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Native Plants of Philippines

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Introduction

The Philippines, an archipelago comprising more than 7,000 islands in the tropical Pacific, is a remarkable haven for plant life. As one of the world's 18 recognized megadiverse countries, it harbors an astonishing assemblage of plant species—over 50,000 in total, accounting for an estimated 5% of the world's entire flora. This extraordinary abundance and variety are further distinguished by a high level of endemism: at least a third of the more than 9,250 native vascular plant species are found nowhere else on Earth, a figure that climbs even higher when all native species are considered. Such botanical wealth is not only a scientific marvel but a vital component of the nation's natural and cultural identity.

This unique botanical heritage is deeply interwoven with the Philippines' rich tapestry of ecosystems. Lush lowland dipterocarp forests, mossy cloud forests, mountain pine woodlands, mangrove swamps, and riverine wetlands—each of these habitats supports distinct plant communities shaped by variations in topography, climate, and geography. From the rain-soaked slopes of Luzon's Cordillera highlands to the volcanic soils of Mindanao, every region contributes its own palette of native plant species, many of which remain understudied or yet to be discovered. These plants are foundational to ecosystem health, providing food and shelter for a remarkable diversity of wildlife.

The intimate relationship between plants and people in the Philippines is emblematic of the archipelago's vibrant cultures. For centuries, native plants have filled practical, symbolic, and healing roles in Filipino society. Trees like Narra (*Pterocarpus indicus*) and Katmon (*Dillenia philippinensis*) are woven into local folklore; flowering plants such as Sampaguita and Waling-waling inspire national pride. Indigenous knowledge systems, passed down through generations, showcase a sophisticated understanding of native flora's medicinal and utilitarian values. Today, as modern science and traditional wisdom intersect, ethnobotanical studies continue to reveal the depth of understanding held by local and indigenous communities.

Yet, the future of Philippine native plants is beset by formidable challenges. Vast tracts of forest have been lost to logging, conversion to agriculture, and urbanization, fragmenting habitats and pushing many rare species toward extinction. The introduction of exotic plants in forestry and landscaping—once seen as progress—has often led to declines in native diversity and ecological imbalance. Climate change adds a further layer of risk, reshaping patterns of rainfall, triggering more frequent typhoons, and testing the resilience of both flora and the ecosystems they underpin. Many of the country's most iconic species now appear on national and international lists of threatened or endangered plants, underscoring the urgency of conservation.

Nevertheless, hope endures through dedicated conservation action. Initiatives such as rainforestation, which prioritize the use of native species in ecosystem restoration, are gaining traction. Protected areas, species recovery programs, and urban greening efforts are showcasing the practicality and beauty of native flora, inspiring new generations of Filipinos to value, cultivate, and protect these natural treasures. Increasingly, research and documentation—exemplified by projects like Co's Digital Flora of the Philippines—are building a comprehensive foundation for informed conservation and appreciation.

This book, "Native Plants of Philippines: A Guide to the Native Plants of Philippines," seeks to celebrate, document, and illuminate the astonishing diversity of the country's native flora. By exploring the plants' ecological roles, cultural significance, threats to their survival, and the pathways to their conservation, it aims to nurture a deeper understanding and commitment to safeguarding this precious natural heritage for generations yet to come.

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CHAPTER ONE: The Philippine Archipelago: A Botanical Overview

The Philippines is not just a country; it is a world unto itself, a sprawling collection of islands flung across the western edge of the Pacific Ocean. Imagine scattering handfuls of emeralds across a vast blue canvas – that begins to capture the essence of this archipelago. Official counts place the number of islands somewhere around 7,641, though this figure can be a bit fluid depending on the tide and the criteria for what constitutes an island. Regardless of the exact number, it's a dizzying array, stretching for approximately 1,850 kilometers (about 1,150 miles) from north to south.

This vast expanse of land and water is bordered by the South China Sea to the west and north, the Philippine Sea to the east, and the Celebes Sea to the south. Its strategic location has historically made it a crossroads of cultures, but more importantly for our purposes, it has shaped a botanical landscape of incredible richness and complexity. The sheer number of islands, their varied sizes, and their relative isolation from one another and the Asian mainland have all played pivotal roles in the evolution of plant life here.

Only a fraction of these islands are inhabited, with estimates suggesting around 2,000. The vast majority are small, often mountainous or fringed with narrow coastal plains, contributing to a mosaic of environments that support specialized plant communities. The eleven largest islands account for roughly 95 percent of the total land area, and these are typically grouped into three major geographical divisions: Luzon in the north, the Visayas in the center, and Mindanao in the south.

Luzon, the largest island, is a geographical powerhouse, featuring extensive mountain ranges, vast plains, and significant lakes and rivers. Its northern highlands, like the Cordillera Central and the Sierra Madre, create cooler, wetter conditions at higher elevations. The Central Luzon Plain, in contrast, is a major agricultural area, while the Bicol Peninsula to the south is known for its volcanic peaks like the iconic Mount Mayon.

Nestled between Luzon and Mindanao, the Visayas region is a cluster of numerous islands, including major ones like Samar, Negros, Panay, Leyte, Cebu, Bohol, and Masbate. While generally smaller than Luzon and Mindanao, these islands also feature diverse topography, from coastal lowlands and beaches to interior hills and mountains, such as Mount Canlaon on Negros Island. The interplay of land and sea is particularly pronounced here, with narrow straits and inland seas creating unique coastal habitats.

Mindanao, the second-largest island, dominates the southern Philippines and is characterized by significant mountain ranges, fertile plateaus, and broad river basins. It is home to the country's highest peak, Mount Apo, a majestic stratovolcano rising to 2,954 meters (9,692 feet). Mindanao's varied landscapes, from the Zamboanga Peninsula in the west to the eastern Pacific Cordillera, contribute to a wide range of ecological niches.

This complex geography is a direct result of the Philippines' dynamic geological history. The archipelago sits squarely on the western edge of the Pacific Ring of Fire, a zone of intense seismic and volcanic activity. The islands were primarily formed over millions of years through the collision and subduction of tectonic plates – specifically the Eurasian, Philippine Sea, and Indo-Australian plates. This immense geological pressure led to the uplift of the seafloor and the eruption of undersea volcanoes, which gradually rose above the waves to form island arcs.

The bulk of the Philippine landmass originated as these oceanic island arcs, emerging independently of the Asian mainland. This history of isolation is crucial for understanding the unique plant life found here. While most islands have oceanic origins, parts of Palawan and Mindoro are believed to have rifted from the Asian continental shelf. This difference in origin has contributed to distinct biodiversity patterns, with Palawan showing some biological similarities to Borneo.

Over geological time, fluctuating sea levels, particularly during Pleistocene glaciations, caused some islands to repeatedly merge and separate. These periods of connection and subsequent isolation on "Pleistocene islands" also played a significant role in shaping the distribution and diversification of species across the archipelago. The continuous tectonic activity means the landscape is still evolving, with frequent earthquakes and the presence of numerous active volcanoes adding another layer of environmental dynamism.

Overlaying this varied topography is a tropical maritime climate, characterized by high temperatures, high humidity, and abundant rainfall throughout the year. Temperatures generally remain warm, averaging around 27°C (81°F), with minimal seasonal variation, except in higher elevations. Humidity is consistently high due to the surrounding seas and dense vegetation.

The climate is primarily defined by two distinct seasons driven by the monsoons: the wet season (Tag-ulan or Habagat) from June to November and the dry season (Tag-init or Tag-araw, or Amihan) from December to May. The southwest monsoon brings heavy rains during the wet season, while the northeast monsoon ushers in cooler, drier air during the dry season. However, this general pattern varies significantly across the archipelago depending on local topography and exposure to prevailing winds.

Different regions experience different rainfall patterns, leading to several recognized climate types. Some areas have a very pronounced wet and dry season, typically found in the western parts of the islands. Others, particularly the eastern coasts exposed to the Pacific, experience rainfall more or less evenly distributed throughout the year or have a distinct wet season from November to January without a truly dry period. Still other regions, often sheltered valleys, receive less rainfall overall.

Adding to the climatic complexity is the frequent visitation of tropical cyclones, or typhoons, particularly from July through October. These powerful storms, originating in the western Pacific, bring intense rainfall and strong winds, having a significant impact on the landscape and plant life, especially in the northern and central parts of the archipelago. Mindanao is generally less affected by these typhoons.

The altitudinal variation within the mountainous interiors also creates distinct microclimates. As elevation increases, temperatures drop, and rainfall patterns can change, leading to altitudinal zonation of vegetation. Higher peaks can experience cooler, wetter, and even misty conditions, supporting different plant communities compared to the lowlands.

This intricate tapestry of geographical features – thousands of islands of varying sizes, mountainous interiors, coastal plains, and dynamic geological activity – combined with a tropical climate shaped by monsoons, typhoons, and altitude, forms the foundation of the Philippines' extraordinary botanical diversity. Each island, each valley, each mountain slope, and each coastal fringe offers a unique set of environmental conditions, providing a multitude of niches for plants to inhabit and evolve within. It is this complex interplay of land, sea, and sky that has sculpted the archipelago into a global hotspot for plant life, setting the stage for the fascinating array of native species we will explore in the following chapters.

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