

# **The Effect of Multispecies Exhibits on Visitor Attention at The Jacksonville Zoological Park**

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## **Introduction**

A great deal of research has been undertaken examining visitor attention and behavior in zoo and museum settings (e.g., Koran, Koran, Foster, & Dierking, 1987; Bitgood, Patterson, & Benefield, 1986; Hage & Gennaro, 1987; Serrell, 1981; Shugart, 1980). This research tended to focus on visitor behavior as a function of social grouping at randomly chosen exhibits or visitor behavior as a function of exhibit characteristics. Bitgood et al (1986) identified ten specific exhibit characteristics that were determined to have significant effects upon the attracting and holding power of a particular exhibit. This paper is a report of a preliminary study that was carried out to examine the effects of multispecies exhibits in zoological parks on visitor attention and possible interactions between factors identified as affecting visitor behavior.

## **Materials and Methods**

The study was carried out at the Jacksonville Zoological Park in Jacksonville, Florida. Visitors to the zoo were unobtrusively observed as they approached and/or attended to ten different exhibits. These exhibits were characterized by the number of species held within the exhibit, the amount of activity within the exhibit and the degree of environmental complexity or landscaping (Table 1). All characterizations simply involved a high or low designation. Quantification of the degree of environmental complexity was used essentially to differentiate bare paddock-like enclosures that lacked trees, bushes and often grass, from enclosures that were landscaped or, in the case of the orangutans, were

complex on a three dimensional scale. Four of the ten exhibits monitored held more than one species: An African Veldt, two aviaries and a low-walled exhibit containing reptiles.

As visitors came within the proximity of an exhibit, they were categorized into three different age groups – 18 years and younger, 18 to 39 years and 40 years and older. It was then noted if they came into visual range of the animal or signs. If the visitor then observed the animals or read signs provided, they were coded as attending to the exhibit. Time spent at a particular exhibit was not monitored, as the design of the study would not allow the researchers to determine if any significant differences found in time spent at multispecies exhibits and single species exhibits were a function of some characteristics unique to multispecies exhibits or a cumulative function of attending to each species within the exhibit.

## Results and Discussion

An average of 52 percent of the visitors who approached an exhibit actively attended to the exhibit. This value was used to generate expected values that were used in Chi square analyses. No significant differences were found between observed and expected visitor attention behavior as a function of age, across exhibits ( $p > .05$ , Chi-Square; see Table 2).

Of the ten exhibits where visitor attention behaviors were monitored, only two of the exhibits showed any significant difference between observed and expected visitor attention rates (Table 3). The African veldt exhibit, housing primarily hoofstock, drew significantly higher levels of visitor attention than predicted ( $p > .05$ , Chi-Square).

Of the multispecies exhibits observed (the African veldt, the two aviaries and the reptile exhibit) only one exhibit drew a higher than average number of visitors. Two exhibits, the first aviary and the reptile exhibit, drew an expected number of visitors, and the second aviary attracted less than the expected number of visitors. A more detailed examination of each of these exhibits serves to explain or at least suggest reasons as to why the discrepancy in visitor behavior at multispecies exhibits may have occurred.

The two multispecies aviaries, holding the same number of species, similar in environmental complexity, and located side by side provided an interesting comparison. Both of the exhibits held relatively unfamiliar birds for the average visitor. These exhibits were environmentally complex, with a great deal of vegetation, small ponds and numerous hiding places. Signage provided with the exhibits used small print, had

over 50 words each, and did not provide a picture or description of the bird being discussed. The first bird exhibit drew approximately the expected number of visitors, while the second in the series drew significantly fewer attendees than expected. Lowered visitor attention at the second exhibit may be a function of difficulty in observing the birds due to complex environment, visitor perceptions of birds and poor exhibit labels which did not allow the visitor to relate the information with the animals in the exhibit. Abrahamson et al (1983) noted that birds have lower attracting value than mammals or reptiles. After noting at the first cage that the series of cages held birds, and frustrated in attempts to observe the birds or use information provided, the visitors may simply be skipping any following bird exhibits.

The reptile enclosure, approximately 25' x 15' surrounded by a low wall, drew approximately the predicted amount of visitor attention. This predicted level of attention is in contrast to the findings of Bitgood et al (1986) who reported high attracting power for two species of snakes. The Jacksonville Zoological Park exhibits examined in the current study held common local reptiles: gopher tortoises, alligators, and turtles (fresh water and box). As pointed out by the authors, reptiles studied by Bitgood et al (1986) were large snakes (reticulated python and boa constrictor), usually perceived by visitors as dangerous; whereas, in the current study, tortoises and turtles are viewed as posing little threat. Another possible reason for the lack of high attracting power in the current study was that exhibit labels were not present. It may be that the absence of labels which would provide some new information or novelty to a familiar animal decreased the attracting power of the exhibit.

The high levels of visitor attention at the veldt exhibit was surprising given in fact that, aside from a pair of ostrich, they held hoofstock, which in single species exhibits did not draw levels of visitor attention different than predicted. The results for the veldt are even more surprising given previous findings on the attracting and holding power of hoofstock. Bitgood et al (1986) in their discussion of factors influencing visitor behavior note that despite high levels of activity, relative size and perceived beauty or danger hoofstock have low attracting and holding power.

The veldt is a large exhibit, encompassing a number of acres. The exhibit consists of an elevated boardwalk over a simulated African veldt that terminates at a gazebo complete with refreshment center, picnic tables and shaded observation points. Signs are provided along the boardwalk with discussion of the animals held in the exhibit and pictures of the species of concern. High powered binoculars are also provided for visitor use. The ease in viewing the animal, quality exhibit labels and

the potential close proximity of the visitor relative to the animals held in the exhibit may contribute to the increased visitor attention. We believe that qualities of the exhibit and quality of animal activity versus quantity of the activity may account for a great deal of the exhibit's attracting power. Given the size of the enclosure and the number species contained within the enclosure, visitors could observe a great deal of inter- and intra-specific interactions and more free ranging behavior which is of a different quality than the frequently observed pacing of captive animals. Also, given the degree of landscaping and quality of animal activity, the exhibit may match visitor perceptions of what an African veldt looks like, as established by nature shows on television and other common visual media. This match between exhibit characteristics and visitor prior knowledge may increase the "validity" of the experience of observing the animals and subsequently increase the attracting power. Also, the presence of benches, a refreshment stand and shaded observation points may increase the attracting power as a relationship between time spent resting and duration of total visit has been noted (Shugart, 1980).

The potential of multispecies enclosures in providing a learning experience for visitors to zoological parks and as a means of effectively exhibiting animals that are of relatively low interest to visitors appears to be high. Increased curiosity and interest on the part of the visitor to the exhibit may offer a setting where a great deal of learning can occur. It would be of great interest to identify and examine further the variables unique to multispecies exhibits, the attracting and holding power of these exhibits and visitor perceptions of these exhibits, and learning at these exhibits.

## References

- Abrahamson, D.; Gennaro, E.; Heller, P. (1983). Animal exhibits: A naturalistic study. Museum Education Roundtable: Roundtable Reports, 8 (2).
- Bitgood, S.; Patterson, D.; Benefield, A. (1986). Understanding your visitors: Ten factors that influence visitor behavior. Technical Report #86-60, Jacksonville, AL: Psychology Institute, Jacksonville State University,. (Also in Proceedings of 1986 American Association of Zoological Parks and Aquariums, Minneapolis, MN.)
- Hage, S. R.; Gennaro, E. (1987). Analysis of verbal and postural communication of zoo visitors. Paper presented at the Annual Meeting of the National Association for Research in Science Teaching, Washington, DC.

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- Koran, J.J., Jr.; Koran, M. L.; Foster, J. S.; Dierking, L. D. (1988). Using psychological modeling to direct attention in a natural history museum. Curator 31(1), 36-42.
- Serrell, B. (1981). Researching visitor response to museum exhibit labels. American Association of Zoological Parks & Aquariums Regional Conference Proceedings. 261-275.
- Shugart, M. J. (1980). The Effect of Use of Visitor Facilities in Zoos on Duration and Intensity of Zoo Visits. American Association of Zoological Parks & Aquariums Regional Workshop Proceedings

**Table 1****Exhibits Monitored**

Type	Number of Species per Enclosure	Environmental Complexity/ Landscaping	Activity Level
Veldt	14	High	High
Reptiles	4	High	High
Birds	4	High	Low
Reptiles	1	High	Low
Orangutans	1	High	Low
Hoofstock	1	Low	Low
Elephant	1	Low	Low
Giraffe	1	Low	Low
Lion	1	Low	Low

**Table 2****Visitor Behavior as a Function of Age Group**

Group	Number Approaching	Observed Number Attended	Expected Number Attending
Children	235	135	122
Young Adults	186	86	97
Mature Adults	200	114	104

**Table 3**  
**Visitor Approach and Attending Behaviors**

Exhibit	Number of People Approaching	Observed Number Attending	Expected Number Attending
Veldt	121	91	63*
Birdcage	41	11	21*
Birdcage	51	21	26
Hoofstock	51	21	26
Gopher/Tortoise Pit	47	19	24
Reptile Pavilion	57	27	30
Giraffe	79	49	41
Lions	54	24	28
Orangutans	55	25	27

\* ( $p < .05$ , Chi-Square)