

SUMMARY

A comprehensive, one year study, from September 14 to August 15, was carried out to find the diversity and density of avian fauna present in Bagh-e-Jinnah (Jinnah Garden), Lahore. Bagh-e-Jinnah or Lawrence Garden (31° 32' 58" North and 74° 20' 36" East) covers an area of 140 acres. It is one of the biggest botanical garden of Pakistan and has a wide variety of vegetation and habitats. A previous study of the avian fauna of the Bagh-e-Jinnah was carried out in 1996 reported the occurrence of 54 bird species. The habitat and the avian fauna were regularly surveyed at different times of the day from dawn to dusk. Field surveys were carried out to record the avian species employing line transect method. A Nikon binocular 10-22x50 was used to spot and study the birds and a DSLR camera (Canon 1100 D) with Sigma 70-300 lens was used to photograph birds.

Seventy nine bird species were observed belonging to 12 orders 38 families. As per seasonal abundance status of species, 41 were resident, 17 winter visitors, 15 summer breeding, 5 passage migrants and one was accidental vagrant. Shannon-Weaver Diversity Index was calculated to be 1.409 indicating a moderate level of diversity in the study area. Garbage eating and scavenging birds (House Crow 12%, Black Kite 14%, and Common Myna 6%) were considered to be relatively abundant (32%). Among frugivorous birds, Yellow-footed green-pigeon was most abundant, 9.5%. Abundance of other birds is as follows, Rock Pigeon 11.5%, House Sparrows 5%, House Swift 3.5% Jungle Babbler 2.5%, Red-vented Bulbuls 2%, Purple Sunbird 2%, Oriental-white Eye 2% and Laughing Dove 2%.

Density of birds as per Census Index was 50 birds per Km². Principal Component Analysis of different bird species was shown in Figure 4.06 to 4.09. It is a mathematical procedure. It transforms large number of correlated variables into a group of uncorrelated variables called principal factors/components. Principal Component Analysis expresses the variances of a large dataset of inter-correlated variables with a smaller set of independent variables (Simeonov *et al.* 2003). PCA performed on the presented data of bird species showed that their abundance is in peak summer and winter. This rich abundance is because of migratory birds that come for breeding in summer and then use to spend winter season.