

# THE HIMALAYAN MONAL SURVEY REPORT (2022)



GREAT HIMALAYAN NATIONAL PARK

ग्रेट हिमालयन नैशनल पार्क



United Nations  
Educational, Scientific and  
Cultural Organization



GHNP Inscribed  
as world heritage  
site in 2014



Citation

Mandhotra N., The Himalayan Monal Survey in Great Himalayan National Park (2022).



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# ACKNOWLEDGEMENTS

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*-Nishant Mandhotra,*



# CONTENT

<i>Executive summary</i>	6
<i>Introduction</i>	7
<i>Pheasantst in GHNP</i>	8
<i>The Himalayan Monal</i>	9
<i>Objective &amp; survey design</i>	11
<i>Results</i>	12-18
<i>Conclusion</i>	19
<i>References</i>	20
<i>Appendix 1</i>	21
<i>Appendix 2</i>	22
<i>Appendix 3a</i>	23
<i>Appendix 3b</i>	24



# EXECUTIVE SUMMARY

*The GHNP is inscribed as one of the UNESCO World Heritage Site for its pristine habitat, rich floral and faunal diversity, home to several endangered species and for being a true representative of the western Himalayas biodiversity hotspot. The extensive area of 1171 sq. km. supports around 832 plant species, 33 mammals & more than 209 birds. The Great Himalayan National Park Conservation Area is also known to be the habitat of 5 species of pheasants which are **Himalayan Monal, Koklass Pheasant, Khaleej Pheasant, Cheer Pheasant and Western Tragopan***

*The report is broadly based on three objectives. 1, To build kernel density Map of Himalayan monal. 2, To analyze the abundance & demographic status of Himalayan monal. 3, To estimate the abundance & demographic status of other pheasants in predefined trails.*

*The survey found the direct/indirect sighting of 176 individuals of Himalayan Monal, out of which 69% individuals were male. With regard to the abundance of other pheasants, a total of 30 individuals of 3 pheasants species (Western Tragopan, Koklass Pheasant and Kalij Pheasant) were reported in these predefined trails as per the monitoring protocol of GHNPCA.*

# Introduction



The Pheasants family "Phasianidae" consists of a variety of birds such as the quails, partridges, chicken, francolins, spurfowl, tragopans, monals, peafowls and junglefowl and etc. The Indian Himalayan region is rich in pheasant diversity with 80% of all species that are found in India (Kaul, 2007; Selvan et al., 2013). 51 species belonging to 16 genera have been recognized so far in the world, India has over 45 species of Galliformes under two families (viz. Megapodiidae & Phasianidae) and Indian Himalayan region have 16 species that occupy various vegetation and altitude gradient (Ramesh et al., 1999). In general, males are larger than the females and exhibit sexual dimorphism. The males appear to have adornment such as crests and wattles as well as brightly coloured plumage. They have short wings, short legs and short bills. Plants, insects, reptiles and small mammals are their preferred source of food. They serve as useful indicators of the ecosystem and environmental quality, and act as a prey base for predatory birds and mammals and also serve as indicators of adverse human impacts on their ecosystems (Lalthanzara et al., 2011). These species live in a variety of habitats such as lowland tropical rainforest, montane tropical forest, temperate coniferous forest, subalpine scrub, alpine meadows, tropical dry deciduous forests, and agricultural lands. The large size and heavily built plumage in pheasants are possibly due to the physiological requirements to withstand the adverse climatic conditions, hilly terrains, and low-atmospheric pressure in elevated altitudes. During winters, they migrate to lower elevations due to which they are bound to face inter and intraspecific competition for food and survival (Ramesh et al., 1999).

# *Pheasants*

*in*

# *Great Himalayan National Park*



The Great Himalayan National Park got the highest conservation status in 1999, with the final notification of the protected area covering initially an area of 754.4 sq. km. With the readjustment in the boundaries, the park administration has 1171 sq. km of area, which is together referred to as the Great Himalayan Park Conservation Area (GHNPCA) including Tirthan and Sainj wildlife sanctuaries and eco-zone area. For its rich floral and faunal diversity, unique habitats comprise of two great faunal realms, it was inscribed with the status of UNESCO World Heritage Natural Site in 2014. The GHNPCA is situated in the Kullu District of Himachal Pradesh, it is characterized by highly undulating, rugged and steep mountains with an elevation range of 1300 to 6248m. Around 68% of the total area has an elevation above 3,200m. The region consists of major tributaries of river Beas such as Tirthan, Sainj, Jiwanal and Parvati and around 2787 minor tributaries flow within this park network. Around 17% of the whole land is covered by Forests which include temperate, subalpine and alpine vegetation.

The temperate region of GHNP is home to five species of pheasants which are Western Tragopan, Himalayan Monal, Koklass, Cheer Pheasant and Khalij Pheasant. These pheasants coexist with each other and occupy microhabitats and niches. The pheasant's population in most of their range has decreased due to excessive hunting for coloured plumage and meat. The possible habitat fragmentation and degradation further threatened their population (Ramesh et al., 1999) (Selvan et al., 2013).

# The Himalayan Monal



The Himalayan monal scientifically named as *Lophophorus impejanus*. Apart from this, it is also known as Impeyan monal or the Impeyan pheasant. It is found in the Himalayan Forest region at an elevation of about 2100 to 4500 m above sea level. According to the IUCN red list, it is categorized as Least concern. It is the national bird of Nepal while in India, it is the state bird of Uttarakhand. It is having beautiful plumage and prominent sexual dimorphism. It occupies the mountain ecosystem of the Himalayas from eastern Afghanistan, Pakistan, India, Nepal, Bhutan, China and Myanmar (Sathya Kumar & Kaul 2007; Bird Life-International 2020). The species primarily inhabits slopes of high temperate conifers and oak forests with open grasslands slopes. The adult male possesses a metallic green head having blue, purple and green plumage on the wing and blackish underparts. The feathers present on the tail are prominent rufous type and darker towards the tip. The females have dark brown underparts which are striped and vermiculated pale buff, short crest, and white throat.

The body mass of this species is 1.98 to 2.38 kg in case of males and 1.80 to 2.15 kg in the case of females. The size of males is 70 to 72 cm in length with wings bearing 28 to 32 cm, and a tail of 21 cm to 23 cm whereas in the case of females the size is 64 cm in length, with a wingspan of 26 cm to 29 cm and a tail length of 19 to 20 cm (Begum et.al, 2016). The Himalayan Monal prefers steep southward slopes and huge rocks for roosting which protect them from predators such as martens and foxes. These birds are equipped to survive in very cold seasons, but the chicks need heat to survive. During the winter season, they are known to descend at the height of 6,561 ft.



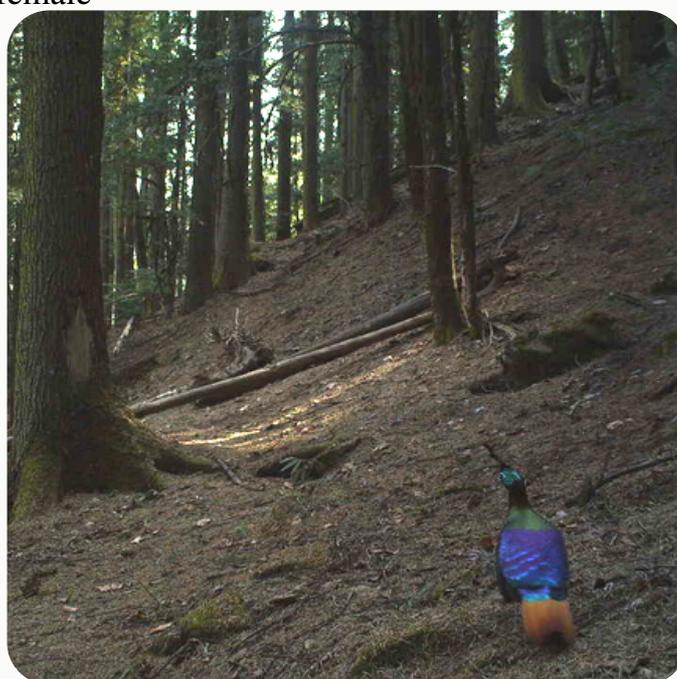
The plain areas are preferably for courtship practices during the onset of summer. It is known to be a highly vocal pheasant species that use a wide range of calls for communication during aggression, alarm calls and mating. The diet of the species consists of leaves, seeds, shoots, berries, nuts, insects, larvae. Foraging is done mainly by using their beak for digging purposes and searching underground. Both the male and the female

monal begin breeding at 2 years old. The breeding season is from April to August that extends till mid-July. Males display courtship performance by fanning its tail,

drooping wings flaunting its bright plumage and giving a piping call. Females lay 5 eggs per clutch and are solely responsible for the rearing of their young whilst the male defends the nest from predators. The life span of this organism is from 10 to 12 years (Begum et.al., 2016) .



Habitat loss, degradation, hunting for food, sport & trade and human interference are some of the major threats affecting the Himalayan monal population. In Himachal Pradesh, it was usually poached for meat and its crest was used for ornamentation.



Legal restriction have been put forth on hunting and various awareness programmes were conducted against hunting (Begum et.al., 2016).

### **Core Study Area**

The survey for population estimation was mainly conducted in Rolla-Shilt, Rolla Nada and Rolla kholipoi trails in Tirthan Wildlife range of GHNP, these areas are least disturbed by humans and have rich diversity and abundance. The vegetation of this region is mainly temperate type with temperate ranges from -5 to 38° C across the year.

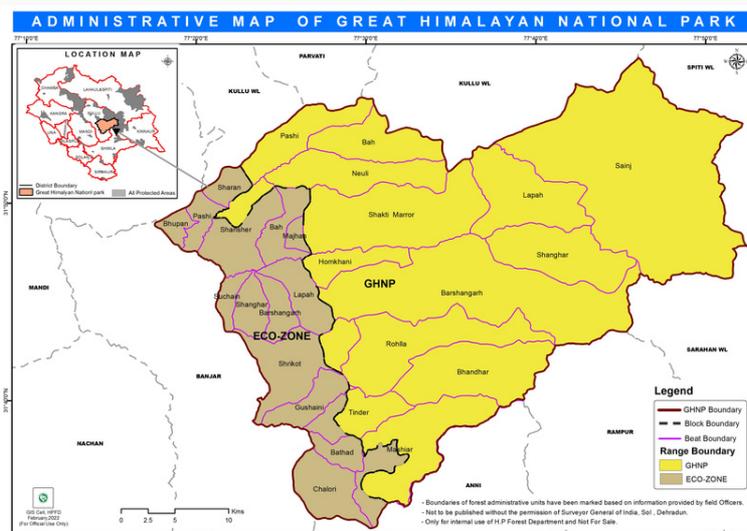


## Objectives of the study

- 1-To develop kernel density Map of Himalayan Monal Pheasant in GHNP
- 2-To estimate the abundance and understand the demographic status of Himalayan Monal Pheasant in GHNP
- 3- To estimate the abundance and understand the demographic status of other pheasants species in GHNP

## Survey Design & Methodology

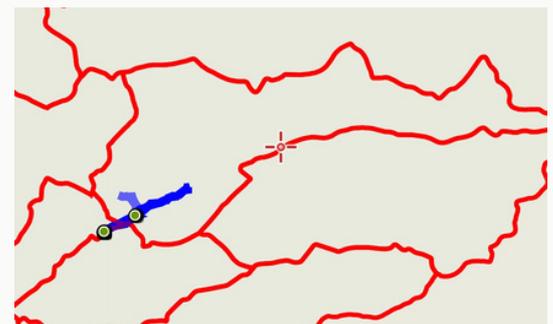
The survey was conducted as per monitoring protocol in three ranges on predefined trails in Tirthan Wildlife Sanctuary and some parts of Sainj Wildlife Sanctuary and GHNP. The predefined transects were used by the field staff to record direct sightings of Himalayan Monal. Further calls were also used to estimate their abundance. A total of 8 line transects of total length 15-20 sq.km. have been walked by the field staff of GHNP. The whole exercise was carried out in two days between 14 to 16 February.



(a)

(a) Administrative Map of GHNP

(b) & (c) Transect laid in the beats of GHNP

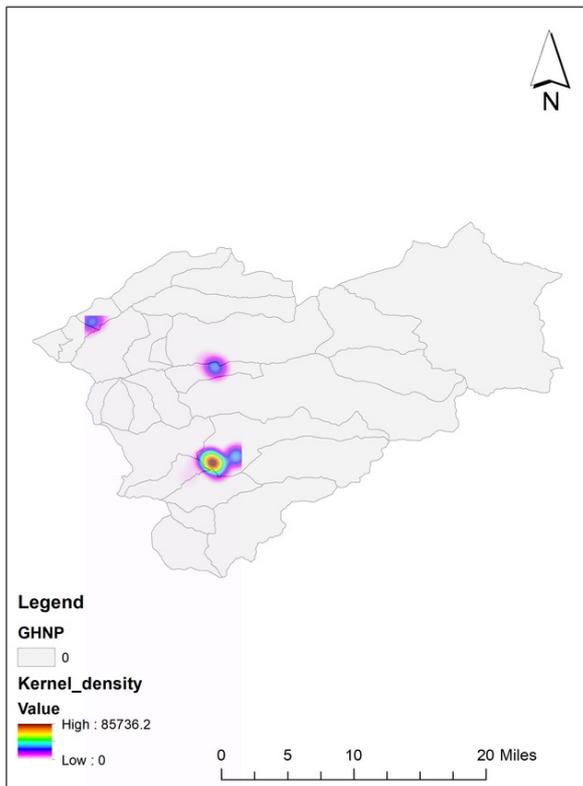
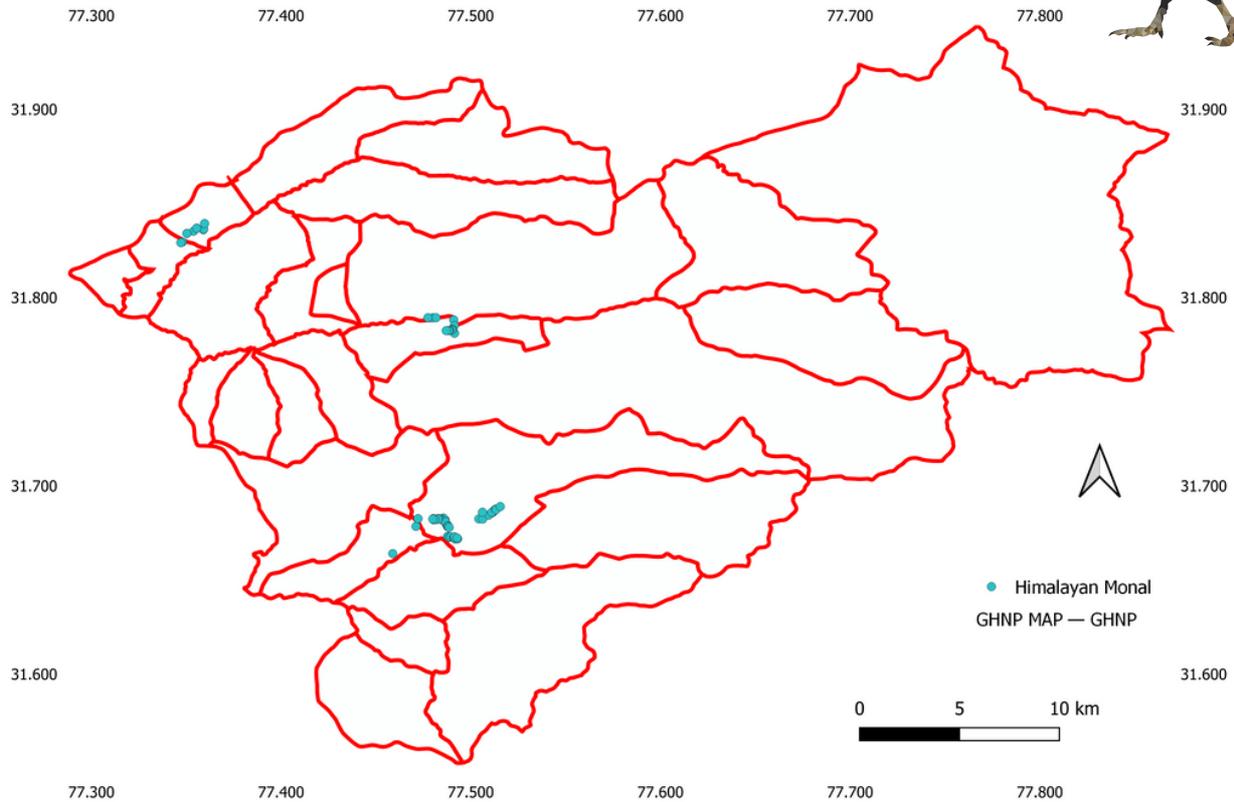


(b)

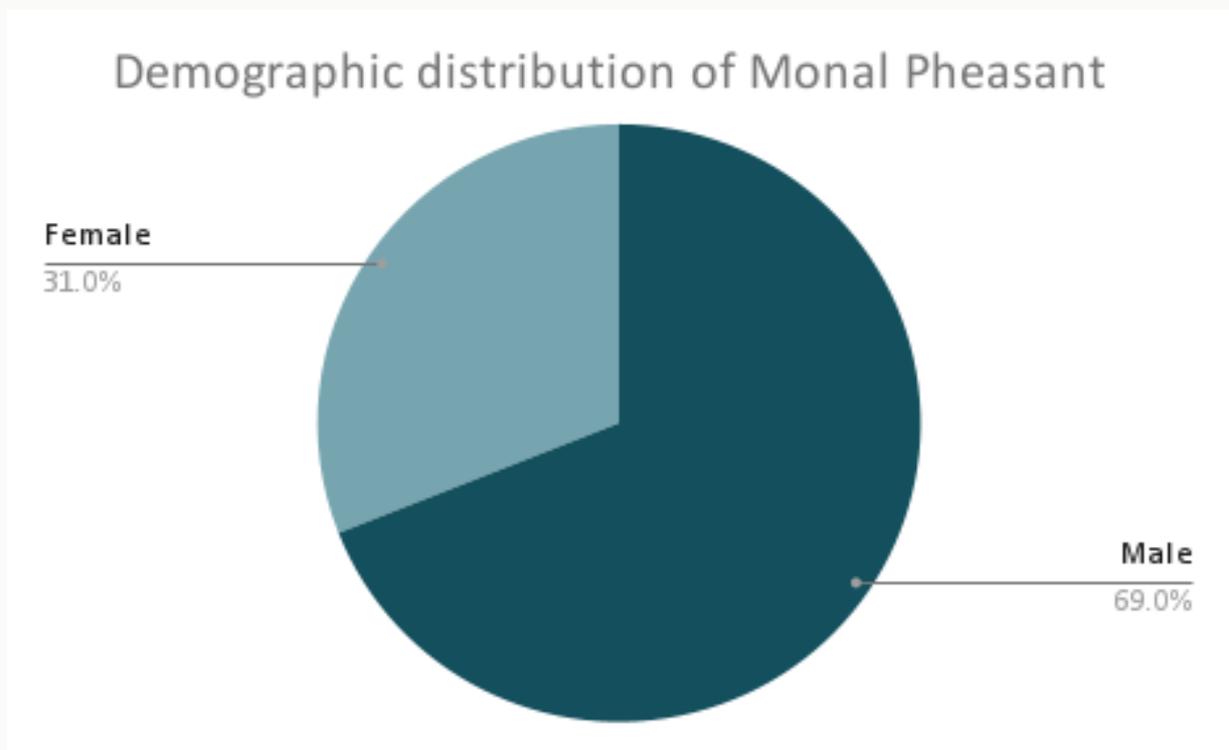
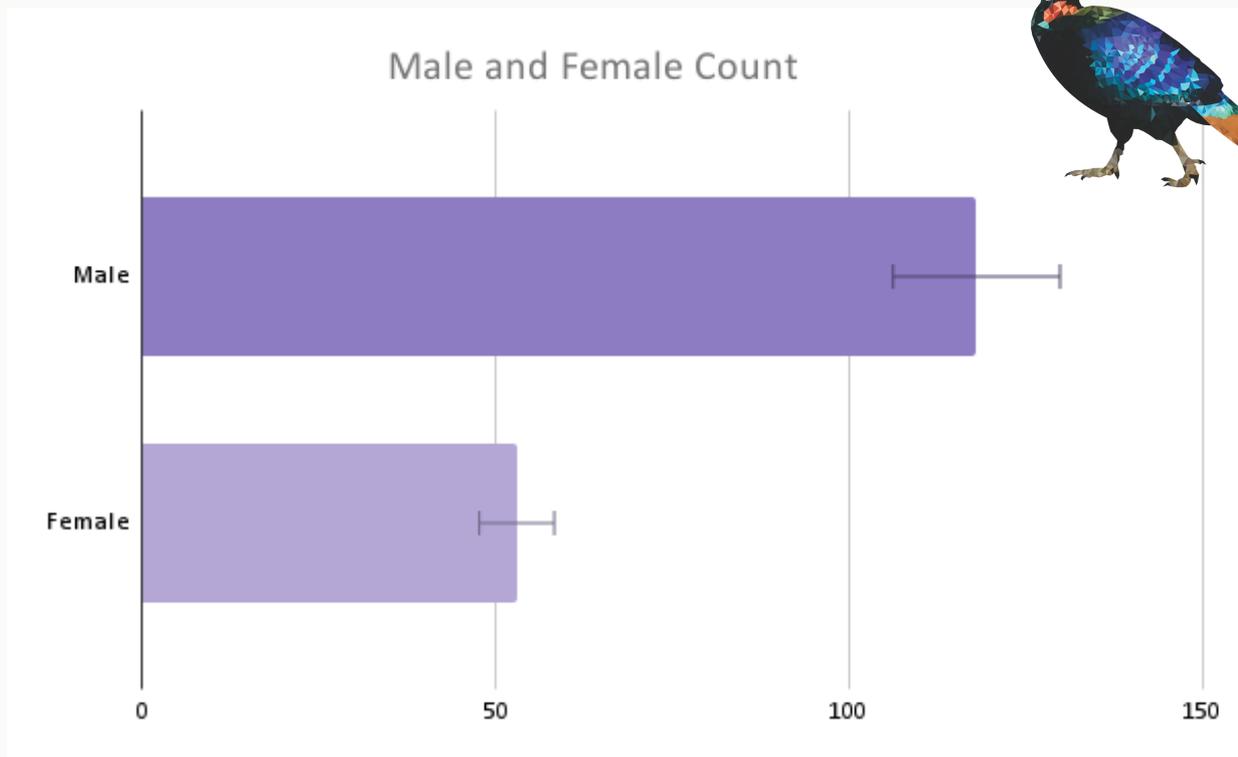


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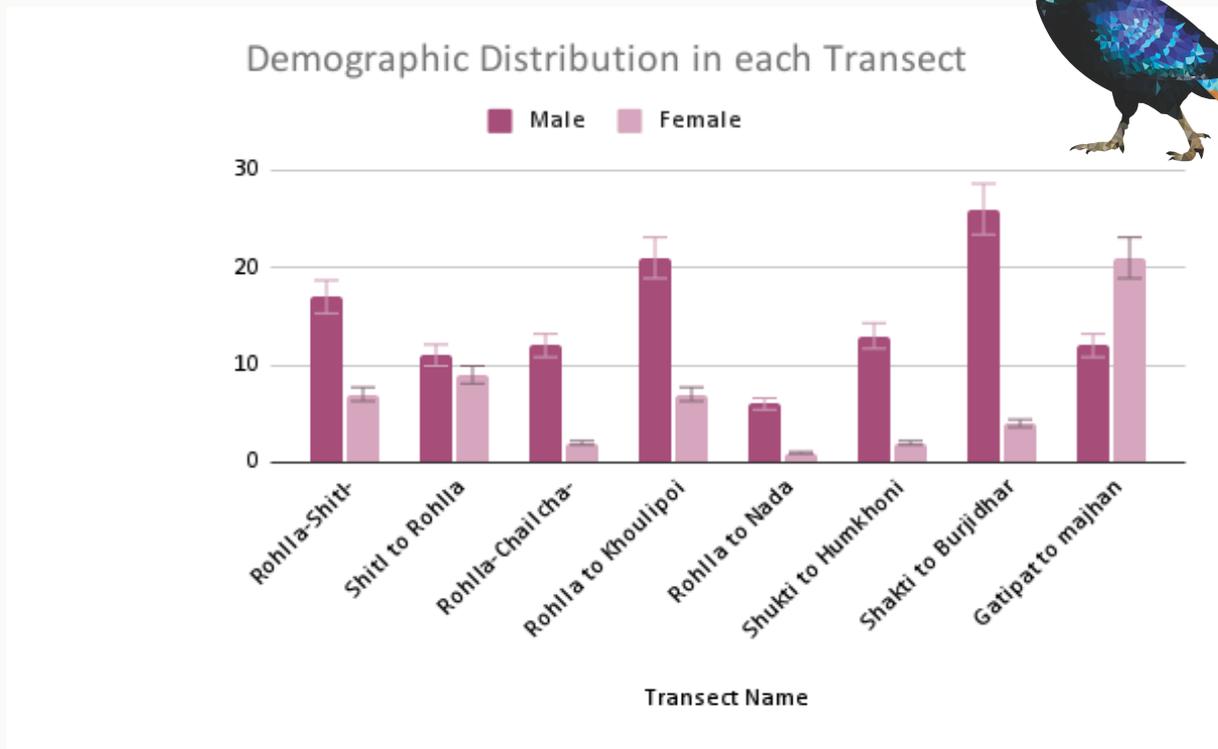
# Results



The kernel density map of Himalayan Monal depicts high density in rohlla beat of Tirthan range, the relatively high density in this region can be marked by suitable habitat conditions and low disturbance by humans. Further, the other regions such as Gushaini, Homkhani, sharan beats have relatively low density. From the survey, the lowest density has been reported in Pashi and Gushaini beat.

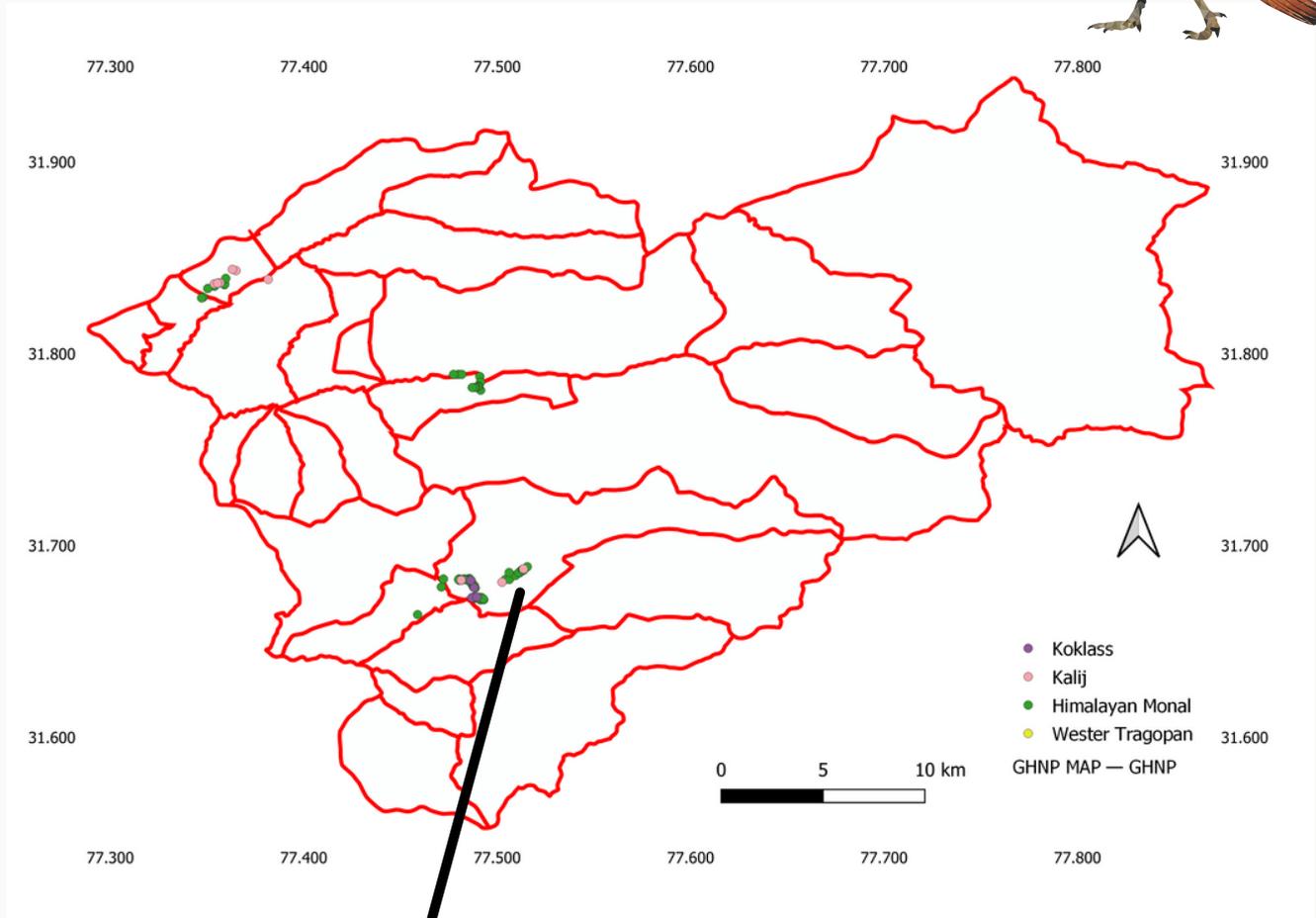


A total of 176 Himalayan Monal individuals have been encountered by field staff, of which 118 were male and 58 individuals were female. The male population constituted around 69 % of the total abundance while females constitute only 31% of total abundance.

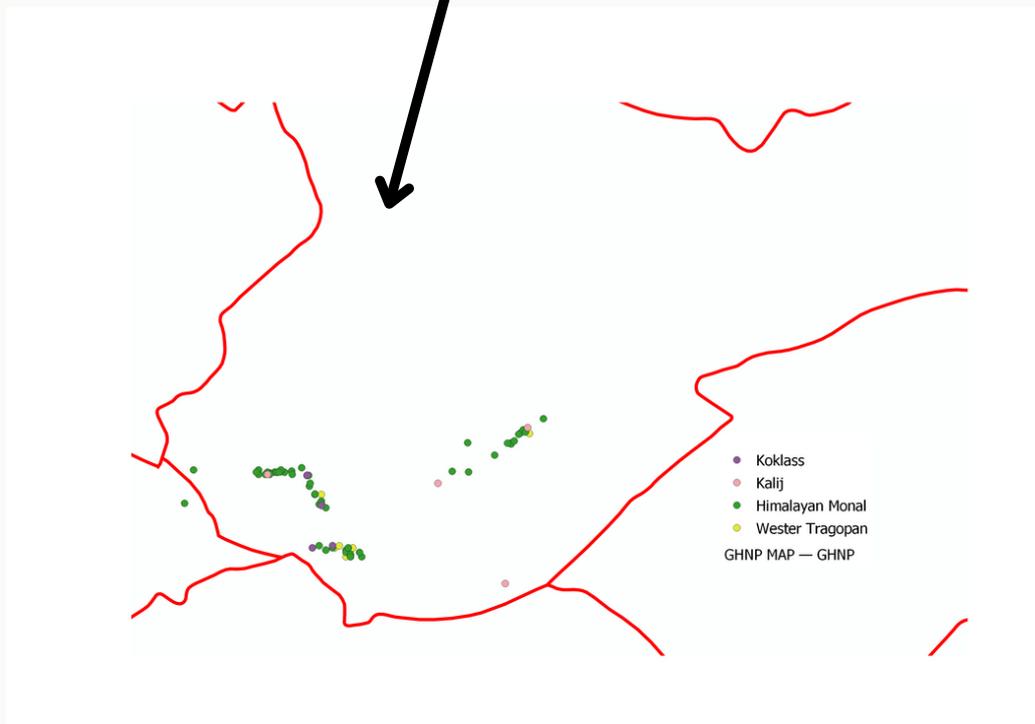


Though the high number of Monal reported in Shakti to Burjidhar transect. Due to the presence of high number of transects in Rohlla beat, the cumulative abundance was quite high in the respective beat as compared to other beats. The highest female abundance was reported in Gatipat to Majhan transect and the highest male abundance has been reported from Shakti to Bhurjidhar transect.

# Status of other Pheasants

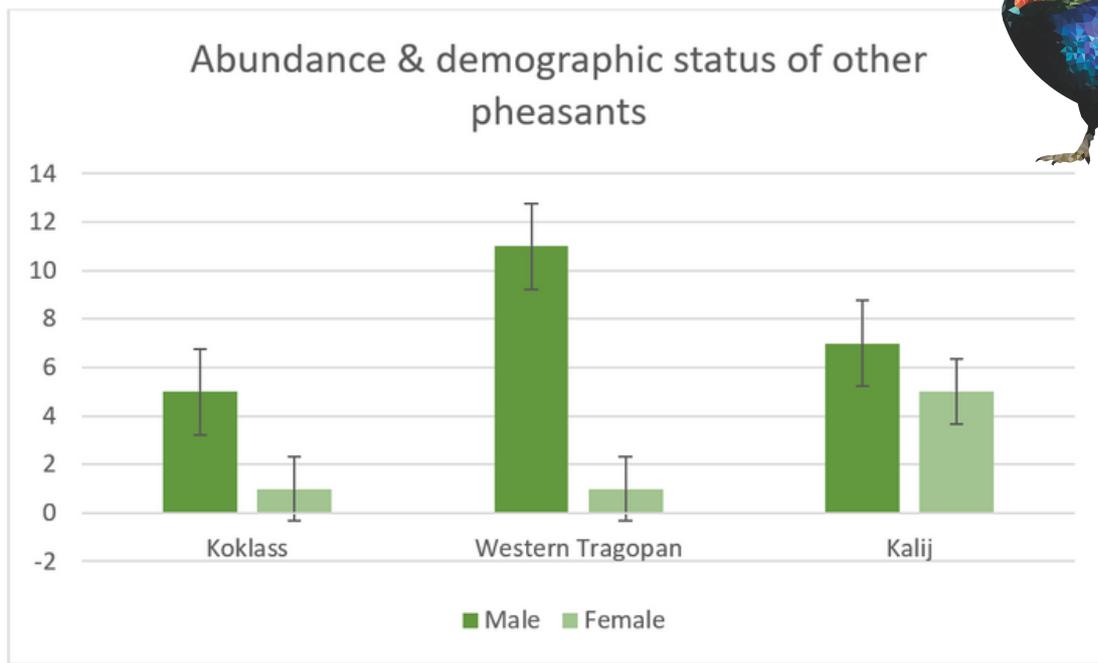


(a)



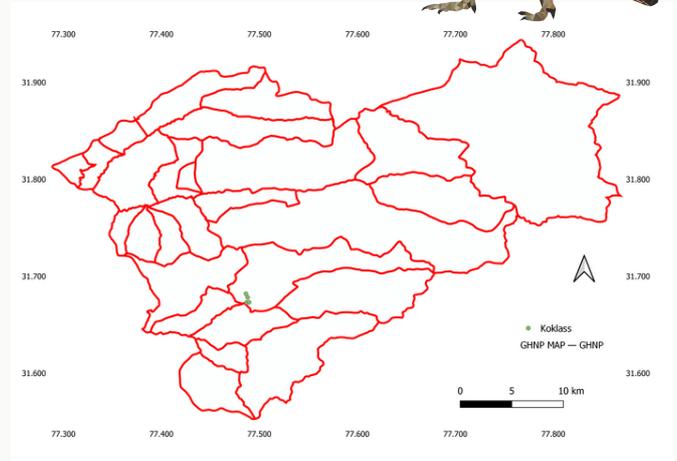
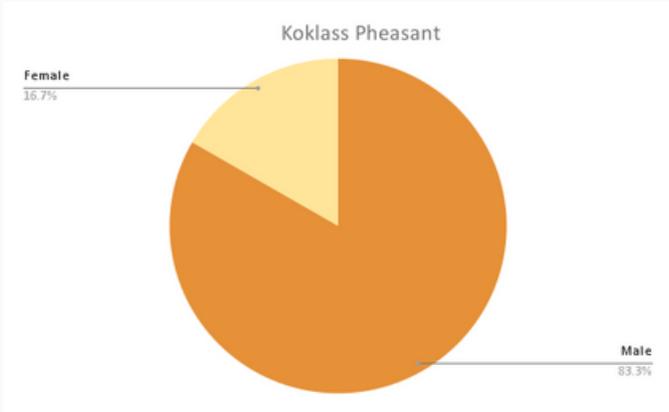
(b)

(a) GPS point of pheasants reported during the transect survey  
(b) The high congregation of pheasants in rohlla beat

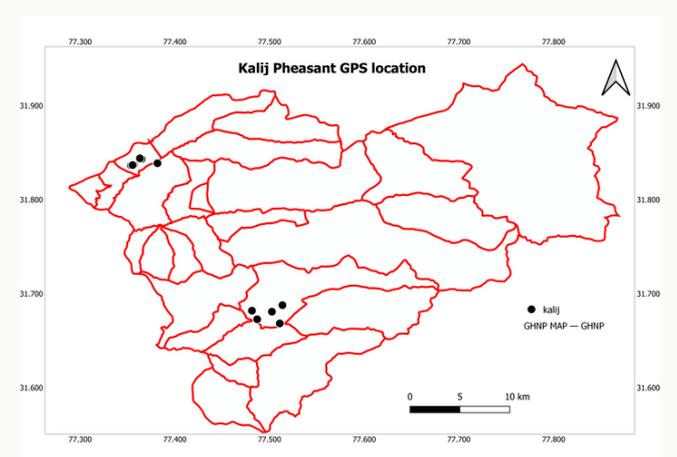
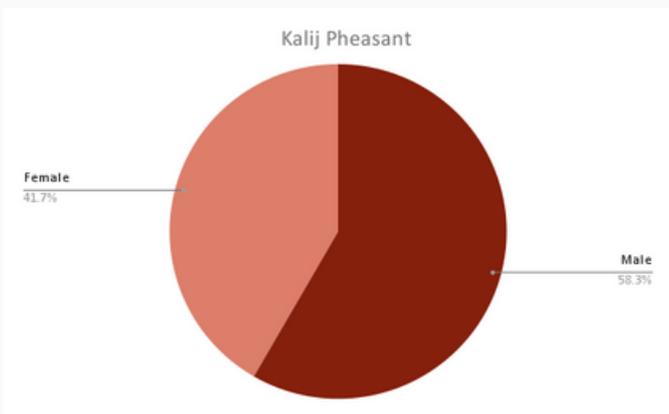


Among other pheasants species reported during the survey, the highest abundance was found to be of western tragopan, around 12 individuals were recorded during the survey, of which 92% were male. However, the lowest abundance was found to be of Koklass only 6 individuals were recorded. For Khalij pheasant, 12 individuals were reported.

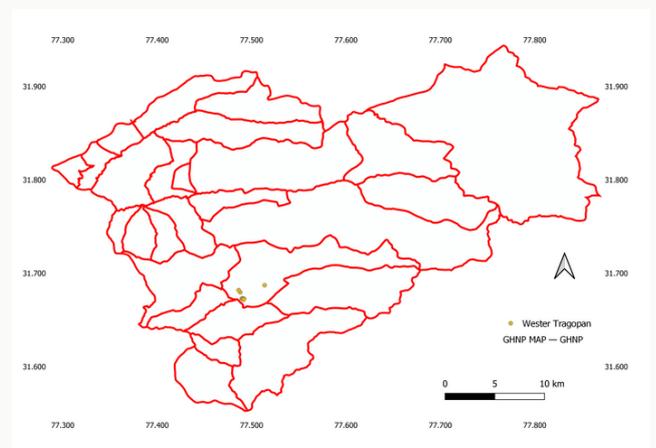
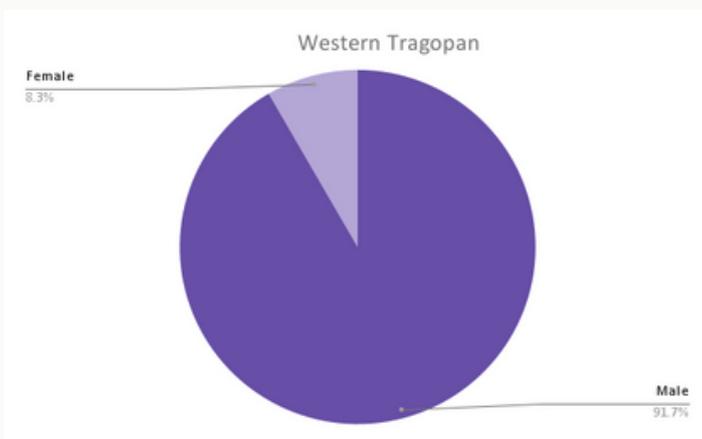
The total number of individuals of other pheasants species was found to be 30 of which 77% were male pheasants and 23% were female pheasants.



Presence data of koklass pheasant and demographic stats



Presence data of kalij pheasant and demographic stats



Presence data of westertragoan and demographic stats



## Encounter Rate

Species	Distance covered (Km)	Sample Size	Encounter rate $\pm$ SD
Himalayan Monal	36	176	4.75 $\pm$ 0.16
Western Tragopan	36	12	0.37 $\pm$ 0.05
Koklass Pheasant	36	6	0.17 $\pm$ 0.02
Khalij Pheasant	36	12	0.37 $\pm$ 0.05

The encounter rate was highest for Himalayan Monal ( 4.75  $\pm$  0.16) and lowest for Koklass pheasant (0.17 $\pm$ 0.02). For western tragopan and khalij pheasant the encounter rate was found to be equal (0.37  $\pm$  0.05)

# Conclusion



The current survey, which was primarily concerned with the abundance status of Himalayan Monal, was conducted in accordance with the monitoring procedure in a few beats, including Rohalla and Shakti Marror, Humkhoni, and Sharan. Winter provides the best conditions for this type of training, which is why a total of 176 individuals have been documented. As per the literature review, it has been noticed that the collection of NTFP and mushrooms during the spring season coincide with the breeding season which affects the population of these pheasants.

Point counts, numerous trails, indirect evidence, acoustics, and other improved survey methodologies can provide better data and a thorough distribution of pheasants in this location.

Additionally, it is advised that transects can be layout in multiple beats in upcoming studies for better analysis and pheasant habitat modeling.

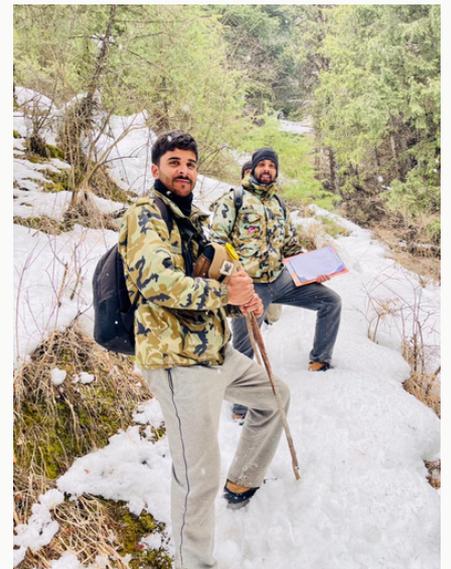
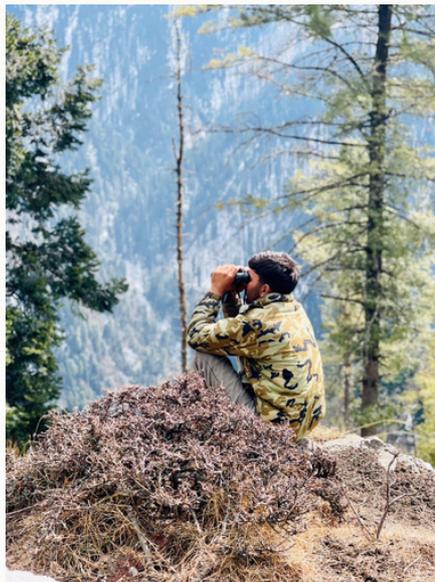


# References



1. Biosci, I. J., Anwar, M., Munawar, N., & Mahmood, T. (2021). Distribution and habitat analysis of Himalayan Monal pheasant ( *Lophophorus impejanus* ) in Palas valley , district Kohistan ,. 6655, 146–156.
2. Lalthanzara, H., Vanramliana, & Lalramliana. (2011). Pheasants of Mizoram (India): Present status of diversity and distribution. *Science Vision*, 11(4), 218–223
3. Nilofer Begum, Anupam Srivastav, Parag Nigam, P. C. T. (2016). nshimalayan monal.pdf. Ramesh, K., Sathyakumar, S., & Rawat, G. S. (1999). Ecology and conservation status of the pheasants of Great Himalayan National Park, Western Himalayas. *GHNP FREEP Report*, 3(11), 1–88
4. Selvan, K., Lyngdoh, S., ... G. V.-A. J. of, & 2013, undefined. (2013). of abundance, habitat use and activity patterns of three sympatric pheasants in an Eastern Himalayan Lowland tropical Forest of Arunachal Pradesh, India. *Ajcb.In*, 2(1), 52–60.
5. Ramesh, K. 2003. An Ecological study on Pheasants of Great Himalayan National Park, Western Hima- laya. PhD Thesis submitted to Forest Research Institute- Deemed University, Dehra Dun
6. BirdLife-International (2020) Species factsheet: *Lophophorus impejanus*. Downloaded from <http://www.birdlife.org> on
7. Kaul, R., Hillaludin., Jandrotia, J. S. and McGowan, P. J. K. 2004. Hunting of large mammals and pheasants in the Indian Western Himalaya. *Oryx* 38:426-431.

# Appendix 1



## Appendix 2- Team



Area	List of team
Rholla-Shilt-Chordwari	Hans Raj Thakur,RFO (T) Narottam BO Rholla Bintu, Fgd Kavinder, Fgd Khila Devi, Fgd Om Prakash, Fgd Tanuj, Fgd Puvender, Fgd Devinder Kumar, Fgd Varsha Devi, Fgd Rohitashav, Fgd
Shakti to Humkhani	ACF, GHNP Shamshi Gian BO Shanghar Vinay, Fgd Shamsher,Fgd Gehru Ram, Fgd Virender, Fgd Dharam Veer, Fgd Devi Ram, Fgd
Gatipati-Kunder-Majhan	Vijender, Fgd Rakesh, Fgd Usha,Fgd Bobby, Fgd Menka, Fgd Manoj, Fgd Vijay Kumar, Fgd Rakesh Kumar, Fgd

# Appendix 3A- Performa





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DATA SHEET FOR THE COLLECTION OF DATA FROM THE FIELD  
 Species Monitoring Of *Monal (Lophophorus impejanus)* During 14-16 February, 2022

Name of transect			Starting Time	
Date			Transect No.	
S.NO.	Time	Direct Sighting (Total No.)	Shortest Distance from Transect	Coordinates
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13.				
14.				
15.				
16.				
17.				
18.				

Total:  
 Name of team members:  
 Signature of recorder:

# Appendix 3B- Performa




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**DATA SHEET FOR THE COLLECTION OF DATA FROM THE FIELD**

Other Species observed during Monitoring Of Monal (During 14-16 February, 2022)

Name of transect					Starting Time	
Date					Transect No.	
S.NO.	Time	Species (Other than Monal)	Direct Sighting (Total No.)	In-direct sighting (droppings, fraying marks, scats etc.)	Distance from Transect if direct	Coordinates
1.						
2.						
3.						
4.						
5.						
6.						
7.						
8.						
9.						
10.						
11.						
12.						
13.						
14.						
15.						

Total:

Name of team members:

Signature of recorder:



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