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## CHECKLIST OF BATS IN SOME AREAS OF AZAD JAMMU AND KASHMIR

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### ABSTRACT

Bats form an essential part of the ecosystem by aiding pollination, keeping insect pests in check and overall maybe helpful as indicators of health status of the ecosystem. This study was conducted to formulate a checklist of bats from different regions in Azad Jammu and Kashmir. Five National parks from Azad Jammu and Kashmir were surveyed for the species of bats present (Dhirkot National Park, Pir Lasura National Park, Pir Chanasi National Park, Banjosa National Park and Tolipir National Park). From the study conducted, 10 species of bats belonging to 5 families were found cumulatively in the five national parks.

**Key words:** National parks, bats, chiroptera, habitat, conservation

### INTRODUCTION

Bats are classified as mammals and with the presence of 1,232 currently living species worldwide, formulate the second most populated and widely distributed group (Schipper et al., 2008; Kunz et al., 2011). They form an essential part of the ecosystem by aiding pollination, keeping insect pests in check and overall maybe helpful as indicators of health status of the ecosystem (Kunz et al., 2011; Boyles et al., 2011). However, there seems to be a constant decline in their numbers due to human influences (Mickleburgh et al., 2002).

Lane et al. (2006) conducted their study on the abundance of bats in Singapore and commented on the fast and drastic dwindling numbers of bats in Singapore and the implications that may have on the bat populations in the region of Southeast Asia. They also expressed concern that due to damage to the habitats of these mammals, they will face a decline in biodiversity and density that may surpass 40% by 2100. To conserve this precious asset in Pakistan, it is imperative to know the status of the

different bat species found in this region. This study was conducted to formulate a checklist of bats from different regions in Azad Jammu and Kashmir. Further studies need to be carried out in order to find the different populations of bats in other parts of the country and apt measures need to be taken to conserve their numbers.

### MATERIALS AND METHODS

Five National parks from Azad Jammu and Kashmir were surveyed for the species of bats present (Dhirkot National Park, Pir Lasura National Park, Pir Chanasi National Park, Banjosa National Park and Tolipir National Park). Pir Lasura National Park is located in the western side of the great Himalayan range near the Line of Control, including areas of altitudes more than 1900 m above the sea level. This area was surveyed from June-July 2009.

Banjosa National Park is placed in the thick forests at an altitude of some 1,800 m above sea line in the Pir Panjal Range. This area was surveyed from May-June 2009. Dhirkot is a relatively small town and




hill station located at a distance of some 24 km from Kohala, the Gateway to Azad Jammu and Kashmir. The study in this area was conducted in February 2008. The study in Pir Chanasi was carried out during April-May 2010. The TNP area mainly comprises of south facing slopes of the Tolipir part of the Pir Panjal Mountain Range.

First a general survey of the ground was conducted. The area was surveyed for




possible indicators (feces, sounds) reflecting the presence of bats. Other methods included camera surveillance and interviews of indigenous people. Background information on all the possible species from this area was taken from (Roberts, 1997, 2005a, 2005b; Kazmierczak, 2000; Grzimek 2002 a, 2002 b, 2002 c, 2002 d, 2002 e, 2002 f, 2002 g and 2002 h; Grewal et al., 2002).



## RESULTS



**Table 1. Species of bats found in the five national parks (AJK)**

S No	Names	Pictures	Food	Breeding season	Remarks	Status	
						Local sightings (%)	Global *
<b>Family Vespertilionidae</b>							
1	<i>Pipistrellus javanicus babu</i>  Himalayan pipistrelle		Insectivorous, preying on flies, caddis flies, lacewings, and mayflies, moquitoes, midges, and gnats	Summer breeder Colony size: 100	Slow flight pattern, roosts in dark in caves.	(8- BNR) (6- DNP) (10-PCNP) (18-PLNP) (13-TNP)	LC
2	<i>Murina tubinaris</i>  Gilgit tubed-nose bat		.....	Late May-early June Colony size: 1-2	Not colonial in its diurnal roosts, roost singly in abandoned tree holes, have slow and controlled flight.	(1- BNR) (1- DNP) (10-PCNP) (14-PLNP)	LC
3	<i>Eptesicus serotinus</i>  Common serotine		Large insects like moths etc.	November to April Colony size: 20-30	Crevices rooster, roost singly, hesitant flight, have fairly long life.	(8- DNP) (12-PCNP)	LC

Fakhra et al. (2018) Checklist of Bats in AJK  
*J Biores Manag.* 5(2):16-23

4	<p><i>Megaderma lyra</i></p> <p>Indian false vampire</p>		<p>Carnivorous diet predominated insects (orthoptera, coleoptera, hymenoptera, acrididae), Birds, lizards (<i>Hemidactylus flaviviridis</i>), moths, bats (<i>Rhinopoma microphyllum</i>, <i>Rhinopoma hardwickii</i> and <i>Taphozous perforatus</i>), Frogs &amp; rats (<i>Rattus rattus</i>).</p>	<p>November to April</p> <p>Colony size: 15-20 individuals</p>	<p>Not highly gregarious, shy, very alert, roosts found in dark places in caves. Feeds on large vertebrates, swift flight.</p>	<p>(6- DNP) (20-PLNP) (14-TNP)</p>	<p>LC</p>
5	<p><i>Plecotus austriacus</i></p> <p>Grey long eared bat</p>		<p>-</p>	<p>Summer breeder</p> <p>Colony size; 40</p>	<p>Found in cool temperate zones, roosts in dark places, flight slow and controlled.</p>	<p>(2- DNP)</p>	<p>LC</p>
6	<p><i>Myotis muricola</i></p> <p>Dark whiskered bat</p>		<p>Feed on micro-lepidoptera and smaller insects due to weak dentition.</p>	<p>November to April</p> <p>Colony</p>	<p>Crevice rooster, swift flight.</p>	<p>(1- DNP) (7-PCNP) (8-TNP)</p>	<p>LC</p>

Family Hipposideridae							
7	<i>Hipposideros fulvus</i> Trident leaf nosed bat		Mosquitos, moths, small beetles.	Colony size: 10-20 individuals	Adapted to arid-region, eclectic in choice of diurnal roost, gregarious, roosting in colonies, slow and fluttering flight.	(48- BNR)	LC
Family Pteropodidae							
8	<i>Rousettus leschenaultii</i> Fulvous Fruit Bat		In March feeding on the nectar of the Silk Cotton flowers ( <i>Salmalia mala baricum</i> ), ripe fruits of the Jambul in late June and early July, nectar of the mango when it is in flower. On both ripe mulberries ( <i>Morus alba</i> ) in April and the fruit of Ficus trees throughout the year.	November to March. Colony size: large	Roosts are located in wooded regions, are seasonally migratory. Highly gregarious	(11-DNP) (18- PLNP) (14-TNP)	LC
Family Rhinolophidae							

9	<i>Rhinolophus hipposideros</i> , Lesser horse shoe bat		Mostly insects like mosquitoes, lacewings, micro-Lepidoptera, small spiders and bush crickets.	Late spring-early summer	Widely distributed throughout northern Himalayan valleys. Less gregarious, roosting in clusters in their diurnal roost, solitary Enter full hibernation in winter.	(11-TNP)	LC
<b>Family Miniopteridae</b>							
10	<i>Miniopterus schreibersii</i> Common Bent Wing Bat		-	Late May-early June Litter size: 1-2	Adapted to hilly or mountainous area, and have slow and controlled flight. Hibernates in winter.	(8-TNP)	NT

\* 2008 IUCN Red List Category

Abbreviations: \* LC = Least Concern, NT = Near Threatened.

## DISCUSSION

### Family Vespertilionidae:

*Pipistrellus javanicus babu* (Himalayan pipistrelle) is a summer breeder, insectivorous bat (Barlow, 1997). Local sightings of this species of bats were 8% in BNR, 6% in DNP, 10% PCNP, 18% in PLNP and 13% in TNP. Global status of this species according to IUCN is LC.

*Murina tubinaris* (Gilgit tubed-nose bat) breeding season is late May-early June with colony size: 1-2. Local sightings of this species of bats were 1% in BNR, 1% in DNP, 10% in PCNP and 14% in PLNP.

*Eptesicus serotinus* (Common serotine) is an insectivorous bat. Its breeding season is November to April. Local sightings of this species of bats were 8% in DNP and 12% in PCNP. Global status of this species according to IUCN is LC

*Megaderma lyra* (Indian false vampire) has a carnivorous diet and feeds on large vertebrates. Local sightings of this species of bats were 8% in BNR, 6% in DNP, 20% in PLNP and 14% in TNP. Global status of this species according to IUCN is LC.

*Plecotus austriacus* (Grey long eared bat) is a summer breeder. Local sightings of this species of Bats were, 2% in DNP. Global status of this species according to IUCN is LC.

*Myotis muricola* (Dark whiskered bat) feeds on micro-lepidoptera. Local sightings of this species of bats were 1% in DNP, 7% PCNP and 8% in TNP. Global status of this species according to IUCN is LC.

### Family Hipposideridae:

*Hipposideros fulvus* (Trident leaf nosed bat) is an insectivorous bat. Local sightings of

this species were 48% in BNR. Global status of this species according to IUCN is LC.

### Family Pteropodidae:

*Rousettus leschenaultii* (Fulvous Fruit Bat) feeds on the nectar of the Silk Cotton flowers. Local sightings of this species were 11% in DNP, 18% in PLNP, 14% in TNP. Global status of this species according to IUCN is LC.

### Family Rhinolophidae:

*Rhinolophus hipposideros* (Lesser horse shoe bat) is insectivorous. Local sightings of this species were 11% in TNP. Global status of this species according to IUCN is LC and its population is decreasing globally.

### Family Miniopteridae:

*Miniopterus schreibersii* (Common Bent Wing Bat) is adapted to hilly or mountainous area, and hibernates in winter. Local sightings of this species were 8% in TNP. Global status of this species according to IUCN is NT and its population is decreasing globally.

## CONCLUSION

From the study conducted, 10 species of bats belonging to 5 families were found accumulatively in the five national parks. In Banjosa National Park (BNP), Indian false vampire, Gilgit tubed-nose bat and Himalayan piperstrelle presented equally rare sightings in the area. There were four bat species present at BNP. Dhirkot National Park had the highest diversity of bats (7 species), Pir Chanasi and Pir Lasura National Parks both had four species each. Tolipir National Park had six species of bats. The habitats of these bats need to be protected to conserve their population.

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