



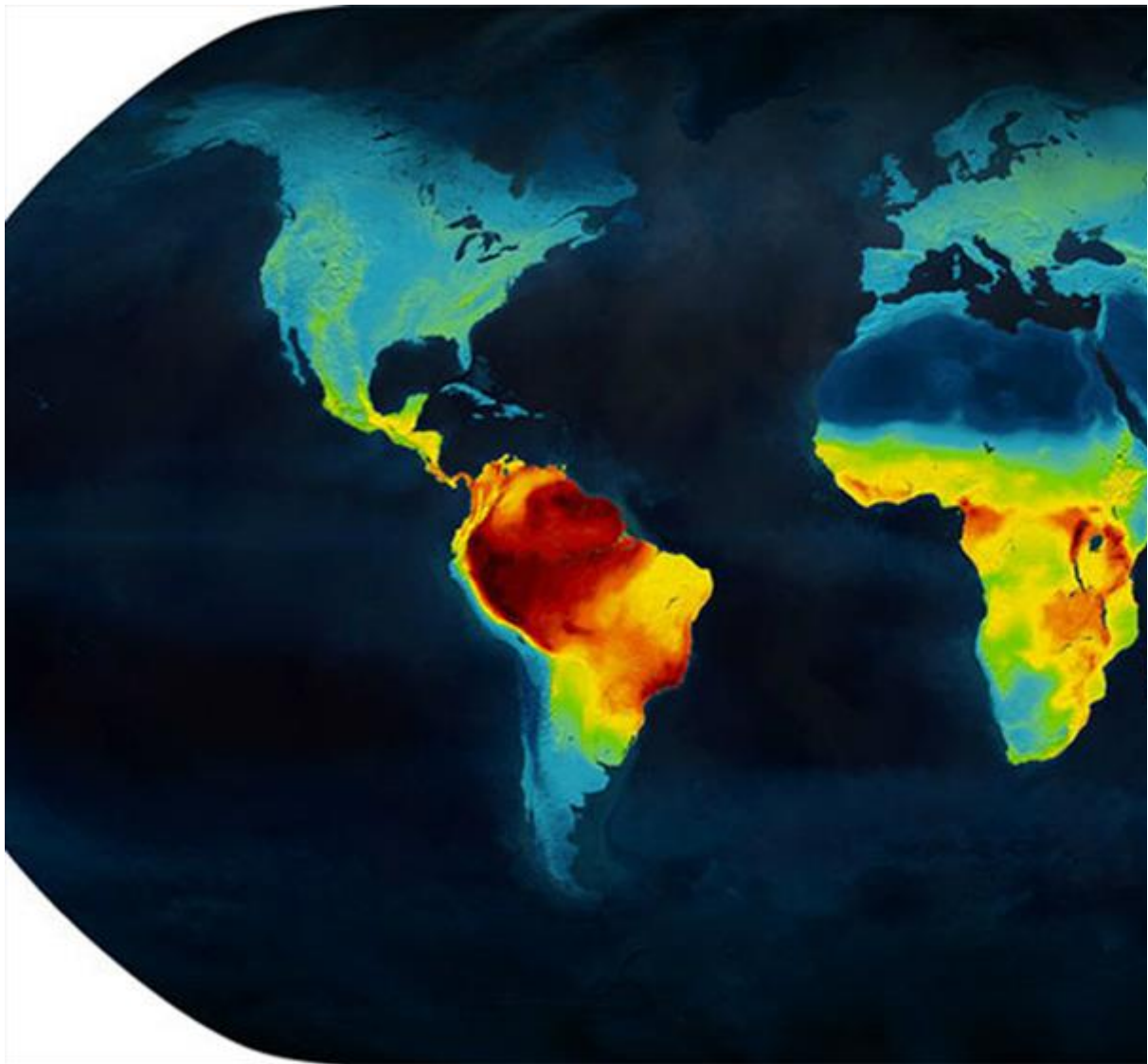
GEORGOFILI WORLD

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BIODIVERSITY AND ITS PRESERVATION

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Biodiversity is a hymn to the comprehensive meaning of the nature that surrounds humankind and which we have been called to admire, use, improve, and preserve for ourselves and future generations. The beauty, harmony, and complexity of this world and its landscapes have been cherished, portrayed, and enriched by human works. Poets, painters,

scientists, singers, and even simple tourists have sought out the most fabulous landscapes that, unfortunately, are more often at risk because of the human interventions that, knowingly or not, cause serious damage to nature's beauties.

Biodiversity gives life continuity as it permits ecosystems to adapt, overcoming the changes of natural events by ensuring a population's fitness or biological success and its ability to synchronize with environmental changes over space and time by protecting ecosystems from the damage caused by changes in the environment. The plant and animal species populating an ecosystem have as a common characteristic harmony with the environment and they influence each other. However, their complexity lets them adapt to a variety of climates and pathogens as well as to their own and human dietary need, and have a positive relation to the ecosystem's productivity as they use completely different resources.

The complexity and harmony of nature are related to its cycle, in which organisms and biocoenoses represent three levels of the living organisms: *autotrophic layer* (vegetable organic producers), *heterotrophic layer* (herbivores, omnivores and carnivores), and *decomposition layer* (microorganisms) that lead everything from water, carbon dioxide, nitrogen and mineral salts back to water, carbon dioxide, nitrogen and mineral salts, allowing the complementary use of the ecosystem's resources.

Biodiversity is one of nature's most complex and transversal components and has been defined irreducible because it is made up of components, each one indispensable, that contribute to the unitary function of each ecosystem, homogeneous within itself but different from other ecosystems influenced by various environmental factors (geographical biodiversity). But it is also the link between biological past and future. Over the years, variations of a few tenths of a degree in the environmental temperature or a few mm of rain can cause a major evolution in an ecosystem's balance. What we see today is the result of three billion years of evolution with allelic recombination and assortment, mutation, drift, genetic isolation, self-fertilization, inbreeding, natural and anthropic selection, intra-racial crossing, migration, and trade that has allowed the presence on the earth of 12-14 million species over the four levels of organization of the living world (it is the most accepted evaluation, but estimates range from 5-100 million, of which only 1.5 million have been classified thus far).

The necessity to pay attention to preserving biodiversity (nature's complexity) is a problem that has been posed only in the last thirty years since it was realized that humans are part of the system, with the possibility of influencing it but whose life depends on the existence of healthy ecosystems. In the meantime, the population explosion was resulting in severe habitat modification due to the massive occupation of the land and the diminishing availability of room for natural species, many of which have therefore faced drastic reductions or even extinction. Unfortunately, today, humans have been causing severe damage to nature with the predation and contraction of habitats available to natural species. Deforestation, the plowing of grassland for cultivation or to raise domestic species, urbanization, the use of pollutant molecules (fertilizers, pesticides, petroleum by-products, livestock and veterinary molecules) and their increase residues in soil and waters are taking more and more space away from biodiversity and its natural beauties.

Beginning with the 1972 Ramsar Convention, followed by the 1992 *Convention on Biological Diversity* (Nairobi and Rio de Janeiro) and many other programmes, the UN has presented initiatives to safeguard living species and natural habitats since the 1970's. The European Union has also issued laws and regulations on this subject, launching studies on the endangered genetic heritage over approximately the last forty years. In 2010, Italy adopted the National Strategy for Biodiversity; in 2014, the State-Regions Conference approved the strategic objectives to be carried out by 2020: reducing the impact of climate change on biodiversity and guaranteeing the incorporation of this protection into economic policies as well as into the enjoyment of pleasant, salutary landscapes with tourism and food and wine specialties. Some regions have developed initiatives to safeguard and restore biodiversity, while research institutions and individual researchers have promoted study measures.

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