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Short communication

Population estimation of kites and crows by roost count method in Lahore, Pakistan

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Abstract
Birds of prey had a large home range and inhabit areas which are far away from human access so it is difficult to estimate their population. Kites (*Milvus migrans*) and crows (*Corvus splendens*) often gather in large communal roosts during migration at a site for food and breeding. The present study was done to estimate their population by Roost Count Method. Four sites were visited and population of kites and crows was estimated. It was found that 356 kites and 224 crows were present on an average at any roost. The soaring kites in the high skies and crows in the forenoon and afternoon sessions were more or less absent. In addition, these birds were less common on huge Garbage sites. Shockingly, it seems that like vultures, black kites and crows are on their way to elimination in Lahore.
Keywords: Crows, kites, Lahore, population, Roost count.

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Birds of prey are difficult to study in the field as they occupy large home ranges and often inhabit remote inaccessible regions [1]. In addition, their density exhibits local and seasonal fluctuations and their activity may vary throughout the day [2]. Usually raptor censuses are restricted in the breeding season when they are easy to record. The counting units are occupied nest-sites or established breeding territories [3]. In the case of colonial or flocking raptors, census work is facilitated by tracing the birds in localized areas such as their colonies or communal roosts [4]. Accurate estimates of their population can be made by conducting surveys in these sites during certain months of the year and times of the day [5]. As a result, improved monitoring techniques consist of counting birds at their breeding or roosting sites early in the morning or late in the evening before or after their daily foraging trips [6].

The common black kite is an accipitrid and is widely distributed in the old World [7]. Common kites (*Milvus migrans*) often gather in large communal roosts and breeding colonies. Large aggregations also occur where food is abundant and during migration [8]. Their highly gregarious and opportunistic foraging behavior leads them to eat the most abundant and available prey, especially slow-moving and injured animals as well as food obtained by scavenging [8]. As scavengers, black kites have been recorded in large numbers on waste accumulations generated by human activities, including rubbish dumps, markets, fishing-ports and abattoirs all over their world range [9]. Despite the widespread range and abundance of the black kite, limited information is available concerning the proportion of age classes in resident groups and in migration [8, 10]. Knowledge about the age distribution of kites using rubbish dumps, and the timing of residency and migration associated with these sites is almost nonexistent [9].

The invasive potential for the crows (*Corvus splendens*) is great all over the tropics. This specie is able to make use of resources with great flexibility and appears to be associated with humans, and no populations are known to exist independently of humans [11]. Therefore, this study was designed to monitor the population of common kites and crows to locate the rubbish damps in Lahore, to identify the nesting sites in the study area and to study the preferences of kites and crows in search of roost sites.

The purpose of this study was to estimate the population of common kites and crows in Lahore district, Pakistan. For population estimation "Roost Count Method" was used. In this method, birds returning to a communal roost at dusk were counted, as the birds are highly clumped at the roost and efficiently censuses at that time due to easy identification against the sky [12]. To aid the counting binoculars, camera was used. Three counting trips were made at each site. Some road transects were also made on selected roads.

In the area of Lahore district, four roosting sits locations were determined. Location A was roosting and feeding site in the surroundings of Lahore University. Location B was a roosting site along Ravi River. Location C was in Shahdra and location D was near Changa Manga that is a feeding site of many birds of prey (Table 1). As the roosting sites were small and widely spaced and the multistory buildings were posing

a problem in efficient census, the road transect method was followed. Each transect was about 10 km (Table 2).

Table 1: Bird distribution across different locations.

Bird	Location A	Location B	Location C	Location D	Average
Kite	320	698	88	318	356
Crow	167	530	220	260	294

Crows have nearly same feeding habit as kites; they were also censused on the same locations. The crow population given here was the number of crows feeding on that spot. Only a fraction of them roost nearby.

Black kite (*Milvus migrans*) was seen capturing and captivating everything nearby the offal and garbage sites in the Kurukshetra environs until recent past. Now a day, it has been observed that between 2000 and 2010, their depletion is getting faster and it is not noticed by the scientific and social world [13]. In Europe, black kite has been marked out as a declining species [14]. Black kite mostly roosts on peepal and old mango trees. All the nests were observed on the very top of peepal trees. The nests were made of rough and tough twigs. Considering roosting and nesting habits, it is borne out from the present studies that Black kites prefer peepal trees only.

The most heavily populated area of crows was the dumping site in the Ravi River. The reason of this was the abundance of food, water and a large number of trees. Pesticide contamination has been reported to be one cause of black kite's population decimation in Western Europe [15, 16]. Nest robbing as the cause for black kite downward population trends has been reported [17]. No serious focus was done on its feeding habits, yet it seems to prey upon rodents in the field and railway station along with the garbage sites and thus is an opportunistic feeder as reported by Sergio [18] and Arroyo [19].

Table 2: Transect counts.

Bird	Bird/Km	Bird/10 Km
Kites	221	22
Crows	173	17

The less number of kites in the Shahdra area was referred to the existence of a large number of residential and commercial areas all around. Kites are still relatively common throughout Sindh and Punjab, and flocks of up to 400 birds wheeling in a wide straggling circle were observed over parts of Karachi city at even tide and flocks of 150 to 160 over Rawalpindi city [20]. Resident race of black kite and crows was encountered in Lahore city and it's another race i.e. winter visitor could not be observed. Near human inhabitations, these were seen gliding and flying in very close vicinity of garbage heaps. In the afternoon the second bout in the skies is a repeat of the morning session. Trees are inadequate resting and nesting sites. The few traditional still safe trees are supporting only nominal number of these birds. The situation needs to be investigated well in time to substitute conservation plans.

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