Applied Environmental Science scale, year 5 secondary education professor, prepared by Dr. Gacem Habiba, Higher Normal School of Technological Education of Skikda.

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Lessons in applied ecology intended for students Fifth year secondary school teacher

Major: Natural Sciences

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In the name of God, the most gracious, the most merciful

Praise be to God, by whose grace He has endowed us with knowledge and made it a light and a beacon for us to be guided by. Now, we present this work to everyone who is interested in science, to our fellow students, and to those with whom the bond of knowledge unites us.

This pedagogical publication consists of a group of lectures delivered to fifth-year students by a secondary education teacher in the scale of applied ecology. These lectures tended by their nature to explain, simplify, and deliver what is essential in the idea. These lectures came as a contribution to introducing and highlighting the content of the scale program of applied ecology. This is for the university student and specialized researcher to stand on the most important ecology curriculum and gain applied field experience in addition to theoretical experience.

We hope from God Almighty to complete His blessing upon us, support us with His knowledge, protect us, and protect you all from all harm, and guide us to the path of goodness, truth, values, and virtuous morals. Thanking His bounty at all times and times, and we bear witness that the Seal of the Messengers, our master Muhammad, may the best of prayers and peace be upon him.

Thanks be to God, Lord of all worlds

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Chapter I

Human impact on nature

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1 Demolishing animal and plant groups

1. Definition of the environment:

The environment is a medium, field, or space that includes a certain areas that may be small or large with all the lively elements and rigid elements which contains in this medium that affects and still affected by it and interacts with it; at the same time links between them mutual relationships and all these relationships and mutual effects take place in A specific system and within the framework of the process of exchanging materials and energy in the ecosystem. “The Estakholm Conference” has defined the environment as everything that surrounds a person and this means that the environment includes the that surrounds a person from the dignitaries outside his will and has no income in it, also it includes the human environment that is the framework in which a person lives and gets the ingredients of his life from lunch, clothing, medicine, shelter, in which he exercises relationships with his peers from human beings [**1]**.

That is, the environment includes the nature that surrounds a person it corers man with its various negative and positive effects that it causes in the environment and it differs according to its role and the different environment to which he belongs and lives in. The environment for human beings and all living organisms consists of air, water and soil. The ecosystem embracing of the previous elements in a permanent interaction and in a balance that secures the protection and preservation of living organisms [**1]**.

As for the environment, in its general concept, it is the middle or spatial field in which a person lives, influenced by it. That is around and on the surface and inside the globe, the environment is simply the sum of what surrounds the land, and what it contains (air, seas, rivers, oceans and living creatures that live in the middle in addition to relations and interactions with each other), the invading cover and its various components, natural

resources, energy's sources , And the water cover, the inside of it, the surface of the earth, and plants, animals, and humans in its different gatherings. All of these elements are the components of the environment, and scientists agree at the present time that the concept of the environment includes all the external circumstances and factors in which living organisms live and affect the processes that they perform, The ecosystem for a person is a "frame in which he lives and which contains air and water and what each of these three elements contains of the components of its inanimate, and beats of life, and the various aspects of this framework prevailing from weather, climate, wind, rain, attractiveness and magnet The elements [**2]**.

Dr. Ahmed Farghali Hassan also defines it as the vital elements surrounding the human being that includes water, land and air, elements of the animal environment, and elements of the plant environment, and these vital elements are subject to balances according to a specific life cycle that ensures the continuity of the presence of these elements with the continuation of the natural and human universe, of almighty god creation, according to an innate cycle that causes an imbalance in one of its elements to affect the quality of its innate and natural performance, in addition to the disappearance of the balance available from these elements, and the environment as a vital system that interacts with each other to be a source of human needs to enjoy the assets or natural origins, Water provides a person with the natural water resources necessary for him and public life, and to provide the human body with his needs of drinking water [**3]**.

Dr. Muhammad Al -Awdat also defines her as the lively and non -living natural elements, which are on the surface of the earth above and under it, the air and its components, energy and their sources, rivers, seas, oceans, soil and the human, animal and plant live on it, all these elements combined in the components of the environment [**4]**.

In another definition of Dr. Muhammad Saber, "It means the environment in which man lives and practices his productive and social activities, which is the reservoir of renewable and non -renewable natural resources [**5]**.

2. Environmental types:

2.1. The natural environment: It means all the living and non -living elements that have nothing to do with its existence, such as rocks, minerals, terrain, climate elements, soil, water resources, natural plants, wild animals, etc., and the natural environment varies from one place to another, as its effect in man varies according to the different characteristics of its elements.

2.2. The human environment: It is called by the constructive or civilized environment that includes all the human elements and environmental data that represent the product of its interaction and investment to the natural environment resources, and it varies spatially according to the variation of the degree of human urbanization and the pattern of population density [**6]**.

3. Environmental system:

It is any organizational unit somewhere, which includes living components and non -living components where they are interactive between them, which leads to an exchange of elements and vehicles between living and non -living parts in the ecosystem and means that this system includes all interference between the living components of plant and animal societies Microscopic neighborhoods on the one hand and chemical components and compounds on the other hand as well as physical factors (Climatic and non -climatic), which affect the location or location of that system and the actions of the actor between these factors, and thus in this system the conversion of organic materials into non -organic materials are carried out again by the action Live and non -live factors, and this means that the cycle of mineral and non -mineral elements as well as the forms of energy occurs and is done within such systems in

different regions of the world and in a motor interaction, and it is concluded from this that the ecosystem is characterized by self permanence, and when it is indicated by the motor interaction of some components The environment is what is meant by the exchange of materials between living and non -living components. Karl McPlis on the gathering of living organisms such as shellfish using the expression of society in the form of Boicoenosis. As for the American environment scientist Forbes, he mentioned in 1887 in his classic article on the lake, describing it as Micro Cosme, the concept of society has been confirmed from the angle of the ecosystem by the scientist Dukachov (1846-1935)What was expanded to the expression of the ecosystem, and thus environmental scientists have come close to the idea of natural unity through their choice of various expressions from the totalitarian point of view [**7]**.

4. Environmental system installation:

4.1. Abiotic Components:

The metal and solid materials that make up the soil are the soil, and all the chemical compounds and elements include the continuation of the permanence of life of all kinds within the ecosystem as well as the elements and auxiliary compounds to supplement the life interactions between the organism and the soil or vice versa, and the organic materials and non -organic are the foundation stone in the soil components, and they are distinguished Some types of soil in the ecosystem or in environmental systems with the amount of humus Humus located within the soil parts and minutes, and the soil rich in organic or humus is usually supported in large quantities of neighborhoods. Water constitutes the largest size of ecosystem such as seas and oceans Hydropsher and the water embraces a large number of elements and melted chemical compounds Which is used in vital activities as well as the fact that the water itself is one of the basic necessities of continuing life as it constitutes a high percentage of the ingredients of the live cell up to more than 90% in some cells, and in the land environment the water is also necessary to complete the photosynthesis, and gases have a role Clear in the

ecosystem, it is a mixture of several types in the air or the cover that surrounds the ecosystem, and mainly this mixture consists of nitrogen and carbon dioxide, water vapor and other gases, and Solar Energy has clear effects in the ecosystem and this energy varies according to the environmental system site On the globe, there are non -biological factors in addition to what was mentioned above, including various physical factors, including climate [**7]**.

4.2. Biotic Components:

The living organisms include all the ecosystem of various types, numbers, sizes and methods of nutrition, and depending on its nutrition sources, that is, the source of energy and can be divided into the following:

4.2.1. Autotrophic Organisms:

The organisms that can make their lunch themselves include green plants and some types of bacteria that have the ability to exploit chemical energy while green plants have the ability to exploit traffic energy that attracts green dyes in making their organic lunch and know these productive organisms B produces or self-nurishment, knowing that the rest of the living organisms depend directly or indirectly on the productivity of productive organisms [**7]**.

4.2.2. Heterotrophic Organisms:

These organisms depend directly or indirectly on the organisms produced in their lunch, so they are called adopted or various nutritional organisms, and they are also called by Consumers, and these organisms work to use or rearrange and analyze ready -made organic materials for the purpose of performing their metabolic effectiveness, including growth and storage These materials are in other complex structures, and these organisms are different animals, dietary, size and number, and these organisms take updated levels within the nutritional chain in the ecosystem depending on the complexity of ready -made and productive organic materials as well as physiological and anatomical adaptations of the organism, and may be a certain animal within the level The second food in a specific

ecosystem or in a certain age while its location changes within the nutritional chain in another ecosystem or in another age, and as a good example what is observed in insects in general, as the fools such as wolves and other neighborhoods can be considered feeding on complex foodstuffs It is guaranteed by the system, so its location is in the food chain at a point far from the energy source, knowing that the animals get their energy from other neighborhoods (plant or animal) or remaining organic materials [**7]**. The fungi and many other microscopic species are considered as some types of bacteria, as well as being a throw or parasitic, and these neighborhoods are referred to in the ecosystem with the word decomposers, and deliberately feeding objects can be divided into two basic parts:

A- The devoted phagotrophs:

They are the neighborhoods that devour lunch and digest it inside their bodies, and despite being consumers, it is noticed that their lunch may be limited to plants and in this case it is called Herbivores or meat foods or carnivores, and the cactus may be primary or secondary secondary [**7]**.

B- Nutritional or rival materials:

These organisms cannot devour and digest lunch, but rather absorb lunch after the secretion of digestive enzymes to break the lunch components into simple materials, and these types of neighborhoods generally include microscopic neighborhoods (bacteria and fungi) and are called parasitic organisms when they depend on their lunch on living organisms or It is of the nature of the Saprophytic Ourganisms as they live on dead organic materials, and these objects can be known as decomposers, because of their ability to analyze complex organic materials and reduce complex organic molecules of animals and plants and convert them into simple organic compounds that products can be absorbed as vital nutrients to complete The last basic episode of life courses [**7]**.

5. Demolition of the environment:

It is a set of factors and natural, earthly, air, plant and animal elements surrounding man. The environment or the medium in which a person lives is being demolished by the person himself, in two ways:

1: Environmental pollution. **2:** The environment is not balanced.

The two methods destroy the environment in which a person lives, causing him many physical and psychological diseases and disabilities and causes him huge losses and efforts to get rid of the negative effects of demolition and reduce his enjoyment of life and their demand.

The demolition of the environment is not limited to humans only, but also to all living organisms, as there are many plants that have become extinct and endangered. The pollution of the dry environment has exceeded the seas and oceans that were contaminated with ship waste and were forbidden to rivers and valleys to which the fresh water loaded with the various mineral elements needed for the growth of living organisms from land where the dams were established on rivers and valleys, so he worked to balance the environment of marine organisms [**8]**.

5.1. Environmental balance

A: Distorting of nutrients

The importance of lack of plant nutrients (fertilizers) on humans and animals

Environmental imbalance may not be less dangerous than environmental pollution in its influence on the life and health of humans and animals on Earth [**9]**.

The most important aspect of environmental imbalance is a lack of plant nutrients (fertilizer elements) in the plants that humans and animals eat, leading to diseases, health problems and disabilities.

As the plant can grow, live, and fruit in the event of a decrease in some elements, but its production decreases. It dies in the same earth, and its stools and corpse are depleted into the fertilizer elements that nourish the plants on the same earth [**9]**.

Most of the health problems that a person is currently exposed to from heart, kidney disease, reproductive problems, and others are due to the lack of environmental balance due to the lack of some elements in the plants that a person feeds. The imbalance of the nutrients is a self - demolition factor for the human environment [**9]**.

B: Biological balance defect

There is a natural balance between living organisms, and when this balance is disturbed, new lesions appear; That is, some living organisms turn into dangerous pests and were not dangerous in the past before the vital imbalance; It may also disappear or extinct some beneficial or useful organisms or decrease their activity [**10]**.

5.2. The causes of biological imbalance:

5.2.1 Biological balance defect due to agricultural operations:

Pesticides is a Latin expression, consisting of (PEST) and means the scourge or damage and (cide) means the word toxic or deadly materials [**11]** but according to the definition of the Food and Agriculture Organization (FAO), the term is a pesticide releases On any substance or mixture of materials, the purpose of its use is to prevent and eliminate any scourge [**12]** where pesticides are considered industrial materials and are usually used to resist and eliminate a living organism that is usually harmful to humans and other pesticides that are anti -insects for rodents ... etc., and the last forty years have witnessed important developments in this field. For instance the development of the insecticide DD by Paul Muller, and that was an opening of technology prospects, and it must be noted that the number of natural pesticides is very small, and generally There are more than one type of organic and non -organic pesticides [**13]**.

The first pesticides were inorganic substances such as sulfur, mercury, lead, arsenic and ash, and some of these inorganic pesticides are still used today, for example sulfur is still used as a fungi of fungi and copper used as algae, lead and arsenic plous of insecticides until World War II, Chromium, copper and arsenic have been used as wood preservatives to prevent microorganisms from causing wood caries, there are approximately 400 of the different active ingredients of pesticides [**14]**.

6. Pesticide classification:

There are several criteria taken into account in the classification and arrangement of pesticides, and among these classifications:

6.1. According to the field of use:

A- Agricultural field:

It is one of the most famous types of classifications, in which it determines the type of target lesion, which the pesticide is struggling

Insecticides, carpal pesticides and rodent pesticides [**15]**.

B-Urban field:

This group includes all the pesticides used to fight flies, mosquitoes, rodents, ants and cockroaches [**16]**.

C-Health field:

In this field, many pesticides are used to counter diseases from insects such as: mosquitoes and mollusks [**17]**.

6.2. According to the physical status:

In this case, pesticides are classified according to the image of the commercial product, regardless of the type of active material or the type of lesion that this pesticide struggle with:

A- Pesticides in the solid state:

These pesticides are found in the form of granules.

B- Pesticides in the liquid state:

It is in the form of real, suspended, impossible, concentrated, or piercing solutions.

C- Blids in the semi-solid case:

It is found in the form of dough, creams and dyes and are rare [**18]**.

6.3. According to the chemical group and the targeted parasite group

They are many: pesticides, herbal pesticides, fungicides, rodent pesticides, nimatuda pesticides [**18]**.

7. Pesticide

7.1. Insect definition:

The word "Insecticide" is taken from the English language. It is a group of chemicals used in fighting some types of living organisms (insects), which are harmful to agricultural crops, and also for human and animal health without forgetting their impact on structural and even non - agricultural areas [**19]** and pesticides are defined as manufactured chemicals that have fatal properties and usually belong to the category of organic compounds and are used in order to eliminate various pests, whether, insects, weeds, harmful plants or many parasites that threaten human health, destroy agricultural crops, and be the main cause of spread disease [**20]**.

7.2. A historical overview of the use of pesticides:

The Chinese used pesticides for insects consisting of lime, ash and plant extracts, in the year 1200 BC, as they used arsenic for the same purpose in the eighteenth century, and in the year 1600 AD, the tobacco plant was used to resist pear cute, as well A wide range of insecticide in 1800 AD [**21]** and after the production and use of DDT pesticide and after the great benefits that achieved pesticides for humans, and during the years 1940 AD- 1950 AD in England and France were used as a six-year-old group of gasoline, and the production of other vehicles such as the Derdin and others and this is known. Pesticides today are in the name of the first

era pesticides, and it is one of the biggest causes of environmental pollution in the world, looking at the length of its period in the environment and its relatively high name. These pesticides may be the underlying reason that stimulated the revitalization of environmental protection efforts in the world. In 1952 AD, new organic compounds containing phosphorus were produced and are known as organophosphorus pesticides. These pesticides were known as the pesticides of the second era, and the pesticides of the first and second era were used in a concomitant manner. However, the pesticides of the era The second is characterized by new properties, as it is faster in analysis in the environment and more toxic towards the pests in which it is used, that is, it has a selective property, and it is highly toxic to insects and low toxicity to birds and humans. In 1958 AD, the United States of America produced a new compound known as a group known as carbomate compounds, which are laboratory-manufactured compounds. This group has an effect similar to phosphorous compounds, but shows better properties towards the environment, meaning that they are not persistent in the environment. Then scientists achieved the production of the best insecticides, which are known as pesticides. Future, which are pyrotonic compounds, as they are highly toxic to insects, and are almost toxic to humans, and this group is very selective [**21]**. These pesticides may be the underlying reason that stimulated the revitalization of environmental protection efforts in the world. In 1952 AD, new organic compounds containing phosphorus were produced and are known as organophosphorus pesticides. These pesticides were known as the pesticides of the second era, and the pesticides of the first and second era were used in a concomitant manner. However, the pesticides of the era The second is characterized by new properties, as it is faster in analysis in the environment and more toxic towards the pests in which it is used, that is, it has a selective property, and it is highly toxic to insects and low toxicity to birds and humans. In 1958 AD, the United States of America produced a new compound known as a group known as carbomate compounds, which are laboratory-

manufactured compounds. This group has an effect similar to phosphorous compounds, but shows better properties towards the environment, meaning that they are not persistent in the environment. Then scientists achieved the production of the best insecticides, which are known as pesticides. Future, which are pyrotonic compounds, as they are highly toxic to insects, and are almost toxic to humans, and this group is very selective [**22]**.

7.3. types of pesticides:

A-Organochlorine Insecticides:

It is in the form of a powder that does not dissolve in the water, but it melts in organic solvents as well as in the oils, and therefore it is stored in the fatty tissues of the poisoned body and has an effect on the nerve centers in the spinal cord and nerve centers in the cortex.

Examples of these vehicles include the following:

D. Dr. T. (Dichloro- Diphenyl-Trichloroethan) D.D.T

Toxaphene

 Chlordane

Endosulphan (Thiodan)

 Jamesxan Lindane [**23]**.

B- A group of phosphorous pesticides:

The vehicles of this group are used to exterminate agricultural lesions and weeds and for the extermination of insects that harm a person and also use to eliminate rodents and harmful worms, most of their compounds are liquid or an oil colored in color that tends to blacks that have a strong and hatred smell that melts in organic solvents but it is soluble in water [**24].**

The toxic effect: The highly toxic organic phosphorus compounds and their seriousness lies in their effect on the cholinesterase enzymes present in the body and discharge their work, this discharge increases its percentage continues to be exposed to these pesticides, especially when deals with them, as measuring the level of colinstiraz in the blood is a guide to know the

degree of poisoning, its activity decreased by 40 % It is a dangerous mark for poisoning. This group includes a large number of well -known vehicles, one of which is the most common vehicles:

Dipterex

Parathion (Parathion)

Parathione affects cholinstiz by fierce it with it and preventing it from sabotaging the accent colin at the ends of the independent nerves, thus accumulating the Aitel colin, which leads to symptoms of alerting the lipid nervous system, as well as an effect on the central nervous system, and anxiety occurs (Anxiety) and instability [**24]**.

For the effect of poison: These compounds have a toxic effect similar to the effect of organic phosphorus compounds, and their work is also inhibiting the cholinstirase enzyme in the body, but their difference from organic phosphorous pesticides is that the inhibition of an enzyme occurs quickly and is temporary and therefore symptoms of poisoning appear quickly in order to do so, the period of exposure to these must be Vehicles by spray and control workers are few in order to avoid poisoning [**25]**.

Herbal pesticides: they exterminate the herbs that the farmer wants to annihilate, but new herbs appear to him that were not taken into account, so they become new and become new pests, and companies take the invention and manufacture of the medications that exterminate them. Also, the remaining effect of herbal pesticides has harmful, long -term effects on humans and animals, in relation to new diseases such as cancer, disabilities, and birth defects of the fetuses [**26]**.

C - Pesticides: Each agricultural insect has vital enemies of predators, birds and reptiles; When this hostility eats the insect poisoned with the insecticide, it dies, which leads to the multiplication of the insect in the fields that have not been sprayed or in the neglected lands in

which the insect multiplies absolutely free from the vital enemies that perished and the insect doubles and its risk increases and the costs of its fighting double [**26]**.

Agricultural practices require the use of various strategies to combat insect pests that have caused economic losses to a large number of crops and agricultural products, as a result, the two countries used chemical means to protect plants, as chemical pesticides occupied the leading position regarding their application in an integrated manner in pest management and plant diseases [**27]**. Among the insecticides that began to take care of, we find fixed -firm organic pesticides, such as the DDT and dioxin compounds, where after 1940 AD it was introduced to eliminate the insects that transmit diseases and the single pesticide became unable to eliminate all types, and that all A type of living organism needs a special pesticide [**28]**. As a result, effective control has been controlled by traditional agricultural chemical pesticides for many years and its use has increased significantly during the past few decades, but the fight against insect pests with artificial chemicals that led to many problems of living organisms inhabited The soil affected the groundworms of the earth and spiders in addition to the plants, and this in turn affected the biological diversity as well as its toxic effects on wildlife such as birds and useful insects such as honey bees and damage to humans and pets [**29** ; **30]**.

The continuous use of these pesticides also led to resistance cases in some insects and due to their harmful effects caused by the use of chemical pesticides and in order to improve and develop insect control strategies and generate high quality and a large amount of agricultural products, the need to develop effective insecticides is environmentally friendly and does not need high costs It is subject to biological decomposition and the lowest damage to the higher environment [**31**] the interest in biological control factors has increased in the past decade because it reduces the risks caused by chemical pesticides and because of its lack of its toxicity and its impact on the pest, as it is effective in small quantities and decomposes

quickly as well as the fact that the waste caused by them Less compared to that caused by chemical pesticides [**32**; **33]**.

7.4. Effects of pesticides on the environment

All scientific studies have indicated the risk of poisoning caused by pesticides and their impact on environmental pollution, where pesticides are considered like other chemical compounds strange on the environment and they affect them, and are affected by their components through the paths that they take in the environment, and these tracks can be summarized as follows: perform operations Spraying with different spraying devices to the spread of the insecticide to distances that greatly exceed the sites to be sprayed with the pesticide, and the spray resulting from spraying in the air is spread before it leaks with dust or rain on plants, soil and water, and the pesticide may be oxidized thanks to the sun's rays, heat and the presence of oxygen, and rates vary. The photovoltaic decomposition, the greater the rates of evaporation of the pesticide, the greater the period of exposure to the weather conditions that help the decomposition, in which case the users of the dorsal spraying machine may be subjected to times the amount he is exposed to in the case of using the newly advanced spraying machine, but after spraying, the person is exposed to the deposited pesticide by up to 95 %through feeding on polluted plants and meat, at a rate of 5 %of drinking water, the spray that falls on the roofs of the plants quickly fly to fall on the soil. The air, and the air pollution with pesticides depends on the steam pressure of the pesticide, the degree of melting it with water, and the ability of the soil to keep them, the water environments are affected by pesticides through the fall of their spray and deposit due Like crustaceans and small fish feeding on animal, insect larvae and other small arthropods, they also become food for large fish and birds that are a major part of human food. Thus pesticides are transmitted to humans on top of the food pyramid, and water organisms are affected

directly by insecticides, which led to a decrease in their numbers and threatened others with extinction [**34]**.

Some pesticides have a cumulative effect, although pesticides have toxic effects that differ according to the pesticide and its type, but these toxic effects are more severe with those that are characterized by the cumulative effect such as chlorine pesticides (whose organic chlorine enters their chemical composition

7.5. The movement of pesticides in the environment:

The large percentage of pesticides goes to the soil, water and air, and only 10% of the pests that die find their way to the soil and pesticides that fly and settled in the atmosphere, return again to the soil and water with rain and therefore do not exclude the presence of pesticides in vegetables and fruits, pesticides accumulate inside tissues The plant and then move to the animal that feeds on it and then to the human being where the remains of pesticides are monitored in the milk of breastfeeding mothers and in the tissues of the brain, bone, blood, kidneys, and liver and unwanted effects occur, and this may explain the nerve conditions that a person suffers from, and to install the insecticide as a role In its biological decomposition, the Merx insecticide fits 12 carbon atoms and is considered one of the most powerful pesticides resistant to active biological decomposition, as it is an active component of its effect and active heaven and as much as the care for safe use and the protection of the environment with maid methods in the context of precaution and caution, the effects and possible results have a pre -controlled presence When taking care and care [**35]**.

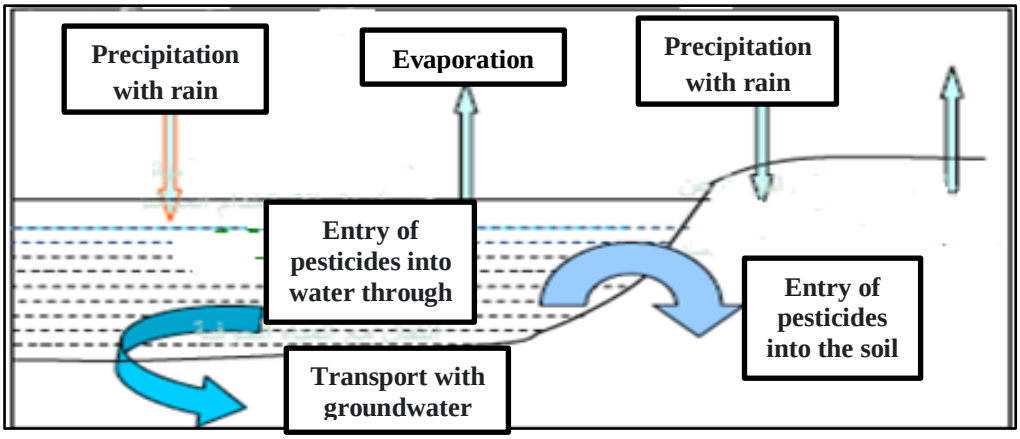

Figure 1: Explains the movement of pesticides in the environment [**35]**.

7.6. Food pollution with pesticides:

The use of agricultural and insecticides is a necessary matter to protect agricultural crops and thus increase production and reduce its cost. As for the global level, they contribute to alleviating and reducing famine problems, especially in developing countries. According to the opinions of researchers, then if a person is exposed to the remains of chemical pesticides during daily consumption, this leads to the risks of toxicity Chronic and serious diseases, as some organic phosphorous pesticides lead to late neurological toxicity that ends with chronic paralysis, and sometimes pollution occurs in pesticides by mistake and these accidents cause severe symptoms that are similar to food poisoning, as a result of error, such as using pesticides instead of flour or pollution with foods And it has been observed in recent years that most of the incidents of pollution with pesticides occur as a result of the lack of respect for the initial warnings when using these materials, because the presence of a bulletin contains the instructions and precautions of use when using these pesticides is necessary, especially in developing countries, and finally, the animals that are fed with diet contaminated with d. . D. T. is vulnerable to the appearance of cancerous diseases [**36]**.

7.6.1. Insecticides in Algeria:

In Algeria, the use of pesticides, fertilizers, detergents, etc., in the context of the procedures for combating harmful vectors, also spread. During the past decade, the launch of thousands

of tons of pesticides has resulted in the launch of thousands of tons of pesticides. For example, during the locust fight campaign 2004-2005, several tons of pesticides (organic and carbt phosphate) were used by spreading or spraying in areas affected by desert locusts in the southern regions and areas of the hill. Over the past five years, there has been another form of intense use of insecticides on a large scale in many states in the country, as part of the national program to fight diseases of the pathogens such This use is about 6000 to 10,000 tons of pesticides annually, this is what makes them classified among the countries most used for them, and according to the Algerian national records for dangerous industries there are more than 2300 tons of expired pesticides distributed through 500 sites, most of which are the waste of factories and national companies that are not analyzed Its remnants as contaminated to the ocean, especially water, where analyzes of water samples were made from Sattawali (Algeria) and Annaba and showed that in 30%of the samples it has a concentration of vehicles that exceeded the values specified by the World Health Organization [**37]**.

7.6.2. The effect of pesticides on humans:

People affected by pesticides are: the normal consumer and researchers in the field of pesticide, pesticide factories and workers in the field of plant protection. The acute heaven is exposure to a person to a relatively high dose less or larger than the deadly dose, and symptoms of poisoning appear immediately after absorbing the substance through the skin or taking it through the mouth or inhaling it through the nose and this depends on the way the material reaches the sensitive devices in the body, as Symptoms also depend on the nature of the absorption and effectiveness of the absorbent material, and symptoms of acute toxicity range from direct death to very varying conditions. In the following cases: deliberate poisoning, unintentional poisoning as a result of neglect, error or suicide with these materials [**38]**.

8: Methods of pesticides reach humans:

8.1. Inhalation:

The insecticide molecules in the form of gases carried by air through breathing, and the effect of these harmful gases varies according to their chemical composition, so we notice that the gases that melt in water also dissolve in the lining of the upper mucous fluid in the respiratory system, which leads to severe infections, The water that melts in the water causes infections in the lung, then leaks, then the fibrosis in the final stage. The way to swallow the fumes and gases of the pesticide to the digestive system in phlegm is causing tuberculosis [**39]**.

8.2. Biological balance defect due to pollution:

There is no doubt that pollution of the seas and oceans with ship waste such as oils, fats, oil materials and chemicals in addition to overfishing worked to extinct many marine creatures and decreased their types and decreased the benefit of the good from them as it increased the numbers of some useless or harmful marine creatures such as the jellyfish that multiplies in Swimming beaches cause leather damage [**40]**.

8.3. Biological imbalance due to civilization:

The crawl of urbanization on the lands eliminated many plants and trees; Also, the human need for paper and wood has eliminated many forests, as well as his need for agricultural land to build and plant crops due to the massive population increasing, which led to the removal of many forests, with its living organisms, the most important of which is the Amazon Forest in Brazil, which they used to call the lung of the world **[41]**.

Various types of pollution lead to the imbalance of the environment in which a person lives; The types of physical pollution from soil surface pollution, water pollution, air pollution, food pollution, optical, electronic, space and radiological pollution; It leads to pollution of the physical environment surrounding a person from the normal situation in which a person lived before pollution and adapt the composition of his body and vital devices on him; Because this pollution is new and by the action of man himself [**42]**.

Applied Environmental Science scale, year 5 secondary education professor, prepared by Dr. Gacem Habiba, Higher Normal School of Technological Education of Skikda.

2 forests

1. Introdation:

The space of the various plains hills of mountains, plains, or depressions. The trees mainly include shrubs, algae herbs, fungi, and animal species. The trees differ in their spread, density, size, type by type according to the climate, soil, display lines, height and water resources. It is considered one of the important nature of nature and extends over vast areas around the world, including what is within the mountainous regions And the heights, including what extends over the widespread and plain spaces, and forests have many benefits, the most important of which is the protection of the soil from erosion, erosion, and the containment of vegetation and its development, whether trees, plants and weeds that reduce the phenomenon of global warming [**43]**.

Forests are among the most diverse and spacious ecosystems on earth, as they are an important aspect of human life and an important basis for all forms of life on Earth. However, in recent years, it has suffered a lot due to the urban expansion made by humans, which led to its lack and deterioration of the biological system on the ground, and from here the necessity of maintaining its existence and the sustainability of the forests [**43]**.

• Definition of forests:

It is the land that extends for more than 0.5 hectares with trees more than 5 meters and

With a tree coverage of more than 10 %, and this does not include agricultural lands or land exploited in urban areas. It was also defined by the Divis i-L-as an ecological system characterized by a somewhat dense tree, which usually includes a group of organisms that differ in their properties in terms of type, composition, structure

Forests cover 31 % of the land area in the world, with the total area of forests 4.06 billion hectares, but forests are not evenly distributed throughout the world.

• Two -thirds of the world is located (66%) in ten countries, in order: the Russian Federation, Brazil, Canada, the United States of America, China, Australia, the Congo, Indonesia, Peru, India

2. The importance of forests:

The forest is a treasure of nature's treasures, and a divine grant that God has granted to us to prevail its benefits for us, and the forest is a large group of green trees that may extend to thousands of square kilometers, and the forest is considered the natural lung of the earth, and it is an important and vital part of the ecosystem in which we live, and any A prejudice to it, is a reason for the imbalance of this balance. Despite the great importance of the forest, the world's forests are constantly decreasing, as a result of the various natural factors that affect them, or because of the pollutants that cause their death, or because of the human works and its policy used to replace forest lands with homes, homes and industrial and different facilities, or because of drought seizures, Volcanoes, earthquakes, and fires. According to the FAO "Food and Agriculture", there are about three thousand, four hundred and fifty million hectares of forests, that is, by six percent of land, which is a very small percentage, and in a continuous decrease, which poses a major threat to the presence of forests, which must be Preserving it, working to grow more of it, and monitor it to protect it from any attack [**44]**.

Figure 2: Amazon forest [**45]** .

The importance of the forest is an essential source of air filtering, oxygen production, carbon dioxide disposal, nitrogen oxide, carbon monoxide, dust sedimentation, air purification, removal of harmful plankton from it, and rid it of toxic gases. It is an important source of renewable energy in nature. The Earth gives a breathtaking view, and is a source of amazing divine inspiration and beauty. It is a suitable place for hiking, recreation, and getting rid of negative energy by meditating green trees, and a great place for fun and spending beautiful times. It maintains environmental balance, works on moderation of climate, and prevents global warming. The atmosphere softens, the humidity in the air increases, and contributes to reducing high temperatures. Among its trees include the authentic genetic origins of plants and trees. It is an important center and an essential house for environmental vital diversity of animals, plants and birds, "which take the forest to the forest". Forest trees secrete volatile substances and oils in the air, which contribute to killing germs and microbes in the air, especially pine trees and rice forests. It maintains the ozone layer, and prevents it from being hole. It prevents the gathering of harmful insects and mosquitoes, and expels them, especially the eucalyptus forests. Reduces wind speed and reduces air pollution due to air winds and limits its movement. It is an important source for obtaining heating fuel by firewood that is trimmed from its trees. It is an important source of paper and furniture and timber **[46]**.

Forests are not limited to being a vast green cover, but they have an economically and industrial significance, as they prevent the deterioration and erosion of soil, protect the water springs, and maintain the stability of the mountains where the forest contributes to organizing water rings and by opening the atmosphere and ensuring pure air with CO_2 absorption and offering O_2 and reduces global warming It works to repel wind, protect the soil from drifting, and forests provide many plants and animals that can only live in.

The forest converts solar energy into a renewed energy stacked in the form of wood without human effort. Where wood has been used since ancient times because of its economic value.

Roots are used to make furniture and homes, while the branches are used in the form of coal for home needs such as heating, cooking, and traditional bread ovens accompanied by less risk gas emissions [**47]**.

Figure: The importance of the Amazon forest [**48]**

The forest is not only an economic source, but a natural heritage in tourist attractions. By virtue of the legitimacy of rational humiliation, these habits may be practiced inside the forest. It also reduces the effect of green heaters that contribute to global warming in the world. Despite the importance of the forests, reports still indicate the constant deterioration in this vast area, as statistics acknowledged that the proportion of forests that have been deteriorated reached half of its area, especially during the last three decades [**47]**.

Border Forests Siutation	
Border forests	**Percentage**
The area of forests on the Earth as border forests	**% 40**
The remaining area of the world is border forests, which are found in Russia, Canada, and Brazil	**% 70**
Percentage of border forests threatened by habitation, clearing of vegetation for agriculture and other harmful human practices	**% 39**
Percentage of threatened border forests in developed countries	**% 03**
The number of countries that have completely lost their border forests	**76 nations**
The number of countries that are about to lose their border forests, including, for example, Nigeria - Finland - Vietnam – Cote Divoir	**11 nations**
Percentage of forest area located in the northern regions	**% 50**
Proportion of the area of frontier forests that lies outside the boreal zone and is actually threatened	**% 75**

Table 1: It represents the position rates for the border forests [**48]**.

3. Types of forests

Forests are varied, including tropical - tropical - moderate - northern. The tropical forests are located between the orbit of Cancer and the orbit of the Capricorn, specifically between the two latitudes bay 10 degrees north and 10 degrees south of the equator

Its advantages

 Very high annual rains (a hundred inches)

 The average temperatures rise

 Fakening soil with nutrients

 High levels of biological diversity

 The tropical forest climate is usually warm and humid

 It also has heavy rains

 High temperatures throughout the year

During the year, the temperatures of these forests range between 20 and 35 degrees Celsius

Plants and animals

 Nearly 100 different types of trees can be found per kilometer in tropical forests.

 The length of tropical forests is about 25 to 30 meters,

 Most of the animals that live on trees, such as monkeys, snakes, lizards, mammals, and others, live in in the tropical forests.

Moderate forests are located in both half of the globe, moderate forests can be found between the two width linearies of 25 degrees and 50 degrees. The eastern United States, Canada, France, Germany, Poland and Switzerland

Its advantages

 Moderate forests are characterized as falling papers

 Moderate soil is characterized by a high level of fertility and rich in nutrients

 The average rainfall is abundant (30 to 60 inches)

 flat and broad leaves trees

 These forests were affected by human activity

The climate

 The moderate climate witnesses a cold, wet and hot summer

 Rains throughout the year.

The temperature is the minimum temperature in it above 10 degrees Celsius

Plants and animals

 Moderate forests contain approximately 3 or 4 types of trees in the square kilometer

 Moderate forests are home to many animals, such as rabbits, birds, sneaks, foxes, black bears, and others

Northern forests

 Located between 50 degrees and 60 degrees north near the Arctic Circle

 It can be found in Canada, North Asia and Siberia

Its advantages

 Very low temperatures

 Permanent trees

 short growth season

 Few rain (15 to 40 inches)

The climate

 Northern forests pass through two main seasons; the first is moist and moderate heat in the summer, but it is very short, and the second is dry and very cold in the winter, which is very long.

The temperature is the average temperature

Plants and animals

 Long live in the northern forests of evergreen conical with the empty leaves that adapt to the winter season, including pine trees, flame, and others.

 Many animals live in northern forests, such as rabbits, bears, hawks, bats, and others.

Tropical

It is distributed spatially in India, northern Australia, the coast of Madagascar Island, the eastern coast of Africa, in Central America, West India, and South America around the tropical forests [**48]**.

4. Its most important advantages

Climate: Dry, warm, warm summer, and rainy winter.

Soil: bad drainage and less fertile than tropical forests.

Prepared plants: They allow herbs and weeds to grow in them, and their trees are less dense and smaller, such as camphor trees, bamboo, and others.

Animals: It is characterized by their richness in animal life, such as the elephant, along with black, tigers, juveniles, and wild cats

The most important of them is the tropical forests, the largest percentage of them if most of them are located in developing countries, and began to disappear. And linked to the deterioration of the current economic conditions and population growth. The increasing needs to obtain wider spaces to keep pace with population growth as they contain significant biological diversity and such forests mean the loss of plant and animal wealth [**48]**.

For the purpose of providing green spots and industrial forests, the appropriate plant must be chosen for the environmental conditions that will be cultivated. The trees and plants can be divided as follows:

1. Trees and plants that bear high temperatures
2. Trees and plants that bear low temperatures.
3. Trees and plants that are tolerated by weather fluctuations and wind.
4. Trees and plants that bear the marine and salinity winds near the coast of the seas
5. Trees and plants resistant to smoke and dust
6. Trees and plants resistant to drought and thirst.

Forest danage

Destruction of huge quantities of heavy wood

- accelerate desertification crawl

Destruction of residential areas

CO_2 quantities and dust constitute health and environmental problems

- The exacerbation of global warming phenomenon

Figure 3: Cut down trees **[49]**

Fire-fighting:

Helping developing and poor countries in providing the necessary equipment

- In most developed countries, there are rapid intervention units to help countries Specialized firefighting teams equipped with the best means to counter huge fires

- The most important of these tools:- Aircraft equipped with firefighters

- Fire cars, drilling equipment

There are materials made up of toxic hope to stop the reaction of the fire with wood.

Figure 4: Burning forests **[50]**

5. Maintaining forests

The natural forests of the world suffer from extermination and cuts as a result of the expansion of the (urban) population and the city has crept towards the countryside, causing the damage to the environment, the loss of the environmental balance of the globe and the natural balance of the vegetation. It is necessary to take care of plants and trees and to compensate for what is lost to them, in order to prevent desertification and sand ramp, or the expansion of the desert to the detriment of the green zone **[48]**.

The example of the Amazon in South America, and it occupies a large area of Brazil, and some of its neighboring countries such as Peru, Venzuela, Channa and Ecuador, where it extends. over a vast area of approximately 550 million hectares, and the Amazon forests occupy great importance on the surface of the globe where the lung is considered on which the Earth relies to obtain oxygen and heat. Breathing, as the Amazon rainforest purifies the air of carbon dioxide and converts it to oxygen, thus providing approximately 20% of the available oxygen in the atmosphere. The Amazon rainforest is classified as one of the world's virgin forests, which was found on Earth around 500 million years ago, which has helped the great diversity of normal life, while the most important aspects of life are as follows: The general level of air heat in the Amazon rainforest reaches what is equivalent to 27 degrees, while the annual rainfall level swings between 130 cm and 440 cm, as it is classified as a list of rainforests. In the Amazon forest, there are about half of the varieties of living organisms on the surface of the earth, which are estimated at ten million different items between a plant and an animal, as they include about 750 items, while high plants reach 1500 different items. The Amazon rainforest contains a -fith of freshwater springs on the Earth's surface. The Amazon rainforest contains thirty million varieties of varied insects. The Amazon rivers contain 3 thousand known varieties of fish. The damage to the Amazon rainforest has not escaped from the unjust violations of human beings against nature and forests, as its

distinguished position in the continent of South America and the fertility of life have contributed to attract a lot of greedy to greedy It, without any interest in preserving their normal life cycle, and the damage can be limited. In addition to establishing residential areas on its outskirts [**48]**.

Methods of forest protection

• Support forest maintenance work

• To feel and work to increase environmental awareness

Protection of forest resources

• Cultivation of trees using special techniques

• Legal protection of forests

• Prevent the creation of industrial projects near forests

• Use modern technologies to protect forests and work to develop them

• Establish forest protection organizations

• Environmental importance of forests

Climate

Cover purification and degree control

The increased heat

Biological diversity

The largest environmental system includes a large number and types of objects

Soil protection

It protects it from drift and corrosion and prevents, Runoff Water, Collect and store water and renovate, Groundwater Maintain the humidity of the atmosphere, Plants carry out transpiration which affects temperatures and the fall. Maintain the humidity of the atmosphere Plants carry out transpiration which affects temperatures and the fall

Pollution protection and it is by the regeneration of the air and Serving large amounts of oxygen. The economic importance of forests Provide a person with food, water, wood and leaves. Provide housing and work positions for man. The pharmaceutical, detergent and fuel industry Improve environmental tourism [**51]**.

From all this, we find that the forests are very useful to us, and their destruction will only cause harm in the short or long term; therefore, the preservation and maintenance of the forests is one of the most important environmental works on which it must work, because it plays a vital role in the preservation of the environment and humanity [**51]**.

3 The hunt

1. Definition of hunting: it is the capture of animals, fish, and birds, and hunting is one of the oldest human activities after the stage of gathering and picking, that is to say collecting fruits and vegetables, etc. that are abundant in nature, so after he was able to manufacture the tools necessary for hunting, he began hunting animals for sustenance, and perhaps Neanderthals began hunting after observing animals that were killed for food [**52]**.

Hunting was associated with the migration of humans, but after the stage of settlement and the discovery of agriculture, grazing and activities related to settlement and urbanization, hunting became practiced to drive away predators that threatened villages and livestock that were raised by humans.

And the matter developed until it became a sport for entertainment by the nobles and gentlemen, including the sport of hunting in the Middle Ages, including hunting with dogs and falcons and using a bow [**52]**.

In castles and forts, there were servants specialized only in this sport, working on taking care of dogs and falcons and taking care of hunting tools, as the hunting holdings room that contained guns, hunting equipment, stuffed heads, and animal souvenirs was one of the most important shrines of palaces and signs of nobility and wealth. This is not the case in Europe or Asia. Only, but that system was followed in the Mamluk era, when there were special titles for these jobs [**52]**.

2. Hunting using animals and birds

A falconry

This type of hunting is widespread in Asia in general and in the Gulf as well, where falconers train certain species of falcons, including falcons and peregrine falcons, to hunt prey in the desert [**53]**.

b Fishing with crows

Fishermen in some regions of the world and in Asia, on the face of renewal, train a species of cormorants to catch fish, and that is by tying them with strings to launch a dive in the water, then they are attracted to the outside and the fish are extracted from their bags [**53]**.

C hunting with dogs

In this type of hunting, certain species of hunting dogs, including greyhounds, are trained to track prey, which are foxes and wild rabbits in particular. They are usually divided into two groups. Stop dogs, which are dogs that do not chase the prey, but rather discover it by means of their strong sense of smell and when they reach as close as possible. Among them, they stop as close as possible to the hunters to take the appropriate position to launch their shells, and they also bring the injured prey. The second group is the runner dogs, as they follow the prey after they force it out of their holes [**53]**.

3. Indiscriminate hunting

What is meant by it is all types of illegal hunting, randomly without regard to local and global environmental laws, as any violation of hunting laws is considered a violation punishable by law, in order to satisfy the personal whims of some hunters under the umbrella of entertainment and recreation, many people practice the wrong hunting, Without taking into account all the caveats and imposed laws that regulate the fishing process, and despite the existence of many deterrent measures, this phenomenon is still widespread and growing as a result of the indifference of many fishermen [**54]**.

Indiscriminate hunting cases

Hunting is considered indiscriminate or prohibited in the following cases:

Hunting animals during the breeding and mating seasons.

Not having a license that qualifies its owner to practice fishing.

Hunting outside the specified times and hours for hunting.

- The use of illegal weapons for hunting.

- Hunting animals found in prohibited areas such as reserves.

- Hunting animals belonging to other people.

- Hunting endangered animals, such as white bears in the polar regions.

- Hunting animals that fall within the scientific research [**55]**.

b Indiscriminate hunting damage

Extinction of rare animals and plants

The biggest cause of environmental imbalance.

Causing destruction of the natural environment.

Harm to humans as a result of misuse of unlicensed weapons.

Increases carbon emissions in tropical forests.

Returning dead fish to the sea causes pollution.

An imbalance in the biological balance occurs.

- The ferocity of some animals, causing harm to many hunters.

- The displacement of many animals to other areas.

Indiscriminate hunting destroys the biodiversity of the environment [**55]**.

C forms of indiscriminate hunting

Excessive hunting.

Unregulated fishing.

Hunting with illegal tools.

d Penalties for indiscriminate hunting practitioners

Many countries have imposed deterrent penalties on anyone who practices indiscriminate hunting, out of concern for the environment and animal and plant wealth in the country, including:

Financial fines vary according to the case.

- Confiscation of what has been caught.

- Confiscation of weapons used in hunting. Withdrawing a fishing license.

- Precautionary measures for indiscriminate hunting Enacting laws and imposing penalties on anyone who practices indiscriminate hunting.

- Creation of the so-called Wild Hunting Monitoring Teams. Create a hunting group.

- Awareness campaigns in universities, centers and areas where indiscriminate hunting is common.

- Distributing awareness leaflets about the dangers of indiscriminate hunting.

- Holding seminars in all universities and fishing centers to raise awareness of the dangers of indiscriminate hunting.

- Tightening control over all forms of fishing.

This phenomenon is still widespread in many countries, despite the procedures, strictures, enacted laws, and imposed penalties. Overfishing has led to the extinction of many species of animals worldwide and their disappearance from their basic habitats, which prompted governments and environmental and animal welfare groups to call for the establishment of reserves [**55]**.

قال تعالى في كتابه العزيز: بسم الله الرحمن الرحيم (أُحِلَّ لَكُمْ صَيْدُ الْبَحْرِ وَطَعَامُهُ مَتَاعًا لَّكُمْ وَلِلسَّيَّارَةِ وَحُرِّمَ عَلَيْكُمْ صَيْدُ الْبَرِّ مَا دُمْتُمْ حُرُمًا)

His rule in Islam the Almighty said in his dear book: In the name of God, the Most Gracious, the Most Merciful rum) Hunting is permissible, except for hunting in the Sanctuary, as long as it is intended for sacrifice. If it is for the purpose of playing, then it is forbidden, according to the saying of the Prophet Muhammad, may God’s prayers and peace be upon him: (Whoever kills a bird in vain, it will come to God on the Day of Resurrection, he will say: O Lord, so-and-so killed me in vain and he did not kill me for a benefit) [**55]**.

4 Reconstruction

1. Introduction

The issue of reconstruction is of great importance at the present time, given the urban expansion and the increasing demographic growth that cities and urban agglomerations are experiencing in countries, especially the developing ones.

According to some interested parties, reconstruction is a set of technical, legal, economic and social measures that must work to achieve consistent, harmonious, rational and humane growth for the urban masses.

In the view of some, it means the art of preparing cities, or rather the science of the city, or the science of urban blocks that show integration and continuity, and are intended for either housing, work, or social exchange [**56]**.

As defined by John Marie Obey and Robert Deco "in their joint book "Administrative Law" as "the set of technical, legal, economic and social means that must allow the harmonious, rational and humane, development of the masses."

It is concluded from these definitions that urbanization generally aims at two issues, the first of which is the development of society by organizing the collective life of the individuals belonging to it, and the second is managing the field in order to plan urban expansion [**56]**.

Urbanization today raises issues and problems that are more complex and complex than ever before, due to the divergence of its elements and its direct connection with the daily and basic needs of the population, because this would contribute to the production of urban areas that are unable to perform their developmental functions [**56]**.

2. Rules regulating the preparation and reconstruction process

The rules of preparation and reconstruction in the history of mankind are a science and art according to which the process of construction and urbanization is organized, which shows the quality and shape of buildings, and guarantees respect for natural and urban landscapes and the cultural and historical heritage. These rules developed from one stage to another and from one environment to another to become self-contained. They include rules aimed at regulating cities and residential and urban communities, regulating the production of habitable lands, developing buildings according to the rational management of lands, achieving balances between various social activities (agriculture, industry, Housing) Preserving the environment, and the urban landscape [**57]**. And due to the increasing human needs for urbanization, which became not limited to housing only, but rather extended to include the industrial, commercial, cultural and other functions, and with the increasing needs of urbanization, its importance increased, especially in recent times, in which the laws of urbanization and construction occupied a prominent place among the majority Laws due to their importance, whether for the drafters of the laws or those in charge of implementing them or those subject to them [**57]**. However, some believe that the issue of urbanization and the environment somewhat leads to a question about the relationship between the two sites, because they combine two contradictory positions, since the laws of planning and urbanization exploit the natural fields, while the environment law seeks to protect the natural field, but it has recently become laws Urbanization and aims to protect natural environments that have not become limited to the environment protection law only [**57]**.

3. The role of the master plan for planning and reconstruction in protecting the environment

The master plan for development and reconstruction contributes to the preservation of the aesthetic urban environmental aspect. Among the goals that this plan aims at protecting the environment and natural resources, this is by preventing and fighting all forms of pollution because national development requires a balance between the requirements of economic growth and the requirements of environmental protection. Preserving the living framework of the population [**58]**.

5 Air pollution

1. Introduction

Air pollution is defined as the presence of liquid, gaseous, or solid substances in the air in quantities that lead to the occurrence of many vital, economic, and physiological damages, which affects both humans, animals, and plants, and it must be noted that it is one of the worst air pollutants, In this context, we will learn about its causes, its harms, and ways to reduce it [**59]**.

2. What is meant by air pollution:

Air pollution means the exposure of the atmosphere to harmful particles and compounds that can cause damage and harm to humans, animals and plants, and the negative impact of the nature of things. It also absorbs green pollutants, carbon monoxide gas and car smoke, in addition to harmful particles that remain in the air **[59]**.

The occurrence of air pollution through waste, as industrial waste is considered the main sources of air pollution, and it can be in the form of gases or (particles) microscopic particles of liquids and solid bodies. Such waste is generated primarily from the combustion of fuels used to power vehicle engines and heat homes, but also from industrial processes and solid waste combustion. Natural pollutants (impurities) include dust and soil particles. The rapid growth in population and in the industrial field, and the increase in the number of vehicle and aircraft engines, has made air pollution since the fifties of the twentieth century an increasingly serious problem in many major cities; the air above these cities is often saturated with pollutants that are harmful to human health. Air pollution also damages plants, animals, tissues and the economy Stimulating the use of unleaded gasoline [**59]**.

3. Movement of pesticides in the air:

Pesticides enter the air directly when pesticides are sprayed by plane or modern sprayers. To the air indirectly when it evaporates from the surface of the soil or water, and particles of soil contaminated with pesticides may volatilize into the air. Pesticides sometimes decompose in the air by physical oxidation under the influence of sunlight (Muthanna, 2000), and when rain falls, these pesticides return to the soil or water, and it was possible to diagnose some effects of D.D.T pesticide with different concentrations at altitudes that reached 12 thousand feet above the American continent, which confirms the high effectiveness of this chemical compound in terms of destructiveness in the reality of environmental life and its various inclusions. While some studies or statistics indicate that the American individual takes d.d.t pesticide from the air daily with a quantity that sometimes reaches 0.2 micrograms of body weight, and some research has recorded the transmission of pesticides for a distance of up to 3720 miles in the air through movement with the trade winds over the Pacific Ocean, and this transmission has been proven because the area in which the concentration was recorded In it, no chemical control operations of any kind have ever been used [**60]**.

4. Causes of air pollution:

Many societies nowadays suffer from the spread of air pollution, and this had many serious side effects on their children, as air pollution caused many serious diseases and negatively affected the lives of animals and plants and caused the destruction of buildings [**61]**.

There are many natural factors that lead to air pollution, and they are sources that humans have nothing to do with, and it is difficult to control them, and they are divided into:

Basic pollutants oxides: They result from the complete combustion of fuels, such as oil, coal, and natural gas, which leads to the production of carbon dioxide, water vapor, sulfur dioxide, and nitrogen oxides, in addition to heavy elements that are in a fixed state or Gases such as cadmium, lead and mercury.

b Volatile organic compounds: These are the compounds resulting from car smoke or from burning coal, such as methane and chloroform.

A: Suspended compounds: These are the solid materials present in the air, such as germs, dust, salts, and lead. Secondary pollutants such as smoke and acid rain, which are caused by the interaction of primary air pollutants with each other, or with other pollutants, as well as by means of sea, air and land transport [**61]**.

The factors that cause air pollution can be divided into four main causes

• First, natural causes. Volcanic activity, as it produces fumes and toxic gases such as sulfur, chlorine, and ash particles, in addition to the dust that is emitted as a result of the presence of spaces that do not contain green plants, as well as forest fires that emit carbon monoxide.

• Secondly, industrial reasons. The large number of factories and industries that produce pollution, such as the cement industry, fertilizers, the oil industry, and roads that produce gases that pose a threat to the environment.

• Third, radiological causes. Of course what is meant is nuclear radiation and its role in environmental pollution, including atomic reactors and nuclear waste.

• Fourth, microorganisms. It includes all microorganisms that may cause pollution, including germs and viruses **[61]**.

5. Harmful effects of air pollution:

It leads to diseases of the digestive system, respiratory system, skin diseases, and eye diseases. It also leads to many physiological changes in animals and humans. Some irritating substances may lead to inflammation of the mucous surfaces. Reduces the percentage of oxygen in the inhaled air due to an increase in the percentage of hydrogen, or carbon dioxide in the body. It prevents blood from extracting oxygen from the inhaled air, and prevents tissues from absorbing the oxygen in the blood. It affects the blood group. Slows down plant and animal life. The biggest negative impact of air pollution is on humans, as there are several

diseases that people suffer as a result of air pollution, including respiratory diseases such as bronchitis, decreased lung performance, coughing, wheezing, lung cancer, asthma, serious heart diseases, and eye irritation [**61]**.

Figure 5: Sources of air pollution **[62]**

6. ways to combat air pollution:

There are many negative effects of air pollution on the health of humans, animals and plants, and as man was a cause of environmental pollution, he must now bear the responsibility for repairing what he has damaged, and therefore it is necessary to find appropriate solutions to get rid of this phenomenon and one of the best ways that can be followed to reduce pollution air include:

Ensure to plant trees and plants that absorb carbon dioxide and raise the level of oxygen, and besides that, trees also act as windbreaks laden with dust and dirt.

Raising awareness among the people of the communities of the seriousness of air pollution and the need to maintain a clean environment. Control of pollution centers and its various sources. Reducing the consumption of electrical energy. Adopting an environmental policy in the electrical sector rehabilitation projects. Use of clean and renewable energy sources. Reduce car use. Stimulating the use of unleaded gasoline [**63]**.

Applied Environmental Science scale, year 5 secondary education professor, prepared by Dr. Gacem Habiba, Higher Normal School of Technological Education of Skikda.

6 water pollution

1. Introduction

Water is considered the nerve of life, because without air and water there is no life, and water is of great importance in the life of man and the rest of living beings, and its percentage reaches about 60-90%) of the net weight of most organisms, and it may rise to 97%, as in the cucumber plant, and it is considered Water is the medium in which all the biological and chemical reactions occur within the bodies of living things and has a special importance in human life. Some areas of water use by humans can be summarized [**64]**.

- Two-thirds of the supplied water is used for various domestic purposes, including drinking water, cooking and washing, while the other third is used in industry.

- Water is used for cooling or steam generation purposes and in the manufacture of materials

It is used to generate electric power

Water is used in the food industry, in animal husbandry, and in irrigating crops

- Water is used for transportation and trade, as it is considered one of the important means of transportation in the world

- Water is used for leisure, pleasure and recreation purposes [**64]**.

* Although water is a chemical compound with a fixed composition, it often contains various elements and compounds that may benefit the organism, but when it is increased beyond the required limit, it causes pollution that causes it to be unable to be used in industry, agriculture, or for drinking purposes and domestic uses. It may not become suitable even for the living creatures that depend on it [**64]**.

* Therefore, water pollution is defined as a clear change in the physical, chemical or biological properties of water so that it becomes unfit for use by humans and does not constitute an environment suitable for the survival and reproduction of living organisms, as

the physical and chemical properties of water have a direct role in the distribution, behavior and adaptation of living things. A number of phenomena that indicate water pollution, namely

Low dissolved oxygen

An increase in water temperatures

Increase dissolved nutrients

Presence of toxic waste in the water

- Change the properties of the bottom

- High bacterial content and the presence of parasites, which are a source of epidemics and diseases

- An increase in the concentration of dissolved salts in the water [**64]**.

2. Main factors that lead to water pollution:

- Population density

- The density of industrial establishments, their distribution, and their proximity to a specific water body

Technological development in industry, agriculture, medicine and other sciences

- Man's neglect of pollution because he did not treat the polluted materials before throwing them into the water bodies [**65]**.

Figure 6: Dumping pollutants into water bodies [**66]**

3. Means and methods that lead to the introduction of pollutants into the water environment:

Dumping household sewage waste. Throwing industrial waste by throwing it directly into rivers or seas. Disposal of waste from ships and river transport. Polluted materials fall from the air into the water

- Experiments, laboratories and atomic explosions. Hospital waste **[67]**.

Figure 7: Sewage outfalls in valleys **[68]**

4. Types of water pollutants:

There are many pollutants that change the physical, chemical or biological characteristics of water to make it unfit for known uses. These pollutants are:

Nutritious salts: These are the materials that are necessary for the growth of aquatic organisms, especially aquatic plants, but these materials become a source of pollution when their concentration in the water is increased beyond the normal limit, as it causes an increase in the production and flowering of phytoplankton, and among these materials are phosphate salts and Nitrates **[67]**.

B Organic waste: This waste constitutes the largest part of household waste and includes biodegradable organic compounds that are found in domestic sewage. When these compounds

are decomposed by bacteria, especially aerobic, they will reduce the amount of dissolved O2 in the water, and thus the living will be affected. All aquatic organisms that depend on it for their respiration [**67]**.

5. Movement of pesticides in water:

Pesticides enter the aquatic environment in similar ways as they enter the soil, including:

 Erosion of the soil surface contaminated with pesticides with irrigation water, floods or rain

 Direct treatment of water with insecticides to eliminate aquatic weeds.

 Precipitation of rainwater laden with pesticides washed from the air.

 Transfer of groundwater loaded with pesticides to surface water.

 Drainage of waste water from domestic sewage treatment plants that are not adequately treated [**69]**.

 Drainage of industrial waste water containing pesticides from pesticide factories [**70]**.

After the pesticides reach the water, they enter the aquatic food chains and start entering at the beginning and accumulate in the vegetative cells of plankton and other aquatic plants, and from there, they enter the body of insect larvae or invertebrates such as water fleas and crucian carp and others, or to the bodies of small fish and from there to the larger fish, and reach after This is to humans, animals, or birds that eat fish, and in these stages, pesticides have affected aquatic organisms with various effects, the most important of which are:

 Direct toxicity to soil and water organisms and microorganisms

 The direct effect on the genetic characteristics of neighborhoods [**70]**.

The direct or indirect effect on the reproductive and nutritional habits of living things, this phenomenon is known as biomagnification of pollutants, and the phenomenon of biomagnification of pesticides was first noticed by the two scientists (Hunt and Bischoff) in 1960 AD when they studied pollution in Lake California after spraying it with d.d.t pesticide to combat mosquitoes so that it was hoped that the concentration of the pesticide in the water

would reach 0.02-0.014 ppm, but after a short period of time, deaths of birds and fish were observed [**70]**.

6. Methods of treatment and reduction of water pollution:

1 Reducing the appropriate quantities of wastewater to water bodies

2 Not throwing contaminated water into rivers before it is purified and sterilized

3 The need to establish heavy sewage networks in residential areas in order to prevent the leakage of water contaminated with bacteria, parasites, chemical toxins, phosphorus and other waste into the running water.

4 Work to increase environmental awareness among citizens by all available means and means, and issue deterrent instructions and legislation to reduce environmental pollution [**71]**.

Figure 8: Polluting water bodies with sewage [**72]**

Applied Environmental Science scale, year 5 secondary education professor, prepared by Dr. Gacem Habiba, Higher Normal School of Technological Education of Skikda.

7 Soil pollution

1. Introduction

The soil consists of four main elements, which are water - air - mineral substances and organic substances, which are arranged in a complex physical and chemical system and make the soil a solid basic base for stabilizing plants as well as providing them with what they need of water and the necessary nutrients. Plants get the basic elements Because it grows from the soil through roots that work to absorb nutrients. The soil is also considered a home for many different microorganisms, such as bacteria, fungi, and algae, as well as some worms such as earthworms, insects, and others. Therefore, soil is an important element for life if we take into account its embrace of roots. Plants and thus provide the beginning of the food chain, which is represented in products, so keeping the soil intact, clean and free from pollution is the basis for preserving the life of the organisms that live on it [**73]**.

2. Movement of pesticides in the soil:

Agricultural production is negatively affected by some fungi and insects that contribute greatly to reducing agricultural yields. Therefore, people are forced to use pesticides in order to be able to eliminate these insects. Pesticides are used as powders, liquids, or by spraying as granules [**74**] and the use of pesticides to protect agricultural crops led to good results represented in increasing production, but it has environmental disadvantages represented in the concentration of some pesticides in the soil and their access to humans through the food chain. Among the most important negative effects of pesticides on soil are the following:

The emergence of mutations in the microbacillus present in the roots of plants, rendering it incapable of performing its role of:

- Decomposition of organic matter
- Secretion of acids that contribute to the disintegration of rocks and soil formation
- Fixation of nitrogen in the soil [**75]**.

It is worth noting that the excessive use of pesticides makes some insects immune to these pesticides, so they are not affected by them and cannot resist them. Killing the natural enemies of harmful insects, which causes a disruption of the natural environmental balance. One of its results was a significant increase in the number of harmful insects that are difficult to resist and the emergence of new varieties of insects that were not previously known to be harmful to agricultural crops, thus affecting human and animal health through crop consumption. Developing in contaminated soil and by drinking and using surface water transported over contaminated soil or groundwater that leaked through contaminated soil layers. The soil is also a major source of air pollution with dust and pesticides. One of the important characteristics of pesticides is their solubility in air and water, and the ability to migrate and increase concentration through rings. The food chain **[75]**.

1-7 Sources of soil pollution: Among the most important soil pollutants are the following

A - Agricultural chemicals, which include two main groups:

* Chemical fertilizers * Pesticides

The wrong use and large quantities of chemical fertilizers have negatively affected soil fertility. It was found that most of the nitrogen fertilizers, for example, have an effect on increasing the acidity of the soil, while the phosphorus and potassium fertilizers do not leave an effect on the acidity and base of the soil, and the excessive use of fertilizers It leads to the death of the roots of plants or the death of animals such as insects. As for pesticides, the statistics issued by the Food and Agriculture Organization International indicated that there is more than one chemical substance used to exterminate agricultural pests, which include fungicides and insecticides, and these substances are characterized by the property of accumulating in soil particles, which It may lead to the death or extinction of a large number of organisms, as well as their accumulation in the food chain of living organisms. For example, when using a pesticide, some of them fall on the surface of the soil and are absorbed

by earthworms that concentrate them in their bodies, and when migratory birds consume these worms. The container contains these toxins in their bodies, which leads to the extermination of large numbers of them as a result of their poisoning with the pesticide, which may affect the nervous system and cause paralysis, if the danger of pesticides lies through their survival in the environment for a period that may exceed several years [**76]**.

3. Soil contamination with pesticides:

Soil is considered one of the important resources, as it is a source of food, and there is no doubt that all living organisms need food, but this does not justify abuse of the soil, and among its sources of pollution are pesticides (Encyclopedia of Scientific Knowledge, 2010), and pesticides are among the most dangerous pollutants of the environment and soil , and that its frequent use leads to the destruction of its fertility, pollution and acute poisoning with pesticides, and to the killing of beneficial organisms in it and the destruction of biodiversity that includes all types of living organisms [**77]**.

The use of pesticides in agricultural lands was and still is one of the most important problems of soil pollution because it affects its fertility, and ultimately leads to its contamination with pesticides. It is absorbed by some plants, so when humans or animals feed on these plants, the end result is human cancer [**78]**.

4. Domestic and industrial waste:

Through human activities, including in residential, industrial and commercial complexes, it is noted that the soil receives various wastes, most of which are biodegradable materials. There are industrial wastes that must be disposed of in an environmentally sound manner, as when such waste accumulates, it causes various health damages and is a residence for insects in particular. Those that transmit diseases to humans and other animals [**79]**.

A - Acid rain:

The rise of various oxide gases into the atmosphere, such as carbon and nitrogen oxides, leads to their interaction with water vapor molecules, and thus acid rain is formed and falls in the form of carbonic acid. These rains lead to changes in the agricultural soil layer and dissolve a number of elements and compounds that circulate To the soil core, acid rain increases the acidity of the soil PH, which affects the life of soil organisms, damages its fertility, and leads to the death of plant roots [**80]**.

Applied Environmental Science scale, year 5 secondary education professor, prepared by Dr. Gacem Habiba, Higher Normal School of Technological Education of Skikda.

Chapter II

Human impact for nature

1 Restoration of nature

1. Introduction

Planet Earth is the planet of life, in which various living organisms grow, led by humans, and some scientists have been studying this planet with all its worlds, and they were able to classify it according to different rules and foundations, and among these classifications is what is called the bio-cover, so what is meant by the bio-cover? How did the person affect him? And what is its importance ? What are the most important methods and methods for preserving and developing it ?

Nature is defined as a comprehensive term that includes the natural world, or, in other words the physical universe. It includes everything that exists in the universe of different manifestations of life except for the various human interventions in life and nature, as it is referred to as artificial things of human work, in addition to supernatural cosmic phenomena that are not considered within nature. The scope of nature expands to start from its smallest components, such as the atom, to the largest, as is the case in cosmic affairs. The natural environment includes various manifestations of wild life such as animals, stones, forests and beaches, in addition to all things that have preserved their shape despite human intervention in them [**81]**.

2. Definition of nature

Nature is defined as everything found in the universe of various manifestations, as it includes everything that God Almighty created, and man had no interference. It also launches the concept of nature starting from the smallest element in the universe, which is the atom, to the outside world and the vast space, and includes stunning views of oceans, springs, forests, mountains, and all the beings that live in the universe, in addition to the laws that govern the universe and are controlled by the elements of nature [**82]**.

Water: Water is one of the most basic elements that include the continuation of life, as nothing lives without water.

Fire: Fire is one of the most powerful elements of energy, as it is a form of energy.

Soil: The name soil is given to all that takes the form of dirt, such as sand, stones, or crumbled rocks. Soil forms the outer crust of the planet Earth.

Metal: Metal forms three states,

They are: hard metal like iron, soft metal like gold, and liquid metal like mercury.

Other elements: such as animals, plants, and the different terrains of mountains, valleys, and plains, in addition to air [**82]**.

3. Definition of biomass

Biospheres are known in English by the term Biosphère, a word derived from the Greek word bios, meaning life, and the word sphaira, meaning the shape of the earth. It is defined as all ecosystems on Earth. It is the space, place, or medium in which life exists, and it extends from the highest point in which life exists in the atmosphere to the deepest point in which life exists in the oceans.

It is the space in which living organisms exist, including humans, animals, plants, microorganisms, as well as non-living components.

4. The importance of the biomass

4.1. Climatic effects

The second source of supplying air with relative humidity after water bodies

It helps regulate the air temperature.

Helps to increase or decrease the amount of shedding.

It primarily contributes to increasing the amount of oxygen in the atmosphere and reducing carbon dioxide. Reduces reflected solar radiation.

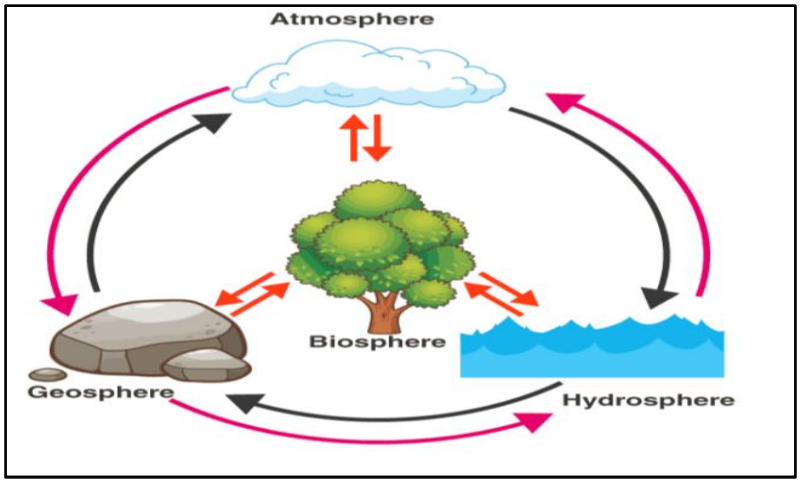

Figure 9: Illustrating the importance of biomass **[83]**.

4.2 Environmental influences

The biosphere is the medium in which living organisms live, where they can reproduce and grow

Biogroups are major sources of hereditary genes that the plant and animal kingdoms pass through in those natural environments.

Contribute to preserving the atmosphere.

Contribute to the maintenance and maturity of the soil and improve its properties [**82]**.

4.3. Economic influences

A source of raw materials for the wood industry, on which millions of people live.

Forest fruits and animals are an important source for the economies of many countries.

An important source for different industries.

4.3.1. The interrelationship between the elements of nature

A person cannot live without water, and the soil is the natural place for water, where water penetrates into the soil, as a person takes plants as food for him, and uses them in the manufacture of clothes, perfumes, medicines, heating, and paper.

The animal is considered a source of food for humans, as it is used in the manufacture of clothing, and the plant is considered food for the animal, and the animals form fertilizer for the plant.

Water and soil together form an environment for plant growth. Water and air are two essential factors in breaking up rocks

- One cannot separate man from nature, as he is an integral part of it, and is subject to all its orders and laws. He cannot deviate from these laws or change its path, but man can leave a mark on nature, because of his practices and multiple interventions in restoring, as he left a clear impact on that man has an important role towards nature as a result of the many and repeated interventions that he makes and practices towards nature in its various concepts [**82]**.

Which can be summed up in two directions as shown in the following:

A- Man and his negative impact on nature

4.4. Elimination of Forests

Forests used to cover 30% of the total land area and were inhabited by about 40% to 70% of living creatures. Currently, their area in the Mediterranean basin decreased from 65% to 15% only. 70% of the forests of Europe, Africa and Asia were damaged. The estimated percentage of cut forests is 80%. Destroyed and devastated by the year 2050

The absence of clouds and, consequently, the lack of precipitation

The occurrence of drought and the lack of pure water necessary for human life

A disruption in the natural carbon cycle

exacerbation of global warming

Huge amounts of carbon leak into the oceans and cause acidity to an extent that kills all aquatic organisms [**82]**.

Rising temperatures as a result of global warming led to the melting of the polar ice caps and in several other places in the world such as the heights of the Alps in Europe and the Tian Shan mountains in Asia Minor.

The frozen sea lost about 40% of its ice layers and retreated by 6% of the area it occupied. A rise in sea and ocean water levels may range between 20 and 30 cm from current levels until 2050.

4.5. Floods and hurricanes

Wildlife decline

And it was stated in the World Watch Institute report that global warming may expose about 11% of bird species, 25% of mammals and 34% of fish to the risk of extinction **[84]**.

Soil erosion occurs

where large areas were exposed

Laterite and chernozem soils

at risk of erosion and loss of fertility.

Population growth

Global Warming

Fertilizers and pesticides

Exploitation unfair

Methods of developing and maintaining the bio-cover

Raising the level of awareness of the community members of the importance of the vital cover and the danger of its removal and the importance of afforestation

Establishing institutions specialized in urban planning within cities, setting policies related to managing them, and limiting horizontal expansion at the expense of vegetation

Community awareness and farmer culture **[84]**.

Laser soil leveling

Agricultural cycle to protect the soil from erosion

Irrigation scheduling and knowledge of water standards

Preserving and developing natural resources and rationalizing their use

Propagation of extinct or threatened plants

tissue propagation by extinction

Scientific and technical cooperation with Arab, regional and international organizations and universities working in the field of environmental protection

Enacting laws and legislations to protect and develop vegetation cover, forests and natural pastures **[84]**.

Preparing modern detailed maps of the soil and its content of natural plants by means of satellite images to identify its classification, characteristics, depths and productive capabilities

Adopting the principle of sustainable development and applying it when setting development plans for future projects **[84]**. Stopping irrigated or rain-fed crops in vegetation areas, the need to improve animal systems, and this includes the efforts of institutions in the country to expand and improve fodder resources and provide healthy fodder for animals

Provide assistance and guidance on how to raise and care for livestock.

Reducing the use of antimicrobials in livestock production

Knowing the impact of the environment on livestock and addressing the effects of climate change on it, or evaluating the impact of any economic investment on livestock **[84]**.

Since ancient times, man has been keen to pursue development, and his goal was how to exploit natural resources and wealth, and he did not know that this development would leave behind huge damages. He exploited oil and gas, made cars and machines, and carried out construction and urban expansion and industrial facilities that led to cutting down huge numbers of trees and reducing the number of agricultural lands. He also contributed greatly to

the phenomenon of desertification, as he established dams that led to the drying of lands on the banks (of the branches) and caused the killing of many living creatures. The problem of water scarcity (shortage) appeared, man still makes changes. In the components of nature, especially after the increase in the industrial, scientific and technological revolution **[84]**.

- Man's keenness to progress developing and keeping up with modern life, by exploiting nature from its various sides and sources without caring about the censequences that result towards nature, led to a lack of green spaces and increased desertification as a result of cutting trees and overgrazing in addition to urban sprawl that reduced large areas of forests and the consequent death of many animal and plant organisms **[84]**.

b- Man and his positive impact on nature

When the problems resulting from development increased, people focused on the importance of educating people about the dangers of the factors resulting from the change in the components of the environment and nature, and awareness of the importance of having a nature free of damages for the continuation of human life on the planet. So people urged the cultivation of lands and the establishment of natural reserves where animals are not hunted or trees cut down **[84]**. The positive role of man towards nature. The awareness of some institutions and people of the importance of nature and its necessity for the continuity of life on earth helped intensify work on planting trees, reclaiming land, establishing reserves for various types of plants and animals, and limiting indiscriminate hunting of animals, in addition to enacting laws that protect the environment from the indiscriminate and unregulated exploitation of its resources by man **[84]**. So, because of some wrong behaviors of humans, non-living components became polluted, threatened the life of living organisms, and led to the extinction of many of them. Where some studies have shown that by the year 2050 all forests will disappear, so the earth must be preserved and protected in order to ensure a place where it is possible to live [**84]**.

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2 Preserving plants

1. Introduction

Biogeography, as a branch of physical geography, is concerned with the study of that envelope, which is represented in the organic matter spread in its forms and types that are very diverse in terms of time and place.

And the scientist "Marion Newbigin" "Marion Newbigin" sees that biogeography is synonymous with the geography of plants and animals. And she viewed the animal world as a comprehensive science in which interrelationships accumulate. It works not only to change the structure of plant and animal functions of individuals, but also to change the peoples and communities of living beings in the different regions of that changing world. Her studies highlight the sense of changes that occur to plant and animal life in the region in the event of a stable climate. Biogeography is concerned with studying the various components of the biosphere. This biosphere consists of all living organisms: animals and plants. It tries to describe and study these organisms in their natural environments, and behind that, it aims to explain their distribution and assemblies. Biogeography is divided into plant geography and animal geography, where people must preserve trees and plants because they have great importance in the life of creatures. Apart from their beautiful shape that gives comfort and tranquility to the human soul, they provide shade for creatures prevent soil erosion help purify the air by taking in CO_2 and producing O_2, and it also produces fruits **[85]**.

2. Definition of botanical geography

Botanical geography or the science of plant distribution is a branch of biogeography concerned with the geographical distribution of plant species, their cultivation and distribution areas, and their impact on the Earth's surface. It is concerned with all aspects of plant

distribution, from the factors that control the distribution of the ranges of individual species to the factors that control the formation of entire communities.

Botanical geography studies natural plants and their relationship to different geographical environments. Botanical geography studies each of the following: plant species, the geographical distribution of plants, the relationship between environmental conditions and plant types, the relationship between humans and natural plants, or what is explained by the productive value of these plants **[85]**.

Figure 10: The figure represents the net cover **[86]**

3. Distribution of plant species

1. Megatherms high and constant temperature of the environment from +20 ° C to +40 ° C. These are the conditions of intertropical forests.

2. Xerophiles. Very high temperature, sometimes higher than in the previous group for part of the year, but accompanied by drought for most of the year. Rare rain. Deserts, steppes, subtropical or tropical deserts.

3. Mesotherms moderate heat from +15°C to +20°C, with moderate humidity. Mediterranean region, Canary Islands, etc.

4. Microtherms medium low temperature, from 0°C to +14°C; mild or rather cool summer; The ability to tolerate frost. Winter: +14°C to -20°C; Summer: +15°C to +30°C approx. Central Europe, Central Siberia,

5. Hekistothermes cold temperature. Summers hardly reach more than +10°C; they can withstand very severe winters that can drop to -40°C and beyond. Arctic regions, central Siberia **[85]**.

4. Departments of botanical geography

4.1 Fluorescent plant geography:

It is interested in studying the flora of the regions, which are the plant species that grow in them, and to study the difference between the flora of the regions depends on this science. It studies them in terms of:

- Where it is

- Spread

Limits of its spread

4.2 Environmental Plant Geography:

Studying the relationship and effects between plant species, the medium, and the environment, and knowing the relationship between the shape and area of the spread of the species and the environmental conditions. All surroundings, each type needs specific conditions of climate and soil to grow **[85]**.

4.3 Historical Plant Geography:

It studies the reasons for the growth of a plant species in a certain era and its extinction in the same area due to specific factors. It is interested in studying the relationship between plants and the medium in ancient geological times and knowing the various historical factors [**85]**.

4.4 History and relationship of botanical geography to other sciences

We can attribute the history of botanical geography to the year 1817, when Hummelt's book "Ideas in the Science of Geography" was published, which was the result of his multiple trips that lasted for five years in America, Syria, Central Asia, the Caspian Sea, and others, which enabled him to see and collect different plants. We find in his writings the three trends of phytogeography: fluorescent, environmental and historical **[85]**.

We find that studies of plant geography depend to a large extent on other neighboring sciences such as ecology, plant physiology, taxonomy, plant paleontology, and others...

4.5 Factors affecting the distribution of natural plants in the world:

If any type of plant is to expand its spread, it must move from its original habitat to new areas. The following are the most important factors affecting the distribution of natural plants in the world:

I- First the spread

There are several factors affecting the diffusion process, namely:

Mobility, transport factor, how long reproductive units retain their viability

 There are two types of spread:

Propagation by reproductive units

Vegetative (rhizomes, bulbs, corms...)

Distribution by sexual reproduction units (seeds and fruits)

1. Propagation through vegetative propagation units, where vegetative propagation organs such as rhizomes and bulbs can move the plant from its original place to other separate places by germinating them in the nodule area touching the soil surface, as in strawberries. Ulmus also has buds that grow to give a new plant up to 40 meters away from the mother.

2. Dissemination through sexual reproductive organs (seeds and fruits): The species that are spread through seeds and fruits are divided into two types:

Autochores are self-scattering species that do not need external dispersal factors such as wind, water and humans to disperse their seeds.

Allochores are non-self propagating species that need external spreading factors in their seed dispersal **[85]**.

II- Secondly, environmental factors

Environmental factors vary from temperature and humidity (rain)

 With regard to the effect of temperature, it controls the formation of plant communities by affecting the members of the species that make up these communities. If a type of plant is to live permanently in an area, the following conditions must be met in relation to temperature:

The temperature should not be so high or low at any time that it kills the plant. There are types of plants that need a very high temperature, as they help in the growth of some types of plants that spread towards the equator and some plants that need very low temperatures, such as plants that spread in the polar regions **[85]**.

- There are also some plants that need a low temperature, that is, cold weather in order to move from the vegetative state to the reproductive state

 With regard to moisture or the amount of rain that is distributed in varying quantities on the surface of the earth, it has a major role in determining the types of plant communities

Accordingly, plant geography is of great importance as it is an important branch of biogeography and botany, and because of its close connection with plant ecology, taxonomy and soil. Plant geography does not only study the areas of plant species and different types of vegetation cover, but also studies the causes and factors behind this distribution of climatic, soil, biological and other factors. Thus, the interests of plant geography are multiple and

complex and require knowledge of many other sciences, such as plant ecology, taxonomy, meteorology, soils, and others... **[85]**.

5. Maintaining plants

To learn how to preserve trees and plants, here are some important tips to do so **[85]**.

Do not mess with trees because they have the ability to take care of themselves, as they do not need much human intervention, as the trees that we see in the forests grew and grew on their own **[85]**.

Pay attention to the place where you are digging, especially if you are using heavy equipment

To a great depth can affect the soil and lead to its compaction and lead to the roots, causing the death of the tree within a few months of digging

Do not cut the tree, that is, do not try to carve something on it or trim it in the wrong way, which makes the cutting place a cause of diseases that can affect the tree **[85]**.

Feed the tree with organic matter regularly, and place fallen leaves and tree waste on the soil in which it grows, because this protects the tree from external factors and helps preserve moisture in the soil **[85]**.

- Do not over-irrigate the tree or fertilize it. In general, an adult tree does not need assistance in terms of feeding and watering. Rather, it may be damaged as a result of doing so.

- Tree pen Dead and damaged branches must be removed, as well as those growing at the base of the tree

- Examine your tree. You must monitor a tree so that you can treat it in the event of a disease or harmful insect.

- Provide the appropriate environment for plant growth. To do this, you must get to know your plant, that is, know if you are growing in the sun or in the shade, and whether it grows outside or inside the house.

- Give the plant enough water. Some plants need watering several times a week, some need watering once a week, and some need less amounts.

Apply fertilizer to plants only as needed

Plants must be pruned to ensure proper growth **[85]**.

6. The importance of plants in nature

The importance that characterizes the existence of plants in our lives is food, as it is considered the main source of food in our lives and in the life of every living being, whether animals, insects or birds. All of us, from the first humans to other living beings, eat plants.

As for the special feature of the plant and it is not found anywhere else, it is the preservation of the atmosphere, the climate and the temperatures. Plants are considered the main and only source for production of pure oxygen in the atmosphere, as they absorb carbon dioxide through the process of photosynthesis, and work to produce pure oxygen, thes is very the air in agricultural areas more pure and not filled with dust, smoke or extreme humidity. The plant works to preserve the ozone layer, that works to protect the earth from ultraviolet radiation coming from the sun, so increasing the agricultural plots again will work to remove the dioxide Carbon from the atmosphere and work to reduce global warming. There is another advantage of plants in our lives they have bio-geochemical cycles, for example, through the process of transpiration, plants transfer very large amounts of water from the soil to the atmosphere. They provide our sources of life. There are medicinal plants from which medicinal drugs are extracted to treat diseases, and there are trees that are used for construction, furniture, lighting fire and other products, and there are plants that are used as insecticides and used in the manufacture of fibers and the extraction of rubber and oils. Despite the countless benefits of harmful and poisonous plants that may harm living organisms, people sought to build places to grow plants and protect them from predators and parasites, and from harmful plant species that may cause poisoning to humans **[85]**.

3 Preserving animals

1. Introduction

Planet Earth is home to millions of living organisms of various kinds, as it is the only planet in this universe that has all the conditions and factors suitable for their living. They divided it into a number of groups called kingdoms, and among these is the animals kingdom **[87]**.

2. Definition of animal geography

One of the branches of biogeography and is concerned with the study of the spatial differences of animal nature and the distribution of aquatic, terrestrial and flying animals on the surface of the earth and the extent to which this distribution is related to other geographical conditions **[87]**.

2.1. Animal distribution patterns

Worldwide distribution:

• In which the animals are distributed all over the world (all suitable hosts).

• "Eurytopic" animals, which have adaptations to overcome environmental barriers.

• Killer whales, wasps, cats.

• The term global distribution is not used literally as it is generally applied without including polar regions, extreme elevations and oceans....

Discrete distribution:

• Animals are present in certain areas and absent in others.

• "Stenotopic" animals with limited/intermittent distribution.

• You cannot pass environmental barriers.

• Birds that do not fly like ostriches in Africa and the Arabian Peninsula.

Elephants and rhinos in Asia and Africa.

• It can happen in three ways:

- Access to oceanic islands through water.

Extinction of species between two ranges.

Submergence of land masses between two ranges.

endemic distribution:

• Animals are confined to the areas in which they evolved (endemic to those areas).

• Their confinement could be due to physical obstacles, or the fact that they have only recently developed.

• Giraffe (endemic to Africa), sloths (endemic to South America).

2.2. Isolated distribution:

• Where animals are found in certain isolated areas of the world.

bipolar distribution

• A type of intermittent distribution in which the same species, genus or family lives in the temperate latitudes of the northern and southern hemispheres, but it is absent in the tropics as it adapts to the cold climate.

• Polar bears, arctic fox, penguin, basking shark...

• It happened because of the conditions that prevailed in the ice age.

Factors controlling the distribution of animals

climate factor

- light effect,

temperature effect,

moisture effect,

Terrain factor

It is considered as a border that separates the animals that live on its sides, thus hindering their spread. Also, mountain animals are characterized by their agility and walking in difficult areas, unlike huge animals **[87]**.

Human factor

Either it works to increase the number of some species, such as horses.

Or contribute to the extinction of other species **[88]**.

Plant worker

Animals depend on plants as their main source of food, directly as herbivores, or indirectly as carnivores **[88]**.

3. The animal kingdom

It is one of the kingdoms of the main and important living organisms, and the members of this kingdom can be described as multi-celled organisms and have the ability to move, navigate, and respond to what is going on in the environment surrounding them in terms of variables and conditions **[88]**.

3.1. ways to protect animals

Animals are among the elements of the ecosystem that have a role in maintaining the balance of the environment, but in the recent period, these species threatened with extinction have increased due to the large increase in population numbers, which led to the urban development creeping towards forests and eliminating them and the spread of diseases that threaten different animal species if appeals were launched from international and regional organizations of the need to preserve rare animal species from extinction and protect them by various means, and this is a responsibility that rests with the individual wherever he is and not on the institutions concerned with animals **[89]**.

- Building natural reserves by providing a suitable geographical area for the living of these species, as reserves play an important role in protecting the habitats of endangered animals from ruin and destruction, and keeping them away from destructive human activities.

- Studying endangered species in detail and knowing their characteristics and everything about them

- Developing strict laws by governments to regulate the hunting of rare animals

Spreading environmental awareness among people and introducing them to the importance of nature

- Taking care of endangered species, raising them, and providing all the appropriate conditions for them to reproduce

* Simple things can be done, but they have a major role in protecting and preserving animals, and among these things:

- Educating others A person can contribute to the protection of animals by educating others about the necessity of preserving animals and not practicing any violence or injustice towards them

- Preserving the environment clean, specifically the water or the places adjacent to it, as the spread of garbage may cause diseases of aquatic animals or birds, which leads to their death

Establishing wild gardens. Perennial plants and trees are home to birds, bees and butterflies, so wild gardens can be established to preserve them.

Keeping pets is one of the ways to keep animals **[89]**.

The importance of studying animal geography:

- Understanding the basis for the distribution of various animals and their living conditions, and thus reducing the problem of extinction of rare species.

- This study enables to predict whether the animal species to be raised in an environment can grow and thrive and give economic productivity or not.

- Contribute to revealing the nutritional values of animal organisms for humans, directly or indirectly, which contributes to solving the food problem.

- Creating a kind of awareness of the importance of livestock and the necessity of preserving it **[89]**.

4. The importance of animals in the ecosystem

Animals are considered important in the ecosystem, where God created animals, plants, microorganisms, and even non-living organisms in a consistent manner, and all these things and organisms form a completely and ideally balanced ecosystem, and each living organism has a role in this ecosystem, so it is not possible to dispense with any of them **[90]**.

5. Maintaining the food chain

The abundance and diversity of living organisms makes humans and even other organisms live healthy. This is due to the rich biodiversity on the planet, and the more extinction of species, the life on the planet becomes endangered and may eventually collapse due to the imbalance that occurs in the food chain, where some animal species depend on other animals to live. Man also depends on animals and plants to live **[91**; **92]**.

Applied Environmental Science scale, year 5 secondary education professor, prepared by Dr. Gacem Habiba, Higher Normal School of Technological Education of Skikda.

Chapter III

Urban planning

1 Career Maps

1. Introduction

The map gives a global means of expression and understanding between different peoples, as it transcends language barriers, through the lines, symbols, and colors used to draw it. The map is also of great importance as it is used in many fields and specializations, as it is used by economists, politicians, sociologists, and other fields **[93]**.

2. Definition of the map

It is an image of the planet Earth or part of it. Maps differ from aerial images in that they contain information and clarification of geographical areas. The science specialized in cartography is called cartography. The map can be drawn with systems that include geographic information. The map is also known as a means to express the various features and phenomena present on the earth's surface, including rivers, land, mountains, plains, forests, or human phenomena such as the distribution of population, cities, villages, transportation routes, factory locations, and others. With a specific drawing scale and through the previous definitions, the map can be defined as a representation of the earth's surface or part of it in order to clarify the natural and human phenomena **[94]**.

2.1. Map content

Each map has a general content and a special content. The special content is the phenomenon drawn and is called the main content of the map. As for the general content, it is called the auxiliary content because it helps to understand the phenomenon drawn or the aspects of the drawn area in which the phenomenon is spread **[95]**.

2.2. Types of maps

Maps are classified according to their content and scientific characteristics in specific groups as follows:

A: General maps

It draws the surface of the earth as it is of various aspects (topography, water, vegetation, population centers, transportation routes, etc.), if its scales are large, it is called topographic, but if its scales are small, such as country maps, then they are general geographical maps [**96]**.

B: Thematic maps (functional purpose)

Or maps for special purposes, which are maps that deal with at least one or two topics with greater accuracy and comprehensiveness. The topics of special maps are not only present on the surface, but are also in the ground and in the atmosphere, for example, human maps such as population and migration maps, or natural maps such as climate maps, or historical, cultural or educational maps [**96]**.

Classification of maps according to the area of the drawn area

- Maps of the entire world
- Maps of continents or part of the globe

Country maps

Region maps

- Maps of provinces or states
- Maps of areas or areas

The map maker must, before the process of laying it out, determine its dimensions. If he used small plates the size of a regular sheet of paper to show a large area such as the Arab world, the scale would be small. But if he used the same paper to draw a small area on the ground that does not exceed one square kilometer, the scale would be large **[97]**.

2 Awareness and education

1. Introduction

Environmental education in primary schools has received the attention of researchers, especially in the past few years, because the environment today faces many problems, especially after the technological development that the world knew and the consequent dangers and damage to the lives of individuals and the environment in which they live **[98]**.

In order to address these dangers, environmental education emerged in various social institutions, such as solving the problems raised and protecting the environment, including environmental education in primary schools, which helps to spread environmental awareness among members of society and also works to clarify the relationship between man and his environment **[98]**.

2. The concept of environmental education

Until recently, the concept of environmental education remained at the educational level with abstraction and separation from the environmental reality, where the focus is on increasing knowledge about the various natural aspects while ignoring the role of man and the need to develop his behavior and attitudes towards more sense of responsibility towards the environment and its problems **[99]**.

In order to protect and preserve the environment, environmental education (or environmental education) had to take its way towards the trends, concepts, skills and abilities of individuals to achieve the goals set by thinkers for the happiness, well-being and development of societies in a healthy and balanced environment **[100]**.

Within the school curriculum proposed by the Education Committee under the auspices and supervision of UNESCO in 1970, it was recommended to generalize the concept of environmental education, which stipulates that it is the method and pattern of exposure to the

best in the universe and the clarification of ideas and opinions that help develop the interrelationships between people and the extent of their culture and what the environment that surrounds them represents **[101]**.

- Environmental education is one of the most important means and methods for achieving the goals of environmental protection, it is not considered a separate branch of science or an independent subject of study, but is taken according to the principles and foundations of extended knowledge in all sciences **[101]**.

Applied Environmental Science scale, year 5 secondary education professor, prepared by Dr. Gacem Habiba, Higher Normal School of Technological Education of Skikda.

People's Democratic Republic of Algeria

République Algérienne Démocratique et Populaire

Higher School of Technological Education Teachers in Skikda

Department of Natural Sciences

Level: Fifth year secondary education teacher

Field exit report

Prepared by: Dr. Gacem Habiba

College year 2023

Introduction

The environment or surroundings with its natural resources has been subjected by the Merciful to the benefit of human beings on the surface of the earth. This, and if man has succeeded through his continuous scientific research, his inventions and advanced technologies, to make this environment obedient to his will, and even more benevolent for his existence and reproduction, on the other hand he has contributed, whether he knows it or not, through his poor planning in exploiting the resources of his environment in an unfair manner, making it more hostile and hostile to his presence on its surface, so we can say that man's study of his environment makes him more knowledgeable and aware of the importance of the coexistence of living organisms With each other in a peaceful manner in order to preserve them from deterioration and destruction, as well as preserving important energy sources for living organisms such as food, light and radiation, and in the end living organisms can live and coexist, and communicate with each other, which will facilitate the course of all things in their natural course after that, and from here the importance of studying ecology is evident because it is the science concerned with the scientific study of man’s relationship with his physical environment surrounding him, and the relationships between all living organisms such as plants and animals, and finding vital links between them, and ecology also provides a set of information about the benefits Environmental systems, and how to obtain a healthy

environment for future generations through the use of natural resources in a way that is not harmful to the environment.

We set off at 7:20 minutes from the university residence: Bachelor 2 by school bus. It took us approximately 3 hours to get to the state of El Tarf.

El Tarf Province:

Tthe site:

A coastal Algerian state located in the northeast and bordered by the city of Tunis to the east, the state of Annaba to the west, the state of Guelma and Souk Ahras in the south.

The number of its departments is 7, while the number of municipalities is 24

Area:

3349.94 square kilometers, with a population density of 123.3 n/km square.

The climate:

Its climate is humid and mild, and it overlooks the Mediterranean Sea, and this is what makes sea currents penetrate the region, where it is: hot humid in the northern region and cold humid in the southern side, and the rate of rainfall is between 900 to 1200 mm annually.

Landforms:

The topography of El Tarf is divided into two parts:

The steppe region:

It includes an area of 3349.94 square kilometers (43% of the state's soil and contains 68% of the state's population). It is characterized by its extended plains and its four lakes, Lake Birds, Lake Obeira, Lake Tonga, and Lake Al-Maleh. It is also characterized by a coastal beach that extends along 90 km, with 09 guarded beaches and 05 areas for tourism expansion, with an estimated area of 5.185 hectares, which are: (Msida-Cape Rosa-Al-Hanaya-East outlet-West outlet).

Mountain area:

This area extends over an area of 1,632.75 square kilometers (57% of the state's soil and 32% of the state's population).

Plants: There are many of them: cork, eucalyptus, medicinal herbs, pine, basil and oak trees. It was called the Green State because it has an agricultural character.

Animals: The state is characterized by raising livestock, including sheep, cows and goats, and is characterized by the nesting of many birds, including flamingos.

As for our main destination in El Tarf, it was precisely the municipality of El Kala

El Kala City:

Location and area:

The tourist area of the state is considered a coastal city and a district in the state of El Tarf, at a distance of 90 km from the east of Annaba and 16 km from the Tunisian border. The French named the city of El Kala, la Calle, in relation to the docking of their ships on its coast. According to French sources, it is the first Mediterranean bay in which their ships dock. The reason for the docking of French ships is due to the coral wealth that the region contains. Today El Kala is the center of fishing in the coral reefs, and has a large industry for processing sardines.

Climate: warm, temperate and rainy in winter.

Animal Diversity: Availability of animals and dense forests in the region, such as: the pink flamingo, the European goldfinch, the black-footed duck, and the iron duck, in addition to the fish wealth in its sea.

Botanical diversity: there are plants: cork oak oak pine and eucalyptus.

El Kala Beaches: Lamisida, Old El Kala and Coral....

Our field visit to the city of El-Kala covered three areas, during which the various environmental systems and ecological diversity that this city abounds in were identified, respectively.

1. The National Barn of Kala

2. Lake Tonga

3. Eastern Bird Lake

Field output stations:

First destination: Brabatia Zoo (El Kala)

Our field trip was opened at the first station, which is the Zoo in Brabatia of the city of El Kala, with the aim of knowing the animal and plant diversity and addressing the type of ecosystem that prevails in the region after making a tour around it and looking at the various aspects of these aspects.

The park is characterized by a vast area estimated at 109 hectares, located about 8 km from the municipality of El Kala and 65 km from the state of Annaba. Where in the past it was a semi-wild reserve to preserve the barbarian deer, then local animals were included in it, and in the years 2009-2010 it was adopted as an official zoo for animals, whether local or imported from abroad from different countries. It includes 40 species of mammals, 25 species of birds of prey, 64 freshwater birds, 9 species of seabirds, in addition to 85 species of plants, which represent a third of the flora in Algeria.

(Personal photo)

Vegetation cover: It is manifested in many green areas dominated by grass cover, which is a source of food for many of its animals, in addition to the tree cover that falls within the forest character of the region, which provides animals with an environment similar to their original natural environment, where part of them feeds on trees and takes shelter from the heat of the sun, in addition to the importance of trees in absorbing and repelling the quantities of pollution surrounding the animal and thus preserving its health.

Among the existing plants we take as an example:

Purple cactus: It reaches a height of one and a half meters, it is similar to the ordinary cactus, its structure is smaller, and its paws have hard thorns that reach 4 cm. As for the fruits, they are few thorns, delicate and soft, and they are dangerous like the fruits of the ordinary cactus if they are not dealt with with care and caution.

Water Cover: It contains ponds, swamps, small lakes, and shallow waters, in which some types of fish and some types of geese and ducks swim, while it is devoid of a clean water source to provide a drink for animals, which forces the garden workers to transfer water from nearby and nearby places.

Soil type: After seizing a handful of wet soil and squeezing it into a ball, and based on the vegetation that prevails in the garden, we extracted the slightly acidic soil type, whose acidity ranges between 6 and 7.5, which consists of a group of minerals and organic matter, formed slowly as a result of the action of water, changes in temperature and wind, and the decomposition of many microorganisms and their mixing with the soil. We also find clay soil in a small way, which is very fertile, but it lacks good drainage.

Animal cover: The animal cover of the park varies from mammals to sea birds, birds of prey, and types of reptiles, in addition to the barbary deer, which is abundant at its level. Among these animal species, we study the following examples: Ostrich

Social life: Lives in small flocks of about 10 birds, and the male is the strongest

Nutrition: It feeds on insects, snakes, lizards, and rodents, in addition to some plant species

Mating: It extends from the month of March until the month of September. The male begins to attract the female by making a series of movements, showing his strength and feathers and attracting the female.

(Personal photo)

Assessment of acclimatization: since the ostrich is one of the largest birds on the face of the earth, it needs vast areas and flat areas to lay its eggs, reproduce and move comfortably.

The lion

Social life: It is found in its own space, either alone or as a match. The male lives with his female and her cubs in an area surrounded by a fence within the borders of the garden.

Feeding: It feeds on red meat, rabbits, and some mammals that the garden allocated to feed this animal.

Mating: Males reach sexual maturity in the second year of life, and become able to control and mate at the age of four and five. The gestation period is 110-119 days.

Assessment of acclimatization: Lions are social animals that prefer to live within a group called the herd, but they have been subject to the nature and law

of zoos by separating this animal in its designated enclosure and bringing it together with the female during the mating season.

(Personal photo)

The lions showed remarkable adaptation to the natural environment previously provided by the park, but at the present time their numbers have decreased and their weight has decreased due to the lack of sufficient food.

Striped hyena: Also called Arfa (scientific name Hyaenahyaena)

Of the hyena's family, which includes, in addition to this species: the spotted hyena, the asbar and the brown hyena closely related to the striped hyena. It is more widespread than the rest of the species, as its habitat includes Africa, especially Algeria as a whole, as well as the Middle East, Pakistan, western India and Anatolia.

(Personal photo)

Brown bear:

Or called brown bear, a type of bear spread in Europe, Asia, North America It can weigh from 300 to 780 kg, and the largest species of brown bear is the Kodiak bear, which competes with the polar bear as the largest species in the bear family and the largest land-based carnivore.

(Personal photo)

The wolf:

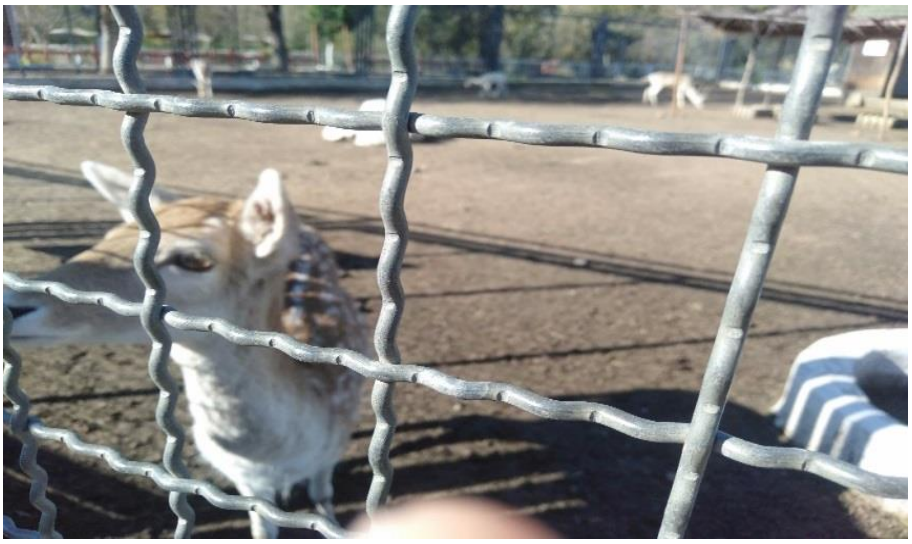
The Alaskan wolf or North American wolf (Canis lupus pambasileus) is a single subspecies of gray wolf referred to as the Alaskan inland wolf in the United States where it is found in adjacent parts of British Columbia and the Northwest Territories. This subspecies is originally from inland Alaska and the Yukon, and is protected to the Arctic Coast Tundra region.

Mago monkey:

Belongs to the family of mammals of the type of carnivores, its weight ranges between 80 kg and reaches 300 kg, its life span in nature is 30 years in the burrow up to 50 years, and its gestation period is 7 months, and it lives in the forested mountainous regions of North Africa, it puts from 12 to 60 individuals, each individual has a position in controlling the members of the group

Spinner:

It belongs to the family of mammals of the type of herbivores, its size ranges from 0.9 to 1.2 meters, and its weight ranges from 13 to 60 kg. Its life span is 12 years, and its gestation period is 6 months. Their place of living is concentrated in Africa, specifically the mountainous desert areas, and they also live in areas whose temperature ranges between 21 to 23 degrees, they live in the form of groups divided into a male herd and a female herd.



(Personal photo)

American Peking duck:

Scientific name (Domestica. Anas platyrhynchos). It is a local duck that originated in China. It was introduced in 1873 to the United States, and it was also introduced to England, and then it was improved using the Aylesbury duck, then it spread to the world, especially North Africa and Asia.

(Personal photo)

Eagle:

It is a species of hawk of prey, weighing about 9 kg. It generally lives 40 years. Lives in the rocky and dry slopes of southern Europe. North Africa and Asia.

Lake Tonga:

Lake Tonga was the second stop for us, as it occupies an area of 2,600 hectares. It is one of the lakes belonging to the Qala National Park, which is the third in the UNESCO world classification of protected areas in the Mediterranean basin under the Ramsar Convention on Wetlands in 1971. It is considered a freshwater swamp classified as an absolute protection area in this park. It is connected to the Mediterranean Sea through an artificial channel: the Mesida Canal. When we came down, the first thing we noticed is the great plant diversity of this area, and the presence of several paths for walking visitors overlooking stunning views. We were greeted by the tour guide known as "Ali the Thai", who offered us a tour of the lake by his boat, and gave us a set of information about the area.


(Personal photos)

All we can say about Lake Tonga is that it is a geographical region in which all overlapping and integrated ecosystems have come together, as it contains terrestrial and aquatic ecosystems.

In the terrestrial ecosystem we find:

Forest system:

The lake is full of various types of plants and trees, such as cork trees, sea and Aleppo pines, and willow trees floating above the water, and despite our visit to the lake in the winter, we noticed that the vegetation is evergreen, as the guide told us that among the 26 aquatic plants present in the lake, 17 of them are rare, i.e. 65% of the plant heritage, among these rare plant species:

Marseille devisa: It is the only aquatic fern in the lake

Marseille quadrifolia: a fern with four leaves, found on the eastern bank of the lake. And there are shores where the white noufer plant and the water chestnut grow.

The white noufer

Among the types of trees observed on the day of the scientific graduation are the following:

Cypress:

It is a shrubby plant species that follows the cypress family, with a height of up to 30 meters. It is a slow-growing tree that contains volatile oils that give it a distinctive aroma and has a leafy structure. Its leaves are evergreen scaly. It is from the gymnosperms division and the order of conifers, belongs to the cypress family.

(Personal photos)

Camphor:

It is a large tree that may reach a height of 50 meters, characterized by its thick trunks and petioled leaves, simple, lanceolate or oval, with small yellow or gray flowers that are considered one of the fastest growing trees and has many uses in human life.

(Personal photo)

Oaks:

The oak tree comes from the beech tree family; its scientific name is Quercus. They are evergreen trees, but some of their types may lose their leaves, which differ according to their type. Some of them are full-leaf, and others do not have lobed edges and leaves with toothed edges. As for their flowers, they are yellow in color, and each flower contains a shell that resembles pointed scales and is hollow to keep the acorn. It grows throughout the northern temperate region of the globe and at high altitudes in the tropics. The lake also has a different animal wealth in terms of shape, habitat and size. As the tour guide told us, it harbors 10 species of mammals, including 08 protected species that include two rare species on the IUCN Red List. It is a nesting site for many species of birds, including the white-headed and the white-eyed Hamrawi, and is a refuge for more than 20,000 birds, including local and migratory birds.

The water system:

The water system within Lake Tonga consists of wide water surrounded by vegetation, and it has fresh water in which different types of fish live, including carp and mullet. This system includes several waterfowl and some rare animals that have adapted to the conditions of the lake, including the water dog, the water otter, and it also houses many amphibians and reptiles such as: the grass snake, the Greek turtle, and the common toad. What we noticed during this field trip is that despite the role played by this wetland in the vital processes and the preservation of the hydrological cycles and the incubation of fish, birds and

other different types of rare animal and plant organisms, it faces the risks of neglect and pollution due to the irresponsible behavior of man, where we found waste dumped in random ways, especially in some water swamps, which will threaten the rare fish wealth in particular. In addition to that, there is a significant decrease in the water level of the lake, due to the low rate of precipitation and the wave of drought and fires that affected the region during the past two years.

(Personal photos)

Lake Tonga is an important environmental wealth that must be preserved due to its abundance of water

 Hydrological value: works to reduce floods and stabilize coastal sand dunes.

 Economic value: fishing, eco-tourism development, seasonal agricultural activities such as the cultivation of peanuts, watermelon and mallow.

 Pedagogical value: It is a preferred site for the consolidation of environmental education

 Scientific value: It is an open laboratory for scientists at the level.

And the last stop we stopped at was Bird Lake, which is located along National Road No. 44 of the Bu Tlja district in the state of El Tarf, and it is one of the international reserves that is an asset and an important natural landmark. And even though it ranks

The third in terms of its importance in the Mediterranean Sea, but what we noticed is the lack of attention that the lake suffers from. Where its real area, which was estimated at 120 hectares, has shrunk due to the environmental conditions it experienced, including drought and lack of rain, which led to the drying up of its surroundings, in addition to the heat wave and fires that the state witnessed, especially last summer. This led to the migration of thousands of species of birds and the death of many fish. We also noticed the pollution that threatens this lake, as it was taken as a wastewater outlet for the residents of that municipality and turned part of it into a chaotic vicious circle, not to mention the foul smells emanating, and although it is an international protected area, it was left without a fence in front of frivolous hands.

The aim of the scientific degree:

- Knowledge of the city of El Tarf and its location.
- Know some of its distinctive beaches and lakes.
- Knowledge of the most prominent ecosystems.
- Getting an idea of the animal and plant diversity of the city of El-Kala.
- Get to know the topography of the region.

Conclusion

Praise be to God, Lord of the Worlds, with His grace good deeds are accomplished, and praise be to God Almighty for His many blessings upon us.

Through the scientific publication presented in the scale of programmed applied ecology for fifth-year students, a secondary education teacher, this scale is the summary of reaching a set of mental procedures according to logical solutions that lead to certain results, where every approach or idea must have a theory and each theory poses fundamental questions that seek to build an integrated to answer these questions. Praise be to God who gave us success in presenting this publication, and here are the last drops in the course of this work. The publication was talking about lessons in applied ecology, so we made every effort to make this work in this form. And we hope from God that this humble work will be pure and righteous for the sake of God Almighty, as this effort was not easy, and we do not claim perfection, for perfection is for God Almighty only, and we have made every effort for this publication.

In the end, I can only thank you for your good reading and follow-up of this publication, in which God honored me by giving my opinion on the subject of applied ecology presented to the students of the fifth year of the secondary education teacher. I'm into this. In conclusion, God Almighty said after In the Name of God, the Most Gracious, the Most Merciful

"وقل اعملوا فسيرى الله عملكم و رسوله و المؤمنون" [التوبة: 105]

Great truth of God. May God bless and grant peace and blessings upon our first teacher and beloved, our master Muhammad, the best prayers and peace be upon him.

Thanks be to God, Lord of all worlds.

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