Glossary of Nature Conservation

> The terms of the glossary were sourced from the MOOC Conservation

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A

Adaptation

Simple Defintion: Adaptation means finding ways to adjust and cope with the changes happening in our planet's climate. It's about helping nature, animals, and people continue to live and thrive even as the world gets hotter, wetter, or drier. The goal is to stay strong and recover quickly when the climate changes.

Planet-Centered Example: The farms in Kandukurlapalli, Andhra Pradesh, are affected by the growing seasons becoming drier and hotter. The farmers are growing other crops that may fare better with reduced rainfall –plants like red gram, castor and cow pea, so that the land can adapt.

Agroecology

Simple Defintion: Agroecology is a way of farming that works with nature, not against it. It looks at how plants, animals, people, and the environment all depend on each other. The goal is to grow food in a way that keeps the land healthy, protects biodiversity, and uses the natural strengths of ecosystems instead of chemicals or heavy machinery.

Planet-Centered Example: Forests like the Kanha National Park, fallen leaves become nutrients for the soil, insects help pollinate plants, and birds control pests — everything supports everything else. Agroecology in Andhra Pradesh, tries to copy this natural balance on farms, turning them into small, living ecosystems instead of factories for food.

Anthropocene

Simple Defintion: The Anthropocene is the name scientists give to the current period in Earth's history, the time when human activity has become powerful enough to change the whole planet. It began around the Industrial Revolution, when factories, machines, and the mass use of fossil fuels started to reshape the air, land, oceans, and climate.

Planet-Centered Example: Because of human actions, the climate is warming, glaciers are melting, and oceans are becoming more acidic. Across India, animals are moving to new areas, and some ecosystems are disappearing. We have built huge cities, changed rivers with dams, mined

deep into the ground, and covered large areas with roads and farms. These changes leave marks that will be visible in Earth’s rocks and soil for millions of years, which is a clear sign of the Anthropocene.

B

Biodegradable

Simple Definition: Biodegradable means something that can be broken down naturally by tiny living things like bacteria and fungi. When this happens, the material turns into simple, harmless parts — like water, carbon dioxide, and natural matter — that the Earth can safely reuse.

Planet-Centered Example: When a leaf falls from a tree, it slowly breaks down into the soil with the help of insects, worms, and microorganisms. The nutrients from the leaf then feed new plants. Nothing is wasted, and the cycle of life continues.

In many parts of Tamil Nadu and Kerala, especially during festivals or traditional meals, people eat food served on banana leaves instead of plastic or paper plates. Banana leaves are natural and break down easily in the soil after use. Unlike plastic, they don’t pollute the environment. After being used, they can be composted or even fed to animals. In contrast, a plastic bag can stay in nature for hundreds of years, polluting land and water.

Biodiversity

Simple Definition: Biodiversity means the variety of all living things on Earth, from the tiniest bacteria to the largest whales, and how they all connect and depend on one another. It includes the differences within a single species, between different species, and across the many ecosystems they live in, like forests, oceans, and deserts.

Planet-Centered Example: In a tropical rainforest in Assam, thousands of kinds of trees grow side by side. Each tree provides food or shelter for insects, birds, and animals, which in turn spread seeds and keep the forest alive. This web of life, full of variety and connection, is biodiversity in action.

Biodiversity Erosion

Simple Defintion: Biodiversity erosion means the loss of life's variety on Earth — when species disappear, and even the remaining ones lose their natural strength and differences. This happens when ecosystems are damaged or changed too quickly for life to adapt.

Planet-Centered Example: When a rainforest is cut down in Meghalaya, many plants and animals lose their homes. Some species disappear completely, while others survive in small, isolated groups. With fewer individuals, there's less genetic diversity, which makes it harder for the species to survive disease or climate change.

In Punjab, 98% of its land is used for wheat, rice, cotton, maize and sugarcane. The lack of diversity has undermined soil health and resulted in an increased use of fertilisers and pesticides, data suggests. The soil becomes poorer, and pests or diseases can spread easily.

Biological or Ecological Corridor

Simple Defintion: A biological (or ecological) corridor is a natural pathway, a stretch of land or water that connects separated habitats, like islands of forest or lakes. These corridors help animals move freely, plants spread their seeds, and ecosystems stay healthy and connected. They act like bridges for life, keeping nature's network linked together.

Planet-Centered Example: When forests in India are divided by roads or farms, animals like tigers or elephants may get trapped in smaller areas. A corridor, such as a strip of forest between two reserves, lets them travel safely, find food, and meet other groups. This keeps their populations strong and diverse.

Biomass

Simple Defintion: Biomass is the natural material made by living things, like plants, trees, crops, or even waste from animals and microorganisms. It stores the energy that plants capture from sunlight. When humans use this material to make energy, it becomes a renewable source that can replace fossil fuels like coal or oil.

Planet-Centered Example: In Bandipur National Park in Karnataka, when leaves or branches fall and decompose, microorganisms break them down, releasing stored energy and nutrients back into the soil.

Crop waste or wood can be turned into biogas or biofuels for cooking, heating, or generating electricity. The carbon released during combustion is roughly equivalent to the carbon dioxide that the plants absorbed from the atmosphere as they grew. In contrast, burning fossil fuels like coal or oil releases carbon that has been stored underground for millions of years.

Biome

Simple Definition: A biome is a large area on Earth with a certain climate, soil, plants, and animals.

Planet-Centered Example: The Thar Desert in parts of Rajasthan contains Kair thickets, deer, camels, and an arid climate.

Biotope

Simple Definition: A biotope is a small area in nature with the same type of environment, where certain plants and animals live together.

Planet-Centered Example: A pond is a freshwater biotope where frogs, insects, and water plants live.

C

Carbon Credits

Simple Definition: Carbon credits are permits that let companies release a limited amount of carbon dioxide or other greenhouse gases. If a company pollutes less, it can sell its unused credits to another company that needs more, creating a market system that encourages everyone to cut emissions.

Planet-Centered Example: Cosmos is an Indian company that helps reduce carbon emissions by working with different industries like renewable energy, farming, and manufacturing. These projects generate carbon credits, which are like proof of reducing pollution.

Carbon Neutrality (also called Net Zero)

Simple Definition: Carbon neutrality means balancing the amount of greenhouse gases (like CO_2) we release with the amount we remove from the air — so the net result is zero emissions. This can be done by: Reducing emissions (using clean energy, driving electric cars), or offsetting emissions (planting trees, using carbon capture technology).

Planet-Centered Example: A company that still uses trucks running on fossil fuels might plant large forests or invest in clean energy projects to offset the carbon it produces. In the end, the goal is to stop adding extra CO_2 to the atmosphere and help slow global warming.

Circular Economy

Simple Definition: A circular economy is a way of using resources so waste is minimized. Instead of throwing things away, we reuse, repair, recycle, and keep materials in use for as long as possible. Linear economy: Take → Make → Use → Throw away Circular economy: Make → Use → Reuse or Recycle → Make again

Planet-Centered Example: When cars reach the end of their life, the Mahindra group's car recycling program takes old vehicles apart and uses the materials in new cars.

Climate Change

Simple Definition: Climate change means long-term changes in Earth's weather patterns, mainly caused by human activities like burning fossil fuels, which release greenhouse gases into the atmosphere. This leads to higher global temperatures, melting ice and rising sea levels, stronger storms, longer droughts, and more heatwaves as well as changes in rainfall and seasons.

Planet-Centered Example: Climate change is impacting India's natural environment, economy, and society with increased frequency and intensity. Heatwaves, floods, monsoons, and declining groundwater reserves are some of the extreme challenges that India is facing today.

Commensalism

Simple Definition: Commensalism is a relationship between two living things where one benefits, and the other is not harmed or helped. The species that benefits is called the commensal, and the other is called the host.

Planet-Centered Example: When birds build nests in trees, the birds get a safe place to live, but the tree is not hurt or helped.

Common Goods

Simple Definition: Common goods are natural resources that everyone can use, but if too many people use them, there might not be enough left for others. Common goods are shared by all but limited in supply. We must manage common goods carefully to protect them for future generations.

Planet-Centered Example: Clean air is a common good. India's capital Delhi woke up to a toxic haze during the Hindu festival of Diwali in late October 2025, as air quality worsened despite a court directive to use less-polluting crackers, due to improper enforcement.

Compensation (for Nature)

Simple Definition: Compensation means taking actions to make up for damage to nature (like animals, plants, or ecosystems) caused by building roads, cities, or other projects, after trying to avoid and reduce the damage first. We need to keep biodiversity balanced, so the harm done to nature is repaired or replaced somewhere else.

Planet-Centered Example: If a company cuts down part of a forest to build a highway, it might plant a new forest in another area to compensate for the loss of trees and animal habitats.

Conservation Genetics

Simple Definition: Conservation genetics is the use of genetic science to help protect endangered species and keep their genetic diversity strong, so they can survive and adapt in the wild. Healthy genes help animal and plant populations stay strong and resist disease or climate change. If a species loses too much genetic diversity, it becomes weaker and may go extinct.

Planet-Centered Example: Scientists studying the cheetah's DNA found low genetic diversity, which makes the species more vulnerable. With this knowledge, they work to protect cheetahs, manage breeding, and reintroduce individuals into the wild to strengthen the population.

Consumption

Simple Definition: Consumption means using goods and services — like food, clothes, energy, or water — by people, families, or businesses.

Planet-Centered Example: When we use electricity, buy new clothes, or eat packaged food, we are consuming resources. Using too much leads to more waste, more pollution, and more pressure on the planet’s natural resources — so it's important to consume responsibly.

COP (Conference of the Parties)

Simple Definition: COP is a big meeting where countries that have signed an international agreement come together to discuss and make decisions about how to solve global problems, like climate change.

Planet-Centered Example: At COP meetings under the UNFCCC (United Nations Framework Convention on Climate Change), world leaders meet to plan actions to reduce greenhouse gas emissions and protect the planet. At COP21, countries agreed to the Paris Agreement to help limit global warming.

D

Deforestation

Simple Definition: Deforestation is when large areas of forest are cut down or destroyed, often to make space for things like farms, cities, roads, or to collect wood. Causes include cutting down trees (logging), clearing land for farming, forest fires or climate change and growing populations.

Planet-Centered Example: In the Amazon Rainforest, trees are being cleared to grow soy or raise cattle. This not only destroys wildlife habitats but also reduces the forest’s ability to absorb carbon dioxide, making climate change worse.

Desertification

Simple Definition: Desertification is when land becomes drier, poorer, and more like a desert, making it hard for plants, animals, and people to survive.

Main Causes are deforestation (cutting down trees), overgrazing by too many animals, overuse of land for farming as well as climate change and drought.

Planet-Centered Example: In parts of Africa's Sahel region, land is turning into desert because of overfarming and less rainfall, leading to food shortages and forcing people to leave their homes.

E

Earth Overshoot Day

Simple Definition: Earth Overshoot Day is the date each year when humans have used up more natural resources than the Earth can renew in that same year.

After this day, we are using too much, cutting too many trees, catching too many fish, and producing more pollution than the Earth can handle for the rest of the year.

Planet-Centered Example: If Earth Overshoot Day falls in July, it means that by mid-year, we've already used up a full year's worth of nature's resources, like water, clean air, and soil, and are now borrowing from the future, putting more pressure on the planet.

Eco-responsibility

Simple Definition: Eco-responsibility means being aware of how our actions affect the environment and choosing to act in ways that protect nature. We could use fewer natural resources, create less waste and pollution, live in a more sustainable, thoughtful way, and hold people, companies, and governments accountable for their environmental impact.

Planet-Centered Example: An eco-responsible person might use a reusable water bottle, sort their recycling, choose local food, or support companies that reduce pollution — all to help protect the Earth for future generations.

Eco-citizens

Simple Definition: An eco-citizen is someone who cares about the environment and takes everyday actions to help protect the planet and use resources wisely. Eco-citizens are aware of environmental problems, actively trying to reduce harm to nature, and are involved in their community to promote sustainability.

Planet-Centered Example: An eco-citizen might bike instead of drive, plant trees, save water, or join a local clean-up, which are all small actions that help take care of the Earth for future generations.

Ecological Footprint

Simple Definition: An ecological footprint measures how much nature we use compared to how much nature the Earth can provide. It tells us how much land, water, and resources we need to support our lifestyle (food, energy, transport, waste) — and whether we are using more than the planet can handle.

Planet-Centered Example: If everyone lived like the average person in a high-consuming country, we would need more than one Earth to keep up. A large ecological footprint means we are putting too much pressure on the planet, using resources faster than nature can replace them.

Ecological Transition

Simple Definition: Ecological transition is the process of changing how we live, produce, and consume to be more sustainable and respectful of the environment.

The goals are to reduce our ecological footprint, fight climate change, protect biodiversity, promote social fairness and well-being for everyone, now and in the future.

Planet-Centered Example: A city switching from coal energy to solar and wind power, improving public transport, and supporting local food markets is undergoing an ecological transition to create a greener and fairer future.

Ecology

Simple Definition: Ecology is the science that studies how living things (like animals, plants, and microbes) interact with each other and with their environment (like air, water, and soil).

Scientific ecology helps us understand how ecosystems work. Political ecology is about making laws and decisions that protect nature and include the environment in how we run societies.

Planet-Centered Example: Ecologists might study a forest to see how trees, birds, insects, and soil all work together. At the same time, political ecologists push for forest protection laws to prevent deforestation and climate damage.

Ecological Monitoring

Simple Definition: Ecological monitoring is the process of regularly observing and measuring nature to see how ecosystems are changing over time. It looks at biodiversity (plants and animals), water and air quality, natural habitats, and populations of key species. It helps scientists and governments understand the effects of pollution, climate change, and human activities, and make better decisions to protect nature.

Planet-Centered Example: Scientists may monitor coral reefs by checking water temperature and coral health every year. If the corals are dying due to warming seas, the data helps guide climate action and marine protection efforts.

Ecosystem

Simple Definition: An ecosystem is a group of living things (like animals, plants, and micro-organisms) that live together in a specific place and interact with each other and their natural environment (like air, water, and soil).

Planet-Centered Example: A tropical rainforest is an ecosystem with tall trees, vines, insects, birds, monkeys, and fungi — all depending on each other and the environment to survive.

Ecosystem Services

Simple Definition: Ecosystem services are the benefits that nature gives us, which help humans live and survive — like clean air, food, water, and protection from natural disasters.

Planet-Centered Example: A wetland provides ecosystem services by cleaning water, protecting against floods, and giving a home to fish and birds — showing how much we depend on healthy nature.

Ecotourism

Simple Definition: Ecotourism is a type of responsible travel that aims to protect nature and local cultures while supporting local communities and reducing environmental harm.

Its key goals are to protect ecosystems and biodiversity, help local economies, respect local cultures, and promote sustainable travel and environmental education.

Planet-Centered Example: Visiting a national park in Costa Rica with a local guide, staying in eco-friendly lodges, and learning about rainforest conservation is an example of ecotourism that benefits both nature and people.

Endemic Species

Simple Definition: An endemic species is a plant or animal that lives in one specific place and nowhere else in the world.

These species often evolve in isolated environments and are specially adapted to local conditions, which also makes them more vulnerable to extinction if their habitat is damaged.

Planet-Centered Example: The lemur is endemic to Madagascar, meaning it naturally lives only on that island. If Madagascar’s forests are destroyed, lemurs have nowhere else to go.

Environmental Assessment

Simple Definition: An environmental assessment is a process used to check how a project or plan might affect nature — including ecosystems, animals, plants, and people — before it begins.

Its purpose is to find out the positive and negative impacts, help make better, more sustainable decisions, and avoid or reduce harm to the environment

Planet-Centered Example: Before building a dam, an environmental assessment would study how it might affect rivers, fish, forests, and nearby communities, helping decision-makers protect nature and people at the same time.

Environment

Simple Definition: The environment is everything around us — including air, water, soil, plants, animals, people, and even buildings and other things humans have made.

It includes natural elements such as forests, rivers, mountains, and animals as well as human-made elements such as cities, roads, and farms.

Planet-Centered Example: A lake surrounded by trees and a nearby village is part of the environment. Keeping the water clean and the forest healthy helps both nature and people live well.

Ex Situ Conservation

Simple Definition: Ex situ conservation means protecting a species outside its natural habitat, usually in a controlled environment like a zoo, seed bank, or botanical garden.

Its purpose is for species that are endangered or at risk in the wild, to study, breed, and protect them, and to save genetic diversity and support future reintroduction.

Planet-Centered Example: The Arabian oryx became extinct in the wild but was bred in zoos and wildlife reserves. Thanks to ex situ conservation, it was later reintroduced into its natural desert habitat.

Extinction

Simple Definition: Extinction is when a species disappears completely from Earth.

The causes of extinction include: habitat loss (like deforestation), climate change, over-hunting or poaching, pollution, and often a mix of human activities

Planet-Centered Example: The dodo, a flightless bird from Mauritius, went extinct in the 1600s due to overhunting and habitat destruction. Today, many species like the orangutan face the same risk because of rainforest loss and climate change.

F

Fair Trade

Simple Definition: Fair trade is a way of doing business that makes sure farmers and workers are treated fairly and paid fairly, especially in developing countries.

It stands for respect and transparency, fair prices with decent working conditions, care for the environment, and support for small producers.

Planet-Centered Example: When you buy fair trade coffee, it means the farmers who grew the beans were paid fairly, worked in safe conditions, and followed eco-friendly farming practices — helping both people and the planet.

Fossil Fuels

Simple Definition: Fossil fuels are energy sources like coal, oil, and natural gas that were formed from plants and animals buried underground millions of years ago.

They are non-renewable (they take millions of years to form), are burned for electricity, heating, and transport, and are a major cause of air pollution and climate change.

Planet-Centered Example: When we burn oil to fuel cars or coal to produce electricity, it releases carbon dioxide (CO_2) — a greenhouse gas that heats the planet and contributes to global warming.

Fragmentation (Environmental Fragmentation)

Simple Definition: Fragmentation is when a natural habitat (like a forest or wetland) is broken into smaller, disconnected pieces, often because of human activities like building roads, cities, or farms.

It becomes harder for animals to move, find food, or mate, plants and animals may become isolated or disappear, and it reduces biodiversity and weakens ecosystems.

Planet-Centered Example: A highway built through a forest can split animal populations in half, making it hard for species like bears or frogs to move freely, which can lead to decline or extinction over time.

G

Greenhouse Effect

Simple Definition: The greenhouse effect is a natural process where greenhouse gases in the Earth's atmosphere (like carbon dioxide and methane) trap heat from the sun, keeping the planet warm enough for life. It's essential for life; without it, Earth would be too cold.

Planet-Centered Example: But too many greenhouse gases from human activities (like burning fossil fuels) trap too much heat, causing global warming.

Greenhouse Gas (GHG)

Simple Definition: Greenhouse gases are gases in the atmosphere that trap heat from the sun, helping to warm the Earth. When there are too many, they cause global warming.

The main Greenhouse gases are carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), and water vapor.

Planet-Centered Example: When we burn fossil fuels like coal or oil to make electricity or drive cars, we release CO_2, a major greenhouse gas. This traps extra heat, causing climate change and harming ecosystems around the world.

Greenwashing

Simple Definition: Greenwashing is when a company or organisation pretends to be environmentally friendly, but in reality, it continues to harm the environment.

Planet-Centered Example: Using green words or images in ads without real action, hiding polluting practices behind a “green” image, or confusing consumers into thinking they’re supporting eco-responsibility.

H

Hunting

Simple Definition: Hunting is the act of chasing and killing wild animals, usually for food, sport, trade, or controlling animal populations. It can also have cultural or traditional importance in some communities.

It happens in forests, mountains, grasslands, wetlands, and even ocean areas.

Planet-Centered Example: In some regions, regulated hunting helps manage deer populations so they don’t overgraze forests. But uncontrolled or illegal hunting, like poaching elephants for ivory, harms biodiversity and pushes species toward extinction.

I

In Situ Conservation

Simple Definition: In situ conservation means protecting animals, plants, or ecosystems right in their natural habitat, where they live and evolve naturally.

It helps species adapt to changes in their environment, maintains natural ecosystems and ecological processes, and supports biodiversity directly in the wild.

Planet-Centered Example: Protecting tigers in Indian wildlife reserves is an example of in situ conservation — they stay in their natural forests, and efforts focus on protecting their habitat and reducing threats like poaching.

Indigenous Peoples

Simple Definition: Indigenous peoples are the original inhabitants of a region. They have their own cultures, languages, and traditions, and a deep connection to their ancestral lands.

They often live in close harmony with nature, work to protect their land, rights, and way of life, and many face marginalisation and fight for recognition and justice.

Planet-Centered Example: The Yanomami people in the Amazon rainforest live in a way that respects and protects the forest. Their knowledge and presence help preserve biodiversity, but they also face threats from illegal mining and deforestation.

Integrated Management (of Natural Resources)

Simple Definition: Integrated management means managing natural resources (like water, forests, or land) in a way that balances the needs of people, nature, and the economy, by involving everyone affected and considering all impacts.

It brings together different stakeholders (farmers, businesses, communities, governments), and helps make better, long-term decisions that protect nature and benefit people.

Planet-Centered Example: Managing a river basin using integrated management means considering farmers’ water use, fish habitats, local communities' needs, and industry impacts, all to protect the river while allowing sustainable use.

Invasive Species

Simple Definition: An invasive species is a plant, animal, or microorganism that is brought into a new environment (on purpose or by accident) and causes harm to nature, the economy, or human health.

It competes with native species for food, water, and space, it may hunt, spread disease, or damage crops and can disrupt ecosystems and lead to extinctions.

Planet-Centered Example: The cane toad was introduced to Australia to control pests, but it became an invasive species, poisoning native animals and upsetting the natural balance of local ecosystems.

IPBES

(Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services)

Simple Definition: IPBES is a global organisation that brings together scientists and policymakers to study biodiversity, understand why it's being lost, and help countries make better decisions to protect nature.

It collects and reviews scientific knowledge, suggests solutions and policies to protect ecosystems, and supports sustainable use of nature for the well-being of people and the planet.

Planet-Centered Example: In 2019, IPBES released a major report warning that 1 million species are at risk of extinction due to human activities. This helped governments worldwide focus more on biodiversity conservation.

IPCC

(Intergovernmental Panel on Climate Change)

Simple Definition: The IPCC is a global scientific body that studies climate change. It helps the world understand how the climate is changing, what the impacts might be, and what we can do to reduce or adapt to these changes.

It reviews thousands of climate studies, publishes major reports on global warming, and guides governments and international climate policies.

Planet-Centered Example: The IPCC's 2021 report warned that the world is warming faster than expected due to human activity. It helped shape agreements at COP26, where countries pledged to cut emissions and limit global temperature.

K

Keystone Species

Simple Definition: A keystone species is an animal or plant that has a huge impact on its ecosystem, even if it's not the most abundant. If it disappears, the whole ecosystem can fall apart.

Planet-Centered Example: The sea otter is a keystone species in coastal areas. It eats sea urchins, which would otherwise destroy kelp forests. Without sea otters, the kelp ecosystem collapses, affecting many other species.

L

Land Use Planning

Simple Definition: Land use planning is the process of deciding how to use land wisely. It means balancing the needs of people, nature, and the economy to create healthy, sustainable, and well-organised spaces.

It helps prevent overcrowding or environmental damage, protects natural areas and farmland, and improves the quality of life for communities.

Planet-Centered Example: A city might use land use planning to build new homes, but also protect nearby wetlands, plant green spaces, and ensure public transport is available — creating a sustainable and livable environment.

Local Community

Simple Definition: A local community is a group of people living or working in the same area who share common interests and interact with each other.

They experience the effects of environmental changes firsthand, and often take part in protecting nature and managing local resources.

Planet-Centered Example: In the Amazon rainforest, indigenous local communities work to protect the forest by managing land sustainably and preventing illegal logging, helping to preserve biodiversity and combat climate change.

M

Management (in Nature Conservation)

Simple Definition: Management is the process of putting conservation plans into action, by organising people, resources, and activities to protect nature effectively.

Planet-Centered Example: In a national park, management may include hiring rangers, maintaining trails, preventing poaching, and monitoring wildlife populations — all to ensure the area stays healthy and protected for the long term.

Migration

Simple Definition: Migration is when animals move from one place to another, often during certain seasons, to find better food, climate, or breeding conditions. Certain birds, whales, butterflies, fish, and even some insects and microorganisms migrate.

Planet-Centered Example: Every year, monarch butterflies travel thousands of kilometers from Canada to Mexico to escape the cold and find the right conditions to survive and reproduce. This journey depends on healthy habitats along their route, which are threatened by climate change and deforestation.

Mitigation (or Attenuation)

Simple Definition: Mitigation means taking action to reduce greenhouse gas emissions or increase carbon storage (like in forests), to slow down climate change and its harmful effects.

It works by cutting emissions from cars, factories, and power plants, protecting or restoring forests and oceans that absorb carbon, and promoting clean energy like wind and solar energy.

Planet-Centered Example: Planting mangrove forests along coastlines is a mitigation strategy. Mangroves absorb large amounts of carbon dioxide while also protecting communities from sea level rise and storms caused by climate change.

Mutualism

Simple Definition: Mutualism is a relationship between two different species where both benefit from helping each other, like a natural teamwork. They share food or nutrients, protection, shelter, and enable reproduction or survival.

Planet-Centered Example: Bees and flowers have a mutualistic relationship. Bees get nectar (food) from flowers, and flowers get pollinated by bees, helping them reproduce. Without this relationship, many plants wouldn’t grow, and food chains would be disrupted.

N

Native (or Indigenous) Species

Simple Definition: A native species is a plant or animal that naturally lives in a certain area, having evolved there without human help.

They are well adapted to local conditions, are part of the natural balance of their ecosystem, and their presence supports biodiversity and ecosystem health.

Planet-Centered Example: The koala is a native species of Australia. It has adapted over time to live in eucalyptus forests and depends on eucalyptus leaves for food and habitat. If these forests are destroyed, the koala and many other native species are put at risk.

Natural Habitat

Simple Definition: A natural habitat is the place in nature where a plant or animal normally lives — where it finds everything it needs to grow, eat, and reproduce.

Planet-Centered Example: A coral reef is the natural habitat for many ocean species like clownfish and sea turtles. If the reef is damaged by pollution or climate change, these species lose their home and may not survive.

Natural Resources

Simple Definition: Natural resources are things found in nature that people use to live, grow food, produce energy, or make products, like water, sunlight, wood, animals, or minerals.

Renewable (can be replaced): sunlight, wind, forests, non-renewable (limited supply): oil, coal, metals.

Planet-Centered Example: Forests are a natural resource — they give us wood, clean our air, protect biodiversity, and store carbon. But if we cut down too many trees without replanting, we risk losing these benefits forever.

Nature

Simple Definition: Nature is everything that exists without human creation, like plants, animals, oceans, mountains, weather, and ecosystems. It is the living and non-living world that surrounds us.

Planet-Centered Example: The Amazon rainforest is a vast part of nature, full of trees, rivers, animals, and plants. It produces oxygen, stores carbon, and supports millions of species — including humans who depend on its health.

Nature Conservation

Simple Definition: Nature conservation means protecting plants, animals, and their natural habitats to keep ecosystems healthy and prevent damage to the environment.

It includes protecting endangered species, preserving forests, oceans, rivers, and other habitats, and restoring damaged ecosystems.

Planet-Centered Example: Creating protected areas like national parks helps conserve nature. For example, the Serengeti National Park in Tanzania protects wildlife like elephants and lions, while also keeping grassland ecosystems intact.

Nature Protection

Simple Definition: Nature protection means actively defending animals, plants, and their habitats, to make sure they survive and thrive.

How it's different from conservation: It often involves stronger, more direct actions, like creating protected zones, restoring damaged habitats, or enforcing laws against harming wildlife.

Planet-Centered Example: In Europe, old quarries and ponds are sometimes restored and protected as habitats for rare amphibians like the great crested newt, showing that even human-shaped areas can be important for nature protection.

O

Ocean Acidification

Simple Definition: Ocean acidification happens when oceans absorb too much carbon dioxide (CO_2) from the atmosphere, making the water more acidic.

It harms sea life like corals, shellfish, and plankton that need minerals to build their shells and skeletons, affects the whole marine food chain, and weakens ecosystems that millions of people rely on for food and income.

Planet-Centered Example: Coral reefs, like the Great Barrier Reef in Australia, are at risk from ocean acidification. As the water becomes more acidic, corals struggle to grow, which affects the thousands of species that live in and around the reef.

OECM (Other Effective Area-Based Conservation Measure)

Simple Definition: An OECM is an area that is not officially a protected area, but is managed in a way that helps nature, protecting biodiversity, ecosystems, and often also local culture and livelihoods.

Key points:

- Clearly defined area
- Helps conserve species and habitats
- May include working lands, sacred sites, or community-managed areas
- Values nature, culture, and local needs

Planet-Centered Example: A community-managed forest in India, where local people sustainably harvest wood and protect wildlife, can be recognized as an OECM — because it supports biodiversity even though it’s not a national park.

Overexploitation

Simple Definition: Overexploitation means using natural resources too much or too fast, so they cannot recover, leading to damage or loss.

What it affects:

- Forests (from too much logging)
- Fish (from overfishing)
- Water (from overuse)
- Even non-renewable resources like oil or minerals

Planet-Centered Example: The Atlantic cod population collapsed in the 1990s due to overfishing. Fishing continued faster than the fish could reproduce, leading to job loss, food shortage, and ecosystem imbalance.

P

Parasitism

Simple Definition: Parasitism is a relationship where one organism (the parasite) lives on or inside another (the host) and takes resources, causing harm to the host.

Planet-Centered Example: The tapeworm is a parasite that lives in the intestines of animals or humans. It absorbs nutrients from the host's food, which can lead to malnutrition and other health problems in the host.

Poaching

Simple Definition: Poaching is the illegal killing or capturing of wild animals or plants, usually for money, trade, or personal use, and it breaks conservation laws.

Why it's harmful:

- Leads to extinction of endangered species
- Violates wildlife protection laws
- Disrupts ecosystems and food chains

Planet-Centered Example: Elephants in Africa are often poached for their ivory tusks, which are sold illegally. This has caused a sharp decline in elephant populations and threatens the health of entire ecosystems they help maintain.

Pollinators

Simple Definition: Pollinators are animals (like bees, butterflies, birds, or bats) that help plants reproduce by moving pollen from one flower to another.

Why they matter:

- Help plants make seeds and fruits
- Support food production (like apples, tomatoes, almonds)
- Maintain biodiversity and healthy ecosystems

Planet-Centered Example: Honeybees pollinate about one-third of the food crops we eat. Without them, many fruits and vegetables would disappear or become scarce, harming both ecosystems and global food supply.

Pollution

Simple Definition: Pollution happens when harmful substances are released into the air, water, or soil, making the environment dirty or unsafe for people, animals, and plants.

Types of pollution:

- Air pollution (e.g. car exhaust, factory smoke)
- Water pollution (e.g. oil spills, plastic waste)
- Soil pollution (e.g. pesticides, toxic waste)

Planet-Centered Example: The Great Pacific Garbage Patch is a massive area in the ocean filled with plastic waste, which harms marine life like turtles and fish that eat or get trapped in the debris.

POPs (Persistent Organic Pollutants)

Simple Definition: POPs are toxic chemicals that stay in the environment for a very long time. They build up in the bodies of animals and humans and can cause serious health and environmental problems.

Planet-Centered Example: DDT, a pesticide once widely used to kill mosquitoes, is a POP. It built up in the food chain and harmed bird species like the bald eagle, whose eggs became too fragile to hatch properly. This led to a population crash and its later ban in many countries.

Precautionary Principle

Simple Definition: The precautionary principle means acting carefully and avoiding harm when we don't fully understand the risks to people or nature, even if the science is not yet 100% certain.

Why it matters:

- Helps prevent environmental damage before it happens
- Encourages responsible decisions in science, health, and nature
- Protects future generations from long-term harm

Planet-Centered Example: Before allowing the widespread use of a new pesticide, a government may delay approval if there's a chance it could harm bees or pollute water, even if the science is still being studied. This protects biodiversity while more research is done.

Predation

Simple Definition: Predation is when one animal, the predator, hunts, kills, and eats another animal, the prey, for food.

Why it matters:

- Keeps ecosystems balanced
- Controls population sizes
- Drives evolution and adaptation in species

Planet-Centered Example: In the African savannah, lions are predators that hunt animals like zebras or antelope. This helps keep prey populations healthy and prevents overgrazing of the land.

Protected Areas

Simple Definition: Protected areas are special places in nature, like forests, parks, or oceans, that are legally protected to help conserve wildlife, ecosystems, and sometimes cultural heritage.

Planet-Centered Example: The Galápagos Islands in Ecuador are a protected area where unique species like giant tortoises and marine iguanas are conserved. Human activities are limited to protect biodiversity.

R

Raising Awareness (Environment)

Simple Definition: Raising awareness means educating and informing people about environmental problems, so they understand the issues and feel motivated to take action to help the planet.

Planet-Centered Example: A school runs a campaign about plastic pollution, teaching students how single-use plastics harm the ocean and encouraging them to use reusable bottles and bags.

Recycling

Simple Definition: Recycling is taking used materials and turning them into new things instead of throwing them away.

Planet-Centered Example: When we recycle plastic bottles, they can be made into new items like clothes or furniture. This reduces pollution and saves natural resources, helping protect the Earth’s ecosystems.

Red List

Simple Definition: The Red List is a global list that shows how close different plant and animal species are to becoming extinct.

The Red List helps scientists, governments, and the public understand which species need urgent help, so we can protect biodiversity and keep ecosystems healthy.

Planet-Centered Example: The IUCN Red List shows that polar bears are at risk because climate change is melting the ice they live on. This alerts the world to take action to protect them and their habitat.

Regeneration

Simple Definition: Regeneration is nature’s way of healing itself after damage, like when forests grow back after a fire or animals return to an area.

Regeneration helps restore healthy ecosystems, bringing back plants, animals, and clean air and water—keeping the planet balanced and alive.

Planet-Centered Example: After overgrazing stopped in parts of Kenya, grasslands began to grow back on their own, attracting wildlife like zebras and elephants again.

Rehabilitation

Simple Definition: Rehabilitation is helping a damaged environment get better so it can support life and provide important natural benefits again—even if it doesn’t return exactly to how it was before.

Rehabilitation brings life back to damaged places, helping ecosystems provide clean water, fresh air, food, and protection from climate change.

Planet-Centered Example: In Indonesia, mangrove forests are being replanted in coastal areas that were cleared. These restored areas now protect shorelines, store carbon, and provide homes for fish and birds.

Reintroduction

Simple Definition: Reintroduction means bringing back animals or plants to places where they used to live but then disappeared.

Reintroduction helps bring back lost species, restore natural balance, and support healthy ecosystems for future generations.

Planet-Centered Example: Wolves were reintroduced to Yellowstone National Park in the USA. Their return helped restore balance in the ecosystem by controlling deer populations, which allowed forests and rivers to recover.

Renewable Resources

Simple Definition: Renewable resources are natural resources that can grow back or be replaced quickly, so we can keep using them without running out.

Renewable resources help us meet our needs today, like energy, food, and water, without destroying nature or stealing from future generations.

Planet-Centered Example: The sun gives us energy every day. Using solar power to make electricity is a way to use a renewable resource without polluting the planet.

Resilience

Simple Definition: Resilience is the ability of nature and communities to bounce back, stay strong, and keep working even after something bad happens—like storms, fires, or climate change.

Resilience helps ecosystems and people survive tough times and adapt to change—keeping life on Earth healthier and more stable.

Planet-Centered Example: After a coral reef is damaged by a storm, it can slowly grow back and support marine life again if the water stays clean and warm enough. That’s resilience in action.

Restoration

Simple Definition: Restoration means helping a damaged environment heal and return to a healthy, balanced state, like it was before, or close to it.

Restoration brings nature back to life, making ecosystems stronger, healthier, and more able to support people and wildlife now and in the future.

Planet-Centered Example: In Brazil’s Atlantic Forest, people are planting native trees to bring back lost forests. This helps wildlife return, improves air and water quality, and stores carbon from the atmosphere.

S

Species

Simple Definition: A species is a group of living things that are similar and can have fertile offspring together.

Each species plays a role in nature, like pollinating plants, cleaning the air, or keeping ecosystems balanced. Protecting species helps protect the whole planet.

Planet-Centered Example: African elephants are a species. They share traits like large ears and tusks, and they can reproduce with each other to keep their population going.

Sustainability

Simple Definition: Sustainability means using Earth's resources in a way that meets our needs today without harming the planet or taking away from future generations.

Sustainability protects nature, supports human life, and ensures that future generations will also have clean air, fresh water, and enough food and energy.

Planet-Centered Example: Farming practices that use less water, avoid chemicals, and protect soil health—like organic farming—help grow food today while keeping the land healthy for future farming.

Sustainable Development

Simple Definition: Sustainable development means building a better world by meeting our needs today, like food, jobs, and housing, without harming the planet or the ability of future generations to do the same.

Sustainable development balances caring for society, the environment, and the economy so that life can continue fairly and safely for everyone, now and in the future.

Planet-Centered Example: Creating eco-friendly public transport systems in cities reduces pollution, supports the economy, and helps people live healthier lives—now and in the future.

Sustainable Farming

Simple Definition: Sustainable farming is growing food in a way that’s good for the environment, protects people and animals, and helps farmers make a fair living.

Sustainable farming protects the land, water, and climate, so we can grow food now and for future generations without damaging the planet.

Planet-Centered Example: Using crop rotation and compost instead of chemical fertilizers helps keep soil healthy, reduces pollution, and produces healthy food, like many small farms in India and Africa.

Sustainable Transportation (Ecomobility)

Simple Definition: Sustainable transportation means using ways of travel—like walking, biking, or public transport—that are better for the planet, people, and the economy.

Sustainable transportation cuts down pollution, fights climate change, and makes cities cleaner, safer, and more livable for everyone.

Planet-Centered Example: In many European cities, people ride bicycles and use electric buses to get around, which helps reduce air pollution and traffic while keeping people healthy.

Symbiosis

Simple Definition: Symbiosis is a close relationship between two different species, where at least one of them benefits—and sometimes both do.

Symbiosis helps species survive, supports biodiversity, and keeps ecosystems balanced and healthy—showing how all life on Earth is connected.

Planet-Centered Example: Bees and flowers have a mutualistic relationship: bees get nectar for food, and flowers get pollinated so they can grow seeds. Both species benefit.

T

Taxonomy

Simple Definition: Taxonomy is the science of sorting and naming living things by grouping them based on how they look, behave, or are related through evolution.

Taxonomy helps scientists study biodiversity, track endangered species, and understand how life on Earth is related—supporting conservation and scientific discovery.

Planet-Centered Example: Taxonomists group lions, tigers, and house cats into the same family—Felidae—because they share similar features and common ancestors. This helps us understand how species are connected.

Threatened Species

Simple Definition: A threatened species is a plant, animal, or fungus that could disappear soon if we don’t protect it, due to climate change, overexploitation, habitat loss or pollution occuring from human activity.

Threatened species are a warning sign that ecosystems are in danger. Protecting them helps keep nature healthy for all life, including humans.

Planet-Centered Example: Orangutans in Southeast Asia are threatened because their forest homes are being destroyed for palm oil plantations. Without protection, they could go extinct.

Trophic Cascades

Simple Definition: A trophic cascade is what happens when a change in one part of the food chain—like removing a top predator—causes big effects throughout the rest of the ecosystem.

Trophic cascades show how deeply connected species are. Protecting key species—like predators—helps keep ecosystems balanced, healthy, and full of life.

Planet-Centered Example: When wolves were reintroduced to Yellowstone National Park, they reduced deer populations. This allowed trees and plants to grow back, which helped birds, beavers, and even river health. One change at the top affected the whole system.

U

Umbrella Species

Simple Definition: An umbrella species is a species that needs a big, healthy habitat to survive—so protecting it also helps protect many other animals and plants that live in the same area.

Focusing on umbrella species helps protect entire ecosystems and biodiversity at once—making conservation efforts more effective and wide-reaching.

Planet-Centered Example: The tiger is an umbrella species in Asia. Protecting enough forest for tigers to survive also helps save countless other species, like deer, birds, and plants that live in the same forests.

Use

Simple Definition: Using a natural resource means taking something from nature—like water, wood, or energy—for our needs, whether it’s for daily life or making products.

Using resources is part of life, but if we use too much or waste them, nature can’t keep up. Using resources wisely helps protect them for future generations.

Planet-Centered Example: When we drink clean water from the tap or charge our phones using electricity, we are using natural resources like freshwater and energy—directly or indirectly.

W

Waste Management

Simple Definition: Waste management means how we collect, treat, reuse, recycle, or safely throw away the things we no longer need.

Good waste management helps keep our environment clean, protects wildlife, reduces pollution, and saves natural resources through recycling and reuse.

Planet-Centered Example: In some cities, food scraps are collected separately and turned into compost instead of being thrown in landfills. This reduces pollution and returns nutrients to the soil.

Water Resources

Simple Definition: Water resources are rivers, lakes, oceans, and underground water, that we can use to meet our needs, such as drinking, farming, and cleaning.

Water resources are essential for life. Managing them wisely ensures that people, animals, and ecosystems all have enough clean water now and in the future.

Planet-Centered Example: The Nile River is a vital water resource in Africa. Millions of people rely on it for drinking water, farming, fishing, and electricity.

Z

Zoonosis

Simple Definition: Zoonosis is when a disease spreads from animals to humans. It can happen through bites, contact, or eating contaminated food.

Zoonoses show how human health is linked to animal and environmental health. Protecting wildlife and habitats helps prevent future disease outbreaks.

Planet-Centered Example: COVID-19 is believed to have started as a zoonotic disease, possibly jumping from a wild animal to a human, showing how close contact with wildlife can cause global health risks.

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