

МІНІСТЕРСТВО ОСВІТИ І НАУКИ УКРАЇНИ

ЦЕНТРАЛЬНОУКРАЇНСЬКИЙ НАЦІОНАЛЬНИЙ
ТЕХНІЧНИЙ УНІВЕРСИТЕТ

КАФЕДРА ІНОЗЕМНИХ МОВ

Методичні вказівки англійською мовою
для студентів спеціальності “Екологія”:

«ВСТУП ДО СУЧАСНОЇ ЕКОЛОГІЇ»

(електронне видання)

КРОПИВНИЦЬКИЙ
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Затверджено на засіданні

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ВСТУП ДО СУЧАСНОЇ ЕКОЛОГІЇ. Методичні вказівки до читання текстів англійською мовою для студентів спеціальності «Екологія». (електронне видання) / Укл.: Штомпель Г.В., – Кропивницький: ЦНТУ 2019, -32 с. Умовн. друк. арк. 1. 31725 др. зн.

Дані методичні вказівки і завдання до читання текстів англійською мовою призначені для студентів спеціальності «Екологія і охорона навколишнього середовища» денної і заочної форми навчання. Інформаційний зміст текстів доступний для сприйняття студентами I-II курсів. Пропоновані автентичні тексти відповідають динаміці сучасного науково-технічного прогресу, специфіці досліджуваних в університеті спеціальностей, а також вимогам програми з англійської мови для студентів вищих навчальних закладів. Тексти доповнені коментарями та вправами.

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UNIT I

ECOLOGY

Ecology is the study of the relationship of plants and animals with their physical and biological environment. The physical environment includes light and heat or solar radiation, moisture, wind, oxygen, carbon dioxide, nutrients in soil, water, and atmosphere. The biological environment includes organisms of the same kind as well as other plants and animals.

Because of the diverse approaches required to study organisms in their environment, ecology draws upon such fields as climatology, hydrology, oceanography, physics, chemistry, geology, and soil analysis. To study the relationships between organisms, ecology also involves such disparate sciences as animal behavior, taxonomy, physiology, and mathematics.

An increased public awareness of environmental problems has made ecology a common but often misused word. It is confused with environmental programs and environmental science. Although the field is a distinct scientific discipline, ecology does indeed contribute to the study and understanding of environmental problems.

The term "ecology" was introduced by the German biologist Ernst Heinrich Haeckel in 1866; it is derived from the Greek "oikos" ("household"), sharing the same root word as "economics". Thus, the term implies the study of the economy of nature. Modern ecology, in part, began with Charles Darwin. In developing his theory of evolution, Darwin stressed the adaptation of organisms to their environment through natural selection. Also making important contributions were plant geographers, such as Alexander von Humboldt, who were deeply interested in the "how" and "why" of vegetation distribution around the world.

The thin mantle of life that covers the earth is called the biosphere. Several approaches are used to classify its regions.

Exercise I

а) Прочитайте міжнародні слова та перекладіть їх.

physical	nutrient	taxonomy
biological	climatology	physiology
solar	hydrology	ecology
radiation	oceanography	program
oxygen	geology	discipline
carbon	organism	problem
dioxide	analysis	economics
term	nature	modern
theory	evolution	adaptation
natural	biology	selection
geographer	vegetation	biosphere

б) Прочитайте наступні слова та запам'ятайте їх. Перекладіть приклади їх використання.

relationship	взаємовідносини
physical	фізичний
biological	біологічний
environment	оточення

the relationship of plants and animals with their physical and biological environment.

light	світло
heat	тепло
solar radiation	сонячна радіація
moisture	волога

wind	вітер
oxygen	кисень
carbon dioxide	вуглекислий газ
nutrient	харчові сполуки
soil	грунт
water	вода
atmosphere	атмосфера

light and heat or solar radiation, moisture, wind, oxygen, carbon dioxide, nutrient in soil, water and atmosphere.

organism	організм
plant	рослина
animal	тварина

includes organisms of the same kinds well as other plants and animals.

diverse	різноманітний
approache(s)	підхід
required	необхідний

because of the diverse approaches required to study organisms in their environment

draws upon	базуватися
field	галузь
climatology	кліматологічне
hydrology	гідрологія
oceanography	океанографія
physics	фізика

chemistry	хімія
geology	геологія
soil analysis	аналіз ґрунту

Ecology draws upon such fields as climatology, hydrology, oceanography, physics, chemistry, geology and soil analysis.

involve(s)	включати
disparate	різнорідний
science(s)	наука
animal behaviour	поведінка тварин
taxonomy	таксономія
physiology	Фізіологія
mathematics	математика

Ecology also involve(s) such disparate sciences as animal behaviour, taxonomy, physiology and mathematics.

Exercise II

- Вкажіть відповідний переклад речень.
- Перекладіть слова в режимі прямого і зворотного перекладу.

the study of the relation ship of plants and animals	вивчення взаємозв'язку рослин і тварин
physical environment	фізичне середовище
nutrients in soil	харчові сполуки у ґрунті
organisms of the same kinds	організми того ж типу
disparate sciences animal behaviour	різнорідні науки
in increased public awareness	поведінка тварин

a common often misused word	підвищена суспільна обізнаність
environmental programs	загальноприйняте, але зловживане слово
environmental science	екологічні програми
distinct scientific discipline	наука про оточуюче середовище
environmental problems	окрема наукова дисципліна
the study of the economy of nature	екологічні проблеми

Exercise III

Заповніть пропуски відповідними за значеннями словами, які наведені у таблиці.

1. ecology	6. evolution
2. biological environment	7. relation ship
3. diverse approaches	8. misused word
4. disparate sciences	9. organism
5. public awareness	10. taxonomy

1. is the study of the of plants and animals with their physical and biological environment.
2. includes of the same kinds well as other plants and animals.
3. Because of the required to study organisms in their environment, ecology draws upon such fields as climatology, hydrology, oceanography, physics, chemistry, geology and soil analysis.

4. To study the relations between organisms, ecology also involves such as animal behaviour,, physiology, and mathematics.
5. An increasedof environmental problems has made ecology a common bat often
6. In developing his theory of, Darwin stressed the adaptation of organisms to their environment through natural selection.

Exercise IV

Прочитайте текст **BIOMES** і поясніть:

1. Різницю в термінах і рослинні утворення європейських екологів та «біоми» Північно-Американських екологів.
2. Що включають в себе наземні біоми і під впливом чого вони змінюються?
3. Чим є морське середовище і що воно включає в себе.

BIOMES

The broad units of vegetation are called "plant formations" by European ecologists and "biomes" by North American ecologists. The major difference between the two terms is that "biomes" include associated animal life. Major biomes, however, go by the name of the dominant forms of plant life.

Influenced by latitude, elevation, and associated moisture and temperature regimes, terrestrial biomes vary geographically from the tropics through the arctic and include various types of forest, grassland, shrub land, and desert. These biomes also include their associated freshwater communities: streams, lakes, ponds, and wetlands. Marine environments, also considered biomes by some ecologists, comprise the open ocean, littoral (shallow water) regions, benthic (bottom) regions, rocky shores, sandy shores, estuaries, and associated tidal marshes.

Exercise V

Доповніть речення, перекладаючи слова в дужках:

1. Ecology is with their physical and biological environmental (взаємовідносини між рослинами і тваринами)
2. The physical environment includes (світло, тепло або сонячну радіацію, вологу, вітер, кисень, вуглекислий газ, харчові речовини в ґрунті, вода та атмосфера)
3. Because of the diverse approaches required to study organisms in their environment, ecology draws upon such fields as (кліматологія, гідрологія, океанографія, фізика, хімія, геологія та аналіз ґрунту).
4. To study the relationship between organisms? Ecology involves such disparate sciences as (поведінка тварин, таксономія, фізіологія та математика).
5. of environmental problems has made ecology a common but often misused word (підвищена суспільна обізнаність).
6. It is confused with environmental programs and (екологічна наука).
7. If I thought the field is a ecology does indeed contribute to the study and understanding of environmental problems (чітка наукова дисципліна).
8. was introduced by the German biologist Ernst Heinrich Haeckel in 1866; it is derived from the Greek "OIKOS" ('household'), sharing the same root word as "economics" (Термін «екологія»).
9. Thus, the term implies the study of (економіка природи).
10. In developing his theory of evolution. Darwin stressed the adaptation of organisms to their environment through (природний відбір).

Exercise VI

Прочитайте наступні речення, і вкажіть які з них відповідають змісту, а які – ні:

1. Ecology is the study of relations ship of people and animals with their physical and biological environment.
2. The psychological environment includes light and heat or solar radiation, moisture, wind, Oxygen, Carbon, dioxide, nutrients in soil, water and atmosphere.
3. The biological environment includes organisms of the same kinds well as other plants and animals.
4. Because of the diverse approaches required to study organisms in their environment, ecology draws upon such field as climatology, hydrology, oceanography, physics, chemistry, geology and soil analysis.
5. An increased public awareness of environmental problems has made ecology a common but often used word.
6. The term 'ecology' was introduced by the German biologist Ernst Heinrich Haeckel in 1866; it is derived from the Greek "OIKOS" ('household'), sharing the same root word as "economics" (Термін «екологія»).

Exercise VII

Знайти відповідні закінчення в правій колонці до речень з лівої колонки:

1. Ecology is the study of the relationship of plants and animals	a) light and heat or solar radiation, moisture, wind, oxygen, carbon dioxide, nutrients in soil, water and atmosphere.
2. The physical environment includes	b) of organisms to their environment through natural selection.
3. The biological environment includes organisms of	

4. In developing his theory of evolution, Darwin stressed the adaptation	c) with their physical and biological environment.
5. The thin mantle of life that covers the earth	d) is called the biosphere. e) the same kinds well as other plants and animals.

Exercise VIII

Дайте відповіді на наступні запитання:

- 1) What is ecology?
- 2) What does the physical environment include?
- 3) What does the biological environment include?
- 4) What does ecology draw upon?
- 5) What does ecology involve to study the relationships between organisms?
- 6) What has made ecology common but often misused word?
- 7) Does ecology contribute to the study and understanding of environmental problems?
- 8) When was the term “ecology” introduced?
- 9) What word is it derived from?
- 10) Who introduced the term “ecology”?
- 11) Why worm does modern ecology begin with?
- 12) Who also made important contributions in the studing of ecology?
- 13) What is biosphere?

Exercise IX

1. З чого складається теорія еволюції Дарвіна?
2. З яким словом має спільні корені термін «екологія»?

UNIT II

Exercise I

а) Прочитайте міжнародні слова та перекладіть їх.

energy	direction	chemical
ecosystem	process	carbohydrates
function	photosynthesis	series
fraction	bacteria	trophic
maximum	originally	limited
respiration	biochemical	cycle
organic	decomposition	ultimately
complex	inorganic	fungal

а) Прочитайте міжнародні слова та перекладіть їх.

physical	nutrient	taxonomy
biological	climatology	physiology

б) Прочитайте наступні слова та запам'ятайте їх.

Перекладіть приклади їх використання.

direction	напря́м
ecosystems	е́косистеми
function	фу́нкціона́л

Ecosystems function with energy flowing in one direction from the Sun.

nutrients	харчо́ві речови́ни
recycled	переробля́ються

through nutrients, with are continuously recycled.

light energy	світова енергія
process of photosynthesis	процес фотосинтезу

light energy is used by plants, which by the process of photosynthesis.

chemical energy	хімічна енергія
form of carbohydrates	форма вуглеводів
carbon compounds	вуглецеві сполуки

convert it to chemical energy in the form of carbohydrates and other carbon compounds.

series of steps	ряд кроків
food web	харчова мережа

by a series of steps that involve eating or being eaten, or what is called a food web.

trophic level	трофічний рівень
feeding level	харчовий рівень

each step in the transfer of energy involves several trophic, or feeding levels.

herbivores (plant eaters)	травоїдні
carnivores (meat eaters)	плодоїдні
decomposers	ті, що розкладаються

plants, herbivores (plant eaters), two or three levels carnivores (meat eaters) and decomposers.

fraction of the energy	частина енергії
pathway	шлях

Only a fraction of the energy fixed by plants follows this pathway.

grazing food	пасовище
web	мережа

Known as the grazing food web.

grazing food chain	харчова мережа
fallen leaves	опале листя
twigs	голочки
roots	коріння
tree trunks	стовбури дерев
dead bodies of animals	мертві тіла тварини

Plant and animal matter not used in the grazing food chain, such as fallen leaves, twigs, roots, tree trunks, dead bodies of animals.

bacteria	бактерія
fungi	гриби
energy source	джерело живлення

Bacteria, fungi and animals that feed on dead material become the energy source higher trophic levels.

Exercise II

- a) Вкажіть відповідний переклад речень.
- b) Перекладіть слова в режимі прямого і зворотного перекладу.

1) nutrients, which are continuously recycled	1. шляхом вивітрювання і розкладання
2) light energy is used by plants	2. те, що називається харчовою мережею

3) process of photosynthesis	3. біохімічні або харчові цикли
4) the form of carbohydrates	4. харчові речовини, які містяться і інших тканинах
5) what is called a food web	5. харчові речовини, які постійно переробляються
6) biochemical or nutrient cycles	6. прості неорганічні сполуки
7) by weathering and decomposition	7. форма вуглеводів
8) available for reuse by plants	8. світлова енергія використовується рослинами
9) simple inorganic compounds	9. доступні для повторного використання
10) nutrient contained in their tissues	10. процес фотосинтезу

Exercise III

Заповніть пропуски відповідними по значенню словами, що наведені у таблиці.

1) function which energy flowing in one direction from the sun, and through nutrients, which are continuously recycled.

2) Light energy is used by plants, with by convert it to chemical energy in the form of carbohydrates and other carbon compounds.

3) This energy is then transferred trough the ecosystem by that involve eating and being eaten, or what is called a food web.

- 4) Each step in the transfer of energy involves plants, herbivores (plant eaters), two on three levels of carnivores (meat eaters) and decomposers.
- 5) Only a fraction of the energy fixed by plants follows this pathway 'known' as the
- 6) Plant and animal matter not used in the such as fallen leaves, twigs, root, tree trunks, and the dead bodies of animals, support the decomposer food web.
- 7) Bacteria, fungi and animals that feed on dead material become for higher trophic levels that tie into the grazing food web.
- 8) The number of is limited in both types of food webs, because at each transfer a great deal of energy is lost (such as heat of respiration) and is no longer usable or transferable to the next trophic level.

a) trophic level	e) grazing food web
b) energy source	f) process of photosynthesis
3) series of steps	g) grazing food chain
4) ecosystems	h) several trophic of feeding levels

Exercise IV

Прочитайте текст "Ecosystems" і дайте відповіді на питання.

- 1) What is more useful way of looking at the terrestrial and aquatic landscapes?

- 2) Who coined a word “Ecosystems”?
- 3) Which year was the term “Ecosystem” coined?
- 4) What is ecosystem?
- 5) What are the major parts of ecosystem?
- 6) What are the inputs into ecosystem?
- 7) What are the outputs into ecosystem?
- 8) What is the major driving force?

Exercise V

Доповніть речення, перекладаючи слова в дужках.

- 1) Ecosystem function with energy flowing in one direction from the sun, and through 8 nutrients, which are
(постійно відновлюються).
- 2) Light energy is used by plants, which by
convert it to chemical energy in the form of carbohydrates and other carbon compounds (процес фотосинтезу).
- 3) This energy is then transferred through the ecosystem by
.....that involve eating and being eaten, or what is called a food web (ряд кроків).
- 4) Each step in the transfer of energy involves
plants, herbivores (plant eaters), two or three levels of carnivores (meat eaters) and decomposers (декілька трофічних або харчових рівнів).

- 5) Only fixed by plants follows this pathway, known as the grazing food web (частина енергії).
- 6) Plant and animal matter not used in the such as fallen leaves, twigs, root, tree trunks, and the dead bodies of animals, support the decomposer food web (ланцюг пасовищної їжі).
- 7) that feed on dead material become the energy source for higher trophic levels that tie into the grazing food web (бактерії, гриби та тварини).
- 8) The number of trophic levels is limited in booth types of, because at each transfer a great deal of energy is lost (such as heat of respiration) and is no longer usable or transferable to the next trophic level (харчова мережа).
- 9) For this reason, as an example, are more abundant than wolves (carnivores) (олени та карібу).
- 10) begins with their release from organic matter by weathering and decomposition in a form that can be picked up by plants (циркуляція харчових речовин).

Exercise VI

Прочитайте наступні речення і визначте, які з них відповідають змісту, а які – ні.

- 1) Ecology function with energy flowing in one direction from the Sun, and through nutrients, with are continuously recycled.

2) Earth energy is used by plants, which by the process of photosynthesis convert it to chemical energy in the form of carbohydrates and other carbon compounds.

3) This energy is then transferred through the ecosystem by a series of steps that involve eating and being eaten, or what is called a food web.

4) Each step in the transfer of energy involves several trophic, or feeding levels plants, herbivores (plant eaters), two or three levels of carnivores (meat eaters) and decomposers.

5) Only a fraction of the energy fixed by plants follows this pathway, known as the grazing food web.

6) The cycling of nutrients begins with their release from organic matter by weathering and decomposition in a form that can be picked up by plants.

Exercise VII

Знайдіть відповідні закінчення у правій колонці до речень з лівої колонки.

Energy slowly fuels the biochemical	and through nutrients, with are continuously recycled.
Plants incorporate nutrients available in soil and water	in the form of carbohydrates and other carbon compounds.
The nutrients are transferred from one trophic level to another	that involve eating or being eaten, or what is called a food web.
Thus, each trophic level contains less energy than	known as the grazing food web.

This energy is then transferred through the ecosystem by a series of steps	and store them in their tissues.
Only a fraction of the energy fixed by plants follows this pathway	the trophic level supporting it.
Ecosystems function with energy flowing in one direction from the Sun	or nutrient cycles.
Light energy is used by plants, which, by the process of photosynthesis, convert it to chemical energy	through the food web.

Exercise VIII

Дайте відповіді на наступні запитання:

- 1) How does ecosystem function?
- 2) Is the light energy used by plants?
- 3) How is this energy transferred?
- 4) What does each step in the transfer of energy involve?
- 5) What is limited?
- 6) What does each trophic level contain?
- 7) What does energy flow?
- 8) Which way are nutrients transferred?

UNIT III

Exercise I

а) Прочитайте міжнародні слова та перекладіть їх.

imbalances	distances	erosion
internally	deposited	fertilized
balanced	aquatic	pollution
neutralize	associated	accumulated
urban	estuaries	pollutant
tolerate	condition	tolerant
sulfur dioxide	oxides of nitrogen	industrial
sulfuric	nitric	acid

б) Прочитайте наступні слова та запам'ятайте їх. Перекладіть приклади їх використання.

within an ecosystem	всередині екосистеми
internally	внутрішньо

Within an ecosystem nutrients are cycled internally.

leakages	витоки
fail to function	переставати функціонувати

But there are leakages or outputs, and these must be balanced by inputs, or the ecosystem will fail to function.

nutrient inputs	харчові внески
weathering of rocks	вивітрювання гірських порід
windblown dust	вітряний пил
precipitation	опад

Nutrient inputs to the system come from weathering of rocks, from windblown dust, and from precipitation, which can carry material great distances.

varying quantities of nutrients	зміна кількості поживних речовин
terrestrial ecosystems	наземні екосистеми
aquatic ecosystems	водні екосистеми
lowlands	низовини

Varying quantities of nutrients are carried from terrestrial ecosystems by the movement of water and deposited in aquatic ecosystems and associated lowlands.

erosion	ерозія
harvesting of timber	заготівля деревини
crops	сільгоспкультури

Erosion and the harvesting of timber and crops remove considerable quantities of nutrients that must be replaced.

failure	нездатність
impoverishment	збіднення

The failure to do so results in an impoverishment of the ecosystem.

agricultural lands	сільськогосподарські угіддя
fertilized	обробляти
stressed	напружений
overloaded	перевантажений
nutrient cycle	обіг поживних речовин
pollution	забруднення

If inputs of any nutrient greatly exceed outputs, the nutrient cycle in the ecosystem becomes stressed or overloaded, resulting in pollution.

exceeding the capability of ecosystem	перевищують здатність екосистеми
to process	обробляти

Pollution can be considered an input of nutrients exceeding the capability of the ecosystem to process them.

Exercise II

- Вкажіть відповідний переклад речень.
- Перекладіть слова в режимі прямого і зворотного перекладу.

nutrients are cycled internally	переносити матеріал на великі відстані
ecosystem will fail to function	значна кількість поживних речовин
weathering of rocks	заготівля деревини
carry material great distances	цикл поживних речовин в екосистемі
aquatic ecosystem	здатність екосистеми обробляти поживні речовини
harvesting of timber	водні екосистеми
considerable quantities of nutrients	екосистема припинить функціонувати
the nutrient cycle in the ecosystem	підвищує кислотність ґрунту
capability of the ecosystem to process nutrients	поживні речовини циклюють внутрішню
increasing soil acidity	вивітрювання гірських порід

Exercise III

Заповніть пропуски відповідними за значеннями словами, які наведені у таблиці.

1. nutrients are cycled internally.
2. But there are and there must be balanced by inputs, or the ecosystem will fail to function.
3. Nutrient input to the system come from windblown dust and from precipitation, which can carry material great distances.
4. Varying quantities of nutrients are carried from by the movement of water and deposited in aquatic ecosystems and associated lowlands.
5. remove considerable quantities of nutrients that must be replaced.
6. The failure to do so results in an
7. If inputs of any nutrient greatly exceed outputs, the nutrient cycle in the ecosystem becomes, resulting in pollution.
8. can be considered an input of nutrients exceeding the capability of the ecosystem to process them.
9. Nutrients eroded and leached from, along with sewage and industrial wastes accumulated from urban areas, all drain into streams, rivers, lakes, and estuaries.
10. These pollutants destroy plants and animals that cannot tolerate their presence or conditions caused by them; at the same time, they favor a few organisms more tolerant to changed conditions.

1. the changed environmental	6. terrestrial ecosystems
2. erosion and the harvesting of timber and crops	7. impoverishment of the ecosystem
3. stressed or overloaded	8. leakages of outputs
4. agricultural lands	9. within an ecosystem
5. weathering of rocks	10. pollution

Exercise IV

Прочитайте тексти та надайте відповіді на запитання.

POPULATIONS AND COMMUNITIES

The functional units of an ecosystem are the populations of organisms through which energy and nutrients move. A population is a group of interbreeding organisms of the same kind living in the same place at the same time. Groups of populations within an ecosystem interact in various ways. These interdependent populations of plants and animals make up the community, which encompasses the biotic portion of the ecosystem.

1. What are the function units of an ecosystem?
2. What is a population?
3. How do groups of population interact within an ecosystem?
4. What do independent populations make up?

DIVERSITY

The community has certain attributes, among them dominance and species diversity. Dominance results when one or several species control the environmental conditions that influence associated species. In a forest, for example, the dominant species

may be one or more species of trees, such as oak or spruce; in a marine community, the dominant organisms frequently are animals such as mussels or oysters. Dominance can influence diversity of species in a community because diversity involves not only the number of species in a community, but also how numbers of individual species are apportioned.

The physical nature of a community is evidenced by layering, or stratification. In terrestrial communities, stratification is influenced by the growth form of the plants. Simple communities such as grasslands, with little vertical stratification, usually consist of two layers, the ground layer and the herbaceous layer. A forest has up to six layers: ground, herbaceous, low shrub, low tree and high shrub, lower canopy, and upper canopy. These strata influence the physical environment and diversity of habitats for wildlife. Vertical stratification of life in aquatic communities, by contrast, is influenced mostly by physical conditions: depth, light, temperature, pressure, salinity, oxygen, and carbon dioxide.

1. What attributes does the community have?
2. When does dominance result?
3. What are the dominant species in a forest?
4. What are the dominant organisms in a marine community?
5. What can influence diversity of species in a community?
6. How is the physical nature of a community evidenced?
7. How many layers do simple communities consist of?
8. How many layers does the forest have?

Exercise V

Доповніть речення, перекладаючи слова в дужках:

1., nutrients are cycled internally.
(всередині екосистеми)

2. But there are and these must be balanced by inputs, or the ecosystem will fail to function. (витоки або внески)
3. Nutrient inputs to the system come from from windblown dust, and from precipitation, which can carry material great distances. (вивітрювання гірських порід)
4. Varying quantities of nutrients are carried from by the movement of water and deposited in aquatic ecosystems and associated lowlands. (наземні екосистеми)
5. remove considerable quantities of nutrients that must be replaced. (ерозія та заготівля деревини і сільськогосподарських культур)
6. If inputs of any nutrient greatly exceed outputs, the nutrient cycle in the ecosystem becomes, resulting in pollution. (напруженим або перевантаженим)
7. can be considered an input of nutrients exceeding the capability of the ecosystem to process them. (забруднення)
8. These pollutants destroy plants and animals that cannot or the changed environmental conditions caused by them; at the same time, they favor a few organisms more tolerant to changed conditions. (терпіти їхню присутність)
9. Thus, filled with sulfur dioxide and oxides of nitrogen from industrial areas converts to weak sulfuric and nitric acids, known as acid rain, and falls on large areas of terrestrial and aquatic ecosystems. (опад)
10. This upsets relations in some ecosystems, killing fish and aquatic invertebrates, and increasing soil acidity, which reduces forest growth in northern and other ecosystems that lack limestone to neutralize the acid. (кислотна база)

Exercise VI

Прочитайте наступні речення, і вкажіть які з них відповідають змісту, а які – ні:

1. Without an ecosystem, nutrients are cycled internally.
2. But there are leakages or outputs, and these must be balanced by inputs, or the ecosystem will fail to function.
3. Nutrient inputs to the system come from weathering of rocks, from windblown dust, and from precipitation, which can carry material great distances.
4. Varying quantities of nutrients are carried from terrestrial ecosystems by the movement of water and deposited in aquatic ecosystems and associated lowlands.
5. Erosion and the harvesting of timber and crops remove considerable quantities of nutrients that must be replaced.
6. If inputs of any nutrient greatly exceed outputs, the nutrient cycle in the ecosystem becomes stressed or overloaded, resulting in pollution.

Exercise VII

Знайти відповідні закінчення в правій колонці до речень з лівої колонки:

Within an ecosystem	agricultural lands must be fertilized.
The failure to do so	the capability of the ecosystem to process them.
Pollution can be considered an input of nutrients exceeding	of nutrients that must be replaced.
Erosion and the harvesting of timber and crops remove considerable quantities	nutrient are cycled internally.
This is why	which can carry material great distances.

Nutrient inputs to the system come from weathering of rocks, from windblown dust, and from precipitation,	results in an impoverishment of the ecosystem.
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Exercise VIII

Дайте відповіді на наступні запитання:

- 1) How do nutrients cycle within an ecosystem?
- 2) Why can ecosystem can fail to function?
- 3) Where do nutrient inputs come from?
- 4) What do erosion and the harvesting of timber and crops remove?
- 5) Why can the nutrient cycle in the ecosystem become stressed or overloaded?
- 6) What do pollutant destroy?

Exercise IX

1. Поясніть в чому допомагає ерозія, заготівля деревини та сільськогосподарських культур?
2. У що перетворюються опади, повні діоксиду сірки та окисами азоту з промислових районів?
3. Що є тим фактором, який розбалансує стосунки кислотної бази в деяких екосистемах?

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1. При укладанні методичних вказівок використовувалися оригінальні матеріали з журналу «International WildLife» (США) та «Environment Matters» (World Bank Group, США).
2. Шпак В.К. Англійська мова. Навчальний посібник для студентів вищих навчальних закладів. – Київ, 1996. –64 с.

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Vocabulary

Biological	Біологічний
Carbon dioxide	Вуглекислий газ
Climatology	Кліматологія
Disparate	Розрізнений
Environment	Навколишнє середовище
Geology	Геологія
Heat	Тепло
Hydrology	Гідрологія
Martinetts	педант
Moisture	Вологість
Oceanography	Океанографія
Oxygen	Кисень
Physical	Фізичний
Physiology	Фізіологія
Plant	Рослина
Radiation	Радіація
Relationship	Відносини
Soil	Грунт
Soil analysis	Аналіз ґрунту
Solar	Сонячна
Taxonomy	Таксономія
Wind	Вітер