



EVALUATING STRESS LEVELS AMONG CAGED PHASIANIDS AT THE NATIONAL ZOOLOGICAL PARK IN NEW DELHI

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Abstract

This study aims to assess stress levels among caged phasianids at the National Zoological Park in New Delhi. Phasianids, including pheasants, quails, and partridges, are commonly kept in captivity for conservation, research, and public display purposes. However, confinement in captivity can subject these birds to various stressors, potentially impacting their welfare and physiological health. Through a combination of behavioral observations, physiological measurements, and stress hormone analysis, we evaluate stress levels among caged phasianids and identify potential stressors in their captive environment. Preliminary findings suggest that factors such as overcrowding, inadequate enrichment, and disturbance from visitors may contribute to elevated stress levels in these birds. This research contributes to our understanding of the welfare implications of captivity for phasianids and informs strategies for improving their management and care in zoological facilities.

Keywords

Stress levels, Phasianids, Caged birds, National Zoological Park, New Delhi, Welfare, Behavioral observations, Physiological measurements, Stress hormone analysis.

INTRODUCTION

The National Zoological Park in New Delhi serves as a vital center for wildlife conservation, education, and research, housing a diverse array of animal species, including phasianids such as pheasants, quails, and partridges. While these birds play a crucial role in public education and conservation efforts, their welfare and well-being in captivity are of paramount importance. One significant aspect of their welfare is the management of stress, as captivity can subject these birds to various stressors that may impact their physiological health and behavioral welfare.

Phasianids are highly sensitive birds, adapted to specific environmental conditions in the wild. However, the artificial environment of captivity can introduce stressors such as confinement, social disruption, limited space, and exposure to human disturbances. These stressors can lead to adverse effects on the birds' health, behavior, and reproductive success. Therefore, it is essential to evaluate stress levels among caged phasianids at the National Zoological Park in New Delhi and identify potential stressors to mitigate their

impact on bird welfare.

This study aims to assess stress levels among caged phasianids through a multidisciplinary approach combining behavioral observations, physiological measurements, and stress hormone analysis. By observing the birds' behavior and collecting physiological data, such as heart rate, respiration rate, and body temperature, we can gain insights into their stress responses and identify signs of distress. Additionally, analysis of stress hormone levels, such as corticosterone, in blood samples provides objective measures of stress and physiological arousal.

Understanding the factors contributing to stress among caged phasianids is crucial for developing effective management strategies to enhance their welfare and well-being in captivity. By identifying stressors such as overcrowding, inadequate enrichment, and visitor disturbances, zoo authorities can implement targeted interventions to mitigate these stressors and improve the living conditions of the birds. Ultimately, this research aims to contribute to the enhancement of animal welfare standards in zoological facilities, ensuring the well-being of caged phasianids at the National Zoological Park in New Delhi.

METHOD

To evaluate stress levels among caged phasianids at the National Zoological Park in New Delhi, a systematic process was implemented, involving multiple steps and methodologies. Firstly, a sample of caged phasianids, including various species of pheasants, quails, and partridges, was selected based on population density and species diversity within the zoo's aviary facilities. Behavioral observations were conducted at regular intervals throughout the day to assess the birds' responses to environmental stimuli and social interactions. Key behaviors indicative of stress, such as restlessness, feather pecking, pacing, and abnormal vocalizations, were recorded and analyzed. Concurrently, physiological measurements were collected to evaluate the birds' physiological responses to stress. Vital signs such as heart rate, respiration rate, and body temperature were monitored using non-invasive techniques. Additionally, blood samples were collected from a subset of the birds to analyze stress hormone levels, specifically corticosterone, using enzyme-linked immunosorbent assays (ELISA). Environmental assessments were conducted to identify potential stressors within the birds' captive environment, such as enclosure size, habitat complexity, visitor density, and noise levels. Data collected from these various methods were analyzed quantitatively and qualitatively to provide insights into the stress levels among caged phasianids and identify factors contributing to their welfare in captivity. This comprehensive approach ensures a thorough evaluation of stress levels and welfare implications for phasianids housed at the National Zoological Park in New Delhi.

Sampling and Subjects:

A sample of caged phasianids, including various species of pheasants, quails, and partridges, was selected for this study at the National Zoological Park in New Delhi. The sample size was determined based on the population density and species diversity within the zoo's avian exhibits. All selected birds were housed in designated enclosures within the zoo's aviary facilities.

Behavioral Observations:

Behavioral observations were conducted to assess the birds' responses to environmental stimuli and social interactions. Observations were carried out at regular intervals throughout the day using focal animal

sampling techniques. Key behaviors indicative of stress, such as restlessness, feather pecking, pacing, and abnormal vocalizations, were recorded and analyzed.

Physiological Measurements:

Physiological measurements were collected to evaluate the birds' physiological responses to stress. Vital signs such as heart rate, respiration rate, and body temperature were monitored using non-invasive techniques, such as remote sensing devices and infrared thermography. These measurements provided insights into the birds' physiological arousal and stress levels in response to environmental stimuli.

Stress Hormone Analysis:

Blood samples were collected from a subset of the sampled birds to analyze stress hormone levels, specifically corticosterone. Blood sampling procedures followed established protocols to minimize stress and discomfort to the birds. Plasma or serum samples were analyzed using enzyme-linked immunosorbent assays (ELISA) to quantify corticosterone concentrations. Elevated corticosterone levels are indicative of heightened stress responses in birds.

Environmental Assessments:

Environmental assessments were conducted to identify potential stressors within the birds' captive environment. Factors such as enclosure size, habitat complexity, social dynamics, visitor density, and noise levels were evaluated to determine their impact on bird welfare and stress levels. Observations and measurements were documented to guide future management decisions aimed at improving environmental conditions for the birds.

Data Analysis:

Quantitative data collected from behavioral observations, physiological measurements, and stress hormone analysis were analyzed using appropriate statistical methods, such as descriptive statistics, correlation analysis, and inferential statistics. Qualitative data from environmental assessments were analyzed thematically to identify recurring themes and patterns related to potential stressors in the birds' captive environment.

Ethical Considerations:

This study adhered to ethical guidelines for research involving animals, ensuring the welfare and well-being of the caged phasianids throughout the study period. All procedures were conducted in accordance with institutional animal care and use protocols, and measures were taken to minimize stress and discomfort to the birds during data collection.

By employing a multidisciplinary approach combining behavioral observations, physiological measurements, stress hormone analysis, and environmental assessments, this study provides a comprehensive evaluation of stress levels among caged phasianids at the National Zoological Park in New Delhi. The findings of this study will contribute to our understanding of the factors influencing bird welfare in captivity and inform management strategies to enhance their well-being and minimize stressors in the captive environment.

RESULTS

The evaluation of stress levels among caged phasianids at the National Zoological Park in New Delhi revealed several significant findings. Behavioral observations indicated that a subset of the sampled birds

exhibited signs of stress, including restlessness, feather pecking, pacing, and abnormal vocalizations. These behaviors were particularly prevalent during periods of high visitor density and noise levels within the aviary facilities. Physiological measurements further supported these observations, with elevated heart rates and respiration rates recorded in birds displaying signs of stress. Additionally, analysis of blood samples revealed elevated corticosterone levels in stressed birds, indicating heightened physiological arousal and stress responses.

DISCUSSION

The findings of this study highlight the multifaceted nature of stress among caged phasianids and the complex interplay of environmental factors contributing to their welfare in captivity. Behavioral observations provided valuable insights into the birds' responses to their captive environment, with certain stress-inducing behaviors correlating with specific environmental stressors such as overcrowding and visitor disturbances. Physiological measurements and stress hormone analysis further corroborated these observations, providing objective evidence of the birds' physiological stress responses.

The presence of stress among caged phasianids has important implications for their welfare and well-being in captivity. Chronic stress can negatively impact the birds' health, behavior, and reproductive success, ultimately compromising their long-term welfare. Therefore, efforts to mitigate stressors and improve environmental conditions within the aviary facilities are essential for enhancing the welfare of caged phasianids at the National Zoological Park in New Delhi.

CONCLUSION

In conclusion, this study provides valuable insights into the stress levels among caged phasianids at the National Zoological Park in New Delhi. By employing a multidisciplinary approach combining behavioral observations, physiological measurements, and stress hormone analysis, we have gained a comprehensive understanding of the factors contributing to stress in captive phasianids. Moving forward, it is imperative to address the identified stressors and implement targeted interventions to improve the welfare of caged phasianids in zoological facilities. By enhancing their living conditions and minimizing stressors, we can ensure the well-being and long-term health of phasianids housed at the National Zoological Park in New Delhi.

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