



AMBIENT APPRAISAL

Intensity of Human Wild Boar Conflict with Special Reference to Agriculture in Kanamala Forest Fringes, Western Ghats Kerala, India

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Study Area: , India

Coordinates: 9°25'20"N 76°56'10"E

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Abstract

Conflicts between humans and wildlife have existed since the birth of humanity. However, in many locations, these conflicts have worsened during recent decades. Wild boar is one of the species that come into conflict with humans who inhabit near forest fringes. The intensity and crop-raiding pattern of wild boar in the Kanamala forest fringes of the Western Ghats are considered for the study. Various cultivations in the Kanamala region with special reference to wild boar food preference are elucidated with the help of statistical tools. Fifteen crop species were cultivated in various parts of the Kanamala forest station. Of those, thirteen crop species are under threat of crop depredation. Nine crop species were vulnerable to wild boar attacks.

Introduction:

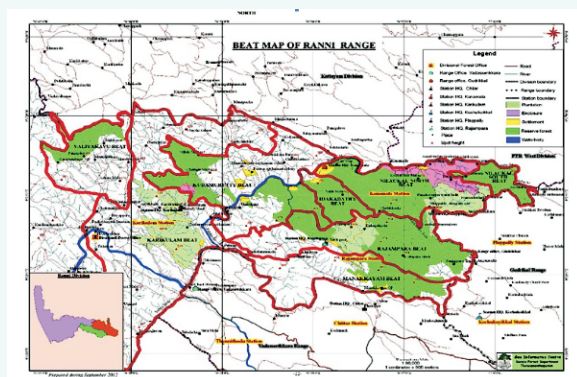
It has been established that the conversion of natural habitats, encroachment on wildlife habitats, and fragmentation of the forests are the fundamental causes of human-wildlife conflict (HWC) (Romañach, 2007). Human-wildlife conflict appears to be increasing in many countries in recent years. Wildlife is forced to enter agriculture fields and prey on livestock due to habitat degradation and a lack of food resources within the forests (Treves & Karanth, 2003). When the requirements of humans and wildlife overlap, human-wildlife conflicts occur (Karlsson & Johansson, 2010). HWC is a 'wicked problem' due to its complexity, as various parties with varied backgrounds and purposes interact at multiple scales within an ever-changing, wider socio-ecological system. In numerous spaces, the extension of the human population, the transformation of land regions, infringing on wildlife environments, formative exercises close to the negligible regions, and the discontinuity of the woods are the central reasons for conflicts (Sharma *et al.*, 2011). Destruction and damage to property and infrastructure, livestock depredation, and transfer of domestic animal diseases such as foot and mouth disease can all impact humans economically. Some negative social consequences are missing school and work, increased labour costs, loss of sleep, fear, travel restrictions, and pet loss. Earlier studies in Kerala focussed on the issues of HWC in and around various

wildlife sanctuaries in Kerala. The studies reported on the HWC issues in Wayanad Wildlife Sanctuary (Easa & Sanker, 2001), human-wildlife interactions in Peppara Wildlife Sanctuary (Jayson & Christopher, 2008), and Marayur forest range (Veeramani *et al.*, 2008). From the studies, it is clear that site-specific studies are required for proposing effective mitigation measures. The current study is a naïve attempt to explore the human wild boar conflict in the Kanamala forest fringes in the Western Ghats of Kerala part.

Methodology:

Study area descriptions: The Kanamala Forest Section is located within the administrative boundaries of the Ranni Forest Division in the state of Kerala in the Pathanamthitta district. The vegetation is predominantly wet deciduous. The region is home to a variety of animal species, including *Sus scrofa*, *Elephas Maximus*, *Bos gaurus*, *Rusa unicolor*, *Hystrix indica*, and *Bonnet macaques*. The region is drained by the Pampa River, one of Kerala's major rivers. The forest is devoid of human settlement. However, a dense population survives in the periphery. Though rubber is the primary cash crop in the area, a mixed crop production pattern prevails in the region. The information was gathered using both primary and secondary sources. Household questionnaires, interviews, and field observations were used to gather primary data. People were asked to fill out questionnaires so that information could be gathered about what caused

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Map-1: showing Kanamala Forest Station of Kerala

human-wildlife conflicts, what kind of conflicts there were, and what management and mitigation strategies could be used to reduce conflicts in the area.

Methodology: Interviews were conducted with the local communities to learn more about the nature of human-wildlife conflict and human-wildlife coexistence. Field observation was mostly used to confirm the respondent's responses to acquire correct and reliable data during field observation. The secondary data was used to support the original data to make the research more dependable and obtain objective data. Data from books, internet searches, libraries, journals, progress reports, the Park office, and publications are examples of secondary data gathering sources. Simple descriptive (qualitative) and quantitative (numerical) methods were used to analyse the data. The data from the survey questionnaire, interview, and field observation were used to interpret the results of the study. Simple descriptive statistics, such as the mean percentage, were used to look at the data, and the results were shown in tables, charts, pictures, percentages, graphs, and other diagrams.

Results:

Crop damage was assessed by counting the number of plants damaged. This assessment was done for perennial and cash crops such as *Cocos nucifera*, *Areca catechu* and *Hevea brasiliensis*. Seasonally cultivated crops such as *Musa paradisiaca* and other crops such as *Zingiber officinalis*, *Colocasia esculenta*, etc. were also considered.

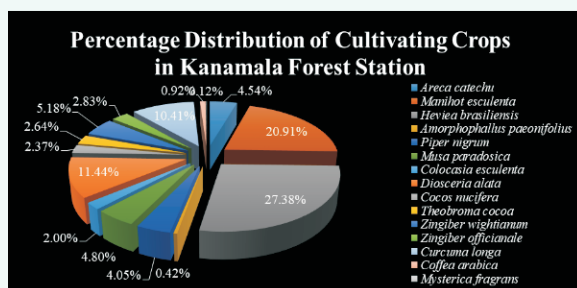


Figure 2: Graph showing the percentage distribution of cultivating crops in Kanamala Forest Station

Fifteen crop species were cultivated in various parts of Kanamala forest station. Of those, 13 crop species are under threat of crop depredation. *Hevea brasiliensis* and *Manihot esculenta* were the major cultivars in the Kanamala forest region. *Manihot esculenta* is the species which was severely affected due to wildlife crop depredation.

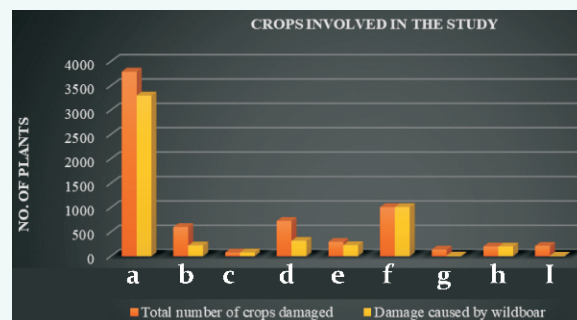


Figure-2: Graph showing crop damage due to wild boar in Kanamala forest station. a-*Manihot esculenta*; b-*Hevea brasiliensis*; c-*Amorphophallus paeonifolius*; d-*Musa paradisiaca*; e-*Colocasia esculenta*; f-*Dioscoria alata*; g-*Zingiber wightianum*; h-*Zingiber officinale*; i-*Curcuma longa*

Nine crop species were vulnerable to wild boar attacks. *Manihot esculenta* and *Dioscoria alata* are the crop species which are severely affected by the attack of wild boar. Wild boar damaged 87% of *Manihot esculenta* cultivations and 76% of *Colocasia esculenta* cultivations. *Dioscoria alata*, *Amorphophallus paeonifolius*, and *Zingiber officinale* were destroyed. It is observed that *Manihot esculenta* is the major crop in the Kanamala region, and this may be one of the reasons that *Manihot esculenta* reported more damage than other species.

Table 1: Table showing the animals involved in conflicts in Kanamala Forest Division

Common Name	Scientific Name	Common Name	Scientific Name
Elephant	<i>Elephas maximus</i>	Wild boar	<i>Sus scrofa</i>
Porcupine	<i>Hystrix indica</i>	Sambar Deer	<i>Rus unicolor</i>
Monkey	<i>Macaca radiata</i>		

The presence of five wild animal species has been recorded from the Kanamala region, namely *Sus scrofa*, *Elephas maximus*, *Hystrix indica*, *Macaca radiata*, and *Rusa unicolor*. The data shows that the Kanamala region is rich in wildlife diversity and, on the other hand, the presence of wildlife outside the forest results in conflicts with humans in the fringe areas.

The figure illustrates the percentage of damage caused by wildlife in the Kanamala forest fringes. From the data, it is clear that *Sus scrofa* is the wild animal which causes maximum damage in the study area, comprising 65 percent. The damage caused by wild boar is far greater than the other wild animals recorded from the study area.

The proportion test between wild boar and other

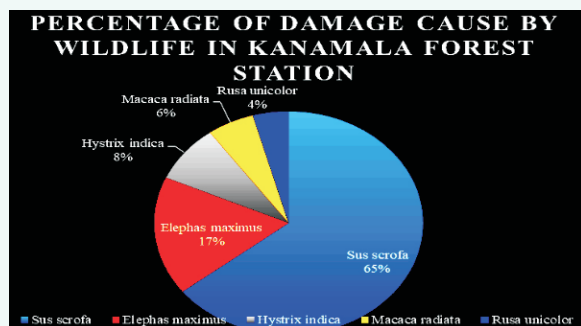


Figure 3: Graph showing the percentage of damage caused by wildlife in Kanamala forest station

Table-2: Table showing the results of Chi-square test.

Contrast		X ² Statistic	p value
Wild boar	Elephant	3863.1	< 0.0001
Wild boar	Porcupine	5658.8	< 0.0001
Wild boar	Macaque	6337	< 0.0001
Wild boar	Sambar deer	6683.7	< 0.0001

predators returned a p-value less than 0.0001 in each case. Thus, we fail to accept the null hypothesis in each case; or, it proves that the wild boar poses a greater threat to the crops than other predators in the Kanamala region.

Conclusion

Human-wildlife conflict is one of the major issues on the fringes of the forest. Of these, wild boar is the most common wild species that creates intense damage to crops. In this study, the intensity of damage caused by wild boar was also studied, and it was found that wild boar is the species that create the most damage, comprising 65 percent, and the proportion test reveals that wild boar poses a greater threat to crops than other predators located in the Kanamala region. The study also reveals that *Manihot esculenta* and *Amorphophallus paeonifolius* were the species most severely affected by the conflict.

Crops like *Areca catechu*, *Manihot esculenta*, *Hevea brasiliensis*, *Amorphophallus paeonifolius*, *Piper nigrum*, *Musa paradisiaca*, *Colocasia esculenta*, and *Dioscorea alata* were sensitive to crop raids. From the study, it is clear that the intensity of human-wild boar conflict is severe in the Kanamala forest region of the Ranni forest range in the Western Ghats, Kerala.

Acknowledgements:

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