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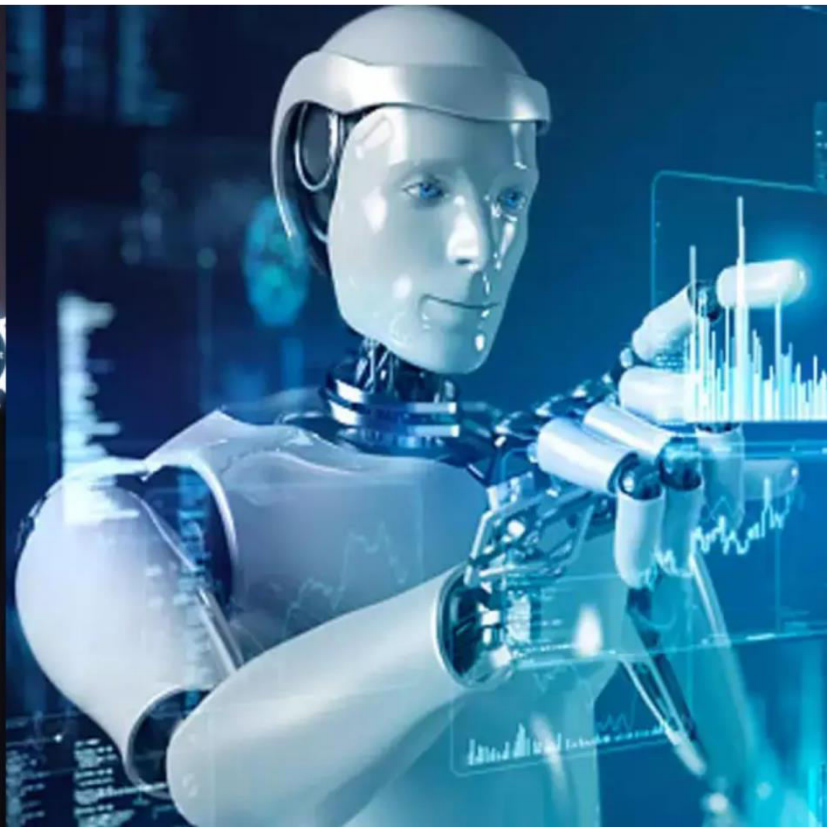

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Comparative Study on the Behaviour of Silver Pheasant (Lophura-nycthemera) and Kalij Pheasant (Lophura-leucomelanos)

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ABSTRACT: A comparative study of the Kalij Pheasant (Lophura leucomelanos) and the Silver Pheasant (Lophura nycthemera) explores the evolutionary biology of two closely related Asian gallopheasants. Both are highly sexually dimorphic forest-dwellers known for interspecific hybridization, yet they differ in geographical range, altitudinal distribution, and leg coloration.The present study was conducted to compare the behavioral patterns of Silver Pheasant and Kalij Pheasant maintained under captive conditions at Kanpur Zoological Park. The study was carried out for a period of one year with regular behavioral observations conducted twice a week during morning and afternoon sessions. The objective of the study was to evaluate differences and similarities in feeding behavior, locomotion, resting, social interaction, alertness, and enclosure utilization between the two pheasant species. Direct observational methods were used throughout the study period. The study revealed that the behavior of both species varied with changes in time and environmental factors. These findings improve understanding of species-specific adaptations in captive settings and may help zoos enhance animal care, management, and conservation efforts.

KEYWORDS: Comparative study, captive behaviour, pheasants, avian behaviour, zoological park, behavioural observation, captive management

I. INTRODUCTION

Pheasants belong to a family 'Phasianidae', order 'Galliformes' that includes some of the most beautiful birds in the world such as the Golden pheasant,Silver pheasant,kalij pheasant, etc famous in Chinese art, have delighted and benefited man for centuries but sadly many of them are today under threat as a result of his activities. There are forty-eight different species of pheasants. According to the IUCN. Red list of Threatened spp. Silver pheasant (Lophura-nycthemera)and Kalij pheasant(Lophura-leucomelanos) has long been popular with aviculturists, as they are fine looking birds which are handy and easy to keep under aviary conditions. There are fourteen recognised subspecies all bearing close similarities. Jean Delacour (1951) describes 15 subspecies in Pheasants of the world. The true silver pheasant is the largest of the subspecies and is found in southeastern China. The silver pheasant in one of the most well known and popular pheasant species in captivity. They are also well known in ancient Chinese art and poetry. They enjoy dustbathing during the morning time (Vestergaard 1999).

Behavioral studies play an important role in wildlife conservation, captive animal management, and welfare assessment. Birds maintained in zoological parks often show behavioral modifications due to enclosure conditions, feeding habit, visitor presence, and environmental factors. Understanding these behavioral responses helps improve captive care and species conservation programs.

The two species are very closely related and are separated by a well-documented phylogenetic divergence event. Molecular DNA analyses done by some sciencetists show that the genus Lophura has rapidly diverged into several species, resulting in incomplete reproductive isolation. The Silver Pheasant and Kalij Pheasant are closely related, highly sexually dimorphic birds belonging to the genus **Lophura**. While they differ in geographic distribution, habitat preference, and exact plumage, their evolutionary divergence is relatively recent, and they are even known to hybridize in areas where their ranges overlap.

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The most fascinating aspect of their comparative study is their overlap. Where the two species intersect (such as in parts of Yunnan, China, and Myanmar), they hybridize. This creates birds with mixed characteristics (e.g., a male Kalij with a white back, or a Silver Pheasant with a dark blue rump).

Kalij Pheasant is a medium-sized pheasant species commonly found in forested regions of the Indian subcontinent, while Silver Pheasant is known for its striking plumage and adaptability to captive conditions. Although both species belong to the same family, variations in activity patterns, social behavior, and environmental responses may occur under captive management.

The present research aimed to conduct a comparative behavioral study of these two pheasant species at Kanpur Zoological Park over a one-year period. The study focused on observing and comparing their daily behavioral activities under zoo conditions and under the observation of zoo staff..

II. OBJECTIVES OF THE STUDY

To observe the behavioural patterns of Kalij Pheasant and Silver Pheasant in captivity.
To compare feeding, resting, movement, and social behaviors between the two species.
To observe behavioural variations during morning and afternoon observation periods.
To understand the influence of captive environmental conditions on pheasant behavior.

III. MATERIALS AND METHODS

The study was conducted at Kanpur Zoological Park,Kanpur, Uttar Pradesh, India. The zoological park provides captive aviary facilities for several avian species, including pheasants.
The research work was carried out continuously for one year.

Study Species
The following species were selected for the study:
Kalij Pheasant
Silver Pheasant

Observation Schedule
Behavioral observations were conducted two days per week according to the following schedule:
Morning session: 8:00 AM to 2:00 PM
Afternoon session: 2:00 PM to 5:00 PM

Method of Observation
Direct observational technique were used during the study period. Behavioural activities were recorded by observing the birds within their cages(captivity) without disturbing their normal activities.Providing them food and water .
The following behavioral categories were observed:
Feeding behavior
Resting behavior
Locomotion and movement
Preening activity
Social interaction
Alert and defensive behavior

IV. RESULTS

Feeding Behaviour
Both pheasant species showed active feeding behavior during morning hours. Kalij Pheasant displayed comparatively higher ground-searching activity while feeding, whereas Silver Pheasant exhibited more controlled and selective feeding movements. Both forage for seeds, fruits, berries, bamboo shoots, insects, and small reptiles like worms and small snakes. Because both are heavily terrestrial, their diets naturally shift based on the season. During spring and

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summer, they consume a higher proportion of protein-rich insects to support breeding, shifting to a more plant-based diet in the winter.

The best pheasant food has a mixture of ingredients that provide the right amount of protein, necessary for the various growing stages of a pheasant. I had made food by mixing maize, wheat, soyabean, grain, groundnut cake, rice polishing, meat meal, lettuce, salt, minerals and vitamins. Maximum feeding was recorded in the month of November and February whereas minimum feeding was observed in June. It was also observed that bird feed on their own feces. The feeding behaviour of different species of pheasant was studied by different workers like Moreby (1993), Ohlsson (2001), Satyanarayan, M.C. (2006).

Breeding Behaviour

Both exhibit strong sexual dimorphism; males perform elaborate courtship displays using their fans, crests, and tails to attract females. All pheasants start laying at the end of the March or of beginning of April and continue-until around the end of May.

In Silver Pheasant the breeding season extends from late February to May. They are primarily polygynous, In which one male silver pheasant mates with several females.

In Kalij Pheasant the breeding takes place slightly later, generally from March through June. They exhibit flexible mating systems, showing both monogamy as well as and polygyny.

Females Silver pheasant lay a larger clutch of 6 to 15 eggs while female Kalij Pheasant lay a smaller clutch of 6 to 9 eggs.Wu Yi et al., 1996, reported that the number of eggs laid per brood of white eggs was between 6 and 9 am.

Incubation period in Silver Pheasant lasts approximately 23 to 28 days.The incubation period is slightly shorter in Kalij varying from 20 to 22 days. Yamak et al., 2016

Breeding behaviour of silver pheasant was studied by Saxena, et al. (2003). Different works on mate selection of pheasant were observed by different workers like Dowell et al. (1997).

Feature	Silver Pheasant	Kalij Pheasant
Diet	Herbivorous (mostly)	Omnivorous
Breeding	Polygynous	Mono + Polygynous
Eggs	6–9	Variable
Incubation	Seasonal	~20–22 days
Colour	Black & white (male)	Bluish-black (male)
Legs	Red	Grey

Locomotion and Resting Behaviour

The movement pattern of the Kalij pheasant was observed to be more active and rapid compared to the Silver pheasant. Increased locomotion was commonly recorded during early hours of the day in both species.

Resting activities increased significantly during afternoon hours. The Silver pheasant showed longer resting durations, while the Kalij pheasant remained comparatively more alert during resting periods.

Social and Housing Behaviour

Both species responded to environmental disturbances and visitor movement. However, the Kalij pheasant appeared more cautious and reactive, while the Silver pheasant demonstrated relatively calm behavior under captive conditions.

Preening and Maintenance Behavior

Regular preening behavior was observed in both species, particularly during low-activity periods. This behavior appeared associated with feather maintenance and comfort. They enjoy dustbathing during the morning time (Vestergaard 1999).

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V. DISCUSSION

In this study, we looked at feeding, breeding, egg laying, hatching success, on both the pheasant species in zoological garden ,Kanpur,UP,India.

The comparative study demonstrated noticeable behavioral differences between Kalij Pheasant and Silver Pheasant under captive conditions. Variations in movement, feeding responses, and alertness may be associated with species-specific temperament and adaptation to enclosure conditions.According to Sage et al. (2003) , Yamak et al.,(2016), the hatching period in pheasants is different in different species. Esen et al. (2010) examined the hatchability of ring-necked pheasants at different ages

Morning periods were characterized by increased activity levels, feeding, and locomotion in both species. Afternoon observations showed reduced movement and increased resting behavior, possibly influenced by temperature and reduced environmental stimulation.

Giudice, J. H.,et.al(2022) studied on behaviour of Ring-necked Pheasant (*Phasianus colchicus*), We found that captive pheasant species maintain distinct behavioral characteristics even under similar management conditions. Such studies are useful for improving enclosure design, feeding schedules, and behavioral enrichment programs in zoological parks. Yousufzai et al., 2023.studied on Status of captive wild animals in safari park, Malakand, Dir (Lower), Khyber Pakhtunkhwa, Pakistan.

VI. CONCLUSION

The present study successfully compared the behavioral patterns of Kalij Pheasant and Silver Pheasant at Kanpur Zoological Park over a period of one year. Both species exhibited differences in feeding behavior, locomotion, resting patterns, and alert responses under captive conditions.

The study highlights the importance of long-term behavioral monitoring for captive bird management and conservation planning. Understanding species-specific behavior can help improve animal welfare practices and environmental enrichment strategies within zoological institutions.

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