



Circular Economy Lab & Observatory

2020-1-IT02-KA201-079994

# ECOFUNCTIONS

5.b Biodiversity loss

**Croatia-5.2**



Co-funded by the  
Erasmus+ Programme  
of the European Union

The European Commission's support for the production of this publication does not constitute an endorsement of the contents, which reflect the views only of the authors, and the Commission cannot be held responsible for any use which may be made of the information contained therein.

# ECOFUNCTIONS

## 5.b Biodiversity loss

Croatia-5.2

As humans living on planet Earth, we are surrounded by nature and various living beings who are also habitating and helping us preserve our dear planet. All of those varieties of life are part of biodiversity. Biodiversity refers to every single living thing, including microorganisms, such as bacteria and fungi, and entire ecosystems, like forests or savannahs.



Although 1.2 million species have been identified so far, scientists believe that a total number of species may exceed 30 million. Unfortunately, over recent years, the population of biodiversity has been rapidly decreasing. A large number of species that live and breathe like us have died out, become extinct.<sup>1</sup>

Of course, why would the loss of biodiversity matter to any human being? Even if we don't notice it, biodiversity is crucial and it helps us survive and maintain balance. Every species in their ecosystem is of importance, and their countless interactions have made Earth habitable for billions of years. Biodiversity is important to most aspects of our lives by providing us with food, fresh water, breathable air, crop pollination, shelter, quality soil...

For example, bacteria and other organisms break down organic material into nutrients, providing healthy soil in which plants can grow. Furthermore, pollinators guarantee the production of our food. Plants and the oceans act as important carbon sinks. Biodiversity loss is not just the loss of life on Earth but also the collapse of entire ecosystems. Professor David Macdonald, from Oxford University (The Guardian), said that there is no future for humanity without biodiversity.



Over the last few years, the biodiversity of our planet has been declining at an alarming rate. Many scientists believe that the world is currently experiencing a sixth mass extinction, which is not like the previous ones caused by natural disasters or climate change, but by us—humans. Events in former mass extinctions caused the existence of dinosaurs to be completely wiped out, and more than 95% of all species living at that time disappeared. <sup>2</sup>

In addition to causing species extinction, biodiversity loss has an impact on humanity because it prevents them from receiving the services that natural ecosystems provide, such as the abundance of oxygen we breathe or the advantages of animal pollination for guaranteeing food worldwide.

Thankfully, lots of people on this planet are informed about this severe problem. They are devoting their lives to finding a way to stop, or rather moderate, the loss of biodiversity.



Degradation of forests for future highways or buildings, which results in the elimination of food sources and living spaces ([https://unsplash.com/photos/axE5oIXh7\\_Q](https://unsplash.com/photos/axE5oIXh7_Q))

Slowing this serious and very important issue we are facing, which is the decrease or extinction of the variety of living beings that inhabit the world, is one of the biggest challenges facing humanity.

An intergovernmental council of scientists estimated last year that one million animal and plant species were in danger of extinction. And this month, a study revealed (BBC) that between 1970 and 2016, the populations of mammals, birds, fish, amphibians, and reptiles worldwide fell by 68%.

Scientists have warned that the sixth mass extinction is upon us, and that whatever we decide to do now will likely determine the fate of humanity. The extinction rate today is about 400 times that of the recent geological past and is accelerating rapidly.



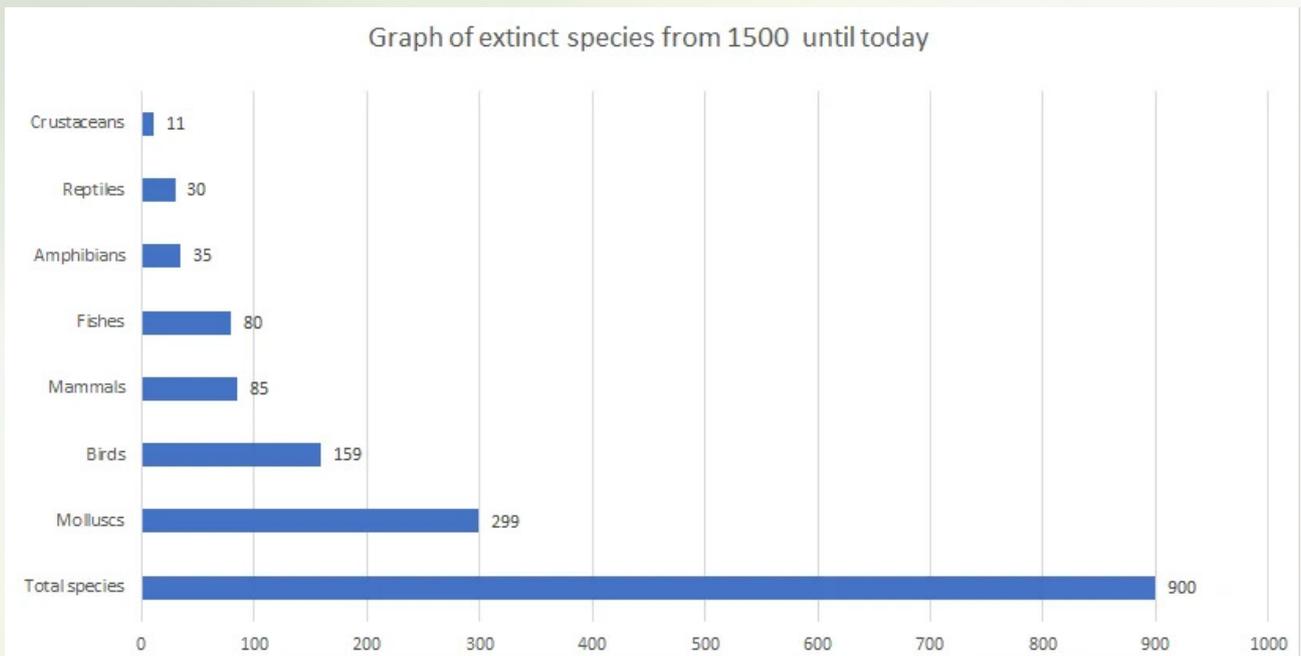
Under the best of conditions, the decline in biodiversity appears to match that of the major natural catastrophes at the end of the Mesozoic and Paleozoic eras, the most extreme in 65 million years, known as the fifth mass extinction.

Today, this mass extinction caused by humans is worse than any time in the geological past.

In the previous mass extinctions, most of the plant diversity survived.

For the first time, it is being largely wiped out—(Knoll 1984). Five key factors that contribute to the loss of biodiversity have been identified by researchers: Furthermore, modern practices in agriculture like tillage, the use of synthetic fertilizers and so on produce nitrates, ammonia and a variety of other synthetic chemical residues that have a negative impact on natural resources such as soil, water, air and biodiversity in general. Species that are immobile frequently become extinct. For example, the situation on Madagascar, an island of great importance because of its large biological diversity, is alarming.

The degradation of forests, through cutting and burning, and other habitats, represents a great threat to all species. Lemurs, the most endangered group of mammals that can only be found there, are largely dependent on forests, which are essential for their survival (Herrera et al. 2011).



Graph I : Graph of extinct species from 1500 until today (graph by group CRO-5.2)



Native species may have their populations reduced or even wiped out as a result of other invasive species replacing them. This could lead to a serious disturbance of the native ecosystems, their alteration or their destruction.

These non-native species can be introduced by humans or can naturally migrate to the new locations. Swingle (lat. *Ailanthus Altissima*) is considered one of the most invasive plant species in Europe and North America. It completely suppresses native plants, affects the soil and changes natural habitats by producing various herbicidal compounds, the best of which is known as allantoin.

There is an organization in Croatia, Life Contra Ailanthus, whose main goal is to remove Swingle. <sup>3</sup> Overfishing, hunting of animals or removing other organisms in bigger or unallowed quantities, meaning they cannot be replaced naturally by native, surviving populations, can dangerously lower their numbers and ultimately cause their extinction.

Also, pollution, defined as adding chemicals or any kind of energy to the environment at a speed that is quicker than the environment can dilute it, decompose or recycle it, or even store it in another harmless form, endangers the health of these animals or living beings, and as a result decreases biodiversity.

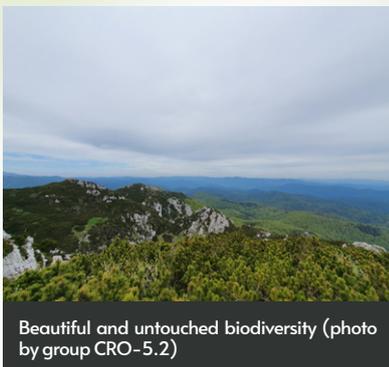


In some cases, exposure to pollution can occur at such dosages that will cause death immediately or ruin the chances of reproduction of these organisms, which will in turn threaten the survival of the whole species. Industry and other human activities are responsible for climate change, which is caused by global warming – mostly a consequence of the burning of fossil fuels.



The result is the release of greenhouse emissions which increase the atmosphere's capability to absorb and trap the heat produced (infrared radiation or heat energy). This causes changes in precipitation and temperature patterns. Biodiversity loss is frequently understood to mean the extinction of species from an ecosystem or perhaps the entire biosphere.

However, just linking the extinction of species to biodiversity loss ignores other subtle events that jeopardize the long-term health of ecosystems. In some species, sudden population decreases may disturb social structures, preventing surviving males and females from finding mates, which in turn may lead to future population declines.



Beautiful and untouched biodiversity (photo by group CRO-5.2)

“Now, when we are in the middle of a global pandemic, it is important to act globally in a coordinated and unprecedented action. This is the only way we can stop and reverse the trend of loss of biodiversity and population of wild species around the world by the end of the decade.” —Marco Lambertini, Director General of WWF International. Because humans depend on wildlife, plants, fisheries, and other ecosystem components for their survival, it is essential to minimize biodiversity loss for the survival of all types of ecosystems on Earth.

So, as a society, we must work to solve this major problem before it becomes irreversible. There are many things we as individuals can do, but it's crucial that we cooperate in order to completely eradicate habitat loss. One of the most effective ways to combat biodiversity loss is through biodiversity conservation.

An essential activity is the protection of habitats, which is accomplished by identifying the habitats that are threatened and removing those threats in order to preserve the natural region. This also entails not disturbing wildlife, especially in areas used for nesting and resting.

Additionally, installing artificial bird and bat houses can help to preserve natural habitats. Also, keep track of and evaluate your pets' effects on biodiversity. Some domestic animals, particularly cats, are wild animal predators and have the power to inflict damage on the surrounding population of native species. Tens of millions of birds are thought to be killed by cats each year in North America.

The tactics used in overfishing currently involve scraping the ocean floor, catching a variety of unwanted animals, and ruining the habitat all at once. The solution to that could be vertical ocean farming. By imitating the environments that would have formerly existed in the ocean, scientists cultivate kelp, mussels, scallops, and oysters in this so-called "underwater garden."

Overconsumption and overproduction are frequent problems that few people think about. They add to the already high levels of pollution and toxic gases that contribute to global warming and also lead to biodiversity loss. 80% of the world's natural resources are used by a little under 20% of the people. Natural resource use in the richest nations might be up to ten times more than in the poorest nations.

In general, socioeconomic inequality in the global north leads to higher pollution levels, increased consumption of meat and fish, more travel, increased domestic water usage, and increased household waste disposal.



An example of preserved aquatic ecosystem in Croatia (photo by group CRO-5.2)



We need to use, recycle, and reduce instead of purchasing items we don't truly need. <sup>4</sup>Organizations are mostly aware of this issue, and many are working to change things for the better. There are a lot of organizations that have devoted their work to preserving biodiversity, like Fauna and Flora International (FFI), World Wildlife Fund (WWF), United Nations Environment Programme (UNEP)...

For example, FFI, the world's first international conservation organization, is making a significant difference to the planet's biodiversity with their goal to preserve fauna and ecosystems in the world.

For now, they have succeeded in preserving mountain gorillas, protecting primates in China and Vietnam, certifying mpingo trees, and launching the Natural Value Initiative. A biodiversity strategy for 2030 has been developed by the European Union and has set new goals for the next decade.

Members of the European Parliament backed strongly the EU goals of safeguarding at least 30% of marine and terrestrial regions (forests, wetlands, peatlands, grasslands, and coastal ecosystems), and that 10% of the EU's oceans and land (including all surviving primary and old-growth forests and other carbon-rich ecosystems) should be left virtually undisturbed. They want the goals to be legally binding and to be carried out at the national level by EU nations in collaboration with regional and local authorities. <sup>5</sup>



Biodiversity, every single living being on planet Earth, is crucial to human survival and of the entire planet. Biodiversity plays an important role in the way an ecosystem functions and in the many benefits it provides, such as nutrient and water cycling, soil formation and maintenance, resistance to invasive species, plant pollination, climate regulation, as well as pest control.

It is important in human nutrition through its impact on food production, as it ensures sustainable soil productivity and provides genetic resources for food crops, livestock, and marine species. Concerns about the health consequences of biodiversity loss and change are growing.

Biodiversity loss can greatly affect human health directly in the way that good ecosystems no longer meet societal needs. Indirectly, changes in ecosystems affect livelihoods, income, and local migrations. Increased food production through irrigation, fertilizer use, pesticides, the introduction of new plant species, and crop rotation has an impact on biodiversity, and thus on global nutrition and human health. The main cause of biodiversity loss can be attributed to human impact on the world's ecosystems.



Endangered ducks (photo by group CRO-5.2)

Fortunately, more people are being informed about this great issue. Measures are being taken to hopefully someday ensure future generations won't have to worry about the significant loss of biodiversity. Our deep concerns about the decline in biodiversity are expressed in our dramatic final words:



Destroyed biodiversity (photo by group CRO-5.2)

Every single one of our planet's ecosystems is brimming with different animal and plant species, each one fulfilling a certain role and keeping the balance of the system in check. The extinction of any species in a given ecosystem is bound to have consequences for the ecosystem, other species, and, eventually, the world at large.

Even though the extinction of a single species may go relatively unnoticed on a global scale, a mass extinction like the one that has occurred in recent centuries is certain to have an impact on the health of our precious planet.

With a massive increase in industrial human activity in the world, large surfaces of land serving as natural habitat for hundreds of species are being virtually pulverized, stripped down to barren land, fit for massive factories. Many creatures living their lives in peace are having their homes destroyed, ravaged by those who think of themselves as higher beings, with a more noble cause, and thus worthy of taking the tranquility out of the life of creatures they deem to be lesser than them.





The evil corporations of man quarrel over vast areas of untouched forest like rabid hyenas, not to be plucked asunder in their mindless greed, fueled by a neverending desire to gather riches, a desire in its vile form akin to that of a flaming serpent, dormant on the treasure of a fallen king, always dreaming of more gold to armor its soft and vulnerable underbelly.



They see these poor creatures' lives as nothing more than an impediment to their profitable ways, and they will destroy an otherwise rich ecosystem until there isn't a mouse left stirring in the ashes of a once glorious, natural kingdom. The balance of our domain has been shifted, ever tilting to an inevitable fall into the dark waters of cosmic annihilation, a fate of lifeless drifting through an empty, lifeless space, so full of mystery, and yet so full of nothingness.

So, to stop our beloved planet Earth from meeting a grim fate and to deny our dear friends, the millions of species we share this planet with, an untimely and sorrowing end, we must put forth our best effort to usher in a new age, a new dawn for the deeds of humans, so that one day, far in the future, we may reminisce of our foolish days of youth, remember what we did wrong, and relish our mighty effort to save planet Earth. We must ensure that the memories we leave behind as a generation are treasured rather than despised, because once flesh has turned to ash, only remembrance will last and prevail.

# BIBLIOGRAPHY

<sup>1</sup><https://www.theguardian.com/news/2018/mar/12/what-is-biodiversity-and-why-does-it-matter-to-us>

<https://education.nationalgeographic.org/resource/biodiversity>

<https://www.europarl.europa.eu/news/en/headlines/society/20200109STO69929/biodiversity-loss-what-is-causing-it-and-why-is-it-a-concern>

<sup>2</sup><https://earth.org/biodiversity-loss-definition-and-examples/>

<https://www.history.com/news/invasive-species-list-mammals-birds-aquatic>

<sup>3</sup><https://lifeailanthus.hr/>

<https://www.bbc.com/news/science-environment-54034134>  
`<blockquote class="wp-embedded-content" data-secret="uqOyNqBNIO"><a href="https://www.naturetrust.bc.ca/conserving-land/what-can-we-do">What Can We Do?</a></blockquote><iframe class="wp-embedded-content" sandbox="allow-scripts" security="restricted" style="position: absolute; clip: rect(1px, 1px, 1px, 1px);" title="“What Can We Do?” — The Nature Trust of British Columbia" src="https://www.naturetrust.bc.ca/conserving-land/what-can-we-do/embed#?secret=audRlp2JCz#?secret=uqOyNqBNIO" data-secret="uqOyNqBNIO" width="600" height="338" frameborder="0" marginwidth="0" marginheight="0" scrolling="no"></iframe>`

<sup>4</sup><https://earth.org/solutions-to-biodiversity-loss/>

<sup>5</sup><https://www.europarl.europa.eu/news/en/press-room/20210604IPR05513/biodiversity-meps-demand-binding-targets-to-protect-wildlife-and-people>

<https://globalperspectives-sjty.weebly.com/blog/international-organizations-that-help- conserve-biodiversity-and-ecosystem>

<https://www.unep.org/about-un-environment>

<https://www.iucn.org/about-iucn>

## GROUP

Paula Bušelić, Karla Glavinić, Lada Jurasović,  
Tibor Doležal, Ivor Vrkić.