare is not compromised, and safety and ethics are adhered to, interactions are very beneficial (J. Gibson, pers. comm., 17 November 2008). One visitor stated on the survey that “seeing the animals makes the need real.” This is the desired response to the sight of captive animals in the zoo, but of course not all visitors experience such a revelation.

5.16 Overall effectiveness

According to a volunteer tour guide, zoos do play an essential role as we keep on “raping the environment” (zoo volunteer, pers. comm., 17 November 2008). They provide entertainment, conservation, education and an opportunity to see animals they cannot see in the wild, even if they are native animals (zoo volunteer, pers. comm., 17 November 2008). It enables people to “learn about nature in a friendly environment” (zoo volunteer, pers. comm., 17 November 2008). City kids benefit from the zoo experience; it gives them something they cannot get from television, a documentary or a book; it provides a “whole of nature experience” (J. Gibson, pers. comm., 17 November 2008). The zoo volunteer thinks that the zoo visit can make a lasting impression on people, especially if they are intelligent, but concedes that some are not affected at all (pers. comm., 17 November 2008). “People don’t go home and think about conservation, but when an issue arises the effects of the visit come through” (zoo volunteer, pers. comm., 17

November 2008). One visitor expressed that “wilderness and national parks are much more important, but zoos play an important role in keeping biodiversity in our consciousness in day to day and long term decision making.” This is perhaps the best summary of the role of the zoo. They are not the only solution to the deterioration of biodiversity, but they can play a valuable role if visitors approach the opportunity with an expectation of not only having a good time, but learning.

It seems that the full potential of the zoo to increase a conservation ethic in visitors is realized when people play an active role in the visit and attend the keeper talks, shows, and most importantly, sign up for a tour. The zoo volunteer thinks that the tours and keeper talks are particularly valuable in increasing respect and understanding, and that a visitor will get much more out of their visit if they with a tour guide than on their own (pers. comm., 17 November 2008). Judy does think that zoos probably are not good enough to increase respect for non-human nature (pers. comm., 17 November 2008). Most graphics talk about animals, not the environment, and it takes a tour guide to talk about the habitat (J. Gibson, pers. comm., 17 November 2008). When you tell people about the threats to the koalas’ habitat, people become interested in habitat preservation (zoo volunteer, pers. comm., 17 November 2008). The zoo volunteer believes that generally visitors come to the zoo just for entertainment, and do not leave with a deeper message (pers. comm., 17 November 2008). Those who take tours, though, do gain empathy, and this empathy extends to species and habitats (zoo volunteer, pers. comm., 17 November 2008). The problem, though, is that most of the visitors do not take tours (zoo volunteer, pers. comm., 17 November 2008). One comment on the survey was “while I enjoyed my visit immensely, I can’t say it changed my attitudes toward conservation of biodiversity. Maybe if I had attended more of the zoo’s programs/shows, I’d feel differently.” Some visitors are not even aware of the availability of tours, and expressed the desire to have had a tour-guide led experience in their responses to the question “Describe how the visit has changed your attitudes toward conservation of biodiversity (care and concern for other species, interest and motivation to protect them and their habitats).”

According to the survey results zoos are effective at strengthening attitudes towards the importance of conservation. Comments made by visitors in response to the questions “What kind of emotions did you experience in the zoo?” and “Describe how the visit has changed your

attitudes toward conservation of biodiversity (care and concern for other species, interest and motivation to protect them and their habitats)” include:

- Made me aware of the need to conserve certain species and how man is still their biggest threat.
- I was made aware of the many dangers facing animals, particularly the loss of habitat of the tiger.
- It made me more aware of humans’ effects on animals and the environment.
- Seeing the animals made me want to protect habitats.
- To care and understand them more. This helps me to respect and appreciate nature.
- Puts you more in touch with wildlife.
- It has made me a lot more aware of conservation in Australia.
- Because of the connection made with the animals it makes me want to protect them more.
- Increased concern for habitat conservation.
- My visit has increased my knowledge about conservation.
- Make sure items I buy don’t harm the animals in order for the product to be made.
- Makes me think about the animals more, think about all the species that may be extinct if we don’t change our actions towards wildlife.
- I know about what is happening to the habitats of these animals and do my bit to save as much as I can.
- The zoo highlights the importance and raw facts of what is happening to the animals. It has made me realize the importance of saving these animals and reptiles.
- Became more aware of conservation.
- We have to look after our environment and animals before they all become extinct.

Interestingly, visitors seem to think that the zoo is more effective at increasing others’ conservation ethics than their own (see table 8). The number of visitors who responded Yes to “Has this visit strengthened your attitudes toward the importance of conservation of biodiversity?” was less than the number of visitors who responded Yes to “Do you think that zoos, aquariums and wildlife parks are valuable tools for creating a stronger conservation ethic in their visitors?” Visitors wrote many comments next to the question “Do you think that zoos, aquariums and wildlife parks are valuable tools for creating a stronger conservation ethic in their visitors?” which show that there is still a lot of uncertainty in the minds of visitors concerning the effectiveness of zoos (see table 9).

Table 8

Responses to Survey Questions 9 and 10

Question	Yes	No
Has this visit strengthened your attitudes toward the importance of conservation of biodiversity?	179 (88.2%)	24 (11.8%)
Do you think that zoos, aquariums and wildlife parks are valuable tools for creating a stronger conservation ethic in their visitors?	196 (96.1%)	8 (3.9%)

Table 9

Comments Written Next to the Question:

“Do you think that zoos, aquariums and wildlife parks are valuable tools for creating a stronger conservation ethic in their visitors?”

Answer to Question (Yes or No)	Comment
No	“Only if it is explained and people want to listen. Otherwise they come to see the ‘cute’ animals, which reinforces their stereotypes. Education is vital.”
Yes	“It depends of the manner.”
Yes	“As long as these places are dedicated to conservation and breeding more than merely providing entertainment.”
Yes	“If the animals get more space.”
Yes	“Depends on the zoo.”
Neither	“Yes and No. As long as the zoo is working with conservation in mind and not just having the animals there for the sake of saying we have lion/elephant/etc.”

6. Conclusion

It is easy to see how they would fail to inspire a stronger conservation ethic. They are highly commercialized and crowded. It is hard to focus on the animals with screaming children all around you coupled with a plentitude of other distractions such as food stalls and gift shops. One could spend a whole day at the zoo and not have a single environmental or conservation related thought, especially if you are not environmentally inclined or interested in the first place and do not read the informational signs. They are primarily places to come to entertain the kids. There is no serenity or opportunity for reflection, unless it is late in the day and you find a quiet spot somewhere. Some parts of Taronga Zoo are heavily landscaped (such as the Amazonia section and other immersive exhibits), but for the most part there is little greenery to give context to conservation related thoughts. There is little serenity or opportunity for reflection or contemplation.

The zoo can be a valuable tool for increasing peoples' conservation ethic, but most of the responsibility falls on the visitors. What they do when they are in the zoo is beyond the zoos control. If people take the time to read the signs, attend the shows, and sign up for a tour, they will certainly gain a very enriching and educational experience. There will always be individuals whose life is greatly impacted by their visit, and others who leave without a second thought.

Zoos need to increase visitors' knowledge about the availability of tours and encourage visitors to take those tours, decrease the amount of distractions in the zoo (by decreasing the amount of vendors, for example), and ensure that all shows and keeper talks reinforce respect for animals and species. Settings for shows should be as naturalistic as possible. Zoos also need to remind visitors that although animals that are attractive, iconic, or similar to humans may inspire greater respect and care on the part of visitors, concern needs to extend to all creatures and habitats, because all species depend on each other in ecosystems. More information about the roles that species play in their environments would be useful. Zoos should also focus on immersive exhibits that are habitat oriented to avoid creating connections solely between people and individual animals or species. More information focused solely on habitats needs to be included in the zoo. On the level of the individual animals, all keeper talks and shows should stress the importance of establishing trust with the animals, in order to increase respect for individual animals.

A more effective means of creating a conservation ethic in visitors is going on nature walks in national parks, spending time in one's local environment and building connections with local wildlife. Aboriginal philosophy shows us that knowing and loving one's local environment enables one to better appreciate other environments, no matter how far removed one is from them. Respect for other living beings is the crux of a strong conservation ethic, and it does not matter whether the being is a zebra from Africa or a wallaby in Australia. People just need to get outside and spend more time in nature to appreciate the wonders of its individual animals, the interactions between species and the interactions of species with their environments. Learning about ecology is also a way to strengthen people's conservation ethics. Understanding the importance of biodiversity in ecosystems and the need to preserve and protect the numerous relationships in the web of life serves to strengthen the conservation ethic.

Future research should most definitely explore the implicit impacts of zoos on visitors' attitudes to understand the subconscious and deeper emotional effects of zoos. Self-report and observational data are handicapped in their ability to measure attitudinal change. Whether or not zoos increase anthropocentrism was especially hard to determine in this research project because anthropocentric attitudes are mostly rooted in the subconscious. Children's' conservation ethics would be another interesting topic for future research. All attitudes, including those towards the natural world and wildlife, start developing in childhood. Research on what kind of philosophies zoos implant in their younger visitors would be valuable for determining their effectiveness. Again, most of this data would have to be gathered implicitly, because children's' awareness of their attitudes is even less than that of adults.

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8. Appendix A

Survey of Visitors to Taronga Zoo

(lines for answers to questions 8 and 11 have been removed)

- 1) How would you rate your knowledge of conservation, species extinction and biodiversity before your visit to Taronga Zoo?

Very Low	Low	Average	High	Very High
1	2	3	4	5

- 2) How important did you consider conservation of biodiversity prior to your visit?

Unimportant	Somewhat Important	Very Important
1	2	3

- 3) Do you feel a sense of connection, interrelatedness to the animals you saw on your visit?

Strongly Disagree	Disagree	Agree	Strongly Agree
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- 4) Has this visit caused you to care more about the **individual** animals that you saw?

Strongly Disagree	Disagree	Agree	Strongly Agree
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- 5) Has this visit caused you to care more about the **species** that you saw?

Strongly Disagree	Disagree	Agree	Strongly Agree
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- 6) Has this visit caused you to think/care more about the protection of the natural **habitats** of these animals?

Strongly Disagree	Disagree	Agree	Strongly Agree
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- 7) Did your visit to the zoo increase your respect for non-human nature?

Strongly Disagree	Disagree	Agree	Strongly Agree
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- 8) What kind of emotions did you experience in the zoo?

- 9) Has this visit strengthened your attitudes toward the importance of conservation of biodiversity?

Yes No

- 10) Do you think that zoos, aquariums and wildlife parks are valuable tools for creating a stronger conservation ethic in their visitors?

Yes No

11) Describe how the visit has changed your attitudes toward conservation of biodiversity (care and concern for other species, interest and motivation to protect them and their habitats)

9. Appendix B

Interview Guide

Conservation ethic: appreciation, care, concern and empathy for other species; belief that they and their habitats should be protected, positive attitudes toward and support for conservation and a strong belief in the importance of conservation. Those who have a strong conservation ethic recognize that threats to biodiversity are real, think that individual attitudes and values are important in conservation, have a sense of personal responsibility and consider conservation often in their everyday lives. Conservation is high on their priority list, as they think that it should be for governments, businesses, and society in general. Individuals with a strong conservation ethic realize the effects that consumerism have on biodiversity, and think that changes need to be made in society in order to better protect it.

Questions:

- 1) Are people affected on a deeper level by their visit to Taronga Zoo?
 - a. Does a visit to the zoo provide only entertainment and relaxation, or does it cause people to reflect upon conservation?
 - b. Do you find that visitors gain a deeper understanding and appreciation for wildlife and non-human nature as a result of their visit to the zoo?
- 2) What are the emotional effects of a visit to the zoo on visitors?
 - a. Do you think that visitors to the zoo experience emotion towards the animals that they see?
 - b. Do they display a greater sense of connectedness, interrelatedness between the visitors and animals? Theory that the origin of environmental problems is in the way that modern individuals conceive of their relationship with nature
 - c. If so, does the sense of connection lead to caring?
 - d. Does caring for an individual lead to caring for the species?
 - i. That is, does affection for/interest in individual animals extend to concern for the species?
 - ii. Do you think that people make a connection between the creatures they see in the zoo and their wild counterparts?
 - e. What about for its habitat/ecosystem?
 - i. It is not enough to care about the individual creatures, or even their species. Conservation requires protection of the environment that the animals/fish live in.
 - f. Overall, do visitors display increased respect for non-human nature?
 - g. In Aboriginal philosophy/worldview, the connection to the specific, the local is very important. The strong love that they develop for their own place renders them more respectful of other places because they can recognize/appreciate how important it might be to someone/something. Do you think that the same could apply to zoos? A visitor develops a bond with a couple of individual animals, and

this causes him to be more attuned to the plight of that species in the wild, far away from where he saw them. He opens a newspaper that describes the destruction of the rainforest in Borneo and Sumatra, for example, and is more likely to act to protect it because he remembers the orangutans that he saw in the zoo.

- 3) Does caring for a species lead to a stronger conservation ethic?
- 4) Is “caring” even the crux of the issue? What about a mere logical understanding of the interconnectedness, interdependence of all life, whether or not emotion is involved?
- 5) Does the fact that the animals are in captivity create/reinforce the wrong kind of relationship between animals and people?
 - a. Does it increase anthropocentrism, a sense of humanity’s superiority over animals, their dependence on us and a sense of separateness?
 - b. A skewed sense of our place in the natural order?
- 6) What else have you gathered from the kinds of questions that people pose and conversations you’ve had with visitors?
- 7) Overall, how effective do you think zoos are in instilling a conservation ethic in their visitors?
 - a. Do they demonstrate signs of a shift in attitude towards conservation of biodiversity/wildlife?
 - b. Is there an increase in motivation to engage in environmentally beneficial activities? Increased support for conservation?
 - c. Is this because the people who come in the first place are already environmentally inclined, and thus more prone to be influenced towards stronger pro-environmental attitudes?
 - d. Do you receive a lot of donations per year? What is an average figure per person per year?