

# Crop Raiding by Asian Elephants and Strategic Management Plans to Reduce Conflicts

Keny J Newport\*

Department of Zoology and Applied Biosciences, Loyala College, Tamil Nadu, India

\*Corresponding author: Keny J Newport, Department of Zoology And Applied Biosciences, Loyala College, Tamil Nadu, India; E-mail: kenynewport@gmail.com

Received date: November 02, 2021; Accepted date: November 16, 2021; Published date: November 23, 2021

Citation: Newport JK (2021) Crop Raiding by Asian Elephants and Strategic Management Plans to Reduce Conflicts. J Anim Sci Livest Prod Vol.5 No. 6:003.

## Abstract

The growing demand for land for agriculture and development due to population growth has historically reduced the elephant's vast natural habitat. Coconut, rice, areca, bananas, and planted bamboo are the crops which are most susceptible to elephant attacks. Now, managing conflicts between elephants and people has become a top priority. Strategic planning at the landscape level directly addresses latent human factors and their spatial-temporal variation. We suggest that just as wildlife needs are measured and modeled to improve conservation management planning, information about cultural values, norms, and related decision-making can be obtained.

**Keywords:** Habitat; Crops; Forest reserves

## Introduction

The raiding of crops by elephants has become a major concern in all forest reserves and biosphere reserves. Conflict management includes a holistic approach to grow valuable fodder and fodder with elephants in elephant habitats, planting non-elephant preferred fodder crops on farmland, and measures to protect crops by engaging farmer communities to reduce conflict with elephants. Human-elephant conflict is a major conservation issue in elephant amusing countries. Various management strategies have been developed and implemented at different scales to prevent and minimize conflict between humans and elephants. However, human-elephant conflict remains widespread as most current containment strategies are driven by site-specific factors that offer only short-term solutions, while mitigation strategies often transfer the risk of conflict from one place to another. Here, we review current strategies for conflict management with human elephants and describe an interdisciplinary conceptual approach to managing kinds coexistence in the long term. Our proposed model identifies the use of shared resources between humans and elephants at different spatial and temporal scales to develop long-term solutions. The model also emphasizes the reasons for crop raiding by elephants to find lasting solutions to the

management of human-elephant conflicts. In this article, we highlight the various costs associated with human-elephant conflict and discuss the management plans to reduce crop raiding by elephants and human conflicts. Finally, we propose a model to guide future research that supports long-term solutions to sustainable land management decisions and promotes peaceful coexistence of humans and elephants.

## Case Presentation

### Observations and reasons for crop raiding by elephants

It has been observed that the villages bordering moist deciduous forests, dry deciduous forests, and thorn forests with farm lands are frequently raided by elephants. The main reason for crop raiding in these zones is a lack of food in the forests. Due to food shortages, elephants raid farm lands for their source of food. Being large animals, they range over large areas to meet their requirements for food, water, and shelter. Elephants also trample some crops when they are feeding.

It has remained experimental that elephants do not raid more frequently in thorn forest areas and also that all elephants in a particular area do not raid crops near the villages; whereas, it has been observed that only some elephants (specific clans and males) raid crops while others do not raid. Studies have revealed that only certain males and females of some species raid crops in farmlands [1]. It has also been observed that among raiding and non-raiding clans, some males have overlapping home ranges and can operate in the same general habitat, though they space themselves out so as to avoid direct competition.

Studies show that the open forest area has the lowest frequency of sorties and the lowest damage. The males do not have a clear pattern of raiding. Habitat loss does not appear to influence males the way it does females. The distribution of females is likely to influence males more than the habitat. It has been concluded that elephants raid crops out of necessity and not as a part of their optimal foraging strategy. The need is due to part of their home range being lost or degraded to the point where the resources within are not sufficient to support them.

It has been observed that males are responsible for greater per capita damage, whereas females are responsible for greater

total damage. The sex ratio of males should also be taken into consideration, as in many herds, the number of males is much lower than the female elephants.

### Crop protection measures by the farmers

The most commonly used methods are fire crackers, the beating of drums to chase crop raiding elephants and night vigilance. Other methods included are the use of chillie smoke, high powered hand-held torches, solar/electric fencing, trenches, lightning of fires, lanterns or electric lamps along the farm boundary, and putting household phenolic disinfectants or kerosene along the farm boundary [2].

According to studies, ordinary fencing with guarding and special protection was far more effective in controlling elephant crop raiding. The effectiveness of the electric fences was significantly less than expected due to the poor maintenance of these electric fences. Also, firing crackers will be harmful to wild elephants and trenching will result in accidents severely injuring the elephants, as shown in **Figure 1**.



**Figure 1:** Elephants at the campus areas.

## Results and Discussion

### Holistic management plans to reduce crop raiding by elephants and human conflicts

For effective management of conflicts, we have to identify the raiding elephants (particular clans) before any capture is carried out. As male elephants give more priority to females than the habitat, restoring the female within the habitat should be given priority. For this, the behavior pattern of females should be studied intensively to restore them in specific habitats and also to reduce the female elephant's greater contribution to crop damage [3].

Protection of existing habitats by involving forest dwellers in control of felling of trees and plantation of fruit-bearing trees and fodder grass as a food source for elephants. Desolation of existing rivulets and streams, construction of checking dams and shallow farm ponds as regular sources of water for elephants, and also recharging ground water so that the elephants can find water for drinking and to cool their bodies during the summer within the elephant habitat.

Changes in cropping pattern to avoid crop raiding like planting turmeric, ginger, and black pepper, which is non-palatable, crops with higher market value. Forest dwellers should be made aware

of this change in cropping pattern to avoid elephant raids on farms and to sustain the livelihoods of the farming community. On the other hand, as previously mentioned, fruit trees and fodder are to be promoted as a joint venture by forest dwellers and forest officials in the elephant habitat as the source of food for elephants [4].

The elderly female in a clan decides the path for each season as they have inculcated a habit in their minds over a period of time in search of food (National Geography). This is also a reason for crop raiding by a particular clan, as they know the farmers' cropping pattern. If we provide food, fodder, and water within the elephant habitat, there is a greater chance of the raiding clans staying in their habitat, thereby reducing conflicts.

Local fencing with guarding during crop season is the safe and effective method when compared to electric fencing that will be expensive and trenching that will end up in accidents for the elephants [5]. Many forest dwellers will lack land documents due to encroachment or opklack of records. Considering the year of practicing farming activities on the land, the government should give proof of land area and a special survey number for providing compensation.

Proper assessment and government compensation should be planned by involving the forest dwellers. Plantations and crops within patta lands should be insured with a special insurance package that covers the actual loss from crop damage. For felling of trees (coconut trees or areca palm), the time from the year of felling to the span of the tree should be calculated considering the yield, and the insurance company should give full compensation for the span of the tree. For seasonal crops, a special compensation package should be given considering the area of cultivation, yield, and market price of the yield for that season. Because crop raiding incidents are visible, real, and unavoidable, legal formalities and documentation processes should be kept to a minimum [6].

The government should have a special policy for the premium amount of crops to be paid by the government to the insurance companies as it will reduce the financial burden on the forest farming communities. Also, the insurance coverage should include all the crops practiced by the forest dwellers, as at present, bamboo cultivation is not covered under compensation.

Women's empowerment should be planned by involving NGOs to train and make women producers to generate alternate income for the family. Farm-based producer cooperatives should be planned for alternate crops like turmeric and pepper/ginger to get a better income. Community storage facilities with traditional methods can be planned for better bargaining.

## Conclusion

Strategic planning to control crop raiding should be three-fold, the forest dwellers, the forest department, and government policies. Forest dwellers should be made aware of the felling of trees in elephant habitat, the promotion of fruit trees and fodder grass, and the restoration of water holes. Also, they should be educated about alternate crops that are not pleasant

to elephants for their income. Forest dwellers should be made aware of this crude method of driving elephants to protect their crops by adopting a natural method of fencing and guarding. The women should be trained in alternate income generation activities and should be involved in women's groups. Farmers should have producer cooperatives for better bargaining for their crop yields.

The Forest department should allocate funds for the protection of trees by forming youth groups, promotion of fruit trees and monitoring the growth of fruit plants, promotion of fodder by community management and also restoration of water sources. These activities will provide income for the forest dwellers and also involve efforts to revive the elephant habitat. Also, the Forest department should provide farm records as proof of farmers' ability to avail insurance claims easily if raided by elephants. Also, the Forest department should document the crops practiced by farmers and should have a detailed list for compensation.

Government policies on crop insurance should be re-worked considering the real long-term loss of trees like coconut and areca palm and also the crop yield in a particular season. There should be a separate package of premiums paid by the government and compensation to be covered by insurance companies. The government can promote a separate department to deal with the compensation for crop raiding. That should be simple, easy, and effective for the forest dwellers.

## Acknowledgement

We would like than the editor and anonyms reviewers for the supportive comments and suggestion.

## Conflict of Interest

None declared

## Reference

1. Balasubramanian MN, Baskaran S, Swaminathan, Desai AA (1995) Crop raiding by Asian elephants (*Elephas maximus*) in the Nilgiri biosphere reserve, South India. *Elephants* 1: 350-367.
2. Patil, Milind D, Vinayak K (2017) Farmers' perceptions about elephant crop raiding in Sindhudurg District, Maharashtra, India. *Gajah* 47: 4-9.
3. Phumkrachai B, Vasasiri H, Samart P, Kongboonkeaw F, Unger F, et al. (2013) Hygienic practices, knowledge and perception on food safety and quality assurance systems in poultry slaughterhouses and slaughter poultry market in Yogyakarta, Indonesia. *Asia Pac J Public Health* 1: 1-6.
4. Ali AA, Hafeez AA, Abdalla MA (2007) Prevalence of bacterial contamination of public health concern on bovine carcasses at khartoum state, sudan. *SUST Repost* 8: 1-62.
5. Tompkin RB (1994) HACCP in the animal industry. *Food Control* 5: 153-161.
6. Abdalla MA, Suleiman SE, Bakheit AO (2008) Elephant rise and protection of the crops. *Sudan J Vet Sci Anim Husb* 8: 126-136.