International Journal of Biosciences (IJB)
ISSN: 2220-6655 (Print) 2222-5234 (Online)
Vol. 2, No. 12, p. 120-124, 2012
http://www.innspub.net

SHORT COMMUNICATION OPEN ACCESS

Present status of the threatened fauna of district Buner Pakistan

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Received: 18 November 2012
Revised: 29 November 2012
Accepted: 30 November 2012

Key words: Biodiversity, conservation, threats, Buner, Pakistan.

Abstract

This study was conducted to evaluate the threatened fauna in various climatic and vegetational zones of District Buner Pakistan. The aim of the study was to document the diversity of fauna and their conservation status. The specific objective was to gather information regarding the presence, population distribution, and habitat utilization of the threatened fauna of District Buner. The areas visited include Totalai Game Reserve, Kingergali Game Reserve, Malka and Mangal Thana, Nanser, Kohay, Mir Dara, Bar Kalay, Naway Kalay, Kawgah, Kadal and Sora. The study revealed that the threatened fauna of District Buner are; Black partridge, Grey partridge, Chukar, Koklass pheasant, Kalij pheasant and Grey Goral. Field observations showed that the visible threats to the flora and fauna of the area was the trend to urbanization, deforestation, over grazing, unscientific extraction of natural vegetation, introduction of exotic taxa, loss of habitat and hunting, trapping and shooting of wildlife.

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Introduction

Biodiversity is the variation of life forms within a species, ecosystem, biome, or an entire planet and is a measure of the health of ecosystems. Biodiversity varies greatly across the globe as well as within regions. In terrestrial habitats, the tropical regions are rich while Polar Regions support fewer species. Among other factors, the diversity of all living organisms depends on temperature, precipitation, altitude, soil, geography and the presence of other species. About 1% of the existent species of the Earth are extant due to environmental changes that caused mass extinctions (Raup, 1994). There are five major mass extinctions that have led to large and sudden drops in biodiversity on Earth. The Phanerozoic eon marked a rapid growth in biodiversity via the Cambrian explosion. The next 400 million years included repeated, massive biodiversity losses classified as mass extinction events (Sahney *et al.,* 2010; Sahney and Benton, 2008; Benton, 2001). The Holocene extinction due to habitat destruction by humans caused loss of genetic diversity. Generally terrestrial biodiversity is up to 25 times greater than ocean biodiversity (Ehrlich and Ehrlich, 1981).

Pakistan is under tremendous ecological stress due to its population explosion, urbanization, deforestation and over exploitation of natural resources (Haq, 2012). The natural forests of Pakistan are rapidly declining at a rate of 4-6% per year, resulting in a decline in population size of both flora and fauna (Haq *et al.,* 2010). The forests of Pakistan require special attention for the conservation of environment and sustainable utilization of natural resources. The decrease in forest cover and associated major changes in community composition has led to the decline in population size of many important plant and animal species (Haq, 2012).

District Buner is situated between 34° 11′ and 34° 43′ N latitude and 72° 13′ and 72° 45′ E longitude in Khyber Pakhtunkhwa Province of Pakistan. The District is surrounded by Swat District on the north, Malakand Agency on the west, Mardan District on the south and Hazara Division on the east having an altitudinal range of 366-2911m, with a total area of 1,865 km² and a population of 506,048 individuals. District Buner is made up of plain and undulating land and mountain slopes. The plain and undulating areas are lying on the lower elevation and mountain slopes with barren rocks are on higher elevation. The hydrology of the district is covered by seasonal streams (Khan *et al.,* 2012). To the best of our knowledge, there is no such extensive study regarding the diversity and population size of wildlife in District Buner. Therefore, the present survey was conducted to study some of the high risk birds in District Buner.

The aims and objectives of the survey were: to measure wildlife population for future planning; investigate the breeding stock of partridges for breeding; examine the partridges stock for sport hunting; identify new potential areas and to achieve PC1 targets.

Materials and methods

Wildlife surveys were conducted to measure wildlife population in District Buner Pakistan. The surveys were conducted in the game reserves, proposed community and private game reserves. The study area included Totalai Game Reserve, Kingergali Game Reserve, Malka and Mangal Thana, Nanser, Kohay, Mir Dara, Bar Kalay, Naway Kalay, Kawgah, Kadal and Sora. Direct and indirect methods were used to collect information regarding the presence, population status and habitat utilization of wildlife in the study area. For direct observation, the areas were thoroughly surveyed. The surveys were scheduled early in the morning and at evening. Field note book, GPS and Binocular were used during field study.

Results and discussion

The important fauna of District Buner are; Black partridge, Grey partridge, Chukar, Koklass pheasant, Kalij pheasant, Grey Goral, porcupine, Fox, monkey, wild bore, jackal, pigeon, lark, vulture, Redstart, Hare, Tits, wood packer etc. The important floral species of the study area include; *Acacia modesta, Adhatoda vesica, Ailanthus altissima, Asparagus*

sp, Berberis Iycium, Celtis australis, Cenchrus setigerus, Cotoneaster sp, Cymbopogan jawarancusa, Daphne sp, Dodonaea viscosa, Eulaliopsis binnata, Eucalyptus sp, Ficus carica, Ficus reliqiosa, Gymnosporia spinosa, Indigofera sp, Isodon requsus, Melia ezederech, Morus sp, Myrsine sp, Oxalis corniculata, Olea ferrugenia, Pinus roxburgii, Pinus wallichiana, Robinia pseudoacacia, Rubus fruitticus and Rosa muschata etc. The people of the studied area cultivate maize, wheat, certain vegetables and legume plants. Buffaloes and cows are the main source of milk production in District Buner. Bullocks are used for agricultural purposes in the hilly tracts. Sheep and goats are reared in large numbers and Camels are used for loading.

Table.1. Present population status of wild fauna of District Buner during 2011.

Name of Area	Black Partridge	Grey Partridge	Chukar Partridge	Kalij Pheasant	Koklass Pheasant	Grey Goral
Totalai	200	240	160	07	02	05
Kingergali	147	161	70	03	02	07
Malka/Mangal	80	70	123	63	18	10
Nanser	92	134	35	29	01	20
Kohay	82	114	25	28	00	35
Mir Dara	48	76	43	13	00	03
Bar Kalay	55	66	41	02	00	00
Naway Kalay	33	69	37	03	00	02
Kawgah	93	84	132	01	22	00
Kadal	69	92	35	22	00	00
Sora	58	69	26	9	03	05
Total	957	1175	727	180	48	87

The present population status of some of the important fauna in different sub valleys of District Buner is presented in table 1, while total number of mature individuals for the last six years is presented in table 2.

In present study, the conservation status of six species was studied in District Buner. These species were evaluated against IUCN criteria Version 3.1, and were placed as Critically Endangered species locally. These investigations were based on population reduction criteria A, geographic range criteria B, small population size criteria C and very small or restricted population criteria D. Habitat destruction has played a key role in species extinctions (Haq *et al.,* 2010). Factors contributing to habitat loss are: overpopulation, deforestation (Haq, 2012), pollution, global warming and climate change. Other threats include introduced and invasive species (Mooney and Cleland, 2001) that may be predators, parasites, or may simply outcompete indigenous species, Genetic pollution, overexploitation (Graftonet *et al.,* 2007), hybridization and Holocene extinction (Ehrlich and Ehrlich, 1981; Burney and Flannery, 2005; Dunn, 2005).

Table.2. The number of Mature individuals during last six years.

Name	2006	2007	2008	2009	2010	2011
Black Partridge	1120	1090	1066	1020	985	957
Grey Partridge	1334	1287	1246	1230	1215	1175
Chukar Partridge	930	870	845	798	750	727
Kalij Pheasant	400	367	320	270	215	180
Koklass Pheasant	182	164	125	88	65	48
Grey Goral	130	117	113	101	96	87

In Totalai Game Reserve which is stretched over an area of 17000 Hectares, the number of mature individuals of Black Partridge were 200, Grey Partridge were 240, Chukar Partridge were 160, Kalij Pheasant were 7, Koklass Pheasant were 2 and Grey Goral were 5.

Kingergali Game Reserve was declared a public sector Game Reserve with an area of 20300 Hectares. The number of mature individuals of Black Partridge was 147, Grey Partridge were 161, Chukar Partridge were 70, Kalij Pheasant were 03, Koklass Pheasant were 02 and Grey Goral were 07.

Malka and Mangal Thana is stretched over an area of 10000 hectares in Buner Wildlife Division. The number of mature individuals of Black Partridge was 80, Grey Partridge were 70, Chukar Partridge were 123, Kalij Pheasant were 63, Koklass Pheasant were 18 and Grey Goral were 10.

Nanser area is situated at a distance of 11km from the main Mingora Sawari road. It spread over an area of 1800 hectares. The numbers of mature individuals of Black Partridge were 92, Grey Partridge were 134, Chukar Partridge were 35, Kalij Pheasant were 29, Koklass Pheasant was 01 and Grey Goral were 20.

Kohay area is situated at a distance of 9 km from the main Mingora, Sawari road. It spread over an area of 2200 hectares. The number of mature individuals of Black Partridge was 82, Grey Partridge were 114, Chukar Partridge were 25, Kalij Pheasant were 28 and Grey Goral were 35.

Mir Dara is situated at a distance of 15 km from the District headquarter Dagger. It spreads over an area of 3000 hectares. The number of mature individuals of Black Partridge was 48, Grey Partridge were 76, Chukar Partridge were 43, Kalij Pheasent were 13 and Grey Goral were 03.

Bar Kalay is situated at a distance of 10 km from the District headquarter Dagger. It spreads over an area of 1600 hectares. The number of mature individuals of Black Partridge was 55, Grey Partridge were 66, Chukar Partridge were 41 and Kalij Pheasant were 02.

Naway Kalay is situated at a distance of 17 km from the district Head quarter Daggar. The area is moderate steep and present barren rocks, hillocks, agriculture fields, and woody ravines, shrubs lands. The number of mature individuals of Black Partridge was 33, Grey Partridge were 69, Chukar Partridge were 37, Kalij Pheasant were 03 and Grey Goral were 02.

Kawgah with an estimated area of 3000 Acres is located in Chamla valley of District Buner on the main Ambella Nagrai road. The number of mature individuals of Black Partridge was 93, Grey Partridge were 84, Chukar Partridge were 132, Kalij Pheasant was 01 and Koklass Pheasant were 22.

Kadal with an estimated area of 2600 Acres is located in Chamla valley of District Buner on the main Ambella Nagrai Road. The area is situated at a distance of 40 km from the district head quarter at Dagger. The number of mature individuals of Black Partridge was 69, Grey Partridge were 92, Chukar Partridge were 35 and Kalij Pheasant was 22.

Sora with an estimated area of 1400 Hectares is located in Chamla valley of District Buner on the main Ambella Nagrai Road. The area is situated at a distance of 40 km from the district head quarter at Dagger. The number of mature individuals of Black Partridge was 58, Grey Partridge was 69, Chukar Partridge were 26, Kalij Pheasant were 9, Koklass Pheasant were 03 and Grey Goral were 05.

Hunting, shooting and trapping of wild fauna, extensive grazing, deforestation and loss of habitat are the primary causes of species extinction in the study area (Haq, 2012). The people of the study area mainly depend on plant and animal species for various purposes, thus leading many species to the verge of extinction (Ehrlich and Ehrlich, 1981). Damage to the plants are careless and illicit cutting and smuggling of trees and shrubs, overgrazing, and loss of habitat. Converting the plan slopes in the forests for cultivation also exert enormous stress on the vegetation and result in environmental degradation (Raup, 1994; Sahney *et al.*, 2010).

Conclusion

The exotic species may be removed to allow less competitive species to recover their ecological niches. Those areas should be focused that have higher potential biodiversity and the areas that retain most of their original diversity. The local community should be involved in conservation

study. Awareness should be created regarding the importance of the threatened species at local and global level.

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