

# Native Plants of Belgium

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## Introduction

Belgium, though modest in size, harbors an extraordinary diversity of native plant life. Its dynamic landscapes—ranging from forests and grasslands to wetlands, coastal dunes, and urban parks—are home to a rich mosaic of botanical species. This diversity has grown from the nation's unique geographical features, a spectrum of climates, and centuries of human interaction with the land, shaping a flora that is both distinctive and vital to the natural heritage of the region.

The estimated 55,000 species contributing to Belgium's biodiversity include upwards of 1,500 vascular plants, hundreds of types of mosses, lichens, and a remarkable array of ferns. These plants are not merely picturesque components of the landscape; they are crucial actors in the underlying ecological processes that sustain soil health, regulate water cycles, support animal populations, and, ultimately, maintain the stability of Belgium's diverse ecosystems.

Yet, as in much of Europe, this botanical bounty is under growing threat. Rapid urbanization, agricultural intensification, infrastructure expansion, pollution, and the incursion of invasive alien species have all precipitated alarming declines in native plant populations. Depending on group and region, between 20% and 70% of native plant species in Belgium are considered threatened, with some already lost. As such, the stakes for conservation and stewardship have never been higher.

The administration of Belgium across three distinct regions—Flanders, Wallonia, and Brussels-Capital—means that flora conservation and policies are tailored to reflect unique regional pressures, opportunities, and ecological profiles. Despite these differences, collaborative initiatives such as Florabank, alongside the invaluable work of the Meise Botanic Garden and regional reserves, strive to create a cohesive front in the battle to safeguard native species, aiming to blend science, public awareness, and practical intervention.

This book, *Native Plants of Belgium: A Guide to the Native Plants of Belgium*, seeks to present a comprehensive overview of the country's native flora. It will explore the ecological, geographical, and cultural dimensions of native plant diversity, examining the pivotal roles these species play in forest, field, wetland, and urban settings. Readers will discover not only the beauty and uniqueness of Belgium's botanical heritage, but also the measures—past, present, and future—necessary to ensure its survival in a changing world.

By deepening our appreciation and knowledge of native plants, we lay the foundation for effective conservation, resilient landscapes, and enduring connections between people and their natural environment. In doing so, we help ensure that Belgium's native plants continue to inspire, sustain, and enrich both biodiversity and human society for generations to come.

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## **CHAPTER ONE: The Natural Geography of Belgium**

Belgium, often perceived as a small and densely populated nation, holds a surprising depth of natural diversity, largely thanks to its varied geographical and geological tapestry. Situated at a pivotal crossroads in Western Europe, the country acts as a

transition zone where distinct biogeographical influences gently merge, shaping a landscape that, while compact, offers a remarkable array of habitats for its native flora. From the windswept coastal plains in the north to the ancient, rugged highlands of the south, Belgium's topography and underlying geology create a foundation for the botanical richness that thrives within its borders.

This varied terrain is not a chaotic jumble but rather a series of distinct geographical zones, each with its own character and environmental conditions that directly influence the types of plants that can take root and flourish. Understanding these physical underpinnings is crucial to appreciating the distribution and composition of Belgium's native plant communities. It is the story of ancient seas, shifting tectonic plates, and the relentless work of rivers and glaciers, all contributing to the unique soils and microclimates we observe today.

Moving from north to south, the landscape of Belgium presents a fascinating geological journey. The northern part of the country is dominated by low-lying plains, often barely above sea level, a legacy of marine transgressions and glacial deposits. As one travels inland, the elevation gradually increases, giving way to a gently undulating central plateau before finally rising into the more dramatic, forested uplands of the Ardennes in the south-east. Each of these broad zones, in turn, harbors its own set of smaller, more nuanced geographical features.

The subtle changes in elevation, combined with variations in bedrock and proximity to the North Sea, dictate the patterns of temperature, rainfall, and soil composition across the country. These seemingly minor shifts in environmental conditions are, in fact, profound determinants for plant life, creating specific niches that favor certain species while excluding others. It is this intricate interplay of geography and ecology that has allowed Belgium to foster such a remarkable number of native plant species within its modest boundaries.

## **The Northern Lowlands: Where Land Meets Sea and Sand**

The northernmost stretch of Belgium, broadly corresponding to the region of Flanders, is characterized by its extensive lowlands. This area is a testament to the powerful forces of the sea and the deposition of sediments over millennia. The immediate coastal strip is defined by its dynamic dunes, a natural barrier against the North Sea. These sandy formations, sculpted by wind and waves, create a unique habitat where plants must tolerate saline conditions, shifting substrates, and constant exposure to the elements.

Behind the dunes lie the polders, vast tracts of land reclaimed from the sea, often protected by dikes. These areas are predominantly flat and composed of rich, fertile clay soils, historically used for agriculture. The management of water in the polders is paramount, with an intricate network of canals and ditches maintaining drainage.

While largely anthropogenic landscapes, the remaining natural or semi-natural waterways and their margins still support characteristic wetland flora, adapting to the altered hydrological regime.

Further inland, the landscape transitions into the sandy lowlands, an area that historically encompassed vast heathlands and ancient forests. The soils here are generally nutrient-poor and acidic, a legacy of sandy deposits from past geological eras, including wind-blown loess and riverine sediments. These conditions give rise to specific plant communities that are adapted to thrive in such environments, often featuring species tolerant of drought and low fertility.

The Campine region, in the northeastern part of Belgium, epitomizes these sandy lowlands. It is an area historically characterized by infertile heathlands, often interspersed with peat bogs and small wetlands. While much of the original heathland has been converted to coniferous forests or agriculture, remnants still exist, providing crucial habitats for specialized native flora. The distinctive geology here, with its underlying sand and clay layers, creates pockets of water retention that are vital for these wetland ecosystems.

Rivers like the Scheldt and its tributaries meander through these northern lowlands, their courses shaping riparian zones and alluvial plains. These river valleys provide corridors of richer, often loamy, soils and higher moisture levels, contrasting sharply with the drier, sandier interfluves. This mosaic of wet and dry, fertile and poor, creates a high degree of habitat heterogeneity, even within a seemingly uniform low-lying region, supporting a broader array of native plant species.

## **The Central Plateau: Loamy Lands and Gentle Undulations**

Moving south from the lowlands, Belgium gradually rises into the Central Plateau, a region characterized by its gently rolling hills and remarkably fertile loamy soils. This area, encompassing much of Walloon Brabant, Hainaut, and parts of Limburg and Liège, is the agricultural heartland of Belgium. The rich soil, derived primarily from loess deposits laid down during glacial periods, supports intensive cultivation, yet pockets of native flora persist along hedgerows, stream banks, and in remnant woodlands.

The Brabant Plateau, a prominent feature of this central belt, showcases the typical landscape of this region. Here, the soft, undulating topography is a product of erosion acting upon the underlying Tertiary and Cretaceous sedimentary rocks, which are largely covered by thick layers of fertile loess. This geological history has resulted in deep, well-drained soils that are ideal for temperate deciduous forests, historically the dominant vegetation type before widespread agricultural conversion.

The river systems crossing the Central Plateau, such as the Dendre, Senne, and

Demer, have carved out broad, fertile valleys. These riverine landscapes introduce further diversity to the central region. The alluvial soils found along these waterways are often richer and more water-retentive than the surrounding plateau, supporting a distinct suite of riparian plants and wetland communities. The slight changes in elevation from valley floor to hilltop also create subtle climatic variations, influencing local plant distribution.

While extensive agriculture has dramatically reshaped the Central Plateau, small, isolated woodlands, often found on steeper slopes or less accessible areas, serve as vital refugia for native tree species and their associated understory plants. These fragmented forest patches offer glimpses into the region's botanical past, highlighting the resilience of indigenous flora in the face of human development. They also demonstrate the adaptive capacity of native plants to persist in altered landscapes.

The loess soils of the Central Plateau are not uniformly rich; variations in clay content and drainage capabilities can lead to localized differences in plant communities. For instance, areas with higher clay content may be more prone to waterlogging, favoring moisture-loving species, while better-drained slopes support a different assembly. This subtle gradient of soil conditions contributes to the overall botanical richness of the region, even within a generally homogeneous agricultural landscape.

## **The Southern Uplands: Ancient Rocks and Forested Peaks**

The journey southward culminates in the most elevated and rugged part of Belgium: the Ardennes highlands. This ancient mountain range, largely composed of Paleozoic era rocks such as schist, sandstone, and quartzite, presents a stark contrast to the lowlands and central plateau. Here, the landscape is characterized by deeply incised river valleys, steep slopes, and extensive forests, providing a distinctly different suite of habitats for native flora.

The Ardennes experiences a more continental climate than the rest of Belgium, with colder winters, often more significant snowfall, and generally higher rainfall. This combination of elevation, rugged topography, and climatic conditions creates an environment favorable for dense deciduous and coniferous forests. The poor, acidic soils derived from the underlying hard rocks further shape the specific plant communities that thrive in this highland region.

Nestled between the Central Plateau and the Ardennes proper are transitional zones such as the Condroz and Fagne-Famenne. These areas are characterized by a series of parallel ridges and valleys, with geology playing a crucial role in their distinct character. The Condroz features sandstone ridges and fertile clay valleys, while the Fagne-Famenne is famous for its limestone formations, leading to karstic features like caves and sinkholes.

The limestone geology of the Fagne-Famenne region is particularly significant for its flora. Limestone weathers to produce alkaline, calcium-rich soils, which support a completely different set of plant species compared to the acidic soils of the Ardennes or the sandy soils of the north. This geological "island" of alkalinity within a predominantly acidic landscape creates unique botanical hotbeds, fostering a remarkable local diversity of calciphilous (lime-loving) plants.

Further to the very south of Belgium lies the small region of Lorraine Belgium, also known as the Gaume. This area marks a subtle yet important transition, with geological formations from the Triassic and Jurassic periods surfacing here, unlike much of the rest of the country. These different sedimentary rocks, combined with a slightly warmer and more continental climate influenced by proximity to France, give the Gaume a distinctive flora that shares affinities with more southern European vegetation types.

## **Waterways and Their Life-Giving Influence**

Beyond the broad geographical regions, Belgium's intricate network of waterways plays an indispensable role in shaping its natural geography and supporting its native plants. The country lies within two major river basins: the Scheldt basin in the north and the Meuse basin in the south and east. These rivers, along with their countless tributaries, streams, and canals, act as arteries of life, creating vital aquatic and riparian habitats.

Rivers and streams contribute significantly to the hydrological balance of the landscape, influencing groundwater levels and creating specific conditions along their banks. Riparian zones, the areas immediately adjacent to rivers, are often characterized by fluctuating water levels, rich alluvial soils, and a unique microclimate, fostering plant communities distinct from the surrounding terrestrial environments. These corridors also serve as dispersal routes for many species.

Wetlands, including peat bogs and marshes, are another critical component of Belgium's hydrological landscape. These water-saturated environments are formed through a combination of geological depressions, poor drainage, and accumulated organic matter. They represent highly specialized habitats, often nutrient-poor and anoxic, where only plants adapted to such extreme conditions can survive. Belgium's remaining wetlands are irreplaceable reservoirs of unique native flora.

The presence of natural springs, particularly in the more elevated regions, also contributes to localized variations in water availability and soil chemistry. Springs often emerge from specific geological strata, bringing mineral-rich water to the surface, which can influence the pH and nutrient content of the surrounding soils, thereby impacting the local plant communities. These small, consistent water sources can support a surprising diversity of moisture-loving plants.

Beyond freshwater systems, the short but significant coastline of Belgium on the North Sea introduces a dynamic marine environment. This coastal zone includes not only the sandy beaches and dunes but also intertidal mudflats, salt marshes, and even submerged gravel beds. Each of these marine and brackish habitats supports highly specialized native aquatic and halophytic (salt-tolerant) plant species, adapted to life in a saline environment or fluctuating tidal conditions.

## **Climate and Geological Legacies: The Unseen Hands**

Belgium's climate is broadly classified as temperate maritime, heavily influenced by its proximity to the Atlantic Ocean. This translates into relatively mild winters, cool summers, and ample precipitation distributed throughout the year. However, within this general framework, subtle but significant climatic variations occur across the country, influenced by elevation, distance from the sea, and prevailing winds.

The coastal areas, for instance, experience a slightly milder and more humid climate than the interior, with less extreme temperature fluctuations. As one moves eastward and southward into the Ardennes, the climate becomes progressively more continental, leading to colder winters and often higher annual precipitation, particularly in the form of snow. These regional climatic nuances directly impact the growing seasons and the geographical distribution limits of many native plant species.

The bedrock geology, often unseen beneath the surface, is perhaps the most fundamental determinant of Belgium's natural geography and, consequently, its flora. The ancient, hard rocks of the Ardennes, formed during the Paleozoic era, give rise to shallow, acidic, and nutrient-poor soils. In contrast, the younger, softer sedimentary rocks of the central plateau and northern lowlands, laid down during the Mesozoic and Cenozoic eras, weather into deeper, richer, and often more alkaline soils.

This fundamental difference in soil chemistry, driven by the underlying geology, is a primary factor in explaining the distinct floristic differences between Belgium's north and south. Plants have evolved specific adaptations to thrive in acidic or alkaline conditions, and their presence or absence in a given region is often a direct reflection of the underlying geological substrate. It's a silent, subterranean conversation between rock and root.

Even human activities, over centuries, have left their indelible mark on Belgium's natural geography. Deforestation, particularly in the central and northern parts of the country, for agriculture and timber, has reshaped vast landscapes, influencing soil erosion, water retention, and local microclimates. While this book focuses on native plants, it is impossible to fully appreciate their current distribution without acknowledging the historical human shaping of the land, which has molded the very physical geography they now inhabit.

In essence, Belgium's natural geography is a complex mosaic born from millennia of geological processes, climatic forces, and the pervasive, though sometimes subtle, touch of human activity. It is this intricate interplay of landforms, soil types, water systems, and climatic gradients that provides the diverse stage upon which Belgium's remarkable native flora performs its enduring, vital role.

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