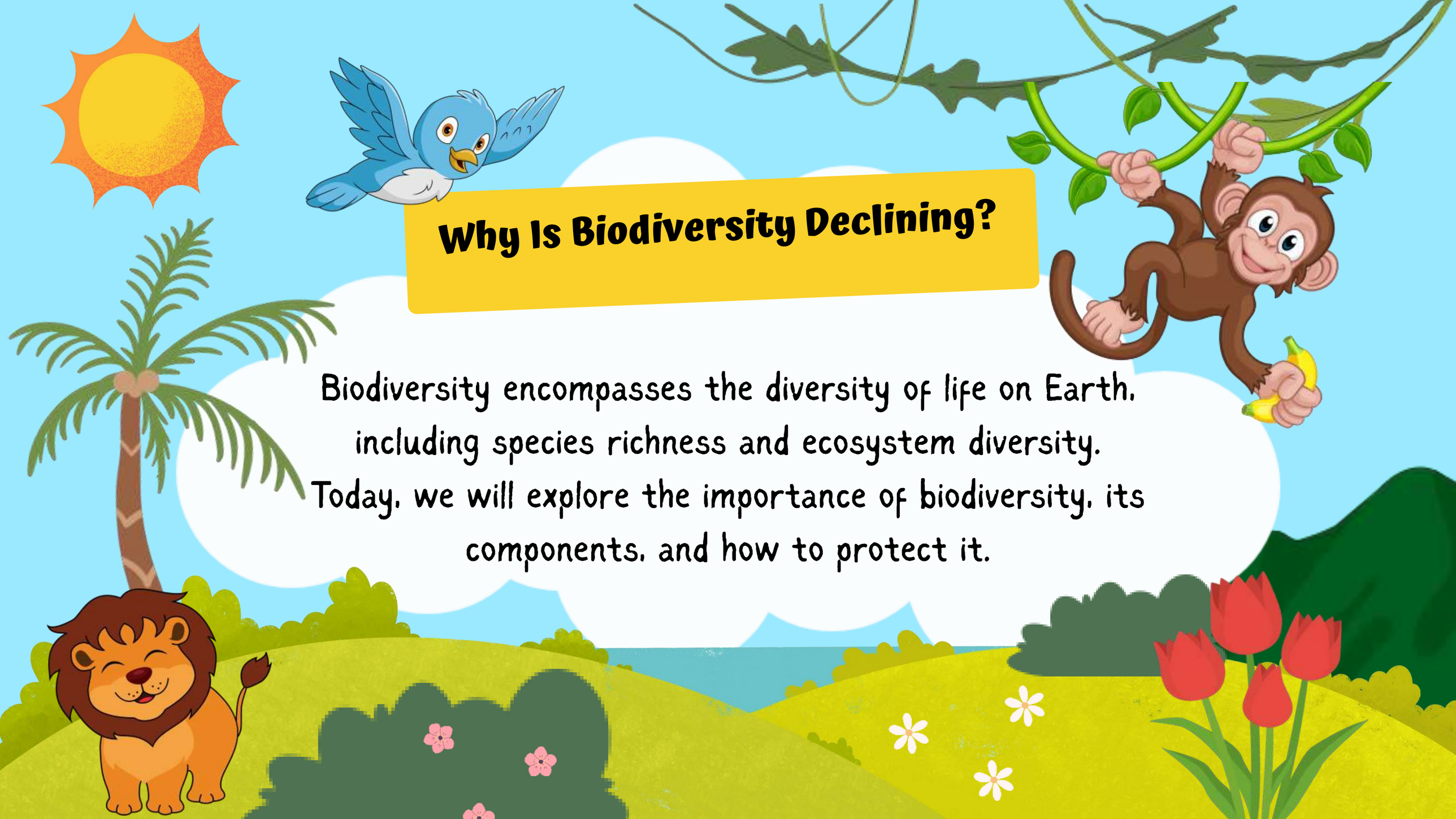

GREEN PARTICAPATION, GREEN EUROPE
Project Number: 2023-2-TR01-KA154-YOU-000168735
A3 - Biodiversity in Action Against Climate Change
26-29.05.2025
TÜRKİYE ULUSAL AJANSI
TURKISH NATIONAL AGENCY
Funded by
the European Union
GREEN PARTICIPATION
GREEN EUROPE

List of Contents

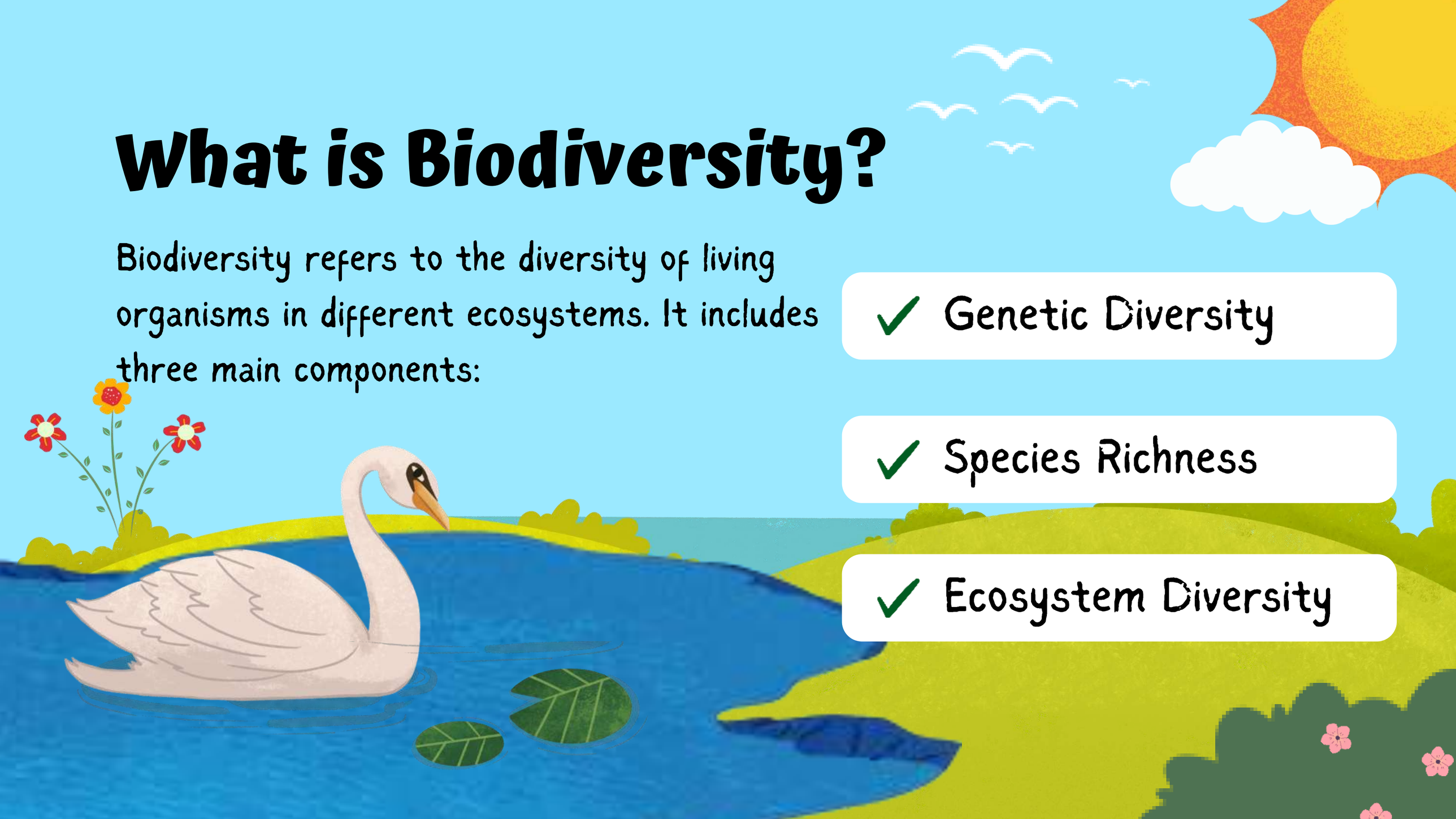
- What Is Biodiversity and Why Is It Declining?
  - Climate Change and Its Impact on Biodiversity
- EU Biodiversity Strategy for 2030
  - Financing Nature: How Does Europe Fund Biodiversity?
- Expert Panel – Protecting Nature: Local to Global
  - Special Session – Youth Roles in the Future of Nature
- Thematic Session – Biodiversity in Action Against Climate Change
  - Thematic Session – Biodiversity in Action Against Climate Change
- Certificate Ceremony & Group Photo


Why Is Biodiversity Declining?
Biodiversity encompasses the diversity of life on Earth, including species richness and ecosystem diversity. Today, we will explore the importance of biodiversity, its components, and how to protect it.

What is Biodiversity?

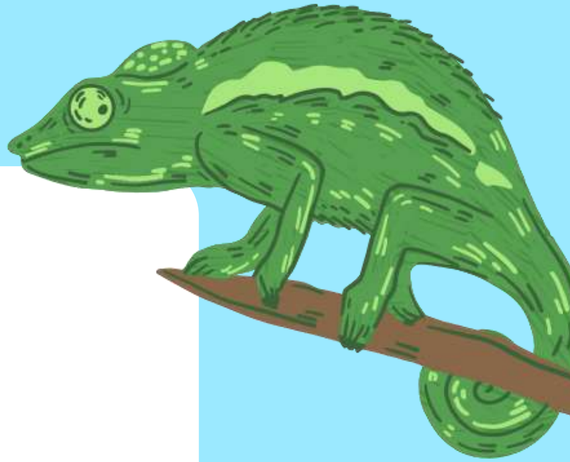
Biodiversity refers to the diversity of living organisms in different ecosystems. It includes three main components:

- ✓ Genetic Diversity
- ✓ Species Richness
- ✓ Ecosystem Diversity



The Importance of Biodiversity

Biodiversity is essential for:



Ecosystem stability and resilience.

Providing ecosystem services.

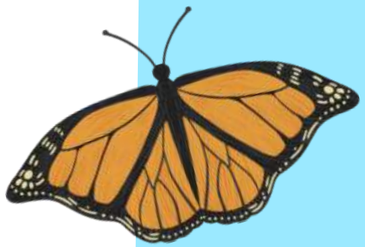
Guarantee sustainable resources.

Genetic Diversity

Genetic diversity refers to the variation of genes within a species. This allows populations to adapt to environmental changes and contributes to the overall health and survival of the species.

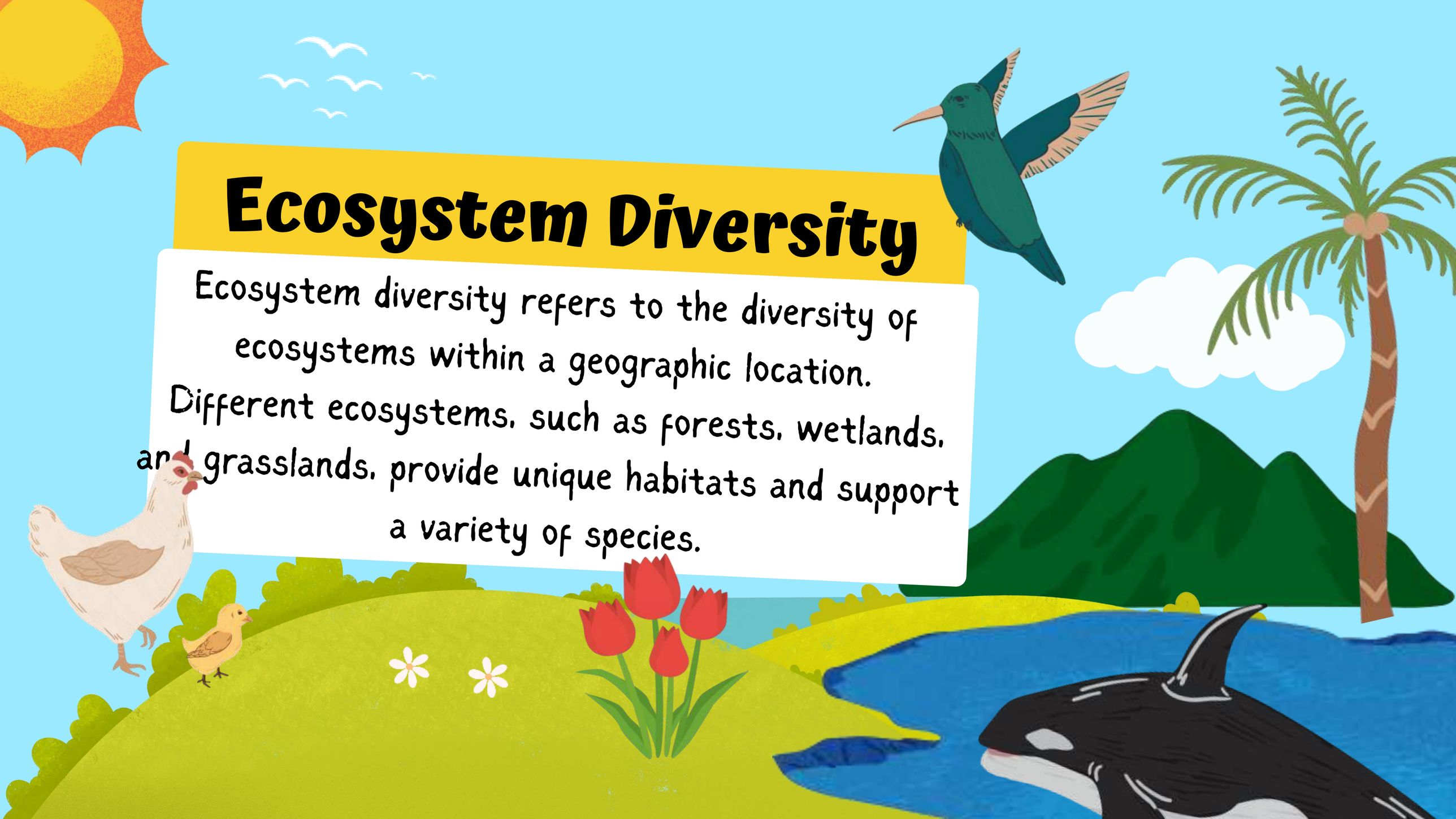
Species Richness

Species richness is the number of different species in a particular area. It is a key indicator of biodiversity and is important for ecosystem function, productivity and resilience.



Ecosystem Diversity

Ecosystem diversity refers to the diversity of ecosystems within a geographic location. Different ecosystems, such as forests, wetlands, and grasslands, provide unique habitats and support a variety of species.



YOUTH AND BIODIVERSITY

Why Youth Participation?

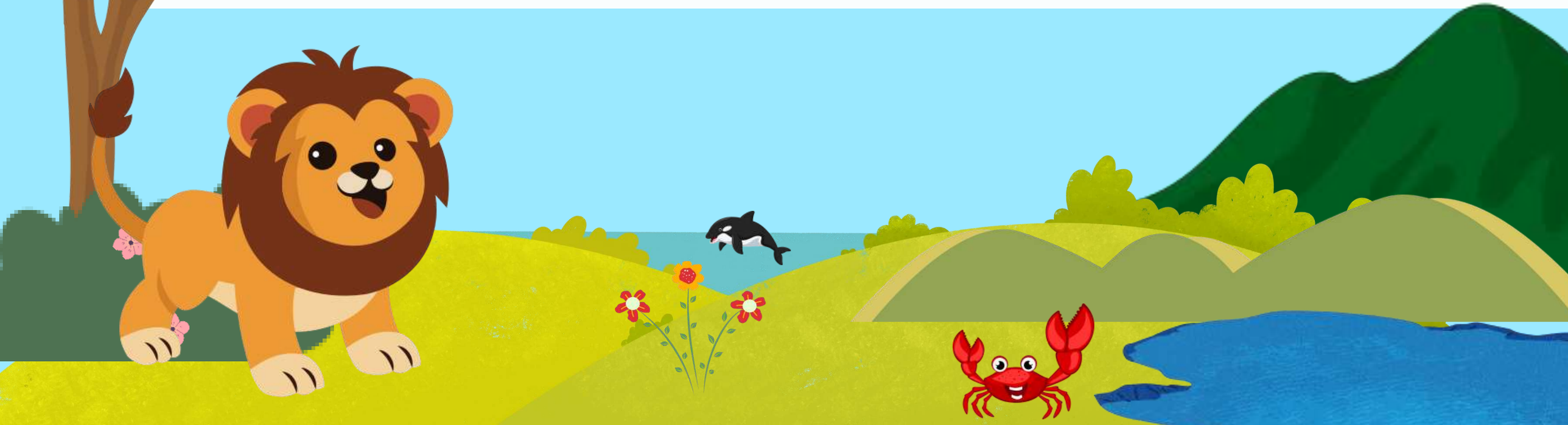
- The biodiversity crisis is not only an environmental issue but also a social, economic, and ethical one. Young people bring innovative thinking, digital skills, and strong community networks to the table.
- Youth participation enhances diversity in decision-making, ensures the inclusiveness of policies that directly affect the future, and spreads environmental awareness throughout society.

Scientific Basis

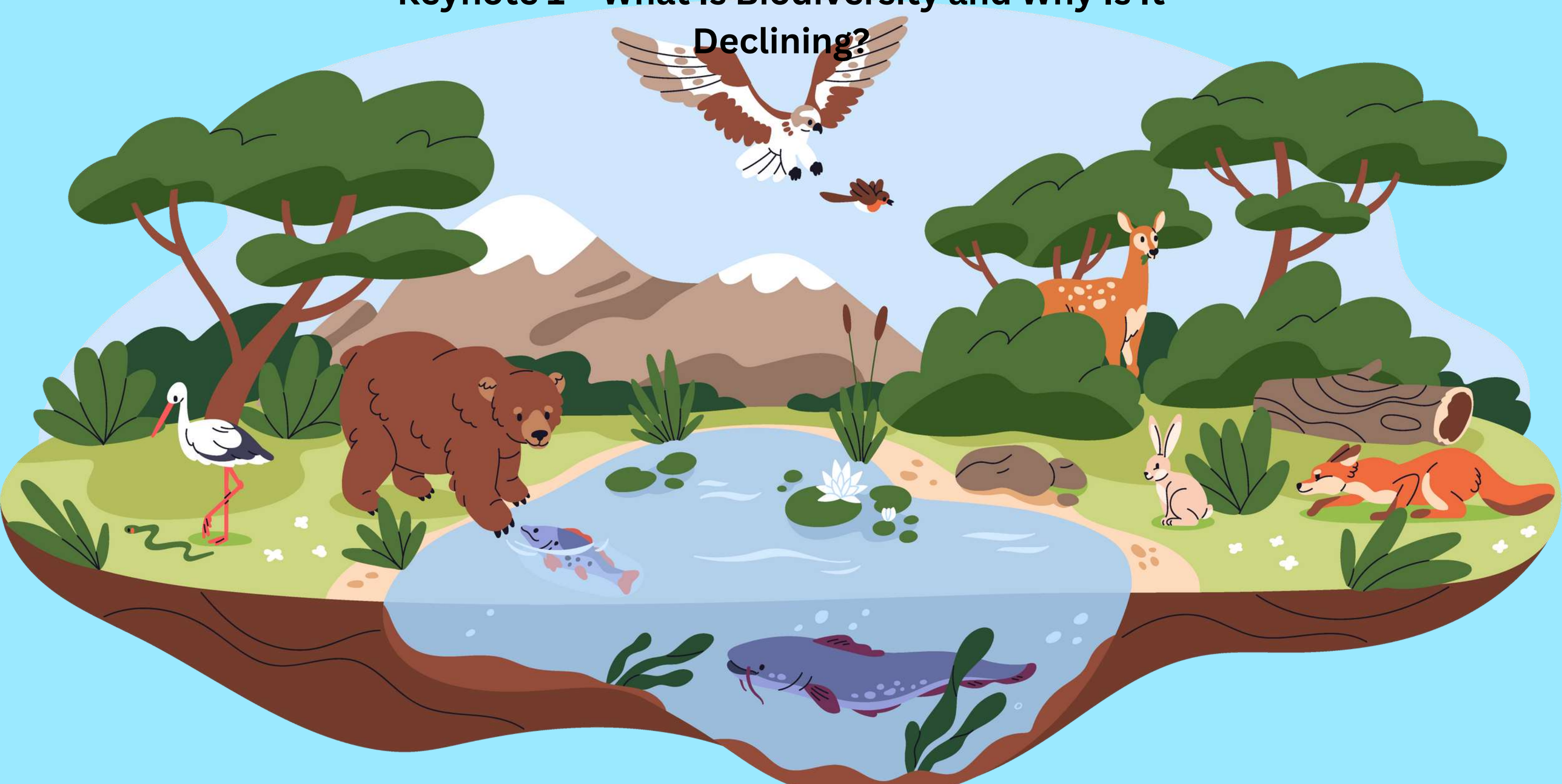
- According to IPBES (2019), nearly one million species worldwide are at risk of extinction, and raising public awareness and mobilizing youth movements are critically important in addressing this threat.
- European Commission (2020): The integration of young people into environmental policymaking is one of the core objectives supported under the EU Biodiversity Strategy for 2030.
- OECD (2021): Activating youth participation at the local level strengthens participatory democracy and facilitates the achievement of sustainable development goals.

Discussions

- How can young people participate more actively in decision-making processes?
- What small changes have you made or could you make in your daily life to support sustainability?
- What role does social media play in raising environmental awareness?



Keynote 1 – What Is Biodiversity and Why Is It Declining?



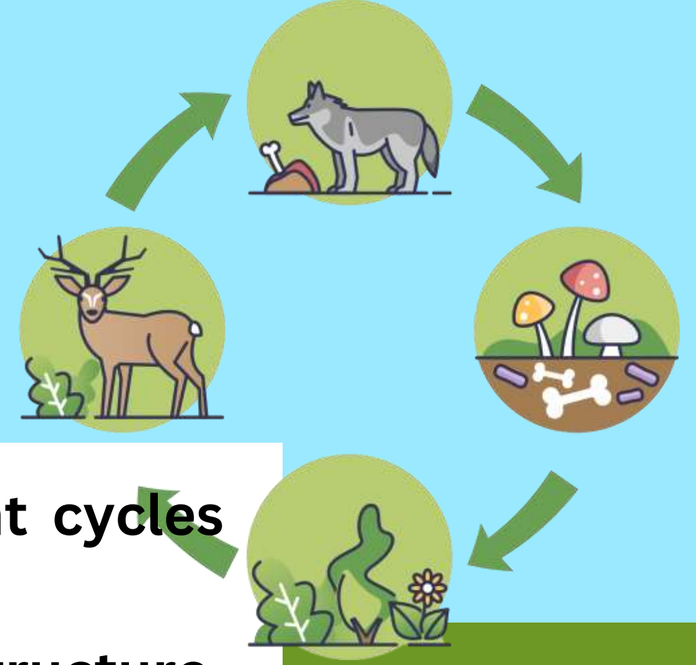
What is Biodiversity?

- Biodiversity refers to the variety of life on Earth, encompassing genetic variation, species diversity, and ecosystem diversity. It operates at three primary levels: genetic, species, and ecosystem diversity.

- Biodiversity is essential for the proper functioning of nature, maintaining food chains, climate regulation, and supporting human well-being in a sustainable way.



How Do Ecosystems Function?



- Ecosystems operate through energy flows and nutrient cycles between living organisms and non-living elements.
- Each species plays a specific role: some improve soil structure, others ensure pollination, while some help control pests.
- The loss of a single species can trigger a domino effect that disrupts the entire system.

Why Is Biodiversity Declining?



The main drivers of biodiversity loss are:

- Habitat loss and fragmentation
- Climate change
- Overexploitation and poaching
- Pollution (plastics, pesticides, heavy metals)
- Spread of invasive species

In the last 50 years, human activities have altered nature at an unprecedented scale (WWF, 2022).

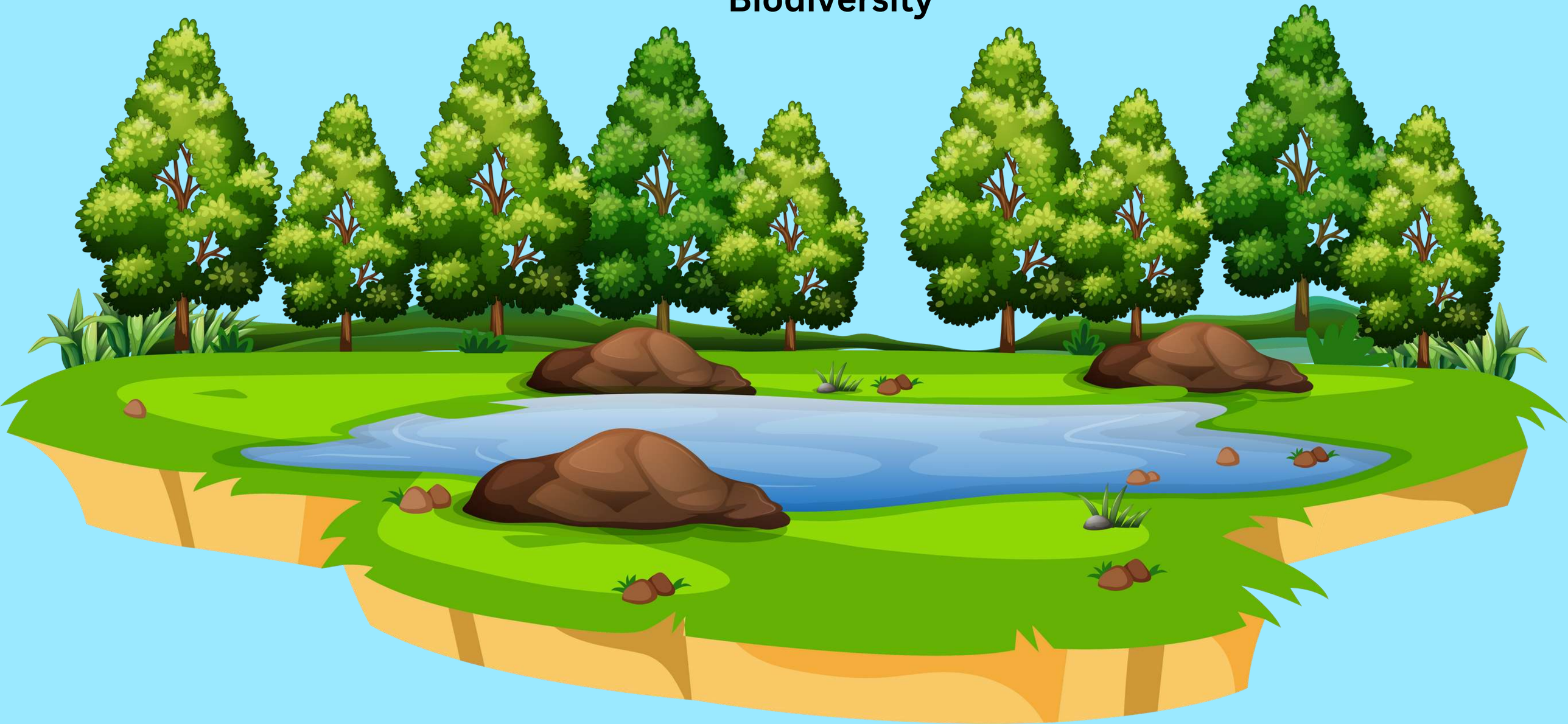
Why Is It a Crisis?

- According to the IPBES (2019) report, one million species are currently at risk of extinction.
- This loss threatens not only nature but also food security, water supplies, and global health.
- Biodiversity decline weakens ecosystem resilience and amplifies the climate crisis.



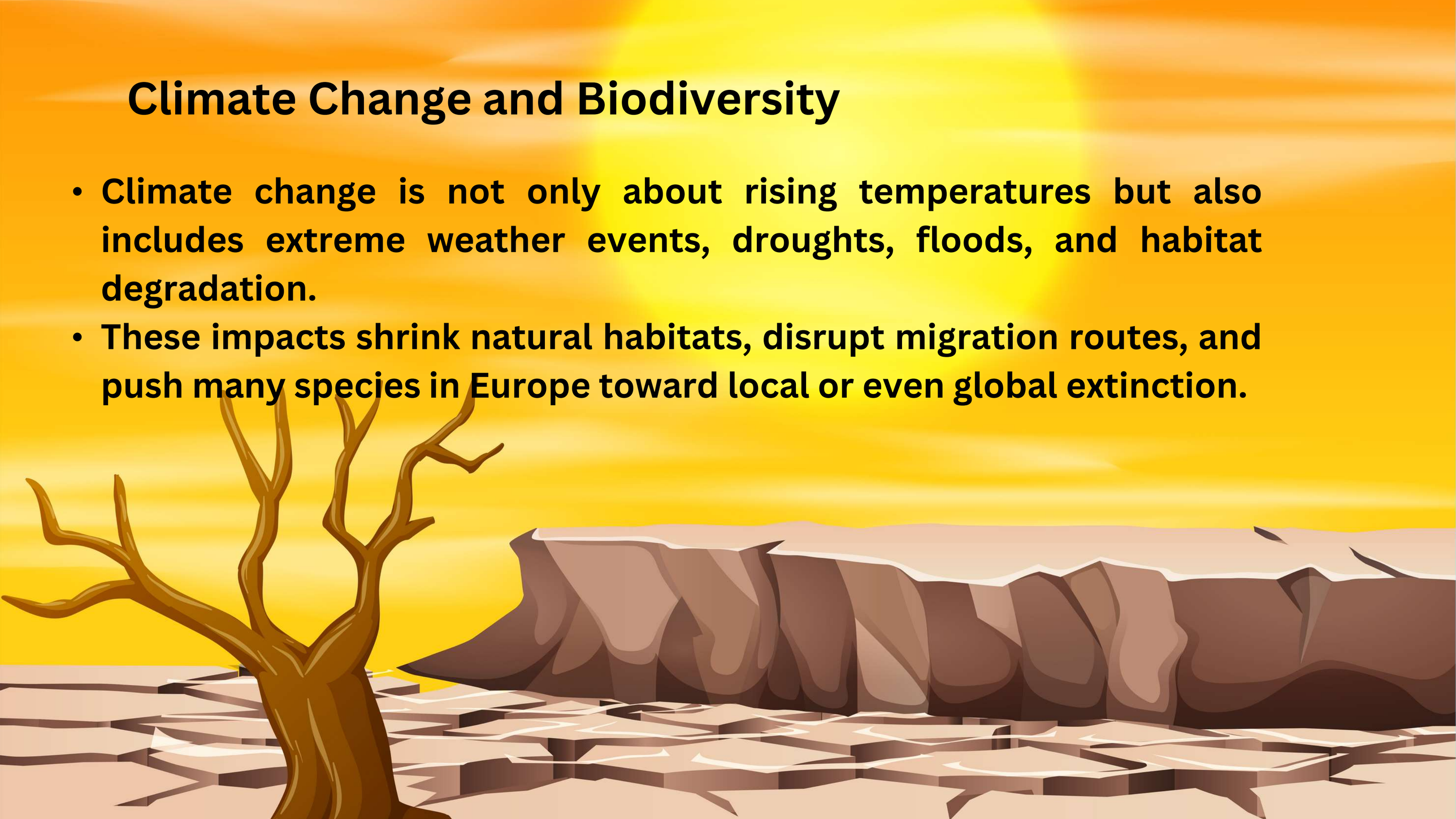


Keynote 2 – Climate Change and Its Impact on Biodiversity



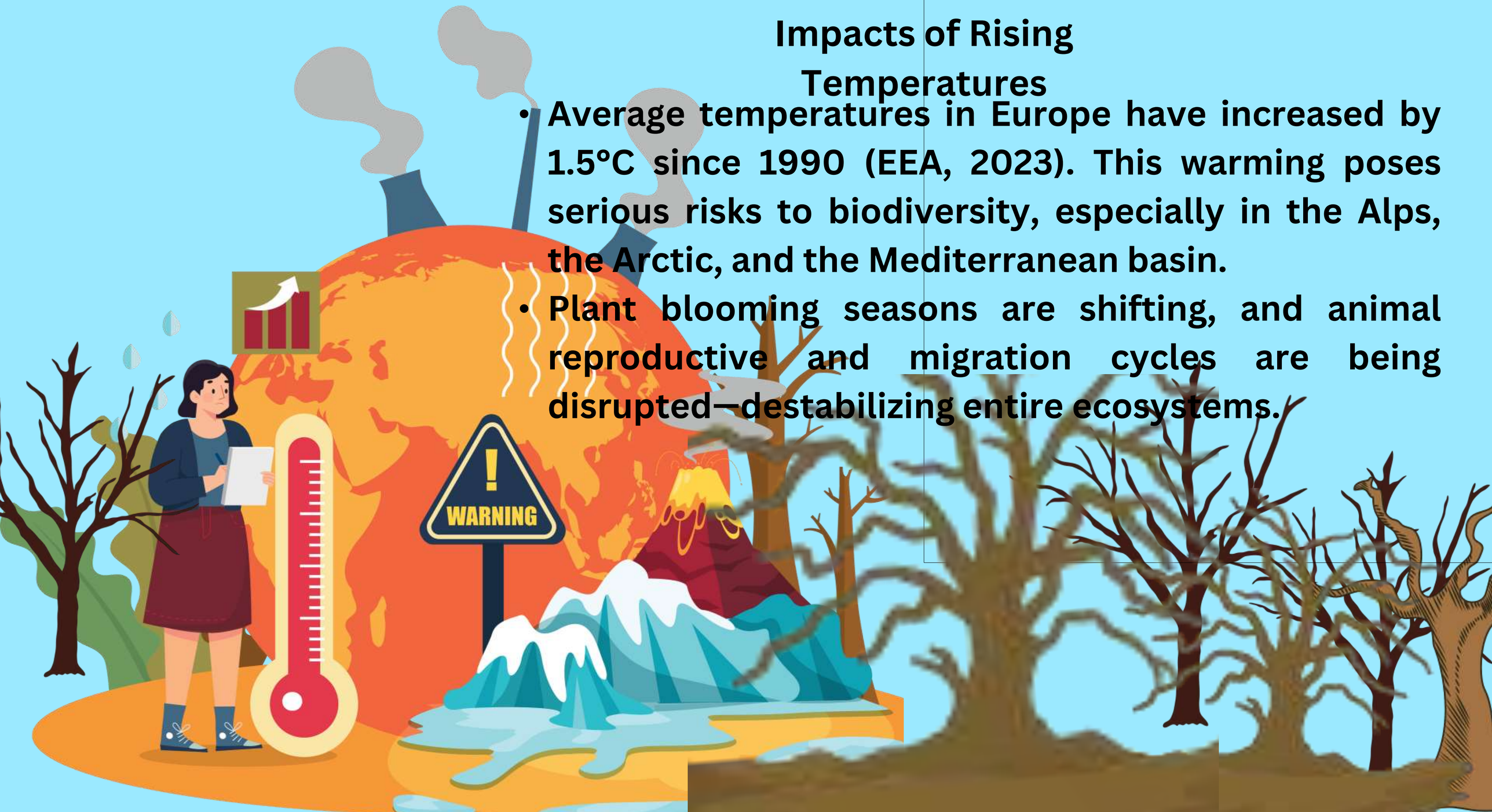
Climate Change and Biodiversity

- Climate change is not only about rising temperatures but also includes extreme weather events, droughts, floods, and habitat degradation.
- These impacts shrink natural habitats, disrupt migration routes, and push many species in Europe toward local or even global extinction.



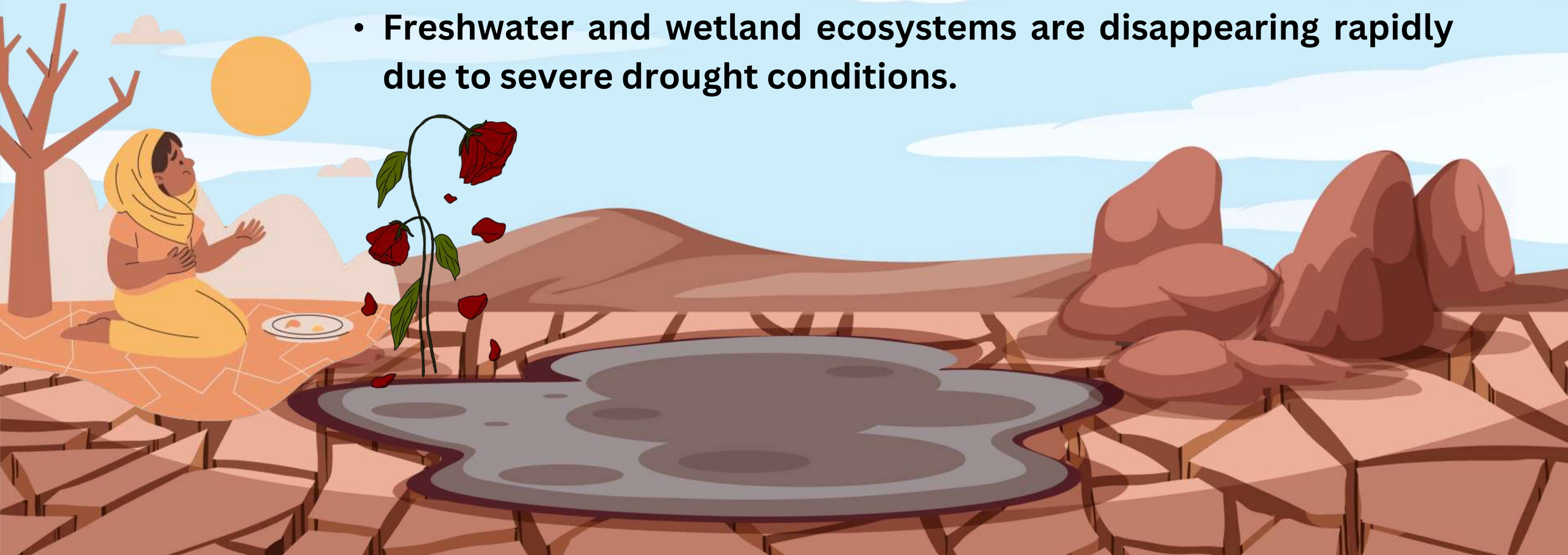
Impacts of Rising Temperatures

- Average temperatures in Europe have increased by 1.5°C since 1990 (EEA, 2023). This warming poses serious risks to biodiversity, especially in the Alps, the Arctic, and the Mediterranean basin.
- Plant blooming seasons are shifting, and animal reproductive and migration cycles are being disrupted—destabilizing entire ecosystems.



Extreme Events and Habitat Loss

- Storms, heatwaves, and prolonged droughts are decreasing ecosystems' capacity to regenerate.
- Some plants like rhododendrons wither before blooming; certain bird species fail to reproduce due to heat stress.
- Freshwater and wetland ecosystems are disappearing rapidly due to severe drought conditions.



Most Vulnerable Regions in Europe

- **Mediterranean Basin: Drought, wildfires, and marine biodiversity loss**
- **The Alps: Glacier melting and extinction of alpine species**
- **Baltic Sea: Oxygen depletion and pressure from invasive species**

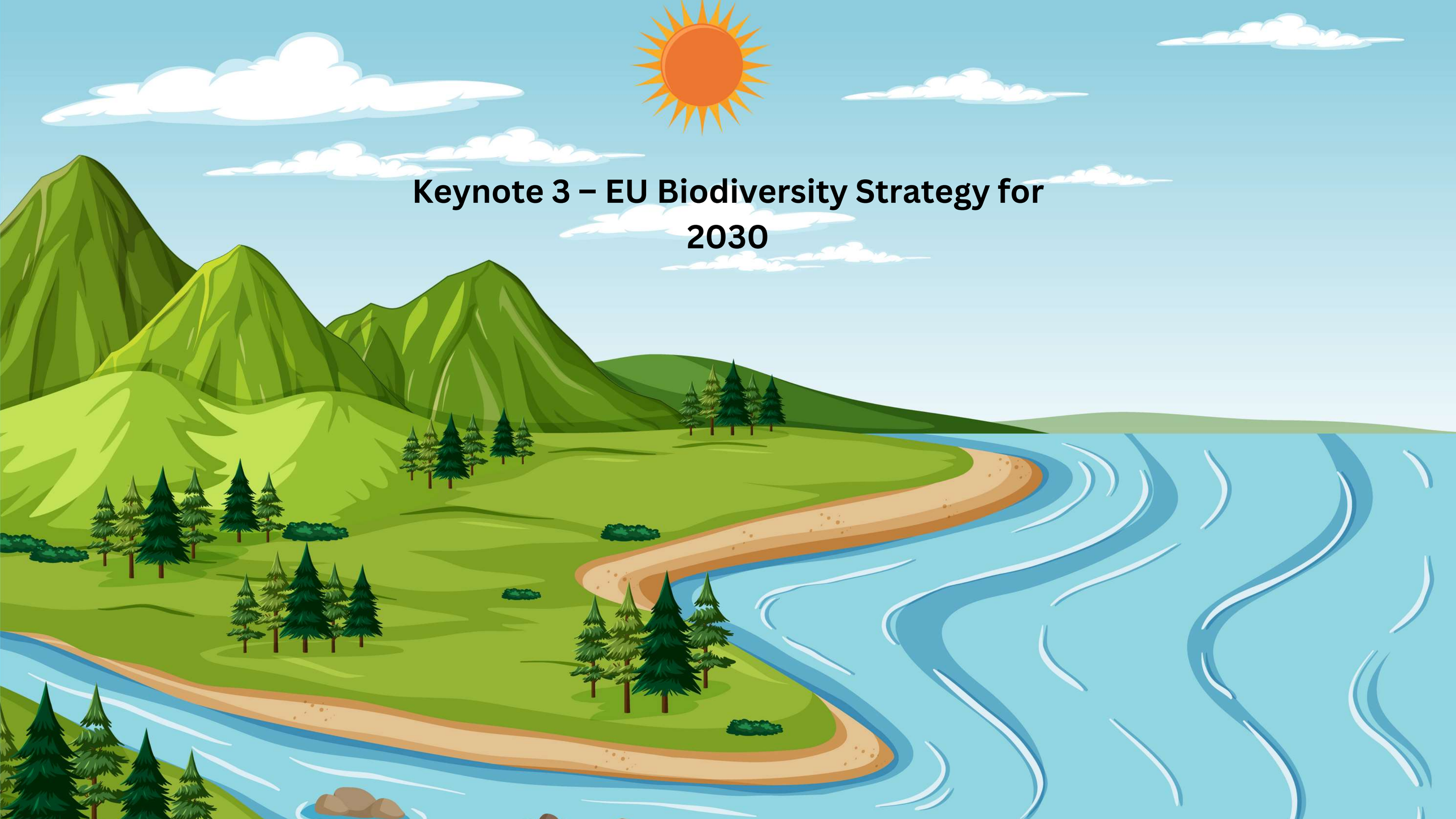
The EU Biodiversity Strategy for 2030 includes targeted action plans for these critical regions.



What Does Science Say?

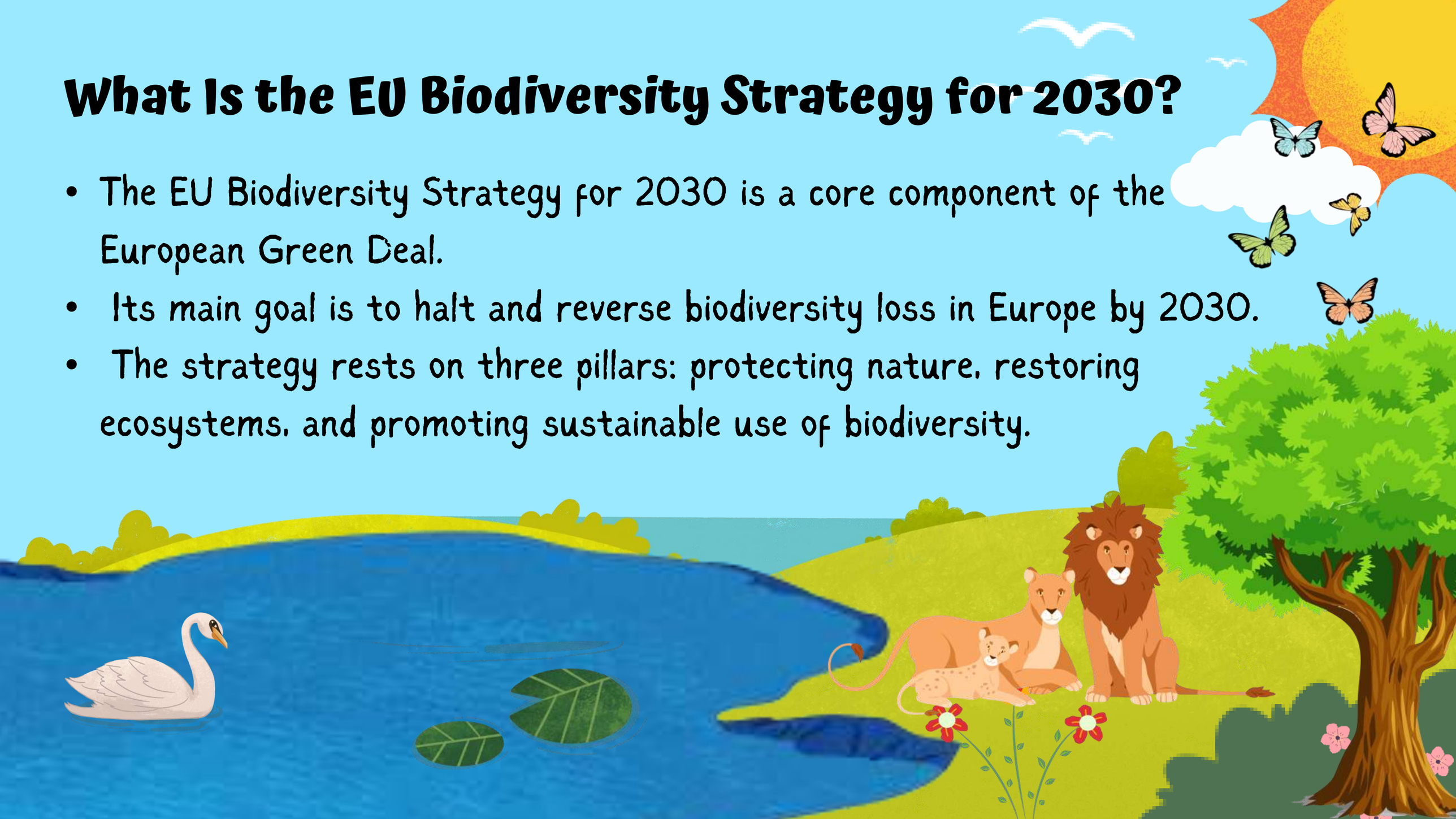
- Butterfly populations in Europe have declined by 40 in the past 30 years (van Swaay et al., 2022).
- Natura 2000 sites act as ecological buffers against climate impacts.
- The Horizon Europe-funded BIOCLIMAP project studies the biodiversity-climate interactions in Europe.

Keynote 3 – EU Biodiversity Strategy for 2030



What Is the EU Biodiversity Strategy for 2030?

- The EU Biodiversity Strategy for 2030 is a core component of the European Green Deal.
- Its main goal is to halt and reverse biodiversity loss in Europe by 2030.
- The strategy rests on three pillars: protecting nature, restoring ecosystems, and promoting sustainable use of biodiversity.



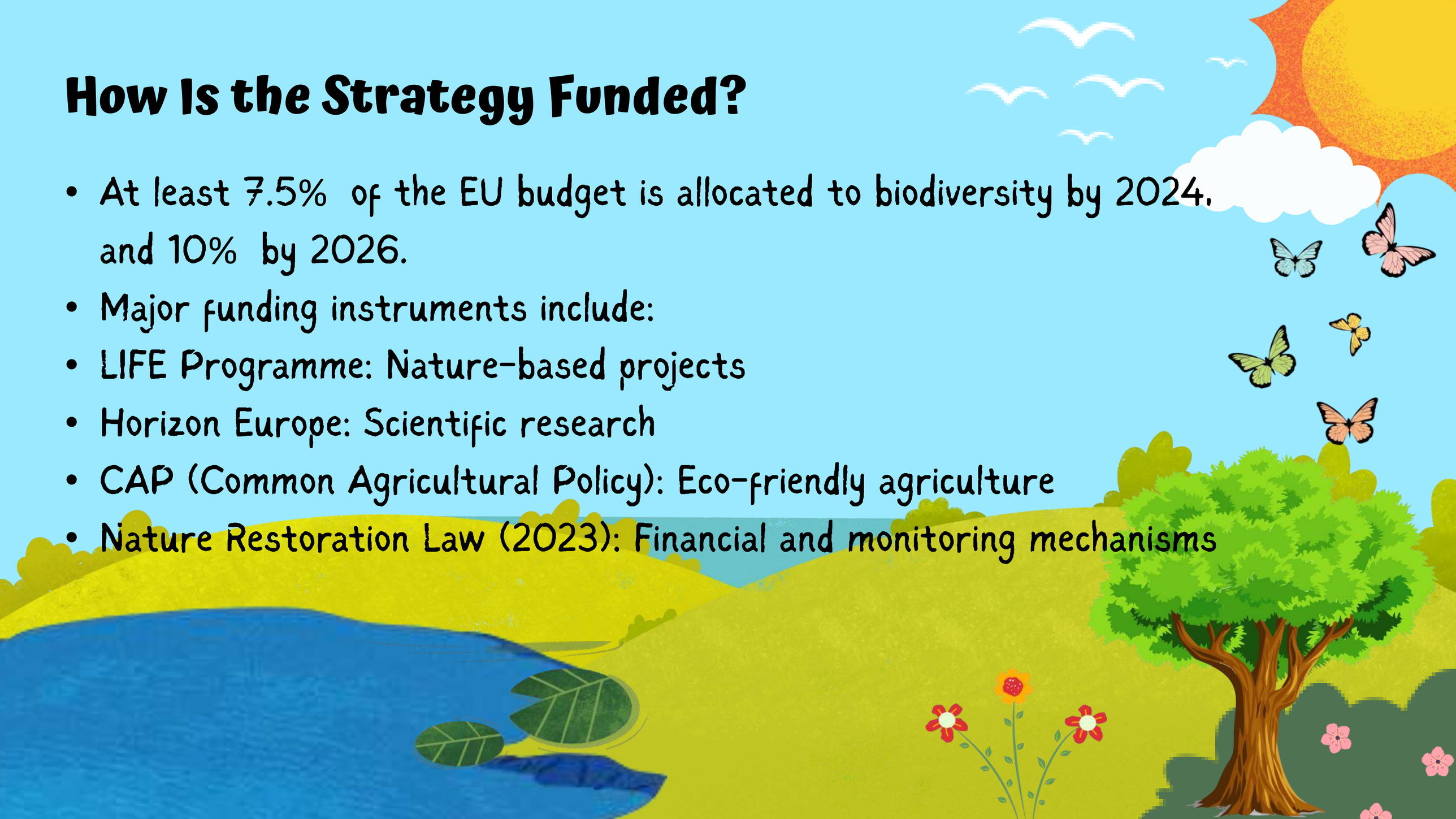
What Are the Strategy's Targets?



- Protect at least 30 of land and sea areas
- Restore 20 of degraded ecosystems
- Reduce pesticide use by 50
- Plant 3 billion trees
- Strengthen enforcement of EU biodiversity legislation

How Is the Strategy Funded?

- At least 7.5% of the EU budget is allocated to biodiversity by 2024, and 10% by 2026.
- Major funding instruments include:
- LIFE Programme: Nature-based projects
- Horizon Europe: Scientific research
- CAP (Common Agricultural Policy): Eco-friendly agriculture
- Nature Restoration Law (2023): Financial and monitoring mechanisms



How Can Young People Get Involved?

- Volunteering in youth-led environmental NGOs
- Participation in LIFE and Horizon research projects
- Joining networks like Youth4Nature and Generation Climate Europe
- Accessing internships and activism via the EU Youth Portal
- Contributing to local biodiversity action plans



Current Challenges in Implementation

- Differences in implementation among member states
- Limited access to funding in some regions
- Pressure from agriculture and industry
- Insufficient environmental awareness in society
- Overcoming these challenges requires active participation from young people.



Keynote 4 – Financing Nature: How Does Europe Fund Biodiversity?



What Is Nature Financing?

- Nature financing refers to all public and private funding dedicated to the protection, restoration, and sustainable use of natural ecosystems.
- The European Union has developed large-scale financial instruments to support nature-based solutions by 2030.
- The goal is to ensure both environmental and economic sustainability.

Main EU Funding Instruments

Green Deal:

- **The EU's roadmap to a climate-neutral continent, with biodiversity as a pillar of the green economy.**

LIFE Programme:

- **The EU's oldest fund (since 1992) supporting nature protection, waste management, and public awareness.**

Horizon Europe:

- **A €95.5 billion research program focused on science-based and nature-driven innovations.**



Real-World Success Stories



- **ReNature Malta (LIFE Programme):**
  Protected natural reserves and restored native plant species in Malta.
- **BiodivERsA+ (Horizon Europe):**
  A transnational biodiversity and climate research network involving over 45 institutions across Europe.
- **Green City Accord (Green Deal):**
  European cities committed to expanding green spaces and improving urban air quality.

Tracking Funding and Measuring Impact

The EU aims to allocate 10% of its budget to biodiversity by 2026.

For each funding stream, mandatory:

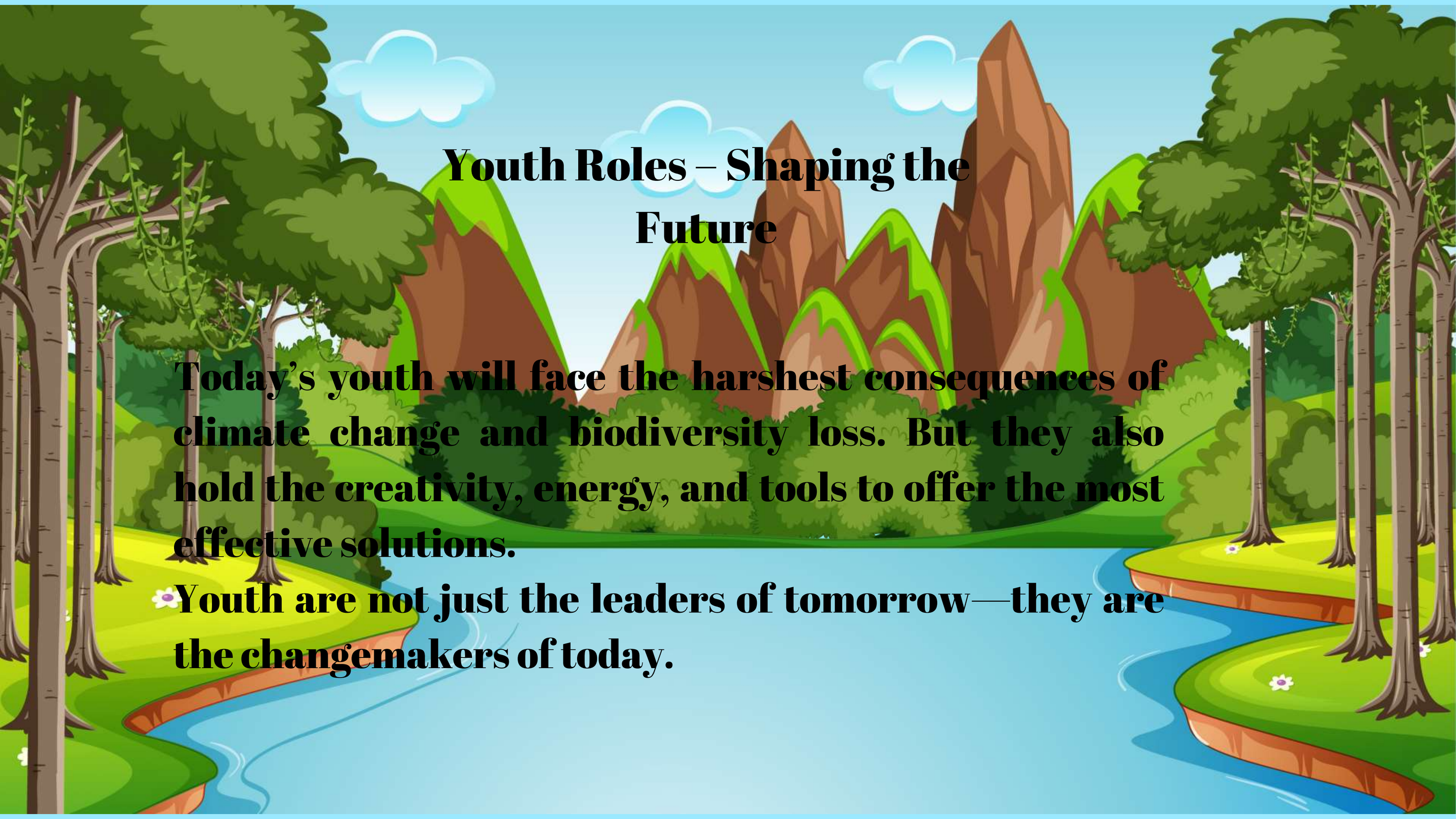
- Performance indicators
- Project result reports
- Compliance audits

This transparency boosts youth engagement and strengthens accountability.



Special Session – Youth Roles in the Future of Nature




Youth Roles – Shaping the Future
Today's youth will face the harshest consequences of climate change and biodiversity loss. But they also hold the creativity, energy, and tools to offer the most effective solutions.
Youth are not just the leaders of tomorrow—they are the changemakers of today.

Roles, One Goal: Protecting Nature

- **As Citizens: Support nature-friendly policies through voting and advocacy.**
- **As Students: Spread awareness and act through school-based environmental projects.**
- **As Professionals: Contribute to sustainable development through green careers.**
- **As Consumers: Promote sustainability by choosing eco-friendly products.**



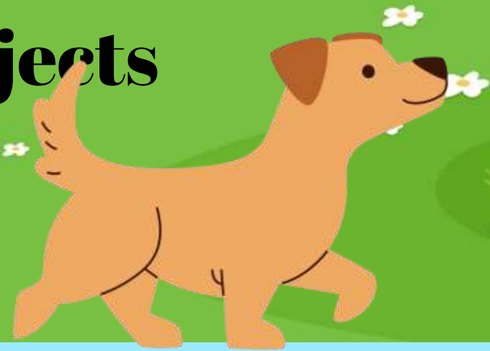


Inspiring Youth Movements

- Licypriya Kangujam (India): Protested in front of Parliament at age 11 demanding a climate law.
- Youth4Nature (Europe): A global youth-led network promoting nature-based solutions.
- Green Legacy Ethiopia: University students leading a campaign to plant 4 billion trees.

Practical Action Steps for Youth

- Join local environmental clubs
- Participate in youth advisory councils
- Apply for environmental internships via the EU Youth Portal
- Launch awareness campaigns on social media
- Contribute to citizen science projects





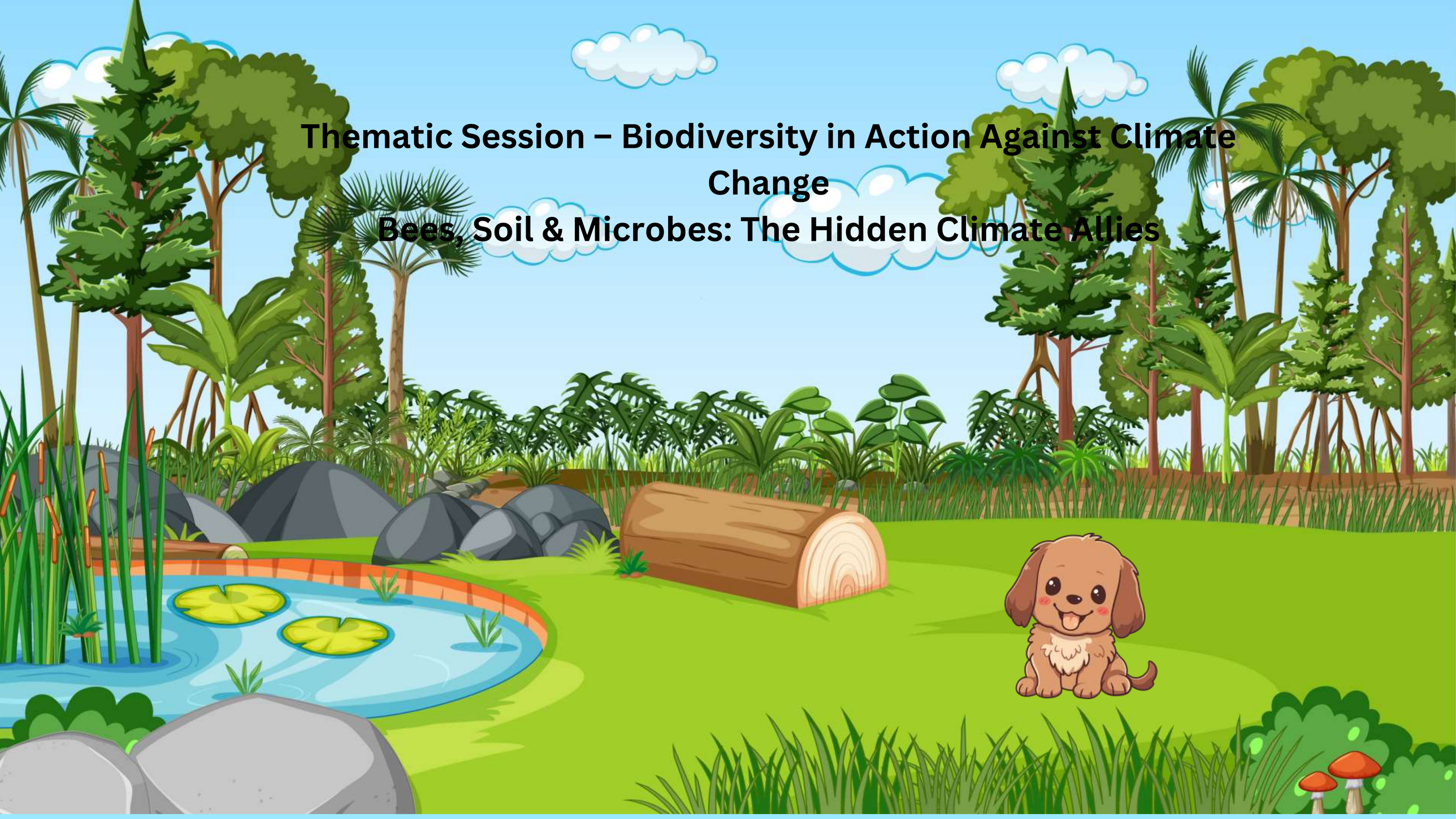
Youth Participation Is the Key to Sustainability

Every step young people take for nature contributes to building a more just, greener, and more resilient world.

Remember: A sustainable future is in the hands of youth.

Thematic Session – Biodiversity in Action Against Climate Change

Bees, Soil & Microbes: The Hidden Climate Allies

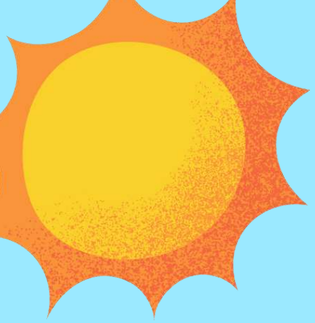


Hidden Climate Allies: Bees, Soil & Microbes

Often overlooked, pollinators, soil organisms, and microbes are essential players in:

- Maintaining carbon cycles
- Preserving soil fertility
- Enhancing ecosystem resilience against climate stress

Bees' Ecological Role & Climate Link









Around 75% of flowering plants rely on pollination by bees (IPBES, 2016).
These plants help sequester carbon from the atmosphere through photosynthesis.
Declining bee populations → Less plant diversity → Reduced carbon storage
Monoculture farming and pesticide use threaten bee habitats.



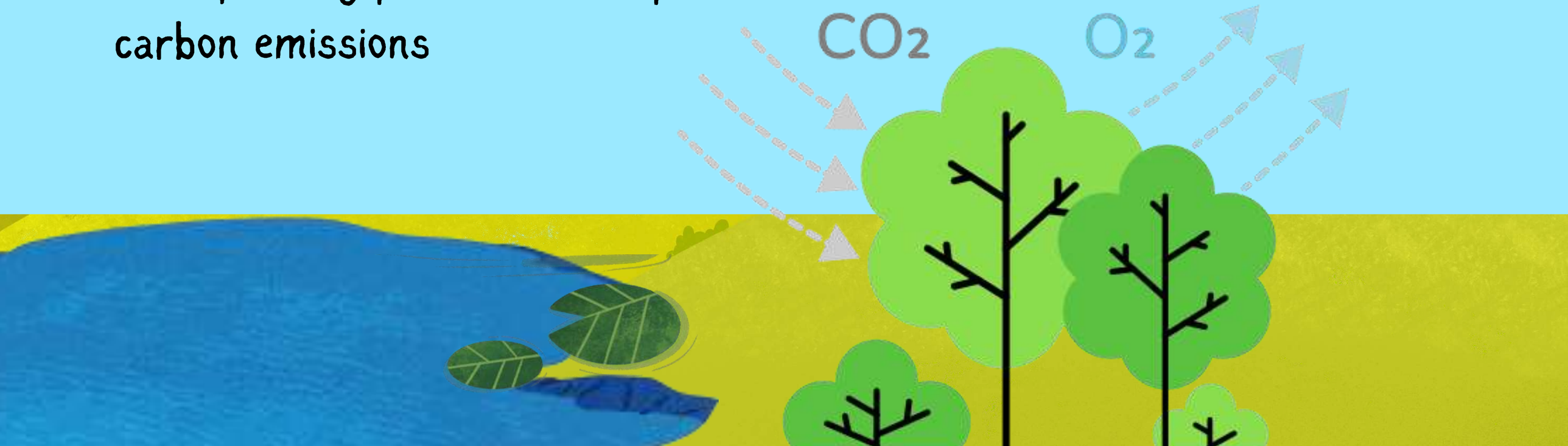
Soil Biodiversity – A Living System for Climate

- A teaspoon of soil can contain over a billion microorganisms (FAO, 2020).
- Earthworms, arthropods, fungi, and bacteria break down organic matter, enabling carbon storage.
- Healthy soils = More organic carbon = Lower atmospheric CO_2 levels



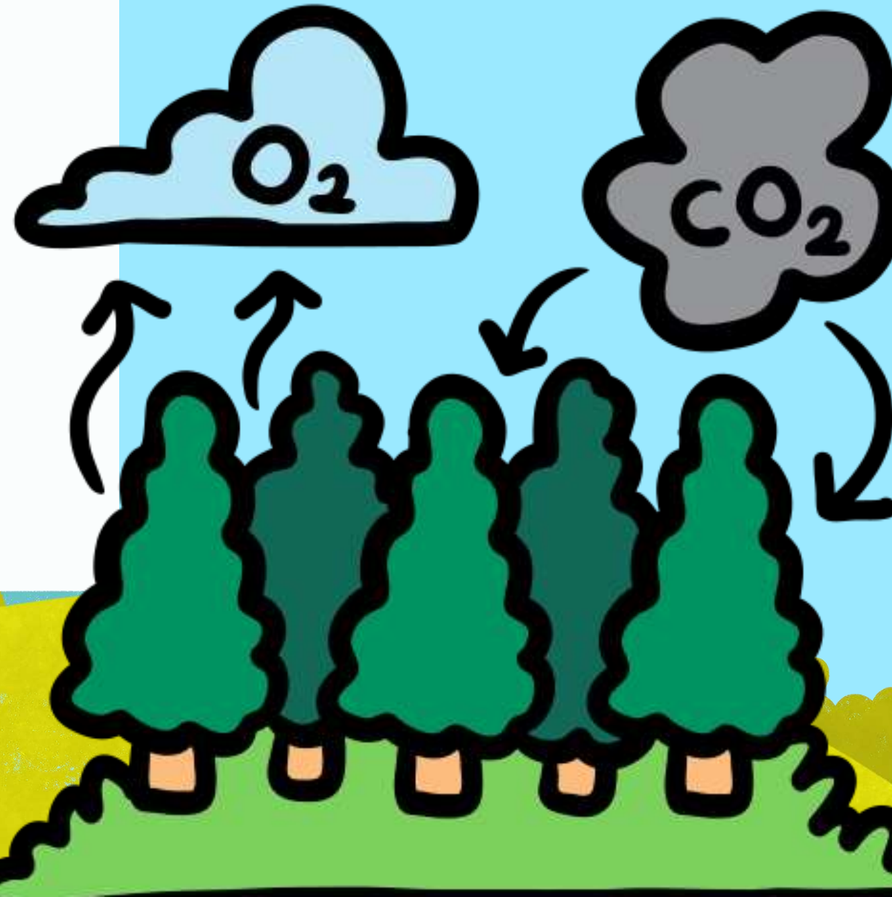
Microbiome and the Carbon Cycle

- Microbial metabolism helps store carbon in the soil long-term
- Mycorrhizal fungi form symbiotic relationships with roots, optimizing carbon transfer
- Poor farming practices disrupt microbial balance and increase carbon emissions



Scientific Findings and EU Projects

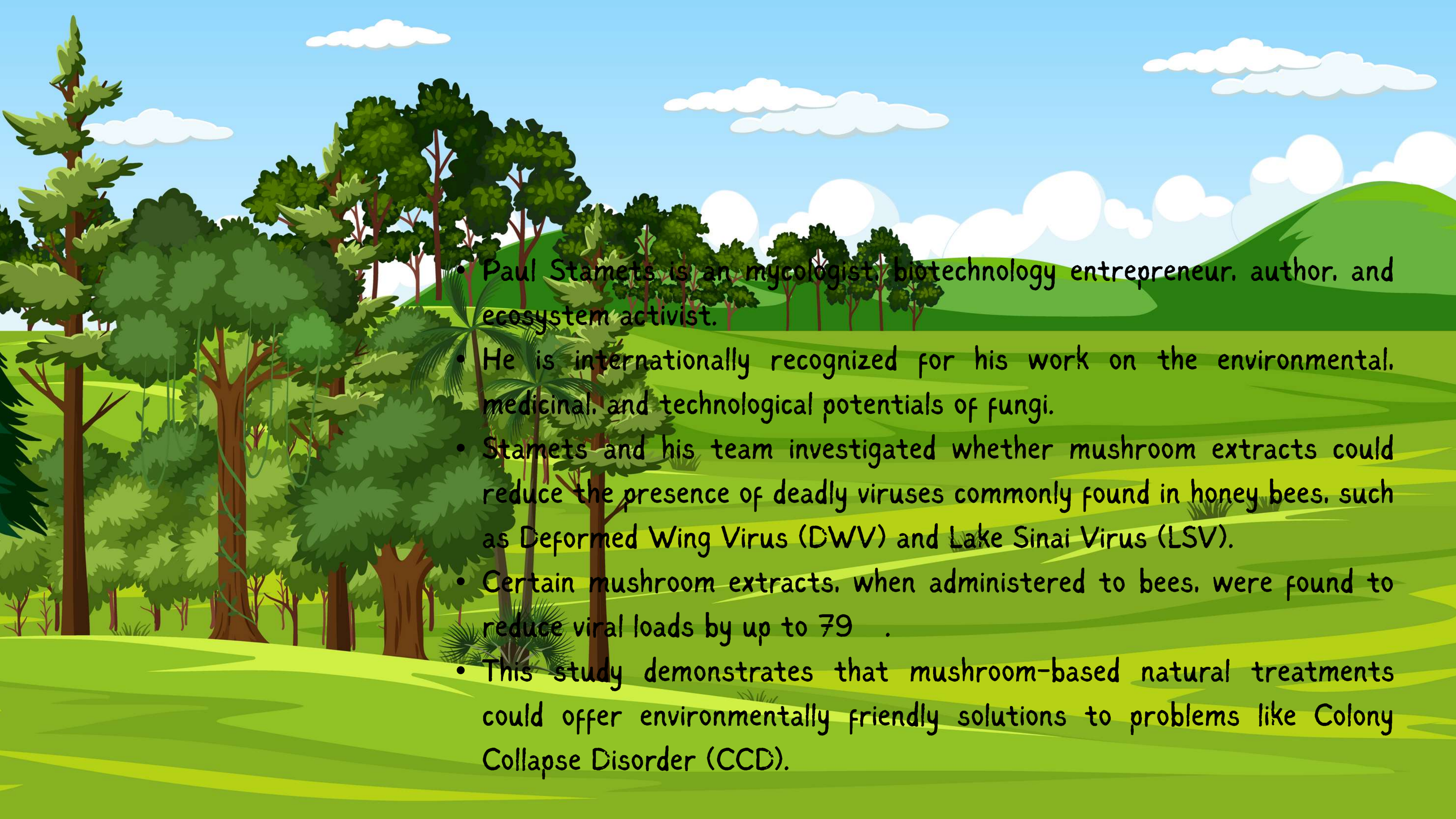
- Soil BON (2022): Mapping soil biodiversity across Europe
- HORIZON ‘BeeConnected’ (2023): Studying bee population dynamics and climate stress
- CLIMASOIL (2024): Testing microbial fertilizers that boost soil carbon storage



Policy & Agricultural Recommendations

- Subsidies to reduce pesticide use
- Support for organic and regenerative farming
- Creation of bee corridors and flowering habitats
- Expansion of soil health monitoring systems





- Paul Stamets is an mycologist, biotechnology entrepreneur, author, and ecosystem activist.
- He is internationally recognized for his work on the environmental, medicinal, and technological potentials of fungi.
- Stamets and his team investigated whether mushroom extracts could reduce the presence of deadly viruses commonly found in honey bees, such as Deformed Wing Virus (DWV) and Lake Sinai Virus (LSV).
- Certain mushroom extracts, when administered to bees, were found to reduce viral loads by up to 79 .
- This study demonstrates that mushroom-based natural treatments could offer environmentally friendly solutions to problems like Colony Collapse Disorder (CCD).


Thematic Session – Biodiversity in Action Against Climate Change
Nature-Based Solutions: Wetlands, Urban Spaces & More

What Are Nature-Based Solutions (NbS)?

- Nature-based Solutions (NbS) are sustainable, multifunctional strategies that use natural ecosystem processes to address environmental and societal challenges.
- They mitigate climate risks while providing economic, ecological, and social co-benefits.
- Examples: Wetland restoration, green roofs, urban forests, floodplain reconnection

Wetlands – Nature’s Sponges

- Wetlands absorb excess rainwater and reduce flood risks.
- They store carbon and serve as vital breeding grounds for biodiversity.
- LIFE Wetlands4Climate (Spain): 230 ha of restored wetlands now sequester 3.000 tons of CO_2 annually.

Nature in Urban Spaces

- Urban green infrastructure (green roofs, rain gardens) mitigates heatwaves.
- Urban forests improve air quality, reduce noise, and enhance public health.
- GreenUrbs Project (Germany): In Munich, a 1,500 m^2 green-roofed building saw indoor temperatures drop by 17 .

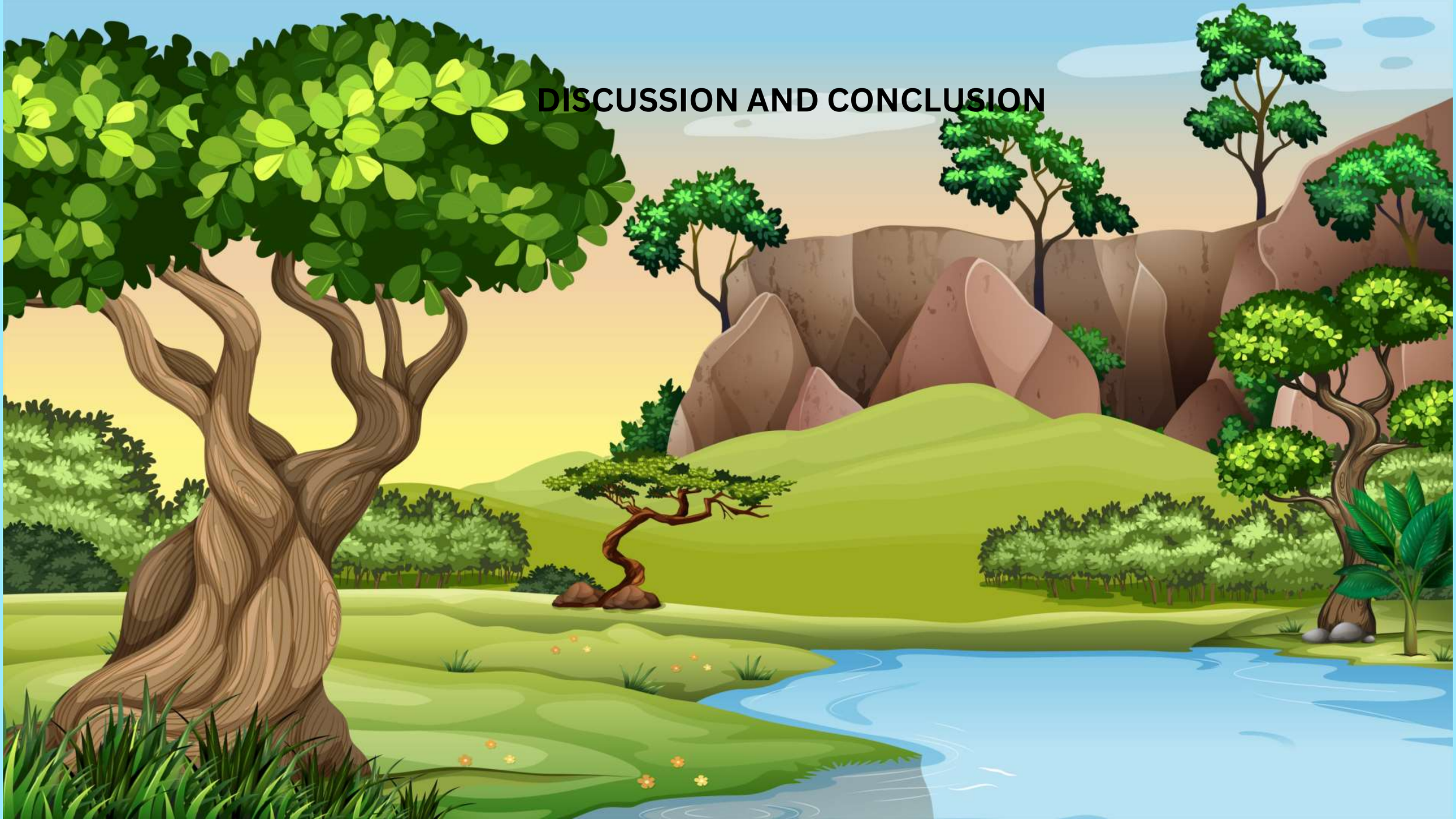

Nature-based Solutions:
Slow down climate change
Reduce flood and drought impacts
Improve urban liveability
Preserve biodiversity
Support ecotourism and green jobs

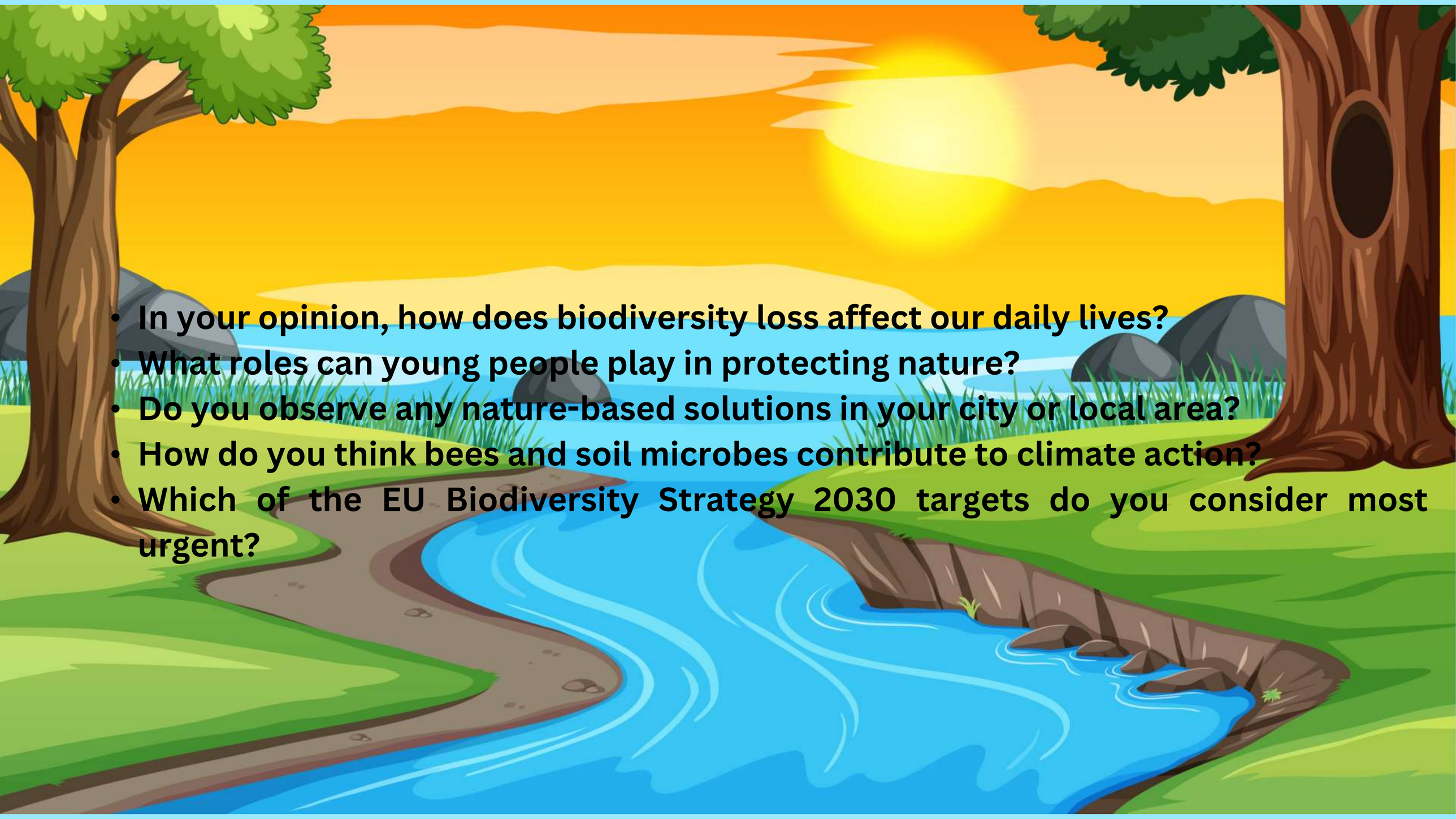


Successful Examples from Europe

- URBAN GreenUP (Italy, Spain, Turkey): Tools for planning and implementing urban ecosystem services
- LIFE COOLHEAT (France): Reduced urban heat through green corridors
- Connecting Nature (Ireland): Developed governance models for NbS in cities

DISCUSSION AND CONCLUSION




• In your opinion, how does biodiversity loss affect our daily lives?
• What roles can young people play in protecting nature?
• Do you observe any nature-based solutions in your city or local area?
• How do you think bees and soil microbes contribute to climate action?
• Which of the EU Biodiversity Strategy 2030 targets do you consider most urgent?


"Protecting biodiversity is critical to maintaining healthy ecosystems and ensuring sustainable development.
Let's work together to preserve the rich biodiversity of our planet."

Save the World

Today, we did more than exchange knowledge—we shared our responsibility to nature, the power of youth, and the hope for a common future.

Each of you is part of a greener and more resilient Europe.

Nature is our partner, and protecting it is our shared duty.









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THANK
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