A Glimpse On Faunal Biodiversity Of Barkatullah University Bhopal

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Prof. Vinoy K. Shrivastava did M.Sc. in Zoology with special paper Mammalian Reproductive Physiology from Banaras Hindu University (BHU), Varanasi in the year 1982. He was awarded Ph.D degree in Zoology in 1987 under Prof A. G. Sathyanesan from B.H.U. Varanasi.

Prof. Shrivastava joined as a lecturer in 1989 in the Department Bio-Sciences, Barkatullah University, Bhopal. He became Reader in 1998 and Professor in 2005. Presently Prof. Shrivastava has been held the post of Head, Department of Biosciences, Dean, Faculty of Life Sciences, Dean, College Developmental Council (DCDC) And Dean Student Welfare (DSW) in Barkatullah University, Bhopal. His research area is Reproductive Endocrinology, Neuroendocrinology, Animal Physiology and Toxicology. Prof. Shrivastava has published more than 95 research papers in international and national journals. He has successfully guided 28 students for their Ph.D and 52 students for M.Phil degree in the above related area of research. Besides this, he has also completed a number of sponsored of research projects funded by various funding agencies. At present Prof. Shrivastava was also acted as a Co-ordinator DBT-IPLS-BU-Programme sanctioned by DBT, New Delhi to Life Sciences Faculty. Prof. Shrivastava is the recipient of Young Scientist Award from M.P. council of Science and Technology, Bhopal and Fellow of Madhawi-Shyam Educational Trust from Ranchi. He is the member of many professional societies and he is a member of the board of several reputed journals. Prof. Shrivastava has elected as a Executive Committee Member for the session 2015-2016 of Indian Science Congress Association, Kolkata.

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Dr. Renu Shrivastava did M.Sc.& PhD in Zoology from Barkatullah University, Bhopal. Now she is assistant professor in Zoology Department, Shri Satya Sai Women College, Bhopal. She has published a number of paper in national and international journal. Her current area of research Endocrinology & Toxicology.
This book “A Glimpse on Faunal Biodiversity of Barkatullah University Bhopal” is an attempt to introduce a few among many animal species found in the university campus. This book enlists a number of birds, reptiles, mammals and a number of colourful butterflies photographed during the last one year within the whole university campus. We hope this work will be appreciated by all.

It is our immense pleasure to express acknowledgement to Honorable Vice Chancellor, Prof. Pramod K. Verma, Barkatullah University, Bhopal, India for directing us to contribute in the documentation of “A Glimpse on Faunal Biodiversity of Barkatullah University Bhopal”. Prof. Pramod K. Verma has shown his keen interest to work on this direction to work on the above problem. He was the consistent source of motivational behind the compilation and documentation of present study. Authors are thankful to Sachin Sharma, lab assistant for active contribution during photography and also thankful to Richa Mishra, Tabassum Zafar and Rajendra Chakarde (research scholar) who contributed actively during the collection of data.

We hope this document will be a great source to satisfy the knowledge thrust of readers specially undergraduate students, postgraduate students, research scholars and visitor of campus about Butterfly, Reptilian, Avian and Mammalian Biodiversity of Barkatullah University.
A Glimpse on Faunal Biodiversity of Barkatullah University, Bhopal

Abstract

Biodiversity (biological diversity) is the variety of life on Earth. The number of species of plants, animals, and microorganisms, the enormous diversity of genes in these species, the different ecosystems on the planet, such as deserts, rainforests and coral reefs are all part of a biologically diverse Earth. Biodiversity enhances ecosystem productivity, where each species, irrespective of its size, is vital. Declining biodiversity is therefore a concern for many reasons. Present work is an attempt to assess the variety of species (Butterflies, Reptiles, Aves and Mammals) found in the university campus of Barkatullah University, Bhopal. The study is based on the Identification and Photographic collection of the above mentioned animals found in the University campus, including both migratory and residential ones. This aim of the study was to evaluate the variety of animals found here. Also, we tried to find out and made some efforts for the safe and suitable environment to these species within the University campus. Apart from this Barkatullah University campus, is spread over 360 (approx.) acres of land, which is rich in flora and fauna, supported habit and habitat for various life forms. It is therefore concluded that due to increasing threat to the biodiversity, such attempts will be beneficial for the conservation of species and will add to the awareness about the presence of species found here.

Keyword: Biodiversity; Butterfly; Reptiles; Aves; Mammals.
Introduction

Historical Background of Barkatullah University

The University formerly known as Bhopal University was established in 1970 in the capital city of Madhya Pradesh. In 1988, it was rechristened as the Barkatullah Vishwavidyalya, in the living memory of the great freedom fighter, Prof. Barkatullah who was born in Bhopal. Previously total area was 500 acres (approx), out of which a few land was given to Advance Material Process and Research Institute (AMPRI), Forest Department and Sanskrit University. At present University campus, is spread over 360 (approx.) acres of land (Fig.01). The university is located along Jabalpur-Jaipur National highway (NH-12) at a distance of about 3 kms from the Habibganj Railway Station. The University complex includes Administrative Block, Central Library Block, Life Sciences Block, Law Block, Humanities Block, Social Science Block, Physics Block, Applied Geology Block, Hostel Building, Guest House, Institute of Open and Distance Education, Post Office, a branch of the State Bank of India, Printing Press, Faculty Club, Institute of Management Building, Department of Pharmacy and University Institute of Technology. Barkatullah University campus is rich in flora and fauna biodiversity i.e. different types of plants and animal are found in the university campus. The diversity of all living things (biota) depends on temperature, precipitation, altitude, soil, geography and the presence of other species.

Figure 1. Site of Madhya Pradesh & Barkatullah University Biosphere in India Map
**Biodiversity:** The variety of life on Earth, (biological diversity), is commonly referred to as biodiversity. The number of species of plants, animals, and microorganisms, the enormous diversity of genes in these species, the different ecosystems on the planet, such as deserts, rainforests and coral reefs are all part of a biologically diverse Earth. Appropriate conservation and sustainable development strategies attempt to recognize this as being integral to any approach. Almost all cultures have in some way or form recognized the importance that nature, and its biological diversity has had upon them and the need to maintain it. Yet, power, greed and politics have affected the precarious balance.

**Why is Biodiversity important? Does it really matter if there aren’t so many species?**

*Biodiversity*(Bio=living ; Diversity= variety) is the variety of plants and animal life in the world or in a particular habitat.

Biodiversity boosts ecosystem productivity where each species, no matter how small, all have an important role to play. For example, a larger number of plant species means a greater variety of crops; greater species diversity ensures natural sustainability for all life forms; and healthy ecosystems can better withstand and recover from a variety of disasters. And so, while we dominate this planet, we still need to preserve the diversity in wildlife.

![Diagram of Biodiversity](image_url)
**Butterfly**

Butterflies are the most familiar and fascinating insects known to the human beings. These belong to the phylum arthropoda, class insecta and order Lepidoptera which also includes moths. Adult butterflies have large, often brightly coloured wings, and conspicuous, fluttering flight. The body is divisible into head, thorax and abdomen.

### Butterfly Biodiversity of Barkatullah University Campus

<table>
<thead>
<tr>
<th>Common Name</th>
<th>Scientific Name</th>
</tr>
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<tbody>
<tr>
<td>Blue Pansy</td>
<td>Junonia orithya</td>
</tr>
<tr>
<td>Grey Pansy</td>
<td>Junonia atlites</td>
</tr>
<tr>
<td>Peacock Pansy</td>
<td>Junonia almanac</td>
</tr>
<tr>
<td>Yellow Pansy</td>
<td>Junonia hierta</td>
</tr>
<tr>
<td>Lemon Pansy</td>
<td>Junonia lemonias</td>
</tr>
<tr>
<td>Chocolate Pansy</td>
<td>Junonia iphita</td>
</tr>
<tr>
<td>Common Leopard</td>
<td>Phalantha phalantha</td>
</tr>
<tr>
<td>Great Eggfly</td>
<td>Hypolimnas bolina</td>
</tr>
<tr>
<td>Plain Tiger</td>
<td>Danaus chrysippus</td>
</tr>
<tr>
<td>Common Three Ring</td>
<td>Ypthima asterope</td>
</tr>
<tr>
<td>DanaidEggfly</td>
<td>Hypolimnas misippus</td>
</tr>
<tr>
<td>Rice Swift</td>
<td>Borbo cinnara</td>
</tr>
<tr>
<td>Brown Awl</td>
<td>Badamia exclamationis</td>
</tr>
<tr>
<td>Lime Butterfly</td>
<td>Papilio demoleus</td>
</tr>
<tr>
<td>Common Grass Yellow</td>
<td>Eurema hecabe</td>
</tr>
<tr>
<td>Painted Lady</td>
<td>Cynthia cardui</td>
</tr>
</tbody>
</table>
1. **Blue Pansy**  
   **Scientific Name:** *Junonia orithya*  
   - Its hind wings are brilliant blue.  
   - The four wings are brown and black with distinct white bands.  
   - Found in eastern Asia, Africa, Australia and India.

2. **Grey Pansy**  
   **Scientific Name:** *Junonia atlites*  
   - It is creamish-grey with brown lines and a row of black spots near the wing margin.  
   - Upper side of both sexes pale lavender brown, apical half of wings paler.

3. **Peacock Pansy**  
   **Scientific Name:** *Junonia almanac*  
   - This butterfly is bright and tawny with large eye spot on the wings, upper side rich orange-yellow.

4. **Yellow Pansy**  
   **Scientific Name:** *Junonia hierta*  
   - It is predominantly yellow, four wings apex is black with yellow spots.  
   - The hind wings have a large blue spot.  
   - The male upper side is bright yellow.  
   - The female is similar, although the colours are duller.
5. **Lemon Pansy**  
**Scientific Name:** Junonia lemonias  
- A brown butterfly with numerous eye-spot as well as black and lemon-yellow spots and lines on four wings and hind wings.  
- In the dry season the marking are reduced and in the wet season they are more prominent and larger.

6. **Chocolate Pansy**  
**Scientific Name:** Junonia iphita  
- It is chocolate brown darker marking.  
- It is found in wooded area. Individuals maintain a territory and are usually found close the ground level.  
- Upper side of both sexes brown of varying depths of colour.

7. **Common Leopard**  
**Scientific Name:** Phalanta phalantha  
- This is a bright tawny butterfly mark with black spots. The underside is pale but glossy.  
- This butterfly is sun loving and avoids shade. Seen in the plains, gardens and edges of clearings.  
- Active and sharp flight movement sand visits flowers regularly.

8. **Great Eggfly**  
**Scientific Name:** Hypolimnas bolina  
- The upperside of the male Great Eggfly and Danaid Eggfly are similar.  
- *H. bolina* is a fairly common butterfly found in lightly wooded area, deciduous forests, thick and moist scrub, and the greener parts of human habitats.
9. **Plain Tiger**  
**Scientific Name** : *Danaus chrysippus*  
- This is a tawny, medium sized butterfly. The body is black, spotted with white.  
- The apical half of the fore wing is black and marked with a pure white band.  
- The hind wing has three small, black spot approximately at the center.  
- The hind has a thin, black border that encloses a series of semicircular white spot.

![Figure 9. Plain Tiger (*Danaus chrysippus*)](image)

10. **Common Threering**  
**Scientific Name** : *Ypthima asterope*  
- The underside is paler, whitish or faint brown, with brown streaks.  
- On the fore wing is a large eye – spot enclosed in a golden yellow ring.  
- A large eye – spot on the upperside of each fore wing is distinct when the butterfly is basking.

![Figure 10. Common Threering(*Ypthima asterope*)](image)

11. **DanaidEggfly**  
**Scientific Name** : *Hypolimnas misippus*  
- The female is an excellent mimic of the Plain Tiger.  
- It is tawny with the apex of the fore wing coloured black and with a white band.  
- The border of the hind wing are black with a series of white spot.

![Figure 11. DanaidEggfly (*Hypolimnas misippus*)](image)

12. **Rice Swift**  
**Scientific Name** : *Borbo cinnara*  
- The Rice Swift has dark brown wings that have semitransparent spot on the fore wing and white spot on the underside of the hind wing.

![Figure 12. Rice Swift (*Borbo cinnara*)](image)
13. **Brown Awl**  
**Scientific Name:** *Badamia exclamationis*  
- The Brown Awl is a uniformly brown butterfly that is relatively darker on the upper side but very light on the underside.  
- The fore wings have 3-4 small semitransparent spot.

![Figure 13. Brown Awl (*Badamia exclamationis*)](image13)

14. **Painted Lady**  
**Scientific Name:** *Cynthia cardui*  
- The Painted lady is an elegant butterfly.  
- Its narrow fore wings and long, straight.  
- The upper side of the wing is pinkish – red marked with black spot.  
- The underside is disruptive marked with grey white and a few red spot and lines.

![Figure 14. Painted Lady (*Cynthia cardui*)](image14)

15. **Lime Butterfly**  
**Scientific Name:** *Papilio demoleus*  
- It is medium sized swallowtail with black wings that turn brownish in old specimen.  
- The wings are spotted with various shades of yellow.  
- The abdomen is lemon yellow with longitudinal black lines.

![Figure 15. Lime Butterfly (*Papilio demoleus*)](image15)

16. **Common Grass Yellow**  
**Scientific Name:** *Eurema hecabe*  
- Brown blotches on underside of fore wing.  
- In the dry season form, a large spot at each

![Figure 16. Common Grass Yellow (*Eurema hecabe*)](image16)
Reptiles

Reptiles are tetrapod animals in the class Reptilia, comprising of turtles, crocodilians, snakes, lizards, tuatara, and their extinct relatives. The study of these traditional reptile orders historically combined with that of modern amphibians is called herpetology.

Most reptiles are oviparous, although several species of squamates are viviparous, as were some extinct aquatic clades. As amniotes, reptile eggs are surrounded by membranes for protection and transport, which adapt them to reproduction on dry land. Many of the viviparous species feed their fetusthrough various forms of placenta analogous to those of mammals, with some providing initial care for their hatchlings.

### Reptilian Biodiversity of Barkatullah University Campus

<table>
<thead>
<tr>
<th>Common Name</th>
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</thead>
<tbody>
<tr>
<td>Indian Spectacled Cobra</td>
<td><em>Naja naja</em></td>
<td>Indian Rat Snake</td>
<td><em>Ptyas mucosa</em></td>
<td>Brook's House Gecko</td>
<td><em>Hemidactylus frenatus</em></td>
</tr>
<tr>
<td>Common krait</td>
<td><em>Bungarus caeruleus</em></td>
<td></td>
<td></td>
<td>Indian Garden Lizard</td>
<td><em>Calotes versicolor</em></td>
</tr>
<tr>
<td>Russell Viper</td>
<td><em>Daboia russelii</em></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>
1. Common Krait

Scientific Name: *Bungarus caeruleus*

- The Snake has round head which is slightly broader than neck, scale smooth, eye entirely black.
- Glossy black, pale faded bluish-grey or dark brownish black.
- White bands that continue to pointed tip of short tail.

2. Indian Spectacled Cobra

Scientific Name: *Naja naja*

- A snake with smooth, glossy scales, head broad.
- Color pattern and hood mark variable, shades of brown yellow, grey and black. Active by day and night.
- Feeds on rodents, toads, frogs, birds and snakes.

3. Indian Rat Snake

Scientific Name: *Ptyas mucosa*

- A large stream lined snake with shiny scales, dorsal rows keeled, thin neck and large eyes has round pupil.
- Head is depressed, snout short and blunt, tail is short, somewhat compressed basally.
- Varies greatly in color pale-yellow, olive brown, grey and black; body strongly or lightly marked with black.
4. Russell Viper

Scientific Name: *Daboia russelii*

- Body stout with strongly keeled scales, head triangular, broader than neck.
- Scales on upper surface of head, small nostril, very large eyes with vertical pupil, tail short and thin.
- Feeds on rodents.

![Figure 4. Russell Viper (*Daboia russelii*)](image)

5. Common House Gecko Lizard

Scientific Name: *Hemidactylus frenatus*

- Body cylindrical, neck wider, dorsum smooth with numerous flat and smooth tubercles, ventral scale smooth and imbricate, 23 pre-cloacal and femoral pores in continuous series, 4-6 lamellae under first and 9-11 under fourth toe.
- Body color grey with large longitudinal rows of streak borders with large spot.
- **Habit & Habitat:** Nocturnal, found in dry deciduous scrub forest and insectivorous in diet.

![Figure 5. Common House Gecko Lizard (*Hemidactylus frenatus*)](image)

6. Indian Garden Lizard

Scientific Name: *Calotes versicolor*

- Head rather large and distinct, laterally compressed body with a fairly long tail, scales on the body pointing backward and upward, two separate spine above.
- Tympanum colouration variable from light brown or greyish brown.
- Head bright red, a black patch on the throat.
- **Habit & Habitat:** Diurnal, arboreal, mostly found in parks, tree shrubs and feeds on insect & invertates.

![Figure 6. Indian Garden Lizard (*Calotes versicolor*)](image)
Avian

- **Birds (Aves)** are a group of endothermic vertebrates, characterised by feathers, toothless beaked jaws, by the laying of hard-shelled eggs, a high metabolic rate, a four-chambered heart, and a strong yet lightweight skeleton. Birds live worldwide and range in size from the 5 cm (2 inch) bee humming bird to 2.75 m (9 ft) ostrich. They rank as the class of tetrapods with the most living species, at approximately ten thousand, with more than half of these being passerines, sometimes known as perching birds. Birds are the closest living relatives of crocodilians.

**Avian Biodiversity of Barkatullah University Campus**

<table>
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<tr>
<th>Common Name</th>
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<tbody>
<tr>
<td>Purple Sunbird</td>
<td>Nectarinia asiatica</td>
</tr>
<tr>
<td>Red-Vented Bulbul</td>
<td>Pycnonotus cafer</td>
</tr>
<tr>
<td>Red Wattled Lapwing</td>
<td>Vanellus indicus</td>
</tr>
<tr>
<td>Black Drongo</td>
<td>Dicrurus macrocerus</td>
</tr>
<tr>
<td>Blue Rock Pigeon</td>
<td>Columba livia</td>
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<tr>
<td>Crested Goshawk</td>
<td>Accipiter trivirgatus</td>
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<tr>
<td>Eurasian Golden Oriole</td>
<td>Oriolus oriolus</td>
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<tr>
<td>Greater Coucal</td>
<td>Centropus sinensis</td>
</tr>
<tr>
<td>Indian White-Backed Vulture</td>
<td>Gyps bengalensis</td>
</tr>
<tr>
<td>Indian Pond Heron</td>
<td>Ardeola grayii</td>
</tr>
<tr>
<td>Indian Robin</td>
<td>Saxicoloides fulicatus</td>
</tr>
<tr>
<td>Indian Treepie</td>
<td>Dendrocitta vagabunda</td>
</tr>
<tr>
<td>Indian Roller</td>
<td>Coracias benghalensis</td>
</tr>
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<td>Little Cormorant</td>
<td>Phalacrocorax fuscicollis</td>
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<tr>
<td>Median Egret</td>
<td>Mesophoyx intermedia</td>
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<tr>
<td>Montagu's Harrier</td>
<td>Circus pygargus</td>
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<tr>
<td>Common Moorhen</td>
<td>Gallinula chloropus</td>
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<td>House Sparrow</td>
<td>Passer domesticus</td>
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<td>Pied Bushchat</td>
<td>Saxicola caprata</td>
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<td>Spotted Dove</td>
<td>Streptopelia chinensis</td>
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<td>Small Bee-Eater</td>
<td>Merops orientalis</td>
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<td>Wood Sandpiper</td>
<td>Tringa glareola</td>
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<td>Black-Winged Stilt</td>
<td>Himantopus himantopus</td>
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<tr>
<td>Spot-Billed Duck</td>
<td>Anas poecilorhyncha</td>
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<tr>
<td>White-Breasted Kingfisher</td>
<td>Halcyon smyrnensis</td>
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<td>Small Blue Kingfisher</td>
<td>Alcedo athis</td>
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<td>Phalacrocorax carbo</td>
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<td>Jungle Babbler</td>
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<td>Indian Peafowl</td>
<td>Pavo cristatus</td>
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<td>Yellow Wagtail</td>
<td>Motacilla cinerea</td>
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<td>Common Name</td>
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<tr>
<td>Indian Grey Hornbill</td>
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<td>Wire-Tailed Swallow</td>
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<td>Little Brown Dove</td>
<td>Spilopelia senegalensis</td>
</tr>
<tr>
<td>Asian Koel</td>
<td>Eudynamys scolopaceus</td>
</tr>
</tbody>
</table>
1. Greater Coucal  
**Scientific Name:** *Centropus sinensis*  
- **Seize**: 48 cm.  
- **Habitat**: Deciduous scrub jungle and gardens  
- **Glossy black bird with conspicuous chestnut wings and long black graduated tail.**

2. Indian White-Backed Vulture  
**Scientific Name:** *Gyps bengalensis*  
- **Seize**: Adult white rumped vulture measures between 80-90 cms in length.  
- **Colour**: White back and white bands on underside of wings.  
- **Habitat**: Found on subcontinent, but the bird is absent in shrilanka.

3. Indian Pond Heron  
**Scientific Name:** *Ardeola grayii*  
- Earthy brown in color when at rest, but with glistening white wings, tail and rumps flashing into prominence immediately after flight.  
- **Habit & Habitat**: Mostly found at jheels and ponds and whenever there is water, river roadside ditch and eat frog, insect and crabs.

4. House Sparrow  
**Scientific Name:** *Passer domesticus*  
- **Seize**: 15 cm.  
- **Colour**: Male with grey crown, black around eyes. Chestnut on back. White shoulder patch on rufous wing. Tail dark brown.  
- Female ashy grey brown above. Fulvous ashy white below. Palefuvoussupercilium.  
- **Habitat**: In cities, suburbs, villages, etc.
5. Indian Robin

**Scientific Name:** *Saxicoloides fulicatus*

- Also known as Kalchuri, Hindi), is an active bird with a white patch on wing (more conspicuous on flight) and rusty red under root of cocked tail.
- Female Robin is ashy brown without wing patch.
- **Habitat:** Mostly found in pairs, frequents around town, villages and perching on thatched roof of huts.

6. Indian Treepie

**Scientific Name:** *Dendrocitta vagabunda*

- **Seize:** 50 cm.
- **Colour:** Chestnut back and pure white hindneck, rump and underparts distinctive.
- A large white patch on the black wings.
- **Habitat:** Wet evergreen biotope.

7. Indian Roller

**Scientific Name:** *Coracias benghalensis*

- **Colour:** Blue bird with biggish head, heavy black bill, rufous-brown breast and pale blue abdomen and under tail.
- **Habitat:** Perch singly on telegraph wires etc. in open cultivated country.
8. Little Cormorant  
**Scientific Name:** *Phalacrocorax fuscicollis*  
- The little cormorant (*Microcarboniger*) is a member of the cormorant family of seabirds.  
- Slightly smaller than the Indian cormorant it lacks a peaked head and has a shorter beak.  
- In the breeding season the whole body is black, but the plumage is brownish. In the non-breeding season, the throat has a small whitish patch on it.  
- The bird is mostly distributed across the Indian Subcontinent.

9. Median Egret  
**Scientific Name:** *Mesophoyx intermedia*  
- The size of the adult bird varies between 48-51 cm.  
- It has a pure white plumage and differs from little egret by yellow bill.  
- Head, neck and back appears orange buff in breeding season.

10. Montagu's Harrier  
**Scientific Name:** *Circus pygargus*  
- The difference in plumage makes the sexual dimorphism apparent.  
- Adult males are characterized by their pale grey plumage with black wingtips and characteristic black bands along the both above and below the wing.  
- Adult females are similar to that of pallid and hen harriers in plumage having mostly pale yellow-brown under parts.  
- The belly is marked with longitudinal stripes.  
- It is essentially a lowland species that can breed in wetlands.
11. Common Moorhen

**Scientific Name:** Gallinula chloropus

- Seize: 23 cm.
- Dark brown with bright yellow bill, legs and orbital skin.
- White patch on wings conspicuous in flight.
- Habitat: Neighbourhood of homesteads, villages and cities.

12. Rock Pigeon

**Scientific Name:** Columbia livia

- Rock pigeon has a body size of about 33 cm.
- A familiar slaty grey bird with metallic sheen of green, purple and magneta.
- Two dark bars on wings.
- Cliffs and gorges, and around habitations and cultivations.

13. Pied Bushchat

**Scientific Name:** Saxicola caprata

- A familiar bird of open scrub or grassland.
- It is found perched at the top of thorn trees looking for insect prey and pick up insects mainly from the ground.
- The pied bush chat found ranging from West Asia and Central Asia to the Indian subcontinent and Southeast Asia.

14. Spotted Dove

**Scientific Name:** Streptopelia chinensis

- Body size varies between 20-23 cm.
- Mantle bright pinkish brick red in male, pale brownish grey in female.
- Habitat: Deciduous scrub jungle and cultivation.
15. Small Bee-Eater

Scientific Name: *Merops orientalis*

- Small bee-eater varies in size between 15-18 cm long.
- Colourful slender bird. Sexes are not visually distinguishable.
- Plumage is bright green and streaked with blue on the chin and throat.

16. Wood Sandpiper

Scientific Name: *Tringa glareola*

- The Wood Sandpiper is a small slim wader dark grey-brown above, and a white underbody.
- The legs are yellow-green. There is a distinct white brow line.
- Wood Sandpipers are seen in small flocks or singly on inland shallow freshwater wetlands, often with other waders.
- They prefer ponds and poolssurrounded by tall plants.
- This is an migratory species.

17. Black-Winged Stilt

Scientific Name: *Himantopus himantopus*

- A widely distributed, very long-legged wader in the stilt family.
- Adult bird varies in length between 13-14 cm.
- Long pink legs, long thin black bill, blackish above and white below.
- They pick up their food from sand or water and thenest are built on the ground near water.

18. Spot-Billed Duck

Scientific Name: *Anas poecilorhyncha*

- Indian spot-billed duck is a non-migratory duck.
- There is a red spot at the base of the bill, hence the name, spot-billed duck.
- It can be recognized from a distance due to the presence of tertials that form a stripe.
19. White-Breasted Kingfisher
Scientific Name: *Halcyon smyrnensis*
- White-breasted kingfisher attains a body size of about 28 cm.
- Bright blue back, wings and tail and white wing patch in flight diagnostic.
- Sexes are similar, but juveniles are duller than adults. They are noisy during breeding season.
- Habitat: Canals, streams, reservoirs, cultivation, gardens and edges of forest often away from water.

20. Small Blue Kingfisher
Scientific Name: *Alcedo atthis*
- Small blue kingfisher grows up to 28 cm long, when adult.
- A conspicuous white shirt front and white wing patch in flight diagnostic.
- Habitat: Canals, streams, reservoirs, cultivation, gardens and edges of forest.

21. Purple Sunbird
Scientific Name: *Nectarinia asiatica*
- Adult sunbird varies in size between 9-10cm.
- Breeding male is metallic dark blue and purple appearing all black at a distance. Non-breeding male resembles female in being olive brown but has a black stripe down middle of chest.
- Habitat: Light deciduous or dry thorn forest, cultivation, gardens and compounds.
22. Red-Vented Bulbul

**Scientific Name:** *Pycnonotus cafer*

- Body size of the adult bird varies between 20-22 cm.
- Partially crested black head. Conspicuous crimson patch below root of tail and white rump, the latter very obvious in flight.
- Habitat: Cultivation and scrub.

![Figure 22. Red Vented Bulbul (*Pycnonotus cafer*)](image)

23. Red-wattled lapwing

**Scientific Name:** *Vanellus indicus*

- Size of the adult bird is about 30-35 cm.
- Wings and back are light brown with a purple luster.
- Head and chest and front part of neck are black. White patch runs from belly and tail, skirting the neck to the sides of crown.
- Black tipped short tail. A red fleshy wattle present in front of each eye, black-tipped red bill, and yellow long legs

![Figure 23. Red- Wattled Lapwing (*Vanellus indicus*)](image)

24. Black Drongo

**Scientific Name:** *Dicrurus macrocercus*

- Seize: 29-34 cm.
- Distinguished by bold black mesial stripe on white throat.
- Habitat: Heavy evergreen and moist deciduous forest

![Figure 24. Black Drongo (*Dicrurus macrocercus*)](image)

25. Blue Rock Pigeon

**Scientific Name:** *Columba livia*

- Blue rock pigeon grows up to 33 cm long when fully grown.
- A familiar slaty grey bird with metallic sheen of green, purple and magneta.
- Two dark bars on wings.

![Figure 25. Blue Rock Pigeon (*Columba livia*)](image)
26. Crested Goshawk

Scientific Name: *Accipiter trivirgatus*

- This bird of prey has short broad wings and a long tail.
- Body length varies between 30-46cm.
- Tha female is much larger than the male.
- Male has a dark brown crown, grey head sides and throat stripes.
- Female has a browner head and brown underpart streaks and bars.
- Primarily a lowland and all-year resident bird.

27. Eurasian Golden Oriole

Scientific Name: *Oriolus oriolus*

- 25 cm in size.
- Golden oriole, is the only member of the oriole family of passerine birds breeding in Northern Hemisphere temperate regions.
- It is a summer migrant in Europe and western Asia and spends the winter season in central and southern Africa.

28. Greater Cormorant

Scientific Name: *Phalacrocorax carbo*

- 80 cm. Also known as the great black cormorant.
- Generally black.
- Mainly found near inland waters and tidal lagoons.
- The bird feeds on fish caught through diving.
29. **Rufous Backed Shrike**

**Scientific Name:** *Lanius schach*
- Size varies between 20-25 cm.
- Long-tailed shrike prefers dry and open habitats perching on bush or wire atop.
- Gery head, long and narrow black tail marked with pale rufous on outer feathers.
- The dark mask through the eye is broad.
- Found in the Subcontinent, absent in Andaman and Nicobar Islands.

30. **Oriental Magpie Robin**

**Scientific Name:** *Copsychus saularis*

18-20cm in size. Male black and white.
- Black portion in female replaced by grey or brown.
- Singly or in pairs. Shy, silent and unobtrusive in non-breeding season.
- A familiar bird about towns and villages.

31. **Black Shouldered Kite**

**Scientific Name:** *Elanus axillaris*

- 33 cm in size. Ashy grey above and white below.
- Black patches on shoulders conspicuous during flight and at rest. A black line above the eyes.
- Crepuscular, but active in daytime also.
- Inhabitat: cultivations & grassland.
- Feeds on locusts, crickets, mice, lizards etc.

32. **Copper Smith Barbet**

**Scientific Name:** *Megalaima haemacephala*

- 17cm in size, crimson breast, forehead green & yellowish underparts. Feeds on fruits.
33. House Crow

**Scientific Name:** *Corvus splendens*
- 43 cm in size.
- Grey neck and smaller in size than jungle crow
- Sexes are alike. Probably the most familiar bird of Indian towns and villages
- A useful scavenger.
- Lives in close association with man

34. Jungle Babbler

**Scientific Name:** *Turdoides striata*
- 25 cm. Jungle babbler is an earthy brown, untidy looking bird with a long tail.
- Gregarious birds that forage in small groups of six to ten birds, a habit that has given them the popular name of "Seven Sisters" in urban Northern India,
- Usually feed on insects, berries and flower nectar.
- Found in the Indian subcontinent.

35. Indian Peafowl

**Scientific Name:** *Pavo cristatus*
- Male 92-122 cm without train. Female 86 cm.
- Hen also crested like cock but smaller, with somemetallic green on lower neck.
- Hen lacks ornamental train.
- Semi-domesticated about villages where it is protected by religious sentiments.
- Moist and dry deciduous forest, cultivation, plains and foothill, preferably near rivers and streams.

36. Yellow Wagtail

**Scientific Name:** *Motacilla cinerea*
- Seize: 18 cm.
- A slim, long-tailed bird, yellowish or olive-green above and yellow below
- Present in watercourses, reservoir, rice field.
37. Indian Grey Hornbill

**Scientific Name:** *Ocyceros birostris*

- 60 cm. Brownish grey bird with an enormous black and white curved bill surmounted by a peculiar protuberance.
- Female has a small protuberance.
- Arboreal, found among fig laden banyan and peepal trees along roadsides and near villages.
- Feeds mainly on fruits, occasionally on insects.

![Figure 37. Indian Grey Hornbill (*Ocyceros birostris*)](image)

38. Wire-Tailed Swallow

**Scientific Name:** *Hirundo smithii*

- 14 cm.
- Glistening white under parts distinguishing it from other swallows.
- Deeply forked tail with two long, fine ‘wires’.
- More confined to neighbourhood of water.
- Male has a pretty twittering song in breeding season.
- Throughout India, Bangladesh, Pakistan.

![Figure 38. Wire-Tailed Swallow (*Hirundo smithii*)](image)

39. Little Brown Dove

**Scientific Name:** *Spilopelia senegalensis*

- 27 cm in size.
- Earthy brown and grey above. Pinkish brow and white below.
- A miniature rufous and black ‘chessboard’ on either side of the neck.
- Feeds on seeds and grain gleaned on the ground.

![Figure 39. Little Brown Dove (*Spilopelia senegalensis*)](image)

40. Asian Koel

**Scientific Name:** *Eudynamys scolopaceus*

- 43 cm in size.
- Male glistening black with yellowish green bill and crimson eyes.
- Female brown spotted and barred with white.
- Arboreal. Feeds mostly on fruits and berries.

![Figure 40. Asian Koel (*Eudynamys scolopaceus*)](image)
41. Rose-Ringed Parakeet
Scientific Name: *Psiddacula krameri*
- Seize: 42 cm body length
- Female without rose pink collar.
- Habitat: Moist and dry deciduous biotope, mostly thin jungle orchids, cultivation and human environment.

![Figure 41. Rose-Ringed Parakeet (*Psiddacula krameri*)](image1)

42. Shikra
Scientific name: *Accipiter badius*
- Seize: 30-34 cm body length
- Colur: Blue grey above, white baird brown below.
- Habitat: Light deciduous forest

![Figure 42. Shikra (*Accipiter badius*)](image2)
Mammals

Mammals are vertebrates within the class Mammalia (Latin: mamma: "breast"), a clade of endothermic amniotes distinguished from reptiles (including birds) by the possession of a neocortex (a region of the brain), hair, three middle ear bones, and mammary glands. Females of all mammal species nurse their young with milk, secreted from the mammary glands.

Most mammals, including the six most species-rich orders, belong to the placental group. The largest orders are the rodents, bats and Soricomorpha (shrews and allies). The next three biggest orders, depending on the biological classification scheme used, are the Primates (apes and monkeys), the Cetariodactyla (Whales and even-toed ungulates), and the Carnovora (cats, dogs, seals and allies).

Some mammals are intelligent, with some possessing large brains, self-awareness. Mammals can communicate and vocalize in several different ways, including the production of ultrasound, scent-marking, alarm signals, singing and echolocation. Most mammals are polygynous, but some can be monogamous or polyandrous.

### Biodiversity of Barkatullah University Campus Mammalian

<table>
<thead>
<tr>
<th>Common Name</th>
<th>Scientific Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bull</td>
<td>Bos taurus</td>
</tr>
<tr>
<td>Goat</td>
<td>Capra aegagrus</td>
</tr>
<tr>
<td>Buffalo</td>
<td>Bubalu bubalis</td>
</tr>
<tr>
<td>Cow</td>
<td>Bos indicus</td>
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<tr>
<td>Pig</td>
<td>Sus scrofa</td>
</tr>
<tr>
<td>Jackal</td>
<td>Canis adustus</td>
</tr>
<tr>
<td>Cat</td>
<td>Felis sylvestis</td>
</tr>
<tr>
<td>Dog</td>
<td>Canis lupus</td>
</tr>
<tr>
<td>Mice</td>
<td>Mus musculus</td>
</tr>
<tr>
<td>Rat</td>
<td>Rattus norvegicus</td>
</tr>
<tr>
<td>Bat</td>
<td>Pteropus giganteus</td>
</tr>
<tr>
<td>Hare</td>
<td>Lepus timidus</td>
</tr>
<tr>
<td>Squirrel</td>
<td>Funambulus palmarun</td>
</tr>
<tr>
<td>Mongoose</td>
<td>Herpestes edwardsi</td>
</tr>
</tbody>
</table>
1. Bull

Scientific Name: *(Bos taurus)*:
- Bull is an adult male of the species *Bos taurus* (cattle).
- Cattle are large quadrupedal ungulate mammals with cloven hooves.
- More muscular and aggressive than female (Cow).
- Most breeds have horns which can be as large as the Texas Longhorn or small like a scur.

2. Goat

Scientific Name: *Capra aegagrus*:
- The goat is a member of the family Bovidae and is closely related to the sheep as both are in the goat-antelope subfamily Caprinae.
- Goats are one of the oldest domesticated species, and have been used for their milk, meat, hair, and skin.

3. Cow

Scientific Name: *Bos indicus*:
- Cow is a widely seen large quadrupedal ungulate mammalian cattle.
- Cow is very human friendly herbivorous animal, which is widely domesticated for many purposes including milk, meat, skin etc.

4. Buffalo

Scientific Name: *Bubalus bubalis*:
- Buffalo is a large herbaceous animal belongs to Bovidae family.
- It is usually black, slety grey in colour with large belly.
5. Pig

**Scientific Name:** *Sus scrofa*

- Pig is larger, sharply featured and straighter omnivorous animal.
- The tail is tufted, and the cheeks are hairier.
- Pigs include both domestic as well as its ancestor wild boar.
- It has a large head and a long snout which is used to dig into the soil.

6. Jackal

**Scientific Name:** *Canis adustus*

- Jackals are medium-sized omnivorous mammals of the Genus Canis.
- Jackals may occasionally assemble in small packs, for example, to scavenge a carcass, but they normally hunt either alone or in pairs.
- Back is darker grey than the underside, and the tail is black with a white tip.

7. Cat

**Scientific Name:** *Felis silvestri*

- The domestic cat is a small, typically furry, carnivorous mammal.
- They are often called house cats when kept as indoor pets or simply cats.
- Cat is a small mammal with a strong flexible body, quick reflexes, sharp retractable claws, and teeth adapted to killing small prey.
8. Dog

**Scientific Name:** *Canis lupus*
- The Indian pariah dog (*Canis lupus*) is the aboriginal landrace, or naturally selected dog, of the Indian sub-continent.
- The breed is proposed by one author to be one of the oldest in the world and the progenitor of the Australian dingo.
- It is an extremely alert, very social dog.

![Figure 8. Dog (Canis lupus)](image)

9. Mice

**Scientific Name:** *Mus musculus*
- The house mouse (*Mus musculus*) is a small Mammal of the order Rodentia.
- Characterised by having a pointed snout, small rounded ears, and a long naked or almost hairless tail.
- It is one of the most numerous species of the genus *Mus*.

![Figure 9. Mice (Mus musculus)](image)

10. Rat

**Scientific Name:** *Rattus norvegicus*
- Rats are various medium-sized, long-tailed rodents of the superfamily *Muroidea*.
- Black rat, *Rattus rattus*, and the brown rat, *Rattus norvegicus* are the most popular one.
- The common species are opportunistic survivors and often live with and near humans; therefore, they are known as commensals.

![Figure 10. Rat (Rattus norvegicus)](image)

11. Bat (*Pteropus giganteus*):
- Bats generally known as Indian flying fox or fruit bat are seen occasionally in campus.
- They roost in large colonies on the exposed branches of big trees during the day and forage at night.
- Unlike the insect-eating bat species, these large Indian flying foxes they eat ripe fruits.

![Figure 11. Bat (Pteropus giganteus)](image)
12. Hare

**Scientific Name: Lepus timidus**

- Hares and jackrabbits are leporids belonging to the genus Lepus.
- Hares are classified into the same family as rabbits.
- They are generally, they are fast runners, and they typically live solitarily or in pairs.
- Hares are swift, shy, small, herbivorous and long-eared animals occasionally seen in grounds and lush green area.

13. Squirrel

**Scientific Name: Funambulus palmarum**

- The palm squirrel is about the size of a large chipmunk, with a bushy tail slightly shorter than its body.
- The back is a grizzled, grey-brown colour with three conspicuous white stripes which run from head to tail.
- The two outer stripes run from the forelegs to the hind legs only.
- It has a creamy-white belly and a tail covered with interspersed, long, black and white hair.
- The ears are small and triangular.

14. Mongoose

**Scientific Name: Herpestes edwardsi**

- In North Indian languages (Hindi/Punjabi) it is called Nevlaa.
- The grey mongoose is commonly found in open forests, greenery and open fields, often close to human habitation.
References:


