

# **CHAPTER 03**

## **RATIONALE & OBJECTIVES**

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### 3.1. Rationale of the study

#### *Definition of the problem*

In the recent decade, the studies of Himalayan pheasants have gained immense importance in India and abroad for their role in ecosystem services; this is because they act as bio-indicator for habitat quality. Amongst the top ten -megadiversity countries, India's enhancement is to have 1,40,000 sq. km protected forest areas, out of a total of 640,000 sq. km. Indian Himalaya is considered as an exceptional area in the world due to its biodiversity and cultural richness, expanded from the east to west in the country. For having a rich base of natural resources and ecosystem services, this region offers tremendous significance to humankind. However, the Himalayan region comes under the influence of anthropogenic threats due to overexploitation of biodiversity by the people for their survival as well as for commercial purposes. Existing conflicts between conservation and human dependency on natural resources have remained a big challenge for governmental agencies. Local people in the Himalayan region need appropriate strategies, back-upped with provisions of supporting and strengthening levels of their income, health, and education. Moreover, the sustainable use of native biodiversity and improved area management is equally important. Or else, over-exploitation of natural resources may result in alteration of the habitat of certain faunal diversity including Himalaya pheasants, which are threatened for their high sensitivity towards degradation of their habitats. Conserving biodiversity is one of the top priorities for protected and sensitive areas today;

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to meet the same, appropriate initiatives are urgently required. Research to explore the potential of existing populations of sensitive and threatened species of Himalayan pheasants, including their diversity, distribution, and determination of their habitat requirements are mandatorily required, especially under the on-going threat of climate change, besides their susceptibility to poaching and habitat degradation. Himalayan pheasants, however, are hitherto, largely ignored for their conservation management and researches, as most of them are found in high elevation habitats, it is often very difficult to monitor them.

In India, some good studies on Himalayas Pheasants are available especially in the Great Himalayan National Park in Western Himalaya; whereas, in Khangchendzonga Biosphere Reserve pheasants are insufficiently explored, especially for their population and habitat ecology and climate change point of view. Nevertheless, inadequate studies are available on the pheasants of Sikkim Himalaya, except for fewer generalized observations by few researchers.

### ***Importance of the pheasants***

Pheasants have been associated with the social and religious status of people living in Asia and Europe (Poudyal, 2008). Over a long time, pheasant feathers were used to make headgear, earring, and also were used to decorate weapons, spears, helmets, garments, and other in different parts of the world. Consequently, this fashion brought a serious threat to pheasants, especially of rare and endangered species, as 100 male pheasants were required to make a headgear (<http://www.greecetravel.com>). For their beauty, pheasants became the jewels of the

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high altitudes, especially the Himalayan region. The brightly coloured plumage and well-featured crests have been attracting people towards its beauty since time immemorial. About 300 species of Galliformes around the world (26%) are under risk (WPA, 2008); 21 species of pheasants are globally threatened and 12 species are near threatened. Three pheasants are endangered and 18 are vulnerable under the IUCN category (IUCN, 2007). CITES lists 17 species of pheasants in Appendix I, whereas, 08 species are included in Appendix II and 04 in Appendix III (CITES, 2008). These birds are threatened because of high human activities in their natural habitats. Many pheasant species are likely to become extinct within the next 100 year if overexploitation and habitat destruction continue (Ramesh, 2003).

In the Himalayan context, pheasants are killed for food, feathers, and entertainment even though the pheasant hunting is banned by the national park and wildlife conservation Act 1973 in India. The male Himalayan Monal has been under heavy hunting pressure for its crest feathers, which are used in traditional hats in several regions of Nepal (Poudyal, 2008) and Himachal Pradesh, India.

### ***The origin of the work***

Sikkim is a part of Eastern Hindu-Kush Himalayas and global biodiversity hotspot (284-8586 m asl). However, climate change in Himalaya is proceeding at a rate of three times higher than the global average and has significantly affected its community assembles; however, many long-term species-level ramifications remain opaque because existing pieces of literature generally lack the quantitative analysis needed to impact conservation policies for avian biology including distribution pattern

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and habitat specificity of endemic and threatened species and impact of climate change. Based on this background present proposal originated to fulfil these disparities by studying "Distribution, Abundance and Habitat Interaction of Himalayan Pheasants with their response to climate change in Khangchendzonga Biosphere Reserve, Sikkim, India" because the Himalayan Pheasants are considered as a bio-indicator of habitat quality and adverse human impacts in high-altitude ecosystems. In Sikkim Himalaya, four Himalayan Pheasants are found (Blood Pheasant, IUCN Least Concern; Himalayan Monal, IUCN least Concern; Kalij Pheasant, IUCN Least Concern; and Satyr Tragopan, IUCN Near Threatned; their distributional range up to 5000 m asl). This study was aimed to identify the most priority conservation areas and the sensitive habitat areas of the Himalayan Pheasant in the Sikkim Himalayas through the advance climate change modelling approach.

### ***The contribution of the work***

Sikkim Himalayan ecosystems are facing threats from anthropogenic pressure, natural calamities (landslide), and climate change. So, an immediate task of biodiversity conservation is needed for various taxa which have a dearth of knowledge on their diversity and distribution which makes it difficult to formulate conservation strategies. Himalayan pheasants, however, are hitherto, largely ignored for their conservation management, as most of them are found in tough terrains in high elevation habitats, it is often very difficult to monitor them. This study was aided in providing a substantial scientific understanding of Himalayan Pheasants diversity, distribution pattern, and habitat interaction along the altitudinal gradient in the

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Khanchendzonga Biosphere Reserve. Additionally, the niche and climate change modelling were used for identification of the most potential conservation priority areas and also the highly sensitive areas along with biodiversity threats of the Himalayan Pheasants in Khanchendzonga Biosphere Reserve, Sikkim, and Eastern Himalayas; such information generated from the study which will have immense help for conservation directives to formulate appropriate conservation strategies in the landscape. This study was aimed to understand the status, distribution pattern, and climate change impact on Himalayan Pheasants in the Sikkim Himalayas. Along with the distribution data, the data was used to prepare a database of geo-referenced of the Himalayan Pheasants in the Sikkim Himalayas. In view of the above and the importance of the target species, the proposed study was aimed to investigate diversity, abundance and the general ecological relationship between Himalayan pheasants and their habitat (including forest compositions) along with their potential elevation trails in Khangchendzonga Biosphere Reserve in Sikkim, India.

### **3.2. Objectives of the Study**

- 1. To assess the altitudinal distribution of pheasants and mapping of their habitat suitability**
- 2. To study of the potential forest communities and habitat composition of Himalayan Pheasants along potential altitudinal gradients**
- 3. To study seasonal variation on pheasants' diversity, abundance along habitats**
- 4. To study the climate change impact on the distribution of pheasants and their associated elements, including using perception tools**

### FLOW CHAT

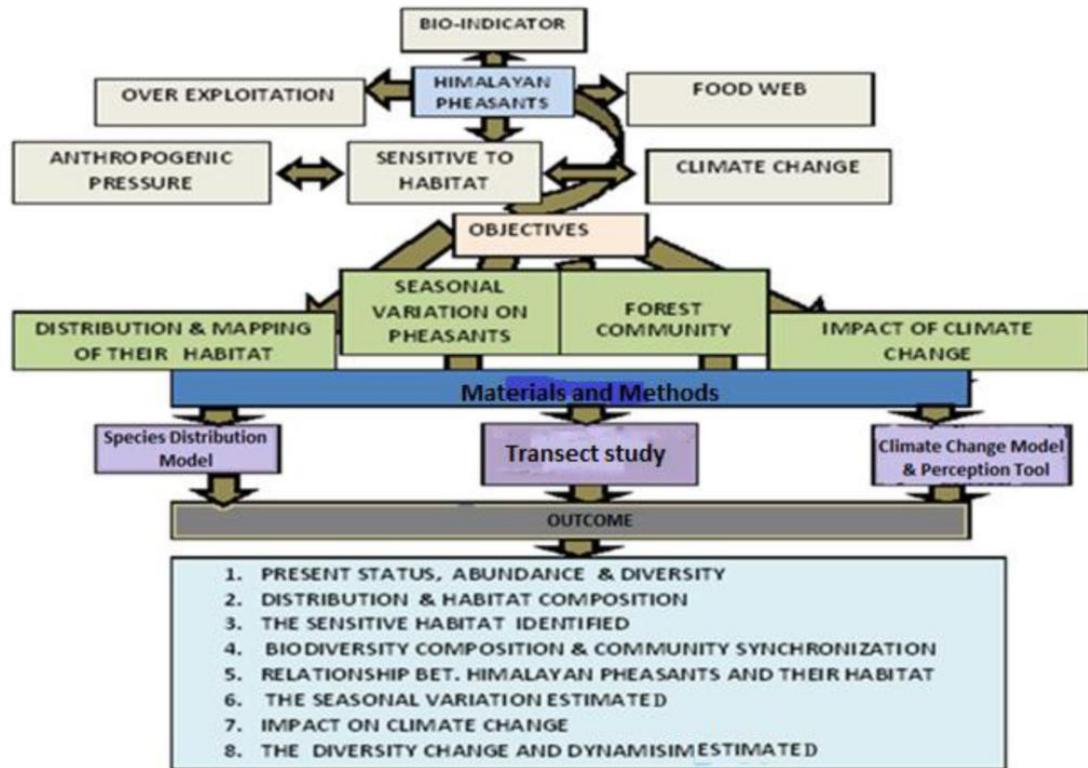


Plate 02: Pictorial representation of a flow chart of the research work.