Министерство науки и высшего образования Российской Федерации

Федеральное государственное бюджетное образовательное учреждение высшего образования
Санкт-Петербургский горный университет

Кафедра иностранных языков

ИНОСТРАННЫЙ ЯЗЫК

ЭКОЛОГИЯ И ПРИРОДОПОЛЬЗОВАНИЕ

Методические указания к практическим занятиям для студентов магистратуры направления 05.04.06

ENGLISH FOR SPECIFIC PURPOSES

ENVIRONMENTAL SCIENCE AND NATURAL RESOURCES MANAGEMENT

САНКТ-ПЕТЕРБУРГ
2020

УДК 811.111 (073)

ИНОСТРАННЫЙ ЯЗЫК. Экология и природопользование: Методические указания к практическим занятиям / Санкт-Петербургский горный университет. Сост. *С.А. Свешникова* СПб, 2020. 33 с.

На материале аутентичных текстов, в которых освещаются основные аспекты экологического мониторинга и охраны окружающей среды, магистранты смогут овладеть необходимой лексикой для чтения и понимания профессиональной литературы на английском языке, а также развить навыки перевода технических текстов.

Предназначены для студентов магистратуры направления 05.04.06 «Экология и природопользование».

Научный редактор доц. *Ю.М. Сищук*

Рецензент доц. *Н.Э. Горохова* (Санкт-Петербургский государственный экономический университет)

UNIT 1. INTRODUCTION TO NATURAL RESOURCES

Before You Read

1 Discuss the following questions with your partner.

A What do environmentalists do?
B Where do they work?
C Why are they important for the society?
D What qualifications are necessary to be an environmentalist?
F Why have you decided to become an environmentalist?

2 Practice reading and pronouncing the following words.

Abundance, available, biotic, chemical, component, conservationist, consumption, depletion, diverse, endangered, mortality, numerous, precious, rare, renewable, resource, survival, sustainable, tangible, vegetation.

While You Read

3 Read the passage defining of natural resources. Pay attention to the words and word combinations **in bold**. When you don't know the meaning of a word, look at the words around it to help you. You may be able to guess the meaning of the word from its surrounding context.

What Are Natural Resources?

Natural resources are components that exist in the world without the **input** of humans. These natural resources are **diverse** ranging from renewable resources to non-renewable resources, living to non-living resources, tangible to intangible resources. Natural resources are essential to the survival of humans and all other living organisms. All the products in the world use natural resources as their basic component, which may be water, air, natural chemicals or energy. The high **demand for** natural resources around the world has led to their rapid **depletion**. As a result, most nations are pushing for proper management and **sustainable use** of natural resources.

Natural resources could be classified into different categories such as renewable and non-renewable resources, biotic and abiotic resources, and stock resources.

Renewable resources refer to resources that can naturally regenerate after use. They include resources such as wind, water, natural **vegetation**, solar energy, and animals. These resources exist in nature in **abundance**. There is little concern about depleting renewable resources because their rate of production exceeds the rate of human **consumption**. **Conservationists** throughout the world advocate for the use of renewable resources because they are readily **available** and less costly to the environment.

Non-renewable resources are components that take too long to **replenish** after use or exist in limited quantities. Non-renewable resources include products such as **crude oil**, **precious metals**, minerals, and **rocks**. Some **endangered animals** are also classified as non-renewable resources because their mortality rate is much higher than their reproduction rate. These non-renewable resources need to be protected and to be used responsibly to stop their **depletion**.

Biotic natural resources refer to living resources that exist naturally in the environment. Such resources include forests, wildlife, and **fossil fuels**, which are all listed as biotic natural resources.

Non-biotic natural resources are natural products in the environment that are non-living. These resources include water, rocks, metals, and minerals among many others.

The world has numerous resources some of which are yet to be exploited. Humans lack the skills and technology to extract and use some of the naturally occurring resources like rare gases and some radioactive materials. As a result, these resources are classified as **stock resources** to be utilized in the future.

After You Read

When you hear or read a new word or phrase that is important to you, add it to your ***Vocabulary Notebook***. Next to each item, write down a sentence containing the word that will help you remember its meaning.

4 Look back at the reading passage and find words or expressions that are related to resources use and management. Add these to the chart below:

Vocabulary Notebook

English	part of speech	Russian	example
input	n	участие	*Natural resources are components that exist in the world without the input of humans.*

The Negative Prefixes

We can form the opposite of many adjectives or give the negative meaning by adding a negative prefix. (a prefix is a syllable that goes before a word).

These are the most common negative prefixes used with adjectives:

dis-	il-	im-	in-	ir-	un-
disrespectful	illegitimate	impossible	indecent	irrelevant	unreasonable
dissatisfied	illogical	immature	incapable	irregular	unfortunate

Other negative prefixes are:

a-	anti-	countrer-	mal-	non-
amoral	antisocial	counterproductive	malcontent	non-violent
asexual	anti-aircraft	counterfeit	malnourished	non-profit

5 Use the correct negative prefixes to give the following adjectives an opposite meaning.

Available, biotic, conscious, convenient, correct, employed, essential, fair, formal, friendly, healthy, honest, legal, limited, living, natural, natural, necessary, pleasant, polite, punctual, radioactive, regular, renewable, satisfactory, successful, sustainable, tangible, tidy, usual, well.

6 Read the information about the verbals below. Then find and identify them in the reading passage. Translate the sentences with the verbals into Russian.

The Verbals

A **verbal** is a verb form which functions as a noun or an adjective. In English, there are three types of verbals: participles (past participles and present participles), gerunds, infinitives.

A **participle** is a verb form which functions as an adjective. There are two types of participles: the present participle (ending -ing) and the past participle (usually ending -ed, -d, -t, -en, or -n). Here are some participles being used as adjectives:

the verb	the present participle	the past participle
break	*Before I could say more, I heard the telltale noise of breaking glass from the far side of the house!*	*They fixed the broken cup.*
purchase	*Or, at least you have that purchasing power.*	*A purchased item can be returned.*

Even though gerunds look like present participles (i.e., they also end -ing), a **gerund** is a noun not an adjective.

Here are some examples of gerunds:

There was no way to get the creature out without breaking the vase.
Please note that purchasing a product from the Wesleyan does not necessarily confer membership.

An **infinitive** is a verb form (often preceded by ***TO***, e.g., to break, to purchase) which can function as a noun, an adjective, or an adverb.

For example:

Pierre could not and did not wish to break this silence.
On the decease of the founder of the club, the members agreed to purchase a silver cup to be run for annually
She fought the urge to break down into hysterics.
She should take him up on his offer to purchase a car for her.
I had no idea she cared enough about me to break so many rules.
Jackson stopped by the art supply store on the way home to purchase supplies for Elisabeth.

Critical Thinking

7 Discuss the following questions with your groupmates.

A What are natural resources?
B What types of natural resources do you know?

C Why are they important for the development of our civilisation?

D What leads to depletion of natural resources?

F What can be done to use natural resources effectively, efficiently and economically?

Speaking

Most natural resources exist in limited quantities. Unfortunately, various factors have led to the exploitation of these resources. Some of the components are at the risk of depletion. Environmental pollution, high population, uncontrolled development, climate change, and modern lifestyles are some of the threats to natural resources.

8 Choose one threat to natural resources from the above mentioned and give a 2-minute talk describing and analysing this threat.

Translation Challenge

9 Translate the following passage from English into Russian, read out your translation to your groupmates, listen to theirs and vote for the best one.

Conservation of Natural Resources

In 1982, the United Nations saw the need for environmental protection and preservation of natural resources. The World Charter for Nature lists the measures to be taken to prevent depletion of natural resources. It also states the importance of environmental protection and the need to create laws on the same subject. Other organizations like the International Union for Conservation of Nature (IUCN) and the World Wide Fund for Nature (WWF) have also led in the push for protection of natural resources. The organizations have funded scientific studies like Conservation biology where scientists research on ways to conserve the natural resources found in the environment. At the local level, countries have established protected areas to conserve natural resources from exploitation. Conservationists also encourage the use of renewable natural resources such as wind and solar energy instead of non-renewable resources which are at risk of extinction. Additionally, most countries have government departments that oversee the extraction and use of

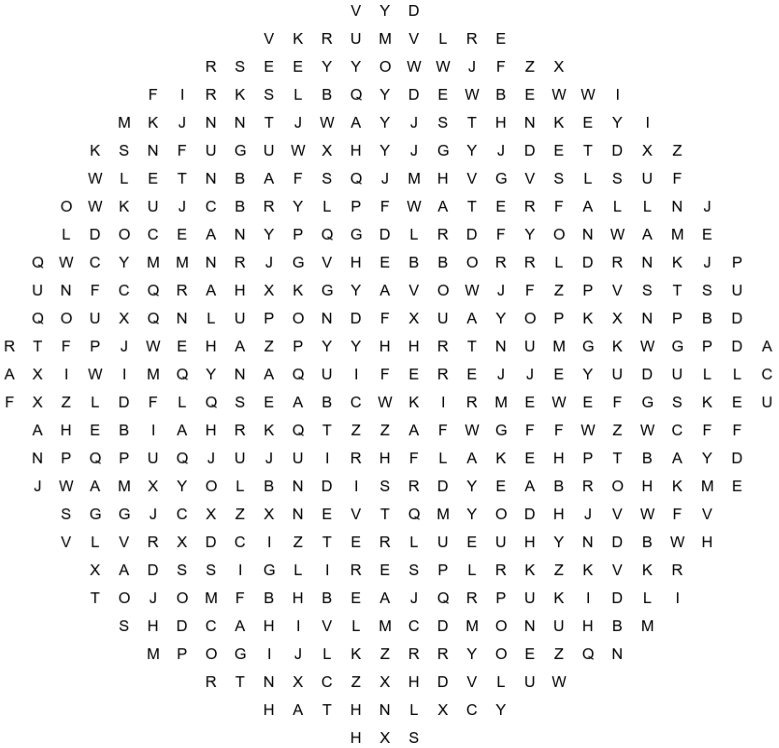
natural resources. These departments create rules on management of natural resources like precious metals, rare metals, and energy sources. They also provide licenses to companies involved in the production and sale of such resources.

(1,096 characters)

UNIT 2. WATER AS A NATURAL RESOURCE

Before You Read

1 What water bodies do you know? Find 17 hidden words in the word search below.



2 Translate the words from the word search into Russian.

3 Practice reading and pronouncing the following words.

Aquifer, carbon, chemical, contaminate, crevice, debris, estuary, fertilizer, microorganism, nitrate, nutrient, percent, pesticide, phosphate, quarter, rural, sewer, substance, survey, vulnerable.

While You Read

4 Read the passage. Pay attention to the words **in bold**. Copy them down into your ***Vocabulary Notebook***.

Water pollution occurs when harmful substances—often chemicals or microorganisms—**contaminate** a stream, river, lake, ocean, aquifer, or other body of water, *degrading* **water quality** and *rendering* it toxic to humans or the environment.

Water is uniquely **vulnerable to** pollution. Known as a «universal **solvent**», water is able to **dissolve** more substances than any other liquid on earth. It's the reason we have Kool-Aid and brilliant blue waterfalls. It's also why water is so easily polluted. Toxic substances from farms, towns, and factories readily dissolve into and mix with it, *causing* water pollution.

Groundwater

When rain falls and seeps deep into the earth, *filling* the cracks, crevices, and porous spaces of an **aquifer** (basically an underground storehouse of water), it becomes groundwater—one of our least visible but most important natural resources. Nearly 40 percent of Americans rely on groundwater, pumped to the earth's surface, for *drinking* water. For some folks in rural areas, it's their only **freshwater source**. Groundwater gets polluted when **contaminant**s—from pesticides and fertilizers to waste **leach**ed from landfills and septic systems—make their way into an aquifer, *rendering* it unsafe for human use. *Ridding* groundwater of contaminants can be difficult to impossible, as well as costly. Once polluted, an aquifer may be unusable for decades, or even thousands of years. Groundwater can also spread **contamination** far from the original *polluting* source as it **seep**s **into** streams, lakes, and oceans.

Surface water

Cover*ing* about 70 percent of the earth, surface water is what fills our oceans, lakes, rivers, and all those other blue bits on the world map. Surface water from freshwater sources (that is, from sources other than the ocean) **account**s **for** more than 60 percent of the water delivered to American homes. But a significant pool of that water is **in peril**. *According* to the most recent surveys on national **water quality** from the U.S. Environmental Protection Agency, nearly half of our rivers and streams and more than one-third of our lakes are polluted and unfit for

swimming, *fishing*, and *drinking*. **Nutrient** pollution, which includes nitrates and phosphates, is the *leading* type of contamination in these freshwater sources. While plants and animals need these nutrients to grow, they have become a major **pollutant** due to farm waste and **fertilizer runoff**. Municipal and industrial **waste discharge**s contribute their fair share of toxins as well. There's also all the random **junk** that industry and individuals dump directly into waterways.

Ocean water

Eighty percent of ocean pollution (also called marine pollution) originates on land—whether along the coast or far inland. Contaminants such as chemicals, nutrients, and heavy metals are carried from farms, factories, and cities by streams and rivers into our bays and estuaries; from there they travel out to sea. Meanwhile, **marine debris**—particularly plastic—is blown in by the wind or washed in via **storm drain**s and **sewer**s. Our seas are also sometimes **spoil**ed by **oil spill**s and **leak**s—big and small—and are consistently ***soak****ing* **up** carbon pollution from the air. The ocean absorbs as much as a quarter of man-made carbon emissions.

After You Read

When you learn a new word, it's useful to learn other forms of the same word.

5 Complete the chart below by adding the missing word forms. Then check your ideas by looking in a dictionary.

verb	-ant / ent	-ance/ -ence/ -ency /- ion
assist		
contaminate		
deviate		
nitrify		
occupy		
pollute		
adhere		
cohere		
confide		

deterge		
solve		

6 Sum up the information from the text filling in the chart:

type	use	contaminants	consequences
groundwater			
surface water			
ocean water			

7 Give a short talk about water pollution using the chart above as a plan and words from your ***Vocabulary Notebook.***

8 Find the following words ending in **–ing** *in italics* in the reading passage:

according, causing, covering, degrading, drinking, drinking, filling, fishing, leading, polluting, rendering, rendering, ridding, soaking, swimming.

Analyse their syntactic functions and state what part of speech they belong to. For example:

Reading is a popular pastime. – «Reading» is a noun.
He was reading a book. – «Reading» is Participle I.
***His** reading was impressive. – «Reading» is a gerund.*
I use my reading table for my computer. «Reading» is an adjective.

Critical Thinking

9 British poet W. H. Auden once noted, «*Thousands have lived without love, not one without water*». What makes water so essential for man? Discuss the issue with your partner, make a list of reasons and give some examples to illustrate them.

Translation Challenge

10 Translate the following passage from English into Russian, read out your translation to your groupmates, listen to theirs and vote for the best one.

What Are the Effects of Water Pollution?

When water pollution causes an algal bloom in a lake or marine environment, the proliferation of newly introduced nutrients stimulates plant and algae growth, which in turn reduces oxygen levels in the water. This dearth of oxygen, known as eutrophication, suffocates plants and animals and can create «dead zones», where waters are essentially devoid of life. In certain cases, these harmful algal blooms can also produce neurotoxins that affect wildlife, from whales to sea turtles.

Chemicals and heavy metals from industrial and municipal wastewater contaminate waterways as well. These contaminants are toxic to aquatic life—most often reducing an organism's life span and ability to reproduce—and make their way up the food chain as predator eats prey. That's how tuna and other big fish accumulate high quantities of toxins, such as mercury.

Marine ecosystems are also threatened by marine debris, which can strangle, suffocate, and starve animals. Much of this solid debris, such as plastic bags and soda cans, gets swept into sewers and storm drains and eventually out to sea, turning our oceans into trash soup and sometimes consolidating to form floating garbage patches. Discarded fishing gear and other types of debris are responsible for harming more than 200 different species of marine life.

Meanwhile, ocean acidification is making it tougher for shellfish and coral to survive. Though they absorb about a quarter of the carbon pollution created each year by burning fossil fuels, oceans are becoming more acidic. This process makes it harder for shellfish and other species to build shells and may impact the nervous systems of sharks, clownfish, and other marine life.

(1,422 characters)

UNIT 3. AIR POLLUTION

Before You Read

1 Discuss the following questions with your partner:

A What is the function of the ozone layer?
B What leads to holes in the ozone layer?
C What are CFCs and how do they affect the environment?
D What is the Greenhouse Effect?
E What are greenhouse gases?

2 Practice reading the words and word combinations:

Carbon dioxide, carbon monoxide, chlorofluorocarbons (CFCs), exhaust, hydrocarbons, lead (n), nitrogen dioxide, nitrogen oxide, ozone, particulates, sulphur dioxide, volatile.

3 Look through the text below and say what it is about.

When you skim a reading selection, you read it quickly to learn about its content and organization. You don't read every word. Instead, your eyes move very quickly over the selection, trying to find general information (e.g., the topic of a reading).

While You Read

4 Read the passage again. Pay attention to the words **in bold**. Copy them down into your ***Vocabulary Notebook***.

A. It's very easy to criticize **power plant**s, factories, and **vehicle**s that belch polluting gases into the atmosphere, but virtually all of us rely on these things—ultimately, we are the people polluting. Solving air pollution is also a challenge because many people have a big investment in the status quo (carrying on with the world much as it is today). For example, it's easier for car makers to keep on making **gasoline** engines than to develop electric cars or ones powered by **fuel cell**s that produce less pollution. The world has thousands of **coal-fired** power plants and hundreds of **nuclear power station**s and, again, it's easier to keep those going than to create an entirely new power system based on **solar panel**s, **wind turbine**s, and other forms of renewable energy (though that is happening slowly). Growing **awareness** of problems such as air pollution

and global warming is slowly forcing a shift to cleaner technologies, but the world remains firmly locked in its old, polluting ways.

Let's be optimistic, though. Just as technology has caused the problem of air pollution, so it can provide solutions. Cars with conventional gasoline engines are now routinely fitted with **catalytic converter**s that remove some (though not all) of the pollutants from the **exhaust gas**es. Power plants are fitted with **electrostatic smoke precipitator**s that use static electricity to pull dirt and **soot** from the gases that drift up **smokestack**s; in time, it's likely that many older power plants will also be retro-fitted with **carbon capture system**s that trap carbon dioxide to help reduce global warming. On a much smaller scale, environmentally friendly people who want to ventilate their homes without opening windows and wasting energy can install **heat-recovery** ventilation systems, which use the heat energy locked in outgoing waste air to warm fresh incoming air. Technologies like this can help us live smarter—to go about our lives in much the same way with far less impact on the planet.

B. By itself, technology is as likely to harm the environment as to help it. That's why legal issues have been such an important part of tackling the problem of pollution. Many once-polluted cities now have relatively clean air and water, largely thanks to anti-pollution laws introduced during the mid-20th century. In England, following the 1952 smog tragedy that killed thousands in the capital city of London, the government introduced its *Clean Air Act of 1956*, which **restrict**ed how and where coal could be burned and where **furnace**s could be sited, and forced people to build smokestacks higher to **disperse pollution**. In the United States, a series of Clean Air Acts were passed between the 1960s and 1990s. *The 1990 Pollution Prevention Act* went even further, shifting the emphasis from cleaning up pollution to **prevent**ing it ever happening in the first place.

National laws are of little help in tackling transboundary pollution (when air pollution from one country affects neighbouring countries or continents), but that doesn't mean the law is useless in such cases. The creation of the European Union has led to many Europe-wide environmental acts, called **directive**s. These force the member countries to introduce their own, broadly similar, national environmental laws that

ultimately cover the entire European region. For example, *the 1976 European Bathing Water Directive* tried to **enforce** minimum **standards** of water quality for beaches and coastal areas across Europe to reduce pollution from **sewage disposal**, while *the 1996 European Directive on Integrated Pollution Prevention and Control* (IPPC) attempted to limit air and water pollution from industry. Other successful international laws include *the Convention on Long-Range Transboundary Air Pollution* (1979), which has helped to **reduce** sulphur dioxide **emissions** from power plants and, of course, *the Montreal Protocol*, which successfully brought 196 countries together to target **ozone depletion**. Unfortunately, attempts to control global warming through international laws and agreements have so far proved less successful.

C. Clean technologies can **tackle** dirty technologies, and laws can make polluters clean up their act—but none of this would happen without people being aware of pollution and its damaging effects. Sometimes it takes horrific tragedies (like the 1952 smog episode in London or the Chernobyl catastrophe) to prompt action. Often, we pollute the environment without even realizing it: how many people know that taking a shower or ironing a shirt can release indoor air pollution from hot water that they immediately breathe in, for example? Helping people to understand the causes and effects of pollution and what they can do to tackle the issue is very important. Air pollution isn't someone else's problem: all of us help to cause it and we can all help to clean it up. Starting now!

After You Read

5 Match the words from column A with the words from column B to make word combinations. Then translate these combinations into Russian.

A	**B**
anti-pollution	areas
big	capture
carbon	cars
catalytic	converters
coastal	countries
electric	depletion
environmentally	disposal
exhaust	energy

A	**B**
gasoline	engines
global	friendly
neighbouring	gases
nuclear	investment
ozone	laws
power	panels
renewable	plants
sewage	pollution
smoke	power
solar	precipitators
transboundary	systems
ventilation	turbines
wind	warming

6 The text is split into three sections **A**, **B**, **C**. Choose the best heading for each of them:

1. Laws and regulations
2. Raising awareness and changing behaviour
3. Technological solutions

7 Sum up the reading passage using the clichés. Your summary should be about one-third of the original text.

The text presents some solutions to the problem of air pollution. It can be divided into three logical parts. The first part is about … . …. In the second part the author writes about … . …. Attention is concentrated on … in the third part. ….

8 There are some legal documents mentioned in the text. Search the internet to find their Russian equivalents:

the Montreal Protocol –
Монреальский протокол (по веществам, разрушающим озоновый слой)
the 1976 European Bathing Water Directive –
_____
the 1990 Pollution Prevention Act –
_____
the 1996 European Directive on Integrated Pollution Prevention and Control – _____

_____

the Clean Air Act of 1956 – _____

_____

the Convention on Long-Range Transboundary Air Pollution (1979) –

_____

Critical Thinking

9 Make a list of action that we can do to lessen air pollution. Which do you think are the most/least effective? Why?

Translation Challenge

10 Translate the following passage from English into Russian, read out your translation to your groupmates, listen to theirs and vote for the best one.

Here are ten simple things you can do that will make a difference to the problem of air pollution.

Save energy: Switch to low-energy lamps, use a laptop computer instead of a desktop, dry your clothes outdoors, and heat insulate your home.

Save water when you can: Producing cool, clean water needs huge amounts of energy so cutting water waste is another good way to save energy and pollution.

Cut the car: Sometimes we have to use cars, but often we can get a bus or a train or walk or cycle. When you have to use your car, drive efficiently to save fuel and money. It's particularly important to avoid car use when smog is bad in your city.

Cut out garden bonfires: Having a bonfire is one of the most selfish things you can do in your local neighborhood. Compost your garden refuse, bury it, or dispose of it some other way.

Never burn household waste: If you burn plastic, you release horrible toxic chemicals into the local environment, some of which will be sucked up your own nose! Recycle your trash instead.

Garden organically: Would you spray pesticides on your dinner? So why spray them on your garden? You can tackle virtually all garden pests and diseases in more environmentally friendly organic ways.

Cut the chemicals: Do you really need to spray an air freshener to make your home feel nice? Yes, you fill your room with perfume, but you're also choking it with chemical pollution. Why not just open a window instead? How many of the chemicals you buy do you really need to use? Why not try cleaning with microfiber cloths instead of using detergents?

Use water-based paints and glues: Avoid the nasty solvents in paints, varnishes, and wood preservatives.

Reduce, reuse, and recycle: Buying new stuff is fun, but reusing old things can be just as good.

Don't smoke: Cigarettes cause all kinds of health problems, but they also cause very localized air pollution. Once again you're first in line.

(1,579 characters)

UNIT 4. CONSERVATION OF NATURAL VEGETATION AND WILDLIFE

Before You Read

1 Read the following explanation of the difference between conservation and preservation. Discuss it with your partner and answer the questions below.

Conservation is similar to preservation, but while both relate to the protection of nature, they strive to accomplish this task in different ways. Conservation seeks the sustainable use of nature by humans, for activities such as hunting, logging, or mining, while preservation means protecting nature from human use.

A Do you think people should protect wildlife?
B Have your ever taken part in any conservation activities?
C Do you know any conservation organisations?
D What do you think of hunting?
E What can be done to solve the problem of stray animals?

2 Fill in the following table using, for example, https://www.acronymfinder.com.

An abbreviation is a shortened form of a word or phrase used to represent the complete form. There are four main kinds of abbreviations: shortenings (e.g. *in = inch*, *zoo = zoological garden*), contractions (e.g. *Dr. = doctor*, *St. = saint* or *street*), initialisms (e.g. *CIA / C.I.A.*, *NYC*, *pm / p.m.*), and acronyms (e.g. *AIDS*, *laser*, *scuba*, *UNESCO*).

abbreviation	complete form	по-русски
WWF	*World Wide Fund For Nature*	*Всемирный фонд дикой природы*
AQ		
CAP		
CRC		
EIA		
ENVO		
ESPP		

HSI		
NGO		
RD		
TEK		
WFP		
WLE		

While You Read

3 Skim the passage and try to guess what part of the world it is about.

4 Read the passage again. Pay attention to the words and word combinations **in bold**. Copy them down into your ***Vocabulary Notebook***.

The survival of our plants and animals are strongly linked together. For example, the **endangered** bulloak jewel butterfly depends on one she-oak tree **species** for its survival. Other plants and animals share special relationships—the same flying-fox that feeds on the fruit of a tree also spreads its seeds, helping the tree to regenerate.

Conserving native plants

All native plants are protected on national parks and other protected areas. However, conserving them is not an easy task with the greatest threats to their survival from **land clearing** (for subdivision and cultivation), **cattle grazing**, changing fire patterns and the spread of weeds.

Unregulated collecting of native plants and plant parts for the nursery, cut flower and bush tucker trade is another potential **threat to** some of our native plants.

Recovery plans and conservation plans are developed to protect native plants (especially threatened species), and to regulate commercial use of some native plants; however, little is known about the survival requirements of many **rare** and threatened species.

Conserving native animals

The key to ensuring the survival of many native animals is **protect**ing their **habitat**. They need food, water and **nutrient**s, and places to breed and shelter from weather and **predator**s — keep the habitat, keep the animal.

Wild animals often need adequate areas of bushland or wetland to survive and **thrive**. Where an animal's natural habitat has been cleared or reduced to small isolated patches, the local population is unlikely to survive. Therefore, national parks, other protected areas, and habitat that is retained on private land are therefore critical for wildlife conservation.

Protection measures

Native mammals, birds, and most reptiles and frogs cannot be captured, kept or used without a permit. A permit to take them from the wild is issued only when research shows that a species' natural population can **sustain** the permitted harvesting levels.

Illegal trafficking in native wildlife is a serious problem, and federal, state and territory governments work together to reduce it and protect our native animals.

Recovery and conservation plans are developed to protect threatened animals, reduce the likelihood of their **extinction**, and to regulate the commercial use of some common animals such as kangaroos.

Non-native species

Non-native animals can **prey on** our native species, and compete with them for scarce food and **shelter**. The government has designed control programs to minimise this threat. Legislation also prevents people from keeping non-native species such as ferrets which, if they establish in the wild, could seriously threaten our native animals.

After You Read

5 Here are some names of plants and animals names in the reading passage. Try to find their Russian equivalents.

Bulloak jewel butterfly, ferret, flying-fox, kangaroos, she-oak.

6 How many animals/plants can you name in English? Write as many as you can in 3 minutes. Compare your list with your partner's. If you see a new word in his or her list, ask him/her to explain its meaning to you.

me	**my partner**
whale	+
a large flat sea creature that lives in a shell, some types of which can be eaten either cooked or uncooked, and other types	*oyster*

me	my partner
of which produce pearls	

When you learn a new word, it's useful to learn other forms of the same word.

7 Complete the chart below by adding the missing word forms. Then check your ideas by looking in a dictionary.

noun	verb	adjective
		endangered
	depend	
relationship		
	protect	
threat		
recovery		
		illegal
conservation		
	reduce	
	sustain	

Critical Thinking

8 Discuss the following questions with your groupmates.

A What do you think the growing list of endangered species says about humankind?
B Which animals, fish and plants do you think are most endangered?
C Are there endangered species in your country?
D Which endangered species would you least like to see disappear?
E Do you think the list of endangered species can ever get shorter?
F What should governments do to protect endangered species?
G Do you think endangered species can be bred in zoos or captive breeding programmes and then released into the wild?
H How important is it to teach children about endangered species?

Speaking

Do you know of any endangered species success stories?

9 Search the internet and find some information about any species that used to be endangered. Give a brief report to your groupmate about this species.

Translation Challenge

10 Translate the following passage from English into Russian, read out your translation to your groupmates, listen to theirs and vote for the best one.

Australia wildfires: Hundreds of koalas being treated as animals spotted 'curled up and shut down' across fire-ravaged region

Hundreds of koalas are being treated in a fire-ravaged region in Australia, an animal charity said, warning they are finding an increasing number the animals «curled up and shut down».

The Humane Society International (HSI), which has been rescuing animals affected during Australia's worst wildfire season on

record, said that they are now treating more than 200 koalas on Kangaroo Island.

There has been an increase in the number of «dehydrated» koala survivors taken in across Kangaroo Island over the past few days, HSI warned.

Kelly Donithan, the charity's disaster response specialist, said this could be due to cooler weather, which has allowed koalas to move about in search of food and water sources, many of which have been obliterated.

Blazes have destroyed vegetation and food sources on Kangaroo Island, an area famous for its natural wildlife, as well as leaving animals badly burnt.

Conservationists have warned of the devastating effect of Australia's blazes on wildlife, with some warning entire species may have already gone extinct after blazes tore into their population and habitat.

Around 25,000 koalas on Kangaroo Island – half of the original population – are believed to have died as a result of the blazes, according to World Wildlife Fund for Nature (WWF).

(1,186 characters)

UNIT 5. ENVIRONMENTAL MONITORING AND ASSESSMENT

Before you read

1 Discuss the following questions with your partner.

A What is environmental monitoring? Is it a theoretical or applied science?
B What is the scope of duties and responsibilities of a specialist in this area?
C What education is necessary to be a good specialist in this area?
D What traits should a person interested in this science have?
E Do people need any extra training, e.g. a good command of a foreign language, IT literacy, etc.?
F What kinds of equipment are used for environmental monitoring? What for?
G Do you think you have the necessary traits and skills to become successful? Where would you prefer to work?

International Scientific Vocabulary is a part of the vocabulary of the sciences and other specialized studies that consists of words or other linguistic forms current in two or more languages and differing from New Latin in being adapted to the structure of the individual languages in which they appear. For example, it is easy to guess about the meaning of the word 'product', because we have the analogues of the same root in Russian.

2 Try to guess the meanings of the words below without looking them up in the dictionary (according to the meanings of prefixes and suffixes).

Real; realism; realist; realistic; reality; realize; realized; realizable; realization; really; unreal; unreality; unrealized; unrealizable.

3 Copy down the words from the reading passage below that belong to the International Vocabulary. Give their Russian equivalents.

While you read

4 Read the passage. Pay attention to the words **in bold**. Copy them down into your ***Vocabulary Notebook***.

Environmental monitoring can refer to a few different things. Conducting environmental research and collecting data in order to draw conclusions is one example. Monitoring protected **properties** to ensure that development or illegal land uses are not taking place is another. Performing environmental monitoring to assess the current state of a certain area in order to determine what impacts certain actions might have is also a common example. Under certain laws, it may also be necessary to test the amount of pollutants or chemicals from pesticides or manufacturing processes in the air, soil, or water.

There are many jobs in which environmental monitoring is a daily task. There are a number of different reasons that environmental research might be performed in a certain area. Though many people in **academia** perform this type of research, it may also be done to **assess** the impacts of the creation of new hiking trails, or to determine how many trees can be cut in a timber sale, or many other possible examples. Students will frequently collect very **specific** data on a certain area that can then be analysed and applied in the decision-making process to determine how to prevent or **mitigate** environmental damage.

Another type of environmental monitoring can take place once a **restriction** has been placed on a piece of land. This might be because the land was **designate**d as a public park or **recreation area**, or a private landowner has placed a conservation **easement**. It is necessary to monitor the land to be sure the agreement is being upheld, so action can be taken if anything is happening before it causes damage. This is sometimes referred to as **environmental stewardship**, particularly among land trusts or larger **non-profit** conservation organizations. These organizations will often enlist the help of volunteers to conduct this environmental monitoring.

Environmental monitoring also takes place to ensure that national or international laws regarding pollutants are being followed. For instance, air quality monitoring might take place to measure the amount of carbon dioxide that a certain manufacturer or power plant **emit**s into the air. Water and soil quality monitoring also check for pollutants such as pesticides or other chemicals. Once these tests are completed, action can be taken to ideally reduce the amount of pollutants by changing certain practices, or determining what can be done to «clean up» certain

areas. This type of environmental monitoring is very important for the development and later **enforcement** of environmental laws and policies.

After you read

5 Match the verbs from column A with nouns form column B. Then translate the word combinations into Russian.

A	**B**
assess	a conclusion
cause	action
collect	an agreement
complete	an impact
conduct (×2)	chemicals
draw	damage (×2)
perform	data
prevent	monitoring (×2)
reduce	pollutants
take	research (×2)
test	tests
uphold	

6 Find and identify the verbals in the reading passage. Translate the sentences with them into Russian.

7 Sum up the text using the flowchart below.

<table>
<tr><td rowspan="7">1</td><td colspan="2" rowspan="2">The subject of the</td><td colspan="2">text</td><td rowspan="2">is __ .</td></tr>
<tr><td colspan="2">passage</td></tr>
<tr><td rowspan="3">The</td><td rowspan="3">text
passage</td><td>tells us about</td><td rowspan="3">__ .</td></tr>
<tr><td>describes</td></tr>
<tr><td>is devoted to</td></tr>
<tr><td rowspan="2">The</td><td rowspan="2">text
passage</td><td colspan="2" rowspan="2">is about __ .</td></tr>
<tr><td rowspan="3">This</td><td rowspan="3">text
passage</td></tr>
<tr><td colspan="2" rowspan="2">deals with</td><td>the problem of ___ .</td></tr>
<tr><td>___ .</td></tr>
<tr><td>2</td><td>The</td><td>text
passage</td><td>can be</td><td>divided
subdivided</td><td>into ___ logical parts.</td></tr>
</table>

				split	
	The	text / passage	falls into ___ logical parts.		
3	The	first / second / third / fourth / fifth	part	is about / describes / is devoted to / analyses / points out	___ .
	In the	first / second / third	part	the author	writes about / analyses the problem of / gives his point of view on — __ .
	Attention is concentrated on ___ in the				first / second / third — part.
4	By way of summing up, I can say that ___ .				
	In conclusion, I want to say that ___ .				
	To my mind	the text / passage	is of great interest as ___ .		
	I think it is	informative / interesting / difficult to read			because ___ .

Critical Thinking

8 The process of environmental monitoring and assessment comprises several steps. Fill in the following chart using the clues from the box:

assessment result analysis, data collection, descriptive data analysis, implications and conclusions, model construction

Environmental Monitoring and Assessment

	1
monitoring	2
assessment	3
	4
	5

9 Discuss the following questions with your groupmates.

A What is the purpose of an environmental assessment?
B When should an environmental assessment be undertaken?
C What are the areas of environmental monitoring and assessment?
D What are the benefits of environmental assessment?

Translation Challenge

10 Translate the following passage from English into Russian, read out your translation to your groupmates, listen to theirs and vote for the best one.

The main problem of environmental management accounting is that we lack a standard definition of environmental costs. Depending on various interests, they include a variety of costs, e.g., disposal costs or investment costs and, sometimes, also external costs (i.e., costs incurred outside the company, mostly to the general public). Of course, this is also true for profits of corporate environmental activities (environmental cost savings). In addition, most of these costs are usually not traced systematically and attributed to the responsible processes and products but simply summed up in general overhead.

The fact that environmental costs are not fully recorded often leads to distorted calculations for improvement options. Environment protection projects aiming to prevent emissions and waste at the source (avoidance option) by better utilizing raw and auxiliary materials and requiring less (harmful) operating materials are not recognized and implemented. The economic and ecological advantages to be derived from such measures are not used. The people in charge are often not

aware that producing waste and emissions is usually more expensive than disposing of them.

Experience shows that the environmental manager barely has access to the actual cost accounting documents of the company and is only aware of a tiny fraction of aggregate environmental costs. On the other hand, the controller does have most of the information but is unable to separate the environmental part without further guidance. In addition, he or she is limited to thinking within the framework of existing accounts. Also, the two departments tend to have a severe language problem.

(1,418 characters)

БИБЛИОГРАФИЧЕСКИЙ СПИСОК

1. Acronymfinder [сайт]. URL: https://www.acronymfinder.com (дата обращения: 31.01.20)
2. Avron S. 4 Effective Ways to Manage Resources More Efficiently [электронный ресурс]. URL: https://flevy.com/blog/4-effective-ways-to-manage-resources-more-efficiently/ (дата обращения: 31.01.20)
3. Conservation [электронный ресурс]. URL: https://www.nationalgeographic.org/encyclopedia/conservation/ (дата обращения: 31.01.20)
4. Conserving wildlife [электронный ресурс]. URL: https://environment.des.qld.gov.au/wildlife/animals/caring-for-wildlife/conserving-wildlife (дата обращения: 31.01.20)
5. Denchak M. What Are Natural Resources? [электронный ресурс]. URL: https://www.worldatlas.com/articles/what-are-natural-resources.html (дата обращения: 31.01.20)
6. Environmental monitoring [электронный ресурс]. URL: https://ec.europa.eu/jrc/en/research-topic/environmental-monitoring (дата обращения: 31.01.20)
7. How to Pronounce [сайт]. URL: https://www.howtopronounce.com/ (дата обращения: 31.01.20)
8. Miller B. What Is Environmental Monitoring? [электронный ресурс]. URL: http://www.wisegeek.net/what-is-environmental-monitoring.htm (дата обращения: 31.01.20)
9. Sawe B.E. Water Pollution: Everything You Need to Know [электронный ресурс]. URL: https://www.nrdc.org/stories/water-pollution-everything-you-need-know (дата обращения: 31.01.20)
10. Tidman Z. Australia wildfires: Hundreds of koalas being treated as animals spotted ‘curled up and shut down’ across fire-ravaged region [электронный ресурс]. URL: https://www.independent.co.uk/news/world/australasia/australia-wildfires-latest-koalas-thirsty-hungry-water-shortage-a9292431.html (дата обращения: 31.01.20)
11. Woodford C. Air pollution https://www.explainthatstuff.com/air-pollution-introduction.html#solv (дата обращения: 31.01.20)
12. WooordHunt [сайт]. URL: https://wooordhunt.ru/ (дата обращения: 31.01.20)

СОДЕРЖАНИЕ

ИНОСТРАННЫЙ ЯЗЫК

ЭКОЛОГИЯ И ПРИРОДОПОЛЬЗОВАНИЕ

Методические указания к практическим занятиям для студентов магистратуры направления 05.04.06

ENGLISH FOR SPECIFIC PURPOSES

ENVIRONMENTAL SCIENCE AND NATURAL RESOURCES MANAGEMENT

Сост. *С.А. Свешникова*

Печатается с оригинал-макета, подготовленного кафедрой иностранных языков

Ответственный за выпуск *С.А. Свешникова*

Лицензия ИД № 06517 от 09.01.2002

Подписано к печати 29.06.2020. Формат 60×84/16.
Усл. печ. л. 1,9. Усл.кр.-отт. 1,9. Уч.-изд.л. 1,7. Тираж 50 экз. Заказ 405.

Санкт-Петербургский горный университет
РИЦ Санкт-Петербургского горного университета
Адрес университета и РИЦ: 199106 Санкт-Петербург, 21-я линия, 2