



DOI: <https://doi.org/10.54692/lgujls.2023.0701243>

Research Article

LGU J. Life. Sci

Vol 7 Issue 1 January - March 2023

ISSN 2519-9404

eISSN 2521-0130

## Evaluation of Zoological Gardens in Punjab in Public Education and Captive Wildlife Conservation

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**ABSTRACT:** *The evolution of methods for keeping wild animals in captivity can be traced back many centuries. The desire to keep animals in captivity for recreational purposes led to the development of several zoological parks after man adopted a more settled way of life. These zoos, aquariums, and other animal sanctuaries must now serve a more serious purpose, one that goes beyond entertainment. Around 700 million people visit zoos and aquariums each year, as reported by WAZA (World Association of Zoos and Aquariums). True zoos and aquariums provide special opportunities for local communities to get involved in protecting wildlife. In addition, zoological parks are widely acknowledged for the invaluable contributions they make to conservation and scientific study by means of the animals and plants in their living collections. This research was devised to evaluate the conservation and educational impact of the Lahore Zoological Gardens, the Bahawalpur Zoological Gardens, and the Marghazar Zoological Gardens. In general, the results showed that the Lahore Zoo was the best of the selected zoos. However, for a variety of reasons (including a lack of a zoo animal keeper training programme, poor record keeping, inbreeding, inadequate housing, inadequate veterinary care, an inadequate animal collection plan, the absence of an on-site animal nutritionist, and a lack of or improper public education and awareness programming), the Lahore Zoo did not meet WAZA standards so far.*

**Keyword:** *Captive wildlife , Zoological Gardens, Education, Conservation, WAZA*

## INTRODUCTION

Zoos and aquariums have evolved in recent times so that they can better serve as locations for wildlife control (Carr and Cohen, 2011). Today's zoos and aquariums serve a far broader purpose of educating the public and ensuring the well-being of exotic species. Although zoos had humble beginnings as animal exhibition halls and tourist attractions, they made great strides in the 1800s. Existing legislation protects wildlife and prioritises their well-being (Whitworth, 2012). Today's zoos and aquariums show the public a world that has been intentionally preserved for their safety. Zoos should display what gardens, parks, and cities could look like if steps were done to improve water quality by laying a green foundation, implementing good biological systems without disturbing species, and providing habitat for local, diverse flora.

The role of zoos in animal research and biodiversity conservation has grown in importance over the years, with many zoos now advocating for

comprehensive strategies to protect endangered species, such as the One Plan Approach (Minteer et al., 2013). By bringing together different types of conservationists (like field researchers, zookeepers, wildlife managers, and other veterinary specialists) This conservation technique in which zoos play a key role helps to bridge the gap between wild and captive population management to produce a unified planning tool for the preservation of species. Everyone who visits a zoo should understand that doing so helps save animals in their natural habitats. Local, provincial, and state governments are the primary actors in this context. The media and environmental organisations are also crucial players (Wagner et al., 2009).

The public's opinion of a zoo can be gauged by looking at how well it is known and respected, all of which are aspects of the institution's reputation. Reputation is a multifaceted concept, but by illuminating the most important variables that can have a negative impact on zoos' reputations, we can begin to discover strategies to improve

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it. In order to solve these pressing problems, zoos must advocate for more humane practices in animal care and management and work to increase the awareness of the significance of their mission among key constituents. The public's willingness to financially support zoos in the future as centers for biodiversity conservation and educational and entertaining venues for the environmental community will gain from this, as will the individual zoos themselves (Ajayi and Tichaawa, 2021).

Many kinds of people from all over the world flock to visit zoos. As a popular recreational destination, zoos play an important role in the lives of Pakistanis. Punjab Wildlife & Parks Department manages two of the province's three zoos—specifically, the Lahore Zoological Gardens and the Bahawalpur Zoological Gardens. Marghzar Zoological Gardens in Islamabad, which is managed by the Capital Development Authority (Capital Development Authority). Research is currently being conducted at these zoos. The Lahore Zoo, which

opened in 1872, is the world's first. (web.1). Located on a 25-acre plot of land, the Bahawalpur Zoological Gardens first opened to the public in 1942. It is well-known for its efforts to preserve and breed lions (web.2). Marghzar Zoo was established in 1978 and spans an area of 82 acres. It was originally created to provide protection and food for local spotted deer, leopards, and Indian gazelles. The World Association of Zoos and Aquariums (WAZA) has joined this international organisation (WAZA, 2005; 2022). Its membership includes more than 300 institutions from throughout the world, including aquariums, zoos, cooperation partners, and related organisations. Its primary goal is to facilitate coordination between zoos and aquariums around the globe in order to better protect, manage, and breed animals in captivity. In 2007 (Raja, CZA). Unfortunately, no zoos in Pakistan are part of WAZA, and the only Asian members are Dusit Zoo in Bangkok and Central Zoo Authority. This research was designed to assess the

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contribution of zoos in Punjab, Pakistan, to conservation and education in line with initiatives promoted by WAZA. As mentioned earlier WAZA promotes the highest standards of care for animals in human care, including the management of endangered species and proper husbandry. In the case of animal conservation and protection, Zoos in Pakistan should improve their animal care strategies and try to be at par with WAZA guidelines. This study would be helpful to highlight the shortcomings for a better future of Zoo exhibits. Important for future national and international cooperation, the results will be improved interlinking and the exchange of knowledge and skills among the selected zoos.

### **MATERIALS AND METHOD**

This project's study approach, based on a synthesis of literature, observations, precedent studies, and site analysis, aims to assess the contributions of various zoos to education and conservation in Punjab, Pakistan. As all of these techniques are tailored to the requirements of the researcher,

animals, and visitors, they are all good choices.

Different questionnaires (Spiriti et al.,2022). were created to evaluate how people felt about the zoo, the management, the veterinarian care, and other animal welfare/conservation/educational services.

### **i. Precedent Study Methods**

Educational programmes and design factors for animals, staff, and visitors in existing zoos were identified through a series of precedent studies. Analyzing relevant examples can shed light on problems, reveal avenues for improvement, and reveal hidden possibilities. It was attempted to use the WAZA's accreditation as a benchmark for researching antecedents for overall zoos and their educational programmes. Specifically, four examples were chosen that addressed the zoo's teaching programme, animal care, conservation efforts, and the overall experience of the zoo's visitors.

## **ii. Observation Methods**

To gauge how many people visited, how long they stayed, whether or not they read the exhibit's signage, and whether or not the animals in the exhibit were active, it was essential to conduct observations. The Lahore Zoological Gardens, the Bhawalpur Zoological Gardens, and the Marghazar Zoo also participated in preliminary observational research. It was vital to check out the path leading up to the viewing area, the enclosure, and how close guests may go to the animals before entering the viewing area. Visitor reactions to educational programmes and conservation of wildlife at the zoos were also documented.

## **iii. Interview Method**

Interviews with the directors, veterinarians, education officers and keepers of selected Zoos were conducted. The Table-1 details the results of the comprehensive education and conservation monitoring that followed the guidelines established by WAZA in 2005.

## **iv. Schedule of Interview with Visitors**

Between the months of June 2020 and August 2020, researchers at Lahore Zoo and those at Marghazar Zoo gathered data. In the same year, during September and October, the Bahawalpur Zoo was also visited for this reason. Every day, on the weekends, and especially on public holidays, visitors were handed a questionnaire to fill out. The primary objective was to gather the opinions of a diverse cross-section of the people. The opinions of several uneducated tourists were sought out through interviews.

## **v. Diet Plan Analysis**

Information on the animal food was gathered from zoo administration and veterinarians. Individuals at all three study locations provided their own feedback on the dietary regimens they were given. To ensure consistency in animal nutrition, the Lahore Zoo's feeding plan was used by all captive facilities. Many aspects of feeding schedules, diets, methods of food presentation and distribution,

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individual animal preferences, the introduction of novel objects, the cleanliness of feeding areas, and the design of enrichment plans and enclosures were all recorded. Food amount and quality were also evaluated.

## RESULTS AND DISCUSSION

One hundred surveys and interviews were conducted at each of the study sites. Figures 1a–1d provide a graphical representation of the feedback we received from our site users.

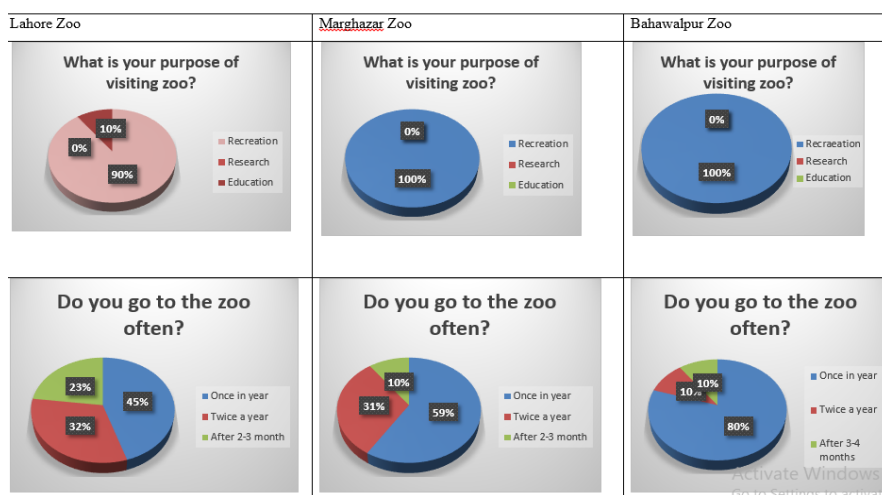


Fig. 1a. Results of survey conducted in different Zoos

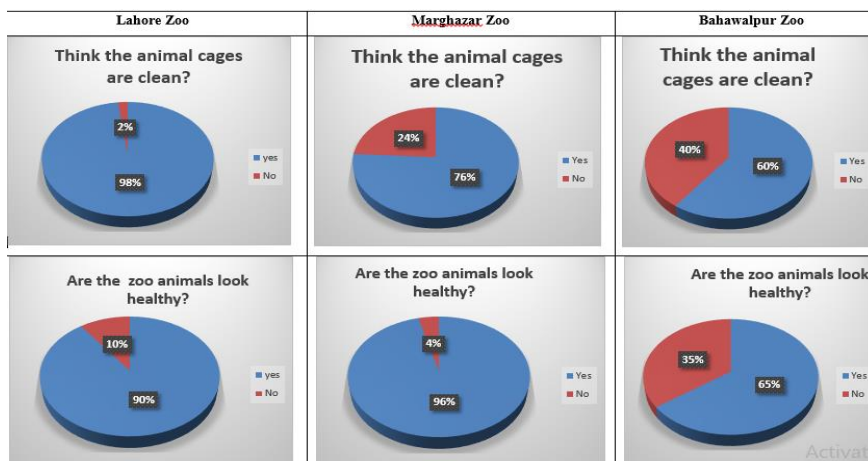


Fig. 1b. Results of survey conducted in different Zoos

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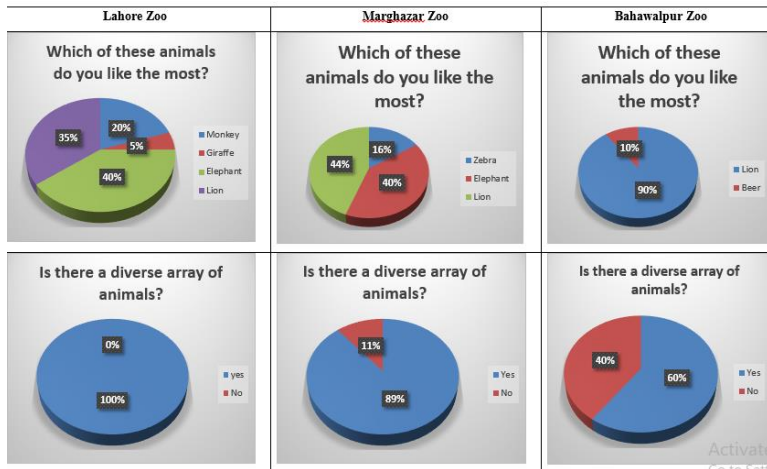


Fig. 1c. Results of survey conducted in different Zoos

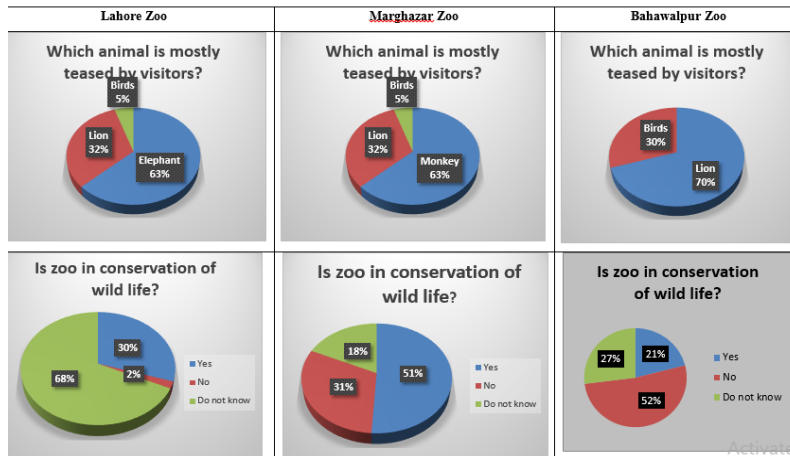


Fig. 1d. Results of survey conducted in different Zoos

Visitors' reactions were consistent with those reported by Hassan (2015). After comparing Lahore Zoo to other captive facilities, it was determined that it performed best in terms of conservation and education. The Lahore Zoo had superior accommodations for the animals. Two

other zoos were directly emulating its enclosure style and construction materials. When compared to other captive settings, Lahore Zoo performed exceptionally well in every category, including animal food, habitat design, and medical treatment. Also, Lahore zoo had superior

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veterinary facilities, and veterinarians are a crucial cog in the animal welfare wheel (Deem, 2007). Marghazar Zoo, however, provides a superior food for its animal residents. Bahawalpur Zoo's housing conditions were not unlike those of antiquated menageries, and as a result, animal health was severely impaired. Current research results also show that visitors prefer to contact with animals or like the animal facilities where they get chance interact with animal and note their behaviours this study is similar to findings of Ajayi & Tichaawa, 2021 who analysed the connections between zoo visitors' levels of contentment, their sense of attachment to the zoo, and their dedication to the institution. There were six major takeaways presented. To begin, only place social bonding (and not any of the other four sub-constructs of place attachment) was found to be significantly influenced by visitors' satisfaction. As gathering places (Smith et al., 2012; Ajayi, 2019), zoos provide opportunities for people to learn about and appreciate nature together. Groups of tourists

were seen learning, touring, and enjoying themselves while visiting the zoo, whereas solitary visitors actively sought out company.

As shown in figure 1-12 the 90% to 100% objective of zoo visit was recreational at all survey sites. The result about the question "which is your favourite animal" 90% and 44% people loved lions in Bahawalpur Zoo and Marghazar Zoo respectively while in Lahore Zoo 40% people still liked elephant and missing SUZI (Lahore Zoo old Female Elephant) these findings are in agreement with Carr, (2016).

Public survey results in the present study corroborate the previous conclusion that Lahore Zoo is more popular among tourists for recreational purposes than any of the other two zoos. People on their day off came here to have some fun. Simply put, a well-thought-out strategy for animal collection (Andrew and Maggie, 2010). The public has actually called for more animals, showing complete disregard for their well-being. Most people visiting the zoo had no idea of



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endangered animals, conservation, or the difference between in-situ and out-of-situ conservation. Nothing about them promotes conservation education or public interest in zoo displays (Carr and Cohen, 2011). The Lahore Zoo has a well-established education programme but the result reveals that the response of people about the question "Does the zoo provide visitors with information on how to save endangered species?. Many visitors intensely disagreed with the statement that zoos teach tourists about wildlife conservation. again the findings are in agreement with Ajayi and Tichaawa, (2021). In this case it recommended that the awareness activities of zoo should be promoted on social media for general public information.

As far as the question " how often you visit the zoo is concerned 80% of respondents at Bahawalpur Zoo said once in the year, more the half of visitors 59% at Marghazar Zoo also visited once in the year whereas, 45% visitors of Bhawalpur zoo visited once in the year as shown in the figure.

The Lahore zoo's administration also funds internships and research programmes in unique ways compared to other zoos. The finding of surveys suggested that people are unaware of the fact and it is not understandable this question that "Do zoos conduct research?" they did not show any definite view point. Interestingly, more than half of visitors(51%) at Marghazar Zoo said yes on question " Do you know that zoo involve in wildlife conservation projects?" whereas the only (30%) of Lahore Zoo-goers were agreed to it as shown in below Figures (1a-4d).

Only trustworthy zoos will have the visitors, community, and social

structures necessary to protect and educate about biodiversity. Because of this, it is crucial for zoo organisations and individual zoos to understand which aspects of their operations have the greatest potential to shape their reputations (Paxton et al., 2020). Indeed, such endeavours need a well-thought-out strategy for marketing and suitable commercialization. That, as noted by Ahmad et al., 2015, as well as

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others, would pique the public's attention, which would lead to the creation of finances to ensure the future of such activities. As compared to the other zoos considered, the

results showed that Lahore's was the best overall (Table 1), although it still fell short of WAZA's 2005 and 2022 requirements for a number of reasons.

**Table 1: Captive Animal Conservation**

Questions	Lahore Zoo		Marghazar Zoo		Bahawalpur Zoo	
	Yes	No	Yes	No	Yes	No
Have you, as a zoo administration, made any efforts to educate guests about animal welfare?	✓		✓		✓	
Is the zoo making any effort to ensure the animals have suitable living conditions?	✓		✓			✓
Is there any way to lessen the strain that tourists have on animals?	✓		✓			✓
Are the fences adequate for protecting the animals and the people who visit?	✓			✓	✓	
Is there a plan in place for a crisis?	✓		✓		✓	
Is the zoo letting visitors know which animals are ill or hurt?		✓		✓		✓
Does the zoo have a formal, approved master plan?	✓			✓		✓
Is the exhibit's container built to meet its biological needs?	✓		✓		✓	
Is there a facility where endangered animals are housed that was built without official permission?		✓		✓		✓

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How well the animals here are housed in accordance with their natural needs.		√		√		√
Is there a system in place to ensure that cooking equipment is regularly cleaned?	√		√		√	
Is there a system in place to ensure that cooking equipment is regularly cleaned?	√		√		√	
Feed offered to animals are according to nutritional requirement of animals?	√		√		√	
The feed given to animals meets their nutritional needs?	√		√		√	
Where can they go to get away, relax, and have babies?	√		√		√	
Is the substrate and plant life in the enclosure similar to what you would find in a more natural setting?	√		√		√	
Do you supply seasonal vitamin and mineral supplements to the animals?	√		√		√	

Lack of budget for education and awareness.

- Lack of trained human resources
- Lack of zoo animal keeper training programme
- Lack of record keeping
- Inbreeding problems
- Improper housing facilities
- Lack of veterinary care facilities
- Lack of animal enrichment plan

- Improper animal collection plan
- Lack of animal nutritionist at zoo
- Same animal ration scale for every zoo
- Lack of modern visitor facilities
- Lack or improper public education and awareness programme
- Zoos are meant for recreation and money generation rather than conservation and education.

## **CONCLUSION**

It was concluded on the basis of the current study that the major purpose of people visiting the zoo is entertainment but they also love to be part of animal base activities. Zoo is a family place and kids are the future ambassadors of wildlife and nature conservation among all selected zoos Lahore Zoo was much liked and in line with the aims and objectives of modern zoos. The Lahore Zoo can make its message more impactful if they share its zoo activities on social media to inform the public. Other zoos like Marghazar Zoo and Bahawalpur Zoo should improve their existing awareness and animal care programme for the betterment of captive wildlife.

## **ACKNOWLEDGEMENT**

The authors of the present investigations gratefully acknowledge Zoos management for their cooperation.

## **ETHICAL APPROVAL**

The study was approved by the intuitional ethical review committee.

## **CONFLICT OF INTEREST**

The authors declared no conflict of interest.

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