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Types of Ecosystems

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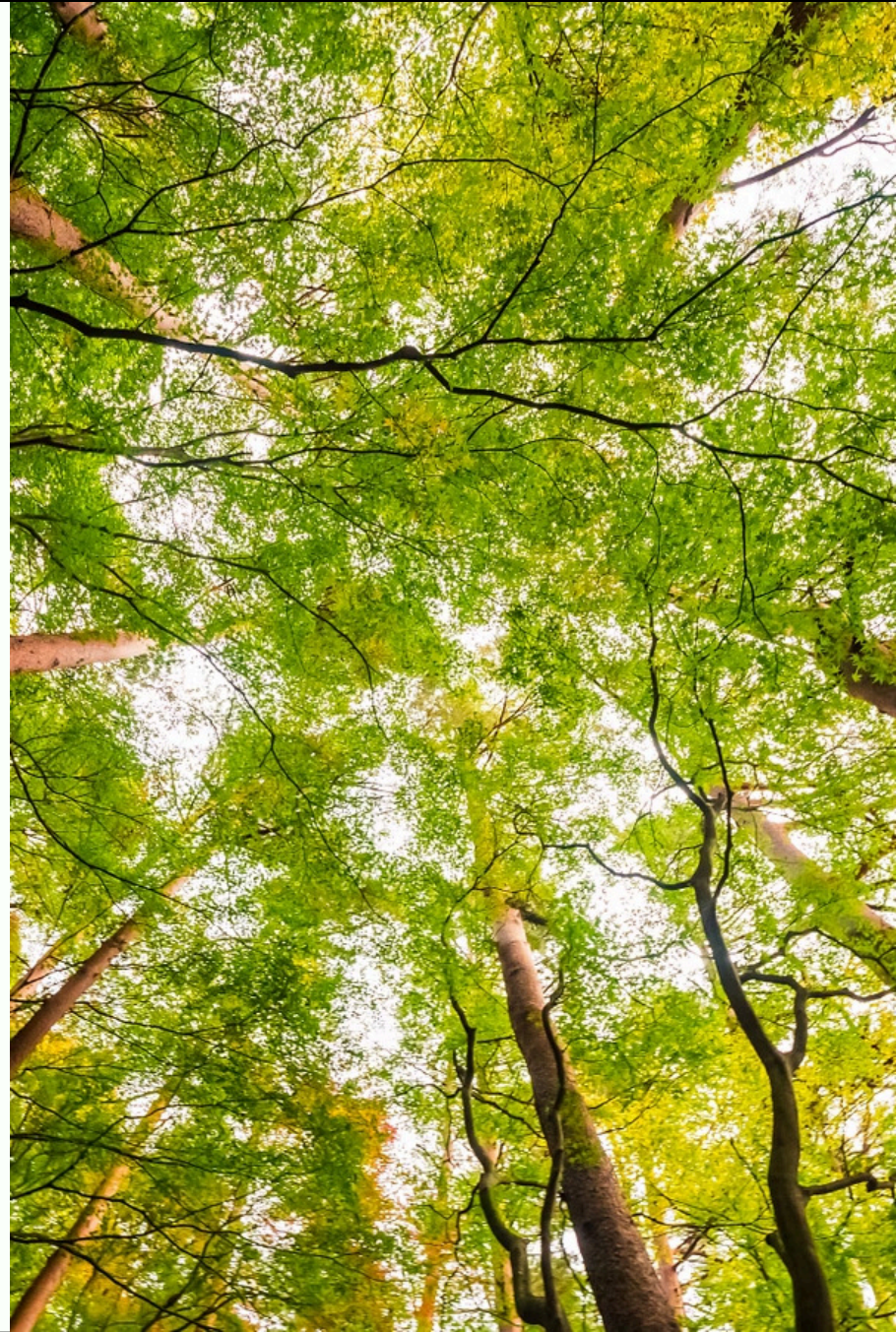
Introduction

The Ecosystems

Good morning everyone, I am Nicola Palmieri from the association Il Pianeta Naturale, partner of the European WAVE project approved under the Erasmus+ KA 210 program. Today I want to introduce the different types of ecosystems present on our planet Earth.



What is an Ecosystem

Definition

An ecosystem is an integrated system where living organisms and the physical environment are in constant communication and reciprocal interaction, continuously exchanging matter, energy, and flows of information. It is like a great natural orchestra, where every element plays its part, contributing to the harmony of the whole.

Ecosystems

Terrestrial

African savannas:

tall grass, sparse trees, two extreme seasons: rain awakens everything, while drought shapes the landscape.

The steppes:

short, resilient grass, rocks, stones, an endless horizon. Cold and drought dictate the rules for survival.

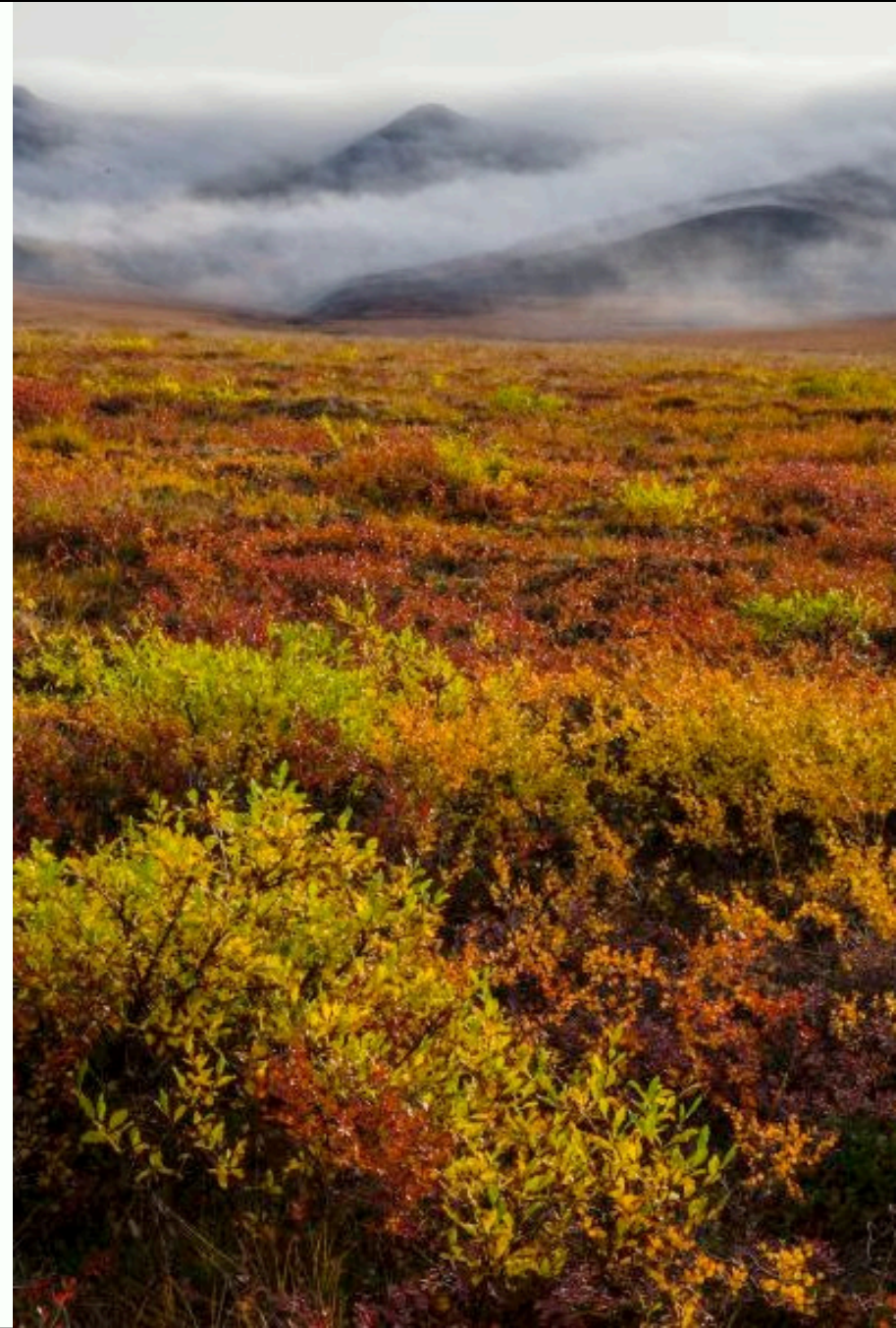
...Terrestrial Ecosystems

The Tundra

is an ecosystem formed where the climate becomes too harsh to sustain forests:

low temperatures, poor soils, and a very short growing season limit life to mosses, lichens, and low shrubs.

It is found at high latitudes, even before reaching the polar circle, as a transition zone between the wooded world and the great ice sheets.



...Terrestrial Ecosystems

Polar tundra:

the permanently frozen ground at depth, called permafrost, never completely thaws, making life even more difficult. Only a very thin surface layer softens briefly in summer, allowing very few plants to survive close to the ground.

It is an ecosystem at the extreme limit of survival.

...Terrestrial Ecosystems

Siberian Taiga

The Taiga stretches below the tundra, forming the largest boreal forest in the world.

Spruces, larches, pines, and birches thrive there, while among the animals live reindeer, bears (brown and black), wolves, lynxes, foxes, moose, wolverines, and a wide variety of migratory birds.

To complete the picture of Terrestrial Ecosystems...

Rocky or sandy deserts - hot or cold:

They represent some of the most extreme environments on the planet. Temperature swings are severe, precipitation is almost absent, and life is reduced to the essentials: a few succulent plants, insects, reptiles, and mammals capable of surviving with very little water.

The factors that determine the Diversity of Ecosystems.

But where does this incredible diversity of ecosystems come from?

It all depends on a fascinating interplay of forces:

among climatic factors such as temperature and precipitation, the length of daylight hours, latitude and altitude, continentality, together with geological and ecological factors.

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Every unique combination of these

elements creates distinctive local conditions

that determine which plant and animal

communities can best adapt and

thrive - and this is exactly how

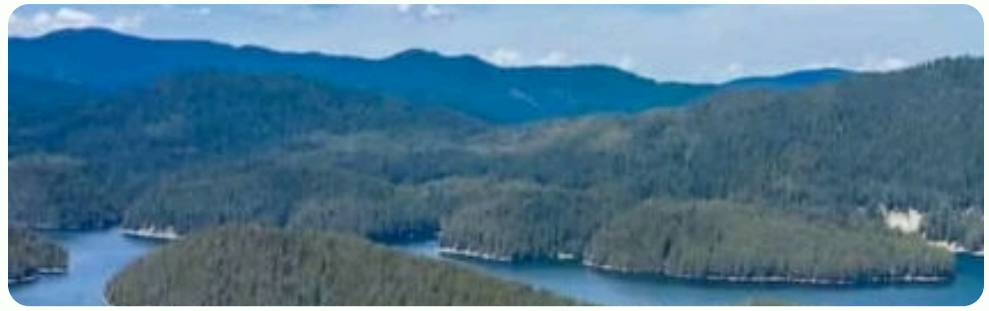
the main ecosystems we

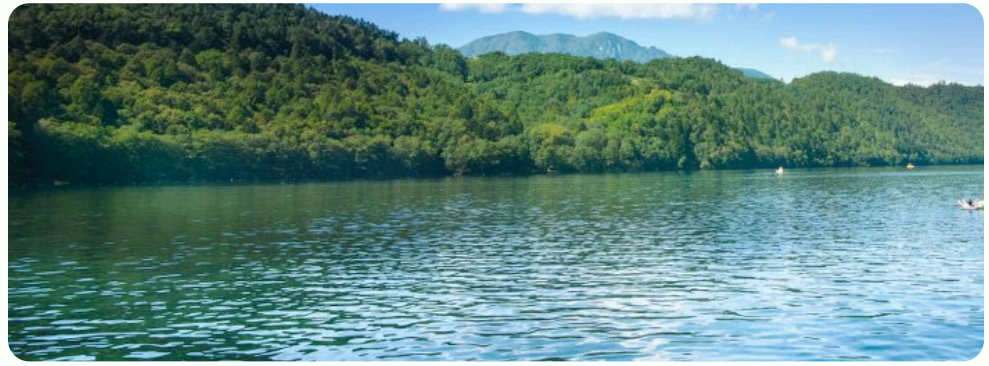
have described are born.

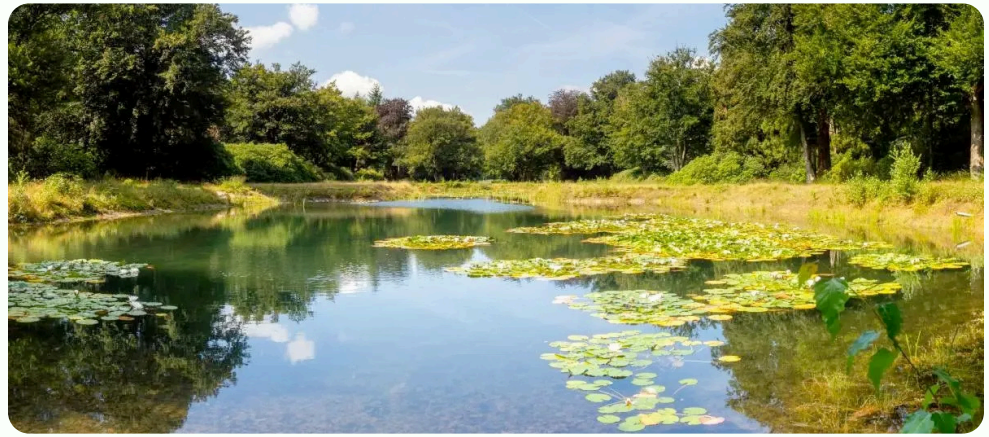
The Aquatic Kingdom

Aquatic ecosystems

The aquatic realm is no less diverse. Freshwater ecosystems come to life in rivers, lakes, and ponds, hosting rich and varied biocenoses of plants and animals. Freshwater, while covering only a tiny fraction of the Earth's surface, is among the most productive and vital environments for the balance of ecosystems. Fish, amphibians, aquatic insects, birds, and aquatic and riparian vegetation make it an extraordinarily complex world.







...Aquatic Ecosystems

...while those of saltwater are found in coastal seas, vast oceans, multicolored coral reefs, and lagoons full of life.

Here, fish, marine mammals, reptiles, and birds live alongside crustaceans, mollusks, and echinoderms.

The plant component is equally rich: green, brown, and red algae, beds of seagrass, and tropical mangroves form habitats essential for thousands of species.

Transition Ecosystems

Border Environments

Particularly fascinating are transition ecosystems such as the deltas of major rivers, estuaries where fresh and salt water meet, the mangrove forests that dance between land and sea, and all those temporary aquatic environments where water arrives and recedes following ancient rhythms.

Anthropic Ecosystems

Ecosystems Created by Humans

Humans have created their own ecosystems,

often very different from natural ones,

leaving a deep imprint on the

terrestrial landscape.

Metropolises can be considered

real ecological cemeteries, where

often only the human species survives.

Anthropic Ecosystems

Ecosystems created by humans

Industrial areas, agrarian systems with their cultivated fields and orchards tell a different story:

from intensive agricultural systems - true temporary deserts - to extensive and organic ones that try to maintain a more respectful dialogue with nature.

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