

## **Battle between Human and Elephants: Elephants' Trampling versus Farmers' Chasing in the Farming Fields at the Eastern Surrounding of the Udawalawe National Park: A Biogeographical Survey**

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### **Abstract:**

In Sri Lanka, more than 60 percent of the Elephants (*Elephas maximus maximus*) roam outside the National Parks. Chronic crop trampling including property damages by elephants and dangerous chasing techniques adapted by the farmers in the farming fields and also injuries and deaths to the elephants are common features of the Human-Elephant Conflict (HEC). The aim of this paper is to find the way elephants' trampling of the crops and the farmers' chasing techniques in the Eastern surrounding of the Udawalawe National Park (UNP) due to the battle between human and elephants. The field survey was carried out in December 2016 and April 2017 in 5 villages. Data were collected through questionnaire survey, personal interviews and group discussions and the respondents were selected with the use of purposive sampling technique. Among the selected farmers, twenty five percent was selected as sample for questionnaire survey. Besides, three interviews with farmers using structured questions, two key informant interviews with park officers and two focus groups discussions with farmers were conducted. 20% of the elephants usually break any sort of fences around the park and farmlands. Besides, selected 06 adult male elephants regularly lead the way in breaking the fences violently. 80% of the elephants come out of the park between 19.00 and 1.00. Among the respondents 99% complained of crop damages, while 56% of grains damages. When they trample they splash and smash the areas but the only remains are the crashes, chops of creepers and leaves with elephants' dung. Among the respondents, 95% said that chasing them away when they feed themselves is miserable. 90% of the respondents said that they use shouting, lighting crackers and flashing lights as a collective effort.

**Keywords:** Elephants' Trample, Farmers' Chases, Udawalawe National Park

### **1.0. Introduction**

The relationship between human and elephant in Sri Lanka has been multi-dimensional since ancient times (Jayewardene, 1994; Santiapillai, 2002; Bandara, 2005; De Silva and De Silva, 2007). Since 1990s, this relationship can be seen in two different ways; one is that human meets elephants in the parks and farming areas and the other one is that human have tamed elephants in their own places as domesticated for their own purpose. Particularly, around the UNP, HEC is a chronic issue and it has been prevailing for more than two decades with quite a number of management measures. Trampling of crops by elephants and dangerous chasing methods by farmers are very obvious especially in the Eastern surrounding of the UNP. Quite a number of factors force the elephants flock towards Eastern surroundings of the UNP especially during the dry seasons. However, to contain elephants in the park and to prevent them from entering into the farming areas, various types of elephants' barriers are constructed by different institutions as well as by the farmers. In spite of some criticism among experts,

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still electric fences have been proven as one of the most effective mechanism for preventing elephants from entering into villages as well as into farming areas. In some part of the boundary of the park, an electric fence is constructed by the DWC. Besides, private firms and famers also construct electric faces with the use of solar power around their farmlands and warehouses. However, during the field visits it has been noticed that various types of ad-hocked fences have been fixed all around the villages. It is crucial to identify the way the elephants enter into the farming areas, the way the elephants trample the farming areas and the way the farmers chase the elephants. With the assistance of the local as well as the officers long term management measures to control and solve the HEC in sustainable manner in and around UNP is crucial.

## **2.0. Literature Review**

Evidences from literature indicate that the battle between human and elephants in the Southern Wildlife Region is chronic. In Sri Lanka, elephants are considered as one of the important animals of the animal kingdom and are a prominent symbol of wildlife conservation of Sri Lanka as a ‘*flagship*’ species and one of the significant ‘biological resources’ (De Silva and De Silva, 2007). In the bordering areas of the parks, elephants trample the crops, damage warehouses, houses, and even kill people. Annoyed farmers in return retaliate by shooting, wounding or killing elephants with home-made guns. Therefore, the tolerance traditionally shown to the elephant appears to be gradually weakening in farming communities when the elephant interferes with agriculture (Santiapillai *et al.* 2010). “In Sri Lanka, HEC annually kills around 250 Elephants and 70 people” (Fernando *et al.* 2015, p.05). According to Santiapillai (2002) and Bandara (2005) the main reason for declining elephant population in the country is HEC. Especially, management measures of HEC failed to achieve its set missions for more than two and half decades (Fernando, 2015; Miththapala, 2015). Consequently, the elephants of Sri Lanka have been listed as Endangered Species in the Red List Book by IUCN since 1986 (Jayawardene, 1994; Santiapillai 1998; DWC 2013; IUCN; 2016). According to Fernando (2015) effective HEC mitigation and elephant conservation requires a paradigm shift. Unless effective and sustainable measures are taken, HEC will continue to worsen and the elephant population continues to drop. UNP is one of the most important and popular parks for its elephants. Battle between human and elephants are common features in and around the UNP. A group of elephants of UNP have now become rude while others have emaciated in agony. However, Elephant management should have perfect and suitable objectives with impacts of management actions supervised in an adaptive-management approach (Fernando, 2015).

## **3.0. Materials and Methods**

In this research, purposive sampling has been used to collect data in five villages from the farmers who are available and above forty years of age. Among the selected farmers twenty five percent (25%) was selected as sample (forty nine - 49) for questionnaire survey. Besides, three (03) interviews with farmers using structured questions, and two (02) focus groups discussions with farmers were conducted with farmers who consist of 3 to 6 in size. Moreover, two (02) key informant interviews with park officers were conducted during the months of December in 2016 and April in 2017.

Table 1, Elements of the Sample and Size

Name of the Villagers	Population: Purposely selected (Farmers available and above forty years)	Sample
Kalwegala	36	$25/100 * 36 = 09$
Hambegamuwa	40	$25/100 * 40 = 10$
Hambegamuwacolony	44	$25/100 * 44 = 11$
Mahawewa	36	$25/100 * 36 = 09$
Wijepura	40	$25/100 * 40 = 10$
Total	190	49

Particularly, through questionnaire survey, interviews, focus groups discussions and the key informant interviews the respondents provided detailed information about live experiences surrounding the park in front of elephants, their livelihood, agony, and their response to the elephants, decisions and actions against the elephants. Besides, primarily the way elephants come out of the park, type of fences, the way elephants break the fences, seasonal crops outside the park, and the way elephants trample the crops and HEC. Further, the researcher was able find the detailed information regarding the elephant's attack, techniques used by farmers to chase the elephants and recommendations to mitigate the conflict. Secondary data also were collected regarding the HEC from selected books and articles. Percentage and descriptive statistical methods were employed to recognize the elephants' trampling versus farmers' chasing in the farming fields at the Eastern surrounding of the UNP.

#### **4.0. Results and Discussion**

##### **4.1. The Way Elephants Come out to Farming Areas to Trample**

According to the analysis, elephants mainly come out of the park due to the irresistible smell of the seasonal crops as well as different kinds of readymade food which they have already tasted which is available outside the park along with fully activated human activities in the UNP. 20% of the elephants usually break any sort of fences around the park and farmlands. Besides, selected 06 adult male elephants regularly lead the way in breaking the fences violently. 80% of the elephants come out of the park between 19.00 and 1.00. Further, according to the discussions with farmers, some 12 elephants hate artificial barriers on their way and when they find such barriers they tend to break aggressively and enter into the outside of the park as well as crop fields. However, it has been identified that once they break, the entire herds pass through continually through that point until it is being repaired. According to the analysis, it is not just an easy task for elephants to break the fences; they put terrific effort to break the fences. Moreover, elephants do not even break entire fences in the surrounding of the park and farmlands. They tend to break particular points of the parks' boundary towards farmlands and randomly break around the farmlands.

According to analysis, the elephants use different techniques to break barriers. On most occasions, it has been identified that they put heavy logs found in the park onto the wires of the electric fence and by connecting two wires together they defuse them and also occasionally wires break into two pieces. Besides, it has been revealed through discussion with a farmer nearby the entrance, some wild elephants also push and fell the posts on which the electrified or barbed wires are fixed and simply cross the fence to the farming areas outside the park. As an incredible technique, according to an officer at the main entrance, selected individual elephants push the electrified wires in an interval with their flip sides until the wires break as a trend as they have become used to small shocks and also with some pink shade burn marks in their flip side. According to the analysis, most of the occasions (85%), elephants come out from the park through usual entry points and trample the farmlands and damage the properties as chronic practice.

#### 4.2. The Way Elephants Trample Farming Areas

Trampling of farming areas by elephants during the dry is very common in the Eastern surroundings of the UNP. According to the analysis, trampling of farming areas, feeding on grains at the warehouses as well as damaging properties by elephants is a frequent event in the Eastern surroundings of the UNP. Through analysis, it has been identified that during the dry season, mostly during the course of the dusk, elephants wait until it gets dark without any signs or movements particularly near by the bordering areas and nearby farmlands. When it gets dark, they enter into the farming areas as a common practice.

According to the analysis, first they pluck what they can readily find in the farming areas such as water melon, pumpkin, cucumber, corn, rice, banana and sugar cane as well as other vegetables and fruits. When they pick up such sorts of vegetables and fruits they walk over the farming areas and splash and smash the areas without leaving any remains for the farmers. According to the analysis, they prefer rice, banana, corn, sugar cane and water melon to others. The figure 1 below shows the elephants' preferred food beyond park.

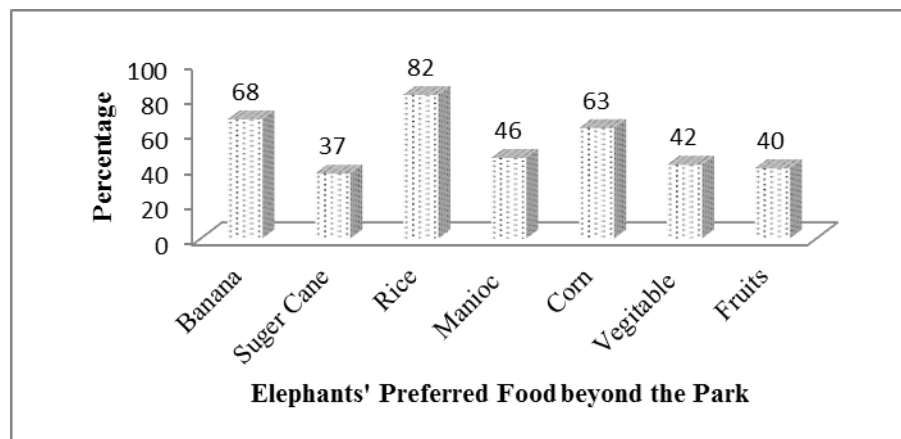


Fig. 1: Elephants' Preferred Food beyond the UNP

According to the group discussions with farmers, first of all they pull the sugar cane and leave the creeper intact and feed on the cane while trampling the ground. Similarly, when they find water melon,

first they pluck, clean the creeper and feed on the melon without leaving any remains. Similarly, once the elephants' herd enter into a plantain plantation, they start to feed on plantain and then seize the middle stalk by pulling at its upper part and feed on the stalk while chopping the fallen parts of the trees. Some plantain trees remain as it is but without its stalk. However, in the morning, the ground is seen with crashes and chops of creepers, leaves, yams and plant roots with elephants' dung.

Moreover, according to the group discussions with farmers, they as second option, try to find the soil sourced foods such as sweet potato, manioc and nuts. They usually pluck such foods with their trunks and then tap them on their legs with the mud until the soil is removed and then feed on them without any fear thinking they are in their own habitat. According to the analysis, when they feed in any farming fields, there is nothing left for farmers to get anything from the field and the elephants' odour remains until the next day.

According to the respondents, when the elephants do not find sufficient food in the farming areas, they enter into the warehouses where famers and wholesale mudhalalies store rice and other grains. Elephants find such places with attractive smell. According to the analysis, first they try to feed through windows by breaking windows, when they fail, they pull the part of the roofs out of the ground and feed on the grains which are bundled from top to bottom. Moreover, when they flop they break the walls and easily feed on whatever they want sumptuously. According to the respondents, elephants bore holes in the gunny or packs of grains and let the grains flow into their wide open jaw similar to the grains flowing from grinding machine when grinding. According to the analysis, between 40 and 80 elephants randomly trample the farming areas on their seasonal routine while nourishing on readymade food. According to the analysis, 95% of the respondents said that chasing them away from the grove when they feed is miserable. Elephants would not even care the shouting of people switching the flashes or lights on them; they accomplish their task of feeding sumptuously until they feel enough is enough. Among the respondents, 99% complains crop damages, while 56% complains of grain damages. Damages of walls and houses are a bit lower when compared to crops and grains. The figure 2 below shows the damages due to elephants' attack beyond the Eastern boundary of UNP.

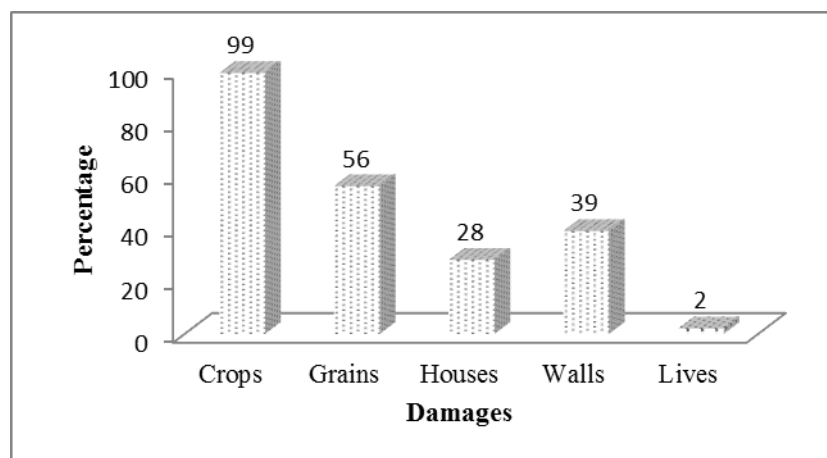


Fig. 2: Damages due to Elephants' Attacks

#### **4.3. The Way Farmers Chase the Elephants**

According to the analysis, the farmers in the Eastern surrounding of the UNP, chase the elephants by shouting, lighting Ali crackers ('Alidoom'), throwing stones and other objects, flashing lights, waving objects, raising canes. Besides, farmers sometimes show artificial guns at them and also make noise using sound instruments in order to keep the elephants away and protect their crops, residences and their lives. 98% of the farmers use fire crackers while 96% of the villagers shout and 90 % makes noise to chase the elephants. 80% of the farmers use the mix bag of shouting, firing crackers, making noise as well as waving objects at once as team or family effort to chase the elephants.

According to almost all the respondents in the area, are of the view that chasing elephants is not a simple, easy and quick task but it sometimes takes more than 3 to 5 hours even as a team effort. When an adult starts to run away then the herd follows the adult. According to the respondents in the area, chasing a single male adult is more difficult than chasing a herd. Elephants get aggressive against people's chasing attitude in turn they react to chase the people. As a result, it is a baffling task to control the elephants and make them come back to the normalcy when they are irritated and aggravated by the human activities of chasing.

In the study area, most of the people chase the elephants by making a kind of noise with coconut shells and by lightning crackers which are provided with free of charge by Department of Wildlife Conservation. According to a farmer in the Eastern surrounding, there are some elephants that retreat when people shout: 'go away' (hei yanava) 'get me that gun' (Ara thuwakkuwa ganing) and so on. In some areas, the farmers have put up barbed wire fences without electrification around their lands. Since the elephants have had bitter experiences with the electrified fence on the boundary of the National park, mistaking this fence for an electrified barbed wire fence, they dare not get closer to it.

According to the analysis, unfortunately, each and every dry season, selected 5 to 6 rude elephants aggressively act against people and destroy large areas of farmlands and tend to damage houses, warehouses, walls, fences, gates and even large trees. Almost all the people are aware of elephants' attack and during the discussions in Hambegamuwa village an elderly respondent said that when someone is caught trapped by the elephants, they tend to catch, slope /pitch aggressively to the ground and flatten him to death. On such unpleasant situations villagers shoot at them without the intention of killing them and inform the officers of the park. On such circumstances, officers come and shoot the elephants with anaesthetic bullets and take them to the park using a particular vehicle before they regain consciousness.

According to the analysis, when the villagers flop in their effort to chase the elephants away, they shoot at the back of the elephants. According to the analysis, it is indirectly agreed that when the elephants cause great damages or when they are very uncontrollable and determined to kill, the

villagers shoot at them wherever they want to shoot; when the elephant dies, the officers of the National Park recognize through hints or smell as well as signs and remove the body within a few days. Moreover, according to the respondents, nobody in the village will give any evidence as to who shot the elephant, no matter how much they are interrogated by the officers of the National Park.

According to the analysis, farmers do not use ‘Hakapatas’ to chase or kill the elephants. But in the farming areas farmers set a cord tied at a height of 2 to 3 feet at the usual entering point through which the elephants enter the field when the elephant touches this cord it automatically triggers off the gun connected to the cord and the elephant sustains serious injuries and returns back. A respondent mentioned that when the elephants injure seriously, they return to the park and eventually succumb to their injuries. If not, they come back to this area again after long periods of time. According to the analysis, some elephants manage to escape with their injuries into the park and spend the rest of their lives limping in the park with pain. However, when the officers of the park happen to see such an elephant in the park, they shoot them with anaesthetic bullets and then, take them to the nursing centre (Elephant Trust Home) nearby the UNP, treat and cure them and release the elephants back to the park. The figure 3 below shows the elephants’ chasing techniques by the farmers.

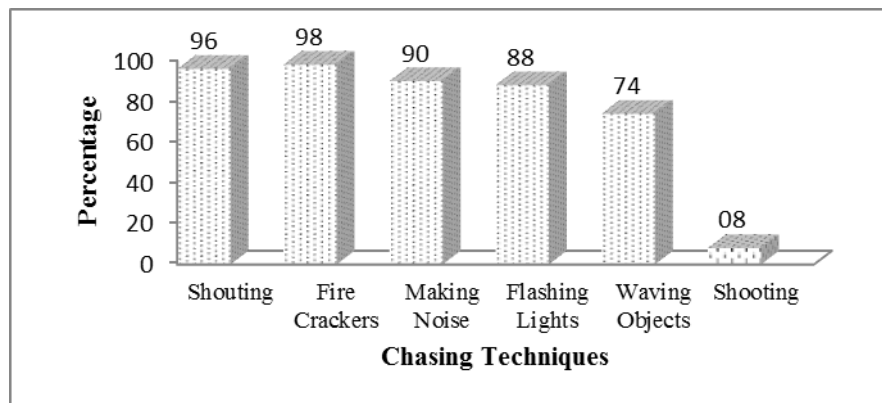


Fig. 3: Elephants’ Chasing Techniques by Farmers

Furthermore, some elephants unable to march with serious gunshot injuries collapse and lie on the ground without food and water for several days, and tragically die. Most of the respondents (98%) I had interviews with said that villagers shoot elephants when they fear and to escape from elephant attack. Most of the respondents (90%) emphasized that they do not like to kill elephants for the purpose of income or the other, but when elephants attempt to attack aggressively, there is no option but to shoot. Besides this, some people (08%) dig pit traps so that the elephants can fall in to the pit and then inform the officers. Giving poisonous fruit or vegetables as well as using ‘Hakapatas’ is common in Sri Lanka, but in the Eastern surrounding of UNP, none of the respondents was of the view that they use such mentioned mechanisms.

## **5. Conclusion**

Elephants mainly come out of the park due to the irresistible smell of the seasonal crops as well as different kinds of readymade food which they have already tasted which is available outside the park along with fully activated human activities in the UNP. 20% of the elephants usually break any sort of fences around the park and farmlands. Besides, selected 06 adult male elephants regularly lead the way in breaking the fences violently. Some 12 elephants hate artificial barriers on their way and when they find such barriers they tend to break aggressively and enter into the outside of the park as well as crop fields. 80% of the elephants come out of the park between 19.00 and 1.00. Trampling of farming areas by elephants during the dry is very common in the Eastern surroundings of the UNP. During the dry season, mostly during the course of the dusk, elephants wait until it gets dark without any signs or movements particularly near by the bordering areas and when it get dark, they enter into the farming areas. First, they pluck what they can readily find in the farming areas such as water melon, pumpkin, cucumber, corn, rice, banana and sugar cane as well as other vegetables and fruits. 95% of the respondents said that chasing them away from the grove when they feed is miserable. Elephants would not even care the shouting of people switching the flashes or lights on them; they accomplish their task of feeding sumptuously until they feel enough is enough. Each and every dry season, selected 5 to 6 rude elephants aggressively act against people and destroy large areas of farmlands and tend to damage houses, warehouses, walls, fences, gates and even large trees. Among the respondents, 99% complains crop damages, while 56% complains of grain damages. Damages of walls and houses are a bit lower when compared to crops and grains. 98% of the farmers use fire crackers while 96% of the villagers shout and 90% makes noise to chase the elephants. 80% of the farmers use the mix bag of shouting, firing crackers, making noise as well as waving objects at once as team or family effort to chase the elephants. Most of the respondents (98%) I had interviews with said that villagers shoot elephants when they fear and to escape from elephant attack. Most of the respondents (90%) emphasized that they do not like to kill elephants for the purpose of income or the other, but when elephants attempt to attack aggressively, there is no option but to shoot. Beside this, 08% dig pit traps so that the elephants can fall in to the pit and then inform the officers. It is significant to solve this multi-dimensional issue with practical and implementable management measures in collaborations with the farmers' co-operation.

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