

Human casualties and agricultural crop raiding by wild pigs and mitigation strategies in India

Chauhan, N.P.S.

Wildlife Institute of India, P.O. Box 18, Chandrabani, Dehradun 248001, India, npsc@wii.gov.in

DOI: 10.5073/jka.2011.432.105

Abstract

We investigated the nature and extent of human-wild pig conflict in northern and central India. Wild pigs (*Sus scrofa*) surviving in disturbed and fragmented habitats were responsible for many human casualties and extensive damage to agricultural crops. Information on human casualties, place of attack, sex of victims, and agricultural crop raiding was collected from the records of the forest department and by interviewing villagers and ocular estimation of crop damage in 11 states. In total, there were 927 human casualties by wild pigs in these states during 1990-2010; out of which 4.2% were death cases and 95.8% injury cases. Male casualties were more (81.2%) than females (18.8%). Maximum cases (77.9%) occurred in forests, followed by 18.3% cases in crop fields and 3.8% cases in the vicinity of villages. Damage to agricultural crops by wild pigs was enormous and widespread. They fed on all phenological stages, but tender stages and matured crops were highly susceptible to damage. Damage to *Triticum vulgare*, *Oryza sativa*, *Zea mays*, *Pennisetum typhoides*, *Saccharum officinarum*, *Arachis hypogea*, *Cicer arietinum*, *Hordeum vulgare*, *Sorghum vulgare* and *Brassica campestris* was 5-20%, 5-15%, 10-30%, 5-15%, 5-20%, 10-30%, 5-15%, 5-15%, 5-10% and 5-10% respectively in these states. *Eleusine coracana*, *Phaseolus mungo*, *Glycine max*, *Sesamum indicum*, *Lens esculenta*, *Ipomoea batatas* and *Lythyrus sativum* showed damage to varying extent (5-10%). In some areas, pulses and vegetables were damaged to 5-25%. Damage was very high in crop fields close to wildlife areas. Today, these problems have aggravated beyond tolerable limits and have resulted into direct conflict between people and wild pigs. This has also adversely affected the conservation ideals. Mitigation strategies for mitigation of these conflicts have been suggested.

Keywords: agricultural crops, damage conflict, human deaths, injuries, mitigation, wild pigs

Introduction

The wild pig (*Sus scrofa*) is one of the most widely distributed large mammals. It has always been associated itself with man, and successfully utilises the human altered landscape (Ahmed, 1991; Fadeev, 1981; Erkinaro et al., 1982). The wild pigs notoriety as a crop pest is universal (Tisdell, 1982). Wild pigs raid crops and utilises the agro-ecosystem for food resource and shelter. There has been increasing trend in the wild pigs-man conflict in and around protected areas, managed forests and human settlements throughout the country. People have developed an antagonistic attitude towards the wild pigs. Pigs also adversely affect conservation ideals. We investigated the human-wild pig conflict in the state of Himachal Pradesh, Punjab, Haryana, Uttar Pradesh, Uttarakhand, Rajasthan, Gujarat, Madhya Pradesh, Bihar, Maharashtra and Chhattishgarh located in northern and central India.

Methods

Information on human casualties, circumstances of attacks, place of attack and sex of victims, and agricultural cropping pattern, and nature and extent of crop damage by wild pigs was collected from the records of the forest department and using questionnaire survey of villages located in and around protected areas and managed forests and interview of the victims or their families and analysis of human casualty cases in different states. Agricultural crop fields were surveyed and crop damage assessment was done using a visual estimation method in few randomly selected crop fields. Information on compensation paid for the losses and yearly payments was also collected.

Results

In the state of Himachal Pradesh, Punjab, Haryana, Uttar Pradesh, Uttarakhand, Rajasthan, Gujarat, Madhya Pradesh, Bihar, Maharashtra and Chhattishgarh, wild pigs accounted for 927 human casualties during 1990-2010. Maximum cases occurred in Himachal Pradesh (16.5%), followed by Maharashtra (15.7%), Madhya Pradesh (12.7%) and Rajasthan (11.4%). There were 4.2% death cases as compared to

888 (95.8%) injury cases. Male casualties were more (n=753) than female casualties (n=174). Maximum cases i.e. 722 (77.9%) occurred in forests, followed by 170 (18.3%) cases in crop fields and 35 (3.8 %) cases in the vicinity of villages. Most of these attacks were accidental and occurred when these victims ventured into the forests for collection of non-timber forest produce in forests, fuelwood, fodder, medicinal plants, or to graze their livestock and while working in their crop fields

There was marked monthly variation in human casualties by pigs during 1990-2010. Out of 927 cases, the highest number of casualties occurred in November (n=183, 19.7%), followed by December (n=132, 14.2%), January and August (n=93, 10% each), October (n=87, 9.4%), September (n=69, 7.4%), March (n=63, 6.8%), July (n=57, 6.1%) and so on. The age group of 867 cases was recorded in these states during 1990-2010. Among these cases, the highest number of 276 human casualties occurred in the age group of 41-50 years. There were 186, 144 and 132 casualties in the age group of 31-40 years, 21-30 years and 51-60 years, respectively. Out of 816 human casualties, the highest number of cases by wild pigs occurred between 08:01-12:00h (40.6%), followed by 16:01-20:00h (34.3%), 04:01-08:00h (14.2%), 12:01-16:00h (10.9%)

Wild pigs were found to damage variety of agricultural crops, namely, *Saccharum officinarum*, *Zea mays*, *Arachis hypogaea*, *Hordeum vulgare*, *Triticum aestivum*, *Oryza sativa*, *Cicer arietinum*, *Pennisetum typhoides*, *Sorghum vulgare*, *Phaseolus mungo*, *Ipomoea batatas* and *Lythyrus sativum*. Damage to these crops varied from 5 to 36% in different states. Other oilseed and legume crops damaged by pigs were found to be mustard (*Brassica campestris*), til (*Sesamum indicum*), moth (*Vigna aconitifolius*), guar (*Cyamopsis psoraloides*), matira (*Citrullus vulgaris*), tinda (*Citrullus vulgaris*), jeera (*Cuminum cyminum*), isabgol (*Plantago ispaghula*), methi (*Trigonella corniculata*), raira (*Brassica juncea*), chili (*Capsicum annum*) and pea (*Pisum sativum*).

Discussion

Wild pig's attacks on human beings varied in different states, and most of these were accidental. Maximum cases occurred in forests than in crop fields and vicinity of villages. These human casualties occurred when villagers ventured into the forests for collection of fuelwood, fodder, medicinal plants, grazing their livestock or when they were working in their crop fields. Male casualties were more than females, and this could be due to more involvement of men in field activities. Monthly variation in human casualties could be correlated with activities of villagers in crop fields, forests and villages. Wild pigs caused extensive damage to variety of agricultural crops. Mature crops were highly susceptible to damage by pigs. Damage to crops was reported to increase when there was less natural food available in forest, and artificial feeding of wild pigs could reduce crop damage (Mackin, 1970; Andrejewski and Jezierski, 1978; Genov, 1981). Mitigation strategies include use of local protective methods, co-operative guarding of matured crops, people should be alert and vigilant in crop fields, wire fences with flying, flashing ribbons or plastic strips that produce scaring sounds and other frightening devices and creation of education and awareness among people.

References

- Ahmed BHM 1991 Man and wild pigs (*Sus cristatus*) interaction from the western ghats of south Maharashtra. Ph.D. thesis, Shivaji University, Kohlapur
- Andrejewski R, Jezierski W 1978 Management of wild pigs population and its effect on commercial land. *Acta Theriologica* 23: 309-339
- Erkinaro E, Kalevi H, Lindgren E, Sulkava S 1982 Occurrence and spread of wild pigs (*Sus scrofa*) in the eastern Fennoscandia. *Memoranda* 58: 39-47
- Fadeev EV 1981 Dynamics of the northern limits of the area of distribution of the wildboar, *Sus scrofa* in Eastern Europe. *Biol. Nauk. (Mosc.)*, O(9): 56-64
- Genov P 1981 Significance of natural biocenoses and agrocenoses as the source of food for wild pigs (*Sus scrofa*). *Polish Journal of Ecology* 29: 117-186
- Mackin R 1970 Dynamics of damage caused by wild pigs to different agricultural crops. *Acta Theriologica*. 15: 447-458
- Tisdell CA 1982 Wild pigs: Environmental Pest or Economic Resource, Pergamon Press: Sydney