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Analysis of the diet of wild boar in Islamabad City, Pakistan

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ABSTRACT

Objective: To examine the stomach contents of wild boars (*Sus scrofa cristatus)* in Islamabad area of Pakistan.

Methodology and results: 117 wild boars were killed and their stomach contents examined. The contents correlated to the types of plants and other materials found at the feeding sites. The plant materials comprised 25.2% of total mass, 16% was animal mass, and 0.8% mud and 58% garbage matter. Wheat leaves dominated in the samples collected in December 2005 until March, when wheat grains became the major part of diet until July. Maize first appeared in the diet in March and was present until June. A small quantity of tree bark and leaves of *Zizyphus* (bari) were also present, while *Mesquite* was heavily consumed in June and July. Several grasses and weeds appeared prominently in the diet in August up to November. Garbage matter was present in the stomach throughout the year.

Conclusion and application of findings: The diet of wild boars in Islamabad comprises of a significant amount of plant food. The damage caused by wild boars to crop and forest plantations could be reduced if effective control measures are developed. Based on the findings of this study such alternative measures could be based on habitat management and diet manipulation.

Key words: wild boar, diet, Islamabad.

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INTRODUCTION

Wild boar (*Sus scrofa cristatus.)* is omnivorous and changes its habits according to availability of food and the habitat. Wild boar is present in diverse ecosystems ranging from high altitude environments to agro ecosystems (Gerard *et al*. 1991; Durio *et al*. 1995). Pakistan is part of the South Asian ancestral homeland of the Eurasian wild boar (*Sus scrofa cristatus.)* where the animal is found throughout the lowlands along the Indus River. The population of wild boar is relatively high and currently increasing due to a number of factors including ideal habitats, availability of nourishing food at dumping sites besides hotels and other food points and existence of few threats (Beg, 1990). Presently, the wild boar has been declared to be a serious economic pest of agricultural crops (Abbas & Hafeez, 2004).

In recent years, the diet of wild boar has been studied extensively and found to be based predominantly on plants, and to a much lesser extent on animals (Schely & Roper, 2003). Mostly the wild boar is considered to be omnivores, with

their basic food derived from plants. In certain parts of Eastern and Western Europe, studies of its diet indicate that 80 to 90% of its total food mass comes from plants (Janda, 1958; Haber, 1966; Genvo, 1981). Some preliminary studies on the food habits of wild boar in Pakistan were carried out in lower Sindh (Smiet *et al*., 1979) and in Fasailabad (Khan, 1983).

The wild boar is also a common pest in the irrigated croplands of central Punjab (Beg & Khan 1982; Shafi & Khokhar, 1986; Brooks *et al*., 1989). It is also found in forested tracts, marshy areas, and dry thickets of acacia and mesquite, interspersed with the croplands. It is considered to be the second most important vertebrate pest in agriculture in Pakistan due to the extensive damage it causes to a variety of crops. One of the essential requirements for its control is to determine the composition of its diet. The objectives of this study were to determine the annual food habits of the wild boar as influenced by seasonal variations in Islamabad.

MATERIALS AND METHODS

Wild boars were collected during 2005 during a project on "Non-chemical control of wild boar population in the area of Islamabad". The boars were shot from the several habitats around Islamabad. A total of 117 animals were killed and their stomach contents analyzed in the laboratory of the Department of Forestry, U.A.F. Interspersed with the crop areas are uncultivated and urban wastelands having mesquite (*Prosopis juliflora*) and acacia (*Acacia arabica and A. modesta*), and in some cases marshy areas densely covered by *Saccharum* spp. and *Typha* spp. The forest and water swamps provided abundant habitat for wild boar in Islamabad. About 78% of the wild boars were collected from road side close to garbage sites, 14% close to trapping side fields, and 8% from cultivated land near to Quaid-I-Azim University.

Approximately 100 to 150 gm of stomach contents were removed and placed in 5% formalin. Attempts were made to remove contents from both the upper and lower portion of stomach. Samples were placed in a Petri dish and examined under a dissecting stereomicroscope. The fragments of plant or animal tissue were identified by reference collection of plant parts collected from the crop fields and garbage. The proportions of individual components were estimated as percent of the total mass.

The availability of each plant or crop species was ranked during the study period. Crops that remained for 4 months or more (e.g. wheat) were rated as abundant while those growing for less than 4 months were rated as frequent. Crops with very limited acreages were rated as infrequent. Preference ratings were developed for each major plant species in wild boar diets by using the formula of Chamrad and Box (1968). Preference rating = (% Frequency of occurrence x % of Mass)/ Availability Factor.

RESULTS AND DISCUSSION

Twelve food items were identified in the diet of wild boar (Table 1). Two items were cultivated wheat and maize and ten were non-cultivated plants comprising woody plants, grasses, weeds and seeds of different plants. The data showed that wild boars rely mainly on herbaceous plants and garbage for the bulk of their diet. Animal matter made up only a small amount of the mass. The samples collected around Quaid-e-Azam University showed that 85% of the diet consisted of both wheat leaves and grains.

The stomach content varied depending on the location from which a boar was shot. For example, wheat leaves and grain were more in wild boars shot near the cultivated fields in the vicinity of the Quaid-e-Azam University while maize was more in wild boars trapped from maize fields and NARC experimental field. *Mesquite*, *Beri* and *Phulai* seeds were found in animals killed around the forest areas.

Generally, there was a high proportion of garbage in the stomach of the wild boars which could be associated with availability, taste and nutritive value of food items present in garbage that is easily found within the areas covered by this study. Material found in the garbage included pieces of tetra pack paper, polyethylene bags, pampers, used tea leaves, rotten fruits, different types of vegetables and household wastes. Animal tissues were also found in the stomach contents of wild bores caught near the slaughter house or poultry farms. In some cases, leaves of the grasses, weed and tree bark were also found in the stomach

contents. Feeding on vegetable matter is a natural habit which also improves the digestion process (Beg *et al*., 1982). The grasses increase the fiber contents in food and ultimately help to digest other materials (Genov, 1981). Mud was also found in some stomachs as the animal loves mud wallowing and takes in some quantity of it during watering in puddles. In addition, the wild boars take up mud along with other foods present on the ground.

Pronounced changes in diet were observed of seasons changed. Wheat was prominent in December and its leaves comprised most of the diet up to March. Wheat grain appeared in June and July. Non-cultivated plants like mesquite and phuli comprised an important part of the diet in November to June. Grasses and weeds, mainly the leaves and occasionally the seed heads were also important items in the diet. Considering the numerous food items the most important component of diet of wild boars in Islamabad was garbage as it was available through out the year.

Table 1: Frequency of occurrence of various foods in the diet of wild boars in Islamabad, Pakistan.

S.no	Food Items	% of Mass	Freq.	AF	PR
1	Wheat (*Triticum aestivum*)	6	7	1	42
2	Mize (*Zea mays*)	2	5	1	10
3	Mesquite (P*rosopis juliflora*)	1	8	2	4
4	Phulai (*Acacia modesta*)	2	4	3	2.66
5	Beri (*Zizyphus nemularia*)	5	18	3	30
6	Garbage	58	28	4	406
7	Animal Tissues	16	24	3	12.8
8	Grasses (Leaves)	5	22	4	7.50
9	Weed (Leaves)	2	18	4	9.00
10	Unidentified Plants	0.2	6	_	_
11	Mud & Soil	0.8	4	4	1.8
12	Tree Bark	2	13	3	11.33

Percent of mass = % of sample stomach contents (100 gm); Frequency = Number of occurrence per sample; AF = Availability factor (Rare = 1; Infrequent = 2; Frequency = 3; Abundant = 4); PR = Preference rating (Percent of mass x Freq. / AF) .

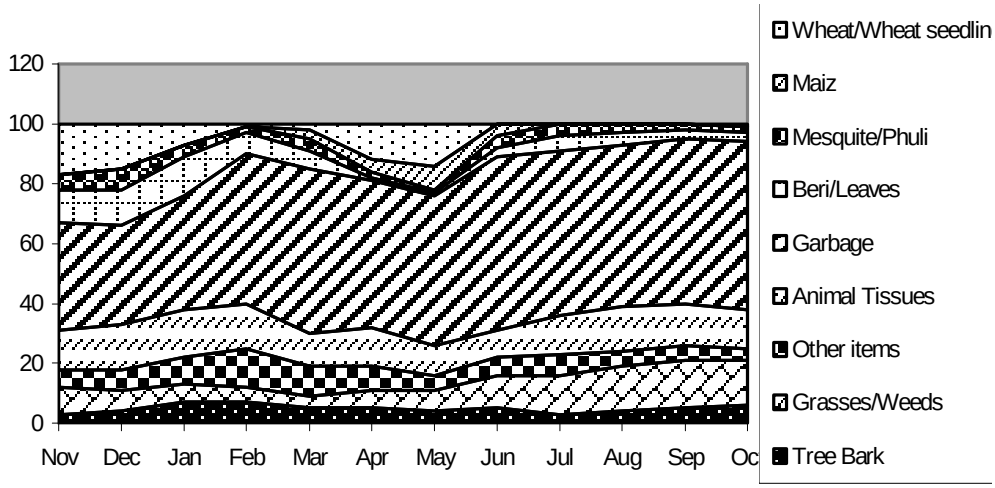

Figure 1: Monthly changes in dietary items of wild boar based on frequency of occurrence in Islamabad.

Genov (1981) reported that cultivated plants made up to 71% of the total mass and occurred in 89% of the 181 stomachs of wild boars in Poland. In the same study animal food comprised 9% of the total mass and

was found in 47% of the stomachs, but was not considered to be of major importance in the diet of the wild boar. According to our results cultivated plants in Islamabad made up 27.2%, animal mass 16%, mud 0.8% and garbage 58% of the food items found in the stomach of the assessed wild boars. The seasonal trends are presented in Fig. 2.

The damage caused by wild boars to crop and forest plantations could be reduced if effective control measures are developed. Although present measures including shooting, snaring, and poisoning are effective, alternative measures based on habitat management and diet manipulation can be introduced.

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