

ZOO VISITOR SATISFACTION WITH ANIMAL VISIBILITY

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## ABSTRACT

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Millions of people visit zoos on an annual basis but we know very little about zoo visitor satisfaction with animal visibility; a lack of animal visibility may negatively impact a zoo visit. This study attempts to determine the overall satisfaction of zoo visitors, their satisfaction with animal visibility, and how important they consider animal welfare and animal visibility. Also, this study examines how often visitors expect the animals to be visible. Finally, wildlife tourists and their satisfaction with animal visibility in the wild is compared to a zoo setting. These questions will be analyzed between an array of demographic groups treated as the dependent variables (men vs. women, zoo members vs. non members, age, income, presence of children, weekday vs. weekend visitors, education level) or other visitor features (if they feel the zoo is a good value, feel animals need a hiding place out of view of the zoo visitors, visit frequency).

Nearly 500 zoo visitors at two zoos completed an exit survey. T-tests were used to find statistical significance. The results show that most zoo visitors are very satisfied with their zoo experience but there were some statistically significant differences found. Overall, the value of the zoo, zoo membership, and visit frequency were found to have significant differences in some of the survey questions. Wildlife tourists were found to have higher expectations of visibility in a captive setting. The results differed between the two zoos which could be due to the features of each zoo, unique visitor experiences, or even outside factors such as mood. Overall, zoo administrators can learn more about visitor satisfaction and expectations about their visit from this type of research to ensure a positive experience for their visitors and welfare for the animals.

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## KEY TO ABBREVIATIONS

AZA – Association of Zoos and Aquariums

IRB – Institutional Review Board



## CHAPTER ONE: INTRODUCTION

Millions of people visit zoos on an annual basis but we know very little about how satisfied visitors are with their zoo experience. In particular, there is a paucity of research concerning visitor satisfaction with the degree to which animals are visible in zoos. The goal of my research is to learn more about visitors' expectations and satisfaction concerning visibility of zoo animals. I also will attempt to learn if visitors who have participated in wildlife tourism are more satisfied with visibility of animals in the wild or in the zoo.

### Problem Statement

The focus of this research project is to learn more about zoo visitor satisfaction with animal visibility in zoos and compare their satisfaction with animal wildlife tourism experiences to their zoo experiences. It has been hypothesized that a lack of animal visibility may negatively impact a zoo experience and the desire to return. Specifically, the goal was to answer the following research questions:

1. Are there statistically significant differences in overall satisfaction, importance of animal visibility, and importance of animal welfare between different demographic groups (men vs. women; zoo members vs. non members; age groups; income categories; children or no children; visitor category; weekday vs. weekend visitors; education level) or other visitor features (if they feel the zoo is a good value, feel animals need a hiding place, how often they visit the zoo in a year)?
2. How often do visitors expect the animals to be visible and are there differences between the different demographic or visitor features mentioned above?

3. Are zoo visitors who have been wildlife tourists more satisfied with animal visibility in their previous wildlife tourism experiences or the zoo?

### Purpose

There is a lack of knowledge on zoo visitor satisfaction with the visibility of the animals in the zoo. Additional information on zoo visitor satisfaction will help managers determine how to increase the visitors' satisfaction and intent to return. Determining expectations for animal visibility will give zoos an appropriate goal for overall animal visibility. Finally, the comparison of wildlife tourism to zoo visitors can help inform both subjects on visitor satisfaction with animal visibility.

### Justification

Zoos in the United States attract over 175 million people per year (aza.org, 2011) and zoos are dependent on these visitors to financially support the zoo (Cain and Merritt, 1998). Therefore, visitor satisfaction and return visits are important for the financial viability of the zoo and the zoos ability to accomplish their mission statements. Zoo mission statements typically cite animal conservation and education as their main goals (Turley, 2001), but visitors typically cite entertainment and social reasons for visiting zoos (Tomas et al., 2003). A lack of entertainment, including being able to see the animals, may decrease a zoo visitors' desire to return to the zoo. Zoo visitors emotionally connect to the animals they see and a lack of animals can lead to dissatisfaction. In some situations, visitors may enjoy searching for the animals in exhibits (Davey, 2006) but may not even visit exhibits that are further away from the front of the zoo or off the main path (Davey, 2007). Satisfaction with animal visibility may be more important for

certain species or to specific visitors. The few published studies that examined zoo visitor satisfaction focused primarily on services that the zoo offers such as concession, bathrooms, and interactive family activities. There are no studies that focus on visitor satisfaction with the visibility of the animals at the zoo, producing a gap in the knowledge of zoo visitor satisfaction that has an effect on the visitors, the animals, and the managers of the zoo. Zoos must compete with other social activities for the limited funds of a consumer so a clear understanding of visitor expectations of and satisfaction with animal visibility can be valuable to zoo managers.

Zoos and wildlife tourism activities attract visitors with the expectation that visitors will see animals. With this commonality, the research in one area can be informative to the other in certain circumstances. For example, wildlife tourism can learn from the zoo environment concerning the impact of a visit on conservation learning and behavioral outcomes (Ballantyne et al., 2007). Satisfaction with animal visibility has been documented in wildlife tourism studies. There are studies that document high overall satisfaction with low animal visibility and others that document complaints about low numbers of animals and not being close enough to them. There are no studies that compare animal visibility and satisfaction between a wildlife tourism situation and a zoo setting.

### Delimitations

There are many characteristics in this study that delimit the scope. The scope of the topic of visitor satisfaction with animal visibility in zoos was determined through a literature review on zoo visitors. A survey of zoo visitors was determined to be the most effective method to investigate this gap rather than other methods such as focus groups. The scope of the survey was focused on the questions necessary to perform statistical analyses on the acquired data. The

participants are only adults, at two zoos, during the study period in June 2012. These delimitations were chosen due to practical and ethical concerns. The questions were focused on satisfaction with animal visibility and the related area of how often the visitor feels the animal should be visible. The demographic features were limited to variables that were found in previous studies to be relevant in terms of visitor satisfaction with zoo experiences. All of these factors delimit the scope of this research project.

### Limitations

The following study cannot be generalized to all zoo situations. First, the study period is in June. Therefore, the study cannot be generalized to other seasons or one entire zoo in general. Second, it is limited to two zoos in Michigan. There may be regional differences within the United States and this study would not be able to be generalized to international zoos. Third, with the lack of children as participants, the study cannot be generalized to younger visitors.

The study is also limited by other factors that may influence participation. The survey is an exit survey and some guests may not be willing to take the time to fill out a survey after their zoo experience. Similarly, the additional exit at the Detroit Zoo for members only will exclude those visitors who leave through this exit from my potential survey participants. The weather may reduce participation by decreasing normal visitation patterns or changing the speed at which the visitor leaves the zoo. The weather may also reduce the visibility of the animals more during the summer months. Lastly, the short study period could also influence the potential sample size.

This study is also limited by the statistical method chosen. A parametric t-test was chosen as the statistical method due to ease of understanding and interpreting the results. This parametric statistic makes the assumption that the distribution of the data set is normal. This

assumption may be broken due to the positively skewed distribution of the data collected in this survey. Therefore, non parametric statistical tests may be more appropriate in some of the analyses presented. Also, with the large number of t-tests performed, there are bound to be some statistically significant differences. The potential for broken assumptions in the statistical analysis chosen limits the scope of this study.

### Assumptions

The study was based upon the following assumptions:

1. Each zoo experience is unique to each individual.
2. Each zoo experience can be affected by outside factors such as social groups and weather.
3. Satisfaction is based upon the visitors' expectations of their experience.
4. Visitors answered questions honestly.

### Hypotheses

This study was designed to test the following null hypotheses:

1. There are no statistically significant differences on dependent variables of overall satisfaction with animal visibility, or importance of animal visibility or animal welfare between the following independent variables: gender, members or non members, children vs. no children, feel the animals need a hiding place or not, age, feel the zoo is a good value or not, education, income, and visitor type.
2. There will be no statistically significant differences on the dependent variable of amount of time visitors expect the animals to be visible between the following

- independent variables: gender, members or non members, children vs. no children, feel the animals need a hiding place or not, feel the zoo is a good value or not, and if they feel welfare is important or not.
3. There will be no statistically significant differences in the dependent variable of satisfaction with animal visibility compared between wildlife tourists and zoo visitors. Additionally, there will be no statistically significant differences when using the amount of time animals were visible in the wild compared to percent desired in zoo settings.

### Definition of Terms

Enrichment: Providing stimulating and challenging environments, objects, and activities for animals (AZA.org, 2011).

Exhibit/enclosure: The area where an animal is kept in a zoo. First generation exhibits are characterized by small cages and smooth walls. Second generation exhibits are surrounded by moats. Third generation exhibits contain natural vegetation and proper species groups (Shettel-Neuber, 1988).

Ex situ conservation: Conservation outside the animal's natural habitat (i.e., at the zoo).

In situ conservation: Conservation in the animal's natural location.

Satisfaction: "an emotional state of mind after exposure to the opportunity. It recognizes that satisfaction may be influenced by the social-psychological state a tourist brings to a site (mood, disposition, needs) and by extraneous events (for example climate, social group interactions) that are beyond the provider's control, as well as by the program or site attributes that suppliers can control" (Baker and Crompton, 2000 page 788).

STATA: A statistical software program.

Visibility: The ability to see an animal in a zoo exhibit.

Wildlife tourism: “an area of overlap between nature-based tourism, ecotourism, consumptive use of wildlife, rural tourism, and human relations with animals” (Reynolds and Braithwaite, 2001 page 32).

Zoo: A type of museum that holds a collection of wild animals for display and conservation (Mason, 2000).

Zoos are incredibly popular in the United States. Yet, there is a lack of published research on these visitors. The focus of this research project is to learn more about zoo visitor satisfaction with animal visibility in zoos and compare their satisfaction with animal wildlife tourism experiences to their zoo experiences. The following chapter presents a literature review on previous research involving both zoo visitors and wildlife tourists.

## CHAPTER TWO: LITERATURE REVIEW

The literature review focuses on zoo visitors before moving to wildlife tourists. The areas discussed concerning zoo visitors are: general information, satisfaction, visibility, demographics, reasons for visiting zoos, importance of children, and visitor preferences. For wildlife tourism, satisfaction, visibility, expectations of visibility, distance to the animals, uncontrollable factors, and welfare are discussed in the literature review.

### Zoo Visitors

Literature on zoo visitors can be found in a variety of subjects including visitor studies, animal studies, tourism, and museum studies. The literature presented here includes the following topics: satisfaction, animal visibility, reasons for visiting, importance of children, and visitor preferences. The literature review will then shift to wildlife tourism which is organized into the following topics: satisfaction, animal visibility, expectations of visibility, distance to the animals, uncontrollable factors and welfare.

Over time, zoos have evolved from menageries to living museums to conservation centers (Rabb, 1994; Hutchins and Smith, 2003; Knowles, 2003). The wide use of the word conservation in current zoo mission statements is evidence of this evolution (Muraoka, 2008). Further, world zoos contribute over \$350 million to in situ and ex situ conservation efforts yearly (Gusset and Dick, 2010). In addition to conservation of endangered species, modern zoos also have economic, educational and entertainment benefits (Beri et al., 2010).

Decreasing government funds are forcing zoos to rely more on admission revenues and other services such as gift shops and concessions (Cain and Meritt, 1998). Depending on the size of the zoo, concessions can now make up 22-32% of zoo revenues (Cain and Meritt, 1998). Zoos



are expensive to maintain and the Association of Zoos and Aquariums (AZA) believes that no zoo earns more revenue than their operating expenses (Turley, 1998). In fact, U.S. zoos alone spend over \$1 billion on operating expenses every year (Primack 2002 as cited in Miller et al., 2004). However, zoos may not be charging high enough prices as willingness to pay studies indicate people would pay more for their family outing to the zoo, particularly for additional experiences such as touching or feeding animals or offering special behind the scenes tours (Cain and Meritt, 1998; Beri et al., 2010; PGAV Destinations, 2011). According to annual attendance records, more people visit American zoos than National Football League, National Basketball Association, and Major League Baseball games combined (Tribe, 2004; Muraoka, 2008). It is a surprise then, that with these massive attendance records, there are still many areas concerning zoo visitors that need additional research and solid evidence. For example, it is still debated if zoos actually increase the conservation knowledge and actions of their visitors (Smith et al., 2008). In addition, we do not fully understand the educational impact of zoos or the visitors' intent on being educated in this type of free learning situation. Finally, there is very little information on visitor satisfaction with the actual animals at the zoo and little to no knowledge about visitor concern for the welfare of these animals. We know more about visitor satisfaction with service aspects of zoos such as concessions and restroom facilities than we do about the visitor's perceptions of the animals.

Satisfaction: The few studies that have focused on satisfaction with zoo experiences focus on service aspects such as maps of the zoo and restroom facilities. One study found that the most important factors to visitors were clean restrooms, appropriately sized exhibits with enrichment social activities for the group of visitors, and good views of the animals (Ryan and Saward,

2004). Thus, the animals were only mentioned in two out of the four top importance factors to zoo visitors in this study. Another survey found that visitors, who were surveyed before entering the zoo, had highest expectations for the animals, information on the animals, cleanliness, and general information (Tomas et al., 2003). Again, animals appeared in half of the items on the importance list. While services consistently rank high in importance, a correlation of .64 between visitor satisfaction and services provided (Tomas et al., 2002) showed that there are many independent factors that influence visitor satisfaction (Baker and Crompton, 2000; Benkenstein et al., 2003). However, behavioral intentions were also correlated with satisfaction and services provided (Tomas et al., 2002) and the quality of these services and satisfaction (Baker and Crompton, 2000). High importance low performance charts were typically used in these studies to determine those aspects a zoo can improve on to increase visitor satisfaction with their zoo experience (Wagner, 1989).

Visitors, when asked to explain their experiences with animals in captivity, noted positive zoo experiences consisting of interacting with animals, learning, seeing a variety of animals, good conditions and services, and memorable emotional experience (Woods, 2002). While these studies contribute to our knowledge of zoo visitors, overall, satisfaction with zoo experiences remains an area full of opportunities for future research. There are very few reports on how to increase visitor satisfaction with zoo experiences. Researchers have found that increased interactions, such as keeper talks and public animal feedings, may increase visitor satisfaction (Ryan and Saward, 2010). The following table presents previous research on satisfaction in zoos and provides a brief overview of information on those factors zoo visitors document as the most satisfying.

Table 1: Table of previous research on zoo visitor satisfaction.

<b>Authors</b>	<b>Year</b>	<b>Journal</b>	<b>Top areas of satisfaction</b>
Tomas, Scott, and Crompton	2002	Managing Leisure	Wildlife enjoyment, family togetherness, companionship, escape, wildlife appreciation
Woods	2002	Anthrozoos	Interactions with animals, learning, variety of animals, good care/conditions of animals, facilities and service
Benkenstein, Yavas, and Forberger	2003	Journal of Hospitality and Leisure Marketing	Lush and clean gardens, pleasing and informative displays, beautiful countryside, detailed information on the animals, adequate sitting areas/benches
Tomas, Crompton, and Scott	2003	Journal of Park and Recreation Administration	Overall cleanliness and accessibility, wildlife information, wildlife, general information, staffing
Ryan and Seward	2004	Journal of Sustainable Tourism	Place for bringing a family, animal enclosures replicate native habitats, visitors have viewing platforms, family ticket for admission, zoo is important for conserving wildlife
Hughes, Newsome and Macbeth	2005	Journal of Ecotourism	Educational emphasis, viewing rare animals, enjoyed viewing wildlife, family/informative guide, seeing animal's in natural habitat
Nowaki	2009	International Journal of Tourism Research	Plans/Maps, catering, directions/signs, information boards/panels, souvenirs
Sickler, Fraser	2009	Leisure Studies	Meeting and hanging out with friends, group experiences, introspectively thinking about Earth and human impacts, not crowded, becoming better friends with those at the zoo

Visibility: Visitors may be misled by nature documentaries that focus on exciting aspects of animal lives, not the less exciting resting and sleeping periods often observed in the zoo (van Linde, 1992). Visitors may be disappointed when they find the animals resting or out of sight rather than performing exciting behaviors such as feeding or playing. Increased visibility of the animals may increase satisfaction. Kuhar et al. (2010) believe that poor visibility may negatively impact the experience of zoo visitors and therefore their decisions to return to the zoo or tell others of their positive experience. Due to this concern, Disney's Animal Kingdom arbitrarily

chose a goal of 80% visibility of their animals throughout the day. However, the researchers at Disney admit this is an arbitrary percentage because there is no research on visitor satisfaction with animal visibility to determine the appropriate percentage of time visitors feel animals should be visible. Chester Zoo in the UK undertook a large visibility study and found that some of their most popular and high profile publicized species had very low visibility. For example, the Asiatic Lion was only visible for 4% of the time and the spectacled bear only 13%. These numbers were only slightly higher when researchers counted partial views as well, 11% and 13% for the lion and bear, respectively. Also, they found that the lion-tailed macaques and mandrills were never viewed in their outdoor exhibit area during their study time period (Spruce and Esson, 2005 as cited in Moss et al., 2010). Zoos are undertaking these types of visibility studies to determine the visibility of their animals, but there are no documented studies that determine how often the visitors expect the animals to be visible or their satisfaction with animal visibility.

Visitors spend more time looking at exhibits where the animals are visible (Nakamichi, 2007). In addition to visibility, visitors spend more time looking at (and were more committed to viewing) free-range monkeys than monkeys in cages (Price et al., 1994). Other attributes, such as active animals, keystone species, dangerous animals, proximity to the visitors, and presence of animal infants, also increase visitor time at individual exhibits (Bitgood et al, 1988; Patterson and Bitgood, 1989; Fernandez et al., 2009; Moss and Esson, 2010). Because people want to have interaction with the animals, (Woods, 2002), interactive exhibit features such as being able to crawl through tunnels or playing tug of war with the animals positively impact visitor stay time (Bitgood et al, 1988; Patterson and Bitgood, 1989; Sandifer, 2003). Interpretive presentations have been shown to increase information seeking and visitor viewing time by 336% compared to a traditional exhibit where a chain link fence could have inhibited visibility (Povey and Rios,

2002). High visitor density at exhibits has been shown to decrease the time spent viewing the animals (Marcellini and Jenssen, 1988). A lack of animal visibility at the zoo can leave a negative impact on a visitor and negatively influence their future decisions to go to the zoo and tell their friends and family about the zoo. The following table presents a variety of studies that have documented some ideas on animal visibility in zoos.

Table 2: Previous findings concerning animal visibility in zoos.

<b>Author</b>	<b>Year</b>	<b>Journal</b>	<b>Findings on animal visibility</b>
Bitgood, Patterson, and Benefield	1988	Environment and Behavior	Longer viewing times were documented with easier animal visibility. Also, visitors were more likely to stop when the animals were close.
Andereck and Caldwell	1994	Journal of Travel Research	Visitors were very satisfied with number, variety of animals, activity level, and ability to see animals.
Povey and Rios	2002	Journal of Interpretation Research	A cat out of the exhibit accompanied by a staff member increased viewing by 336% compared to the same cat behind a fence in the exhibit
Woods	2002	Anthrozoos	Visitors cited interactions with animals and large variety of animals in their top 3 of positive animal experiences
Ryan and Saward	2004	Sustainable Tourism	Good views of the animals was in the top 5 importance factors
Davey	2006	Applied Animal Behaviour Science	More visitors stopped at exhibits when animals were present. Visitors spent time looking for animals in natural exhibits.
Nakamichi	2007	Anthrozoos	Time spent at exhibit increased with animal visibility
Zwinkels et al.	2009	Visitor Studies	Stay time at exhibits decreased during high visitor density periods which decreased exhibit visibility
Kuhar et al.	2010	Zoo Biology	Hypothesized that poor animal visibility negatively impacts a zoo visitor experience and documented ways to increase visibility. A goal of 80% visibility arbitrarily chosen.
Moss, Esson, and Bazley	2010	Zoo Biology	Found visibility numbers of 4% and 11% on most publicized and popular animals

Demographics: Zoos attract a greater diversity of visitors than other types of museums (PGAV Destinations, 2011). Zoo visitors tend to have a higher educational and socioeconomic status than non-visitors (Andereck and Caldwell, 1994; Mason, 2000). There are more female than males and more adults than children among those who visit zoos (Saayman and Slabbert, 2004; Kutska, 2009; Ross and Gillespie, 2009). The most common visiting group type is the family group with children (Saayman and Slabbert, 2004; Clayton et al., 2009; Ross and Gillespie, 2009). It is ordinary to find that visitors to zoos and aquariums are already more concerned with the environment and conservation issues than the general public (Adelman et al., 2000; Dierking et al., 2004). Previous zoo studies have documented demographics as an overview of the sample population but studies have not compared demographic factors to determine if there are differences in segments of zoo visitors (i.e. gender, age ranges).

Reasons for visiting zoos: Zoos typically cite animal conservation and education as their main goals (Turley, 2001), but visitors typically cite entertainment reasons for visiting zoos (Tomas et al., 2003). The primary reason people visit zoos are social aspects, such as a family outing. Family togetherness consistently outweighs viewing wildlife, conservation, and education motives (Tomas et al., 2003). In addition, social experiences were also found to be more satisfying than cognitive (gaining information and understanding), introspective (reflecting on experiences and emotional connections), and object experiences (seeing “the real thing”) (Pekarik et al., 1999).

While social experiences are the major motivation for visiting zoos, there are many other reasons as well (Morgan and Hodgkinson, 1999). Falk (2006) identified five types of museum visitors based on their main motivations. They classified them as explorers, facilitators,

professional/hobbyists, spiritual pilgrims, and experience seekers. Falk et al. (2008) surveyed zoo visitors and found that 55% of zoo visitors have one clear distinctive motivation for visiting the zoo, the most popular being explorers and facilitators. Explorers are motivated by entertainment, while facilitators enjoy seeing their loved ones enjoy the activity.

Professionals/hobbyists are interested in the zoo because of their own interests such as photography, while experience seekers go to the zoo for the “been there, done that” aspect.

Finally, spiritual pilgrims, who are the smallest group, see the zoo as an escape from daily life.

Sickler and Fraser (2009), using different methodology from Falk, found four types of zoo visitors that correlated with the five previously defined. Perspective A enjoys the opportunity for a family social experience the most. Perspective B is very similar to A but was more focused on the learning of their children. Perspective C enjoyed seeing the animals and the emotional connection with them. Perspective D focused on social experiences with friends rather than family (Sickler and Fraser, 2009). Comparing the motivations of these different perspectives with the five types of museum explorers defined by Falk, we can see that A corresponds to explorers, B is similar to facilitators, C corresponds to spiritual pilgrims and D is comparable to experience seekers. While social benefits are consistently rated the highest motivator, zoos have difficulty impacting the totality of group social experiences as there may be outside factors such as family arguments and bad weather. Differing visitor types has not been utilized in research but can provide valuable information on visitor satisfaction depending on their reasons for visiting.

In addition to researching why people visit zoos, it is equally important to research why people choose not to visit zoos (Davey, 2007). The majority of non zoo visitors said the reason they did not visit the zoo was because they could not be accompanied by a child (Turley, 1998, 2001; PGAV Destinations, 2011). Other cited reasons for not visiting zoos were other options for

entertainment and concerns about animal welfare (Turley, 2001). Previous experiences at zoos and other wildlife attractions can deter zoo visitation. People who were asked to document their best and worst wildlife experiences in an open ended survey noted poor conditions of captive animals, bad service and other factors such as a personal dislike of the animals as the most negative experiences (Woods, 2002).

Importance of children: Not having children can deter people from visiting the zoo. For families with children, adult females typically initiate zoo visits (Turley, 2001). Their children can influence recreational decisions merely by their presence or by actively taking part in decision-making discussions. Although the impact of children on tourism decision making is not entirely clear, they may have a great influence on small scale family vacation decisions (Thornton et al., 1997). While at the zoo or vacation location, the satisfaction of children may be more important to the parents than their own satisfaction (Thornton et al., 1997; Turley, 2001). One study noted that adults were observed asking their children's opinions as they filled out a survey on their zoo visit (Ryan and Saward, 2010). In addition to impacting the decision to visit zoos, children also impact the actual zoo visit. Children can lead the pace of the group and patterns throughout the zoo (Tomas et al., 2003) which may lead to the reason why groups with children tend to spend less time at exhibits (Marcellini and Jenssen, 1988), interacting with signage (Ross and Gillespie, 2009) and less time at each exhibit than solo and older visitors. Even though the pace may be faster with children, one study found that 80% of the children who were asked if the animals had positive, negative or indifferent impact answered positively (Olukole and Gbadebo, 2008), which could increase the children's satisfaction and their motivation to visit the zoo in the future.



Visitor preferences: Visitors prefer to view large vertebrates (Ward et al., 1998; Balmford, 2000), particularly mammals, which makes them the most popular animals in the zoo (Goulart et al., 2009; Moss and Esson, 2010). Visitors were more connected to, and concerned for the feelings and conservation of, gorillas than either okapi or snakes (Myers, 2004). Zoo visitors also place greater value on endangered animals (Burghardt and Herzog, 1980). Comparing the same species (Shettel-Neuber, 1988) and even the same animals (Nakamichi, 2007) in both natural and non-naturalist exhibits, visitors stayed longer at the naturalistic exhibits and perceive animals more positively in naturalistic exhibits (Fernandez et al., 2009). This held true in a Chinese zoo where Davey (2006) found that visitors viewed natural exhibits longer than barren exhibits that contained a hardened mud floor and no foliage. This disproved the hypothesis that natural exhibits decreased visibility and therefore interest in the animals and perhaps gave some clout to the idea that visitors enjoy searching for animals in natural exhibits. In fact, fewer people even stop to view older moat style exhibits (Shettel-Neuber, 1988).

Zoos and wildlife tourism both focus on viewing exotic animals. These two subjects can inform the other through research (Ballantyne et al., 2007). However, there have not been published studies that compare animal visibility between a zoo setting and a wildlife tourism setting. The focus of the literature review will now shift to satisfaction and visibility in wildlife tourism settings.

### Wildlife Tourists

Wildlife tourism occurs across the globe from safaris to whale watching to polar bears in the arctic. These wildlife tourists travel long distances to see animals in their native locations. This is drastically different from zoos, which are convenient locations where people can easily

go to see exotic animals without traveling across the globe. Wildlife tourism can be considered “as an area of overlap between nature-based tourism, ecotourism, consumptive use of wildlife, rural tourism, and human relations with animals” (Reynolds and Braithwaite, 2001, page 32). Experiences with animals in the wild are becoming more important to wildlife tourists (Curtin, 2005) and influence their levels of satisfaction (Patterson et al., 1998). The features that make a wildlife experience more memorable include charisma of species, rarity, closeness, first encounters, large numbers, and diversity of species seen (Curtin, 2010). It is logical to assume that seeing the animals of interest would be incredibly important to wildlife tourists’ satisfaction. However, research on satisfaction with animal visibility in wildlife tourism has conflicting results with some studies finding visibility important while others find it has little impact on satisfaction.

Satisfaction: The visibility of the animals cannot always be controlled. However, there are factors within the control of the tourism operators that have been documented to increase satisfaction. For example, smaller tour groups correlate with higher satisfaction (Schanzel and McIntosh, 2000). A survey after a nocturnal animal tour in Australia found an inverse relationship between the size of the group and satisfaction (Hughes et al., 2005). Other factors that wildlife tourists find to be important are being in nature, close to wildlife, seeing a variety of wildlife, and knowing the operators respected the wildlife (Pearce and Wilson, 1995).

Visibility: The main way for tourism locations to increase animal visibility is through supplemental feedings (Orams, 2000), but this still does not guarantee animal sightings. Tourism companies who provision wild animals with food in designated areas allows the animals to be in

their natural environment rather than enclosures but is not without problems. Baboon troops, in one tourism location, do not come for provisioned food when their natural nuts and berries are plentiful in the fall season (Knight, 2010). Also, to ensure shark sightings, it is becoming more necessary to utilize bait (Topelko and Dearden, 2005). Provisioning food to wildlife comes with a variety of negative consequences for the animals. These consequences include changes in natural behaviors, unsustainable population levels leading to a dependence on provisioned food, habituation to human contact, increased aggression, loss of teaching from one generation to the next, changing migration patterns, home range, and predator prey relationships (Orams, 2002). On the other hand, supplemental feeding can be positive as it has been used to increase the population size of endangered species (Orams, 2002). Overall, providing food increases the visibility of the animals but may also harm their populations for future tourism activities.

The animals themselves are an important factor in tourists' satisfaction with their experiences. Some factors related to the popularity of the animal for wildlife tourism are size, danger, attractiveness, publicity, and rarity (Reynolds and Braithwaite, 2001). Okello et al. (2008) found that a lot of one species or mixed groups grazing, rare species, carnivores and interactions attracted the most tourists. In the Cades Cove in the Great Smoky Mountains, survey respondents' expectations were met for the number of species seen, but they expected to see more of the larger charismatic big game animals they came to see like black bears (Hammitt et al, 1993). This survey found that, "not seeing a specific species can lead to less satisfied participants" (Hammit et al., 1993 page 28). Seeing specific species is particularly prevalent when thinking about the "big five" in African safaris as the presence of large mammals is the main attraction of tourism in Kenya. However, a study at Amboseli National Park in Kenya revealed tourists stopped to see the lion, cheetah, waterbuck, hippo, hyena, giraffe, and baboons

(Okello et al., 2008). Therefore, the “big five” were not actually the most sought after animals. Animals that can harm humans seem to have an adventure seeking aspect for wildlife tourists (eg. wolves, sharks, etc.) (Tremblay, 2002). For instance, one study found tourists who failed to see crocodiles on a guided boat tour were dissatisfied (Tremblay, 2002). The following table presents previous findings on animal visibility in wildlife tourism settings. These studies did not focus on animal visibility, but the topic was mentioned in these studies.

Table 3: Previous findings concerning animal visibility in wildlife tourism settings.

<b>Author</b>	<b>Year</b>	<b>Journal</b>	<b>Findings on animal visibility</b>
Hammit, Dulin, Wells	1993	Wildlife Society Bulletin	Expectations were met for the number of species seen but had higher expectations for the number of larger charismatic animals such as black bears.
Pearce and Wilson	1995	Journal of Travel Research	Being close to wildlife and seeing a variety of wildlife are found to be important to wildlife tourists
Wright	1998	Wildlife Society Bulletin	92% of respondents felt seeing wildlife was important and 50% felt they would be dissatisfied without seeing wildlife
Orams	2000	Tourism Management	Whale watching visitors still satisfied when no whales seen. The distance to the animals was not found to be important.
Davenport et al.	2002	Journal of Park and Recreation Admin	Viewing animals achieved a 4.63 average on a 5 point scale looking at visitor preferences
Orams	2002	Tourism Management	Feeding of wildlife increases close viewing of animals
Schanzel, McIntosh	2002	Journal of Sustainable Tourism	Visitors disappointed in closeness to animals.
Cloke and Perkins	2005	Environment and Planning D: Society and Space	Felt cheated if no animals seen.
Leberman and Holland	2005	Journal of Park and Recreation Administration	Quality of animal viewing does not appear to play a role in visitor experiences.
Montag et al.	2005	Human Dimensions of Wildlife	Visitors described their experience as satisfying, even when they did not see wolves
Lemelin	2006	Current Issues in Tourism	Lack of polar bears and inability to approach documented as detracting from a tour experience.
Okello and Yerian	2009	Journal of Sustainable Tourism	85% surveyed documented wildlife as their primary attraction to the area but overall satisfaction was not dependent on this or number of species seen
Curtin	2010	Journal of Ecotourism	Closeness to animals documented as a most memorable feature of wildlife tourists
Knight	2010	Annals of Tourism Research	Baboons do not respond to supplemental food when natural nuts and berries are plentiful.

Expectations of animal visibility: Marketing of tourism experiences can give tourists high expectations. However, expectations can be very different than actual sightings. High

expectations can lead to low satisfaction if the experience does not live up to the lure of marketing materials. In Africa, different types of media such as books and documentaries influence what tourists expect on their safari experience (Okello and Yerian, 2009). Tourists visiting Africa may believe that they will easily see the “big five” (lions, giraffes, elephants, rhinoceros, and hippos) and are disappointed if they do not (Norton, 1996). One African park visitor felt the park was “like a zoo” due to the large number of people (Norton, 1996 page 367). Another example of misleading marketing concerned penguin visitors who noted in their surveys that the brochure gave customers higher expectations as to how close the people could get to the animals (Schanzel and McIntosh, 2000).

The anticipation of potentially seeing animals in the wild is also important for wildlife tourists (Curtin, 2010). In a national park, tourists were as interested in the possibility of seeing wolves as they were actually seeing them (Montag et al., 1997). Even those who did not see wolves described their experience as positive (Montag et al., 1997). Likewise, whale watching passengers were still satisfied with their experience even when no whales were seen (Orams, 2000). However, those participants on cruises with “excellent” whale viewing did have higher satisfaction levels than those cruises described as “okay” and “poor,” but the visitors on the cruises with less visibility were still generally satisfied (Orams, 2000).

Distance to the animals: Close interactions with captive animals are an increasingly popular activity at zoos and are also sought after in wildlife tourism. A survey of tourists found that they felt their satisfaction stemmed from “the closer the better” particularly if they got closer than they expected (Schanzel and McIntosh, 2000). In another study, it was found that, “Visitor efforts to obtain a closer, longer, and better view of wildlife were important predictors of quality

viewing” (Hammit et al., 1993 page 28). This may vary with each tourism event because proximity to whales was not important to overall satisfaction with a whale watching boat trip (Orams, 2000). However, tourists forced to stay a large distance from the animals can lead to dissatisfaction.

Uncontrollable Factors: Tourist attractions have little control over wild animals, the environment, and if the tourists are actually going to be able to see the animals. Interviews in one study determined that people who failed to see any cetaceans felt “cheated by nature” (Cloke and Perkins, 2005 page 915). The inability to see animals is only one of many uncontrollable factors that can decrease tourist satisfaction. Although whales and their behavior were the most important aspect of satisfaction in a whale watching cruise, participants also documented that seasickness, number of whales, behavior of whales, length of cruise, boat characteristics, and number of passengers all influenced satisfaction (Orams, 2000). Another uncontrollable factor would be a decrease in the wild populations of the animal of interest. Tourist divers must have a reasonable chance of seeing sharks and this is decreasing in many areas of the world due to consumptive uses of sharks (Topelko and Dearden, 2005). Similarly, an arctic study found polar bear tourists expected to see at least 20 bears which is 2-3 times the average number of bears spotted on an outing (Lemelin, 2006). This lack of bear sightings and inability to approach the bears was noted by survey respondents as detracting from their experience (Lemelin, 2006). Finally, a survey in Denali National Park found that 92% of respondents felt that seeing wildlife was important and half felt that they would be dissatisfied without seeing wildlife (Miller and Wright, 1998 cited by Wright, 1998).

Welfare: Positive welfare of the animals being viewed can also affect the satisfaction of wildlife tourists. A study of a variety of elephant camps in Thailand showed that the visitors were most satisfied in the camps where the elephants were treated the best, even though elephant riding was not provided at this camp which was the most important factor in satisfaction at all of the other camps (Kontogeorgopoulous, 2009). The lack of barriers in wildlife tourism also increases welfare and visitor satisfaction. To reduce disturbance to a colony of endangered penguins, tourists observe the animals through dug out trenches so they are less noticeable to the animals (Schanzel and McIntosh, 2000). Also, tourists preferred seeing moose in free ranging situations rather than zoos (Brandin, 1999). A lack of barriers, even with captive animals, increases the sense of being in the wild (Hughes et al., 2005) thus increasing overall satisfaction.

Exotic animals in zoos are regulated under the Animal Welfare Act in the United States. To a lesser extent, there are laws to protect animals in wildlife tourism locations. Many marine mammal watching cruises are regulated and have rules such as required permits, limits to the number of boats and people in the water with the animals, and limits to how close the boats and swimmers may come to the animals. However, these regulations are often disregarded as tour operators attempt to give the customers a satisfying experience and closer views of the animals (Cloke and Perkins, 2005).

Tourism is one of the largest industries in the world and keeping tourists satisfied is important to tour operators and their finances. But the literature indicates that there is no clear consensus on the importance of animal visibility in wildlife tourism.

Zoo visitors and wildlife tourists are both drawn to seeing animals. While there are similarities in their preferences on animal features, there is little research comparing satisfaction levels between zoo visitors and wildlife tourists. In general, this study focuses more on zoo



visitors and touches briefly on wildlife tourists. It is the purpose of this study to help fill the research gaps in visitor satisfaction in zoos and the comparison between zoo visitors and wildlife tourists.

### CHAPTER THREE: METHODS

There are five zoos accredited by the Association of Zoos and Aquariums (AZA) located in Michigan (aza.org, 2011). These zoos all have different exhibit styles, location within the state, and size. These are important factors in this study because more natural exhibits may impede animal visibility and larger zoos may have room for bigger species and a greater variety of species. Larger zoos take longer to visit and perhaps more tiring for family outings. Finally, different locations in the state may have more competition for family leisure time and visitors may have different expectations due to these factors. Two locations in Michigan were selected: the Potter Park Zoo was selected due to the location near the Michigan State University campus and the Detroit Zoo was selected due to previous work done at the zoo by the researcher. These zoos were also chosen due to differences between them. The Detroit Zoo is an urban zoo located in Royal Oak, Michigan, just outside of Detroit. It is accredited by the AZA and has an annual visitation of over 1 million visitors. It is a large zoo located on 125 acres. The Detroit Zoo is home to over 1,500 animals of 260 species. The Potter Park Zoo is much smaller located in Lansing, Michigan on only 58 acres. It is also accredited by the AZA and hosts over 500 animals of 160 species and annual attendance records top 150,000 visitors. These differences between the Detroit Zoo and Potter Park Zoo will provide information on two different types of zoos that have the distinguishing features of size, animals in each zoo, and location within the state.

Exit surveys were given to zoo visitors to determine satisfaction with the visibility of zoo animals. The questions on the survey were based on previous research and which questions would benefit the research questions and hypotheses. The visitors were asked to rate their overall experience to separate the visitors into those who felt they had a negative experience to compare them to those who felt they had a positive experience. The question concerning why the visitors

came to the zoo was included so that visitors could be separated into different categories as defined in previous research. The visitors were also asked if they felt the animals should have a place to hide out of view of zoo visitors. This question was important to determine if visitors could still be satisfied with their zoo experience even if they could not see the animals. Wildlife tourism questions were included to compare animal experiences in a natural setting compared to a zoo. The demographics were chosen based on previous research. Children were included to determine if children affect the adults' experience. The zip code was included to be able to classify visitors as in county or out of county for the Potter Park Zoo due to different prices for these groups. Income was also important to determine if those with a lower income have higher expectations. The comments were included to be helpful to the zoo and to allow the visitors to express any concerns that were not covered in the survey.

Data were collected from June 11 to June 24, 2012 during the operating hours of each zoo. At the Detroit Zoo, data collection started two hours after opening at 11am to the closing time at 5pm and one hour after opening at the Potter Park Zoo, 10am to the 6pm closing time. The times were chosen according to the approximate amount of time a visitor would need to visit each zoo based on the size of the zoo. The dates were chosen because most schools in Michigan will be out for summer break which would eliminate many large school groups. Also, with school out for the summer, families will be looking for activities to do with their children. These weeks were also chosen as typical days at the zoo in the summer. Days were alternated so research was collected one day of the week at each zoo. With the alternating, there was no two days in a row spent at the same zoo which was designed to account for changes in weather patterns. The total number of survey days for each zoo was two weekend days (both one

Saturday and one Sunday) and five week days (one day each: Monday, Tuesday, Wednesday, Thursday, Friday).

The researcher distributed surveys at the main exit of each zoo. The Potter Park Zoo has only one main exit and the researcher was positioned inside the zoo at this main exit. The Detroit Zoo has two exits; the main exit is located at the front of the zoo where visitors enter and purchase tickets. The second exit is a special entrance for members of the zoo that is open seasonally but non members may also exit at this location. The researcher collected data outside the gates at the main exit of the Detroit Zoo, which means that some Detroit Zoo visitors were lost out of the potential survey participants. However, there were many zoo members who left through the main exit. Any visitor who exited the zoo before or after the times designated for data collection were not included in this study. Additionally, visitors who were leaving the zoo with the intent to return by getting a hand stamp to reenter the zoo were not asked to participate in the survey. These visitors were expecting to return to the zoo so it was assumed that the visitors were not finished with their visit. If these visitors did not return to the zoo or left through the alternative exit at the Detroit Zoo, then they visitors were not included in the study. Any adults that were part of a large coordinated group (school, day care, summer camp etc.) and acting as a chaperone were also not invited to participate in the survey. The researcher did not want to interrupt these groups due to the large number of students to each chaperone.

The researcher introduced herself at the beginning of the contact and explained to the exiting visitors that the study was for a master's thesis at Michigan State University. All participants were at least 18 years of age. The first person/group to leave the zoo was approached and asked to participate in the IRB approved survey of approximately 20 short questions that would take 3-5 minutes to complete (See appendix 1). There was an attempt to collect 12 surveys

per hour, one survey every 5 minutes. This method allowed the maximum number of respondents to participate in the survey. If a respondent chose not to participate in the survey, the next person leaving was asked. Only one adult per group was asked to participate in the survey. The willing respondents were given a clipboard and a pen with the survey. If requested, the researcher read the survey out loud to the respondents and recorded the answers. After the respondent finished the survey, their survey was placed in a collection location and they were thanked for their participation.

Both zoos had other factors that could have impacted visitor participation in surveys. Data were started around noon on Tuesday June 12, the first day of data collection at the Detroit Zoo. On Friday June 15, the Potter Park Zoo had their annual AZA required fire drill. All zoo visitors had to exit the zoo. Many visitors left the zoo and did not return after the fire drill was completed. Sunday June 17 was Father's Day and many survey respondents noted that this was a reason for visiting. Father's also received free entry at the Potter Park Zoo. On Wednesday June 20, the Detroit Zoo staff was approaching visitors to sign up for a zoo survey via email which was noted as a reason why visitors did not participate in an additional survey at the exit. Finally, on Friday June 22 the Detroit Zoo closed at 2pm for their annual fundraiser so data were only collected from 11 am to 1pm. The researcher attempted to choose a data collection period that had very few special events that could affect zoo visitation. However, this proved to be very difficult as both zoos present many special events throughout the summer. It may be unrealistic for a zoo to not host any special events in any given two week period in the summer. Therefore, having a number of special events occurring may be considered normal during the summer months. The ability to generalize these results to other times of year is difficult due to these special events. There are fewer events during the cooler months at zoos.

The survey data were entered into an excel spreadsheet. Any question that utilized a Likert scale was coded with a number system. If the respondent circled two answers (i.e., very satisfied and satisfied) then the answer was coded as the average (very satisfied and satisfied coded as 5 and 4 respectively would be coded as 4.5). Yes and no questions were coded as a 0 for no and a 1 for yes. On occasion, multiple people worked on the survey together. If respondents provided demographic information for more than one person, (i.e., ages, gender) this information was excluded from the survey. A few respondents provided an age range (over 18, 65+) and this was also excluded. On the question concerning the percent of time the visitors expected the animals to be visible, many visitors provided ranges or a written description. The average of the range was used for analysis. If the visitor documented the number of hours, this was converted to a percentage based on the hours the zoo was open (i.e., 4 hours at Detroit would be 50% while 4 hours at Potter Park would be 44%). If the respondents provided a percentage that was unclear if it was a percent or a number of hours (4, 5) it was excluded from the data. If the handwriting was unreadable, the data were not used.

Education, income, age, and visit frequency were all separated into two groups for data analysis. For all of these variables, there were more than two choices on the survey so the data were grouped together for analysis. Education was separated into those who have a college degree and those who do not. Therefore, no high school degree, high school diploma, and some college were one group while two year college, four year college, and graduate degree were combined into the second group. Household income was separated into the two groups as well: \$49,999 or less and \$50,000 or more. The median income for Michigan in the year 2011 was \$48,432. The rounded number of \$50,000 was used as the cutoff for an indicator as above or below median income. The average age was used to separate the respondents into above or

below average age. At both Detroit and Potter Park, 37 was the average age. Finally, visit frequency was separated into first time visitors or visitors who come to the zoo once per year. The second group consisted of visitors who came to the zoo twice per year or more.

Graphs of the animals visitors documented that they wanted to see were created in Microsoft Excel. T-tests were run on STATA statistical software. The t-test was chosen as a robust statistical method that produces results that are easy to understand and interpret. Also, the t-test is more likely to find statistical significance when compared to non parametric tests. The t-test can be negatively affected by extreme outliers. This is not a concern with the data presented in this study as five point likert scales were used so there are not any outliers. The t-test has three main assumptions. The first assumption is that the data set is normally distributed. Equal variance between the two populations is the second assumption. Finally, the third assumption is that the samples are independent. The first assumption may be broken in this survey data. Due to the positively skewed data, the data set does not follow a normal distribution. A non parametric test may prove to be an alternative statistical test. The second assumption was tested prior to running a t-test. Any t-tests that utilized unequal variance are noted in the result tables.

## CHAPTER FOUR: RESULTS

The focus of this research project is to learn more about visitor satisfaction with animal visibility in zoos and compare animal visibility and satisfaction in wildlife tourism experiences to zoo experiences. The results presented here start with general numbers about the quantity of surveys collected on each day, the temperature, and any other notes. Next, the raw data are presented. Some of the variables have been grouped into categories that differ from how the participants were presented with the questions on the survey (i.e., ages were grouped into ranges). The Detroit Zoo and Potter Park Zoo data are presented next in the same order. First, each zoo has a graph of the animals that visitors documented they wanted to see. Second, the results for the t-test on overall visitor satisfaction, importance of animal visibility, satisfaction with animal visibility and importance of animal welfare are presented. Third, is a chart that shows the results of a t-test utilizing the question of how often the visitors feel the animals should be visible. Fourth, results are presented concerning wildlife tourists.

### Survey Numbers

Surveys were collected from June 11 to June 24, 2012. Days were alternated between the Potter Park and Detroit Zoos so each zoo had one day per week. Table 4 shows the number of survey participants and the high temperature on each day. The notes column documents any other factor that could have affected the number of surveys collected.



Table 4: Survey dates.

Day of Week	Date	Zoo	Hours	Participants	High temperature	Notes
Monday	June 11	Potter Park	10:00 am to 6:00pm	37	83	
Tuesday	June 12	Detroit	11:00 am to 5:00 pm	39	80	
Wednesday	June 13	Potter Park	10:00 am to 6:00pm	40	72	
Thursday	June 14	Detroit	11:00 am to 5:00 pm	43	78	
Friday	June 15	Potter Park	10:00 am to 6:00pm	43	88	Fire Drill
Saturday	June 16	Detroit	11:00 am to 5:00 pm	47	89	Father's Day and rain
Sunday	June 17	Potter Park	10:00 am to 6:00pm	37	81	
Monday	June 18	Detroit	11:00 am to 5:00 pm	27	83	Rain
Tuesday	June 19	Potter Park	10:00 am to 6:00pm	17	93	
Wednesday	June 20	Detroit	11:00 am to 5:00 pm	23	93	Zoo iPad surveys
Thursday	June 21	Potter Park	10:00 am to 6:00pm	31	86	Rain
Friday	June 22	Detroit	11:00 am to 1:00 pm	18	82	Data collection 11-1pm
Saturday	June 23	Potter Park	10:00 am to 6:00pm	53	83	
Sunday	June 24	Detroit	11:00 am to 5:00 pm	42	85	
Total				497		

### Combined Findings

A total of 497 surveys were collected, 239 at the Detroit Zoo and 258 at the Potter Park Zoo. Table 5 describes the demographic factors of age (survey question 16), gender (survey question 15), education (survey question 17), income (survey question 18), zoo membership

(survey question 14), presence of children (survey question 12), if the respondent felt the zoo was a good value or not (survey question 11a), the number of wildlife tourists (survey question 10a), and the number of respondents who felt the animals need a hiding place (survey question 8). Ages were grouped into the categories shown as the survey asked for age rather than an age range. Any respondent who documented their age in a range (18+, 65+) rather than just one number was omitted. The visitors were categorized by the researcher depending on their responses about why they came to the zoo that day (survey question 2). Facilitators were any visitors whose answers revolved around bringing their children for a day at the zoo or a day of recreation or fun. Professionals were the visitors who came to the zoo primarily to take photographs of the animals. The “general atmosphere” and “fresh air” answers were categorized as spiritual pilgrims. The experience seekers category was quite large and encompassed answers such as feeding the giraffes, checking out other zoos, specific events that were not related to the animals, people who had never visited before and those who were visiting because they were in town. Visitors who said they came to the zoo to see specific animals or animals in general were categorized as explorers. Finally, the uncategorized visitors were any visitors whose answers did not fit into any of the other visitor types. Some typical answers for the uncategorized visitors were specific events (Father’s Day, an organized walk, overnight trip), passive reasons (by chance, had a day off), to get exercise, and just utilizing a membership.

Table 5: Raw numbers of demographic variables for each zoo separately and totals.

<b>Demographic Factor</b>	<b>Detroit Zoo</b>	<b>Potter Park Zoo</b>	<b>Total</b>
<i>Age</i>			
18-19	9	9	18
20-29	63	70	133
30-39	65	79	144
40-49	44	28	72
50-59	13	25	38
60-69	21	24	45
70-79	5	2	7
80-89	<u>1</u>	<u>0</u>	<u>1</u>
Total	221	237	458
<i>Gender</i>			
Male	78	76	154
Female	<u>154</u>	<u>174</u>	<u>328</u>
Total	232	250	482
<i>Education</i>			
No high school diploma	1	4	5
High school diploma	14	24	38
Some college	29	41	70
2 year college degree	16	24	40
4 year college degree	44	43	87
Graduate degree	<u>37</u>	<u>38</u>	<u>75</u>
Total education	141	174	315
<i>Income</i>			
\$0-\$24,999	20	36	56
\$25,000-\$49,999	25	40	65
\$50,000-\$74,999	28	27	55
\$75,000-\$99,999	25	25	50
\$100,000 or greater	<u>27</u>	<u>26</u>	<u>53</u>
Total income	125	154	279
<i>Membership</i>			
Zoo members	120	45	165
Non zoo members	<u>119</u>	<u>206</u>	<u>325</u>
Total	239	251	490
<i>Children</i>			
Children present	155	207	362
No children present	<u>84</u>	<u>51</u>	<u>135</u>
Total	239	258	497
<i>Value</i>			
Zoo is good value	220	239	459
Zoo is not good value	<u>9</u>	<u>10</u>	<u>19</u>
Total	229	249	478

Table 5 (cont'd)

<i>Wildlife tourists</i>			
Wildlife tourists	21	30	51
Non wildlife tourist	<u>121</u>	<u>141</u>	<u>262</u>
Total	142	171	313
<i>Hiding place</i>			
Hiding important	221	232	453
Hiding not important	<u>10</u>	<u>18</u>	<u>28</u>
Total	231	250	481
<i>Day of Week</i>			
Weekday	150	168	318
Weekend	<u>89</u>	<u>90</u>	<u>179</u>
Total	239	258	497
<i>Visit Frequency</i>			
First time visitor	20	53	73
One time per year	64	66	130
2-3 times	48	70	118
4-5 times	18	16	34
More than 5 times	<u>80</u>	<u>51</u>	<u>131</u>
Total	230	256	486
<i>Visitor Category</i>			
Facilitator	89	117	206
Professional	4	0	4
Spiritual Pilgrim	2	0	2
Experience Seeker	35	51	86
Explorer	44	39	83
Uncategorized	<u>62</u>	<u>50</u>	<u>112</u>
Total	236	257	493

### Detroit Zoo Results

Table 6 below shows the number of survey respondents who answered each of the questions on the survey that included a likert scale.

Table 6: Raw numbers of survey responses to likert scale questions at the Detroit Zoo

	Very Satisfied/ Very Important	Satisfied/ Important	Neutral	Unsatisfied/ Unimportant	Very Unsatisfied/ Very Unimportant
Overall Visitor Satisfaction	163 (68.2%)	67 (28.03%)	6 (2.51%)	1 (.42%)	1 (.42%)
Satisfaction with Animal Visibility	98 (42.61%)	114 (49.57%)	10 (4.35%)	7 (3.04%)	1 (.43%)
Importance of Animal Visibility	69 (30.13%)	111 (48.47%)	46 (20.09%)	2 (.87%)	1 (.44%)
Importance of Animal Welfare	209 (90.48%)	21 (9.09%)	1 (.43%)	0 (0%)	0 (0%)

Figure 1 below shows a frequency distribution of the percentage of time that the visitors expected the animals to be visible at the Detroit Zoo.

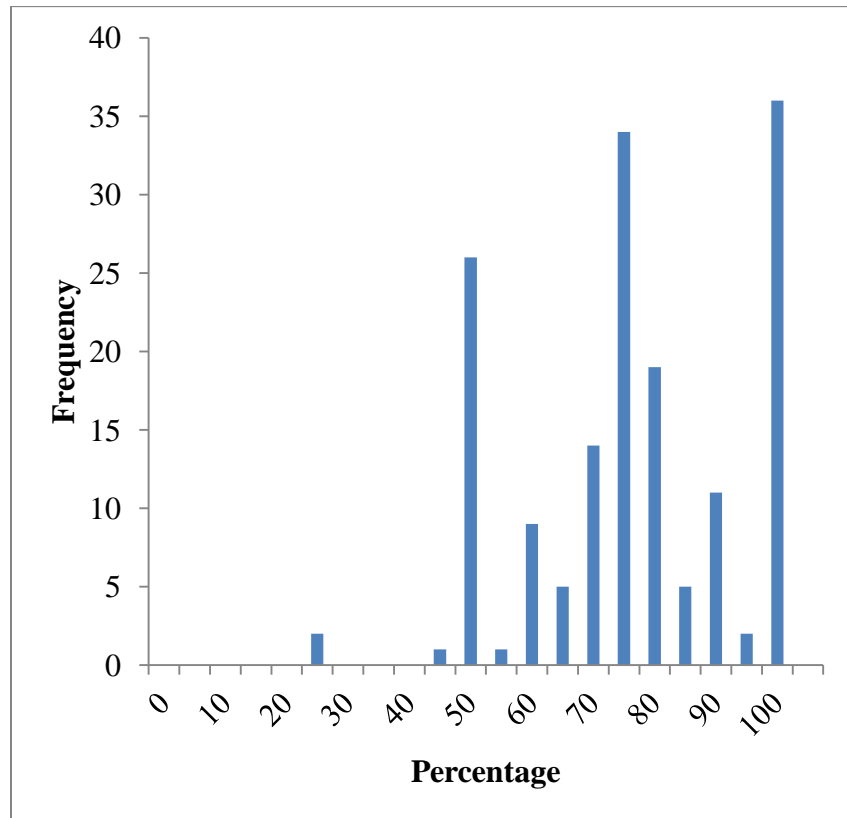


Figure 1: A frequency distribution of the percentage of time the visitors expected the animals to be visible at the Detroit Zoo. (For interpretation of the references to color in this and all other

Figure 1 (cont'd)

figures, the reader is referred to the electronic version of this thesis).

Figure 2 shows the animals that the visitors listed as an answer to the question of “which animals did you most want to see today?” (survey question 9) The red bars (otters, bears, camels) were the species who had baby animals. The green bars (hippos, elephants, dolphins) are animals who are not present at the Detroit Zoo.

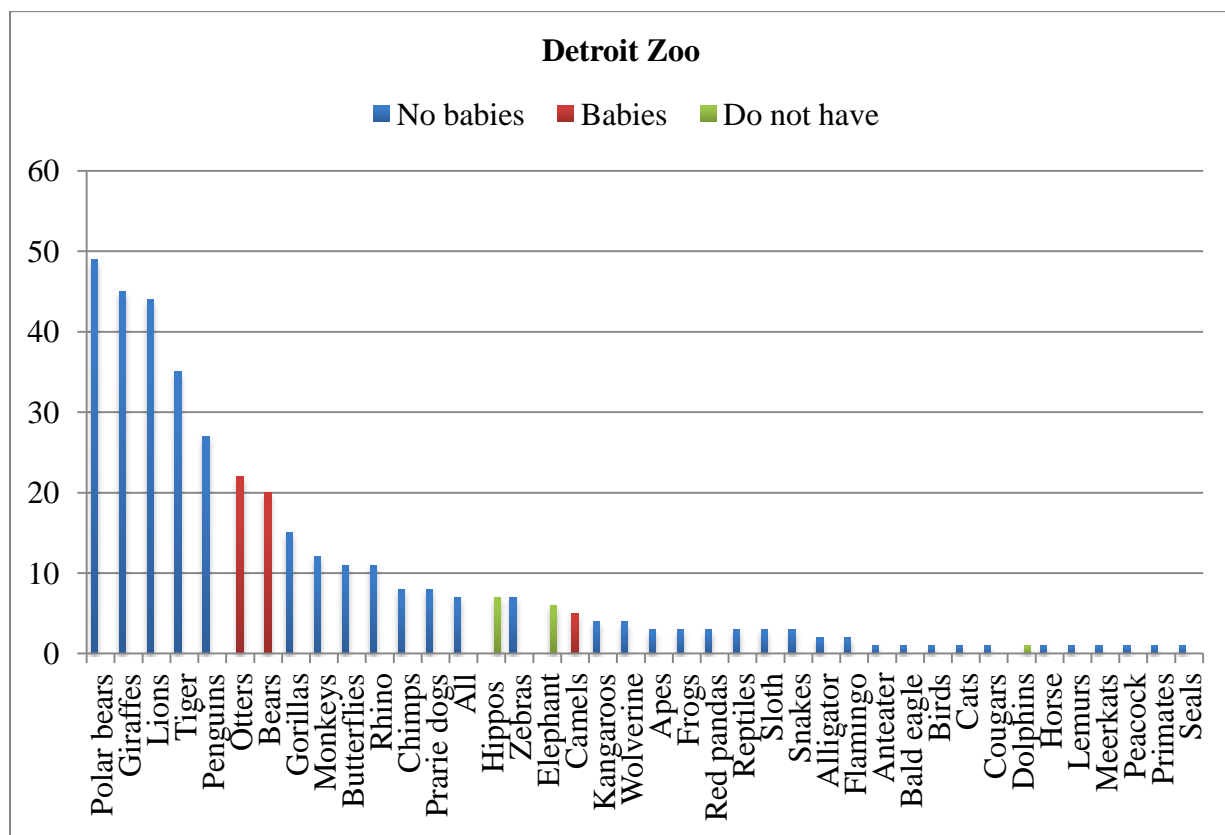


Figure 2: Animals that visitors to the Detroit Zoo most wanted to see.

Table 7 shows the results of a t-test concerning overall visitor satisfaction with their zoo experience (survey question 1). Statistically significant differences at the .05 alpha level were

only found in the variable value which is dependent on if the visitors felt the zoo was a good value for the entrance cost.

Table 7: Results of a t-test of visitor satisfaction with their Detroit zoo experience.

Variable		n	Mean (5 point scale)	St.Dev	T-score	P-value
<b>Gender</b>	Male	78	4.62	0.59	-0.21	0.84
	Female	154	4.63	0.63		
<b>Membership</b>	Non zoo member	119	4.60	0.60	-0.83	0.41
	Zoo member	120	4.66	0.63		
<b>Children</b>	No	84	4.64	0.55	0.13	0.89
	Yes	155	4.63	0.65		
<b>Hiding Place</b>	No	10	4.40	0.52	-1.18	0.24
	Yes	221	4.64	0.62		
<b>Value</b>	Not good	9	3.61	1.27	-2.50	.04*
	Good	220	4.67	0.54		
<b>Day of Week</b>	Weekday	150	4.64	0.56	0.21	0.83
	Weekend	89	4.62	0.70		
<b>Age</b>	37 and below	126	4.62	0.64	0.15	0.88
	38 and above	95	4.61	0.61		
<b>Education</b>	No college degree	44	4.65	0.57	0.47	0.64
	College degree and above	97	4.60	0.59		
<b>Income</b>	Below \$50,000	45	4.60	0.54	0.17	0.87
	Above \$50,000	80	4.58	0.63		
<b>Visit Frequency</b>	First time visit or once per year	84	4.62	0.49	-0.48	0.63
	Twice per year or more	146	4.65	0.61		

\*= p-value <.05 \*\*=p-value<.01

Table 8 shows the results of a t-test that utilized the importance of rating animal visibility to the zoo visitors (survey question 7). Statistically significant differences at the .05 alpha level were found with membership, value of the entrance fee and visit frequency.

Table 8: T-test of the importance of animal visibility to Detroit Zoo visitors.

		Mean (5 point scale)				
Variable		n	St.Dev	T-score	P-value	
<b>Gender</b>	Male	74	4.12	0.70	0.81	0.41
	Female	148	4.03	0.79		
<b>Membership</b>	Non zoo member	115	4.20	0.74	2.64	.01**
	Zoo member	114	3.94	0.76		
<b>Children</b>	No	81	4.02	0.69	-0.67	0.51
	Yes	148	4.09	0.79		
<b>Hiding Place</b>	No	10	4.40	0.84	1.44	0.15
	Yes	215	4.05	0.75		
<b>Value</b>	Not good	9	4.56	0.53	2.00	.05*
	Good	215	4.04	0.76		
<b>Day of Week</b>	Weekday	142	4.05	0.78	-0.52	0.60
	Weekend	87	4.10	0.72		
<b>Age</b>	37 and below	124	4.01	0.79	-1.30	0.20
	38 and above	91	4.14	0.71		
<b>Education</b>	No college degree	44	4.07	0.66	1.21	0.23
	College degree and above	97	3.91	0.76		
<b>Income</b>	Below \$50,000	45	3.98	0.69	0.30	0.77
	Above \$50,000	80	3.94	0.75		
<b>Visit Frequency</b>	First time visit or once per	83	4.20	0.69	2.26	.02*
	Twice per year or more	141	4.00	0.77		

\*= p-value <.05 \*\*=p-value<.01

Table 9 shows the results of a t-test concerning visitor satisfaction with animal visibility (survey question 5). The visitors feeling about the animal having a hiding place and if they felt the zoo was a good value or not were the only statistically significant variables at the .05 alpha level.



Table 9: Results of a t-test of visitor satisfaction with animal visibility at the Detroit Zoo.

		Mean (5 point scale)				
Variable		n	St.Dev	T-score	P-value	
<b>Gender</b>	Male	74	4.23	0.67	-1.29	0.20
	Female	149	4.36	0.75		
<b>Membership</b>	Non zoo member	116	4.23	0.75	-1.59	0.11
	Zoo member	114	4.39	0.71		
<b>Children</b>	No	81	4.26	0.75	-0.75	0.45
	Yes	149	4.34	0.72		
<b>Hiding Place</b>	No	10	3.80	0.79	-2.21	.03*
	Yes	215	4.32	0.73		
<b>Value</b> Unequal variance	Not good	9	3.22	1.20	-2.85	.02*
	Good	216	4.37	0.64		
<b>Day of Week</b>	Weekday	143	4.24	0.76	-1.70	0.09
	Weekend	87	4.41	0.67		
<b>Age</b> Unequal variance	37 and below	124	4.29	0.77	-0.95	0.35
	38 and above	92	4.38	0.63		
<b>Education</b>	No college degree	44	4.18	0.72	-0.89	0.37
	College degree and above	97	4.29	0.63		
<b>Income</b>	Below \$50,000	45	4.20	0.66	-0.40	0.69
	Above \$50,000	80	4.25	0.68		
<b>Visit Frequency</b>	First time visit or once per year	84	4.33	0.66	0.22	0.83
	Twice per year or more	141	4.31	0.73		

\*= p-value <.05 \*\*=p-value<.01

Table 10 shows the results of a t-test concerning the importance of animal welfare to the visitors (survey question 6). Gender was the only variable that was statistically significant at the .05 alpha level.

Table 10: T-test of the importance of animal welfare to Detroit Zoo visitors.

		Mean (5 point scale)				
Variable		n		St.Dev	T-score	P-value
<b>Gender</b>	Male	74	4.82	0.42	-2.07	.04*
	Female	150	4.93	0.25		
<b>Membership</b>	Non zoo member	117	4.89	0.33	-0.15	0.88
	Zoo member	114	4.90	0.30		
<b>Children</b>	No	81	4.94	0.24	1.50	0.14
	Yes	150	4.88	0.35		
<b>Hiding Place</b>	No	10	4.60	0.70	-1.40	0.19
	Yes	215	4.91	0.28		
<b>Value</b>	Not good	9	4.78	0.44	-1.16	0.25
	Good	216	4.90	0.31		
<b>Day of Week</b>	Weekday	144	4.90	0.30	0.15	0.88
	Weekend	87	4.90	0.34		
<b>Age</b>	37 and below	124	4.89	0.31	0.09	0.93
	38 and above	92	4.89	0.35		
<b>Education</b>	No college degree	44	4.91	0.29	0.53	0.60
	College degree and above	97	4.88	0.36		
<b>Income</b>	Below \$50,000	45	4.91	0.29	0.38	0.70
	Above \$50,000	80	4.89	0.36		
<b>Visit Frequency</b>	First time visit or once per year	84	4.92	0.28	0.72	0.47
	Twice per year or more	141	4.89	0.34		

\*= p-value <.05 \*\*=p-value<.01

The results of the t-test that compares the percentage of the time that the visitors expect the animals to be visible is presented in table 11 (survey question 4). The .05 alpha level was utilized and significant differences were found with zoo membership, education level, income level, and visit frequency.

Table 11: T-test results of the percentage of the time Detroit Zoo visitors expect animals to be visible.

Variable		n	Mean (out of 100%)	St.Dev	T-score	P-value
<b>Gender</b>	Male	57	75.70	18.24	-0.01	0.99
	Female	103	75.73	17.73		
<b>Membership</b>	Non zoo member	84	80.33	16.16	3.15	0.00**
	Zoo member	81	71.82	18.50		
<b>Children</b>	No	56	77.19	17.40	0.53	0.59
	Yes	109	75.62	18.08		
<b>Hiding Place</b>	No	10	77.75	22.31	0.35	0.73
	Yes	153	75.73	17.47		
<b>Value</b>	Not good	8	85.00	12.82	1.45	0.15
	Good	152	75.66	18.00		
<b>Day of Week</b>	Weekday	108	76.67	18.04	0.51	0.61
	Weekend	57	75.18	17.50		
<b>Age</b>	37 and below	94	74.65	17.01	-0.93	0.35
	38 and above	62	77.38	19.10		
<b>Education</b>	No college degree	35	79.71	17.61	2.01	0.05*
	College degree and above	73	72.36	17.85		
<b>Income</b>	Below \$50,000	34	80.44	18.52	2.32	0.02*
	Above \$50,000	63	71.47	17.92		
<b>Visit Frequency</b>	First time visit or once per year	59	80.13	15.96	2.20	0.03*
	Twice per year or more	101	73.79	18.52		

\*= p-value <.05 \*\*=p-value<.01

### Potter Park Zoo Results

Table 12 below shows the number of survey respondents who answered each of the questions on the survey that included a likert scale.

Table 12: Raw numbers of survey responses to likert scale questions at the Potter Park Zoo.

	Very Satisfied/ Very Important	Satisfied/ Important	Neutral	Unsatisfied/ Unimportant	Very Unsatisfied/ Very Unimportant
Overall Visitor Satisfaction	141 (54.65%)	100 (38.76%)	14 (5.43%)	3 (1.16%)	0 (0%)
Satisfaction with Animal Visibility	104 (41.77%)	132 (53.01%)	11 (4.42%)	2 (0.8%)	0 (0%)
Importance of Animal Visibility	68 (27.42%)	150 (60.48%)	26 (10.48%)	2 (.81%)	0 (0%)
Importance of Animal Welfare	210 (85.02%)	34 (13.77%)	3 (1.21%)	0 (0%)	0 (0%)

Figure 3 shows a frequency distribution of the percentages that zoo visitors documented as their expectations to how often the animals should be visible.

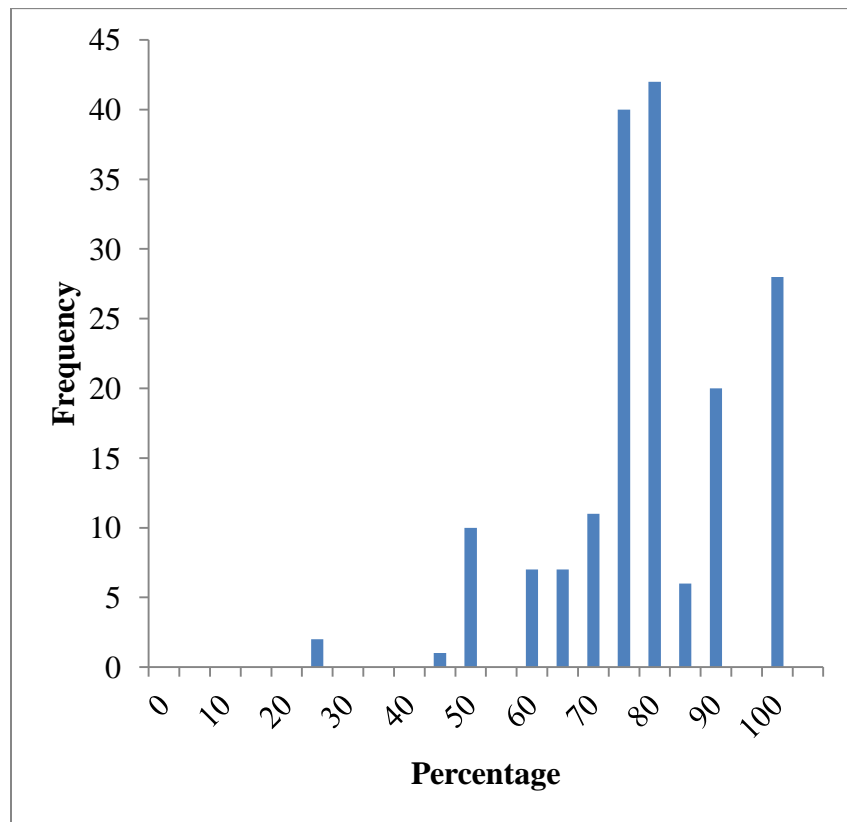


FIGURE 3 - A frequency distribution of the percentage of time the visitors expected the animals to be visible at the Potter Park Zoo

Figure 4 shows the animals who the visitors listed as coming to the zoo to see (survey question 9). The red bars (tigers, bongo) had baby animals. The green bars (elephants, giraffes, bear, baboon, bear cat, dragon, gorillas, platypus, sea turtles) are animals who were not present at Potter Park zoo.

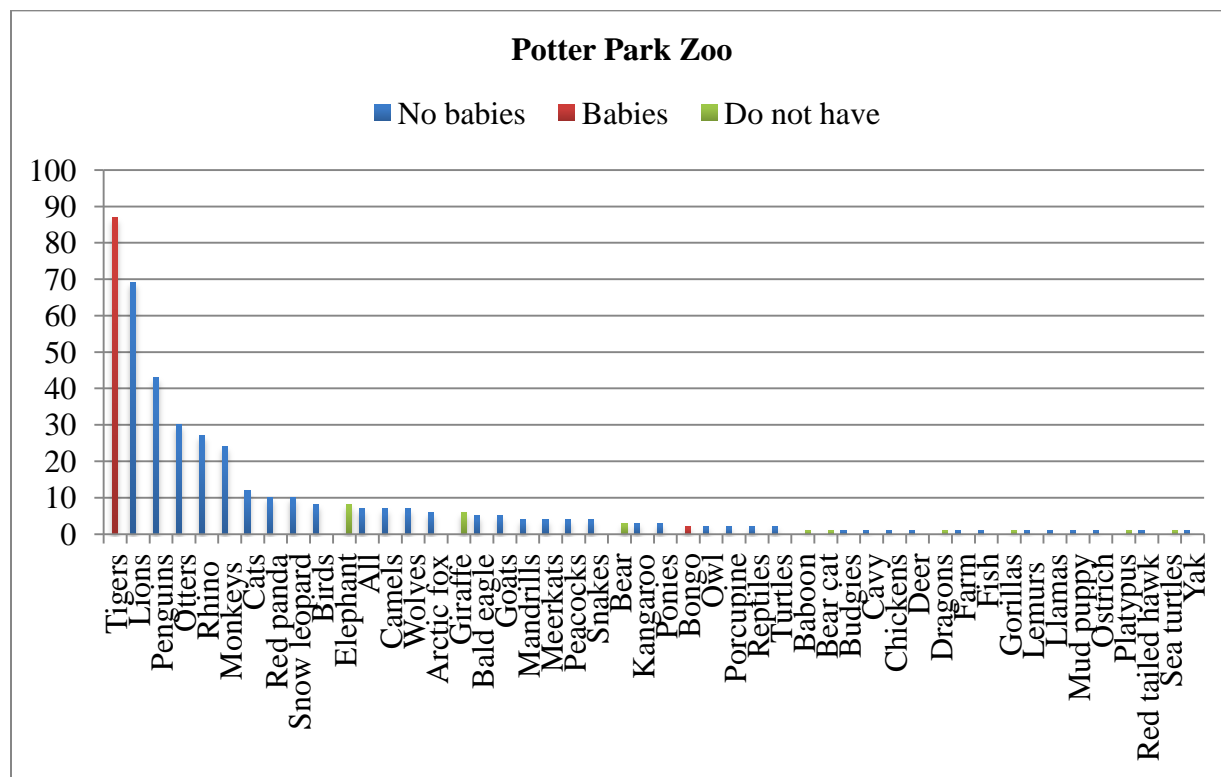


Figure 4: Animals that visitors to the Potter Park Zoo most wanted to see.

Table 13 shows the results of a t-test concerning visitor satisfaction with animal visibility (survey question 5). Statistically significant differences at the .05 alpha level were found in the variables of yearly zoo visit frequency and if the visitors felt that the animals needed a hiding place or not.

Table 13: Results of a t-test of Potter Park Zoo visitor satisfaction with their overall zoo experience.

Variable		n	Mean (5 point scale)	St.Dev	T-score	P-value
<b>Gender</b>	Male	76	4.41	0.72	-1.11	0.27
	Female	174	4.51	0.61		
<b>Membership</b>	Non zoo member	206	4.44	0.67	-1.73	0.08
	Zoo member	45	4.62	0.53		
<b>Children</b>	No	51	4.37	0.75	-1.17	0.24
	Yes	207	4.49	0.63		
<b>Hiding Place</b>	No	18	4.28	0.67	-1.40	0.16
	Yes	232	4.50	0.63		
<b>Value</b>	Not good	10	3.70	1.06	-2.38	.04*
	Good	239	4.50	0.61		
<b>Day of Week</b>	Weekday	168	4.43	0.70	-1.02	0.22
	Weekend	90	4.53	0.56		
<b>Age</b>	37 and below	141	4.43	0.66	-0.91	0.37
	38 and above	96	4.51	0.63		
<b>Education</b>	No college degree	69	4.38	4.20	-1.40	0.16
	College degree and above	105	4.52	4.41		
<b>Income</b>	Below \$50,000	76	4.36	0.74	-1.86	0.07
	Above \$50,000	78	4.55	0.55		
<b>Visit Frequency</b>	First time visit or once per year	119	4.38	0.69	-1.98	.05*
	Twice per year or more	137	4.54	0.62		

\*= p-value <.05 \*\*=p-value<.01

The following Table 14 shows the results of a t-test that utilized the question of importance of animal visibility to the zoo visitors (survey question 7). Statistically significant differences at the .05 alpha level were found with zoo membership.

Table 14: T-test of the importance of animal visibility to Potter Park Zoo visitors.

Variable		n	Mean (5 point scale)	St.Dev	T-score	P-value
<b>Gender</b>	Male	72	4.21	0.63	1.01	0.31
	Female	168	4.12	0.63		
<b>Membership</b>	Non zoo member	199	4.17	0.61	2.06	.04*
	Zoo member	43	3.95	0.72		
<b>Children</b>	No	51	4.03	0.60	-1.47	0.14
	Yes	197	4.18	0.64		
<b>Hiding Place</b>	No	17	4.29	0.59	1.10	0.27
	Yes	225	4.12	0.63		
<b>Value</b>	Not good	10	0.50	0.12	1.69	0.09
	Good	232	0.26	0.20		
<b>Day of Week</b>	Weekday	162	4.17	0.63	0.84	0.40
	Weekend	86	4.10	0.64		
<b>Age</b>	37 and below	134	4.10	0.61	-0.88	0.38
	38 and above	94	4.18	0.67		
<b>Education</b>	No college degree	69	4.13	0.59	0.16	0.87
	College degree and above	105	4.11	0.66		
<b>Income</b>	Below \$50,000	76	4.06	0.63	-0.97	0.33
	Above \$50,000	78	4.16	0.66		
<b>Visit Frequency</b>	First time visit or once per year	111	4.18	0.60	0.77	0.44
	Twice per year or more	135	4.12	0.66		

\*= p-value <.05 \*\*=p-value<.01

Table 15 shows the results of a t-test concerning visitor satisfaction with animal visibility (survey question 5). There were four statistically significant variables: zoo membership, presence of children, if the zoo was found to be a good value by the visitors, and weekend vs. weekday visitors.

Table 15: Results of a t-test of visitor satisfaction with animal visibility at the Potter Park Zoo.

		Mean (5 point scale)				
Variable		n		St.Dev	T-score	P-value
<b>Gender</b>	Male	72	4.43	0.55	1.12	0.26
	Female	169	4.34	0.61		
<b>Membership</b>	Non zoo member	200	4.30	0.61	-3.32	.00**
	Zoo member	43	4.63	0.54		
<b>Children</b>	No	51	4.20	0.60	-2.15	.03*
	Yes	198	4.40	0.60		
<b>Hiding Place</b>	No	17	4.12	0.60	-1.76	0.08
	Yes	226	4.38	0.59		
<b>Value</b> Unequal variance	Not good	10	3.40	0.70	-5.46	.00**
	Good	233	4.41	0.57		
<b>Day of Week</b> Unequal variance	Weekday	162	4.29	0.62	-2.41	.02*
	Weekend	87	4.48	0.67		
<b>Age</b>	37 and below	135	4.36	0.55	-0.12	0.90
	38 and above	94	4.37	0.60		
<b>Education</b>	No college degree	69	4.19	0.65	-1.13	0.26
	College degree and above	105	4.30	0.59		
<b>Income</b>	Below \$50,000	76	4.18	0.65	-1.21	0.22
	Above \$50,000	78	4.31	0.61		
<b>Visit Frequency</b> Unequal variance	First time visit or once per year	112	4.29	0.62	-1.46	0.15
	Twice per year or more	135	4.41	0.60		

\*= p-value <.05 \*\*=p-value<.01

Table 16 shows the results of a t-test that questioned the importance of animal welfare to the zoo visitors (survey question 6). There were no statistically significant differences found at the .05 alpha level.



Table 16: T-test of the importance of animal welfare to Potter Park Zoo visitors.

Variable		n	Mean (5 point scale)	St.Dev	T-score	P-value
<b>Gender</b>	Male	72	4.81	0.43	-0.79	0.43
	Female	167	4.85	0.39		
<b>Membership</b>	Non zoo member	198	4.82	0.42	-1.55	0.12
	Zoo member	43	4.91	0.23		
<b>Children</b>	No	50	4.84	0.37	0.04	0.97
	Yes	197	4.84	0.41		
<b>Hiding Place</b>	No	17	4.71	0.59	-0.95	0.35
	Yes	224	4.84	0.39		
<b>Value</b>	Not good	10	4.50	0.71	-1.57	0.15
	Good	231	4.85	0.38		
<b>Day of Week</b>	Weekday	162	4.85	0.39	0.75	0.46
	Weekend	85	4.81	0.42		
<b>Age</b>	37 and below	133	4.82	0.41	-0.30	0.76
	38 and above	94	4.85	0.39		
<b>Education</b>	No college degree	68	4.82	0.38	0.64	0.52
	College degree and above	105	4.78	0.48		
<b>Income</b>	Below \$50,000	76	4.82	0.42	0.64	0.53
	Above \$50,000	78	4.77	0.48		
<b>Visit Frequency</b>	First time visit or once per year	110	4.84	0.42	-0.01	0.99
	Twice per year or more	135	4.84	0.39		

\*= p-value <.05 \*\*=p-value<.01

The results of the t-test that compares the percentage of the time that the visitors expect the animals to be visible is presented in table 17 (survey question 4). The .05 alpha level was utilized and significant differences were found with many variables including gender, zoo membership, hiding place, value of the zoo for the money, and income level. Additionally, visit frequency and weekend vs. weekday visitors were nearly significant with a p-value of .06, just above the cutoff level of .05.

Table 17: T-test results of the percentage of the time Potter Park Zoo visitors expect animals to be visible.

Variable		n	Mean (out of 100%)	St.Dev	T-score	P-value
<b>Gender</b>	Male	51	74.40	16.01	-2.46	0.02*
	Female	117	80.36	13.74		
<b>Membership</b>	Non zoo member	142	79.71	13.74	2.17	0.03*
	Zoo member	28	73.25	17.38		
<b>Children</b>	No	32	78.82	12.15	-0.06	0.95
	Yes	142	78.69	15.04		
<b>Hiding Place</b>	No	11	93.18	9.02	3.73	0.00**
	Yes	158	77.10	14.08		
<b>Value</b>	Not good	9	94.44	7.26	6.26	0.00**
	Good	162	77.71	14.45		
<b>Day of Week</b>	Weekday	118	80.09	13.95	1.90	0.06
	Weekend	56	75.64	15.34		
<b>Age</b>	37 and below	104	80.10	12.51	1.58	0.12
	38 and above	59	76.05	17.25		
<b>Education</b>	No college degree	51	80.20	12.25	1.12	0.26
	College degree and above	89	77.43	14.98		
<b>Income</b>	Below \$50,000	61	80.16	11.87	2.08	0.04*
	Above \$50,000	66	75.09	15.50		
<b>Visit Frequency</b>	First time visit or once per year	75	81.08	13.36	1.89	0.06
	Twice per year or more	98	76.90	15.21		

\*= p-value <.05 \*\*=p-value<.01

### Wildlife Tourism

There were a total of 51 wildlife tourists with 31 coming from the Potter Park Zoo and 20 from the Detroit Zoo (survey question 10a). Since there were such a small number of wildlife tourists, the data here is combining all of the wildlife tourists and not separating them by each zoo. Table 18 shows the paired t-test for wildlife tourists. The results show us that there is not a statistically significant difference in satisfaction level between the zoo and wildlife tourism experience (survey question 10c) but that there is a difference in the amount of time visitors

expect to see the animals in the zoo vs. the amount of time that they saw the animals on their wildlife tourism experience (survey question 10b).

Table 18: Paired t-test with wildlife tourists.

		Mean (5 point scale)		St.Dev	T-score	P-value
Variable		n				
<b>Satisfaction</b>	Zoo	51	4.18	0.82	-1.71	0.09
	Wildlife Tourism	51	4.39	0.60		
<b>Percent</b>	Zoo	36	72.06	16.23	2.03	0.05*
	Wildlife Tourism	36	61.67	30.40		

\*= p-value <.05 \*\*=p-value<.01

There were statistically significant differences found at both the Detroit and Potter Park Zoos. Some variables were significant in multiple tests. For example, zoo membership, visit frequency, and if the visitors felt the zoo was a good value for the entrance cost were significant more than once. The discussion of these results follows in the next chapter.

## CHAPTER FIVE: DISCUSSION

### General Discussion

This study included two zoos in Michigan. Collecting data at multiple zoos provides a way to compare the zoos but it also gives a better understanding of zoo visitors in general. As discussed above, there are many differences between the two zoos studied. The various zoo attributes between them could attract different types of visitors who have distinctive reasons for visiting and expectations about their visit. Therefore, the results of the study can differ between the two zoos. However, other aspects of a zoo visit, such as the importance variables and the animals that the visitors wish to see, could be similar between the zoos studied and zoos in general. Multiple research locations can inform zoo managers about the similarities and differences between zoo visitors at multiple zoos.

The Potter Park Zoo has smaller exhibits than the Detroit Zoo in addition to being smaller overall. This smaller size could improve animal visibility at the Potter Park Zoo. Therefore, frequent visitors to this zoo may have higher expectations of animal visibility. This is supported by the data. The overall average amount of time the Potter Park Zoo visitors expected the animals to be visible was 78.6% while the expectations at the Detroit Zoo were lower at 68.8%. This shows a nearly 10% difference between the zoos. This difference could be attributed to previous experiences at the zoo and therefore better expectations of visibility or could show that visitors expect better visibility at smaller zoos or even that the zoos attract different visitors. The reason for this difference cannot be determined through this study. While the expectations for visibility differed by 10%, the satisfaction with visibility was the nearly the same with an average of 4.3 at Detroit and 4.4 at Potter Park out of a 5 point scale. Therefore, the visitors were

in general very satisfied with the animal visibility at both zoos, even though their expectations of visibility were different.

The satisfaction variables are more likely to change between zoos but we would expect the importance variables to remain relatively consistent no matter which zoo is being visited. This is supported by the data in this study. The importance of animal welfare was rated very high at both zoos; 4.8 at Potter Park and 4.9 at Detroit out of a five point scale. There is social pressure to declare a concern for animal welfare. However, we do see similar results at both zoos as we would expect for a general importance factor at zoos. The second importance factor, the importance of animal visibility, should also be similar at both zoos. Both zoos had an overall average of 4.1 out of a 5 point scale for the importance of animal visibility. This shows that the importance variables should remain relatively consistent between zoos.

Visitors at the Potter Park Zoo were better represented in this study. There are fewer visitors at Potter Park, as compared to Detroit, and since data were collected at each zoo for seven days, visitors were perhaps over represented at Potter Park Zoo when compared to the Detroit Zoo. Also, with the slower exit rate at Potter Park, a higher percentage of exiting visitors were asked to participate in the survey.

The number of visitors who participated in the survey varied on a daily basis. Weather appeared to impact the number of survey participants. The temperature was over 90 degrees on June 19 and June 20 and these days correspond to two out of the three days with the smallest number of surveys collected. Temperature could have decreased attendance at the zoo and therefore the number of potential participants or made the zoo visitors less willing to take the survey due to heat. Rain could also prevent people from visiting the zoo or participating in the

exit survey. During heavy rain, the researcher did not attempt to collect surveys. The researcher did attempt to collect surveys during light rain.

The summer time frame can decrease animal visibility in addition to affecting visitor participation. This research was collected during the summer months and visitor participation may vary if data collection was attempted during different seasons. The results collected during summer hours may be vastly different than results of a survey collected during other times of the year. The summer is typically very busy for zoos in temperate locations such as Michigan. Very hot temperatures could have a negative impact on animal visibility and activity level. Large or loud groups of visitors, which are more common during summer days, can have a negative impact on the animals which could also decrease their visibility. Previous research has found that noise and visitor activity can negatively impact zoo animals. Orangutans have been observed placing paper sacks over their heads and holding their infants more often during times of high visitors and noise (Birke, 2002). Visitors who try to get the attention of the animals through actions such as knocking and yelling have been shown to increase conspecific aggression, and decrease foraging, object-using, playing, and grooming in primates (Mitchell et al., 1992; Wood, 1998). Similarly, larger crowd sizes may increase wait time at services, such as concessions and bathrooms, and also decrease ability to see the animals due to many people crowding around one exhibit. Therefore many of the results presented here, particularly concerning the different satisfaction variables, cannot be generalized to other seasons. Other parts of the survey, such as desired animals and importance factors, may be similar to surveys collected during other seasons.

### Combined Findings

The majority of survey participants were in the age range of 20 to 39. This was true at both the Detroit and Potter Park Zoos. These age ranges are typical for adults who have school aged children. As discussed in the literature review, children are a major reason why people decide to go to the zoo and this could explain the large numbers of participants in this age range. There were very few participants in the 18-19 year old category, which could be due to only 2 potential ages in this category, a variety of alternative activities for people of this age or a limited income for these young visitors. There were also very few participants over 70 years old and only one in the 80+ age category. Potential physical limitations (limited walking ability, susceptibility to heat etc.) of people in older age categories could be a reason why visitors in these age groups are not abundant in zoo settings. The mean age was 37.5 and the median was 35 at both zoos. The ranges were different, with Detroit participants ranging in age from 18-85 and Potter Park from 18-74. The majority of participants at both zoos came to the zoo with children. This result is not surprising due to the large influence that children have on the decision to visit zoos and previous research documenting the majority of family groups at zoos have children (Saayman and Slabbert, 2004; Clayton et al., 2009; Ross and Gillespie, 2009).

The gender proportions were similar at both zoos with each having approximately half the number of male participants as female participants. Higher numbers of females to males correspond to previous research findings (Saayman and Slabbert, 2004; Kutska, 2009). Concerning education level, very few participants were in the lowest category of not having a high school diploma. The next smallest categories were for high school diplomas and two year college degrees. Some college, four year degree, and graduate degree were the highest three

categories at both Detroit and Potter Park Zoos. Previous research found that zoo visitors have higher education level than non zoo visitors (Andereck and Caldwell, 1994; Mason, 2000). We cannot make that conclusion based on the research here, but the results show a large proportion of survey participants at least had some sort of college education.

The results for income level were slightly different between the two zoos. For the Detroit Zoo, each of the five income levels had nearly equal numbers of participants. Potter Park had higher numbers of participants who documented their income level in the lowest two categories and the higher three categories were all evenly distributed. The median family income in Oakland County where the Detroit Zoo is located is \$66,390 according to the census in 2011 ([www.census.gov](http://www.census.gov), 2012). Ingham County, location of the Potter Park Zoo, has a lower median family income of \$45,808 according to the census ([www.census.gov](http://www.census.gov), 2012). The lower median income in Ingham County could be a reason why the lower income levels were higher. Likewise, a higher median income in Oakland County could account for a more even distribution among the income levels. Previous research has shown that zoo visitors have a higher socioeconomic status than non zoo visitors (Andereck and Caldwell, 1994; Mason, 2000) but this cannot be confirmed by this study. Nevertheless, we can still observe that at the Detroit Zoo, the more expensive of the two zoos in this study, had a more even distribution of income levels while the Potter Park Zoo had more visitors of a lower income level.

Concerning zoo membership, half of the participants at the Detroit Zoo were members while at Potter Park only about one fifth of the participants were zoo members. Since the Detroit Zoo is much larger and more expensive than the Potter Park Zoo, visitors may feel that buying a membership at Detroit is worth the money compared to the smaller less expensive Potter Park Zoo. The price for one adult at Detroit is \$14.00 ([detroitzoo.org](http://detroitzoo.org), 2012) and Potter Park is \$4.00



(potterparkzoo.org, 2012). For an individual membership, the cost is \$43.00 at Detroit (detroitzoo.org, 2012) and \$40 at Potter Park (potterparkzoo.org, 2012). Thus, a membership at Detroit pays for itself in as little as 3 visits but the Potter Park membership takes 10 visits. This higher cost for the Potter Park Zoo membership in comparison to the entrance price could deter visitors from purchasing a membership at the rate that memberships are purchased at the Detroit Zoo. The vast majority of survey participants answered that the zoos were a good value with only 9 at the Potter Park Zoo and 10 at the Detroit Zoo who did not feel the zoo was a good value for the cost. The higher price of the Detroit Zoo could lead to higher expectations of the animals and experience. The non-resident increase in price at the Potter Park Zoo (\$10 for adults, compared to \$4 for residents; potterparkzoo.org, 2012) was noted by many survey participants as being too expensive.

There were few visitors who felt they had at some point participated in wildlife tourism at both zoos for a total of 51. It is possible that many visitors did not consider some of their activities as wildlife tourism, especially if their activity did not use these specific words. An increase in examples could have increased the number of self-described wildlife tourists. Also, it may have helped to ensure that the visitors understood that local small scale activities were also considered wildlife tourism.

Most survey participants felt that the animals needed a place to hide out of view of the zoo visitors with only 28 out of 481, nearly 6%, surveys felt the animals should not have a place to hide. However, many visitors contradicted themselves in these answers by saying they expected the animals to be visible 100% of the time. This contradiction shows visitors believe the animals should be able to hide, but they may still believe that their ability to see the animals whenever they want is more important.

The number of times participants visited the Potter Park Zoo increased from the first time visitor, to the visitors who came once per year, followed by visitors who came two to three times per year. The four to five times per year category showed a large drop and was the lowest category but the distribution rose again in the over five visits per year category. This could be because the over 5 times per year category is a large range. Also, the small size of the Potter Park Zoo could decrease visits due to visitors believing they saw everything during their visit. There were fewer first time visitors at the Detroit Zoo. The highest category was over five times per year followed by one time per year. This could be due to the cost of the zoo. Zoo members may visit more often due to their membership investment and first time visitors may only visit once due to the high price of one visit. The large size of the Detroit Zoo could also increase multiple visits in a year. Families with small children, who may get tired of walking at the zoo, may choose to visit a small area of the zoo and come back another time to visit another area. Likewise, they may feel they did not get a good view of a certain animal and may just come back and try again on another day.

The visitors were separated into five different visitor types based on previous research (Falk, 2006; 2008). At both the Detroit and Potter Park zoos, facilitators were most abundant. Next, at the Detroit Zoo, explorers were most abundant followed by experience seekers, professionals and spiritual pilgrims. The second most abundant category at Potter Park was experience seekers followed closely by explorers. There were no visitors categorized as either professionals or spiritual pilgrims at Potter Park. Both zoos had at least 50 visitors who were uncategorized. These findings correspond to the original research findings that spiritual pilgrims and professionals were the least abundant visitor types at zoos (Falk, 2006; 2008). The Detroit Zoo may have had more explorers than the Potter Park Zoo because the size of the Detroit Zoo

has more large mammal species that are typically advertised to visitors and visitors who documented wanting to see a specific species were categorized as explorers.

### Detroit Zoo

At the Detroit Zoo, participants documented that they most wanted to see polar bears, giraffes, lions, and tigers. All of these animals are large charismatic species. Baby animals are also highly advertised and three animals with babies were on the list (otter, bear, camel). These baby animals could be a draw to the zoo as babies are often highly advertised on websites and local news stories. Finally, some survey participants documented animals who are no longer housed at the Detroit Zoo. These animals were hippopotamus and elephants. Both of these species used to be displayed at the Detroit Zoo. However, the elephants were moved to a sanctuary in 2004 so they have not been at the Detroit Zoo in many years. The hippo passed away in 2011, a year prior to this study. The only other animal noted that the zoo does not have is dolphins which was only mentioned by one person. Finally, of the top 10 animals, 8 were mammals, 1 was a bird, and 1 insect. Previous research has found that visitors prefer to view large vertebrates (Ward et al., 1998) and mammals are the most popular in the zoo (Moss and Esson, 2010).

The first research question examined if there were statistically significant differences between demographic variables on the topics of the visitor's overall experience, satisfaction with animal visibility, and the importance of animal welfare and animal visibility. Concerning overall visitor satisfaction, the only statistically significant difference was found concerning if the visitor felt the zoo was a good value for the entrance cost. The visitors who felt the zoo was not a good

value were less satisfied. However, there were only nine visitors who felt the zoo was not a good value compared to the 220 who felt the zoo was a good value. A higher number of participants who fell into these categories could alter these results (there were only 19 total visitors between both zoos who felt the zoo was not a good value). No previous research studies mention how the visitors feel about the value of the zoo in connection with their satisfaction levels, however, this may vary with the financial stability of the survey participant.

The first research question also examined the importance of animal visibility. Three statistically significant results at the Detroit Zoo were found and none of them are unexpected. First, zoo members had lower documented levels of importance for animal visibility than non zoo members. Zoo members do not incur an additional entrance cost when coming back to the zoo another time which may make the importance of seeing every animal less than non zoo members. Also, members may be using their membership primarily for different reasons such as getting out of the house, having a play date with another family or getting exercise thereby reducing the importance of animal visibility. The second statistically significant factor was if the visitors felt the zoo was a good value. Visitors who felt the zoo was not a good value had a higher level of importance than visitors who felt the zoo was a good value for the entrance cost. As noted above, there were few visitors who felt the zoo was not a good value and a higher number of these visitors could alter these results. Finally, visit frequency was also statistically significant. First time visitors and visitors who only come to the zoo once per year had a higher importance value than visitors who came twice per year or more. This is similar to the reasons discussed above concerning membership.

Concerning the satisfaction with animal visibility at the Detroit Zoo, there were two statistically significant differences. These two differences were found concerning the variables of

if the visitor felt the animals should have a hiding place or not and if the visitor felt the zoo was a good value for the entrance cost. Those who felt the animals should not have a hiding place were less satisfied than those who felt the animals should have a hiding place. Similarly, those who felt the zoo was not a good value were less satisfied than those who felt the zoo was a good value. Both of these variables have very few visitors in the negative answers. More respondents in these categories could change these results. These results are not unexpected as it is reasonable to assume that the visitors who did not feel the animals should have a place to hide were unsatisfied if they could not see all of the animals.

Gender was the only variable that was found to be statistically significant concerning the importance of animal welfare. Females placed a higher importance value on animal welfare than men. There were about twice as many females that participated in the survey than males. This comparison was the final part of the first research question.

The second research question concerns the percentage of the time that the visitor feels the animal should be visible. A statistically significant difference was found between zoo members and non members. The average amount of time that zoo members felt the animals should be visible was nearly nine percentage points less than non zoo members. The same issues discussed above concerning the importance of animal visibility apply here as well. Also, zoo members may come to the zoo more often and have more knowledge and more realistic expectations about how often they may be able to see the animals. There were three other categories where significance was also found. First was education level, divided by those having a college degree and those that did not have a college degree. The higher education category had a lower expectation of visibility. Visitors who are more highly education may have some knowledge about animal behavior or welfare and therefore have lower expectations about visibility. A similar result was

found with income level. Those with a higher income level had a lower expectation of visibility. Higher income visitors may feel that they can just return to the zoo at a different time without having to feel that it is a financial burden as visitors with a lower income may feel. Finally, the frequency of yearly zoo visits also presented a statistically significant difference. Visitors who came twice per year or more had lower expectations than those that came to the zoo once per year or if this was their first visit. There could also be a correlation between membership and visit frequency so these survey participants may contain a core group of visitors. It is logical to believe that zoo members come to the zoo more often and would also have a higher visit frequency.

### Potter Park Zoo

The animals that the visitors to the Potter Park Zoo wished to see were similar to the Detroit Zoo. Mammals again dominated the top 10 most listed animals, with the first nine as mammal species and the generic “bird” category in the tenth spot. Babies were a large draw for the Potter Park Zoo as well. There were three tiger cubs at the zoo during this survey period and tigers were the number one listed species that visitors wished to see. There was also a baby bongo, but this species was not a large draw for visitors getting only a few mentions. Visitors also documented animals who are not on exhibit at the Potter Park Zoo. Elephants, giraffes, bears, baboons, gorillas, and sea turtles were all listed as animals who the visitors wished to see but are not at the Potter Park Zoo. These results align with previous research.

The first research question first examined visitor satisfaction with their overall experience which yielded two categories that reached statistical significance. First concerns if the visitors

felt the zoo was a good value. The visitors who felt the zoo was not a good value were less satisfied than those who felt the zoo is a good value. Out of the 10 visitors who claimed the zoo was not a good value, 9 documented that they were outside the resident area and would have paid a higher entrance fee. The last visitor did not provide a zip code. These visitors that paid a higher price may have had higher expectations and felt disappointed with the experience compared to the entrance price paid. The second area of significance was visit frequency. Visitors who visited the zoo twice per year or more were more satisfied than visitors who were first time visitors or once yearly visitors. Frequent visitors may have more realistic expectations. Hence, a visit that may be excellent for a casual visitor may just be a normal visit for a regular visitor. Income and membership were almost significant with a p-values of .07 and .08 respectively, just above the .05 cutoff.

The importance of visibility was also part of the first research question and found only one significant factor. Zoo members had a lower importance value for visibility. Zoo members could be visiting the zoo for many other reasons besides seeing the animals and therefore have a lower importance value on animal visibility. It is also possible that they have a better idea of what level of visibility was expected.

Four factors were statistically significant with the satisfaction with animal visibility. Zoo membership, presence of children, if the visitor felt the zoo was a good value, and weekend vs. weekday visitors were these factors. First, zoo members were more satisfied than non zoo members. Second, were groups that came with children were more satisfied. The satisfaction of the children could influence the satisfaction of the adults. If the children were very happy and enjoyed their visit then their parents would be satisfied seeing their children enjoy the zoo. Third,

those who say the zoo is not a good value with those who felt the zoo was a good value being more satisfied. Fourth, weekend visitors were more satisfied than weekday visitors.

The importance of animal welfare at the Potter Park Zoo yielded no variables of statistical significance. Welfare was the final factor in the first research question.

The second research question concerned the amount of time the visitors expected the animals to be visible found five statistically significant factors. Females and non zoo members had higher expectations for the amount of time they felt the animals should be visible. Also visitors who felt the animals should not have a hiding place, felt the zoo was not a good value, and have an income less than \$50,000. Membership and income were discussed above in relation to the Detroit Zoo and these reasons also apply to the Potter Park Zoo. Potter Park also has a gender difference. More females took the survey than males and that could impact the results. Visitors who do not believe that the animals should have a place to hide had a higher expectation of visibility than the visitors who do feel the animals should have a place to hide. This result was not surprising and the difference was nearly 16% between the two groups. Finally, visitors who felt that the zoo was not a good value had higher expectations. As previously discussed, there were very few visitors who felt the zoo was not a good value and the vast majority of them were outside the resident area and paid a higher entrance fee.

### Wildlife Tourism

The third research question examined the relationship between wildlife tourists and zoo visitors. The small number of wildlife tourists in this study makes it difficult to generalize the results. The satisfaction level of the visitors between the zoo visit and the wildlife tourism experience was not significant at the .05 level with a p-value of .09. However, the results



concerning the percentage of time the visitors expected the animals to be visible in the zoo compared to how often animals were visible in the wild was statistically significant. Wildlife tourists have higher expectations for viewing animals in a zoo than they experience in wild settings. Visitors may feel that the captive setting should allow for increased visibility even though many zoos strive to design exhibits that are as close to the animals' natural environment as possible.

### Comparison

The results at the two zoos provided some similar and dissimilar results. Table 19 presents the statistically significant results at both zoos for the questions asked.

Table 19: Comparison chart of significant differences found at Detroit and Potter Park Zoos.

<b>Variables</b>	<b>Detroit Zoo</b>	<b>Potter Park Zoo</b>
Overall Experience	Value	Value Visit Frequency
Importance of Animal Visibility	Membership Value Visit Frequency	Membership
Satisfaction with Animal Visibility	Hiding Place Value	Membership Presence of children Value Day of week
Importance of Animal Welfare	Gender	
Amount of Time Visitors Expected Animals to be Visible	Membership Income Education Visit Frequency	Membership Income Gender Hiding Place Value

Concerning the overall experience, both zoos found the value of the entrance cost to be statistically significant but the Potter Park Zoo also found visit frequency to be significant. The Potter Park Zoo is a small zoo and the visitors who come more often may have a better expectations of the zoo compared to first time visitors and infrequent visitors. This difference between the zoos may be due to the size of the zoo. The Detroit Zoo is much larger and has a greater variety of animals when compared to Potter Park and therefore first time or infrequent visitors could be more satisfied with the larger variety.

The importance of animal visibility found membership significant at both zoos. However, the Detroit Zoo found the value and visit frequency to also be significant. Zoo members probably visit the zoo more often than non zoo members so membership and visit frequency may be highly correlated. There were a higher number of members at the Detroit Zoo than at the Potter Park Zoo and this difference could be the reason that visit frequency was significant at the Detroit Zoo and not the Potter Park Zoo. The value of the zoo entrance fee was significant at the Detroit Zoo but there were very few visitors who felt the zoo was not a good value. A higher number of visitors in this category could change the results.

Value was again significant at both zoos concerning the satisfaction with animal visibility. However, hiding place was significant at Detroit but not Potter Park. Similar to value, there were very few visitors who felt that the animals did not need a place to hide out of view of the zoo visitors and more survey participants in this category could easily change this result. Membership, presence of children, and day of visit were all significant at the Potter Park Zoo but not the Detroit Zoo. Potter Park Zoo has a smaller percentage of members than the Detroit Zoo and this difference could explain why membership was not significant at the Detroit Zoo. Also, members who visit the zoo often may be accustomed to animal visibility and it may take a more

memorable experience for members to say their visit was excellent. Similarly, a non frequent visitor and a frequent visitor may rate the same visibility at different levels of satisfaction due to previous experiences at the zoo. The presence of children was significant at the Potter Park Zoo. The higher visibility at Potter Park may have impacted this result. The smaller size may also impact this result. The Potter Park Zoo is much smaller and children may have a better attention span for this zoo and a better ability to walk throughout the zoo compared to Detroit. Weekend visitors were more satisfied than weekday visitors at the Potter Park Zoo. There were fewer weekend visitors surveyed than weekday visitors which could impact these results. Also, visitors who visit on weekdays may visit more often and have similar reactions as zoo members with their expectations.

Gender was the only significant difference found in the category of importance of animal welfare. Gender was only significant at the Detroit Zoo. At both zoos there were more females than males who participated in the survey. Having a more equal distribution between genders could give a clearer picture of this issue.

There were many factors that were significant at both zoos concerning the amount of time the visitors expected the animals to be visible. Both zoos had membership and income in common. Detroit also had education and visit frequency. As discussed above, visit frequency could be highly correlated with membership. Similarly, education and income are typically highly correlated where those with a higher education also have a higher income. At the Potter Park Zoo, gender, hiding place, and value were also significant. Value and hiding place had very few visitors in the negative answers of these variables and this small number could skew the results. Finally, the unequal distribution of survey participants concerning gender could affect this result as well.

It is not unexpected to find these differing results between the two zoos studied. The zoos are very different and may attract different types of zoo visitors. Certain aspects of each zoo may be more important to the visitors. Also, previous experiences at the zoo visited as well as other zoos may impact the visitors' responses to the survey questions. In general, some of the factors were found to be important at both zoos while others differed.

### FUTURE RESEARCH

There are a variety of topics that could benefit from increased future research. It would be beneficial to determine if there is a specific set of animals that zoo visitors expect to see at every zoo. Visitors at both the Detroit and Potter Park Zoos were interested in seeing elephants, even though neither zoo has elephants. The elephants at the Detroit Zoo were moved to a sanctuary and the small area at Potter Park Zoo only allowed one elephant at a time and the elephant was sent to another zoo to live in a herd. Many visitors asked their children which animals they most wanted to see that day. Asking this question as an exit survey may have biased the results. While there were still many responses for animals that are not at each zoo, children may just remember the best animal they saw that day, not which animals they wanted to see before visiting the zoo. Future research on this question may be better if asked before visitors go through the zoo. Along these same lines, future research could determine if visitors are less satisfied if the zoo does not have all of the animals they expect to see.

This study included one large and one small zoo. Increasing the number of zoos would help determine if the statistical significance found in this study is consistent when repeated at other zoos. A larger sample size of visitors, particularly of zoo visitors who are dissatisfied, is necessary to learn more about their expectations and how zoos can increase their satisfaction.

This study only had a couple questions about wildlife tourism and very few visitors defined themselves as wildlife tourists. Therefore, increased visitor participants could provide additional information. Also, we know very little about how the expectations of a zoo visit differ from expectations in a wildlife tourism experience. It may be better to distribute surveys at a wildlife tourism location to the tourists and ask these participants about zoos rather than trying to have zoo visitors remember their wildlife tourism experience. This may be beneficial because many people may visit zoos more often than participating in wildlife tourism.

The vast majority of people answered that animal welfare was very important to them. Every category had an average of at least 4.5 out of the 5 point scale at both zoos. Zoo visitors may have a lack of knowledge about zoo animal welfare. Also, visitors may not have been entirely honest when answering this question as it may seem socially unacceptable to admit that they do not care about the welfare of the animals in the zoo. In addition, there was no question trying to determine if the zoo visitor felt the welfare of the animal was more important to them than their ability to see the animal which could be a very interesting and informative area of future research.

The visitors' ratings about if the zoo was a good value for the entrance cost was statistically significant at both zoos and with five of the t-tests. Along with membership, the value of the entrance cost was found to be statistically significant more than the other variables. It would be interesting to see satisfaction levels for visitors of a free zoo. The National Zoo in Washington D.C., the St. Louis Zoo, and Chicago's Lincoln Park Zoo are all very popular free zoos. Researchers could learn more about the satisfaction levels of zoo visitors when admission price is not a factor.

Finally, the survey could be improved in a few ways. It would have been better to have a category of less than one time per year as some visitors had not been to the zoo in many years, but it was also not their first visit. Some visitors may not have understood the question asking how much time they expect the animals to be visible. Some visitors answered four or eight and may have misunderstood the question and were perhaps documenting hours rather than a percentage. Rephrasing the question may produce less confusion. A place was provided for the survey participants to note any comments and concerns about their visit. However, a better way to format the question may have been to ask which zoo features would make the visitor return. This may give the zoos some very good ideas from the visitors about what they would like to see happen in the zoo rather than just providing a place for negative comments.

## CONCLUSIONS

Each zoo had statistical significance in different factors that were researched in this study. Therefore, in some situations the null hypothesis is rejected and in others the null hypothesis has failed to reject. At the Detroit Zoo, there was statistical significance with overall satisfaction with zoo experience with only visitor belief about the value of the zoo. This was also statistically significant at the Potter Park Zoo, in addition to visit frequency. Concerning the importance of animal visibility, membership, value, and visit frequency were significant at the Detroit Zoo. At Potter Park, membership was the only significant factor in the importance of animal visibility. Next, there was statistical significance with the satisfaction with animal visibility in the areas of hiding place and value at the Detroit Zoo. Membership, presence of children, value, and weekday vs. weekend visitors were all significant at the Potter Park Zoo.

The importance of animal welfare to the zoo visitors was statistically significant with gender at Detroit and nothing was significant at the Potter Park Zoo.

These findings correspond to the first research question and are important for zoos to increase satisfaction levels for their visitors. From these results we learn that there are a few factors that were significant in many instances. Membership, the value of the entrance cost, visit frequency, income and hiding place were significant at least twice throughout the study. These are factors that can significantly influence a zoo visit and should be taken into consideration by zoo managers. Zoos are increasingly competing with other types of entertainment for leisure time and it is important for their visitors to enjoy their visit to ensure return trips. Every zoo can learn from these types of studies to determine what features of a zoo are most important to the visitors and how they can improve a zoo experience based on what the research determines. For example, increasing the visibility of the animals while still maintaining a hiding place for the animals (i.e. one way glass) benefits both the welfare of the animal and increase visibility which could increase visitor satisfaction.

Hypothesis two concerning the amount of time visitors felt the animals should be visible found some statistical significance at both zoos. At Detroit, zoo membership, education, income, and visit frequency were all significantly different. The Potter Park Zoo also had many factors that were statistically significant. These were gender, zoo membership, hiding place, value of the zoo and income. The results of this hypothesis are directly relevant to both the two zoos included in this study and can be helpful for all zoos in general. Overall, the average expected visibility percentage was 78%. This was very close to the goal of 80% in the study based in Disney (Kuhar et al., 2010). This study provided visitor research to confirm that 80% visibility is a goal that corresponds to visitor expectations of visibility. It is very important for zoos to determine visitor

expectations on visibility. These zoos can now try to increase visibility with the goal of near 80%.

The relationship between zoo visitors and wildlife tourists is an area that is full of potential research. The few cursory questions researched in this study provide a first look at the expectations of wildlife tourists when visiting zoos. Wildlife tourists noted that the animals during their wildlife tourism experience was less than the amount of time they expected to see the animals in the zoo. Therefore, the visitors expected to see the animals more when visiting them in the captive setting of a zoo. The difference in the satisfaction level between their wildlife tourism and zoo experience was almost statistically significant with satisfaction higher during wildlife tourism, but was above the .05 cutoff. This is important to zoos because many zoos strive to provide an environment that is as close to the animals' natural habitat as possible but must also realize the higher expectations of zoo visitors compared to wildlife tourists.

Overall, several areas of statistical significance were found at both zoos included in this study. These results can provide important information to zoo administrators and it has identified several areas of future research. Zoo visitor satisfaction with animal visibility is an important area of research for zoos to ensure a positive experience for their guests.



## APPENDIX

## Survey

Hello, my name is Ashley Couch and I am studying zoo visitor satisfaction with animal visibility for a Masters degree at Michigan State University. The survey should only take about 5 minutes to complete. You indicate your voluntary agreement to participate by completing and returning this survey. However, if you choose not to complete all or part of the questions, you will not suffer any penalty. Your complete survey would be very helpful but you are free to discontinue your participation at any time. Your responses will be kept confidential and your privacy will be protected. Thank you very much for your help today!

**1. How would you rate your overall zoo experience today?**

Excellent      Good      Average      Fair      Poor

**2. Please describe your primary reason for visiting the zoo today. \_\_\_\_\_**

**3. How many of the animals you wanted to see today were visible?    All    Most    Some**

Few    None

**4. What percentage of the time do you feel the animals should be visible during hours the zoo is open?\_\_\_\_\_**

**5. How satisfied are you with the overall visibility of the animals during your visit today?**

Very satisfied      Satisfied      Neutral      Unsatisfied      Very unsatisfied

**6. How important to you is animal welfare for the zoo animals?**

Very important      Important      Neutral      Unimportant      Very unimportant

**7. How important for your zoo visit was animal visibility?**

Very important      Important      Neutral      Unimportant      Very unimportant

**8. Do you think the animals should have a place to hide from the view of zoo visitors?** Yes

No

**9. Which animals did you most want to see today?** \_\_\_\_\_

**10a. Have you ever participated in a wildlife tourism activity?** (such as any organized activity from local bird watching to traveling internationally specifically to view animals? Yes

No

**10b. If yes, what approximate percentage of the time were the animals visible in the wild?**

\_\_\_\_\_

**10c. Thinking of your most memorable wildlife tourism trip, how satisfied were you with the overall visibility of the animals?**

Very satisfied      Satisfied      Neutral      Unsatisfied      Very unsatisfied

**11a. Do you think the zoo is a good value for the cost?** Yes No

**11b. If no, why?** \_\_\_\_\_

**12. Did you come to the zoo with children today?** Yes No

**13. What is your home zip code?** \_\_\_\_\_

**14. Are you a member of the zoo?** Yes No **15. Gender:** Male Female

**16. Age:** \_\_\_\_\_

**17. What is the highest level of education you finished?**

No High school diploma      High school diploma      Some college      2 year college      4 year college  
degree      Graduate degree

**18. What was your household income? (in 2011 before taxes)**

\$0-\$24,999;    \$25,000-\$49,999;    \$50,000-\$74,999;    \$75,000-\$99,999;    >\$100,000

**19. How many times per year do you normally visit this zoo?**

First time visitor      One      Two to Three      Four to Five      More than 5 times per year

**20. Please write any comments or concerns about your visit today or any explanations about your answers above**

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If you have questions about this research contact Dr. Linda Kalof, Michigan State University, lkalof@msu.edu If you have any questions or concerns about your role and rights as a research participant, you may contact, anonymously if you wish, Michigan State University Human Research Protection Programs at (517) 355-2180 or irb@msu.edu, or regular mail: 202 Olds Hall, East Lansing, MI 48824.

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