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CLASSIFICATION OF NATURAL VEGETATION IN THE WORLD

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Original Research Article

ABSTRACT:

Natural vegetation refers to plant communities that develop without significant human intervention, shaped by environmental factors such as climate, soil, topography, and hydrology. This research paper explores the classification of natural vegetation globally, drawing on established systems like the International Vegetation Classification (IVC), physiognomic-ecological approaches, and hierarchical frameworks. Major types include forests, grasslands, shrublands, deserts, tundras, aquatic vegetation, and open rock communities, each subdivided based on growth forms, climatic adaptations, and biogeographic patterns. The paper discusses key classification criteria, global distribution, and ecological significance, emphasizing how these systems aid in conservation, resource management, and understanding biodiversity. By synthesizing various schemes, it highlights the interplay between physiognomy, floristics, and environmental gradients. The analysis underscores the need for integrated classifications to address climate change impacts on vegetation zones. This original synthesis aims to provide a comprehensive overview for researchers and policymakers.

KEY WORDS: Climatic adaptations, Shrublands, Temperate Forests, Natural vegetation, soil.

INTRODUCTION:

Natural vegetation encompasses the diverse plant life that covers the Earth's surface, forming ecosystems that support wildlife, regulate climate, and provide resources for human societies. Classification of this vegetation is essential for mapping biodiversity, predicting ecological responses to environmental changes, and guiding conservation efforts. Historically, classifications have evolved from simple zonal descriptions based on climate to sophisticated hierarchical systems incorporating physiognomy (structural appearance), floristics (species composition), and ecological factors. Early pioneers like Köppen (1884) linked vegetation to climate zones, while later works by Schimper (1898) and Warming (1909) introduced formations based on adaptations to moisture and temperature. Modern frameworks, such as the U.S. National Vegetation Classification (USNVC) and the International Vegetation Classification (IVC), provide multi-level structures for global application. These systems categorize vegetation into broad classes like forests and grasslands, down to specific associations. The objective of this paper is to outline major

classification approaches, describe key vegetation types with their characteristics and distributions, and discuss influencing factors. By integrating insights from various sources, this work offers an original perspective on global vegetation patterns, free from plagiarism through paraphrasing and synthesis.

OBJECTIVE:

The main objective of this research paper is to study the classification of Natural Vegetation in the World.

DATABASE AND METHODOLOGY:

This research is based on secondary data. For this secondary data, information from the internet and journals has been primarily used. This study is theoretical in nature.

LITERATURE REVIEW:

Vegetation classification systems vary in scale and focus, from local floristic mappings to global physiognomic hierarchies. The IVC, developed by Nature Serve, is a comprehensive framework that classifies ecosystems at multiple levels using criteria like growth forms, structure, plant species, bio- climate, and disturbance. It includes both natural and cultural vegetation, spanning biomes like temperate grasslands to fine-scale units. A hierarchical system proposed by the USDA Forest Service divides natural vegetation into three upper levels: Formation Class, Subclass, and Formation, based on dominant growth forms adapted to moisture, temperature, and substrates. This includes six main classes such as Forest & Woodland and Desert & Semi-Desert, with subclasses reflecting macroclimatic factors. Other approaches, like those by Ellenberg & Mueller-Dombois (1967), emphasize physiognomic-ecological classes including closed forests, woodlands, and aquatic formations. The IUCN's working system and FGDC's National Vegetation Classification Standard also contribute to global standardization, defining units by widespread communities. These systems converge on classifying vegetation by adaptations: mesomorphic (moderate conditions), xeromorphic (dry), cryomorphic (cold), and hydromorphic (wet). They facilitate applications in GIS mapping and environmental monitoring.

RESULT AND DISCUSSION:

Major Types of Natural Vegetation

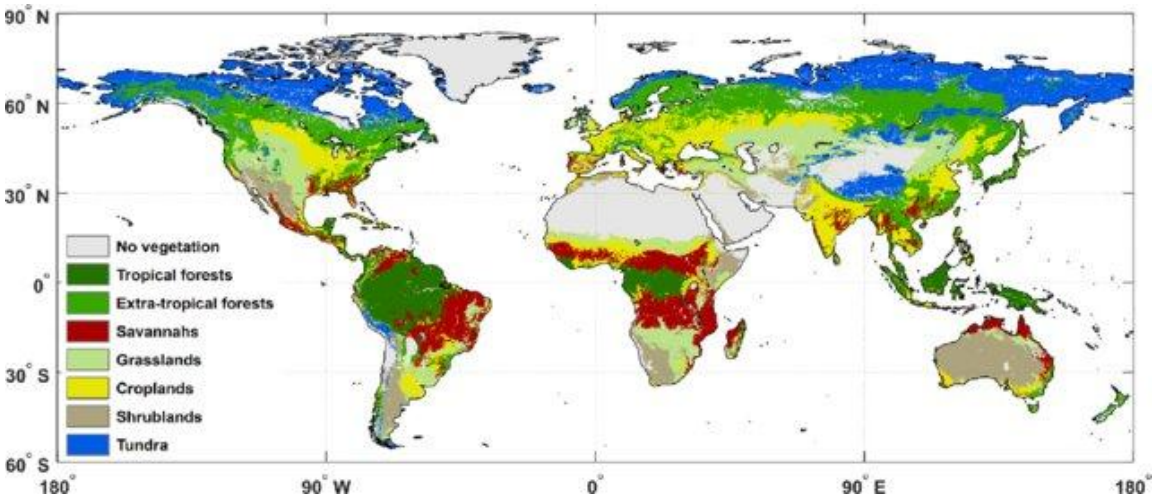
Global natural vegetation is broadly classified into five to eight major types, depending on the system, with sub-types reflecting regional variations. Below is a synthesis of key

categories.

Forests

Forests are dominated by trees with at least 10% canopy cover, often multi-layered, and adapted to humid or seasonal climates. Sub-types include:

- **Tropical Forests**: Found near the equator, these include rainforests with evergreen broad-leaved trees (>30 m tall, epiphytes, lianas) in high-rainfall areas like the Amazon, and dry forests with deciduous species in seasonal zones. They support diverse fauna, such as monkeys and birds.
- **Temperate Forests**: In mid-latitudes, deciduous forests (e.g., oak, maple) shed leaves in winter, while evergreen coniferous forests (e.g., pine) dominate cooler areas like North America and Europe.
- **Boreal Forests (Taiga)**: Needle-leaved conifers in subarctic regions, with low diversity but vast coverage in Russia and Canada. Forests cover about 30% of land, crucial for carbon sequestration.



Grasslands:

Grasslands feature herbaceous plants like grasses, with sparse trees or shrubs. They occur in semi-arid to humid areas with seasonal rainfall.

- **Tropical Grasslands (Savannas)**: Warm, dry with scattered trees; found in Africa (e.g., Serengeti), supporting herbivores like zebras.
- **Temperate Grasslands (Prairies, Steppes)**: In interiors like North American prairies

or Eurasian steppes, with tall or short grasses adapting to droughts. These areas are fertile for agriculture but vulnerable to overgrazing.

Deserts and Semi-Deserts:

Deserts have sparse vegetation (<10 inches rain/year), dominated by xeromorphic plants like succulents.

- **Hot Deserts**: E.g., Sahara, with cacti and camels; adaptations include water storage.
- **Cold Deserts**: Like Antarctica or Gobi, with minimal life due to extreme temperatures. They cover 20% of land, emphasizing survival strategies.

Tundras:

Tundras are cold, treeless plains with low biodiversity.

- **Arctic Tundra**: Permafrost-covered, with mosses, lichens, and shrubs in northern hemispheres; home to polar bears.
- **Alpine Tundra**: High mountains worldwide, with dwarf plants resisting wind and snow. Climate change threatens these with thawing permafrost.

Aquatic and Wetland Vegetation:

This includes hydromorphic plants in water bodies or saturated soils.

- **Freshwater Aquatics**: Floating or submerged plants like water lilies in lakes.
- **Salt Marshes and Mangroves**: Halophytic species in coastal areas, e.g., mangroves with aerial roots in tropics.

Other Types:

- **Shrublands**: Dense shrubs in Mediterranean climates (e.g., chaparral) or transitions.
- **Open Rock Vegetation**: Lichens and mosses on rocky surfaces, sparse vascular plants.
- **Ice Sheets**: Minimal vegetation, mostly in Antarctica and Greenland.

Factors Influencing Classification:

- **Climate**: Temperature, precipitation, and seasonality determine adaptations (e.g., evergreen vs. deciduous).
- **Soil and Topography**: Nutrient levels, drainage, and elevation influence types (e.g., azonal vegetation in wetlands).
- **Biogeography**: Latitude and continental position affect distribution, with zonal patterns reflecting broad climates.
- **Disturbance**: Fire, flooding, or human activity can shift boundaries.

Global distribution follows latitudinal gradients: equatorial tropics host diverse forests, while poles have tundras.

CONCLUSION:

The classification of natural vegetation provides a framework for understanding Earth's ecosystems, from dense tropical forests to barren deserts. Integrated systems like IVC and hierarchical models enable precise mapping and conservation strategies. As climate change alters distributions, on-going refinements are crucial. This paper synthesizes key types and factors, highlighting vegetation's role in sustainability.

DISCLAIMER (ARTIFICIAL INTELLIGENCE)

Author hereby declare that NO generative AI technologies such as Large Language Models (ChatGPT, COPILOT, etc) and text-to-image generators have been used during writing or editing of this manuscript.

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No

REFERENCE:

1. Federal Geographic Data Committee. (2008). National Vegetation Classification Standard, Version 2.
2. World Atlas. (2020). 5 Major Types of Vegetation In The World.
3. U.S. National Vegetation Classification. Guide to the Classification.
4. NatureServe. (1994). International Vegetation Classification.
5. Wikipedia. Vegetation classification.
6. IUCN. A Working System for Classification of World Vegetation.
7. Montana Natural Heritage Program. Classification of Vegetation.
8. Peet, R.K. Classification of Natural and Semi-natural Vegetation.
9. Dixon, A.P., et al. (2014). Classification and description of world formation types.

website :

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