Beauty and the Beast:
Preferences for animals in Australia

Barbara Woods

Abstract
It is clear, both intuitively and from research findings, that humans have definite preferences regarding different animal species. These preferences have implications for the management of wildlife tourism in terms of selecting animals that people want to see, understanding the features of the animals that are appealing to visitors, and developing education and interpretation programs. This study reports on findings from 790 respondents who were asked to list their favourite animals, and the reasons why they are favourites. The results confirm that favourite animals are often companion animals and those animals with which people are familiar. The reasons for liking animals centre around perceptions of their attractiveness, intelligence and character. Reasons for disliking animals often focus on the threat or potential harm to humans. Results highlight the importance of perceptions rather than actual characteristics in influencing preference and provide a basis for wildlife tourism planning.

Barbara Woods is a Research Officer with the Tourism Program at James Cook University, Australia, and the Rainforest CRC.

Introduction

It is clear, both intuitively and from research findings, that humans have different preferences for animals. This has been established empirically since the early 1970's by a few large general studies (e.g., Bart, 1972; Kellert, 1980, 1986), and supported by a number of studies in zoos and other wildlife tourism venues (e.g., Barstow, 1986; Hammitt, Dulin & Wells, 1993; Shackley, 1996). The suggestion that not all animals are equal in the eyes of visitors has implications for the management of tourism and recreation. In particular, knowing why animals are popular (or unpopular) is important to the development of education and interpretation programs. The reasons why people like or dislike animals can be used as a valuable tool to attract the attention of visitors for education campaigns, or to address misconceptions. Understanding why visitors like or dislike animals can also help wildlife operators to select the features of animals for emphasis in marketing campaigns, or to diversify the types of animals in focus.

One of the easiest places to view differences in animal popularity is in the zoo environment, where large collections of a variety of animals are housed in the same area. Most zoos would be able to list their most popular animals, based on which ones draw the most crowds, attract the most interest, or generate the most questions from visitors. Studies in captive environments confirm this species bias. For example, Shackley (1996) in a 1992 study of visitors to London Zoo found that zoo visitors were drawn by big cats, apes and monkeys, penguins and seals. In a study of children, polar bears, monkeys, big cats and zebras were favoured (Deans, Martin, Noon, Nusea, & O'Reilly, 1987). Barstow (1986) notes the immense popularity of whales and other cetaceans in aquariums. However, a problem with studies of animal preference conducted with zoo visitors is that the techniques used to exhibit the

animal may have just as much influence on preference as the animal itself. For example, naturalistic or interactive settings attract the attention of visitors more than traditional and repetitive enclosures (Bitgood, Benefield, Patterson & Nabors, 1986). This makes it difficult to generalise preference from the literature on captive environments, as exhibit styles vary across zoos.

In a more general sense, Arluke and Sanders (1996) reflect on preferences for animals by noting that societies rank everything on a ladder of worth, and this includes animals. They suggest that a hierarchical model of animals permeates public attitudes toward individual species. This model stems from both theological and evolutionary ideas of worth, which place humans at the top of the linear progression of life. Animals are ranked on a phylogenetic scale with the animals most like humans at the top, and the animals least like humans at the bottom. Thus the "good" animals are tame and human-like and include pets and animals that are useful to humans. These are often large, charismatic vertebrates (Kellert, Black, Rush & Bath, 1996), that have features and exhibit behaviour that humans can understand. For example, part of the attraction to viewing primates appears to be that it is so easy for humans to relate to the behaviour of the animals (Shackley, 1996). Other animals such as

> penguins, pandas, seal pups, monkeys, dogs, cats and many other 'higher' vertebrates also evoke inordinate amounts of sympathy. They are easy to anthropomorphise, and therefore relatively difficult to exploit with impunity.
> (Serpell, 1986, p. 141)

Conversely, the "bad" animals are least like humans, they are wild and unpredictable (Arluke & Sanders, 1996).

While there is a general consensus that preferred animals are most like humans (e.g., Arluke & Sanders, 1996; Kellert, 1980, 1986,1989; Serpell, 1986), the available research suggests that this is only a partial answer. For example, the most recent and large scale empirical study reported by Kellert (1989) found that the most popular wild animals were birds, an insect and two fish species, whose characteristics are rather dissimilar to humans.

Ryan's (1988) study of saltwater crocodiles in northern Australia exemplifies this contradiction. He states that

> at a vernacular level it might be argued that dolphins attract through their intelligence, gorillas and monkeys through [similarity to humans], furry animals through cuddly connotation…saltwater crocodiles do not possess any of these attributes. They continually possess a latent threat in that the human watcher is safe only at a distance or through a safety barrier…[the saltwater crocodile] is both inhuman (reptilian) and dangerous (p. 319).

Ryan proposes a matrix (Figure 1) for classifying animals on two intersecting dimensions. The first is perceived danger or safety, and the second relates to the extent to which the animal is perceived as friendly or similar to humans (Ryan, 1988). Based on this matrix, some animals hold an inverse appeal – they attract because they are dangerous and different from humans.

An important influence on preferences for wildlife lies in attitudes towards animals. The concept of attitudes refers to broadly integrated feelings, beliefs and values possessed by individuals (Kellert, 1980, p. 63). Attitudes are an evaluation or a feeling state about a person, object or action, and are often described as preferences, opinions, perceptions or images (Manfredo, Vaske & Decker, 1995). Attitudes may change over time, however there is usually a large degree of attitude stability (Kellert, 1986). Attitudes are considered the preferred method of measurement because they are considered to be the specific indicators of broadly integrated feelings, beliefs and values (Gray, 1993; Kellert, 1980). Some researchers contend that the foundations for attitudes are laid during early childhood, and the attitudes, values and beliefs developed during youth influence behaviour throughout adult life (Gray, 1993). Studies of animal popularity among children reveal that the most popular animals are often mammals, particularly furry, mobile, harmless mammals with humanoid features (Morris,
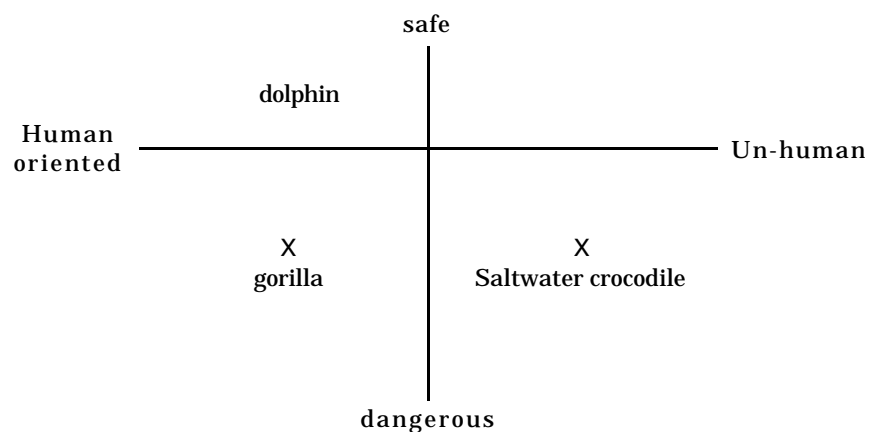
Figure 1: Matrix for classifying animals

1960; Surinova, 1971). Based on these studies, popular animals included the monkey, dog, horse, and cat - those that can be raised at home or are useful to man. Unpopular animals included snakes, rats, wolves, lions and animals that invoke fear, are ugly, harmful or smell. Younger children had more definite ideas about animals they liked or disliked, and girls were more likely than boys to dislike animals because they feared them (Surinova, 1971). With children, there is also a link between preferred animals and those represented in children's books. More (1979) reported that the majority of children's books were about mammals (62%) and birds (18%); and the top 10 animals featured overall were horse/pony, dog, cat, bear, mouse, rabbit, lion, goose, elephant, and pig. In addition, stories about mammals were targeted at a younger readership, which suggests that young children start learning about the animal world through mammals. The characters are often highly anthropomorphised, encouraging familiarity and affection for these animals that are presented as having thoughts, feelings and behaviour that children can understand and relate to.

Debate over the appropriateness of anthropomorphic explanations of animal behaviour has raged in zoo and education literature. One of the major difficulties surrounding anthropomorphism is its prevalence in society, particularly in children's books and cartoons (Rosenfeld, 1981). Representations of animals in the media typically have anthropomorphic overtones, (Herzog & Galvin, 1991) and conservation messages play on anthropomorphism to gain audience sympathy. For example, Ris (1993) criticised the 'Save-the Whale' movement for creating a non-existent, mythical super-whale, made up of anthropomorphic traits from several species of whale. This invented whale is

even more powerful than real whales, since it comes to possess a whole set of human-like characteristics. Such a whale is perceived as at least as intelligent as humans, friendly and caring, fond of music, able to effect inter-species communication…..and holding all these traits in one imaginable body (Ris, 1993, p. 158).

This example shows that while some animals may naturally possess human-like traits, inaccurate information can consistently overstate these features to the extent that they become part of the common perception of the animal. This, in turn, can influence preferences for wildlife species.

In addition to children's books and specific representations of species by the media, the tabloid press can repeat and perpetuate commonly held perceptions of animals. Herzog & Calvin (1991), in a study of four major American tabloids over a five year period found that dogs and cats were portrayed as objects of affection or admiration, however

there were no stories in which the heroes were sharks, spiders, snakes or insects, reflecting the roles of these species as threats rather than saviours.

The example of attitudes toward the wolf in USA and Canada illustrates that it can be difficult to generalise preference, because animals can evoke strong emotions, and feelings may be conflicting between different groups. Scarce (1998, p.32) reports that

wolves are a huge management problem because nobody is neutral. They play most strongly to people's emotions, and not to people's reasonability or logical side. You hate them or you love them. Its religious on both sides….

In addition to examining what

makes animals popular, it is important to consider the least popular animals, and the reasons for their lack of favour. Studies indicate that invertebrates are almost universally disliked. Kellert (1993) found that the large majority of the (USA) general public

indicated a dislike of ants, bugs, beetles, ticks, cockroaches, and crabs; an aversion to insects in the home; a fear of stinging insects, spiders and scorpions; a desire to eliminate mosquitoes, cockroaches, fleas, moths and spiders; and a view of the cockroach and octopus as highly unattractive animals (p. 849).

Reasons for these aversions included the perceived lack of capacity for affection, the lack of conscious decision making and future thinking in arthropods, and the general alienation humans have from species so behaviourally and morpho-logically different to our own. Further reasons include the connection between many arthropods and human disease, damage to agriculture and horticulture, and the autonomy invertebrates have from human control, as illustrated by their invasion of human space.

The case of the rattlesnake exemplifies the difficulties faced by less popular animals. Arena, Warwick & Duvall (1995) describe how rattlesnakes are "rounded up" each year in some American states, with little research into the implications of the round-ups. Major concerns of biologists and conservationists include species and environ-mental degradation, poor public health and safety, incorrect education, negative effects on rattlesnake populations and inhumane treatment of snakes. Methods of collection range from the relatively benign practice of collecting snakes that cross roads, to the use of explosives and introduction of toxic substances (gasoline, insecticides) into

Table 1: Factors Important to Preference for Animals.

1. Size: larger species more preferred
2. Aesthetics: animals considered "attractive" are more preferred
3. Intelligence: animals considered to have capacity for reason, feeling and emotion preferred
4. Danger to humans
5. Likelihood of inflicting property damage
6. Predatory tendencies
7. Phylogenetic relatedness to humans
8. Cultural and historical relationships to humans
9. Relationship to human society : pet, domestic animal, game, pest etc
10. Texture: bodily appearance and structure. The more unfamiliar to humans, the less preferred
11. Mode of locomotion: generally, the more unfamiliar to humans, the less preferred
12. Economic value of the species to humans.

Method

The study was conducted in two stages. In the first stage, 84 first-year university students from North Queensland participated as part of a practical component of a tourism subject. They were asked to complete a survey, and then take five other surveys to be completed by their family and/or friends during March 1999. This stage yielded 496 correctly completed surveys, primarily from North Queensland residents. The second stage of the survey was administered (in English) at a series of tourist venues around Townsville, Australia. Interviewers collected 294 surveys from visitors to attractions, transport nodes and accommodation venues in August 1999. Thus the total sample contained a range of respondents including students, residents, active travellers, and domestic and international visitors. These methods of sampling were selected because the purpose was to obtain a wide range of the types of experiences people have with wildlife, and the features they identified as memorable or important. The emphasis in this study was on diversity of experience rather than attempts at representativeness. These two stages yielded a total sample size of 790, with 43% males and 57% females. The average age was 31.2 years, with 60% of the sample aged 30 or under, and 40% aged over 30 years. The usual place of residence for respondents is provided in Table 2. The origin of overseas visitors was 10.7% from the United Kingdom, 6.4% from European countries, 5.7% from the United States, 2.1% from Japan and the remaining 3.8% from South East Asia, Africa, South America, New Zealand, Middle East and Russia.

crevices, dens or any place that rattlesnakes may use for shelter. At the time of publication these authors note that there was only one published report addressing the animal welfare considerations of rattlesnake round-ups, perhaps due partly to the general lack of popularity of snakes.

In terms of empirical studies of preference, substantial major work reported in the literature has been conducted by Kellert (1980, 1986, 1989) and Bart (1972) in relation to animals familiar to the American public. Bart's study asked respondents to indicate whether they liked or disliked a listing of 30 animal species. This study found the most popular animals to be the horse, the dog and the deer, with the least popular animals being the snake, the rat and the scorpion (Bart, 1972). Kellert's studies required respondents to rank 33 species on a seven point like/dislike scale. The most preferred animals overall were the dog and the horse, which is an expected result because people generally have more exposure to domestic animals, and experiences with individual animals may influence their preference. More interestingly, the most favoured wild animals were the swan and the robin, followed by the butterfly and the trout. The most popular predator was the eagle (ranked 8th) and the most popular mammal was the elephant (ranked 9th). The least favourite animals were insect pests such as the cockroach and mosquito.

A difficulty with Kellert's and Bart's studies of species preference is that they used a researcher generated list of animals, thereby possibly excluding animal species that the public liked/disliked more than the listed species. However, from the results gained in his study of preferences, Kellert (1989) concluded that the following factors (Table 1) could help predict human preference for animals. Unfortunately, Kellert does not always specify how these factors influence preference. For example, some animals that are dangerous to humans may be least preferred (e.g., snakes) yet others are attractive to visitors (e.g., big cats such as lions).

This study aimed to provide a comparison and an extension to the work conducted by Kellert (1989) and Bart (1972) in listing the favourite animals in an Australian context. The research was conducted using an open-ended format, to allow respondents to list preferred animals, rather than select from a researcher-generated list. Furthermore, the study aimed to examine the reasons why respondents liked particular animals, in order to clarify the guidelines suggested by Kellert (1989).

Respondents were asked to list, in the form of an open-ended response, their five most favourite animals, and the reasons why these animals were considered favourites. There were no limitations on the types

Table 2: Usual Place of Residence.

Usual place of residence	Percent of sample
North Queensland	53.2
Other Queensland	9.7
Other Australia	8.4
Overseas	28.7

of animals that respondents could select, as both domestic and wild animals were permitted. Respondents were asked to provide an open-ended response outlining why they considered the animals favourably. This process was repeated for least-favourite animals. This was part of a broader study asking people to describe their best and worst wildlife tourism experiences.

Table 3: Favourite Animals (individual species).

Rank	Animal	%
1	Dog	48.2
2	Dolphin	33.2
3	Koala	29.0
4	Cats	24.2
5	Birds	22.1
6	Horses	21.4
7	Tigers	20.2
8	Kangaroo	18.0
9	Fish (no species specified)	17.1
10	Whales	17.0
11	Elephant	13.6
12	Lion	11.4
13	Monkey	9.3
14	Sharks	8.7
15	Crocodile	7.8
16	Wombat	6.5
17	Snake	6.0
18	Giraffe	5.7
19	Frogs	5.7
20	Bears	5.5
21	Seal	5.1
22	Possum	4.8
23	Eagles	4.6
24	Cows	4.4
25	Penguins	4.2
26	Platypus	4.2
27	Pigs	3.9
28	Rabbit	3.7
29	Polar bears	3.3
30	Panda	3.2

* Percentages in Table 3 represent the percentage of respondents who identified the animal as one of their favourite animals.

Results

Favourite animals and features of favourite animals

Table 3 shows the 30 animals that were most frequently mentioned in respondents' lists of favourites. The animals listed in the Table reflect the exact responses of respondents, and thus contain general types of animals as well as specific species. After these top 30, there were 124 additional animals which are not listed here because they had relatively few mentions (less than 0.7% of responses). The first 10 listed animals are similar to those reported by Kellert (1989) and Bart (1972). Also consistent was the absence of insects such as cockroaches from the list of favourites. However, the introduction of animals such as sharks, crocodiles, snakes and frogs in the top 20 listed animals is contrary to expectations based on previous research.

One difficulty experienced while coding the responses for favourite animals was that some respondents gave a general category of animal (e.g., 'birds') while others gave specific species (e.g., 'Rainbow bee-eater'). This was due to the open-ended nature of the survey, where respondents were not given any prompts for answering the question, except that they could include both domestic and wild animals. Table 4 shows the 10 most frequently mentioned animals, with some similar species grouped into larger groups of similar types of animals. The purpose of Table 4 was to group together very similar animals in order to summarise the listings given in Table 3. Some of the most popular individual species (dolphins, koalas, horses) were kept separate, firstly because they combined less easily into logical groupings, and secondly to provide a context for their popularity. Overall, domestic dogs were clearly the most popular animal.

The favourite animals listed were similar when comparing respondents who resided in Australia and those who resided overseas. The content of favourite animal lists was identical, but with some changes in order of preference. Table 5 shows the top 10 favourite individual animals for overseas and domestic residents. Statistical tests were unable to establish whether these differences were significant, due to the multiple-response nature of the table, and because each individual can be counted in a number of categories. It was interesting to note the relative similarities in species listed between the groups, as a greater

Table 4: Most Popular Groups of Animals.

Animal type	Percentage of respondents listing animal as one of favourites
Domestic dogs	48.2
Big cats (tiger, lion, leopard, cheetah)	43.9
Birds	35.1
Dolphins	33.2
Koala	29.0
Fish (all fish included, but most species were sport or fishing related)	27.9
Domestic cats	24.2
Horses	21.4
Kangaroo/Wallaby	20.0
Whales	17.1
Monkeys/Primates (chimpanzees, apes, gorillas, various monkey species).	15.3
Farm animals (sheep, cows, goats, pigs)	14.8
Bears (polar, panda, brown, grizzly)	12.0

Table 5: Favourite Animals for Domestic and International Residents.

Australian Residents		International Residents	
Animal	% of respondents selecting animal as a favourite	Animal	% of respondents selecting animal as a favourite
Dog	46.8	Dog	46.1
Dolphin	34.8	Koala	39.2
Birds	24.3	Dolphin	34.6
Koala	24.3	Cats	24.4
Cats	23.2	Kangaroo	24.0
Tigers	23.4	Whales	18.9
Horses	22.7	Horses	18.4
Kangaroo	18.6	Birds	16.6
Fish	16.9	Fish	13.8
Elephant	14.3	Tigers	13.4
Whales	13.8	Elephant	12.8

number of exotic species were expected to be mentioned by international visitors.

Respondents used over 150 different words or expressions to describe what they liked about their favourite animals. The top 20 words or expressions used by respondents are listed in Table 6. Descriptions relating to aesthetic features were dominant, as were perceived character qualities such as intelligence and faithfulness.

Despite the commonalities shown in Table 6, the animals that

Table 6: Words or Phrases Used to Describe Favourite Animals.

Word/phrase	Percentage of respondents using the word or phrase to describe favourite animal
Beautiful	17.1
Intelligent	14.7
Large size	12.4
Beautiful colour	11.9
Powerful	11.2
Cute	11.2
Fluffy	11.1
Nice personality	10.4
Friendly	9.4
Graceful	9.4
Faithful/loyal	8.5
Serene	7.7
Magnificent	7.0
Playful	7.0
Cuddly	6.8
Movement	6.8
Unique	6.3
Interesting	6.3
Companionship	5.8
Easy to care for	4.2

respondents were referring to when using these words differ greatly in their characteristics. Table 7 shows the words that were used for the top 5 favourite animals. The words used to describe domestic animals have more familiar connotations (e.g., faithful, affectionate), while descriptions of wild animals are more aesthetic and admiring (e.g., beautiful, majestic).

Table 7: Describing Favourite Animals.

Favourite animals	Most frequent descriptive words used
Domestic dog	Faithful/loyal
	Companionship
	A friend
	Intelligent
	Affectionate
Big cats	Power
	Majestic/magnificent
	Colour
	Size-large
	Beauty
Dolphins	Intelligent
	Move
	Serene
	Beauty
	Playful
Birds	Colour
	Variety
	Ability to fly
	Beauty
	Sound/call
Koala	Cuddly
	Cute
	Colour
	Soft
Domestic cats	Independent
	Affectionate
	Soft
	Playful

Least favourite animals

Table 8 shows the 30 most frequently mentioned animals on respondents' least-favourite lists. As was the case for favourite animals, this table lists responses in the same format as they were written by respondents, and thus includes a mixture of individual species and groups of animals. While 12.2% of respondents did not list any least-favourite animals, snakes were disliked by over half of the respondents who listed a least-favourite animal. The presence of cane toads, crocodiles and box jellyfish high in the least-favourite list reflects the cultural bias of North Queenslanders. These species are well known and common to North Queensland, and are not

Table 8: Least Favourite Animals.

Rank	Animal	%
1	Snake	54.0
2	Spider	37.8
3	Cane toad	25.2
4	Cats	24.2
5	Crocodile	23.3
6	Sharks	16.0
7	Rats	15.0
8	Cockroach	12.6
9	Mosquito	10.2
10	Box jellyfish	6.4
11	Pigs	5.9
12	Insects (no species specified)	5.7
13	Birds (no species specified)	5.7
14	Hyena	5.1
15	Flies	4.7
16	Mice	4.5
17	Lizards	4.2
18	Frogs	4.2
19	Beetles	4.2
20	Leech	4.0
21	Feral pig	4.0
22	Dogs	3.8
23	Kangaroo	3.7
24	Bats	3.7
25	Ants	3.7
26	Gecko	3.3
27	Rabbit	3.0
28	Goats	3.0
29	Eels	2.8
30	Camels	2.3

*Percentages in Table 8 represent the percentage of respondents who identified the animal as one of their favourite animals.

found in many other parts of Australia or the world. Many of the animals listed were consistent with predictions based on previous research. However some animals, particularly domestic cats, crocodiles and sharks, appeared on both the most and least favourite lists.

When individual species are grouped into similar categories of animals (Table 9), insects, including spiders, were included in the least-favourite lists of 88.5% of respondents. The animal types grouped together are listed in parenthesis, and include respondents listing the general category (e.g., 'birds') as well as those specifying particular types (e.g., 'pigeons'). The exception is for insects, where the number of types of insects listed was too lengthy to be reported in the table, but included ants, bees, bugs, beetles, blowflies, cockroaches, centipedes, crickets, cicadas, flies, fleas, green ants, grasshoppers, horseflies, insects, lice, mosquitoes, moths, sandflies, sea-lice, stick insects, spiders, termites, ticks, wasps, dust mites, caterpillars, and head lice.

There were some differences for least-favourite animals depending on whether respondents resided in Australia or overseas. Table 10 shows the top 10 most frequently mentioned least-favourite animals for Australian and International

Table 9: Least Popular Groups of Animals.

Animal type	Percentage of respondents listing animal as one of least-favourites
Insects	88.5
Snakes	54.0
Cane toads	25.2
Domestic cats	24.2
Crocodiles	23.9
Rodents (rats, mice)	21.9
Domestic farm animals (cows, donkeys, goats, mules, pigs, sheep)	19.1
Birds (magpies, crows, pigeons)	16.7
Sharks	16.0
Lizards/reptiles (excluding snakes & crocodiles)	10.2
Feral animals (feral pigs, feral cats, feral goats)	8.2

respondents. Snakes and spiders were the least favourite animals, while Australian residents included the species such as cane toads and box jellyfish that are prevalent in North Queensland. As was the case for favourite animals, the multiple-response nature of the results precludes appropriate statistical analysis.

In total, respondents used over 120 words or phrases to describe their least favourite animals. The 20 most frequently used words or phrases are listed in Table 11. These words are consistent with some of the guidelines suggested by Kellert (1989), particularly with reference to people's aversion to animals that cause harm, those that are aesthetically unattractive, and those that are physically different to humans (e.g., creepy, slimy). Overall however, the dominant theme in

the words or phrases used to describe least- favourite animals was a concern over their potential danger or harm to humans.

Table 12 listed words that were most frequently used to describe least favourite animals. As was the case for favourite animals, the animals that respondents are referring to when using these words differ greatly in their characteristics. Table 12 shows the words that were used for the top 5 least favourite animals.

Discussion

Respondents had clear preferences for different animals. As predicted (Serpell, 1986), the animals at the top of the list were relatively tame, easy to anthropomorphise and mostly easy for humans to interact with. Domestic dogs were the most preferred animal, and many respondents used descriptions of their dogs which demonstrated the kind of strong affection that has been described in the companion animal literature (Sanders, 1993). Dogs are presented as affectionate and human-like in children's books and popular press (Herzog & Calvin, 1991), and these themes were reflected in respondents' descriptions. Dogs were described as loyal, faithful, a friend, intelligent and affectionate. They were spoken of in anthropomorphic terms, and

Table 10: Least-Favourite Animals for Domestic and International Residents.

Australian Residents		International Residents	
Animal	% of respondents selecting animal as a least favourite	Animal	% of respondents selecting animal as a least favourite
Snake	55.4	Snake	50.8
Spiders	36.8	Spiders	41.4
Cane toads	33.5	Rats	18.3
Crocodiles	28.8	Cats	16.2
Cats	27.4	Mosquitoes	14.1
Shark	20.5	Flying fox	11.5
Mice	14.0	Birds	9.4
Flying fox	12.8	Crocodiles	8.9
Box jellyfish	6.7	Bugs	6.3
Flies	6.6	Rabbits	5.8

Table 11: Words or Phrases Used to Describe Least-Favourite Animals.

Word/phrase	Percentage of respondents using the word or phrase to describe least favourite animal
Cause harm	24.3
Ugly	21.9
Dangerous	19.7
Dirty/unhygienic	13.5
Deadly/kills	11.8
Creepy	10.3
Detrimental impact on environment	8.8
A pest	7.7
Annoying	6.7
Cause allergies	5.6
Smell	5.0
Slimy	4.9
Damage things	4.1
Disgusting	3.8
Spread disease	3.6
Slippery	3.5
Boring	2.9
Feral	2.4
Useless/no useful value	2.1
Movement generally	2.0

as an important part of the lives of many respondents. Not surprisingly, domestic animals overall were considered favourites because of their companionship and ability to interact with humans. It appears that interaction is an important feature of human/animal relationships. This finding does not only apply to domestic animals, but can be generalised to other types of animals as well. For example, the desire to interact has been suggested as a motivating factor for visitors to feed wild animals in national parks (Moore, 1997), and for feeding and teasing zoo animals (Kreger & Mench, 1995).

The second most popular group of animals was big cats (i.e., tigers, lions and leopards), followed by dolphins. There was little overlap in the reasons given for liking these animals as each type of animal has different characteristics. However, many of the factors influencing preference as predicted by Kellert (1989) held true: preferred animals tended to have one or more of the following features:

they were larger, aesthetically attractive, considered intelligent, had a history of association with humans and/or were beneficial to humans.

Interestingly, there was also little difference between the favourite animals listed for Australian residents and the favourite animals for overseas residents. The top 10 animals were almost the same for international and domestic residents, although the order changed slightly. One would expect that overseas visitors would have their own list of favourite animals that were relevant to the country they live in. However, it appears that being in Australia places Australian animals foremost in the minds of overseas respondents, as kangaroos and koalas were listed as favourites. It may be that the situation or context has an impact on which animals are considered favourite.

Table 12: Describing Least Favourite Animals.

Least favourite animals	Most frequent descriptive words used
Insects	Creepy
	Dirty/unhygienic
	Cause harm to humans
	Ugly/unattractive
	Dangerous
Snakes	Poisonous/deadly
	Ugly
	Scary
	Dangerous
	Slimy
Cane toads	Ugly
	A pest
	Detrimental impact on wildlife/environment
	Poisonous
	Useless
Cats	Detrimental impact on wildlife/environment
	Can't be trained
	Dirty/unhygienic
	Unaffectionate/ unfriendly
	Annoying
Crocodiles	Ugly
	Dangerous
	Kills/deadly
	Aggressive
	Fear personal safety

The case of domestic cats is interesting, as they appear as the 4th most favourite animal, and the 4th least favourite animal. Respondents who were cat-advocates said they are affectionate, independent, playful and soft, while cat-opponents described cats as detrimental to wildlife, untrainable, unhygienic, unaffectionate and annoying. It seems that cats, like wolves, evoke strong emotions (Scarce, 1988, p.32):

You hate them or you love them. It's religious on both sides…

Snakes also appeared as the 17th most favourite animal, yet they were clearly the most disliked animal, and were mentioned as least favourite by over half the respondents. Crocodiles were the 5th most favourite animal, and they were also the 5th most disliked animal, supporting Ryan's (1988) study which suggested that crocodiles and possibly some other animals have an inverse appeal - they attract because they are dangerous and different from humans.

Aside from these animals, the list of least-favourite animals confirmed that invertebrates are almost universally disliked (Kellert, 1993), as insects were mentioned by 88.5% of respondents as a least-favourite animal. For most of the least-favourite animals, the reasons given for why they were disliked centred around them being a threat to human safety in terms of being dangerous, poisonous, or unhygienic. The second most common reason was that they were considered ugly. As with favourite animals, the list of least-favourite animals also appeared to be influenced by the location of the survey. Cane toads, for example, appear as the 3rd most disliked animal, and box jellyfish as the 10th most disliked animal, probably because they are particularly common in North Queensland where the study was conducted.

Overall, the results provide support for the idea that preference is based on a hierarchical ladder of worth, with animals most like humans at the top of the ladder (Arluke & Sanders, 1996). When looking at the list of animals themselves, this may appear to be contradictory, as animals such as dolphins and fish have little structural or other similarities to humans. However, analysis of the words used to describe these animals reveals anthropomorphic and human-like qualities that are admired in these animals, such as friendship, playfulness, serenity and aesthetic qualities such as beauty or being 'cute'. The charismatic vertebrates, which have features and exhibit behaviour that humans can understand or explain (Kellert, Black, Rush & Bath, 1995; Shackley, 1996) are preferred over other animals. Conversely, the least favourite animals are shown in this study to be those which are least like humans, are wild, unpredictable or dangerous (Arluke & Sanders, 1996). In terms of Ryan's (1988) (Figure 1) matrix for classifying animals, it appears that favourite animals are often animals that are in the "safe-human oriented" sector of the diagram. Even if they are not human oriented and are dangerous animals, the features that people are attracted to are those that are positive in a human context and pose no threat to humans. For example, the big cats (tigers, lions) are dangerous animals and not particularly human-oriented in their behaviour, habitat or association with humans. However, the reasons why these animals were listed as favourites do not include any aspects of danger, and focus on positive human-like qualities such as beauty, power and magnificence. Conversely, the least favourite animals have qualities that place them in the "dangerous-unhuman" quadrant. These include characteristics that may be represented by the terms creepy, slimy, dangerous,

unhygienic and ugly. Thus it is not the features of the animals themselves that influence preference so much as it is the perception of their features that is important.

Also apparent in the descriptions of favourite and least favourite animals was the anthropomorphic terms used to describe animals. The features we admire in animals, we also admire in people. Conversely, the features we don't like in animals, we tend not to like in people. Most descriptions are placed firmly in the context of the human-oriented world, as illustrated by the frequent comment that favourite animals had nice 'personalities'.

The reasons given for why respondents liked or disliked certain animals makes intuitive sense. The notion that dogs provide companionship, that koalas are cute, or that snakes are dangerous does not constitute surprising results. However, it is important to note that these

features mentioned by respondents are the ones that encourage people to take notice of the animals. The features are therefore a useful tool for interpretation and education, because they can provide a focus to attract visitors' attention. This is not only useful for the top 5 favourite animals, but for any animal that is the topic of interpretation. These are things that draw people's attention and can therefore be useful tools when trying to educate visitors. The descriptions used for least-favourite animals also illustrate misconceptions commonly held by people. For example, not all snakes are poisonous, deadly or dangerous, and no snake is slimy to touch, yet these were the words most frequently used to describe snakes. Education campaigns can therefore address these misconceptions and possibly reduce the level of dislike generated by incorrect information. Studies have shown (Morgan & Gramann, 1988) that attitudes toward animals such as snakes are unlikely to change by

Table 13: Factors which Influence Preference for Animals (modified from Kellert, 1989).

1. Size: Larger species are preferred over very small species.
2. Aesthetics: Animals considered 'attractive' are more preferred. Aesthetic attraction can be based on shape (e.g sleek), texture (e.g., fluffy, cuddly), colour (e.g., bright or contrasting) or movement (e.g., fast, athletic).
3. Intelligence: Animals considered to have capacity for reason, feeling and emotion are preferred.
4. Danger to humans: Animals that pose a perceived threat or danger to humans, through injury or poor hygiene, are generally disliked.
5. Likelihood of inflicting property damage: Animals that have a detrimental impact on property are disliked.
6. Predatory tendencies: unclear factor. Predators were on both the favourite and least-favourite animal lists.
7. Phylogenetic relatedness to humans: Animals that are perceived to have structural, behavioural or 'character' similarities to humans are liked.
8. Cultural and historical relationships to humans: Animals that play an important role in the history or culture of a geographic area are likely to be favourites in that area.
9. Relationship to human society: Animals that are pets, or useful to humans are likely to be considered favourably, while pest or feral animals are likely to be considered unfavourably.
10. Texture: Bodily appearance and structure: The more familiar to humans, the more preferred.
11. Geographic variations: Variations amongst species considered favourite or least-favourite are likely to occur across geographic regions, depending on particular species found in those areas.
12. Perceptions of characteristics can influence preference more than the actual characteristics of the animal.

mere exposure to snakes, however interpretation by a guide who handles and demonstrates the characteristics of the animal can improve attitudes. Thus an interpretive approach which combines correct information with an element of familiarity holds potential for changing negative attitudes.

The listings of favourite and least favourite animals support the idea that preferences vary according to time and culture, as suggested by Bart (1972). There were relatively few similarities between the listing of preferences between the present study, and that reported by Bart (1972) and Kellert (1989) in the United States. This could, in part, be due to the study region and animals prevalent in other countries. Another reason may be that the Bart (1972) and Kellert (1989) studies used researcher-generated rather than respondent-generated lists of animals. Futhermore, the methodologies used in the studies differed. Despite the difficulties associated with comparisons between the studies, the common finding was that domestic animals, birds and larger mammals were favourites, while insects and snakes were least-preferred.

Conclusions

The results of this study into preferences for animals provides a comparison and extension to the work of Bart (1972) and Kellert (1989). Asking respondents to state the reasons why they liked or disliked animals provided information to assist the understanding of factors important to preference, as suggested by Kellert (1989). The revised factors important to preference are listed in Table 13.

These findings may be applied in 5 main ways in tourism and recreation settings:

1. Understanding what visitors are attracted to, and repelled by, can be used to attract the attention of visitors in interpretive settings. Examples of topics include danger, beauty, or intelligence.

2. For least favourite animals, understanding why people dislike them can highlight misconceptions and inaccurate information. These misconceptions can provide a focus for education campaigns.

3. Understanding what visitors like about animals can assist wildlife tourism operators and wildlife parks to select and promote less-known animals. This may assist in dispersing visitors and reducing congestion around the most popular species.

4. Understanding which species are likely to be popular can assist places such as wildlife parks in their planning of infrastructure to accommodate visitor pressure.

5. Tourism operators and wildlife parks can emphasise the features of animals considered attractive to attract the attention of visitors in their marketing campaigns.

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