Native Plants of North Korea

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Table of Contents

Introduction

North Korea, occupying the northern half of the Korean Peninsula, is a land of striking geographical and climatic contrasts. Over 80% of its territory is cloaked in mountains, with rugged peaks and deep valleys that create a patchwork of diverse habitats. These unique landscapes, shaped by temperate seasons that swing from frigid winters to humid summers, nurture a remarkable tapestry of plant life. This diversity is enhanced by both northern and southern ecological influences, stemming from North Korea's pivotal position in Northeast Asia.

The flora of North Korea shares affinities with vegetation across the wider Northern Hemisphere, yet distinguishes itself through a high proportion of endemic species—plants that evolved here and nowhere else. Thanks to extensive botanical surveys, we now know North Korea is home to several thousand native plants, including hundreds of taxa found only on the Korean Peninsula. Among these are rare genera such as *Pentactina*, *Abeliophyllum*, and *Hanabusaya*, each of which tells a story of evolutionary adaptation and geographic isolation.

Despite this richness, North Korea’s native plant communities have been shaped by centuries of human activity. In the lowlands, cultivation and urbanization have transformed or replaced much of the original vegetation, while in the highlands, native conifer forests—especially those dominated by *Pinus densiflora*—hold on. The country's protected areas, ranging from vast national parks to smaller reserves, play a crucial role in preserving these natural habitats, safeguarding not just plants, but also the intricate web of life that depends upon them.

North Korea's unique biodiversity also faces significant challenges. Industrialization, deforestation, agricultural expansion, and pollution have left lasting marks on the landscape, and in recent decades, the environment has been described as being at a crossroads—if not in crisis. Complicating matters further, reliable data on North Korea’s plants is still limited, due in part to political and logistical barriers to scientific research. Nonetheless, the ongoing work of botanists, both within and outside the country, is gradually illuminating the remarkable flora hidden on this side of the peninsula.

Yet, amidst these environmental pressures are stories of resilience and renewal. Places like the Demilitarized Zone, once ravaged by war and now largely undisturbed by human hands, have become accidental refuges for a host of rare and endangered species. Likewise, ambitious reforestation and conservation efforts signal a growing awareness of the value of the nation's natural heritage.

This book aims to serve as an accessible and comprehensive guide to the native plants of North Korea. Drawing on the latest research and field studies, it explores the diversity of plant life across the country's varied landscapes. Whether you are a botanist, conservationist, or simply a lover of nature, this guide invites you to discover the botanical riches of North Korea, understand the threats they face, and join in efforts to conserve them for generations to come.

CHAPTER ONE: The Shape of the Land and the Rhythm of the Seasons

North Korea is a land defined by its dramatic topography. Imagine a crumpled piece of paper, tossed and folded repeatedly – that gives you a sense of the landscape. Mountains and hills dominate, covering well over eighty percent of the country's total area. These aren't just gentle rolling hills; we're talking about successive mountain ranges that crisscross the peninsula, giving the impression of a "sea in a heavy gale" to early European visitors. This ruggedness shapes everything, from where people live to the types of plants that can thrive.

Deep, narrow valleys are carved between these imposing ranges, offering ribbons of relatively flatter land. It's in these valleys and along the coasts that the majority of the population is concentrated, a stark contrast to the vast, sparsely inhabited mountainous interior. The mountains act as natural barriers, influencing everything from local climate patterns to historical development and even communication between different parts of the country.

Among the most significant of these ranges is the Nangnim Mountains, which run from north to south through the central part of the country. This range effectively forms a natural divide between the eastern and western halves of the peninsula, influencing drainage patterns and creating distinct geographical regions. To the northeast, the Hamgyong Mountains rise, featuring numerous high peaks.

Extending southwestward, structural offshoots of the Nangnim Mountains include the Kangnam and Myohyang ranges, running roughly parallel to one another. In the southeast, the T'aebaek Mountains extend into South Korea, home to the scenically renowned Mount Kŭmgang, or Diamond Mountain, standing at 1,638 meters (5,374 feet).

At the very northern edge of the country, along the border with China, stands the majestic Mount Paektu, the highest peak in North Korea and indeed on the entire Korean Peninsula, reaching an elevation of 2,750 meters (9,022 feet). This isn't just any mountain; it's an extinct volcano, its summit crowned by a stunning large crater lake known as Ch'ŏnji, or "Heavenly Lake." The area around Mount Paektu is also characterized by a basalt lava plateau with high elevations.

To the west of some of the northeastern ranges lies the Kaema Highlands, a vast plateau averaging around 1,000 meters (3,300 feet) above sea level. This high ground forms something of a topographic "roof" for the Korean Peninsula. The elevation here

contributes significantly to colder temperatures and influences the types of plant life found in this remote region.

While mountains dominate, North Korea does have coastal plains. Those on the west coast, bordering the Yellow Sea and Korea Bay, are generally wider and more extensive. These areas, particularly the large river-valley plains of the western rivers, are crucial for agriculture.

In contrast, the plains along the east coast, facing the Sea of Japan (or East Sea), are much narrower and often discontinuous, as the mountains frequently drop more abruptly towards the sea. This difference in coastal topography also plays a role in regional climate variations, as we'll see shortly.

The mountainous terrain also dictates the country's river systems. Most of the significant rivers originate in the northern and eastern mountain ranges and flow westward, eventually emptying into the Yellow Sea or Korea Bay. The longest of these is the Yalu (or Amnok) River, which forms a significant portion of the border with China and stretches for some 790 kilometers (490 miles).

Another important border river, the Tumen (or Tuman), flows northeastward from Mount Paektu and forms part of the border with China and a short border with Russia before emptying into the Sea of Japan. While the Yalu is navigable for a considerable distance, the Tumen is less so due to the mountainous terrain it traverses. The Taedong River is the third longest, flowing through the capital city of Pyongyang and also being partly navigable.

Compared to some other geologically active regions, North Korea experiences relatively few severe earthquakes, which adds a degree of stability to the landscape. However, the country is known for possessing a number of natural spas and hot springs, adding another interesting geological feature to its diverse environment.

Now, let's talk about the climate, which is just as influential on plant life as the shape of the land. North Korea has a generally cool continental climate with four very distinct seasons. This is largely due to its position in Northeast Asia, influenced by air masses from both the Asian continent and the Pacific Ocean.

Winter, from December to March, is long, cold, and typically quite dry. Frigid winds blowing in from Siberia bring bitter cold and clear weather, though snowfall does occur, sometimes heavily, particularly in the mountainous regions like the T'aebaek Mountains. Mean January temperatures can plummet, ranging from around -7°C (20°F) in the south to a bracing -23°C (-10°F) in the northern interior. The lowest temperature ever recorded on the Korean Peninsula, -43.6°C (-46.5°F), was noted in Chunggang in the north.

Summer, conversely, is warm, humid, and the wettest season, generally lasting from June to September. This is the time when the humid summer monsoon arrives from the Pacific Ocean, bringing the bulk of the annual precipitation. Mean July temperatures in most places are around 20°C (upper 60s F), but temperatures can climb much higher, sometimes reaching 34-35°C (93-95°F) in periods of good weather. The combination of heat and humidity can make summers feel quite oppressive.

Spring and autumn are the transitional seasons, often bringing the most pleasant weather. Spring is marked by gradually rising temperatures and variable winds, though it can also be prone to drought due to relatively low precipitation and increasing evaporation. Autumn sees temperatures fall rapidly, with relatively dry conditions prevailing.

Annual precipitation across North Korea averages around 1,000 mm (about 40 inches), but there are significant regional variations. The northern inland plateau tends to receive less rainfall, while some areas, like the upper Ch'ŏngch'ŏn River area, can receive considerably more. The majority of this rainfall is concentrated in the summer months, with June to September accounting for about three-fifths of the total precipitation. This heavy summer rain can sometimes lead to severe flooding, and occasional typhoons also impact the peninsula during the late summer and early autumn.

Temperature differences between the east and west coasts are also notable, especially in winter. Due to ocean currents and the presence of mountain ranges bordering the eastern coastal lowlands, winter temperatures on the east coast can be several degrees Fahrenheit (3-4°C) higher than those on the west coast at similar latitudes. The number of frost-free days also varies greatly, with coastal areas having around 200 frost-free days compared to fewer than 120 in the northern Kaema Highlands. This directly impacts the growing season for plants in different regions.

Finally, a word on the soils, the foundation upon which all plant life grows. The geology of North Korea, largely composed of granitic rocks and various schists from ancient crystalline formations, heavily influences soil composition. As these rocks weather over time, they form the parent material for most of the country's soils.

Generally speaking, the soils derived from these materials tend to be brownish, with a significant amount of sandy content and often low in natural fertility. However, there are exceptions. The valley plains and coastal lowlands benefit from alluvial soils, deposited by rivers, which are typically more fertile and richer in organic content. In certain areas, such as parts of North Hwanghae and South P'yŏngan provinces, well-developed reddish-brown soils derived from limestone can be found.

In the colder Kaema Highlands, a different soil type, known as Podzols (ash-gray forest

soil), has developed. This is characteristic of cold climates and the presence of coniferous forests. Under the USDA soil classification system, the dominant soil types across the Korean Peninsula, including North Korea, are the younger soils, Inceptisols and Entisols. These soils lack significant horizon development and are often found on slopes or areas with dynamic surface changes like erosion. Soil erosion, particularly on steep slopes, is a significant challenge, exacerbated by factors like deforestation and intense summer rainfall. Understanding these soil characteristics is key to appreciating the distribution and health of native plant communities.

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