

**МІНІСТЕРСТВО ОСВІТИ І НАУКИ УКРАЇНИ
НАЦІОНАЛЬНИЙ УНІВЕРСИТЕТ «ЧЕРНІГІВСЬКА ПОЛІТЕХНІКА»**

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**ENGLISH FOR ECOLOGY AND ENVIRONMENTAL STUDY, AGRICULTURE AND
FORESTRY**

Методичні вказівки

до самостійної роботи з англійської мови професійного спрямування
для здобувачів вищої освіти спеціальностей *101 Екологія, 201 Агронімія,
205 Лісове господарство*
першого (бакалаврського) рівня вищої освіти

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English for Ecology and Environmental Study, Agriculture and Forestry. Методичні вказівки з англійської мови професійного спрямування до самостійної роботи для здобувачів вищої освіти спеціальностей *101 Екологія, 201 Агрономія, 205 Лісове господарство* першого (бакалаврського) рівня вищої освіти / Укл.: О. Б. Шендерук, В. А. Пермінова, С. В. Литвин. Чернігів : НУ «Чернігівська політехніка», 2024. 56 с.

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Вступ

Методичні вказівки з англійської мови **English for Ecology and Environmental Study, Agriculture and Forestry** призначені для практичних занять та самостійної роботи здобувачів вищої освіти спеціальностей *101 Екологія, 201 Агрономія, 205 Лісове господарство* першого (бакалаврського) рівня вищої освіти задля удосконалення мовних компетентностей у руслі професійно-орієнтованої комунікації.

Методичні вказівки складаються з дев'яти розділів: 'The Disappearing Honeybee', 'Greenpeace', 'World Wildlife Fund', 'Endangered Species', 'Pollution', 'Eco-Communities', 'Natural Habitats', 'Habitat Loss', 'Saving Natural Habitats'.

Мета методичних вказівок – сприяти формуванню у здобувачів першого (бакалаврського) рівня вищої освіти комунікативної компетентності в сферах усного, письмового професійного та ситуативного спілкування, навичок практичного володіння іноземною мовою в різних видах мовленнєвої діяльності в межах профільної тематики, обумовленої професійними потребами; оволодінню новітньою інформацією з іноземних джерел.

Структура розділів та розроблений комплекс вправ спрямовані на ознайомлення і поступове засвоєння студентами матеріалу на підготовчому етапі при опрацюванні лексичного матеріалу; при ознайомлювальному та вивчаючому читанні базових текстів задля первинного знайомства з матеріалом та подальшої роботи лексико-граматичними одиницями; під час виконання комунікативних завдань з обговорення проблемних ситуацій.

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Unit 1 The Disappearing Honeybee

Vocabulary

Word	Meaning
allergic (<i>adjective</i>)	caused by an allergy (a bad physical reaction to certain foods or substances that some people experience)
climate change (<i>noun</i>)	global changes in temperature, wind patterns, rainfall, etc mainly caused by the burning of fossil fuels like coal and oil
collapse <i>noun (also verb)</i>	the sudden failure or falling apart of something
disappearing <i>adjective (also verb)</i>	no longer able to be found or be seen
disorder (<i>noun</i>)	a social problem or medical condition that a certain group suffers from
donate (<i>verb</i>)	to give money or resources to a group or person in need
hive (<i>noun</i>)	the place in which bees live and reproduce
investigate (<i>verb</i>)	to study, do research or try to find the truth
lack (<i>noun</i>)	a shortage (or not enough) of something
mysteriously (<i>adverb</i>)	in a way that is not easily understood

Word	Meaning
pollinate (<i>verb</i>)	to transfer male pollen from one flower to another to allow fertilization and seed development
rely on (<i>verb</i>)	to depend on (or need) someone or something
skyrocket (<i>verb</i>)	to rise very high or rise very much in a short time
spread the word (<i>idiom</i>)	to tell other people about something
transport (<i>verb</i>)	to move something from one place to another

1. Choose at least five words and word-combinations, make up and write down examples of your own with them.

2. Read the text to find out about the main information about honeybees; be ready to provide it.



Do you run away when you hear a bee buzzing? Many people do. A bee sting hurts and some people are **allergic** to bee venom. But did you know that bees are very important to humans? Honeybees do more than just make honey. They fly around and **pollinate** flowers, plants, and trees. Our fruits, nuts, and vegetables rely on these pollinators. One third of America's food supply is pollinated by the honeybee.

Have you seen or heard a honeybee lately? Bees are mysteriously **disappearing** in many parts of the world. Most people don't know about this problem. It is called "colony **collapse** disorder" (CCD). Some North American beekeepers lost 80% of their **hives** from 2006-2008. Bees in Italy and Australia are disappearing too.

The disappearance of the honeybee is a serious problem. Can you imagine never eating another blueberry? What about almonds and cherries? Without honeybees food prices will **skyrocket**. The poorest people always suffer the worst when there is a **lack** of food.

This problem affects other foods besides fresh produce. Imagine losing your favourite ice cream! Haagen Daaz is a famous ice cream company. Many of their flavours rely on the hard working honeybee. In 2008, Haagen Daaz began raising money for CCD. They also funded a garden at the University of California called The Haven. This garden helps raise awareness about the disappearing honeybee and teaches visitors how to plant for pollinators.

Donating money to research is the most important thing humans can do to save the honeybee. Scientists need money to **investigate** the causes of Colony Collapse Disorder. Some scientists blame CCD on **climate change**. Others think pesticides are killing the bees. Commercial bee migration may also cause CCD. Beekeepers **transport** their hives from place to place in order to pollinate plants year round.

Not everyone has money to donate regularly. There are other ways to help the honeybee. **Spread the word** by telling your friends and family about the problem. Tell your teacher about the disappearing bees too. Maybe your class can write a letter to the government.

3. Disappearing Honeybee Comprehension Quiz

1. Honeybees are very important because they produce honey and
 - a. sting people
 - b. cure allergies
 - c. pollinate flowers
2. The problem of honeybees disappearing is called
 - a. colony disappearing disorder
 - b. colony collapse disorder
 - c. colony cooperation disorder
3. According to the article, honeybees pollinate _____ of America's food supply.
 - a. all
 - b. a quarter
 - c. one third
4. If honeybees disappear due to CCD, food prices will

- a. rise
- b. fall
- c. collapse

5. Haagen Daaz is worried about CCD because they flavour their ice creams with

- a. honeybees
- b. beekeepers
- c. fruits and nuts

6. What's the most important thing people can do to save the honeybee?

- a. eat less ice cream
- b. donate to CCD research
- c. transport more beehives

7. Scientists need to _____ the causes of Colony Collapse Disorder.

- a. investigate
- b. blame
- c. hide

8. One of the possible causes of CCD is the use of poisons called

- a. pesticides
- b. allergies
- c. pollinators

9. Moving honeybees from place to place is called

- a. CCD transportation
- b. commercial bee migration
- c. beekeeper pollination

10. Another way to help the honeybee is to _____ about the problem.

- a. spread the word
- b. spread denial
- c. stop talking

4. What can people do to save the honeybee? Make a list of actions mentioned in the text.

5. Give an outline of the text using your answers to the questions in 3.

Unit 2 Greenpeace

Vocabulary

Word	Meaning
activist (noun)	a person who takes part in campaigns to bring about political or social change - <i>Environmental activists chained themselves to trees to stop the logging.</i>
arms race (noun)	a contest between countries to develop the most powerful war weapons - <i>I remember how scary it was when the nuclear arms race was always in the news.</i>
carry out (phrasal verb)	to perform a particular task or mission - <i>The British carried out a series of nuclear bomb tests in Australia.</i>
coastguard (also "coast guard" and "Coast Guard") (noun)	an organization that watches over coastal waters, helps vessels in trouble, and in some cases can also act as a security or military force - <i>After our yacht tipped over, we called the coastguard and they rescued us.</i>
consumption (noun)	the use of energy, fuel, materials, etc; the buying of goods and services - <i>We need to reduce our consumption of plastics.</i>
direct action (noun)	a form of activism that aims to achieve a goal by acting rebelliously or disobeying authorities - <i>Is damaging equipment used to cut down trees an acceptable form of direct action?</i>
endangered (adjective)	in danger of becoming extinct or disappearing in the near future - <i>Did you know that over 30,000 species are already endangered?</i>
genetically modified organism (abbr: "GMO") (noun)	any organism (animal, plant or micro-organism) whose genetic material has been changed by scientists to make the organism more useful or less dangerous - <i>Do genetically modified organisms pose a threat to natural ecosystems?</i>
inequity (noun)	a lack of fairness and justice, esp. within a social or economic system - <i>The worst thing about capitalism is the degree of inequity it creates.</i>

Word	Meaning
mindset (noun)	attitudes and beliefs that shape the way we see the world and think about our lives - <i>How do we get rid of that old mindset that puts money ahead of everything else?</i>
mission statement (noun)	a document that expresses the goals of an organization and describes the work it does and why it does it - <i>I read their mission statement and liked it, so I joined.</i>
non-governmental organization (abbr: "NGO") (noun)	an organization that isn't part of a government and isn't operating for profit - <i>Most NGOs are funded by donations.</i>
nuclear bomb (noun)	a very powerful nuclear weapon that releases huge amounts of destructive energy when it explodes - <i>How many nuclear bombs does France have?</i>
power structure (noun)	an established system in a government, company or society that allows certain people to gain and use power to control resources and impose their will on others - <i>In most power structures, the best way to improve your position is by doing favours for others with more power than you.</i>
publicity (noun):	attention in the media (from newspapers, television, radio, etc) or online (from bloggers, influencers, celebrities, etc) - <i>The more publicity we get, the better it is for our campaign</i>
slaughter (noun)	the deliberate killing of many people or animals - <i>What else can we do to stop the slaughter of dolphins and whales?</i>

1. Choose at least five words and word-combinations, make up and write down examples of your own with them.

2. Read the text and write out the main problems/issues of Greenpeace.



In early August 1945, near the end of World War Two, the USA dropped **nuclear bombs** on two Japanese cities. At least 200,000 people died. After the war ended a nuclear **arms race** began when the Soviet Union started developing nuclear weapons of its own. By the 1950s many people feared this arms race between the world's two superpowers could result in a nuclear war and planetary destruction. This led to many people joining peace protests in the 1960s, including a group of environmentalists and peace **activists** who often met in Vancouver, a city on Canada's west coast.

In 1970 they met to discuss nuclear bomb tests that were being **carried out** by the US military on Amchitka Island in nearby Alaska. They knew it would take more than protest marches to stop these tests, so they decided to carry out **direct action** campaigns instead. They also decided to create a new organization to plan and publicize these campaigns, but they didn't know what to call it. They needed a name that worked for both environmental "green" campaigns and anti-nuclear "peace" campaigns, and when someone suggested "Greenpeace" they knew they'd found it.

Direct Action

With their new organization formed and named, they were ready for action. They knew the Amchitka Island nuclear test could not go ahead if a manned ship was in the area around the island, so they chartered an old fishing boat and set sail on September 15, 1971. But after 42 days the U.S. **coastguard** forced them to turn back. Even though they didn't stop the test, their action got a lot of **publicity** and a few months later the US stopped testing their bombs on Amchitka Island. Greenpeace's first campaign had proved that direct action could work.

Greenpeace's next campaign was in 1972 against French nuclear testing in the Pacific Ocean. Once again Greenpeace activists sailed towards the test site on Moruroa Atoll in French Polynesia. This time their boat was rammed by a French war ship and the crew were arrested, and once again they got the publicity they were seeking. Next came a campaign to stop the **slaughter** of baby fur seals in Canada and the slaughter of seals in Scotland. Then in 1975 they began the first of many direct action campaigns to stop the slaughter of whales. After locating a fleet of Russian whaling ships, activists on Greenpeace motorboats got between the whaling ships and the whales they wanted to slaughter. This sort of action was very dangerous, and rarely worked, but again it got the kind of publicity that eventually led to the banning of commercial whaling in 1986.

In 1977 Greenpeace bought a large fishing trawler and renamed it the *Rainbow Warrior*. They used the ship in a series of direct action campaigns against whaling, seal hunting, nuclear testing and the dumping of nuclear waste. Then in 1985, after leading a fleet of yachts from New Zealand on another campaign against French nuclear testing, the *Rainbow Warrior* was bombed by the French secret police. They sank the ship and a Portuguese-Dutch photographer on board at the time was killed.

Greenpeace has bought a number of other ships since the tragic bombing of the *Rainbow Warrior* and used them in more recent campaigns against nuclear testing and Japan's so-called "scientific whaling". They have also campaigned against environmentally-destructive fishing, logging and farming, and against the use of fossil fuels, toxic chemicals and **genetically modified organisms** (GMOs). They have taken action to protect forests and **endangered** species and carried out many campaigns related to global warming and climate change.

Greenpeace Now

Greenpeace has grown to become one of the world's biggest and most powerful **non-governmental organizations**. It's now made up of independent organizations in over 50 countries that work together under Greenpeace International. As well as carrying out non-violent direct action campaigns, Greenpeace also works with governments, corporations, schools and other NGOs on a wide range of environmental and social issues.

Mission Statement

In 2016 Greenpeace held a "Big Listening" exercise in which over 300,000 people shared their ideas on the organization's future direction. This led to the release of a new **mission statement** titled *The Framework: A Summary*. The statement says, "The struggle for a green and peaceful future requires fundamental changes in the way we relate to nature and to each other. From climate change to **inequity**, armed conflict to social injustice, the great challenges of our time are not only urgent, they are intimately linked. From the **power structures** that make them possible to the **mindsets** that make them acceptable, they are interwoven and must be changed together."

The statement goes on to say that, "Today's economic and cultural systems set us apart from nature. They reward environmental destruction, promote excessive **consumption** ... prioritise short-term profit over sustainability and well-being. Let us be bold. Let us join forces with our allies. Let us build the new systems for that green and peaceful world that we all know in our heads and in our hearts is possible."

3. Greenpeace Mission Gapfill Quiz

1. Every day we are bombarded by stories that are carefully crafted to support the broken system and the interests of _____.

- a. self-educated
- b. self-interested
- c. self-critical elites

They are designed to tell us what to think, promote a range of mindsets, and a way of thinking about what's right, what's wrong and – ultimately – about what is and is not possible.

2. Greenpeace must _____

- a. promote
- b. control
- c. challenge

these dominant mindsets, the myths and stories that tell people there is only one world possible – the one in which we live.

- 3. a. sustainably
 - b. selfishly
 - c. unselfishly
- separate from nature, using the Earth's limited.

- 4. a. resources
 - b. income
 - c. population

for our relentless "needs.

5. Our mission should be to

- a. promote
- b. challenge
- c. prevent

a new perspective and shift in mindsets, one that is rooted in stories that help us: valuing people and communities near and far; understanding that we _____

- 6. a. came from nature
- b. are separate from nature
- c. are part of nature

and that we each hold a stake in its future; measuring our success according to our relationships and not our possessions; understanding that security depends upon a healthy environment and a just,

- 7. a. unequal
- b. equitable
- c. unfair society

rather than force and surveillance; understanding that people, not

- 8. a. environmental groups
- b. endangered wildlife
- c. corporations

and self-interested elites, should be at the heart of governance and public life; seeing that the world is getting better, because people are

- 9. a. working together
- b. consuming more
- c. doing nothing

10. to make it so; and understanding that the economy must work within the environmental limits of
- the government
 - the planet
 - the business community

4. Go over the text once again; find the bolded words and word-combinations in the context and write out the sentences. Translate the sentences into Ukrainian.

5. Make up a plan of the text. Summarize it according to the plan.

- 6. Look through the basic issues of Greenpeace and decide upon the following:**
- Which of the problems do you consider vital? Why?**
 - What is your attitude to their activity?**

Prepare 5 arguments minimum to prove your point of view.

Unit 3 World Wildlife Fund (WWF)

Vocabulary

Word	Meaning
biodiversity (noun)	the number of different animals and plants living in a particular place - <i>Loss of biodiversity due to habitat destruction is one of our biggest problems.</i>
climate change (noun)	global changes in temperature, wind patterns, rainfall, etc mainly caused by the emission of heat-trapping gases that cause global warming - <i>If we don't prevent further climate change, our own species could disappear.</i>
conservation (noun)	the preservation of natural resources like forests, wildlife, coastal habitats, etc - <i>David has dedicated his life to the conservation of rainforests.</i>

Word	Meaning
consumption (noun)	the use of energy, fuel, materials, etc; the buying of goods and services - <i>We need to reduce our consumption of plastics.</i>
deforestation (noun)	the clearing of forests to harvest timber or create farmland - <i>The rate of deforestation has never been higher than it is now.</i>
endangered (adjective)	in danger of becoming extinct or disappearing in the near future - <i>Did you know that over 30,000 species are already endangered?</i>
exploitation (noun)	1. the use of natural resources 2. the unfair treatment of someone in order to benefit oneself - <i>Low wages is just one example of the exploitation of workers.</i>
extinct (adjective)	no longer existing (esp. of a species of animal, bird, plant, etc) - <i>How many native animals have become extinct since the British colonized Australia?</i>
extinction (noun)	the loss of a species of animal, bird, plant, etc for all time - <i>The recent extinction of so many species in Australia is a terrible tragedy.</i>
habitat (noun)	the natural home of an animal, plant, or other living thing - <i>With so much of their habitat destroyed, it's no wonder gorillas are an endangered species.</i>
non-governmental organization (abbr: "NGO") (noun)	an organization that isn't part of a government and isn't operating for profit - <i>Most NGOs are funded by people who believe the work they're doing is important.</i>
poach (verb)	to illegally catch or kill an animal, bird, fish, etc - <i>If we keep buying ivory, elephant poaching will continue until they're all gone.</i>
possibility (noun)	something that might happen, or the chance of something being true or real - <i>Another possibility is that it'll rain and we'll be stuck indoors.</i>
sustainable (adjective)	able to continue for a long time without causing problems - <i>We can survive if we develop sustainable lifestyles and use renewable energy.</i>

Word	Meaning
threatened (adjective)	in danger of becoming very rare or extinct (of a species) - <i>Have you seen the latest list of threatened species?</i>
turn a profit (phrase)	to make money by selling something for more than it cost to make or supply - <i>Most small businesses don't turn a profit in their first year or two.</i>
wildlife (noun)	animals, birds, insects, etc living naturally in the wild - <i>I love looking for wildlife in the forest.</i>

1. Think about what you already know about the World Wildlife Fund. Write down any facts, ideas, or questions that come to mind.

2. Based on the title and any information you already have, make predictions about what the text might be about.

3. Look for any images or videos related to the World Wildlife Fund. Observe the visual carefully and try to make connections between them and the text.



The Founding of WWF

WWF was founded in Morges, Switzerland, in 1961. At first its goal was simply to raise funds to support other conservation organizations, as stated in its first manifesto:

They need, above all, money to carry out mercy missions and to meet conservation emergencies by buying land where wildlife treasures are **threatened**, and in many other ways. Money, for example, to pay guardians of wildlife refuges. Money for education and propaganda among those who would care and help if only they understood. Money to send out experts to danger spots and to train more local wardens and helpers in Africa and elsewhere. Money to maintain a sort of 'war room' at the international headquarters of conservation, showing where the danger spots are

and making it possible to ensure that their needs are met before it is too late. Extract from *Morges Manifesto (1961)*

One of the first organizations WWF supported was the International Union for the Conservation of Nature (IUCN). The funds they gave IUCN helped it produce its first Red List of Threatened Species in 1964. The Red List has been continually updated with the latest scientific data on threatened species, with nearly 160,000 species assessed so far. Of these, more than 32,000 species are now listed as threatened with **extinction**, including 41% of all amphibians, 26% of mammals and 14% of birds. To best use the money it collects, WWF uses data like this to identify the most endangered species and support NGOs that are working to protect them.

WWF Projects

In the 1970s, WWF also began doing projects of its own. In 1973 it bought 37,000 acres of land near Lake Nakuru in Kenya, an important habitat for many birds including flamingos. It also helped to establish nature reserves in Costa Rica, Colombia, Nepal and Mexico, as well as establishing projects in Africa to help protect critically endangered species like the white rhino and the mountain gorilla.

In the 1980s WWF began several new projects including the Lumparda Elephant Project that led to a sharp decline in the **poaching** of elephants and rhinos. In the 1990s many new projects were launched, including the Living Planet Campaign to produce regular Living Planet Reports on the state of the Earth's **biodiversity**.

By the 2000s much of the work WWF had done over the previous 40 years was showing results. Populations of white rhinos had increased from just 100 to over 11,000, while black rhinos had increased by 30% in just ten years. By 2016 tiger populations were also increasing for the first time in over 100 years.

Despite good news like this, many other species are threatened or in danger of becoming **extinct** and WWF continues to work on many projects. It's reintroducing endangered species like the American bison back into the wild, helping to reduce massive **deforestation** in places like Borneo and the Amazon, and helping to protect coral reefs and prevent overfishing throughout the world's oceans.

Future Visions of Our Planet - A WWF Challenge

WWF also has many educational projects to teach people about urgent issues like **climate change**, habitat destruction and biodiversity loss. These projects include Earth Hour and Earth Day activities and its *Apps For Earth* project with Apple Corp. But learning about all these issues can sometimes make us feel sad and lose hope for the future. So WWF has also started online projects to remind us that a bright and **sustainable** future is still possible if we all work together.

4. WWF Comprehension Quiz

1. The World Wildlife Fund (WWF) is a non-governmental organization founded in 1961 to protect _____ .

- a. all amphibians
 - b. endangered species of wildlife
 - c. endangered species of wildlife and preserve natural habitats
2. They need, above all, money _____ and to meet conservation emergencies.
 - a. to carry out mercy missions
 - b. to protect coral reefs
 - c. prevent overfishing

 3. One of the first organizations WWF supported was _____.
 - a. Apps For Earth
 - b. the International Union for the Conservation of Nature
 - c. Earth Day

 4. WWF uses data _____ and support NGOs that are working to protect them.
 - a. to identify the most endangered species
 - b. to become the world's largest conservation organization
 - c. to show results

 5. WWF also helped to establish nature reserves to help protect critically endangered species like _____.
 - a. the white rhino and the black gorilla
 - b. the white rhino and the mountain gorilla
 - c. the black rhino and the black gorilla

 6. In the 1980s WWF began several new projects including the Lumparda Elephant Project that led to a sharp decline in the _____ of elephants and rhinos
 - a. enjoying
 - b. poaching
 - c. protecting

 7. In the 1990s many new projects were _____.
 - a. launched
 - b. closed
 - c. interrupted

 8. WWF also has many _____ projects to teach people about urgent issues.
 - a. dangerous
 - b. risky
 - c. educational

 9. _____, habitat destruction and biodiversity loss are the main educational projects to teach people about urgent issues.

- a. international headquarters
- b. endangered species
- c. climate change

10. WWF has also started online projects to remind us that a bright and _____ future is still possible if we all work together.

- a. extinct
- b. sustainable
- c. biodiversity

5. Summarizing: write a brief summary of key points from the reading. Summarize the development of the World Wildlife Fund and its impact on society.

6. Discuss the effects of the World Wildlife Fund organization on physical and mental health.

7. Write a short story or create a poster about the World Wildlife Fund organization.

Unit 4 Endangered Species

Vocabulary

Word	Meaning
conservation effort <i>noun</i>	measures to protect and restore the natural world
ecosystem <i>noun</i>	the complex system of relationships between living things and their environment

Word	Meaning
endangered species <i>noun</i>	animals or plants in danger of becoming extinct in the near future
environmentalist <i>noun</i>	a person who cares about the natural world and makes efforts to protect it or raise awareness of environmental problems
extinction <i>noun</i>	the loss of a species of animal, bird, plant, etc for all time
food chain <i>noun</i>	a group of organisms in which each feeds off the one below it in the chain
fossil fuel <i>noun</i>	a fuel formed from the fossils of plants or animals that died millions of years ago. These fuels include oil and coal, the burning of which is a major cause of global warming.
global warming (<i>also climate change</i>) <i>noun</i>	the gradual increase of air and sea temperatures caused by rising greenhouse gas levels
greenhouse gas <i>noun</i>	a gas in the atmosphere that prevents heat from escaping into space
habitat <i>noun</i>	the area where a species naturally lives, eats, and reproduces
recover <i>verb</i>	to help a certain species repopulate an area
reforestation <i>noun</i>	the planting of new trees in a place where a forest has been

Word	Meaning
	badly damaged or destroyed
renewables <i>noun</i>	forms of energy that can be replaced naturally, such as hydro-electricity, solar energy and wind power
risk <i>verb</i>	engage in a dangerous act
vulnerable <i>adjective</i>	likely to face injury or danger
wildlife <i>noun</i>	plants and animals living in a natural environment

1. Look at the title “Endangered Species” and brainstorm what you already know about this topic. Write down any ideas or questions that come to mind.

2. Take a few minutes to research and gather information about endangered species. Look for examples of animals or plants that are currently endangered or have become extinct. Note down interesting facts or statistics you come across.

3. Predict what the text might be about based on the title and your prior knowledge. What do you think the main message or purpose of the text will be?

Polar Bear Makes the List



In spring 2008, the polar bear was placed on the **endangered species** list. According to the USA's Endangered Species Act, an endangered species is an animal, plant or any other kind of wildlife that is likely to face **extinction** in its natural **habitat**. Polar bears had already been categorized as a "threatened" species which the ESA defines as one that is likely to become "endangered" in the foreseeable future.

The polar bear is the first animal that has been classified as endangered due primarily to **global warming**. Global warming is a form of climate change caused by increased levels of carbon dioxide and other **greenhouse gases** that become trapped in the atmosphere. Oil and gas heaters, engines using oil or petrol (or gasoline) and coal-powered electricity plants all require **fossil fuels** that lead to global warming. Renewable energy sources or **renewables** that don't cause global warming include solar, wind and hydro-electricity power. These alternative forms of power, as well as the science of climate change, have been strongly attacked by many of the world's biggest companies in order to protect the huge profits they make from fossil fuels. They do this even though they're fully aware of how much fossil fuels are damaging our planet and endangering many of the species we share it with.

The polar bear's habitat is more **vulnerable** to global warming than many other species. Polar bears live mainly on the sea ice in the Arctic. This is where they hunt for fish and build up fat reserves. When the ice melts many polar bears move to land and live off their stored fat. In the Arctic, global warming is causing the ice to melt slightly earlier and form slightly later. This results in a shorter feeding season for the polar bear. Some **risk** their lives to find ice. If they have to swim too far they will drown from exhaustion and hunger. The World Wildlife Fund estimates that over 25% of Arctic sea ice has disappeared in the past 30 years.

It is not only the polar bear that is at risk in the Arctic. Every species of plant, animal, and insect there is threatened by global warming. Nevertheless, groups of concerned scientists and **environmentalists** such as the World Wildlife Fund often study large carnivores in order to assess the health of an **ecosystem**. The Arctic **food chain** relies on the polar bear. In addition, donations are more commonly offered for the protection of large animals such as bears or elephants. People in general are less interested in **conservation efforts** that protect small wildlife, such as plants or insects. However, by using donor money to protect the habitats of larger animals through **reforestation** and similar programs, entire ecosystems with many threatened or endangered species can be saved.

It is important that animals such as the polar bear make it onto the endangered species list. Once they are on the list there are laws that protect these animals from being hunted for food or sport. Agencies also receive money and tools to protect the habitat and **recover** the species. The goal of removing the animal from the list is often achievable. Since the Endangered Species Act was introduced in the US in 1973, many species have been taken off the list due to increased populations. In fact, it is rare for a species to go extinct after they make the list. Sadly, many species do go extinct while waiting for consideration.

4. Endangered Species Comprehension Quiz

1. The place where a species lives and reproduces is its natural
 - a. habitat
 - b. wildlife
 - c. extinction

2. According to the article, an endangered species is one that is
 - a. already extinct
 - b. already dangerous
 - c. in danger of extinction

3. Which poses the greatest threat to polar bears today?
 - a. wildlife hunting
 - b. climate change
 - c. water pollution

4. What major change has occurred in the polar bear's natural habitat?
 - a. colder air temperatures
 - b. less hunger and exhaustion
 - c. disappearing sea ice

5. Which type of energy contributes to global warming?
 - a. hydro-electricity
 - b. coal-generated electricity
 - c. wind-generated electricity

6. Certain companies use money and political influence to attack climate science and renewables in order to protect
 - a. endangered species
 - b. natural habitats
 - c. their future profits

7. The World Wildlife Fund estimates that _____ of Arctic sea ice has disappeared in the past 30 years.
 - a. over 25%

- b. over 20%
- c. about 10%

8. What type of conservation efforts are people generally interested in?

- a. saving insects and spiders
- b. protecting large animals
- c. reforestation projects

9. Many threatened or endangered species can be saved by a large

- a. reforestation project
- b. food chain
- c. coal mine

10. Thanks to laws that protect them, species that make it onto the endangered species list _____ become extinct.

- a. always
- b. often
- c. rarely

5. Summarize the main points presented in the text. What did you learn about polar bears? Were there any surprising or thought-provoking facts mentioned?

6. Reflect on your initial predictions. Were they accurate? How did the text align with or differ from your expectations?

7. Discuss the importance of protecting endangered species. Why is it crucial to preserve biodiversity and prevent species from going extinct? Share your thoughts and opinions this topic.

8. Research further on any other species that caught your interest. Find out more about their habitats, threats they face, and ongoing conservation efforts.

9. Write a short paragraph or essay expressing your personal views on endangered species and what actions you believe individuals or society should take to protect them.

Unit 5 Pollution

Vocabulary

Word	Meaning
acid rain <i>noun</i>	rain that contains harmful chemicals that collect in the atmosphere when fossil fuels are burned
carcinogen <i>noun</i>	a substance that has been linked to causing one or more types of cancer
contaminated <i>adj.</i>	has come in contact with organisms or substances that cause disease
developing country <i>noun</i>	a nation that is working towards becoming more economically and socially advanced
domestic waste <i>noun</i>	garbage that is produced by people in a household
dumping <i>verb</i>	placing waste in an area that is not appropriate (eg. dumping chemicals in oceans)
hazardous waste <i>noun</i>	a form of garbage that is harmful to health of plants, animals or humans and requires careful disposal (eg. batteries or paint)
industrial <i>adj.</i>	related to industry and the production of fuel, power and materials used to manufacture goods, esp. in factories
pesticides <i>noun</i>	chemicals that are sprayed on crops to prevent insects from destroying them

Word	Meaning
pollutant <i>noun</i>	a substance or material that damages the natural environment
pollution <i>noun</i>	the contamination of the environment, esp. by industrial waste products and chemicals like pesticides
premature <i>adj.</i>	happening before the expected or normal time
priority <i>noun</i>	something that's of most concern or the greatest importance
sewage <i>noun</i>	human waste from toilets
smog <i>noun</i>	air pollution caused by a reaction between chemicals in the atmosphere and sunlight
toxic chemicals (toxins) <i>noun</i>	poisonous substances that can cause disease
ventilation <i>noun</i>	the replacement of unclean air with fresh air

- 1. Take a few minutes to brainstorm what you already know about pollution. Write down any ideas, examples, or questions that come to mind.**
- 2. Research and gather information about different types of pollution, such as air pollution, water pollution, and noise pollution. Note down any interesting facts, causes, and effects of pollution that you come across.**
- 3. Predict what the text might be about based on the topic of pollution. What do you think the main focus or message of the text will be?**

Water, Air and Soil Contamination



Pollution is an environmental concern for people throughout the world. One university study suggests that **pollutants** in the water, air, and soil cause up to 40% of the premature deaths in the world's population. The majority of these deaths occur in **developing countries**.

Water in many developing countries is **contaminated** with **toxic chemicals**, also known as toxins. The World Health Organization (WHO) estimates that 1.1 billion people have little or no access to clean water. In many of these regions the water that is used for drinking, cooking, and washing is the same water that is used for dumping **sewage** and **hazardous waste**. Most developing countries cannot afford water treatment facilities. Approximately 80% of infectious diseases in the world are caused by contaminated water.

Air pollution is a growing problem throughout the world. Indoor air pollution is one of the leading causes of lung cancer. Families in developing countries use open stoves for cooking and heating their homes. These homes do not have proper **ventilation**. The smoke, which is full of chemicals and **carcinogens**, gets trapped inside where families eat and sleep. Outdoor pollution also causes disease and illness, especially in **industrial** cities such as Beijing, China, where cancer is the leading cause of death. China relies heavily on coal, which is considered the dirtiest source of energy. According to the European Union, only 1% of urban dwellers in China breathe clean air on an average day. Neighbouring countries including Japan and Korea receive much of China's pollution in the form of **acid rain**. This pollution results mainly from the coal powered factories, which produce inexpensive goods for North American and European consumers. Outdoor air pollution is also a concern in many wealthy countries. Those who live and work in urban centres such as Los Angeles or Toronto experience many warm days beneath a layer of **smog**.

Soil pollution is also a major concern, both in industrial and developing countries. Pollutants such as metals and **pesticides** seep into the earth's soil and contaminate the food supply. Soil pollution causes major health risks to entire ecosystems. This type of pollution reduces the amount of land suitable for agricultural production and contributes to global food shortages. **Dumping** of industrial and **domestic** waste products produces much of the world's soil pollution, though natural disasters can also add to the problem. In wealthy countries such as the US, protection agencies monitor the food supply. The public is generally warned before

major disease outbreaks occur. Developing countries do not have this luxury. Farmers in poor nations grow food in contaminated soil both to earn a living and to avoid starvation.

As more people move to urban centres, **premature** deaths caused by pollution are expected to increase worldwide. Today, the developed nations who achieved their wealth at the expense of the environment will be held accountable for protecting the earth's resources for future generations.

4. Pollution Comprehension Quiz

1. A university study suggests that up to 40% of the world's premature deaths are caused by
 - a. developing countries
 - b. disease outbreaks
 - c. pollutants

2. In many developing countries people use _____ contaminated by hazardous waste and sewage.
 - a. water
 - b. air
 - c. facilities

3. _____ regions are often contaminated with air pollution.
 - a. Chemical
 - b. Carcinogenic
 - c. Industrial

4. What do open windows and fans that extract smoke provide?
 - a. contamination
 - b. ventilation
 - c. indoor pollution

5. The article implies that most of China's air pollution is caused by
 - a. Japan and Korea
 - b. burning coal
 - c. acid rain

6. According to the article, where is cancer the leading cause of death?
 - a. Beijing
 - b. Los Angeles
 - c. the European Union

7. Which is NOT mentioned as a source of soil pollution?
 - a. hazardous wastes
 - b. use of pesticides

c. smoke from factories

8. Soil pollution is a major concern in _____ countries.

- a. industrial
- b. developing
- c. industrial and developing

9. Industrial metals and pesticides seep into the earth's soil and contaminate our

- a. food supply
- b. food shortages
- c. disease outbreaks

10. Premature deaths caused by pollution are expected to increase as more people move to

- a. developed nations
- b. urban centres
- c. country towns

5. Summarize the main points or ideas presented in the text about pollution. What did you learn about the causes, effects, and potential solutions to pollutions? Were there any surprising or alarming facts mentioned?

6. Reflect on your initial predictions. Were they accurate? How did the text align with or differ from your expectations?

7. Discuss the impact of pollution on the environment, human health, and wildlife. Share your thoughts and opinions on the severity of the issue and the urgency to address it.

8. Research further on any specific types of pollution mentioned in the text or any other types that caught your interest. Explore the long-term consequences and ongoing efforts to mitigate pollution in those areas.

9. Write a short paragraph or essay expressing your personal views on pollution and what actions you believe individuals or society should take to reduce pollution levels. Consider the importance of sustainable practices, environmental regulations, and raising awareness about the issue.

Unit 6 Eco-Communities

Vocabulary

Word	Meaning
bamboo <i>noun</i>	a woody plant that grows quickly without pesticides and has many uses
biomass <i>noun</i>	organic material or waste that can be used to make fuel
buzz word <i>noun</i>	a word that's popular at a certain time, especially in the media
carbon-dioxide or carbon (<i>colloq.</i>) <i>noun</i>	a greenhouse gas that's released when fossil fuels are burned
carbon footprint <i>noun</i>	a measurement of the total amount of carbon a person adds to the atmosphere by travelling by air, driving a car, using fossil fuel-generated power, etc.
car share program <i>noun</i>	a program that allows members to share one or more cars instead of buying their own car
durable <i>adj.</i>	strong, long-lasting
eco- <i>prefix</i>	related to the protection of the natural environment and ecosystems
eco-	a community with environmentally-friendly buildings, technology, and energy sources like solar, wind, biomass,

Word	Meaning
community <i>or ecovillage</i> <i>noun</i>	etc.
energy-efficient <i>adj.</i>	able to use less energy (esp. of vehicles, appliances, buildings, etc.)
global warming <i>noun</i>	increasing temperatures and the rising sea levels, melting ice caps, coral reef bleaching, unstable weather, etc. this is causing
green <i>adj.</i>	<ol style="list-style-type: none"> 1. concerned with protecting the natural environment and the planet 2. having the colour of grass
green initiative <i>noun</i>	an effort to protect the natural environment
in the works <i>idiom</i>	being developed now
non-toxic <i>adj.</i>	not harmful to people or the environment, esp. of chemicals, waste products, etc.
pesticide <i>noun</i>	a chemical used to prevent insects from destroying crops
self-sufficient <i>adj.</i>	able to function, or produce all that's needed, without outside help
unprecedented <i>noun</i>	never done or achieved before

Word	Meaning
utility metre <i>noun</i>	a device that records how much water, electricity or gas is being used in a house, apartment or building
ventilation <i>noun</i>	the replacement of unclean air or smoke with clean air
zero-emission <i>adj.</i>	releasing no waste products, esp. carbon-dioxide (or "carbon")

1. Take a few minutes to brainstorm what you already know about eco-communities. Write down any ideas, examples, or questions that come to mind.

2. Research and gather information about eco-communities. What are they? How are they different from traditional communities? What are some examples of successful eco-communities around the world?

3. Predict what the text might be about based on the topic of eco-communities. What do you think the main features, benefits, and challenges of eco-communities might be?

Dockside Green



The **green** movement is catching on in many pockets of the world. This is especially true in the construction industry. Today's **buzz words**, which include **global warming** and zero emissions, are causing everyday people (not just celebrities) to look for ways to reduce their **carbon footprint**. Purchasing an

environmentally-friendly home is a good investment for those who are concerned about their own health and the well-being of our planet. Based on this trend, entire districts, known as **eco-communities**, are being designed with **green initiatives** in mind. One of these communities is Dockside Green in the Canadian province of British Columbia. Its goal is to become the world's first **zero-emission** neighbourhood.

Dockside Green is a mostly **self-sufficient** community along the harbour front of Victoria, the capital city of British Columbia. The community is home to around 2,500 people and includes residential, office, and retail space. It includes a variety of environmental features, some of which are **unprecedented**.

The planners and builders of Dockside Green have the environment in mind with every choice they make. They ensure proper **ventilation** and guarantee residents clean air indoors. Interior and exterior building materials, such as paints and wood, are natural and **non-toxic**. One of these is **bamboo** which is used because it's very **durable** and can be grown without the use of dangerous **pesticides**.

Energy efficiency is one of the top priorities in eco-communities like Dockside Green. Not only do **energy-efficient** appliances and light fixtures reduce the environmental impact of heating, cooking and lighting, they also save residents money. Dockside Green claims that home owners use 55% less energy than the average Canadian. Though many residents are sharing space by investing in condo-style living, they have their own individual **utility metres** for electricity and gas. Studies show that people use around 20% less energy when they are billed for exactly what they use.

Eco-communities also take the future into account by recycling waste and reducing carbon emissions. At Dockside Green, waste water is treated and reused on-site for flushing toilets, and a **biomass** gas plant converts waste wood into a renewable form of gas for hot water systems, stoves and gas heaters. The community also reduces carbon emissions by using local suppliers for all their transport and maintenance needs, and residents are encouraged to use a mini transit system and join the community's **car share** program.

The first two stages of development at Dockside Green were completed in 2011, and additional plans to increase sustainability are **in the works**. Similar green communities are now found all over the world, especially smaller ones known as **ecovillages** or "intentional communities". Most have 50 to 150 residents, all of whom are trying to reduce their carbon footprints and create a model for sustainable living in the future.

4. Eco-Communities Comprehension Quiz

1. You can reduce your carbon footprint by _____ less.
 - a. walking
 - b. driving
 - c. talking
2. By reducing your carbon footprint, you are helping to _____ the problem of global warming.
 - a. create
 - b. worsen
 - c. solve
3. Which aimed to become one of the world's first zero-emission neighbourhoods?
 - a. British Columbia

- b. Victoria
- c. Dockside Green

4. People live in eco-communities because they're concerned about _____ issues.

- a. environmental
- b. buzz word
- c. investment

5. The builders of Dockside Green only used non-toxic residents

- a. building
- b. materials
- c. bamboo

6. Which can save you money?

- a. environmental impacts
- b. energy-efficient appliances
- c. higher energy prices

7. What's used to flush toilets at Dockside Green?

- a. toxic waste
- b. carbon emissions
- c. treated waste water

8. What does the biomass plant at Dockside Green produce?

- a. gas
- b. electricity
- c. stoves and heaters

9. Smaller eco-communities are sometimes called ecovillages or _____ communities.

- a. inefficient
- b. intentional
- c. international

10. Who would be most likely to support the development of eco-communities?

- a. climate scientists
- b. fossil fuel companies
- c. coal mining investors

5. Summarize the main points or ideas presented in the text about eco-communities. What are the key characteristics and principles of eco-communities? How do they promote sustainability and environmental consciousness?

6. Reflect on your initial predictions. Were they accurate? How did the text align with or differ from your expectations?

7. Discuss the potential benefits and challenges of living in an eco-community. Consider the impact on individuals' lifestyles, social interactions, and overall well-being. Share your thoughts on whether you would consider living in eco-community and why.

8. Research further on any eco-communities mentioned in the text or any other examples that caught your interest. Explore their unique features, success stories, and lessons learned from their implementation.

9. Write a short paragraph or essay expressing your personal views on eco-communities and their role in promoting sustainable living. Discuss the importance of community involvement, renewable energy sources, waste management, and other eco-friendly practices in building a more sustainable future.

Unit 7 Natural Habitats

Vocabulary

Word	Meaning
breeding (noun)	the process by which organisms reproduce - <i>A suitable habitat is essential for successful breeding.</i>
coral reef (noun)	a marine habitat around rock-like calcium formations created by colonies of living coral - <i>Coral reefs are teeming with marine life.</i>
ecosystem (noun)	a complex network of relationships among organisms - <i>Our river's ecosystem is being destroyed by toxic factory waste.</i>
endangered (adjective)	in danger of becoming extinct or disappearing in the near future - <i>Over 30,000 species are already endangered.</i>

Word	Meaning
equatorial (adjective)	near the equator, or similar to somewhere near the equator - <i>I used to think that all rainforests were equatorial.</i>
food chain (noun)	a linked series of relationships wherein one species is food for another, which in turn is food for another, and so on - <i>Nothing eats lions, so they must be at the top of their food chain.</i>
habitat (noun)	the place in which a particular animal, plant or other organism usually lives, such as a forest, river, grassland, etc - <i>If it's the habitat of an endangered species, it must be protected.</i>
inhabit (verb)	to live in a particular place - <i>The islands are inhabited by millions of seabirds during the breeding season.</i>
marine (adjective)	related to the sea - <i>They catch fish and other marine creatures.</i>
marsh (noun)	an area of soft, wet land that often floods during high tides or the rainy season - <i>Marshes are really important habitats for water birds.</i>
natural environment (noun)	any place still in its natural state - <i>Our goal is to protect natural environments from destructive human activity.</i>
natural habitat (noun)	the place in which a species normally lives - <i>If the tiger's natural habitat isn't protected, it'll soon be extinct.</i>
orangutan (noun)	a large ape with long red hair and long arms that inhabits the jungles of Borneo and Sumatra - <i>If you look an orangutan in the eye, it's just like looking another person in the eye.</i>
organism (noun)	a living thing, such as an animal, plant, bird or bacterium - <i>Good soil is full of organisms, many of which are microorganisms too small to see.</i>
pollination (noun)	the process by which pollen is moved from one flower to another, often by an insect or bird, to allow fertilization - <i>Pollination only occurs when there are plenty of bees here to do it.</i>

Word	Meaning
species (noun)	a group of very similar organisms that can reproduce - <i>Did you hear about this new species of tree kangaroo they found in Australia?</i>
terrestrial (adjective)	on or related to the Earth's land (as opposed to the sea or the sky) - <i>Most mammals are terrestrial, but whales and dolphins and marine mammals.</i>

1. Take a few minutes to brainstorm what you already know or think about natural habitats. Write down any ideas, examples, or questions that come to mind.

2. Research and gather information about different types of natural habitats. What are they? How do they support biodiversity and ecological balance? What are some examples of unique and diverse natural habitats around the world?

3. Predict what the text might be about based on the topic of natural habitats. What do you think the main features, importance, and threats to natural habitats might be?

Every living thing has a particular place in which it lives, and we call this place its **habitat**. A good habitat provides everything an **organism** needs to survive. It provides food and shelter, places for **breeding** or laying eggs, the right kind of climate, and so on. Every particular type of organism, or **species**, needs a particular type of **natural habitat**. For some species it could be deep in a forest, while for others it could be deep in the ocean. No matter what type of habitat a species needs, it will have to share it with other species who have adapted to the same kind of **natural environment**.

When many species share a particular habitat, some species will be food for other species, which in turn might be food for others even higher up the **food chain**. Food chains are just one of many relationship networks within a habitat that together form what we call an **ecosystem**. As such, every species becomes part of an ecosystem within its particular habitat. Lions, for example, live in habitats across the grasslands of central Africa. They are apex predators, which means they are at the top of the food chain in their ecosystem. The food chains that lions are part of include various grasses and other plants eaten by the animals that lions eat, such as zebras, buffaloes and giraffes.



Lions relaxing in trees surrounded by their natural habitat in the Queen Elizabeth National Park, Uganda. Photo: Charles J Sharpe

Habitat Types

Habitats are often divided into three main types: **terrestrial**, freshwater and **marine**. Terrestrial habitats are places on land like forests, woodlands, grasslands and deserts, while freshwater habitats include rivers, lakes, ponds and inland swamps and **marshes**. Marine habitats include all those places that are part of the world's oceans such as coastal rock pools, **coral reefs**, open seas far from land, and seabeds on the ocean floor.

Habitats can also be put into categories based on climate type. For example, polar bears and emperor penguins live in very cold polar habitats, while gorillas and **orangutans** live in much warmer tropical habitats. Even though gorillas **inhabit** mountain forests in **equatorial** Africa and orangutans live in the rainforests of equatorial southeast Asia, both can be said to live in tropical habitats. Habitats can also be put into categories based on vegetation type. For example, we can also say orangutans live in rainforest habitats, while lions live in grassland habitats.

Habitats and Ecosystems

No matter what kind of habitat we're talking about, we can be sure it contains many species that each form part of a complex ecosystem. An ecosystem in a terrestrial habitat usually involves a wide range of species including plants, animals, birds, insects and microorganisms in the soil. These organisms are linked in a variety of ways. Animals might eat other animals, or they might depend on plants for food. And the plants might depend on nutrients in the soil from the waste of these animals. Microorganisms might depend on dead bodies for food, and insects might play an essential role in the **pollination** of certain plants. If the insects disappear, the plants will eventually disappear as well if they can't produce seeds. And birds that depend on these plants for food as well as nest-building materials might also disappear, and so on.

All of these connections among organisms in a habitat form an ecosystem, and while some organisms might survive changes to their ecosystem, many may not. The most vulnerable might even become **endangered** if important habitats are damaged or lost.

4. Natural Habitats Quiz

1. A habitat is the _____ in which something lives.
 - a. way
 - b. time
 - c. place

2. Do all species need the same type of habitat?
 - a. yes
 - b. no
 - c. not sure

3. "Breeding" is the process by which organisms
 - a. reproduce
 - b. look for food
 - c. fight for habitats

4. Which is most likely to be an apex predator?
 - a. a tuna fish
 - b. a piranha fish
 - c. a killer whale

5. What type of habitat is a river?
 - a. terrestrial
 - b. freshwater
 - c. marine

6. Which are marine habitats?
 - a. coral reefs
 - b. grasslands
 - c. lakes

7. Which lives in a polar habitat?
 - a. the polecat
 - b. the snow leopard
 - c. the emperor penguin

8. An ecosystem is a complex network of relationships among _____ that depend on each other.
 - a. habitats
 - b. organisms
 - c. food chains

9. Which is one of a tropical island's terrestrial habitats?

- a. the forest floor
- b. the ocean floor
- c. the dance floor

10. If many of its habitats are lost, a species can become

- a. invisible
- d. endangered
- c. dangerous

5. Summarize the main points or ideas presented in the text about natural habitats. What are the key characteristics and functions of natural habitats? How do they contribute to the overall health of ecosystems and the survival of various species?

6. Reflect on your initial predictions. Were they accurate? How did the text align with or differ from your expectations?

7. Discuss the importance of preserving and protecting natural habitats. Consider the impact of human activities, such as deforestation, pollution, and climate change, on natural habitats and the consequences for biodiversity and ecosystem services.

8. Research further on any specific natural habitats mentioned in the text or any other examples that caught your interest. Explore their unique features, conservation efforts, and the role they play in supporting various species.

9. Write a short paragraph or essay expressing your personal views on significance of natural habitats and the need for their conservation. Discuss the importance of sustainable land use, habitat restoration, and public awareness in ensuring the long-term survival of natural habitats and the species that depend on them.

Unit 8 Habitat Loss

Vocabulary

Word	Meaning
aquatic (adjective)	living in or near water, or related to water - <i>It's amazing to see so many aquatic species living in one wetland.</i>
biodiversity (noun)	the range of animal and plant life in the world or in a particular habitat - <i>Loss of biodiversity is a serious environmental problem.</i>
catastrophic (adjective)	causing terrible damage and suffering - <i>Forest fires can be catastrophic for wildlife.</i>
clear-cut (also clear-fell) (verb)	to destroy a forest by cutting down all the trees - <i>Why are logging companies still clear-cutting rainforests?</i>
conifer (noun)	evergreen trees like pines and firs with needle-like leaves and seeds in cones - <i>Can we use any kind of conifer as a Christmas tree?</i>
coral reef (noun)	a marine habitat around rock-like calcium formations created by colonies of living coral - <i>If climate change kills our coral reefs, tourists will stop coming.</i>
coral bleaching (noun)	a process by which rising water temperatures cause coral to lose colour before dying - <i>In 2016, coral bleaching killed up to 50% of the Great Barrier Reef's coral.</i>
deforestation (noun)	the destruction of all the trees and shrubs in a forest or woodland - <i>The government says deforestation creates jobs.</i>
desertification (noun)	the process by which fertile land becomes an arid, desert-like wasteland - <i>Nearly 20% of the world's land is threatened with desertification.</i>
dump (verb)	to put unwanted waste in the wrong place - <i>Do you know which factory is dumping waste into our lake?</i>

Word	Meaning
endangered (adjective)	in danger of becoming extinct or disappearing in the near future - <i>That many species can't really be endangered, can they?</i>
extinct (adjective)	no longer existing (of a species of animal, bird, plant, etc) - <i>Dozens of Australian animals became extinct after the British took our land.</i>
habitat loss (noun)	the disappearance of natural habitats in which a species normally lives - <i>How many species are endangered because of habitat loss?</i>
logging (noun)	the act of cutting down trees for their wood - <i>The logging stopped after the timber mill closed.</i>
mangrove (noun)	a tree that grows in muddy swamps on the seashore, mostly in tropical areas - <i>Lots of fish and crabs lay eggs in the roots of mangroves.</i>
plantation (noun)	a large area in which trees of a single species are grown and harvested for wood or a product like tea, rubber, palm oil, etc - <i>We owned a tea plantation in India.</i>
terrestrial (adjective)	on or related to land (as opposed to the sea or the sky) - <i>Terrestrial habitats have been studied more than marine habitats.</i>
timber (noun)	wood that's been prepared for use as a building material - <i>What kind of timber are you getting for the floors?</i>
trawl (verb)	to catch fish by pulling a large net behind a boat - <i>Trawling catches everything, not just the fish they want.</i>
wetlands (noun)	land that's regularly flooded by water from a nearby lake, river or ocean - <i>Wetlands are great places for photographing water birds.</i>

1. Take a few minutes to brainstorm what you already know or think about habitat loss. Write down any ideas, examples, or questions that come to mind.

2. Research and gather information about the causes and consequences of habitat loss. What are some of the major factors contributing to habitat

destruction? How does habitat loss impact biodiversity, ecosystems, and human well-being?

3. Predict what the text might be about based on the topic of habitat loss. What do you think the main causes, effects, and potential solutions to habitat loss might be?

Animals, plants and all other living things can only survive in places that give them what they need, and we call these places habitats. Every species needs a particular kind of habitat with the right kind of food, the right kind of shelter, the right climate, and so on. If a habitat is destroyed or so badly damaged that it no longer provides what's needed for a species to live there, the species has experienced habitat loss.

When a species experiences serious levels of habitat loss, its population declines and it can become endangered. If its population continues to decline, it eventually becomes extinct and **biodiversity** is further reduced. This is happening right now, and it's getting worse every day. According to The International Union for Conservation of Nature's current IUCN Red List of Threatened Species, more than 35,500 species are already threatened with extinction, including 40% of amphibians, 34% of **conifers**, 33% of the corals in **coral reefs**, 26% of mammals and 14% of birds. These numbers are truly shocking, and they show how serious the problem of habitat loss has become.

Types of Habitat Loss

Habitat loss is occurring all around the world, and it's damaging or destroying ecosystems in every type of habitat. **Terrestrial** habitats like rainforests and woodlands are being cleared to make room for agricultural land, and they're also being destroyed by forest fires made worse than ever by climate change. **Aquatic** habitats are also being lost or seriously damaged in many parts of the world. Rivers are running dry, lakes are being filled with toxic waste, **wetlands** are being drained and marine habitats are being lost due to destructive overfishing and the effects of climate change.

Terrestrial Habitat Loss

One of the main causes of terrestrial habitat loss is **deforestation** in which entire forests are cleared, either to harvest **timber** or to create land for agriculture. When harvesting timber, **logging** companies often find that clearing an entire forest is cheaper than cutting down selected trees and leaving the rest. This is called **clear-cutting** and it's being done in forests and woodlands around the world, even in protected rainforests of the Amazon Basin. These are some of the world's richest habitats where nearly half of all the plant and animal species on Earth live. It's estimated that around 80,000 acres of rainforest is lost to burning and clear-cutting every day. Even if the cleared land is then used to create tree **plantations**, they are usually for a single species like the oil palm or the rubber tree. Replacing forests with plantations often destroys all the natural habitats in an entire region, leaving wildlife with nowhere to live. This makes mass extinctions far more likely to occur.



A wheat field in Idaho, USA. Modern agricultural methods can lead to entire regions being cleared of natural habitats, leaving wildlife with nowhere to live.

The same degree of habitat loss can occur when land is cleared for farming. Modern agriculture uses huge machines to harvest crops like wheat and corn, and this way of farming works best when every single tree is cut down. Even small areas of natural habitat aren't left uncleared, and as with tree plantations this can mean all the natural ecosystems and habitats in an entire region are lost forever.



Clear-cutting in Toolangi forest in southern Australia. Photo: Peter Campbell, via Wikimedia Commons

There is also a lot of evidence linking climate change to habitat loss. Average temperatures have increased steadily since 2000, and forest fires have also become more frequent during this period, especially in the USA and Australia. Many of these fires are also more destructive than ever, burning hotter and for longer than before. Not only are they killing plants and animals, they're also killing seeds and organisms in the soil that normally allow forests to grow back after a fire. Climate change is also changing rainfall patterns, and in parts of Africa where less rain is falling **desertification** is gradually turning fertile grassland habitats into lifeless deserts.

Aquatic Habitat Loss

Habitat loss is also occurring in aquatic environments like rivers, lakes, wetlands and oceans. Toxic waste is being **dumped** into rivers and lakes in industrial areas, while in agricultural areas pesticides and fertilizers are entering waterways and damaging their ecosystems in various ways. The draining and filling of wetlands and marshes to create land for farming and housing is also destroying important habitats. Many of these habitats are breeding grounds and sources of food for water birds, and their loss is seriously endangering many species.

Marine habitats throughout the world's oceans are also coming under threat. Overfishing is getting worse as advanced technologies such as satellite surveillance make it easier than ever to track and catch huge numbers of fish. Fleets of fishing boats **trawl** the oceans and bring up everything in their nets, but only keep the fish they can sell. The rest is left to die and then thrown back, and doing this can disrupt food chains in marine habitats.

Damage is also being done to many coastal habitats. **Mangrove** swamps along tropical coasts are breeding grounds for countless species, but these and other shoreline habitats are often cleared to build seafood farms, coastal roads, beach houses, industrial estates, and so on. Coastal habitats can also be damaged by oil spills and the dumping of industrial waste.

Coral reefs are among the most beautiful and colourful habitats in the world. But climate change is causing temperatures in the ocean to rise, and this can result in **coral bleaching**. If episodes of coral bleaching repeatedly occur, the coral dies and what used to be an underwater wonderland soon becomes an underwater wasteland instead.



Coral bleaching in Australia's Great Barrier Reef revealed during a low tide. Photo: Oregon State University, via Wikimedia Commons

In the 2020 WWF Living Planet Report, Director General of the World Wildlife Fund Marco Lambertini wrote: "The report underlines how humanity's increasing destruction of nature is having **catastrophic** impacts not only on wildlife populations but also on human health and all aspects of our lives." But scientists and environmentalists aren't giving up. They are trying to understand why these impacts were allowed to become so catastrophic.

4. Habitats Loss Quiz

1. Animals, plants and all other living things can only survive in places that give them what they need, and we call these places _____.

- a. habitats
- b. inhabitants
- c. squatters

2. Every species needs a particular kind of habitat with the right kind of food, the right kind of _____, the right climate.

- a. place
- b. district
- c. shelter

3. When a species experiences serious levels of _____, its population declines and it can become endangered

- a. inhabitants
- b. habitat loss
- c. danger

4. If its population continues to decline, it eventually becomes extinct and _____ is further reduced.

- a. biodiversity
- b. habitat loss
- c. mangrove

5. _____ habitats like rainforests and woodlands are being cleared to make room for agricultural land.

- a. Terrestrial
- b. Endangered
- c. Extinct

6. _____ habitats are also being lost or seriously damaged in many parts of the world.

- a. Catastrophic
- b. Aquatic
- c. Terrestrial

7. One of the main causes of terrestrial habitat loss is _____ in which entire forests are cleared.

a. habitat loss

b. deforestation

c. logging

8. Toxic waste is being _____ into rivers and lakes in industrial areas, while in agricultural areas pesticides and fertilizers are entering waterways and damaging their ecosystems in various ways.

a. trawled

b. dumped

c. clear-cut

9. _____ swamps along tropical coasts are breeding grounds for countless species.

a. Mangrove

b. Plantation

c. Logging

10. The report underlines how humanity's increasing destruction of nature is having _____ impacts not only on wildlife populations but also on human health.

a. terrestrial

b. extinct

c. catastrophic

5. Summarize the main points or ideas presented in the text about habitat loss. What are the primary causes of habitat loss? How does it affect different species, ecosystems, and the overall health of the planet?

6. Reflect on your initial predictions. Were they accurate? How did the text align with or differ from your expectation?

7. Discuss the significance of habitat loss and its impact on biodiversity and ecosystem services. Consider the role of human activities, such as deforestation, urbanization, and climate change, in driving habitat loss and the consequences for both wildlife and human communities.

8. Research further on any specific examples of habitat loss mentioned in the text or any other cases that caught your interest. Explore the specific consequences and potential solutions for each case.

Unit 9 Saving Natural Habitats

Vocabulary

Word	Meaning
boycott (verb)	to not buy or use something in order to protest or punish the producer - <i>We'll boycott any company that doesn't pay its workers a living wage.</i>
consumerism (noun)	the belief that buying and consuming goods and services is the key to happiness - <i>Robert is studying the environmental impact of consumerism.</i>
consumption (noun)	the buying of goods and services; the use of energy, fuel, materials, etc - <i>Reducing the production and consumption of plastic goods will help.</i>
degradation (noun)	transformation to a worse condition - <i>Climate change is causing serious degradation of our coral reefs.</i>
degrowth (noun)	the economic goal of reducing consumption and production in order to solve environmental problems - <i>How can we persuade regular people of the benefits of degrowth?</i>
demand (noun)	the amount of something that people want to buy, consume, or own, esp. of a product or service - <i>The demand for electric cars is increasing every year.</i>
endangered (adjective)	in danger of becoming extinct or disappearing in the near future - <i>Did you know that over 30,000 species are already endangered?</i>

Word	Meaning
extinction (noun)	the loss of a species of animal, bird, plant, etc for all time - <i>Preventing the extinction of the tree kangaroo is our top priority.</i>
extraction (noun)	the removal of something that's firmly in place, like a tooth or a mineral deposit - <i>The people who profit from resource extraction aren't the people affected by it.</i>
Green New Deal (GND) (noun)	a plan for the future that combines environmental protection and social justice policies with action on climate change - <i>How does the Green New Deal address income inequality?</i>
gross domestic product (GDP) (noun)	a measure of the total value of products and services produced by a particular country in one year - <i>Will China's GDP increase as much as usual this year?</i>
indigenous (adjective)	being the original owners or guardians of a particular place - <i>The indigenous people have been living here for at least fifty thousand years.</i>
lobby (verb)	to contact powerful people like politicians and try to influence them for your benefit - <i>Do we know how much money companies spend on lobbying politicians every year?</i>
pesticide (noun)	a chemical used to kill insects, esp. those that damage or destroy crops - <i>Some of the most common pesticides are now known to cause cancer.</i>
standard of living (noun)	the level of consumption and material comfort a person or society can afford - <i>Do you think a high standard of living guarantees happiness?</i>
sustainable (adjective)	able to continue for a long time without causing problems - <i>The indigenous people have always had a sustainable way of life.</i>
way of life (phrase)	the way in which a person or group normally lives - <i>Changing our way of life won't be easy, you know.</i>

1. Scim the text to get a general idea of the topic and its main points.

2. Look at the titles and headings to understand the focus of the text.

3. Consider any prior knowledge or personal experiences related to saving natural habitats.

In 1962 a book called *Silent Spring* by Rachel Carson was published. It was about the damage **pesticides** were doing to the natural environment and human health. The book became a best-seller and helped the environmental movement grow and become part of the social revolution of the 1960s. More people were also joining organizations like the World Wildlife Fund (WWF) or starting new organizations like Greenpeace. Meanwhile government departments like the USA's Environmental Protection Agency (EPA) were being established in countries all around the world.

Despite all the work that people in organizations like these have done since the 1960s, and despite all the protests and street marches that have been held, things have only gotten worse. Habitat destruction has increased enormously, so much so that by 2020 only 3% of the world's wilderness remained undamaged by human activity (Note 1). Wildlife populations have fallen by an average of 68% since 1970 according to the WWF Living Planet Report 2020, and over 37,400 species of mammals, birds, fish, amphibians, reptiles and plants are now threatened with **extinction** (Note 2).



Despite countless protests and street marches like this one in San Francisco, habitat loss has increased enormously since the 1960s.

What went wrong? Why have things become so much worse since the 1960s? The WWF Living Planet Report cited above notes that "Since 1970, total **gross domestic product (GDP)** has increased four times, the **extraction** of living materials from nature has tripled, and human population has doubled (p. 52)". The report concludes that rising populations and increasing GDPs have led to more and more people being able to afford a high **standard of living**, and that this is the main reason for both habitat loss and the climate change emergency.

Many other reports have reached the same conclusion. In 2019 a study commissioned by The United Nations concluded that "High **consumption** lifestyles in more developed economies,

combined with rising consumption in developing and emerging economies, are the dominant factors driving land **degradation** globally." (Note 3)

If high levels of consumption are so damaging, why do we still want to consume so much? One reason is that companies use advertising to increase sales and profits, and advertising promotes **consumerism**. Consumerism is the belief that consuming makes us happy, and that buying expensive designer clothes and luxury goods, living in a big house, owning an expensive car, eating gourmet foods, travelling the world, etc is the best way to live. But living this way is directly related to environmental destruction and habitat loss.

A good example of how consumerism and higher standards of living cause habitat loss is the fact that more of us can now afford to eat expensive meats like steak. To satisfy the growing **demand** for steak, more and more forests in areas like the Amazon Basin are being destroyed to make way for farms that raise beef cattle. So one way to help save natural habitats is to eat less steak and beef. Doing something simple like this can really help, maybe even more than protesting on the streets or debating online.

While eating less or no beef is part of a more **sustainable** lifestyle, we have to do much more than this. The problems we have created have become so serious that we're now facing a life-or-death global emergency. To survive this emergency, we'll have to change our entire **way of life** and start putting nature at the centre of our decision-making.

What can we do?

Consume less

We can start by only buying things we really need. Think about whether consumerism and the idea that shopping makes us happy is what you really believe. Consuming less also means producing less waste, including plastic waste of the sort that's so damaging to oceans and marine life.

Be informed

We can read books and articles and watch documentaries about things like habitat loss, climate change, renewable energy, environmental politics, and so on. Doing this helps us to make good decisions about things like the food we eat, the transport we use, and who we vote for.

Get political

We can join political parties that support policies like the global **Green New Deal** (Note 4) and **degrowth** policies that limit production and consumption to sustainable levels.

Join the "green" movement

We can join organizations like Greenpeace, Friends of the Earth, the WWF and Extinction Rebellion. We can also make donations to organizations like these and join direct action campaigns and protest marches.

Improve decision-making in business

If you run a business, don't base your decisions on maximizing profits alone. Put nature at the centre of your decision-making to ensure you're not making the environmental crisis even worse than it already is. You could even think about starting a "green" business like installing solar panels or selling organic fruits and vegetables.



A "green" farm in Oregon USA, with a row of solar panels next to some grapevines and uncleared natural habitat nearby.

Boycott bad products and companies

We can refuse to buy products like palm oil, the production of which causes major habitat destruction and air pollution when huge areas of tropical forest are burned every year to make way for new palm oil plantations. We can also **boycott** companies that **lobby** politicians to block legislation that protects the environment. Many fossil fuel companies do this, as do companies that make pesticides and other damaging chemicals.

Do useful work

We can choose careers in which we can make a difference rather than just make lots of money. Think about whether you'll have the power or skills to play a role in solving the problems we're facing.

Support indigenous land rights

Giving **indigenous** people the right to live on their homelands allows them to use their knowledge of ecosystems to protect local habitats. This has been shown to be more effective at preserving biodiversity than turning their homelands into wilderness areas they can't live on.

Work together

If all we do is sit around feeling sad and worried about the future, what do you think will happen? If all we do is blame others for creating the problem and wait for others to fix it, what

do you think we'll achieve? But if we all work together doing whatever we can, we might be able pass a living planet on to future generations after all.

4. Saving Natural Habitats Quiz

1. It was about the damage _____ were doing to the natural environment and human health.
 - a. extraction
 - b. pesticides
 - c. degrowth

2. Over 37,400 species of mammals, birds, fish, amphibians, reptiles and plants are now threatened with _____.
 - a. extinction
 - b. demand
 - c. Extraction
3. Since 1970, total _____ has increased four time.
 - a. way of life

 - b. standard of living

 - c. gross domestic product (GDP)
1. High _____ lifestyles in more developed economies, combined with rising consumption in developing and emerging economies
 - a. consumption
 - b. extinction
 - c. extraction
2. One reason is that companies use advertising to increase sales and profits, and advertising promotes _____.
 - a. degrowth
 - b. consumerism
 - c. consumption
3. We can also _____ companies that lobby politicians to block legislation that protects the environment.
 - a. consume
 - b. lobby
 - c. boycott
4. Giving _____ people the right to live on their homelands allows them to use their knowledge of ecosystems.
 - a. indigenous
 - b. sustainable
 - c. endangered
5. This has been shown to be more effective at preserving _____ than turning their homelands into wilderness areas.
 - a. standard of living

 - b. biodiversity
 - c. degrowth

6. If all we do is _____ others for creating the problem and wait for others to fix it, what do you think we'll achieve?

- a. blame
 - b. protect
 - c. lobby
7. If we all work together doing whatever we can, we might be able pass a living planet on to future _____.
- a. extraction
 - b. degrowth
 - c. generations

5. Summarize the main points of the text in your own words.

6. Identify any new information or insights gained from the text.

7. Reflect on the importance of saving natural habitats and the impact it has on ecosystems and biodiversity.

8. Consider any actions or steps that can be taken to contribute to the conservation of natural habitats.

9. Discuss or write about the potential challenges and solutions involved in saving natural habitats.

10. Connect the information from the text to other related topics or current environmental issues.

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