Journal of Wildlife and Ecology (2021). 5(3):120-127
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Research Paper Open Access

Study of human-wildlife conflict in Bagh, Azad Jammu and Kashmir, Pakistan

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SUMMARY

Knowing the human-wildlife conflict is necessary to convey management results to promote coexistence; however it is constrained by the absence of related data. We collected data of human-wildlife conflicts from 2016–2017 from the villages of Bagh districts, Azad Jammu and Kashmir; and investigated the agents of conflicts. A questionnaire was also designed to know the informants' profile, socioeconomics and attitude against wildlife species. We noted that crops are mostly impacted by Asiatic jackal (23%), Indian wild boar (19%), porcupine (18%), monkey (17%), red fox (13%) and squirrel (10%). Damage to "livestock" by common leopard during this survey was noted as 33%, Asiatic jackal 30%, red fox 19% and Himalayan palm civet 18%. According to informants' Indian wild boar, Asiatic Jackal and leopard are decreasing; red fox and monkey are decreasing in study area. It is concluded informants of villagers of Bagh are mostly dependents either Government jobs or small business like agriculture and livestock. Wildlife species damage agriculture and livestock and in the response people try to remove wildlife species from their villages. It is documented that human-wildlife conflict is present in current study area and conservation program that includes awareness programs about wildlife species and compensation of inhabitants is recommended.

Keywords: Wildlife, conflict, Human, Livestock, Crops

Citation: Mumtaz, B., M. Faiz, R. Haidar. 2021. Study of human-wildlife conflict in Bagh, Azad Jammu and Kashmir, Pakistan. Journal of Wildlife and Ecology. 5: 120-127.
Received: July, 2021**; Accepted**: September, 2021

INTRODUCTION

Human has affiliation with wildlife (Newsome *et al.*, 2005): many actions may highly impacts on feelings of human (Woodroffe *et al.*, 2005a). Some species, like elephants, primates and large carnivores destroy property of human and harm them (Inskip and Zimmermann, 2009). It is need to understand by the conservationists that successful wildlife management strategy must be based on an understanding of local people's attitudes toward wildlife and conservation program (Naughton-Treves *et al.*, 2003). Attitudes toward wildlife are often formed by local people's preceding incidents with the wild animals, and their credence system (Zimmermann *et al.*, 2005); in addition, such attitudes influence behavioral answers of local people. Generally, the attitude is more favorable, the person's objectives should be powerful

to execute the behavior (Kotchen and Reiling, 2000). Attitudes are thought to be essential predecessor as well as analyst of behavior or intentions moreover it may be accepted as instructive aspect for individual persons' behavior (Ajzen, 1991).

Human-carnivore conflicts are worldwide; carnivore attacks domestic animals in the response people having negative attitude for carnivores (Woodroffe *et al.*, 2005a, b). These conflicts are not easy to recognize and handle, since many factors affect them, together with the cultural values, religious values, as well as economic value of body parts of carnivore, moreover the economic loss is due to the carnivore damage (Dickman, 2010). As a result, it is essential to understand the effect of these factors for the particular conservation programs and policies.

At present, Human-wildlife conflict (HWC) is a universal problem that has a negative impact on both humans as well as on wildlife. Due to its extensive negative impacts for conservation of species, management of protected areas along with maintainable livelihoods (Dickman, 2010; Bowen-Jones, 2012), HWC get a great concentration of wildlife biologists, ecologists as well as wildlife managers across the whole world. Since conflict level increases day by day, it decreases the local support for conservation and consequently people kill the wildlife species, therefore long-term existence of wildlife species is threaten (Messmer, 2000; Hill *et al.*, 2002; Inskip and Zimmermann, 2009). Wildlife population mostly decreases in those areas that have a great conflict between humans and wildlife. HWC also have danger to human lives. Besides direct visible impacts, HWC, mostly in developing countries, generate a great conflict, which weaken the success of state foundations (Sahoo and Mohnot, 2004; Michalski *et al.*, 2006; Anthony and Wasambo, 2009). Human-wildlife conflict is present in anthropogenically impacted landscape, so this study is designed to know the human-wildlife conflicts in study area.

MATERIALS AND METHODS

STUDY AREA

Bagh is present with boarders of Muzaffarabad, Rawalakot, Hattian Bala, Haveli districts. The Bagh district falls in the lesser Himalayas zone and is a mountainous area, generally. The elevation is present from 1500 to 2500 meters above sea level. Coniferous forests are present. Mahl Nala and Betar Nala are crossing through this city and also many rivulets flow in this city (DRU, 2007).

METHODOLOGY AND DOCUMENTATION

Interviews were carried out in the villages (i.e. Barikot, Shakrkot and Mang) of Bagh.. The questionnaires (n=100) were used to know the characteristic of informants (i.e. name, age, education, gender and occupation), socio-economic values of informants (source of income), financial loss of crops and livestock kill, perception about wildlife as well as "livestock" and "crop" protection methods.

STATISTICAL ANALYSIS

The data was analyzed through MS Word as done by Altaf (2016).

RESULTS AND DISCUSSION

RESPONDENTS' PROFILES

During the survey, informants (n=100) were interviewed to analyze HWC in the area. The ages of the informants were between "15-24 years" (5%), "25 to 40 years" (45%), "41to 60 years" (40%) and above "60 years" (10%). Most of the informants were educated (83%) and rests of them were uneducated (27%). Most of the informants were Government employee while others were working in agriculture, businessmen, and labor, studying as students as well as housewives. Respondents having 1 to 2 livestock (82%); 6 to 10 livestock (7%), more than 10 (1%) were the income source for most families and respondents having no livestock (10%) (Figure 1).

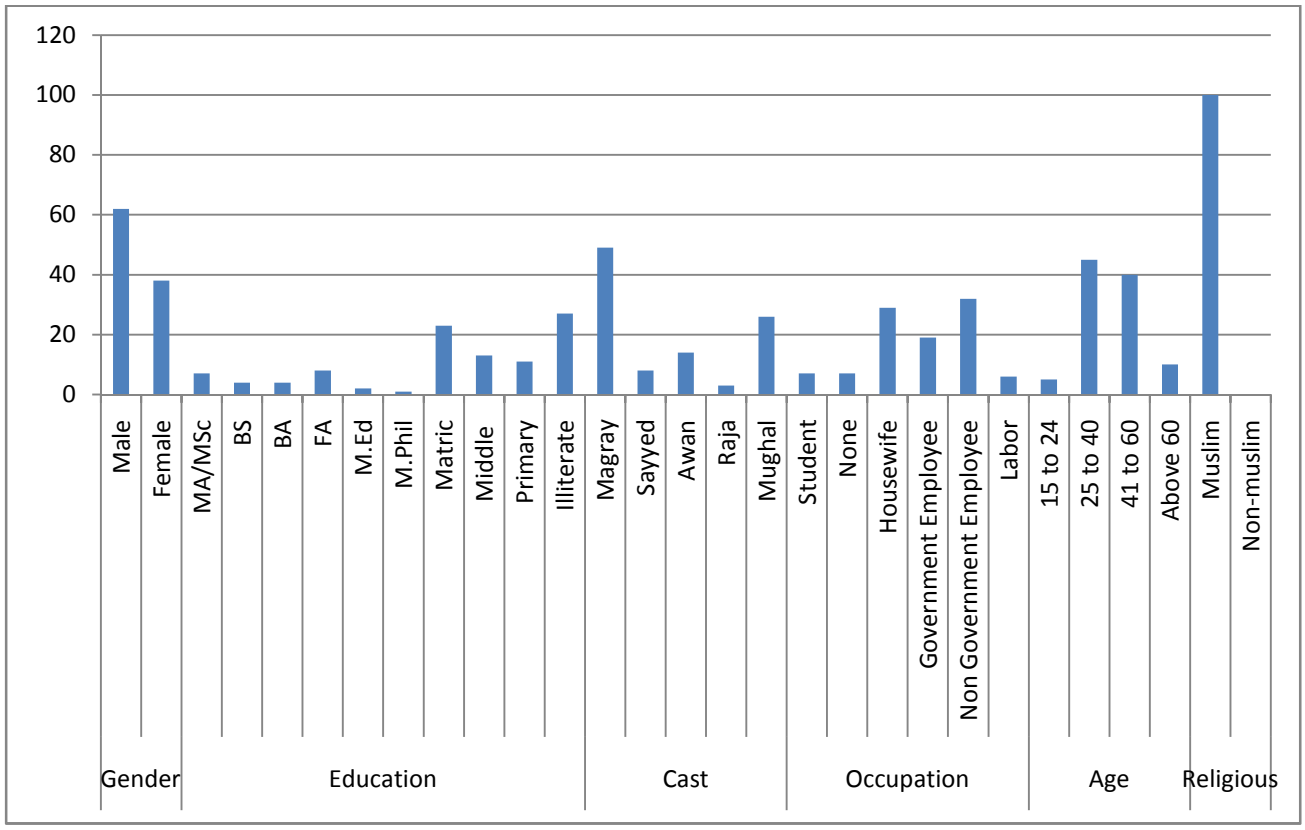

Figure 1: The Profile of the respondents.

DAMAGE TO CROPS AND LIVESTOCK

The outputs of this study documented that "crops" are mostly impacted by Asiatic jackal (23%), Indian wild boar (19%), porcupine (18%), monkey (17%), red fox (13%) and squirrel (10%) (Figure 2). (Madhusudan, 2003) documented that species of mammals are the main source of damage of crops as well as livestock; avian species also impacts crops.

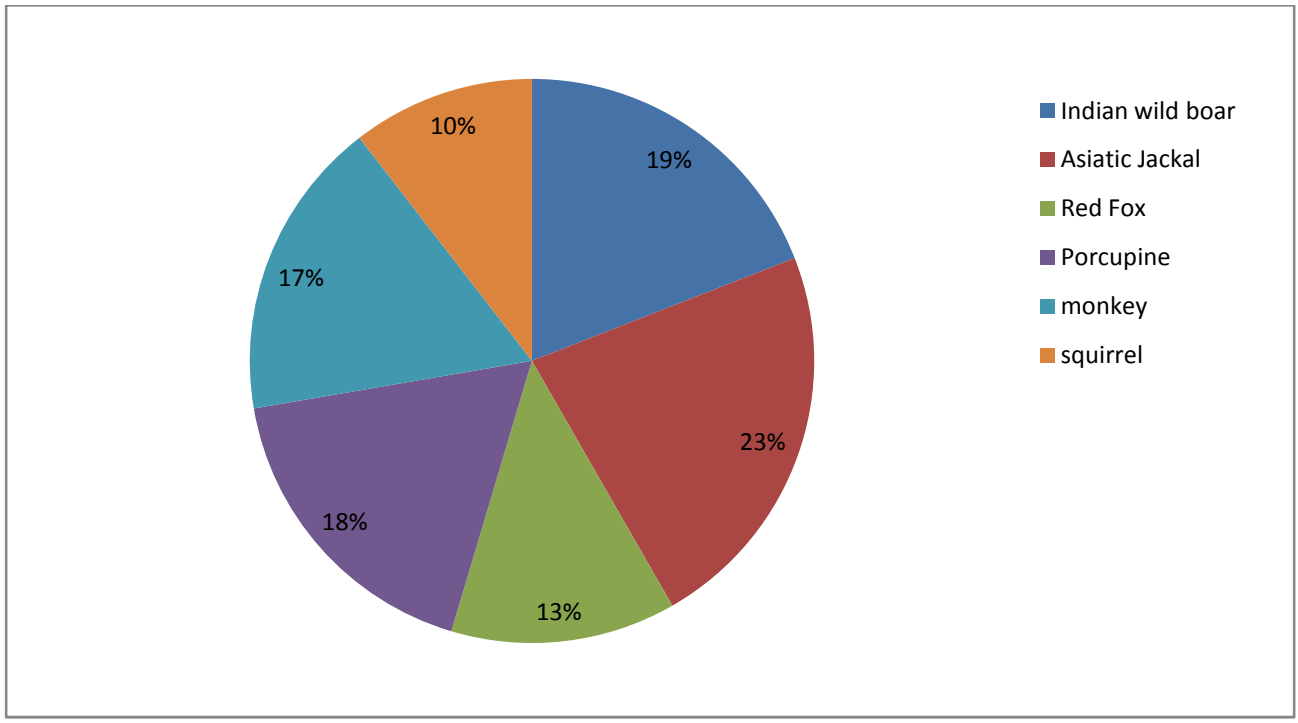

Figure 2: Damage to crops by wildlife species.

Damage to "livestock" by common leopard during this survey was noted as 33%, Asiatic jackal 30%, red fox 19% and Himalayan palm civet 18% (Figure 3). Researchers documented that leopard (Yadav *et al.*, 2021), wolf (Piscopo *et al.*, 2021), tiger (Struebig *et al.*, 2018), elephant (Prakash *et al.*, 2020) and bear (Chavan *et al.*, 2021) are the main predators of livestock.

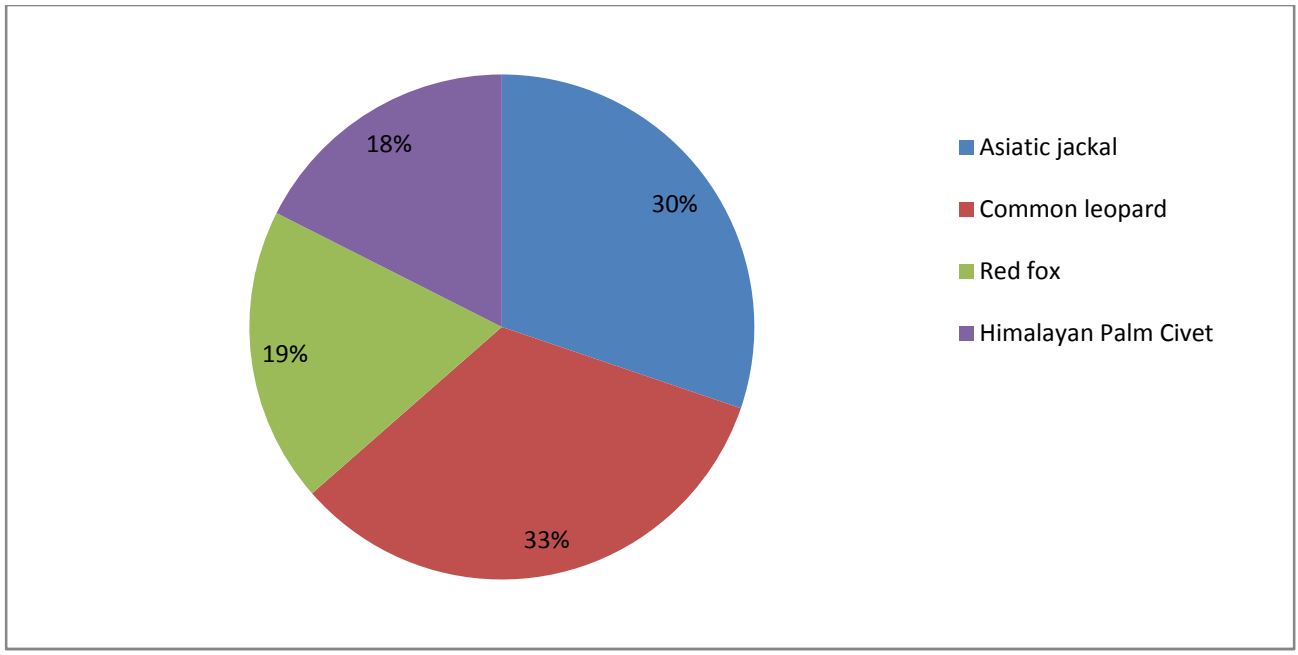

Figure 3: Damage to livestock by wildlife species.

PERCEPTION AND ATTITUDE OF LOCAL PEOPLE ABOUT WILDLIFE

The results of the present data indicated that 44% of the respondents were of the view that Indian wild boars are "declining" in the area day by day, 27% of the respondents said that Indian wild boars are increasing in the area, the respondents (29%) indicated that Indian wild boar are maintain in the area. 58% of the informants have view that Asiatic jackal are declining day by day, informants (22%) indicated that Asiatic jackal are increasing and 20% informants indicated that Asiatic jackal are maintain in the area. According to the informants (58%) that Leopards are declining day by day in the area. By the respondent's (23%) that Leopards are increasing in the area; 19% informants indicated that leopards are maintained in the area. According to the respondents (24%) Red foxes are declining in the area, the respondents (47%) were of the view that Red foxes are increasing in the area, by the 29% of the respondents Red foxes are maintain in the area. 24% of the respondents show that Monkeys are decreasing in the area, 46% of the informants show that Monkeys are increasing, by the 30% of the respondents it is indicated that Monkeys are maintain in the area (Figure 4).

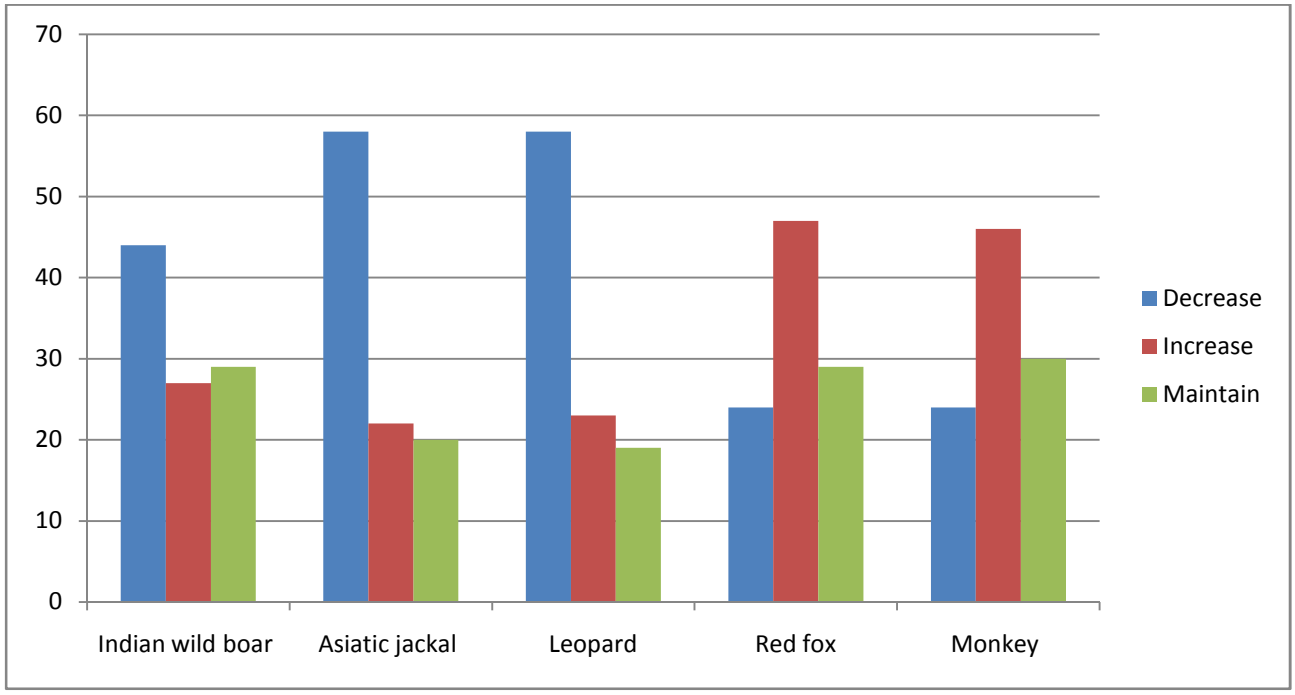

Figure 4: The trends of wildlife in the study area.

According to informants' Indian wild boar, Asiatic Jackal and leopard are decreasing; red fox and monkey are decreasing in study area (Figure 4). Informants of the Bagh, Azad Jammu and Kashmir have taken diverse methods to protect their "crops" from wildlife species e.g. few people utilized to install "human dummy" (14%), "plastic bags" (15%), "metallic fence" (33%) and "biofence" (36%) while 2% of the informants answered that they have not used any technique for the crops protection from wildlife species (Figure 5).

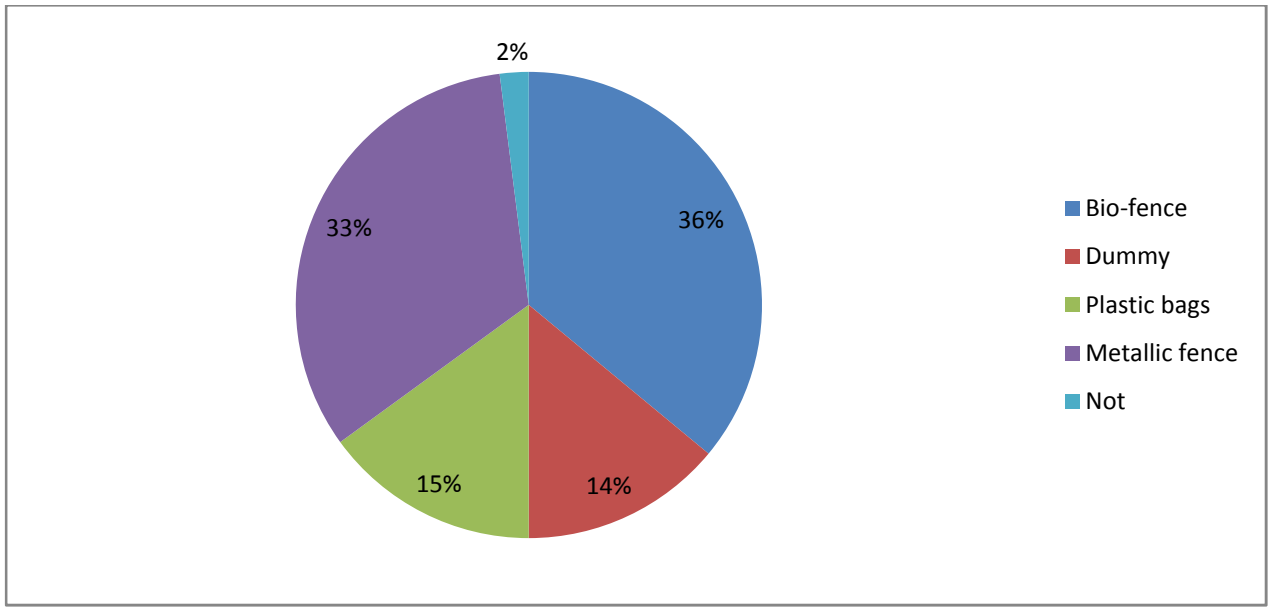

Figure 5: Protective measures for cropland.

While many informants were of the view that wildlife species attack on "livestock" during early morning and before evening and they spend these times with their "livestock", 20% informants stay with "livestock" at "morning", 9% informants stay with their livestock at "noon", 10% respondents stay with their livestock at "afternoon", 7% respondents stay with their livestock at "evening", 1% informants stay with their livestock at "night"; while 53% of the respondents don't stay with their livestock (Figure 6). Altaf (2016) utilized similar techniques to analyze responses of human towards wildlife species.

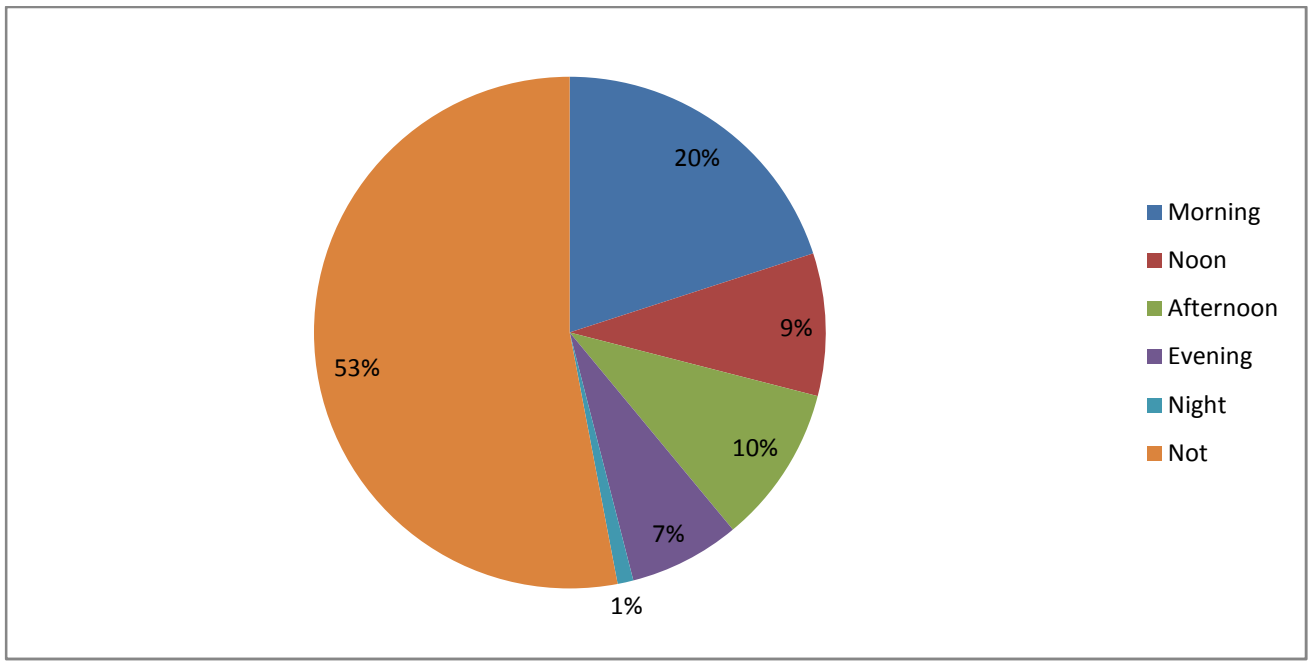

Figure 6: Potential times of livestock predation.

CONCLUSION

It is concluded from this research informants of the Bagh districts are lower middle class and are mostly dependents either Government jobs or small business like agriculture and livestock. Wildlife species damage both (agriculture and livestock) and in turn people try to remove wildlife species from their villages of Bagh districts. It is noted that HWC is present in present study area and conservation program that includes awareness programs about wildlife species and compensation of inhabitants is recommended.

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***Competing interests**:* Authors have declared that no competing interests exist.
***Funding**:* Authors have no source of funding for this work.
Authors' contributions: Mumtaz has designed this project, collected data and written this article; while Faiz and Haidar have critically analyzed this article and approved as final.