

# Diversity Of Avian Fauna In F.R. Darzinda, Including Their Importance, Extinction And Their Safety Measures, In Dera Ismail Khan, Khyber Pakhtunkhwa (Kpk), Pakistan.

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## Abstract

*In a world of rapid anthropogenic land use, changes and declining biodiversity, there is an urgent need for understanding the state of biodiversity to aid management and conservation. In order to successfully manage land use in ways that is least harmful for biodiversity, it is vital to be able to identify habitats that are of most importance for biodiversity. In the present study the causes of extinction were noted in Darazinda. In our world, diversity of birds decreasing with the passage of time due to so many known and unknown factors, it has been discovered that the most important one is the deforestation. In the world total bird diversity is 9040 species in which 132 species are extinct now while hundreds have been declared threatened and endangered due to anthropogenic activities.*

*Same phenomena were observed in the present research in which the bird diversity alarmingly decreased with the passage of time and most of the birds face imminent extinction. The estimated data shows that there has been a disturbing 36% decrease in the bird population during the*

*previous 10-15 years and the main factor has all through been deforestation. The research declared that if the deforestation and hunting are not stopped through strict measures then in the coming 10-15 years the burgeoning population explosion will add to the above and it is feared that diversity will be further decrease by 92% and most of the species will soon be extinct from the area of Sherani tribe. The total bird species in our area were 32 among including vultures which have vanished from the area while a few economically important birds are near extinction. The population of economically important birds has decreased more than the other birds and this sudden decrease can be blamed on deforestation but it was hunting as sport which played the key role in their alarming decrease, for they are a delicacy for the hunters and their delicious meat is eaten with relish. The population of some of the birds has suffered terrible decline and this includes Black Partridge whose numbers have decreased almost 80%, Alectoris chukor met a decrease 98%, Gray Partridge lost 70% its population and See-See Partridge fell to 40%*

*decrease which is calamitous. To conserve bird diversity and also to maintain the population of the economically important birds, we must stop deforestation and hunting simultaneously. This is only possible if we adopt proper legislation to curb deforestation and hunting by punishing those who augment it and are thus responsible for it.*

**Keywords:** *Avian fauna, Diversity, Climate, Extinction and Safety Measures, F.R DARZINDA, D.I.Khan Pakistan.*

### **Introduction**

Birds are one of the most popular life forms on the planet, and its diversity leads to a richness of life and beauty. There are around 9000 species of birds living in the world today, with a tremendous diversity of life style [Khaliq Dad\* 2014].

The global population sizes of species vary by many orders of magnitude. Amongst the birds, the rarest presently numbers just a handful of wild individuals (Bird Life, 2000), whilst the most abundant (Elliott, 1989) has many hundreds of millions. Numerous reasons can be suggested for these differences, including the influences of body size, life history, trophic group, phylogeny and history (Damuth, 1981; Peters & Wassenberg, 1983; Pimm, 1991; Brown, 1995; Blackburn *et al.*, 1996; Gaston & Blackburn, 1996; 2000).

As regards birds, the total number of birds species in the world today is 9040 and the total number of taxa of birds of Indo-Pakistan sub-continent is 2060 ( Ali and Ripley, 1983). The variety of avian species in ecosystems reflects the well-being of its habitat. Birds are the indicators of environment and are being used for conservation and environmental impact assessment (Gregory *et al.*, 2003).

Biodiversity is not evenly distributed across the earth. It may be influenced by biogeography (Karr *et al.*, 1976). The availability of resources for birds diminishes reflecting differences in forest stand structure, site productivity, vegetation composition, distribution pattern, secondary biotic interactions and available land area (Waterhouse *et al.*, 2002).

Some studies had established a close relationship between bird species diversity and vegetation (Hawkins, 1999).

Habitat is a place where animal's life found or exists. All animals except the human can live in an area where the basic resources of life such as food water and shelter are present. Because human can modify environment to suit their needs or desires, because human potentially have access to resources such as food and other life requirements from all over the world (Ahmad, 2011).

We know that every animal species have their own requirements such as food and shelter and therefore different animal's species are found in different areas where its requirements are present. And distribution of animal's species all over the world is a result of using different habitat by different species of animals (Ahmad, 2011).

Avian fauna are also distributed in different area of world on the basis of using different habitat by different avian species its mean that different avian species are found in different area and not all avian species are exist in same area because every avian species use a different habitat from other species.

We know that world is divided into different geographical regions on the basis of animal's distribution which is called zoogeographical regions. Its mean that some animals are found in one region while the other are found in other region in the same way birds are also distributed in different region differently depend on the use of habitat (Ahmad, 2011).

In Khyber Pakhtunkhwa the wild fauna is rich and its wildlife flourishing in forests is a precious heritage of the country but due to motorized and ground hunting these wildlife species were run a point of extinction. For this purpose it is necessary to provide best protection to wildlife in Khyber Pakhtunkhwa, therefore

several areas were declared as protected areas (Khyber Pakhtunkhwa Wildlife Department, 2008).

Although some birds are at risk by virtue of their naturally small ranges or populations, the vast majority of threatened birds are imperiled due to the actions of humans. Some 82% are affected by habitat loss and degradation, most often related to agriculture. Forty percent are adversely affected by other species in their environment, including invasive exotics or natural competitors that exacerbate additional threats. Hunting and trapping threaten 38% of threatened birds, whereas climate change and severe weather events potentially threaten 33%. In general, small ranges or low populations make birds particularly sensitive to these threats (Note that the percentages sum to more than 100 because most threatened birds are imperiled by multiple factors) (Bird Life International, 2011).

When habitats change, the birds that lived in them frequently cannot persist in the new landscape. Habitat loss is a major factor in bird endangerment because by the turn of the millennium, at least one-third of the Earth's terrestrial surface had been reshaped by human activities, such as agriculture, ranching, logging, and industrial development (Vitousek et al., 1997). Deforested land was primarily logged and/or converted to agriculture

with major threats, including logging, cattle ranching, soybean farming, and oil palm plantations. The trend is expected to continue. By the year 2050, the Earth's burgeoning population will require up to 1 billion hectares of additional agricultural lands to feed itself (Tilman et al., 2001).

The 2011 update to the IUCN Red List recognizes 10,052 species extant after AD 1500. Of these, 132 (1%) species are now Extinct (EX). Of the remaining species, 189 (2% of extant species) are Critically Endangered (CR), 381 (4%) Endangered (EN), and 683 (7%) are Vulnerable (VU), representing 13% of the world's currently extant avifauna. A further 844 species (8%) are considered Near-Threatened (NT), indicating that they may become threatened in the future, whereas almost all remaining species are classified as Least Concern (LC). Insufficient information exists to assess the status of only 62 species (1%), classified as Data Deficient (DD). Thus, 2159 bird species, or 22% of the world's avifauna, are identified as being of global conservation concern. Birds are of great economic importance to the human society. They play an important role in controlling population of different insects and pests. They play the role of scavengers and pollinating agents and also help's in dispersal of seeds of different vegetation's. They are helpful

and help to provide rich food for mankind and are known to man since ages (Chittampalli and Bhatkhande, 1993). Apart from this, birds have always fascinated mankind with their intrinsically beautiful plumage, melodious songs and artistic behavior. Birds are sensitive indicator of pollution and also play great role in pest control [Achard, et al. 2002].

### **Study Area**

The study area of the research is Darazinda (a Frontier Region). '*Drazinda (or Darazinda)* is a village near to Dera Ismail Khan in the Federally Administered Tribal Areas (FATA) of Pakistan, about 78km in the west of Dera Ismail Khan. The Frontier Region Dera Ismail Khan (often abbreviated as F.R. D.I. Khan) is a small administrative unit in the Federally Administered Tribal Areas (FATA) of Pakistan. It leis at 31° 42'17.3"N and 70°07'58.2"E and altitude is 480m from sea level.

### **Geography and climate of Darazinda**

The geography of Frontier Region Dera Ismail Khan is mostly hilly as it lies near Sulaiman Range. The Sherani Area is totally under the eastern shadow of highest peak of Takht-e-sulaiman. The northern side is bounded by Gomal pass. The climate of Frontier Region Dera Ismail Khan from December to February is cold, and from May to September is warm. In Frontier

Region Dera Ismail Khan, the highest peak of the Sulaimans is Takht-e-Sulaiman or "Throne of Solomon" at 3,487 meters (11,440 ft).

### **Material and Methods**

Direct and indirect methods were used in the study by visiting the field and by interviewing the local peoples and hunters about the current and past status of the avian fauna of the area and also relating its population with the population of past. The interviews were conducted in the form of questioner. In case of wildlife different methods and techniques are adopted like by visiting open forest and observing there the nest, caves, faece of animals or feather of the birds in the area to confirm their existence. But this is just for the diversity and not for the decrease of diversity and population. And the second thing is that in open forest the census is never possible through direct observation and the population of some important species can be estimated through the experiences of local person. During the current study direct and indirect methods were used. A total of 31 species were recorded belonging to different families. Most of the birds were resident and just 3 species were migratory. The questioner was mainly focused on the diversity and in decrease in population of avian fauna during last 10 to 15 years.

### **Results**

In the research was mainly focused on the factors which decrease in the population of bird species and ultimately their extinction of the birds from the area. The data were collected through questioner from local person and from the hunter to know about the factors which cause the extinction of birds and to estimate the percentage decrease in population of some birds.

In this session the factors of extinction and the decrease of bird are represented graphically.

### **Discussion**

#### **➤ Diversity of avian fauna in Darazinda**

There is a wide diversity of birds in Darazinda; I have personally observed about 31 species of birds in our area and same species were reported through the data collected through questioners. The observation is supported by the information given by local people and the data are collected through questioners as stated earlier. The list of the bird mentioned in figure No:4.11 is of those which birds have fully adopted themselves to the climate of our area. The climate of Darazinda fully supports the diversity of bird. The winter and summer do not have extreme temperatures to disturb wildlife to the extent that it is forced to

migrate to warmer regions except some exceptional cases, where snowfall is a common phenomenon during winter season and that happens only in the upper reaches of Sulaiman Rang. But my main area has been Darazinda and birds don't get disturbed there by the climatic conditions.

Most of the birds are seen nesting in the breeding season for the rearing of their young ones. Most of the small sized birds make their nest in trees while all the larger birds prefer to make their nests on the ground or on the rock's ledges while the still smaller ones like to make their nest in small bushes and in grasses. Some of these species are well-adopted to humans and fly around in agricultural land in their marked territories for food and nesting. Among these, some 31 species live in-mixed with human population and have some sort of a social bond with human while others still prefer their natural habitat away from human population. The common names of the observed birds are given below along with their scientific names and family to which they belong.

Forest and mountain is a best habitat for all types of wildlife. It is because the drastic climatic and sudden climatic changes not occur there. In temperate regions wildlife fauna can survive easily because the habitat is fully in favor of avian fauna.

The topography of F.R D.I.Khan is well suited for the avian fauna in their natural state. In Darazinda there are grasslands, mountains, and green trees straddled slopes, there are cultivated lands away from human habitation which are the main source of food for birds, clean drinking water is available in the form of a perennial river which continuously flows from the foothills of Suleman Range after passing through the entire area of Darazinda enters Daraban area on the plains of Damaan.

### **Factors which Affect Bird Population and Diversity in Darazinda**

There are many factors which affect bird diversity and population throughout Darazinda area. The decrease in the population of birds varies from species to species and their extinction and endangerment and decrease in population depend upon the type of species and factors affecting bird. In the following section different factors are discussed which cause the decrease in the bird population. From the data collected through questioners from the locals, wildlife enthusiasts and shikaris the estimated decrease in birds is about 36%. The role of each factor will be discussed in the following paragraphs.

#### **(a) Deforestation**

Deforestation is one of the main factors of habitat destruction in Darazinda F.R DIK. The local people cut the trees and sell them in the market in order to earn money and bring things of daily use to their homes for sustenance. Deforestation results due to the construction of roads for linking villages and towns and also for the construction homes for living purposes. So when the habitat of birds is destroyed or affected, resultantly the nesting places, food availability etc. are all disturbed. This is revealed by a gradual decrease in bird population in that area. The population fragmentation is the other main factor of deforestation in Darazinda. The increase of population force the people to migrate toward the forest, open areas, build homes there and live separately. This mechanism not only causes deforestation but also disturbs birds' natural habitat because most of wild birds never like to live near human. Due to this birds life gets disturbed, their breeding patterns are changed, food becomes scarce in that area, and water requirements are affected. Among all the factors responsible for the decrease of a species in a given area, deforestation tops the list and causes birds' extinction up to 39% percent. According to some local hunters the deforestation is not the main cause of decrease in birds' population in Darazinda rather they claim that hunting is one of

the main factors of birds' decrease in our area. But at this point question arises, if hunting is the main cause of extinction then why the population of all bird is decreasing with passage of time whereas according to my estimates, our local shikaris just hunt 3 to 4 species of games bird as food and they all belong to partridge family.

### **(b) Flood**

The other main area after deforestation is the floods which increase and hit a an area because of deforestation as there are no forests to stop the flow of water. Birds' habitat gets adversely affected by flooding in a given study area. Flooding directly affects the food supply, destroys the breeding places of the birds and displaces the species which move to safer areas. Flood affect birds in two ways, first it destroy habitat of the birds and this factor initially gets started by human activity when they start cutting of trees and this deforestation enhances the erosion of soil surface and when there is flood like phenomena, it washes away the eggs and young ones of the birds and as result there is annual decrease of birds' population in that area. The role of floods has been touched lightly, for there are no wide scale floods in our region.

### **(c) Grazing Animals**

Grazing animals are also one of the minor factors for habitat destruction of the ground nesting birds and this includes all of the partridge family members in Darazinda area which make their nest on the ground or in small grasses. Though this is not a key factor but it does disturb the birds, for human interference in the natural habitat of birds does disturb them a lot and birds are flushed off their nests, their eggs are stolen and if there are young then they are taken away and are kept as pets by the locals.

### **Hunting**

It is the one of the most important factors of bird extinction. The illegal hunting quickly decreases the birds' population and adversely affects some birds which are economically important. Hunting is done just for enjoyment or game birds are hunted to extinction for their delicious meat. The hunter shoots a large number of birds in Darazinda. Hunting's role in decrease of birds' population is some 8 % because we just hunt a few birds in our area and not all the birds so it is not the major cause of extinction of birds in my study area. This one factor mainly fluctuates and depends upon the type of species.

### **Capturing**

Most of the locals are fond of keeping wild birds as pets and this practice has been going on for centuries. Most of the members of the partridge family are adopted as pets by the locals. The key ones among them are the Black and Grey Partridges and the third one in this line are the Chukars or red-legged Partridges. Male Black Partridge and Chukars are kept for their beautiful calls so are Grey Partridges but male Grey Partridges are good fighters and are kept and used for fighting on bets. The local people capture the birds through net but sometimes they also drug the birds through food and thus capture them. The live capturing of birds in my study area is responsible for some 9% decrease in the population of the birds which though not negligible does affect the birds.

### **Trade**

Local people not only capture the wild birds for their own use but also capture the birds to sell them in the main city markets at high price. The birds whose trade is more common in F.R DIK includes common quail, black and gray partridge and chukor.

### **Climate**

Climate of F.R DIK is changing with the passage of time from cool to hot and this unfavorable

environment is the direct result of intensive deforestation. The sun in summer is too hot and the birds during daytime cannot find a shelter for their offspring under the shadow of a tree to protect them from the intensive radiation of sun light. So the young ones very rarely survive in such conditions, its role in bird decrease is about 1%.

### **Population Fragmentation**

Human population has increased manifold in Pakistan and humans are not only involved in deforestation but a major chunk of population is on the move from the main cities to suburban areas, that is, there is urban to rural shift in population. In a place like Darazinda, population has moved to forested area and this migration besides causing deforestation, allows the locals to enter the forest for many purposes and as result the birds' life is badly affected by the human interference in their natural habitat. This role of humans has resulted in 29% in birds' population.

### **Rain**

As we have already discussed the factors which cause deforestation and habitat degradation, as once as the habitat is destroyed in this way then it will surely require too much rain for the growth of forest, while the low rainfall in this area cannot

fulfill the requirement of water for forest growth. The forestation is more than the growth of the forest. And the second factor which is more related with bird population which is weather related and was not discussed along with climatic change nor can we relate it with deforestation. If the raining phenomena is prior to breeding time of the birds then the population of the birds will increase that year but if that occur in breeding time then the population will be decrease because the eggs do not get properly incubated, and sometimes the nests get destroyed by rains, winds and floods. The role of rain in the increase and decrease of birds' population in all the forms is 7%.

### **Conclusion**

In the present study area many factors of bird extinction are mentioned according to their role in the extinction of avian fauna. Each and every wildlife species mainly depends upon the flora of the area because it provides food as well as shelter to the wild species. In this research the main cause of extinction of bird is deforestation. Deforestation is done for agriculture land formation, housing society construction, road construction and cut the trees to use them as a fuel source. The result of the research is that we must stop deforestation and also find any alternatives of the trees to use as a fuel source.

And the second main cause of extinction is hunting and capturing of some economically important birds like the varieties of partridge, which people do for food and fond to domesticate them. If the precautions are not done soon then in near 10 years the majority of birds will be extinct from the area. To conserve bird diversity deforestation and hunting must be stopped.

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