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A case study on conflict between human and monkey at Chengalpet district, Tamil Nadu

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Abstract
Human-monkey conflict continue to be a prevalent issue in many regions worldwide. Monkeys, known for their adaptability and omnivorous diet, often come into conflict with humans due to various reasons such as habitat encroachment, agricultural damage, and urban expansion. Monkeys, while generally not aggressive toward humans unless threatened or provoked, can pose risks in certain situations, especially when cornered, startled, or defending their young. Monkeys to top the list of human wildlife conflicts although they do not cause human death. But they will cause serious injury to humans by means of biting. Hence a case study was conducted at the Chengalpet district in Tamil Nadu to understand the extent of damage caused by monkey to the farmers and their families in agriculture. This study confirmed that burning crackers, providing training by the foresters to the public about the do's and don'ts in the monkey conflict areas might reduce the human-monkey conflict. Mitigating human-monkey conflicts involves employing a combination of strategies aimed at reducing negative interactions and fostering coexistence.

Keywords: Human-monkey conflict, habitat loss, solar fencing, crackers, omnivorous, training

1. Introduction
Human-wildlife conflict refers to situations where there is a negative interaction or clash between humans and wild animals, often occurring when the interests or activities of humans intersect with the natural behaviors or habitats of wildlife. These conflicts arise when the needs of humans and wildlife come into conflict, leading to detrimental outcomes for both parties and their respective environments. Human-wildlife conflict arises when human and wildlife species come under the same niche leading to competition for available natural resources (Gharti Magar, 2023) [2]. Among various human-wildlife conflicts, human-monkey conflicts are prevalent issue in various regions worldwide, including Tamil Nadu, India. Human-monkey conflicts are complex and multifaceted, requiring interdisciplinary approaches involving wildlife experts, conservationists, local communities, and governmental bodies to find sustainable solutions that benefit both humans and monkeys while ensuring the conservation of these important species. The expansion of urban areas and agricultural lands continues to encroach upon the natural habitats of monkeys, forcing them to seek food and shelter in human-occupied spaces. Primates from almost all families have been identified as crop-raiders although species differ in their ability to cope with encroaching human settlement (Mariadoss *et al*., 2019) [5]. Crop raiding by wild animals is increasingly known to cause conflict between these animals and humans (Senthilkumar *et al*, 2016 & Tsuji *et al*., 2021) [6, 7]. The situation can vary significantly from region to region, with some areas implementing successful strategies to manage and reduce conflicts, while challenges persist in others. In Tamil Nadu, conflicts between humans and monkeys have been reported in rural, suburban, and sometimes urban areas where these animals venture in search of food and habitat. Monkeys, especially species like macaques and baboons, frequently raid agricultural fields for food, leading to significant economic losses for farmers and exacerbating conflicts. Hence a study was undertaken to find out the strategies followed by the local farmer to mitigate Human-monkey conflict and also how he cope up with the present trend of monkey intrusion into his area.

2. Materials and Methods

The study was conducted at the Thiruporur Block of Chengalpet District in Tamil Nadu. This district is purposefully selected for study as it showed higher human monkey interactions. The study area has a resident population of Bonnet Macaques (*Macaca radiata*), a species that suffers continuous loss of its forest habitats. The monkeys have adapted to human foods, resulting in raiding and conflict. In this district, an individual who was injured by monkey attack was interviewed to get an idea about how she escaped from monkey bite.

3. Results and Discussion

Tmt. K. Dhanalakshmi aged about 40 years residing at Sembakkam village, Thiruporur block of Chengalpet district had completed her secondary education. Animal husbandry was her secondary source of income.

Monkey conflict is widely prevalent in this village since it is adjacent to the reserve forest area. Almost all the villagers face the monkey menace in this village. The monkeys entered as small to large groups into the village and threaten people. Women and children face lot of problems due to wild monkeys and they fear to go out of their house. Similar result was recorded by Devi *et al*., (2008) [1] children returning to their home after purchase of groceries, food items in plastic bags from nearby shops were frightened by the monkeys by snatching the items. Women, after purchasing household things from nearby shops, had to bring the procured items home safely by hiding them with the hem of the saree. The monkeys entered into the house and grab all the food items, damaged the kitchen vessels with cooked food items, vegetables and fruits. Most respondents (87%) of Anamalai Hills, Western Ghats, Southern India believed that macaques visited houses in search of food and garbage (Jeganathan *et al*., 2018) [4]. Sometimes it damaged the fruit trees in the garden such as guava, sapota, coconut etc., by eating away all the fruits and damage the tree twigs. Similar effect was noticed among fruit trees in residential areas of The University of Lagos, Nigeria (Olaleru *et al*., 2023) [3]. Monkeys often bite the children and woman. The farmer from the Sembakkam village was bitten by the monkey once for which she had spent around Rs. 5000/- in the nearby private hospital.

Deforestation, urban expansion, and agricultural development can encroach upon the natural habitats of monkeys, pushing them to seek food and shelter in human settlements. Monkeys are curious creatures and may venture into human habitats out of curiosity, especially if they perceive potential sources of food or interesting items. Monkeys might associate human settlements with easily accessible food, such as crops, fruits in gardens, or garbage, leading them to frequent these areas for sustenance. Intentional or unintentional feeding by humans can habituate monkeys to associate humans with a food source, encouraging them to return to these areas.

4. Mitigation strategies suggested by the farmer

- Monkeys traditionally being worshipped as “Hanumaan”, people think it as a sacred animal. Hence it may be caught and released in the dense reserve forest area without harming them in order to safeguard the public from monkey menace.
- Burning crackers threaten and drive away the monkeys in groups.
- Monkeys could be chased away from the conflict area using sling shots with stones, poles *etc*.,
- Female monkeys might be caught and sterilised so as to reduce the proliferation of monkey population which in turn control monkey menace.
- Forest officials should be alert in the conflict area in order to avoid the disasters caused by the monkeys in groups. Training should be arranged by the foresters to the public about the do’s and don’ts in the monkey conflict areas.

Lighting firecrackers was the most common method used by the residents (99%) to deter monkeys, whereas electric barriers were rarely used (4%) among the residents of Sri Lanka (Wijethilaka *et al*, 2021) [8]. Employing non-lethal methods such as relocation, translocation, and the use of trained individuals or dogs to deter monkeys can help manage their populations without resorting to harm. Continuous research into monkey behavior and the development of innovative technologies like drones, sensor-based deterrents, or GPS tracking can aid in monitoring and managing monkey populations effectively. Collaboration among governmental agencies, non-governmental organizations (NGOs), local communities, researchers, and conservationists is vital for the success of conflict mitigation efforts. Human-monkey conflicts are complex and vary based on specific geographical, ecological, and social factors. Hence, a combination of these strategies, tailored to the unique context of each situation, is often necessary to effectively mitigate conflicts and promote harmonious coexistence between humans and monkeys. Efforts to educate local communities about the importance of preserving natural habitats, responsible waste management, and adopting non-confrontational approaches towards monkeys continue to be crucial in mitigating conflicts.

5. Conclusion

The common reasons for the intrusion of monkey into human habitat include habitat loss, food scarcity, curiosity and exploration, easy access to food, loss of natural predators and feeding by humans. This case study confirmed that burning crackers might help to mitigate the loss created by monkey to some extent. Other strategies include providing training by the foresters to the public about the do’s and don’ts in the monkey conflict areas and chasing monkeys using sling shots with stones. Mitigation of human-wildlife conflicts is a multifaceted challenge that requires collaboration among government agencies, conservationists, researchers, and local communities. Addressing the intrusion of monkeys into human habitats often involves a combination of strategies such as habitat conservation, implementing deterrents, creating buffer zones, providing alternative food sources, and educating communities about coexisting with wildlife.

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