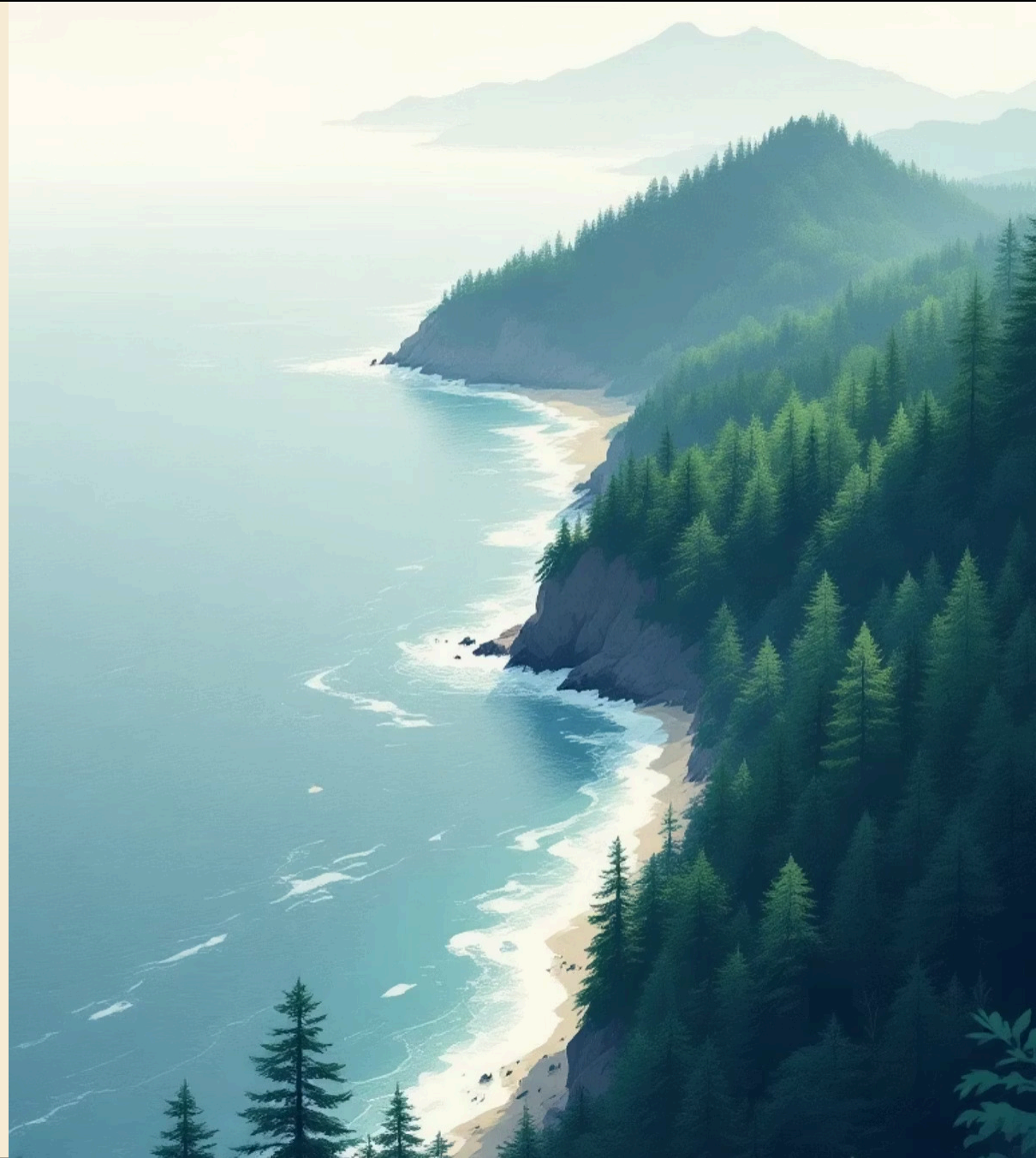
Biodiversity: The Invisible Force that Governs Life

A journey through 3.7 billion years of evolution that transformed a sterile planet into a symphony of interconnected life.



The Miracle of 3.7 Billion Years

Biodiversity is more than species count. It's genetic variability making each individual unique, species diversity across the planet, and varied ecosystems intertwined.

Biodiverse ecosystems can be up to **50% more productive** and store vast carbon, acting as the planet's lungs.

The Birth of an Ecosystem

How does a complex world emerge? Through ecological succession—a process transforming harsh environments into thriving systems.

The Pioneers

Lichens, mosses, sun, wind, and ice crumble the rock. Bacteria fix nitrogen from the air, creating the first grains of fertile soil.

The Growth

Pioneer grasses consolidate the soil. Humus forms: 1 cm takes 100 years! Microbial biomass explodes from 1 to 7 tons per hectare.

Maturity

Trees complete the miracle. A single tree hosts 400 species of insects. A perfect cycle of life is created.

Every Living Being: A Fundamental Gear

Plants

Primary energy generators and architects, modifying water, nutrients, and climate.

Earthworms

Soil engineers: process 30 tons per hectare yearly, reducing erosion by 30%.

Mycorrhizae

Extend roots 100x, creating underground networks transferring nutrients and chemical signals.

Every Living Being: A Fundamental Cog

Bats

Control harmful insects, saving agriculture $23 billion yearly in pesticides.

Decomposers

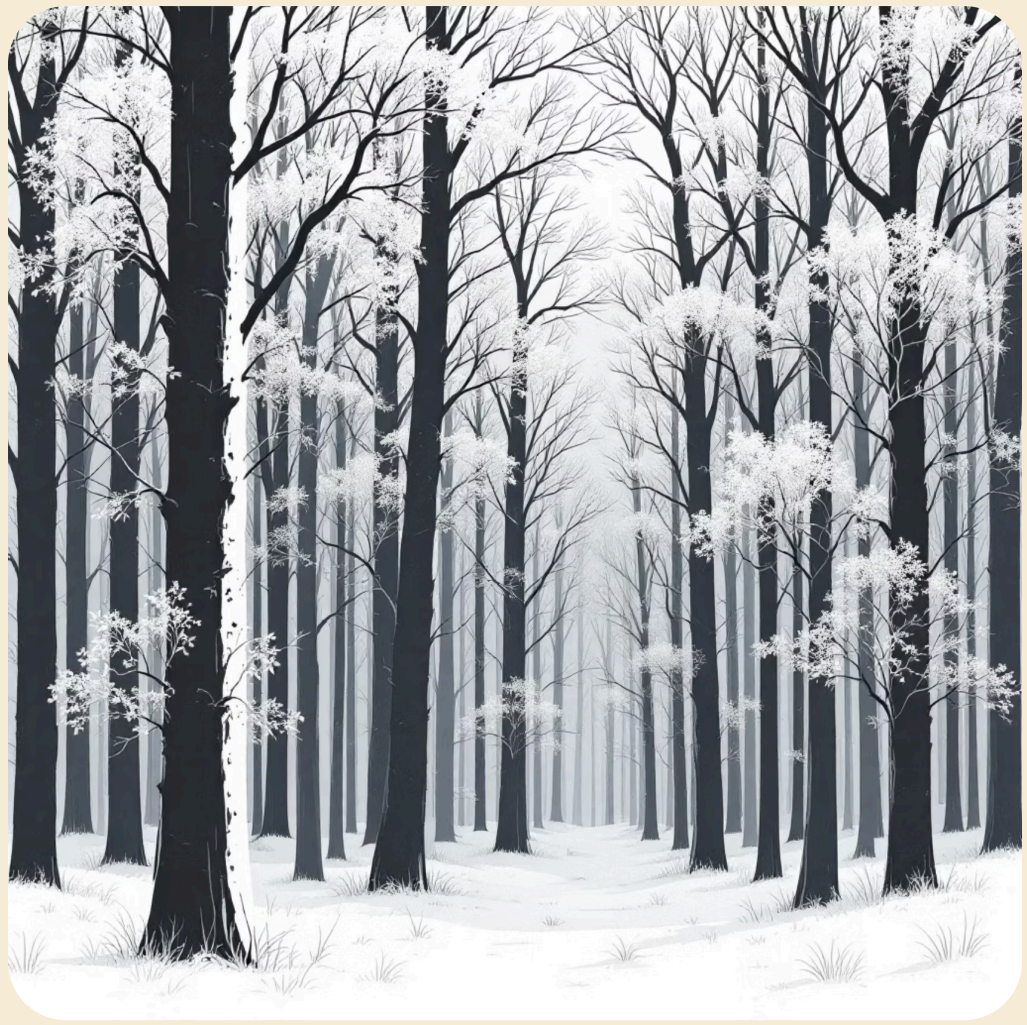
Recycle life itself: process 90 billion tons of carbon annually.

The Power of Diversity

Wheat Field

Identical individuals: a single disease can destroy the entire field.

Ancient Beech Forest



Trees of different ages, roots at different depths, genetic variability: at least a part always survives.

The Power of Resilience

The Fire

A sunflower field is destroyed. But in Mediterranean scrubland, magic happens.

The Rebirth

Resilient trees sprout from deep roots. Dormant seeds awaken as heat and smoke break dormancy.

The Queen Returns

Wild Sage, with roots like invisible anchors, resists and returns first. Without competitors, it dominates for years.

Cooperation, Not Competition

Beans
Enrich soil with nitrogen

Corn
Support for climbing plants

Cabbage
Attract pollinators, deter pests

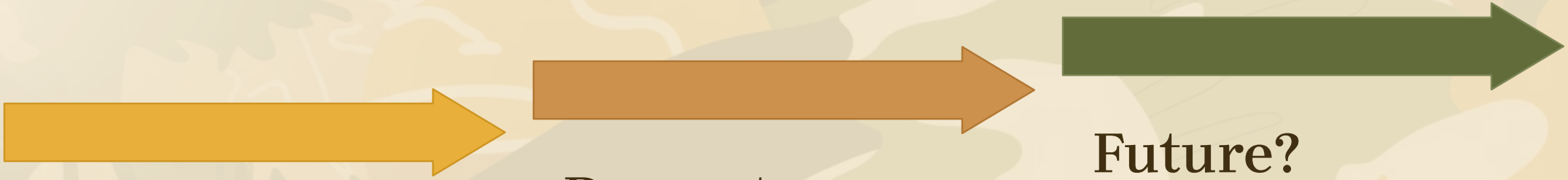
Zucchini
Protect soil from drought

The Wood Wide Web

Underground mycorrhizal networks—the 'Wood Wide Web'—let plants communicate and share nutrients in a mutualism system.

The Sixth Extinction

An Unprecedented Threat



Past

Five mass extinctions from volcanic eruptions, meteor impacts, and ice ages

Present

For the first time, humanity is the greatest threat

Future?

High-risk species could see 5x current losses in coming decades

The Impact of the Crisis

Extinction Rate

100-1,000x higher than natural

Continuing Threat

Growing and irreversible

Selective Impact

Affects large and specialized species

Deforestation, urbanization, and pollution fragment habitats, preventing recolonization and accelerating losses.