

Harmony with Nature

TURKEY – School: ISTEK O. Acibadem Anadolu Lisesi | Teacher - Cansev Fazla | Teacher email: cansev.fazla@istek.k12.tr

Students: Irmak İşgören, Mert Demir Aydın, Deniz Bayraktar, Burcu Biçici, Talya Çağırın, Şimal Şanlı, Merve Aydın, Selin Özel, Poyraz Avcu

PORTUGAL- School: Agrupamento de Escolas Dr. Ferreira da Silva | Teacher – Miguel Ângelo Machado da Costa | Teacher email: prof.miguelcosta@aeferreiradasilva.org

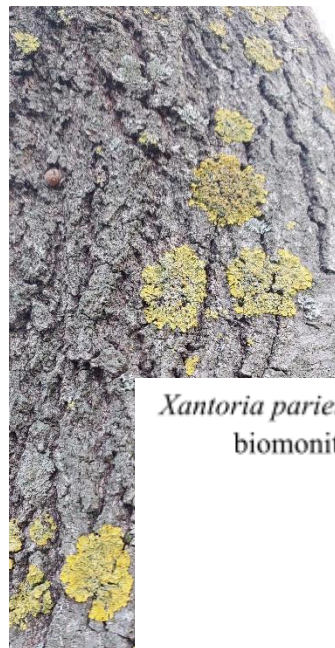
Students: Ana Chicharo, Ana Almeida, Diana Durães, Eduarda Cardoso, Gustavo Pinho, Isa Ribeiro, Isaac Santos, Joana Moreira, Leonor Teixeira, Leonor Jesus, Maria Martins, Renato Castro, Rodrigo Rebelo

In our research we focused on lichens in which we tried to observe the effect of pollution on biodiversity and to recognise the signs of nature around the school, where we spend a significant amount of time in our day.

An ecological or environmental area that is host to human beings, a specific species of animal, plant or other kind of life is known as a habitat. A living thing's territory is the region where it inhabits. It may find food, shelter, protection, and mates for reproduction there as well. (EGAN, M. (2002). It is the external environment of an organism's population or the natural environment in which a living thing exists. Populations react to their surroundings and undergo changes. Both its biotic and abiotic conditions interact with a species. According to the laws of ecology; “Everything is connected to everything else.” and “Nature knows best.” (I.Am.Georgia.Harris. 2021).

Humans are not the only organisms that exist in the ecosystem that are impacted by environmental pollution, global warming, and climate change, which are occurring due to reasons like population development, industry, and developing technology and are still growing globally. "Air pollution" has been described as the largest and most dangerous environmental hazard by the World Health Organization (WHO, 2019). An estimated 7 million casualties unexpectedly happening worldwide yearly from illnesses including cancer, heart attacks, and lung and cardiovascular diseases brought on by contaminated air. Due to the also negatively issues facing environment, climate pollution-free (UNEP, 2015). goals, which harm it does to the environment, air pollution—which affects soil and water pollution—is one of the main both LEDC's and MEDC's.

As the leading global authority on the the institution helps its 193 Member States to foster stability, live in harmony with nature and forge a future, supporting the achievement of all 17 SDGs Whereas all 17 SDG's, especially 11th, 13th, and 15th are “Sustainable cities and communities”, “Climate action”, and “Life on land” respectively.



Xantoria parietina is a useful tool for biomonitoring air quality.

It demands focused efforts to preserve, restore, and encourage the sustainable utilization and preservation of terrestrial as well as other ecosystems in order to maintain a variety of living forms on land. Goal 15 is primarily concerned with mitigating biodiversity loss, successfully preventing desertification, stopping land and natural habitat degradation, and managing forests sustainably. The goal of all these initiatives is to ensure that future generations would be able to enjoy the advantages of terrestrial ecosystems, including sustainable livelihoods.

One of the most serious causes of air pollution is industrial activities and a heavy vehicle traffic on land and on the sea. With the increasing population, the green areas decreasing due to the construction causes us to move away from nature day by day. Air pollution is one of the most important environmental problems which have negative effects on all the living organisms. Lichens have been widely used as bio-monitors for air quality. (Çobanoğlu Özyiğitoğlu, G. 2020).

It leaves observable signs lichens to show the threat that is perceives on its biodiversity and makes it obvious for all living organisms on the Earth. Earth as an open system consists of dependent systems on each other and when this systems act together they try to raise their voice by leaving observable signs to shows the suffering they feel. Therefore, nature itself by collaborating with its systems tries to warn the humanity but we are lacking of understanding the message.



The lichens that are found on tree.

Because the bark of trees offers lichens a stable area to live and gather ingredients from the air, sunlight, and rainfall, lichens are frequently seen on tree trunks, branches, and twigs. They can grow on stressed or otherwise unhealthy trees in addition to healthy ones. Lichens are abundant, significant, and typically helpful creatures found in the environment. It is often a bioindicator that air pollution levels are reduced and the local atmospheric conditions are of a reasonable caliber when lichens are found on robust trees. Biomonitoring is a biological method developed to measure the atmospheric pollution in a more economical, reliable and long-term way. (Garty, J. 2001)

During the 1970's, British chemist James Lovelock and American biologist Lynn Margulis came up with the Gaia Hypothesis that the world acts like a single biological being made up of many individual and interconnected units. The living organisms on the planet interact with their surrounding inorganic environment to form a synergetic and self-regulating system that created, and now maintains, the climate and biochemical conditions that make life on Earth possible. (Radford, T. 2019)

Unlike UN, an international organization; nature on the other hand raises its voice about the pollution and the damage. Therefore let's listen to the voice of nature and live in peace with mother nature.

References

I.Am.Georgia.Harris. (2021, January 16). The Four Laws of Ecology. Ecological Landscape Alliance.
<https://www.ecolandscaping.org/01/developing-healthy-landscapes/climate-change/the-four-laws-of-ecology/>

Radford, T. (2019) James Lovelock at 100: The Gaia Saga Continues, Nature News. Available at: <https://www.nature.com/articles/d41586-019-01969-y> (Accessed: 16 April 2024).

FS1205: Tree-Dwelling Lichens (Rutgers NJAES). (n.d.). Njaes.rutgers.edu.
<https://njaes.rutgers.edu/fs1205/#:~:text=Lichens%20produce%20their%20own%20food>

Zhang, Zh. H., Chai, Z. F., Mao, X. Y., & Chen, J. B. (2002). Biomonitoring trace element atmospheric deposition using lichens in China. *Environmental Pollution*, 120(1), 157–161.
[https://doi.org/10.1016/s0269-7491\(02\)00141-0](https://doi.org/10.1016/s0269-7491(02)00141-0)

Çobanoğlu Özyiğitoğlu, G. (2020). Use of lichens in biological monitoring of air quality. In V. Shukla & Dr. N. Kumar (Eds.), *Environmental concerns and sustainable development - Volume 1: Air, water and energy resources* (pp. 61–95). Springer Nature.
https://doi.org/10.1007/978-981-13-5889-0_3

Garty, J. (2001) Biomonitoring atmospheric heavy metals with lichens: theory and application. *Crit. Rev. Plant Sci.* 20(4), 309-371.

EGAN, M. (2002). THE SOCIAL SIGNIFICANCE OF THE ENVIRONMENTAL CRISIS: Barry Commoner's "The Closing Circle." *Organization & Environment*, 15(4), 443–457.
<http://www.jstor.org/stable/26161761>

UNEP. (2015). *UNEP and the Sustainable Development Goals*.
<https://www.unep.org/explore-topics/sustainable-development-goals>