

Conservation Efforts and Challenges in Jigme Dorji National Park, Bhutan

Conservation of biodiversity has been gaining increased importance, and has even been linked to reduction of armed conflicts. Bhutan, a small country in the eastern Himalayas, has both the traditional ethos and the policies to lead Asia in this field. However, in recent decades, it has had to face the challenge of balancing between economic development and conservation goals. Pema Dendup discusses the results of a survey in Bhutan's second largest national park to put these challenges in context.

Despite its small size, Bhutan can lay claim to being one of the most environmentally-conscious nations in Asia, with [51.44% of its](#) land being protected. There is strong government-policy support for the conservation of wildlife and its habitat in Bhutan. Forest and Nature Conservation Act of Bhutan, 1995, and Forest and Nature Conservation Rules and Regulations of Bhutan, 2017, provide a powerful legal framework for protecting and managing wildlife and habitat. Article 5 of the Constitution of Bhutan further emphasises the requirements to maintain at least 60% of the total land under forest cover for all times to come.

However,

in the past four or five decades, Bhutan has undergone significant modernisation, creating the need to re-balance the exploitation of natural resources for economic purposes with conservation goals.

In this setting, Bhutan's national parks play a vital role in conservation efforts. This blog post discusses the data collected during a survey, carried out in Jigme Dorji National Park, Bhutan (2019 –2020) aimed at understanding the presence of bird species across different habitat types and their existing conservation threats. This is a good measure of the health of ecosystems.

Survey of Bird Species in the Jigme Dorji National Park

Jigme Dorji National Park (JDNP) with an area of 4374.06 km² is the second-largest protected area in Bhutan, a country nestled in the heart of the eastern Himalaya. JDNP with an altitude range of [1200 to >7000 m has rich biodiversity](#) within the [five major ecosystem](#) types classified for Bhutan. The five major forest types (hereafter habitats) are subtropical forest (ST) (1000–2000 m), warm temperate forest (WT) (2000–2500 m), cool temperate forest (CT) (2500–3000 m), subarctic/cold temperate forest (CO) (3000–4000 m) and rhododendron scrub (RS) (>4000 m).

At the landscape level, the JDNP provides connectivity – a safe wildlife movement passage – to Jigme Khesar Strict Nature Reserve (JKSNR), Jigme Singye Wangchuck National Park, and Wangchuck Centennial National Park. In the realm of international transboundary conservation, JDNP provides [crucial connectivity to the Kanchenjunga Conservation Complex](#) in northeast India and eastern Nepal via JKSNR.



Satyr Tragopan, a near-threatened specie, ©Pema Dendup

JDNP is rich in both floral and faunal diversity. With regard to birdlife, the park is home to 407 species of birds which corresponds to about 55% of the country's total bird species. The significance and importance of the park for birdlife conservation are enormous. We have recorded some rare and endangered species in our survey (Table 1).

Specie Name	Conservation Status
White-bellied heron	Critically endangered
Pallas's fish eagle	Endangered
Steppe eagle	Endangered
Chestnut-breasted partridge	Vulnerable
Wood snipe	Vulnerable
Blacked-necked crane	Vulnerable
Bearded vulture	Near-threatened species
Himalayan vulture	Near-threatened species
River lapwing	Near-threatened species
Satyr tragopan	Near-threatened species
Yellow-rumped honeyguide	Near-threatened species
Ward's trogon	Near-threatened species
Northern lapwing	Near-threatened species

Table 1: Species recorded during the survey and their conservation status as per IUCN Red List; Source: Data from the Survey of Bird Species, 2019–2020

The park is also home to 57 migratory bird species, including the Ruddy shelduck, which is a common winter visitor. The low land bird Pheasant-tailed Jacana is a rare summer visitor recorded only on two occasions at an altitude above 4000 m.

Habitats in the lower elevations had high bird richness and diversity, increasing until the mid-altitude (2000–3000 m), followed by a gradual decline towards the higher elevations, with maximum predicted bird richness approximately at 3200–3300 m. This may be accounted for by the fact that lower- to mid-latitude area of the national park has [diverse vegetation cover, agricultural land, and hot–warm climatic conditions](#). There was a decrease in species richness and abundance in higher altitudes and this could possibly be [attributed to the decrease in temperature and vegetation resulting from shorter growing seasons, and low availability of food and nesting sites](#). However, some of the threatened bird species such as Himalayan Monal, Himalayan Vulture, Bearded Vulture, and Wood Snipe are found to seek shelter in high altitude habitats.

During the current survey in the park, bird species were under-recorded by 33.16%. Such gaps will remain inherent in future surveys as well because species detection is dependent on time (survey time and seasonality), space (habitat use by species and movement, behavioural characteristic of species), and [observer's fatigue](#). Repeated surveys during different seasons will help fill such knowledge gaps and will lead to an increase in species richness, albeit at a slower rate than in the previous surveys as the preponderances of species have likely already been recorded to date.

Challenges to Conservation Efforts

With the population of [5026 people living inside the national park and with a population density of 21.68 people per square kilometres](#),

habitat loss, fragmentation, and degradation are the major threats in the national park.

All of these major threats are attributed to development activities and increasing demand for natural resources.



Damji Village, © Pema Dendup

Poaching of wildlife, especially the musk deer is quite common in the park. Given the large size of the park – 11.39% of the country’s size – and despite regular patrolling activities carried out by the park officials, musk deer traps are still encountered while on patrol. Musk deer traps and snares can pose a serious threat to ground-dwelling birds (Galliformes) such as Himalayan monal, Blood pheasant, Kalij pheasants, and Satyr tragopan. The use of snares is reported to have high negative conservation implications as the [wildlife of any form are killed indiscriminately](#).



Blood Pheasant (Left) and Kalij Pheasant (Right), © Pema Dendup

Fishing along the rivers of JDNP is also one of the major concerns for waterbird survival. Mochu and Phochu rivers are reported to host the biggest and oldest known population of critically endangered White-bellied heron in Bhutan. Overfishing in these two rivers is of great concern to conserving White-bellied heron as it results in loss of prey.

Management Efforts

With the presence of different threats for the birdlife in the park, the park management has devised several conservation efforts to protect threatened species and their habitat. JDNP has very recently **revised its management plan** giving top priority to the monitoring of threatened species and habitat with several management zones created for more effective conservation. [Four different zones, namely core zone \(28.10%\), transition zone \(40.72%\), multiple-use zone \(19.49%\), and buffer zone \(11.69%\), have been designated in the park.](#)

Given the presence of globally threatened species in the park, JDNP has also been recognised as one of the [largest IBAs in Bhutan](#), and the global conservation organisations are expected to allocate resources and efforts to areas such as JDNP to help intensify conservation efforts to save birds and their habitats.

Forests are an important habitat for a majority of bird species in JDNP. Better-informed decisions need to be made by the park management especially when allotting resources to the resident communities. Best-practiced silviculture systems must be applied differently in different habitats. Periodic monitoring of bird populations is very important to place strategic management prescriptions to help sustain bird populations in the landscape. Timely awareness programmes on the importance of bird conservation also need to be provided to the communities residing in the national park.

Banner Image: Mt. Jomolhari, Bhutan, © Pema Dendup.

The results of this survey were earlier reported in Pema Dendup, Leki Wangdi, Yenten Jamtsho, Pema Kuenzang, Dorji Gyeltshen, Tashi Tashi, Ugyen Rigzin, Yeshey Jamtsho, Rinzin Dorji, Rinzin Dorji, Yonten Jamtsho, Choki Lham, Bep Tshering, Bird diversity and conservation threats in Jigme Dorji National Park, Bhutan, *Global Ecology and Conservation*, Volume 30, 2021, <https://doi.org/10.1016/j.gecco.2021.e01771>.

The views expressed here are those of the author and not of the 'South Asia @ LSE' blog, the LSE South Asia Centre, or the London School of Economics and Political Science.