

A report on
WATERFOWL SURVEY OF POKHARA VALLEY KASKI, NEPAL
(2001-2004)

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Dedicated to

Father- Mr. Madhu Bilash Kafle

&

Mother- Ms. Yedu Kumari Kafle

Abstract

Waterfowl survey was conducted in nine lakes of Pokhara valley during 2001-2004 attempting to identify the waterfowls and threats to them existing on the study area. Altogether 31 species of waterfowls were recorded among which Baer's pochard (*Aythya baeri*) - a globally threatened bird was found in Phewa Lake as migrant. White-rumped vulture (*Gyps bengalensis*) was also recorded at the bank of Seti River. Siltation, pollution and overgrowth of invasive species were the major threats to the waterfowls in the lakes of Pokhara valley. It is recommended to carry out intensive study of Baer's pochard and White-rumped vulture in Pokhara valley. Awareness program focussing on the importance of lakes for bird conservation should be conducted in Lekhnath municipality. Local birdwatching groups should be formed for better co-ordination and communication at local level.

Introduction

Overview of the study area

The study was conducted in Pokhara valley. Pokhara valley extends in the oriental realm between the north parallels of 25° 7' and 28° 10' and east meridians of 83° 50' and 84° 50' situated in the central part of the country. The valley spreads mainly over Kaski district and covers small portions of Tanahun and Syangja districts. From Pokhara, Tibetan border to the north is 72 kilometers and Indian border to the south is 78 kilometers. The elevation ranges nearly from 500 meters to 3000 meters.

Pokhara experiences humid sub-tropical to warm temperate climate. Yearly mean temperature of the valley (827m) is 20.8° C whereas monthly averages are maximum 25.5° C (during July and August) and minimum 13.2°c (during January). The deviation of temperature from mean value is also interesting, absolute maximum temperature is 37.4°C and absolute minimum temperature is 2.4°. Average annual rainfall recorded in Pokhara City is 3755 mm while 5337 mm is recorded in Lumle. Pokhara receives both monsoon and winter rains. The microclimate effect in this valley is predominate that's why it reflects diverse vegetation i.e. riverain forest, grassland, monsoon forest, mixed forest, evergreen forest in the upper part of the valley.

Floral diversity

Rich pockets of *Schima-Castanopsis* forest dominate the valley. In the southern part of the valley *Shorea robusta* mixed with *Schima wallichii* is found. Along the river and streams side *Acacia catechu* at lower belt and *Alnus nepalensis* at higher belt occur. Gregarious *Bombax ceiba* trees spread over flat terraces.

Faunal diversity

No intense research has been carried out to assess the faunal diversity in Pokhara valley. However faunal diversity has been mentioned here collecting fractions of information from different magazines, newsletters and literatures. The best places to observe mammals are the forest near Phewa Lake, Begnas Lake, Rupa Lake and Banpale Hill (Forest Of Institute Of Forestry Pokhara Nepal). Some major species are Common Leopard (*Panthera Pardus*), Jungle Cat (*Felis Chaus*), Crab-Eating Mongoose (*Herpestus Urva*), Masked Palm Civet (*Paguma Larvata*), Indian Crested Porcupine (*Hystrix Indica*), Golden Jackal (*Canis Aureus*), Barking Deer (*Muntiacus Muntjak*), Common Otter (*Lutra Lutra*), Asiatic Black Bear (*Selenarctos Thibetanus*), Indian Pangolin (*Manis Crassicaudata*), Assamese Monkey (*Macaca Assamensis*), Bengal Fox (*Vulpus Bengalensis*), Leopard Cat (*Felis Nebulosa*), Small Asian Mongoose (*Herpetus Javanicus*), Indian Grey Mongoose (*Herpestus Edwardissii*), Indian Hare (*Lepus Nigricollis*), Bush Rat (*Golunda Elliotti*), Himalayan Yellow Throated Martin (*Martex Flavigula*) And Greater Woolly Horseshoe Bat (*Rhinolophus Luctus*).

Despite its small area 48 sq. miles, Pokhara valley still remains important place for bird's diversity. Pokhara valley is also called valley of lakes because it consists of 9 lakes- namely Phewa: 443ha, Begnas: 373ha, Rupa: 115ha, Khaste: 13.57ha, Deepang: 8.96ha, Gunde: 4.98ha, Neurini: 2.83ha, Maidi: 1.17ha, And Nandi: Not Available. Phewa,

Begnas and Rupa lakes are with crystalline water. Others are marshy land i.e. good habitat for waterfowls.

Objectives

The objectives of the study were:

- To list the waterfowls in Pokhara valley
- To identify the threats existing on the lakes
- To provide management recommendations for future course of actions

Study period

The study was conducted from 2001 to 2004- every year during December to February.

Study area

The study was conducted in 9 lakes in Pokhara valley - namely Phewa: 443ha, Begnas: 373ha, Rupa: 115ha, Khaste: 13.57ha, Deepang: 8.96ha, Gunde: 4.98ha, Neurini: 2.83ha, Maidi: 1.17ha, And Nandi: Not Available. Phewa, Begnas and Rupa lakes are with crystalline water. Others are marshy land i.e. good habitat for waterfowls.

Methods

Group formation:

- A group of four members was formed each year. Briefing about the research process was conducted before conducting bird watching.

Materials and equipments:

- Nikon binoculars 7*20CF and Helm field guides; birds of Nepal (Grimmett et al. 2000) was used during the fieldwork.
- A field data form was developed and distributed to all members of the group with pencil, eraser and note copy.
- Water boat was used to traverse the lake.

Location of bird watching stations:

Actually the main aim of the study was to list the waterfowls in Pokhara valley. So appropriate vantage points were chosen randomly, existing trails roads, tracks around the lake were mainly used to cover the area of lakes.

Time period:

Waterfowls were mainly observed from 7:00 AM to 5:00 PM. Each lake was surveyed 2 times (days)- during January and February- total spending 144 hours in the field, including all nine lakes of Pokhara valley as mentioned above.

Results

Collectively the waterfowl diversity in Pokhara valley has been mentioned in the following table.

S. N.	Common name	Scientific name	Remarks
1.	Lesser Whistling Duck	<i>Dendrocygna javanica</i>	
2.	Ruddy Shelduck	<i>Tadorna ferruginea</i>	
3.	Common Shelduck	<i>Tadorna tadorna</i>	
4.	Comb Duck	<i>Sarkidiornis melanotos</i>	Very few, only in Phewa lake
5.	Gadwall	<i>Anas strepera</i>	
6.	Mallard	<i>Anas platyrhynchos</i>	
7.	Common Teal	<i>Anas crecca</i>	
8.	Northern Pintail	<i>Anas acuta</i>	
9.	Northern Shoveler	<i>Anas clypeata</i>	
10.	Red Crested Pochard	<i>Rhodonessa rufina</i>	
11.	Common Pochard	<i>Aythya ferina</i>	
12.	Ferruginous Pochard	<i>Aythya nyroca</i>	
13.	Baer's Pochard	<i>Aythya baeri</i>	3 in Phewa lake
14.	Tufted Duck	<i>Aythya fuligula</i>	
15.	Common Kingfisher	<i>Alcedo atthis</i>	Only in Rupa lake
16.	White Throated Kingfisher	<i>Halcyon smyrnensis</i>	
17.	Common Coot	<i>Fulica atra</i>	Most abundant
18.	Purple Swamphen	<i>Porphyrio porphyrio</i>	
19.	Common Moorhen	<i>Gallinula chloropus</i>	
20.	Greater Painted Snipe	<i>Rostratula benghalensis</i>	
21.	Marsh Sandpiper	<i>Tringa stagnatilis</i>	
22.	Common Sandpiper	<i>Actitis hypoleucos</i>	
23.	Bronze Winged Jacana	<i>Metopidius indicus</i>	
24.	Little Grebe	<i>Tachybaptus ruficollis</i>	
25.	Great Cormorant	<i>Phalacrocorax niger</i>	
26.	Intermediate Egret	<i>Mesophoyx intermedia</i>	
27.	Little Egret	<i>Egretta garzetta</i>	
28.	Great Egret	<i>Casmerodius albus</i>	
29.	Cattle Egret	<i>Bubulcus ibis</i>	
30.	Indian Pond Heron	<i>Ardeola grayii</i>	
31.	Red-Wattled Lapwing	<i>Vavellus indicus</i>	

Additional sightings:

Three white-rumped vultures (*Gyps bengalensis*) were observed at the back of Banpale forest of institute of forestry Pokhara along the fertile cultivated land neat the riverbank of Seti River. They were observed on the live branches of *Bombax ceiba*. The Seti River dips much with rocky slopes on the both sides, where the potential habitats of white rumped vultures occur.

Discussions

Out of nine lakes the waterfowl diversity is high in Khaste Lake followed by Rupa, Maidi, Deepang, and Gunde respectively due to availability of the suitable habitat.

Bayer's' pochard (*Aythya baeri*) comes to Phewa Lake in February as migrant where it lives about two months of winter, then goes back. Within the survey of birds the species number is higher in 2003. Common coot was the most abundant bird, then lesser whistling teal followed by common teal. Greater cormorant was observed 2 in Phewa Lake and 3 in Khaste Lake in 2003 but in 2004, 1 in Phewa and 5 in Khaste and 1 in Neurini Lake.

2 comb ducks was observed in Phewa Lake in 2002, but only one in 2003, none in 2001 and 2004.

Comparatively Khaste, Deepang, Gunde, Maidi and Nandi lakes were better than Phewa, Begnas and Rupa lakes because the former were of marshy type. There was large stretch of water and vegetation consisting of red grasses and water lilies supporting an incredible number of ducks, grebes and coot. Neurini Lake was not favorable to waterfowls because a lot of snakes were found there.

The threats observed collectively in lakes of Pokhara valley is drainage diversion siltation, encroachment, infrastructure development, pollution, change in land use and poison used to kill the fish. Fish farming, agriculture, urbanization, recreational activities and siltation threatens these lakes. Phewa Lake the largest lake in Pokhara valley suffers from solid waste disposal, sewage disposal, uncontrolled infrastructure development, encroachment, siltation and fish farming. Khaste Lake is threatened by the siltation from the road construction around the lake, drainage, conversion of Lake Area into agricultural land, unscientific terrace construction in uphill side, deforestation in uphill side, pollution, fish farming and solid waste disposal. A common problem to all lakes is overgrowth of an exotic plant species, water hyacinth (*Eichhornia crassipes*), making less suitable for many waterfowls.

Conclusions and recommendations

The lakes of Pokhara valley provide good habitat of the waterfowls. Despite the small area, the majority of birds were observed on Khaste, Deepang, Rupa, Gunde, Maidi and Nandi lakes.

Globally threatened Bayer's' pochard (*Aythya baeri*) was observed in Phewa lake in total number three. So a detailed survey of this species is essential.

White rumped vulture (*Gyps bengalensis*) was found along the Seti riverbank. So an intensive study is recommended to find out its population status, nesting sites and threats in Pokhara valley.

Siltation, pollution and overgrowth of invasive species are the major threats. So proper agro-forestry systems and community plantations should be encouraged on the uphill sides and catchment areas of lakes.

Moreover awareness program focussing on the importance of lakes for bird conservation should be conducted in Lekhnath municipality. Widening this recommendation, similar awareness programme should be conducted in Ghodaghodi Lake and Jagadispuir reservoir (unprotected Ramsar sites) because of existence of similar types of threats. Local bird watching groups should be formed at local level to create better awareness, we-feeling and co-ordination.

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