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# WETLAND ECOSYSTEM AND HABITAT

*Participant's Booklet*



Common borders. Common solutions.

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EUROPEAN UNION



BIOLEARN-BSB142  
ECO-CONSCIOUS MINDS TO STOP POLLUTION  
IN THE VALUABLE WETLANDS OF BLACK SEA BASIN

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# WETLAND ECOSYSTEM AND HABITAT

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*Participant's Booklet*

Target Audience: 8-14 years old



CROSS BORDER  
COOPERATION

Common borders. Common solutions.

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 [www.bio-learn.org](http://www.bio-learn.org)

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# About The Project

BIOLEARN (Eco-Conscious Minds to Stop Pollution in the Valuable Wetlands of Black Sea Basin - BSB142), which was initiated on 01.01.2020 within the scope of the first call for proposals of “Joint Operational Programme Black Sea Basin 2014-2020” where the Directorate for EU Affairs is the national authority, is led by District Government of Enez.

Representatives of the following partners are as follows:

1. District Government of Enez-Turkey
2. Division Directorate of Edirne under First Regional Directorate under General Directorate of Nature Protection and Nature Parks of Ministry of Agriculture and Forestry - Turkey
3. Foundation Caucasus Environment - Georgia
4. Agricola NGO - Ukraine
5. Green Balkans / Stara Zagora NGO - Bulgaria
6. Management Body of Evros Delta and Samothraki Protected Areas - Greece

The overall objective of the project is to provide information, experience transfer and capacity building training between partners and develop a common environmental protection and education approach, methodology and organizing campaigns that will raise awareness in the society to reduce pollution in important wetlands in the Black Sea Basin.

**The main activities to be carried out within the scope of the 26-month project are as follows:**

1. Establishment of a total of 4 environmental protection and training centres, one of which is on the shores of Gala Lake, and providing environmental protection training to visitors and especially to students. By providing equipment for the other 6 existing centres, there will be a network of 10 activity and training centres.
2. Workshops to be held in Bulgaria and Greece, focusing on discussions about examples of

successful training and awareness-raising campaigns for the protection of wetlands, sharing experiences and preparing the materials to be used in training which will be applied in all centres. Capacity building training for trainers.

3. Organizing massive and synchronized cleaning campaigns to reduce pollution in wetlands.
4. Award-winning photo contest and exhibition focused on wetland protection.
5. Organizing a wetland pollution-based painting contest and exhibition in primary and secondary schools.

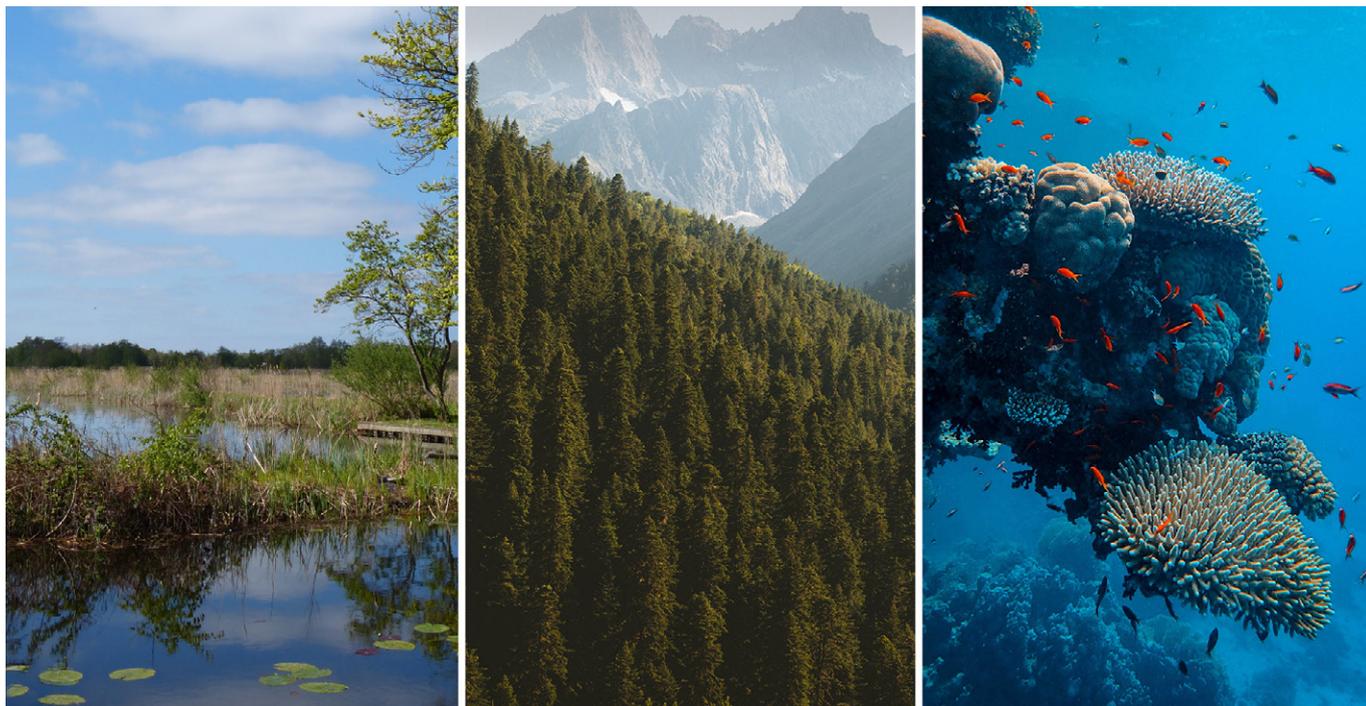
### **Outputs of the Project:**

1. “Stop Pollution” and “Save Nature” environmental education and activity centres, one of which is mobile, will be established in 5 countries and will sustainably carry out training and awareness-raising activities.
2. A report will be prepared on the nature and rate of pollutants in 5 wetlands in the Black Sea Basin.
3. A guide with examples of good practices consisting of training and campaigns focused on protecting wetlands will be prepared.
4. A wetland protection training set consisting of 12 sections will be prepared especially for students. Training sets will also be shared on the internet.
5. After 10 people from 2 each partner country received trainer’s training, they will train 25 people in each region (totally 125 people) and the sustainability of training activities will be ensured in the established centres.
6. A painting competition on environmental protection will be held in at least 15 primary and secondary schools and paintings selected by the jury will be exhibited.
7. Pictures taken in 5 regions with the participation of professional photographers will be exhibited. With the mobile ‘Stop Pollution’ vehicle, the exhibition will travel to 5 countries.
8. An environmental cleaning campaign will be held simultaneously with the participation of 1500 people in 5 regions.
9. With the international conference to be held in Georgia, the outputs of the project and future action plans will be shared with the public.

**For more information, you can visit the project website: [www.bio-learn.org](http://www.bio-learn.org)**



# Wetland Ecosystem And Habitat



 *Our planet has various ecosystems.*

Wetlands are among the richest ecosystems on our planet with numerous living beings as well as non-living elements such as water and soil.

## Ecosystem

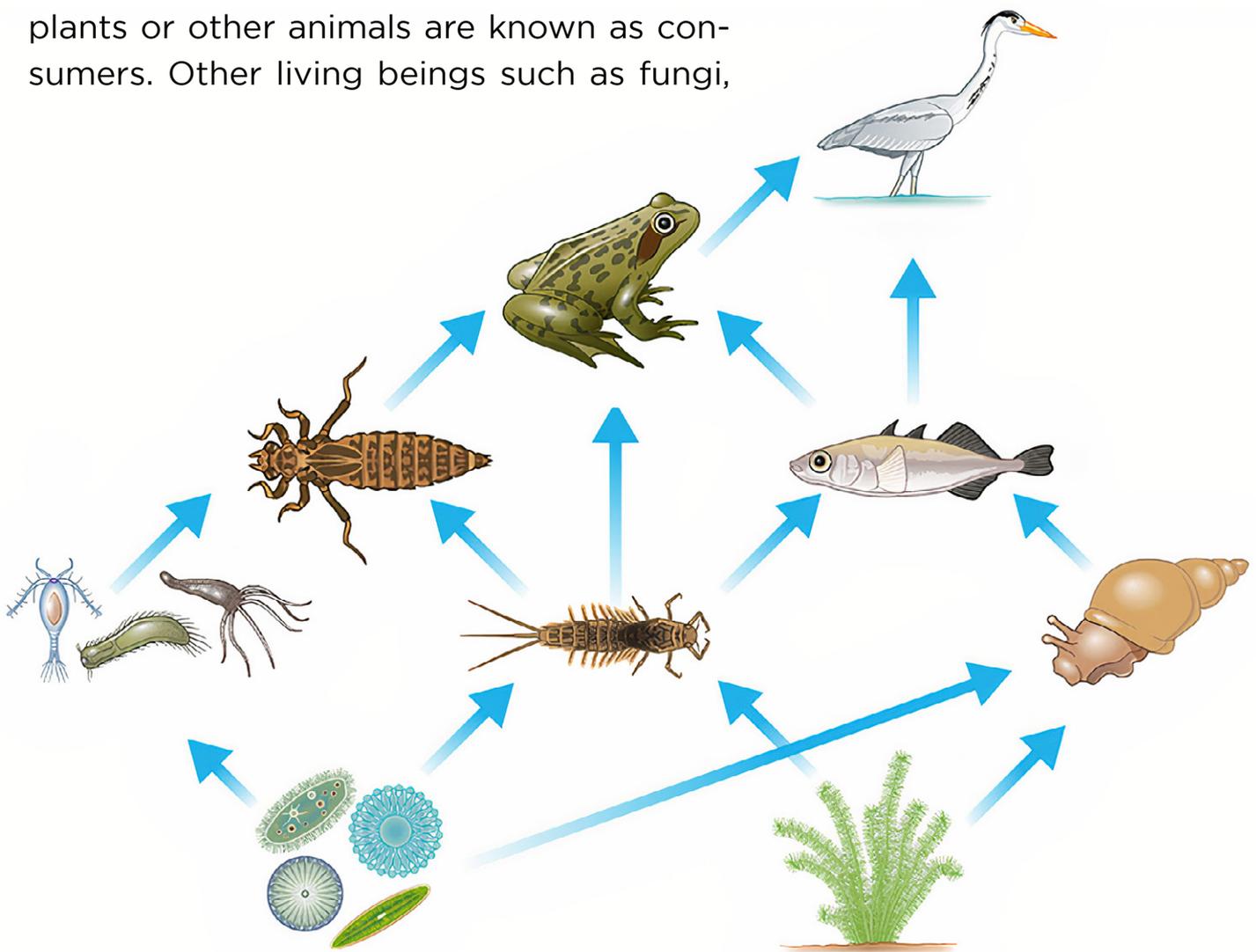
Everything on our planet whether they are living and non-living is interrelated. The flower blooming in the meadow, a bee collecting nectar from flowers, a stream flowing at the slopes of a mountain, a rock rolling inside the river... All of them are part of the ecosystem. The ecosystem concept is used for defining all-natural beings including living and non-living things in nature and the relationships between these beings.

For example, a forest where a rabbit runs, birds build nests with small rivers and worms under the soil represents an ecosystem. The forests are an ecosystem not because they are full of trees but they consist

of all living organisms and non-living compounds. Similarly, a wetland full of marshes stretching across the land and an otter looking for food among the reeds and waterfowls flying above the marshes form a complete ecosystem on its own.

## Food Chain and Food Web

All living and non-living beings in an ecosystem undertake certain tasks. Green plants, that is, producers produce food with a method called photosynthesis. The living beings that live by eating these green plants or other animals are known as consumers. Other living beings such as fungi,

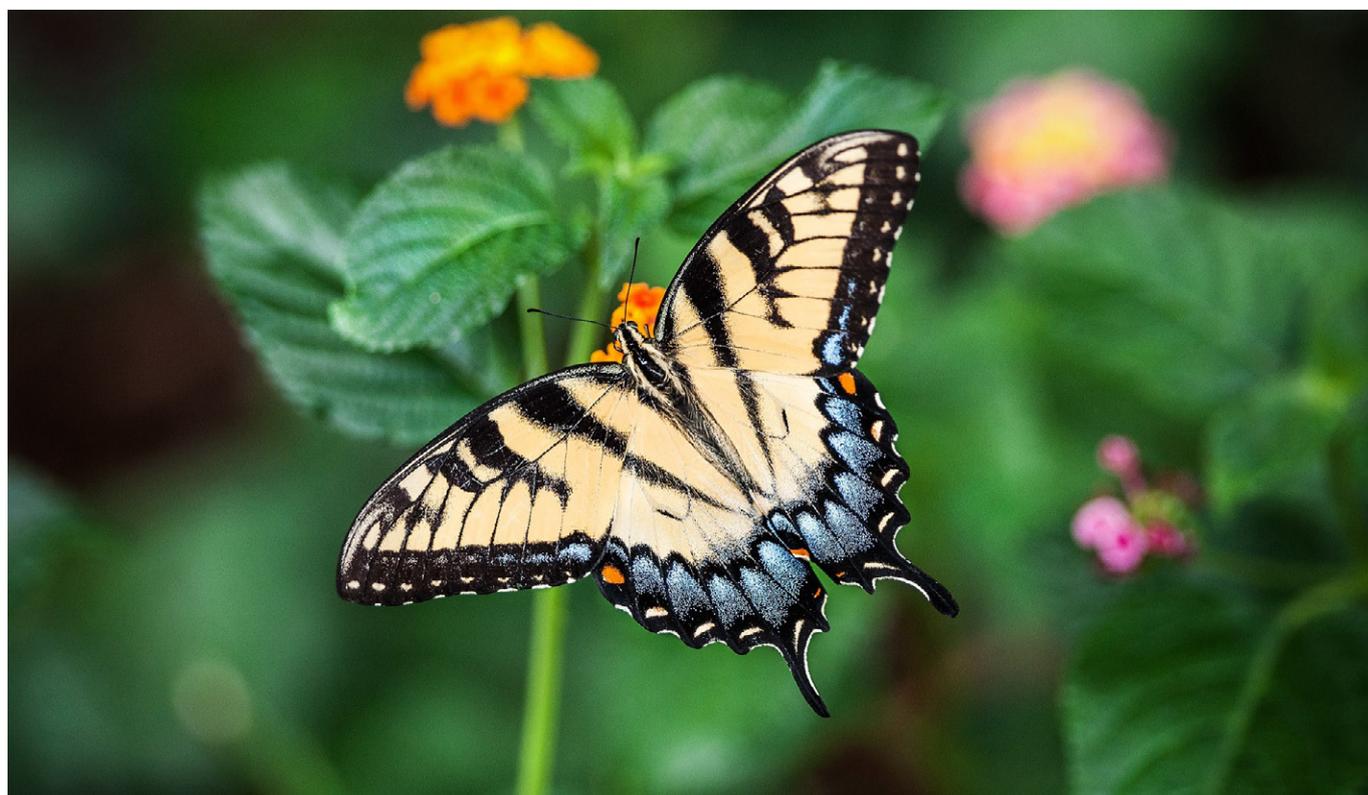


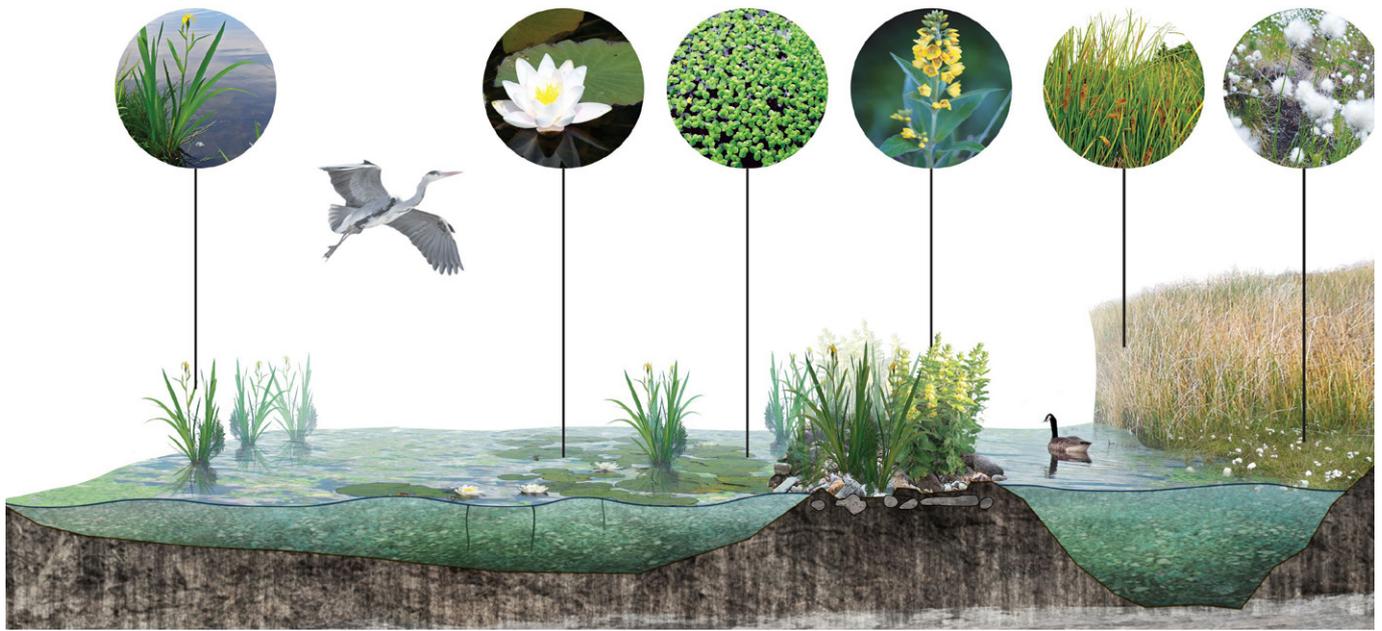
The food network contains various food chains.

The flower blooming in the meadow, a bee collecting nectar from flowers, a stream flowing at the slopes of a mountain, a rock rolling inside the river... All of them are part of the ecosystem.

bacteria and worms other than producers and consumers are classified as decomposers. The entire cycle that contains living being groups undertaking different tasks is called the **food chain**.

Food chains are indispensable elements for the entire ecosystem! But this chain can be in various forms and living beings in this chain can also be in other chains. For example, butterflies not only collect food from flowers but also collect nectar from different plant types. Similarly, buzzards not only eat mice but also eat lizards and hedgehogs. **Food web** term is used for defining this complex food relationship and multiple food chains.





 *Wetlands create a unique ecosystem with their soil structure, plant species and other living beings.*

## How Does the Wetland Ecosystem Work?

Although wetlands only form 6% of the Earth's surface, they are important ecosystems with numerous tasks. In addition to the rich biodiversity they host, the properties provided by their physical structure have important benefits for humans.

First of all, wetlands are the ecosystem that protects water as the source of life. This ecosystem acts like a giant sponge and a filter! It can store a tremendous amount of water after intense rainfalls. Thus, it can control floods and high-water. This stored water mass also feeds the underground water sources due to their special soil structure. On the other hand, this giant filter can clean the water in it. The plants, fungi and

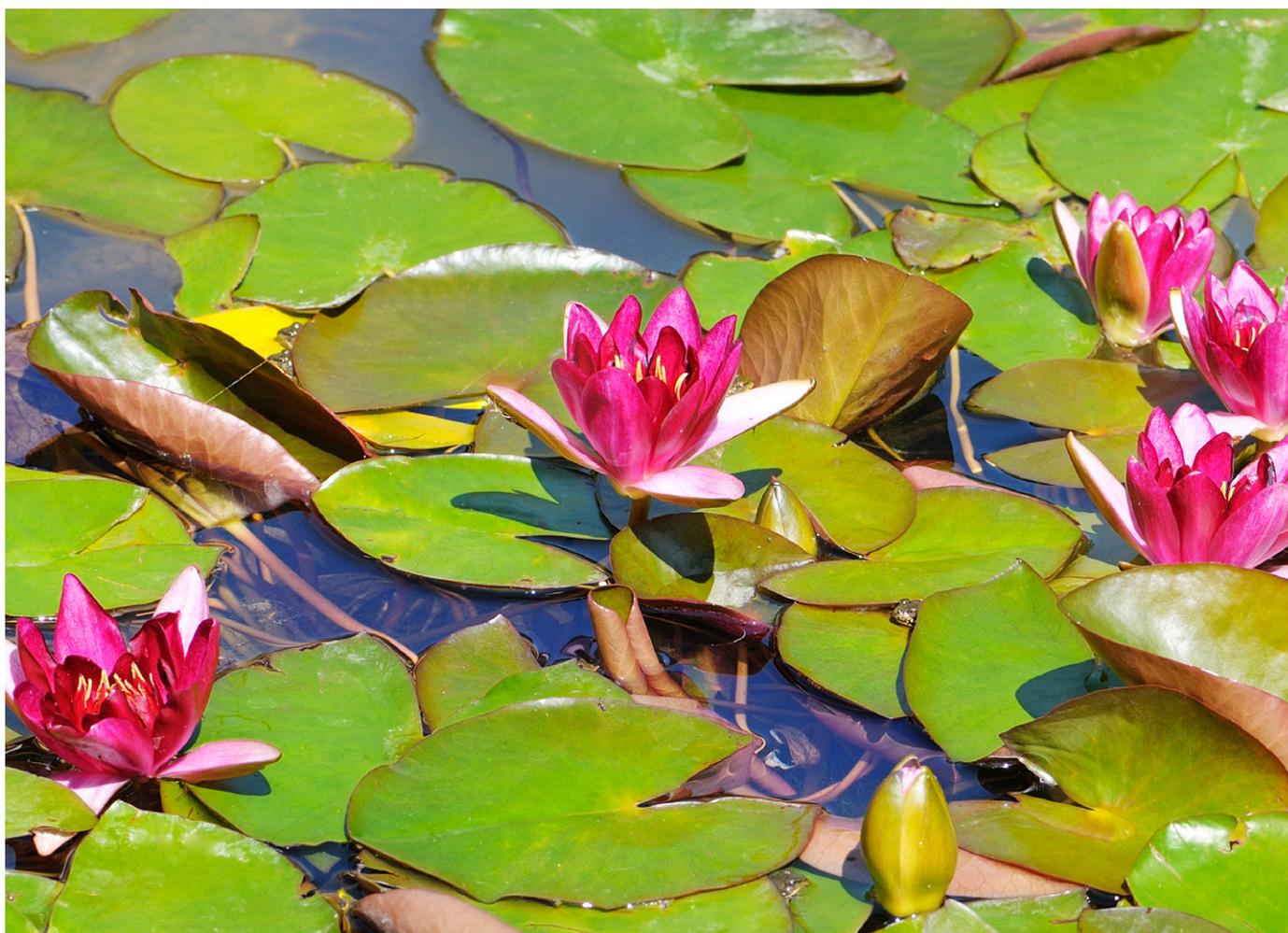
## Did You Know?

Wetlands absorb carbon 10-20 times faster than other terrestrial carbon sinks such as forests and meadows. Approximately 40% of the terrestrially-absorbed carbon is stored in wetlands.

40% of all known living creatures on Earth live in wetlands. Because wetlands act as a safe home where these species live and thrive.

mosses inside the wetland can filter the water and purify it from dangerous chemicals and foreign materials. These filtered materials are safely stored in the sand and soil layer at the bottom of the wetlands.

At the same time, wetlands protect the beaches and coastline. The marshes and swamps on the coastline protect the valuable soil and sand that might wash away with strong hurricanes and waves. Thus, our beaches can be as beautiful as they are even though they are subjected to giant waves!



The benefits provided by the wetland are not limited to these. 40% of all known living creatures on Earth live in wetlands. Because wetlands act as a safe home where these species live and thrive. Most importantly, wetlands are our greatest supporters to decrease the effects of climate change which is one of the most important problems of our planet. They can capture the greenhouse gases and especially carbon dioxide that leads to climate change.

Other than all of this, humans can benefit from the unique beauties of wetlands in different ways. The close relationships of humans with wetlands throughout history have led these areas to be included in cul-

Wetlands are our greatest supporters to decrease the effects of climate change which is one of the most important problems of our planet.



 Visitors can visit different zones with walking paths in wetlands.



tural, economic and social life. For example, humans have been using fish species as a food source and reeds as structural materials especially in some local communities. Today, wetlands are mostly used for tourism activities and these areas can turn into places where people can visit with ecological tourism methods.

## Wetland Ecosystem Elements

Like all other ecosystems, wetlands contain numerous living and non-living components. Wetlands are among the richest ecosystems in the world thanks to the relationships and interactions between these elements.



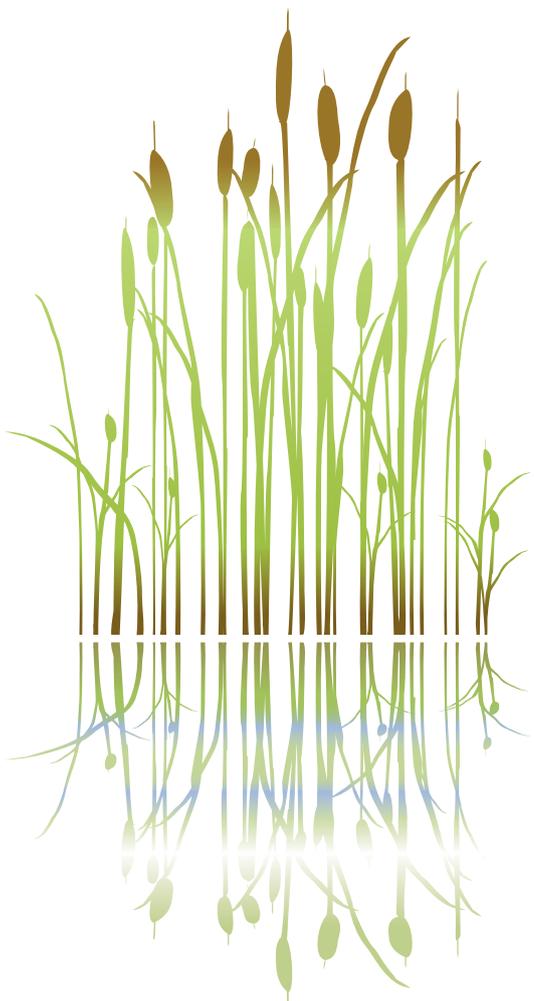
 *Wetlands contain numerous living and non-living components.*

The key non-living component that forms the wetland is water. Although water, which is indispensable for all wetland areas is defined as a non-living thing, it enables all other living beings to emerge. In addition to water, various soil layers and landforms inside the wetland play a role in preserving water in wetlands, water cleaning and enriching processes.

What makes a wetland unique is the living beings in that wetland. Millions of living beings live in wetlands including simple water moss to complex animals like birds, fish and mammals.

## Did You Know?

Although plants love water, excessive water might cause them to die. But the plants in wetlands have evolved to survive and produce when they are exposed to excessive water.



The most fundamental living beings in the wetlands are plants. The flora that changes based on wetland soil structure, climate conditions or the amount of water can consist of reeds, mosses, grass and weeds or trees and bushes. While some of these plants grow to the surface of the water and are visible, others live underwater. In addition to plants, numerous fungi can be found in wetlands.

This perfect habitat has a rich biodiversity in terms of birds and fish as well as numerous other animals. The fish, crabs, frogs, turtles living in water; herons and grebes nesting among the marshes; flies flying around; waterfowls and waders feeding on the water surface; otters hunting fish and many others enjoy the rich habitat provided by the wetland.

***Let's think about living and non-living things in wetlands. Write the word to the table below based on the number of letters in the word.***

3-letter word	4-letter word	5-letter word	6-letter or more word

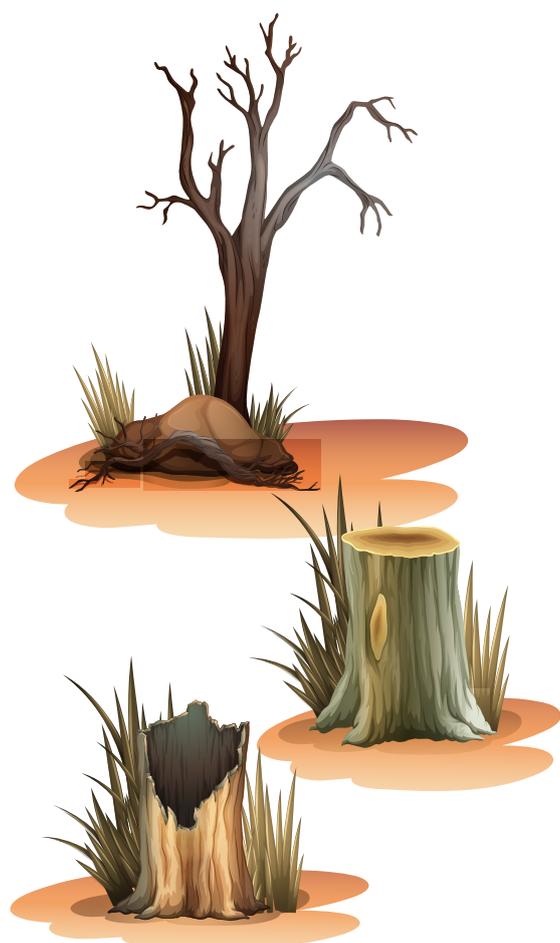
## Wetland Habitat

As we have mentioned, the ecosystem is a large concept including various elements. When we limit this large concept, we call an environment where a species lives, feeds, finds shelter to protect itself or its young as the habitat of that living being. For example, for a bittern living in the wetland, this wetland is its habitat, that is, its living space. It can hunt fish in the wetland and feed itself, hide among the marshes to be protected from birds of prey or build the nest here to raise its chicks. In other words, an ecosystem contains the habitats of hundreds of different creatures.

Wetlands are the safe habitats for living beings where they can live, feed, build nests and raise their young.



 Birds called bitterns are hidden inside these marshes both to be protected from the hunters and to secretly approach their prey.



However, the habitats of living beings can face various threats. These creatures that mostly struggle with the problems caused by humans lose their habitats day by day. Dams built on rivers that feed the wetlands, drying the wetlands for agricultural fields or building new structures, water pollution with pollutants such as plastic, chemical waste and oil, burning marshes in the wetlands, cutting down trees and numerous threats destroy the habitat of living beings in the wetlands. Both to ensure healthy living for these creatures and for humanity to have a healthy future, we need to protect the natural habitats and do our best to eliminate these threats.

## What Did We Learn?

The relationship between living organisms and non-living components in nature is defined as the ecosystem.

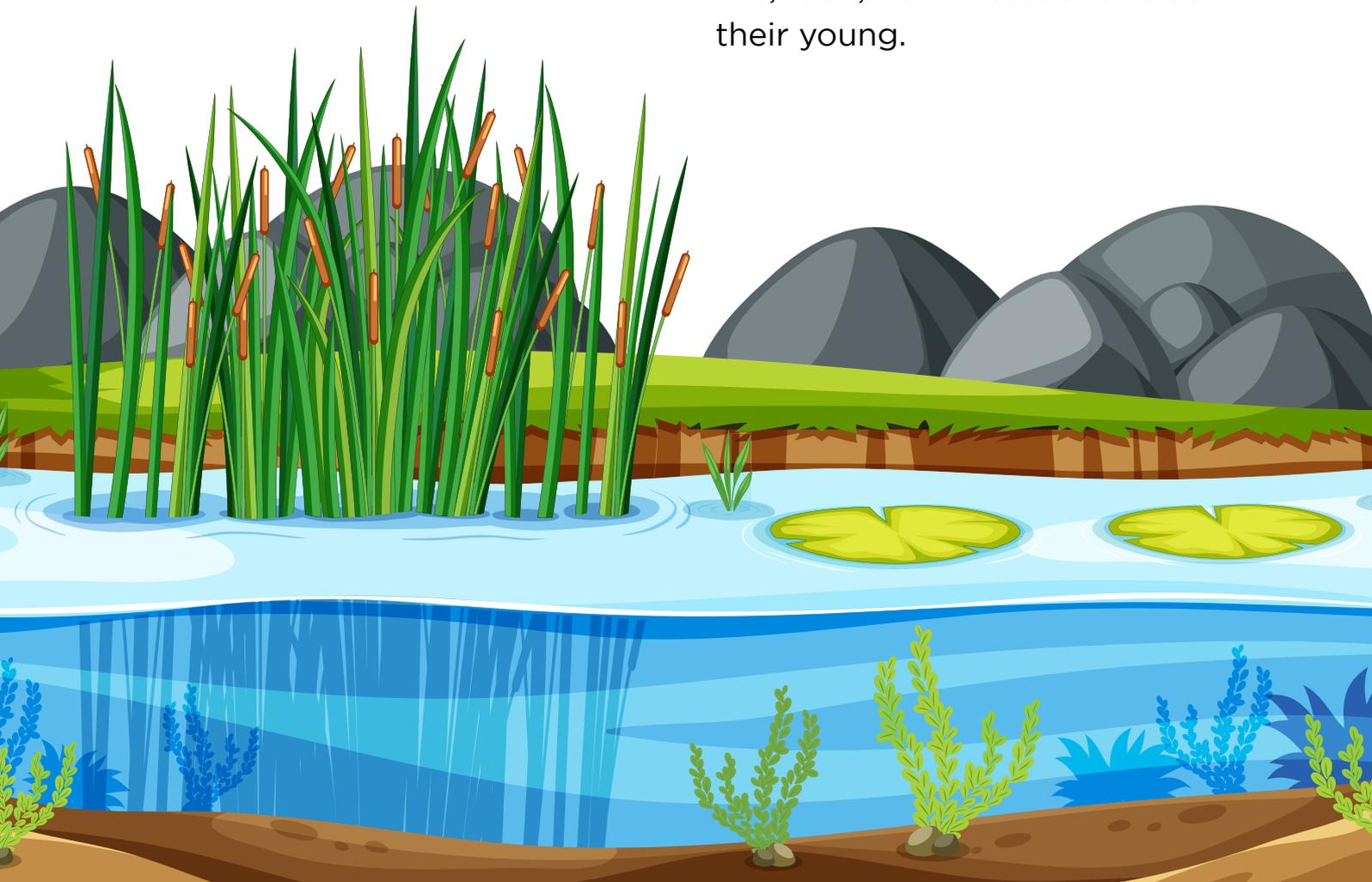
Producers, consumers and decomposers are included in the food chain.

Living beings in different food chains form a food web.

Wetlands are among the richest ecosystems on our planet with numerous living beings as well as non-living elements such as water and soil.

Plants, fungi, insects, amphibians, fish, reptiles, birds and mammals are among the creatures living in wetlands.

Wetlands are the safe habitats for living beings where they can live, feed, build nests and raise their young.





# Worksheets



## HABITAT DISCOVERY

### **FOOD**

*(Do you search by considering what the selected bird eats. Seeds, bugs, worms, fish, fruit, etc.)*

### **WATER**

*(What are the water sources around you? Lake, stream, river, puddle, etc.)*

### **COVER**

*(Which area could be the most suitable option for the bird you have selected to find cover? Trees, reeds, bushes, nests, buildings, etc.)*

### **SPACE**

*(Which space are you in? Is the space suitable for the selected bird? Forest, garden, sea etc. Or is it a migration route? What is the size?)*



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