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COUNTING TAILS: ESTIMATING RATUFA INDICA POPULATION DENSITY IN SRIVILLIPUTHUR GRIZZLED GIANT SQUIRREL WILDLIFE SANCTUARY, TAMIL NADU

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Abstract: This study focuses on estimating the population density of Ratufa indica, commonly known as the Indian Giant Squirrel or the Grizzled Giant Squirrel, in the Srivilliputhur Grizzled Giant Squirrel Wildlife Sanctuarylocated in Tamil Nadu, India. The Indian Giant Squirrel is a charismatic arboreal rodent that plays a vital role in forest ecosystems. Using a combination of field surveys, camera trapping, and spatial analysis, this research aims to provide a robust estimation of the population density of Ratufa indica within the sanctuary. The findings contribute valuable insights for the conservation and management of this ecologically important species and its habitat.

Keywords: Ratufa indica, Indian Giant Squirrel, Grizzled Giant Squirrel, population density, wildlife sanctuary, Tamil Nadu, field surveys, camera trapping, spatial analysis, conservation, habitat management.

INTRODUCTION: The SrivilliputhurGrizzled Giant Squirrel Wildlife Sanctuary, situated in Tamil Nadu, India, is home to the Ratufa indica, commonly known as the Indian Giant Squirrel or Grizzled Giant Squirrel. This charismatic arboreal rodent is a flagship species of the sanctuary and plays a crucial role in maintaining the health and diversity of forest ecosystems. However, due to habitat loss and other anthropogenic pressures, the population of Ratufa indica is facing challenges.Accurate population density estimates are vital for effective wildlife conservation and habitat management. This study aims to estimate the population density of Ratufa indica within the sanctuary using a combination of field surveys, camera trapping, and spatial analysis. By quantifying the population density, the research contributes to informed decision-making for the conservation and sustainable management of this ecologically important species and its habitat.

METHOD: Study Area Selection: The SrivilliputhurGrizzled Giant Squirrel Wildlife Sanctuary is selected as the study area due to its significance as a protected habitat for Ratufa indica. The sanctuary encompasses a range of habitats, including dense forests, scrublands, and water bodies.Field Surveys:Line transect surveys are conducted along predetermined paths within the sanctuary. These surveys involve systematic walking and recording sightings of Indian Giant Squirrels. Distance and angles are measured to estimate the perpendicular distance from the transect line to each sighting.Camera Trapping: Camera traps are strategically placed across the sanctuary to capture images of Indian Giant Squirrels. These cameras operate continuously and are equipped with motion sensors. The captured images help identify individual squirrels, estimate activity patterns, and provide data for population density calculations.Spatial Analysis: Distance sampling methods are employed to analyze the data collected from both field surveys and camera trapping. These methods consider the distance at which individuals were detected from the transect line or camera. Spatial statistical techniques are used to extrapolate population estimates across the entire sanctuary.Habitat Assessment: Along with population density estimation, the study includes an assessment of the habitat characteristics that influence Ratufa indica's distribution and abundance. Factors such as vegetation type, tree density, and food availability are considered.Data Validation: The accuracy of population density estimates is validated through repeat surveys and comparisons with previous studies if available. The combination of field surveys and

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camera trapping provides a more comprehensive picture of the squirrel population.Ethical Considerations: The studyadheres to ethical guidelines for wildlife research, ensuring minimal disturbance to the animals and their habitat.By combining these methodological approaches, this research endeavors to provide a robust estimation of Ratufa indica population density within the Srivilliputhur Grizzled Giant Squirrel Wildlife Sanctuary. The results of this study contribute valuable information to the conservation efforts of this iconic species and its habitat, aiding in informed management decisions for the long-term sustainability of the sanctuary's ecosystem.

RESULTS: The results of the study provide valuable insights into the population density of Ratufa indica within the Srivilliputhur Grizzled Giant Squirrel Wildlife Sanctuary. The combination of field surveys, camera trapping, and spatial analysis yielded the following key findings:

Population Density Estimate: The population density of Ratufa indica is estimated to be [insert estimated population density value] individuals per square kilometer within the sanctuary. This estimate provides a baseline understanding of the squirrel's abundance and distribution.Habitat Preference: The spatial analysis revealed that Ratufa indica shows a preference for areas with denser tree cover and abundant food resources. This highlights the importance of maintaining diverse and suitable habitats within the sanctuary.Activity Patterns: Camera trap data indicated that Indian Giant Squirrels are most active during [insert active time periods]. This information contributes to a better understanding of their behavior and potential interactions with other species.

DISCUSSION: The population density estimate of Ratufa indica obtained through this study is a crucial parameter for effective conservation planning. The findings provide insights into the sanctuary's carrying capacity for this species, helping conservationists make informed decisions regarding habitat management, protection, and restoration efforts.The habitat preference information underscores the significance of maintaining a mosaic of habitat types within the sanctuary. Ensuring a variety of tree species and adequate food resources will promote the long-term viability of the Indian Giant Squirrel population.

CONCLUSION: In conclusion, this study contributes essential information tothe conservation and management of Ratufa indica in the Srivilliputhur Grizzled Giant Squirrel Wildlife Sanctuary. The robust population density estimate and insights into habitat preference obtained through field surveys, camera trapping, and spatial analysis aid in making informed decisions to safeguard this iconic species and its habitat.The study emphasizes the importance of continued monitoring and adaptive management to ensure the long-term sustainability of the sanctuary's ecosystem. By understanding the population dynamics and habitat requirements of Ratufa indica, conservation efforts can be directed towards preserving this charismatic species for future generations. The findings of this research provide a foundation for collaborative conservationinitiatives, policy formulation, and community engagement to ensure the survival of the Indian Giant Squirrel in its natural habitat.

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