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Wildlife and Fauna of Bhutan

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Introduction

The Kingdom of Bhutan, a small, landlocked nation nestled in the southern slopes of the Eastern Himalayas, stands as a remarkable beacon of biodiversity in a rapidly changing world. Bordered by the Tibet Autonomous Region of China to the north and the Indian states of Sikkim, West Bengal, Assam, and Arunachal Pradesh to the west, south, and east, Bhutan's strategic location at the juncture of the Indo-Malayan and Palearctic realms contributes significantly to its extraordinary range of flora and fauna. The country's terrain is among the most rugged globally, characterized by dramatic variations in altitude, rising from approximately 150 meters in the southern foothills to towering peaks exceeding 7,500 meters in the north. This immense geographical diversity, coupled with equally varied climatic conditions, fosters a wide array of ecosystems, making Bhutan a globally recognized biodiversity hotspot and one of the 234 globally outstanding ecoregions.

Bhutan's commitment to environmental conservation is deeply ingrained in both its national philosophy of Gross National Happiness and its long-standing Buddhist traditions that foster deep respect for all life forms and nature. This mindset is not only cultural but also enshrined in the nation's constitution, which mandates that a minimum of 60% of the country must remain under forest cover for all time—a target which Bhutan not only meets but exceeds, with forest cover reported around 70% to 72% in recent years. More than half of Bhutan's total area is designated as protected lands, including national parks, wildlife sanctuaries, and biological corridors—representing the highest proportion of protected land in all of Asia.

The country's dramatic altitudinal gradients and broad climatic range have resulted in a mosaic of unique ecosystems, from lush, tropical forests in the south to alpine meadows and snow-covered peaks in the north. Bhutan is not only a haven for globally significant biodiversity, but also a model for balancing conservation and development. Its extensive network of protected areas creates safe havens for rare and endangered species and connects habitats crucial to the movement and survival of wide-ranging wildlife.

The diversity of wildlife in Bhutan is astounding, especially considering its relatively small geographic size. Over 5,600 species of vascular plants, 200 species of mammals, more than 700 species of birds, and hundreds of species of butterflies, amphibians, reptiles, and fish have been recorded here. Many of these are rare and endangered, and some—such as the blue poppy, golden langur, and Bhutan takin—are iconic and found nowhere else in the world.

Despite this extraordinary natural heritage, Bhutan faces a host of modern

conservation challenges, from climate change and habitat fragmentation to human-wildlife conflict, illegal hunting, and the pressures of sustainable development. Nonetheless, Bhutan remains at the forefront of global conservation practice, thanks to strong legal frameworks, effective protected area management, and innovative initiatives like “Bhutan for Life.”

This book offers a comprehensive guide to the wildlife and fauna of Bhutan—exploring its spectacular landscapes, unique and lesser-known species, crucial habitats, and the cutting-edge conservation work that is ensuring their survival for generations to come. Whether you are a naturalist, conservationist, student, or traveler, this guide seeks to inspire wonder, respect, and stewardship for the remarkable natural world of Bhutan.

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CHAPTER ONE: The Geography of Bhutan: Land of the Thunder Dragon

Bhutan, often referred to as Druk Yul, the "Land of the Thunder Dragon," earns its evocative moniker from the dramatic and powerful thunderstorms that frequently sweep across its mountainous terrain. This nickname is intrinsically linked to the nation's formidable geography, a landscape sculpted by the immense forces of the Himalayas, resulting in one of the most rugged and varied environments on Earth. Bhutan is a small, landlocked country nestled in the eastern Himalayas, strategically positioned between two Asian giants, China to the north and India to the south, southwest, and east. Its total land area is approximately 38,394 square kilometers (14,824.0 sq mi).

The shape of the country is roughly rectangular, stretching about 350 kilometers (220 mi) from east to west and 150 kilometers (90 mi) from north to south. What truly defines Bhutan's physical character is its dramatic vertical dimension. The altitude ranges breathtakingly, from approximately 97 meters (318 ft) in the southern lowlands along the Indian border to towering peaks exceeding 7,500 meters (24,600 ft) in the north. This staggering elevation change occurs over relatively short distances, creating a landscape of deep valleys and steep mountainsides that profoundly influences everything from climate and ecosystems to human settlement patterns and biodiversity. The sheer dominance of mountains is striking; virtually the entire country is mountainous, with some estimates suggesting that 98.8% of Bhutan is covered by mountains, making it potentially the most mountainous country globally.

Bhutan's mountainous terrain can be broadly divided into three main physiographic zones, running roughly parallel from north to south. To the north lies the Great Himalayas, an imposing arc of snow-capped peaks forming the border with Tibet. This region is characterized by an arctic-like climate at its highest elevations and includes many peaks over 7,000 meters (23,000 ft). The highest point in Bhutan, Gangkhar Puensum, at 7,570 meters (24,836 ft), is located here and holds the distinction of being the highest unclimbed mountain in the world, largely due to its sacred status. This high-altitude zone features alpine meadows and is primarily used for grazing by migratory shepherds. Glaciers in this region are a vital source of freshwater for the country's rivers, although they are experiencing rapid melting due to climate change, forming numerous glacial lakes.

South of the Great Himalayas lie the Lesser Himalayas, also known as the Inner Himalayas. This is the largest physiographic region and the most populous part of the country. Elevations here generally range from 1,100 meters to 3,000 meters (3,600 to

9,800 ft), featuring broad valleys separated by steep, forested ridges. Most of Bhutan's major towns and population centers, including the capital city, Thimphu, and other important valleys like Paro, Punakha, and Bumthang, are situated in this zone. The topography includes broad valleys, deep gorges, and fast-flowing rivers. Two significant mountain ranges within the Inner Himalayas, the Black Mountains (Dungshing Gang) in central Bhutan and the Donga Range further east, act as crucial watersheds, dividing major river systems and historically influencing communication and settlement patterns. Peaks in the Black Mountains range up to about 4,925 meters (16,158 ft).

The southernmost region consists of the Southern Foothills, part of the Himalayan foothills also known as the Siwalik Hills, and a narrow strip of the Duars plain along the border with India. This zone experiences a warmer, humid, subtropical climate, with elevations rising up to around 1,500 meters (4,900 ft). The southern Duars strip in Bhutan, about 10 to 15 kilometers wide, consists of rugged, sloping terrain near the foothills with dense vegetation and abundant wildlife, transitioning to moderately fertile soil, savanna grass, and mixed jungle further south. This region is characterized by dense forests and alluvial river valleys.

Bhutan's geography is crisscrossed by a network of swift-flowing rivers, which are often described as the country's lifelines. These rivers, fed by glacial melt from the high Himalayas and the heavy monsoon rains, flow rapidly southward, carving deep valleys and gorges. The principal river systems are four major ones: the Drangme Chhu, the Punatsang Chhu (also known as the Sankosh), the Wang Chhu, and the Amo Chhu.

The largest river system is the Drangme Chhu, which flows southwest from Arunachal Pradesh in India and drains much of eastern Bhutan, including the Bumthang and Trongsa valleys, through its major branches like the Mangde Chhu and Bumthang Chhu. In the Duars, it is known as the Manas Chhu and eventually joins the Brahmaputra River in India. The Punatsang Chhu, formed by the confluence of the Mo Chhu and Pho Chhu rivers originating from the Great Himalayan Range, flows southerly through central Bhutan, draining into West Bengal, India. The Wang Chhu flows southeast through west-central Bhutan, draining important valleys like Haa, Paro, and Thimphu, before entering West Bengal as the Raigye Chhu. The Amo Chhu, the smallest system, flows through western Bhutan, including the Haa and Samtse districts, after rising in the Chumbi Valley in Tibet. These river systems are not only vital for water resources and agriculture in the fertile valleys but also hold immense potential for hydroelectric power generation, a key part of Bhutan's economy.

The valleys of Bhutan are perhaps the most striking and accessible features of its geography, serving as the primary areas for human settlement and agricultural activity. Carved by the rivers, these valleys vary in character depending on their altitude and location. In the upper reaches, particularly in the Inner Himalayas, rivers

have created relatively broad and fertile valleys like Paro, Punakha, Thimphu, and Bumthang. These valleys, lying at elevations generally between 1,500 and 2,700 meters, receive moderate rainfall and are quite well populated and cultivated, with crops like rice, maize, and wheat. As the rivers descend through the central part of the country, the valleys tend to become steeper and narrower, making travel and development more challenging. The valleys are interconnected by a series of high mountain passes, locally called "La," such as the Dochu La and Chele La, which historically and presently serve as crucial links for transportation, though travel remains difficult due to the rugged terrain.

Bhutan's unique geographical makeup also dictates its land use patterns. Despite the extensive mountainous area, only a small percentage of the total land is considered arable or suitable for cultivation, estimated to be around 7%. This scarcity of flat, fertile land means that agriculture is concentrated in the valleys and terraced hillsides. However, the dominant feature of Bhutan's land cover is its extensive forests, covering around 70-72% of the total area. This high forest cover is a result of both the challenging terrain that limits extensive agriculture and development, and the country's strong conservation policies, including a constitutional mandate to maintain at least 60% forest cover. Other land uses include meadows and pastures (around 4-6.6%) used for grazing livestock, and areas of permanent snow, glaciers, barren rock, and scrubland (around 7-10%).

The geology of Bhutan is intrinsically linked to the formation of the mighty Himalayas, a result of the ongoing collision between the Indian and Eurasian tectonic plates. The country's geological structure is complex, featuring older Paleozoic and Precambrian rocks mixed with younger sediments due to the intense tectonic activity. The geology is considered fragile, particularly in the foothills, where steep slopes and loosely consolidated bedrock can lead to erosion. The dominant geological features are the towering Himalayan peaks themselves, composed of various rock types including quartzite, slate, and dolomite in the Lesser Himalayas, and crystalline rocks like gneiss and granite in the higher regions. While less extensively studied than in neighboring Himalayan countries, geological surveys have revealed a layered structure resulting from tectonic thrusting.

In essence, Bhutan's geography is a dramatic tapestry woven from soaring mountains, deep valleys, and powerful rivers. This rugged and varied terrain, situated at a critical biogeographical crossroads, has shaped the country's climate, influenced its settlement patterns, and, crucially for our exploration, created a remarkable array of distinct habitats that support an extraordinary diversity of wildlife and flora. It is this complex and awe-inspiring landscape that forms the backdrop for the rich natural heritage we are about to discover.

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