

# UNIT 3

## OUR ENVIRONMENT

### **Unit Outcomes**

After studying this unit, you will be able to:

- Understand the major types of vegetation and wild animals with major ways of conservation.
- Recognize the effect of rapid population growth on vegetation and wild animals.

## Major Types and Importance of Natural Vegetation and Wild Animals

**Competencies:** At the end of this lesson, you will be able to:

- Identify the major types of natural vegetation in Ethiopia and the Horn.
- List the major types of wild animals in Ethiopia and the Horn.
- Distinguish between common and endemic animals of Ethiopia and the Horn.

### Key Terms

↔ Natural vegetation

↔ Community

↔ Wild animals

↔ Precipitation

### Main Types of Natural Vegetation and Wild Animals



**Natural vegetation is a plant community that has grown up in a particular area as a result of the natural conditions of the environment.**

### ◆ Forest, Grassland and Desert

Forest, grassland and desert vegetation vary in plant type. We can have a short account of each natural region as follows:

#### Forest

- What is forest?
- What types of forest are there?
- What is the difference between forest and grassland vegetation?



**Forest is a plant community, predominantly of trees or other woody vegetation. It occupies an extensive area of land. In its natural state, a forest remains in a relatively fixed, self-regulated condition over a long period of time.**

## Grassland

- What kind of natural area is a grassland?
- What types of plants grow on grasslands?



**Grassland is a natural region where grass grows largely.**

## Desert

- What is desert?
- What kinds of plants grow in desert area?



**Desert is an almost a barren tract in which the precipitation is so scanty that it does not adequately support vegetation growth.**

Next in this lesson, you are going to learn about Ethiopia's vegetation. There are different types of forest in Ethiopia and the Horn. These forests are found at different localities with varied altitude and climate.

## ◆ Vegetation in Ethiopia and the Horn

### Vegetation in Ethiopia

- What are the major vegetation types of Ethiopia?
- What makes the vegetation type vary from one area to another?
- Discuss the advantage of vegetation in given geographical environment.

### High Mountain Vegetation

- Where do you find high mountain vegetation in Ethiopia?
- What sorts of plant is high mountain vegetation composed of?

High mountain vegetation in Ethiopia is confined to very high altitude of 3000m and above, or alpine (wurch) climate zone. High mountain vegetation covers the north-central and southeastern highlands of the country, for instance, Ras Dejen, Guna, Chilalo and Bale mountains.

## ◆ Forests

- What are the dominant tree compositions of forests in your locality?
- How do you conserve forests?

In Ethiopia, forests are found in areas of different altitudes (450-3500m) and varying annual rainfall amounts (200-2200mm.). In general, there are two types of forests in Ethiopia, namely highland and lowland forests.

### Highland Forests

- Discuss why highland forests are confined in highland areas of Ethiopia.
- What tree composition do highland forests have?

There are different types of highland forests. The difference can be seen on tree types. These forests include Juniperous forests (Tid), Arundinaria forests (Kerkeha), Podocarpus aningeria forests (Zigba), Oleo forests (Weira) and Hagenia forests (Kosso).



*Fig. 3.1. Highland Forest*

### Lowland Forests

- What tree composition do lowland forests have?
- Where are lowland forests commonly found in Ethiopia?

Lowland forests include mixed deciduous wood lands and gallery (riverine) forests. Gallery forests are found along the river banks of Awash, Wabeshebele, Genale, etc. The dominant tree species include “Shola” and “Warka”.



*Fig. 3.2. Lowland Forest*



Scrub lands consist of typical woodlands and thorn bushes. Such vegetation flourishes in areas where the rainfall is as high as 1000m.m.Acacia (Girar) forests predominate on the scrublands.



**Fig. 3.3. Acacia (Girar)**

**Scrubland: is a land where scrub is predominant. Scrub is a type of vegetation consisting of low – growing shrubs/ bushes and very short trees.**

Based on the predominant plant composition, Ethiopian forests can be grouped into broadleaf and coniferous forests.

### **Broad-leaved Rain Forests**

- **Why are these forests known as broad-leaved rain forests?**
- **Where do we find broad-leaved rain forests in Ethiopia?**

Broad leaved rain forests are equatorial forests. They consist of large diverse hardwoods. These forests cover most of the Ethiopian highlands. They are confined in the rainiest parts of the south west highlands of the country. These types of forests include the forests of Wellega, Kaffa, Illuababor and Gamogofa. These types of forests grow in highland areas where the elevation ranges between 1500m and 1800m above sea level (See Fig.3.4). In these areas coffee grows as part of the natural forests. The most common trees of these forests include Woirra, Kerero, Wanza, Tikurinchet, Bisana, Birbira, Wild Coffee Shrubs, Creepers.

a) **Broadleaved Trees**b) **Coffee Shrub****Fig.3.4 Broadleaved Rainforest**

### Coniferous Forests

- Why are the forests called coniferous forests?
- Discuss where coniferous forests are found in Ethiopia.
- Are there coniferous forest type trees in your area? If yes, can you tell their names?

Coniferous forests are temperate evergreen forests that consist of soft woods. The most common coniferous trees are “Tid” and “Zigba”. Tid (juniper) forests are found in isolated parts of the Shewan plateau and Arsi-Bale highlands-above 2000meters elevation. Similarly, Zigba (Podocarpus) forests grow in a few parts of Hararghe, Arsi-Bale and Wellega highlands. In these forests, Zigba and Tid are the main species. They grow at elevations above 1500meters (See Fig.3.5). Here the temperature is relatively low.



**Conifer is a common name for a group of plants that are characterized by seed-bearing cones. Cones are specialized seed-bearing structures unique to coniferous trees.**

**Fig. 3.5 Coniferous Trees (Tid)**



### ◆ Woodland Savanna

- Where is woodland savanna found?
- What type of vegetation is found in the woodland savanna?

The woodland savannas are found both on highland and lowland areas with altitudes ranging between 250 and 2300m. These areas have mean rainfall that varies between 200 and 1400mm. Woodland savannas consist of open mountain grasslands, grasses mixed with scattered trees (woodland), shrubs and bush lands.



Fig. 3.6 Wood land Savanna

### Steppe and Semi Desert Vegetation

- What is steppe vegetation?
- Have you ever seen or heard of semi desert vegetation? If yes, can you give some examples of semi desert vegetation?
- Discuss the difference between steppe and semi desert vegetation.

This vegetation region consists of mainly xerophytes. Here tufts of grasses, scrublands, thorny bushes, and a variety of short acacia trees, palms and cactus are found. Xerophytes grow in areas which have harsher climatic conditions.

Steppe and semi desert vegetation types cover considerable parts of arid and semi arid lowlands of Ethiopia mainly in the north west, north east (Afar Depression), south east, (Ogaden) and south border areas.

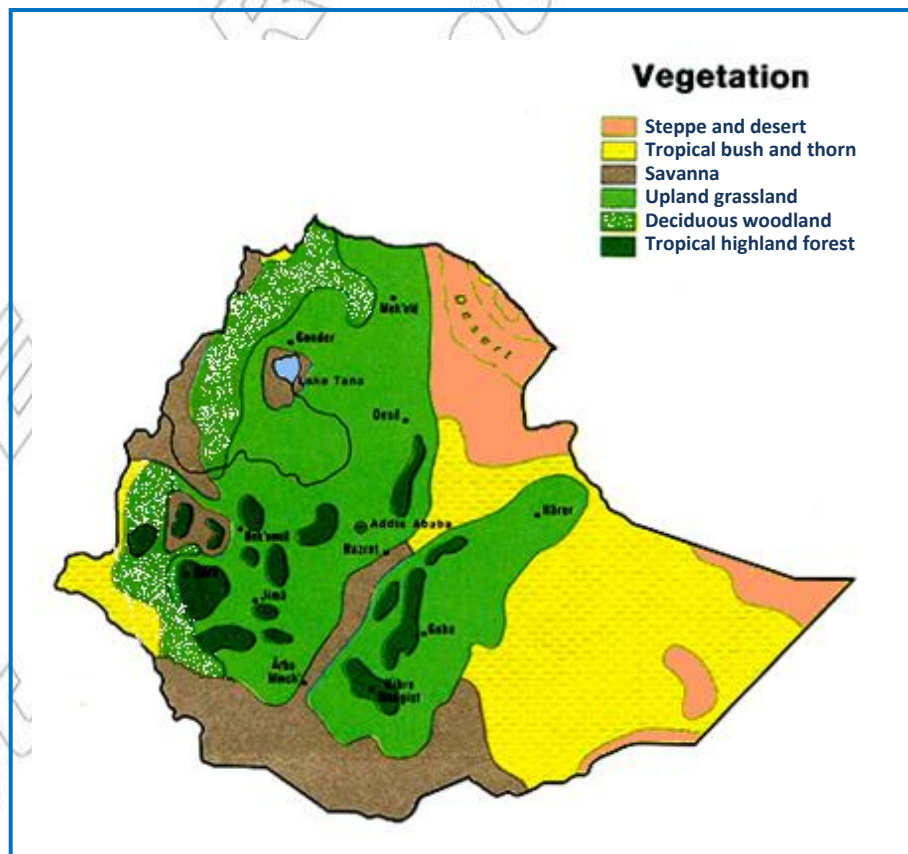


Fig. 3.7 Vegetation Map of Ethiopia

## ◆ Vegetation in the Horn of Africa

The vegetation in the Horn of Africa is composed of semi desert, highland and lowland vegetation as could be indicated in the various countries of the sub region.

### Lesson

## 3.1

### Review



#### Activity A

##### A. Questions based on facts:

###### Individual work:

- Give short account of lowland forests in Ethiopia.
- Compare and contrast woodland savanna, steppe and desert vegetation in Ethiopia.
- Explain types of vegetation in the Horn of Africa.

###### Group work:

- Discuss, the difference between broad-leaved forests and coniferous forests in Ethiopia.

##### B. Things to do:

- Draw the sketch map of Ethiopia and roughly show the areas of:
  - Highland forests
  - Lowland forests
  - Broad-leaved rain forests
  - Coniferous forests

**NB.** Refer to the vegetation map of Ethiopia.

### Types of Wild Animals

- What are wild animals?
- What sorts of habitat do they have?
- Give some examples of wild animals.
- Discuss the economic importance of wild animals.

Wild animals are naturally obtainable animals in a given natural environment. They are free of human intervention as per their nature and living areas. Wild animals could include reptiles, fish, birds, amphibians and mammals. These animals have got their own habitat. They live interdependently in given natural environment. Every region or country has its own wild life. The wild life varies in accordance with the climate region and geographical landscape it occupies. Thus, you can study the different wild life available in Ethiopia which will be exemplary for the Horn in general.



### Ethiopian wild animals

- What sorts of wild animals are available in Ethiopia?
- Discuss the specific location of these animals.
- Why do wild animals of different food habits live together in given natural environment?
- Mention some of the endangered wild animals of Ethiopia.
- Discuss the advantages of wild animals to Ethiopia.

The different climatic-vegetation regions of Ethiopia host a wide variety and large number of wild animals. Ethiopia has a very rich wild life resource. There are a variety of wild animals that include large species of mammals, birds, reptiles and amphibians. Seven species of mammals and 25 species of birds are endemic to Ethiopia. This may mean that they are not found anywhere in the world except in Ethiopia.

Generally, a variety of wild animals occur in almost all climatic-vegetation region of the country. However, they concentrate largely on the western and southern parts of the country. For example, the Omo and Mago parks and Gambela region are very rich in their wild animals. The Simien Mountains, the Arsi-Bale and Hararghe highland regions support a variety of wild animals.

Different environments, in Ethiopia, provide a good natural habitat for numerous wild animals. The wild animals of Ethiopia can be grouped into the following broad categories.

#### Common wild animals

- What do you think are common wild animals of Ethiopia? Name one.
- Mention names of wild animals commonly seen or heard of making some sounds at night in your locality or nearby areas.

Hyena and jackal are the common wild animals of Ethiopia (See Fig.3.8). They are said to be common because they are found everywhere, in all climatic zones.



Hyena



Jackal

*Fig.3.8 Common wild animals of Ethiopia*

#### A. Lowland wild animals that inhabit the grasslands

##### Herbivorous wild Animals

- List some herbivores.
- What is the difference between wild ass and zebra?
- Cite endemic herbivores of Ethiopia.

Many herbivores inhabit the grasslands in the lowland areas. For example, giraffes, wild asses, zebras, elephants, gazelles, oryx, rhinoceroses (See Fig.3.9) are some of them.

Here the herbivores and carnivores live together. In this environment there is interdependence between plants, grass eating (herbivores) and flesh eating (carnivores) animals. The grass eating animals depend on the grass; the flesh eating animals depend on the grass eating animals. This cyclic life style maintains the environment for sustainable use. But illegal human intervention disturbs the environment.



Giraffe



Wild Ass



Zebra



Elephant



Gazelle



Hartebeest



Rhinoceros

Fig. 3.9 Herbivores

### Carnivorous Wild Animals

- Name some wild animals that live on flesh (meat).
  - What do hyenas and Jackals eat?
  - Where do they get flesh from?
- Flesh eating wild animals are known as carnivores. Lions, leopards, cheetahs etc. are some of the wild animals well known as carnivores (See Fig.3.10).





Lion



Leopard



Cheetah

*Fig. 3.10 Carnivores*

### B. Arboreals

- What are arboreals?
- Have you ever seen monkeys in the forests of your local areas?
- Discuss how monkeys and other monkey like animals live in the forests?

Arboreals are tree climbing animals. Their life is attached to trees; therefore, they are known as tree animals. They are found in forested areas of Ethiopia

- **Example:** Monkeys, colobus monkeys, and chelada (Gelada) baboons (See Fig.3.11)



Monkey



Colobus Monkey



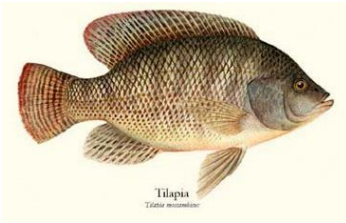
Gelada Baboon

*Fig. 3.11 Arboreals*

### C. Aquatic Animals

- Where do aquatic animals live?
  - What makes their habitat different from the others?
  - Discuss big animals that inhabit water bodies.
- These include all animals that inhabit the water bodies of Ethiopia. They are commonly found in lakes and rivers all over the country. Example: fish, crocodiles and hippopotamuses (See Fig.3.12).





Fishes



Crocodiles



Hippopotamus

Fig. 3.12 Aquatic Animals

#### D. Bird life:

- What are birds?
  - Where do they live?
  - Discuss the habitats and life styles of birds.
- Ethiopia has a great variety of indigenous and migratory birds as well. These birds are colourful. Some of the important bird species include white pelicans, flamingoes, geese and Abyssinian Ground Hornbills (See Fig.3.13).
- Most of Ethiopian birds are found in the rift valley sanctuaries and forest lands. The rift valley lakes provide ideal wintering places for many species of European and Asiatic birds.



White Pelican



Flamingo



Goose



Abyssinian Ground Hornbills

Fig. 3.13 Beautiful Birds of Ethiopia

### Endemic mammals of Ethiopia and their location

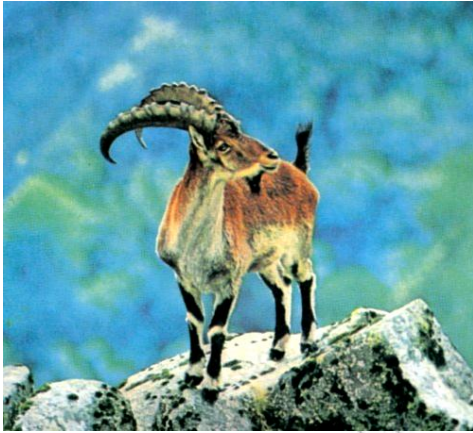
- What does endemic mean?
- Mention some endemic mammals of Ethiopia?
- Discuss what should be done to maintain endemic mammals of Ethiopia.
- Exchange views on the economic advantages that endemic animals provide for Ethiopia.



**Endemic means a species of organism that is confined to a particular geographic region.**

Endemic mammals are found in small numbers. Thus, they are known as rare animals. Today these wild animals exist in very small numbers on Ethiopian highlands.

- **Walia Ibex:** is found on the Semien Mountains (See Fig.3.14).



*Fig. 3.14 Walia Ibex*

**Mountain Nyala:** exists on the Bale Mountains-in heather and woodland areas (See Fig.3.15).



*Fig.3.15 Mountain Nyala*



- **Gelada Baboon:** inhabits the Semien Mountains (See Fig.3.16).



**Fig.3.16 Gelada (Chelada) Baboon**

- **Menelik's Bush Buck:** is found on the central massifs and Bale Highlands (See Fig.3.17).



**Fig. 3.17 Menelik's Bushbuck**

- **Swayne's Hartebeest:** exists in Netchsar National park and Sankale sanctuary (See Fig.3.18).



**Fig.3.18 Swayne's Hartebeest**



- **Semien fox:** is found on the Semien massifs and Bale highlands (See Fig.3.19).



*Fig.3.19 Semien fox*

- **Wild Ass:** is found in Afar and south east highlands (See Fig.3.20).



*Fig.3.20 Wild Ass*

### Endangered animals

- List endangered animals of Ethiopia.
- What are the main reasons for the decreasing number of endemic wild animals in Ethiopia?
- Discuss what should be done to solve these problems.

Ethiopia's wild animal resource is declining in number and variety at an alarming rate. Some are actually on the verge of extinction. For example, many of the endemic animals like Walia Ibex and the Ethiopian wolf (*Canis Simensis*) have become the most endangered species. The main reasons for the declining in number of such wild animals in Ethiopia include:

- the destruction of their habitats (deforestation) due to the increasing demand for farmlands, high rate of urbanization and industrialization;
- the wide practices of illegal hunting by the local people looking for meat, skin, fur, horn and ivory;
- the shrinking of their habitat for grazing purposes;
- the frequent wild fires;
- shortage of food and water because of recurring droughts.

## Lesson

## 3.1

## Review

**Activity B****A. Questions based on facts:**

- Where do you find wild animals in Ethiopia?
- What is the difference between carnivores and herbivores?
- What makes arboreals different from other wild animals?
- Discuss why some wild animals of Ethiopia are endangered.
- Discuss what will happen to endangered animals if they are left as they were.

**B. Things to do:**

Look for the physical map of Ethiopia and show the following on the map:

- Approximate location of Mountain Nyala, Walia Ibex, Semien Fox.
- Visit the nearby national park or sanctuary and conduct an interview with the people who are in charge of the national park or sanctuary and present your interview to the class.
- Refer to source materials and write a paragraph about one of the endemic animals of Ethiopia and present it to the class one by one.

**Competencies:** At the end of this lesson, you will be able to:

- Justify the importance of natural vegetation and wild animals in Ethiopia and the Horn.
- Discuss the importance of protecting the habitat and wild animals.
- Explain to others why it is important to protect the vegetation and wild animals.

### Key Terms

- ↔ Farmer
- ↔ Tourism
- ↔ Community

#### A. Keeping natural balance between wild animals and vegetation

- What is the interconnection and interdependence between wild animals and vegetation?
- How is the natural balance kept between wild animals and vegetation?

In any given environment the living and the nonliving coexist. The living includes the plants, animals and human beings who inhabit given natural and cultural landscapes in given surroundings. The non-living comprises all the inanimate objects in that given environment.

As indicated earlier, natural vegetation refers to plants that are naturally available in given surroundings. The vegetation in a given area could be forest, grassland or scrub.

Forests are important places for tree climbing light animals. They provide the animals with food and shelter.

Grasslands are habitats for a variety of wild animals. These wild animals consist of bigger and smaller animals. Smaller animals include rabbits, mice, snakes and a variety of birds. Bigger animals consist of gazelles, giraffes, zebras, rhinoceroses, lions, wolves, leopards, foxes, etc.

Compared to plants, animals make up only a small part of the total mass of living matter on earth. Despite this, they play an important part in shaping and maintaining natural environments.



### Importance of Natural Vegetation and Wild Animals

Natural vegetation and wild animals are inseparably linked. That is the existence of natural vegetation determines the wellbeing of wild animals. Wild animals also contribute to the flourishing of the natural vegetation.

- What importance do both have in a given region?

#### Natural Vegetation

- It is composed of different types of plants. These plants have the ability to:
  - keep soil fertility.
  - keep the soil moist.
  - help the soil stay in place.
  - keep the underground water close to the earth's surface.
  - regulate moisture in the atmosphere.
  - balance the amount of carbon dioxide in the atmosphere.
  - beautify the surroundings.
  - become habitat for wild animals and birds.
  - be source of fire wood and construction material.
  - be dependable area of research for plant science.
  - be source of plants with medicinal values.
  - attract visitors.

#### Wild animals

- Wild animals are different in size, colour and food habit. Some live in forests; others live in grasslands. In general wild animals are important to:
  - maintain soil fertility with their wastes and remains and this in turn helps plants to flourish.
  - be source of attraction for tourism.
  - keep the natural balance in a given environment.
  - have medicinal values.
  - be center of research for animal science.

## Lesson

## 3.2

## Review

**Activity A****A. Questions based on facts:**

- Explain the advantages of trees in a given locality in terms of:
  - habitat
  - erosion control and
  - maintaining moisture in the soil
- Explain how plants regulate the climate of a given area.
- Discuss other advantages of forests in your locality.

**B. Things to do:**

- Group Work:
  - Visit the forests in your area and list the types of trees and their uses.

**B. How farmers and wild animals can live in harmony**

- Discuss the areas farmers occupy and the resources attached to the areas.
- Discuss the harmonious life farmers have with wild animals.
- Discuss the problem created by uncontrolled human intervention.

The wellbeing of the farmers depends on the wise use of the natural environment. The natural environment is composed of the living and the nonliving. The living comprises vegetation, wild animals, human beings and their stock. The nonliving consists of the resources on which the living things originate.

Farmers believe that wild animals are important for their localities as they attract onlookers. On lookers or visitors bring about money to their area in reward to the services they get there. Furthermore, farmers understand that their environment is replenished due to the remains of the animals. They also know that the animals are sources of food for the community. Thus, farmers look after the animals and the animals live peacefully in the undisturbed environment. This implies that farmers and wild animals live in harmony as there is interdependence among the wild animals, the farmers and the environment at large.

**C. Tourism and its benefits for the community, animals and farmers**

- Discuss the contribution of natural vegetation and wild animals as tourist attraction in Ethiopia and the Horn.
- Discuss in groups as to how tourism can benefit Ethiopia.
- Discuss how to keep the balance between human needs and wild animals so that they can live peacefully together.

In Ethiopia there are numerous protected natural environments. These protected natural environments are known as National Parks, Sanctuaries and game reserves. In these protected areas, a great variety of wild animals exist. Thus, tourism is well enhanced in Ethiopia because of the National Parks,

Sanctuaries and Game Reserves. These conservationist activities help benefit the surrounding community including the farmers. The animals in the environment are beneficiaries because their habitat is well preserved with highly minimized disturbances. Tourism brings about money to the area in return to the services rendered by the community. The money so obtained helps farmers to get better infrastructure like road, railway, and electricity, water supply, school, etc.

### Case Study

Nech Sar national park is found in Southern Nations, Nationalities and Peoples Regional State. It is located 500 km south west of Addis Ababa specifically in Gamo Gofa near Arba Minch. The area of the park covers 514 km<sup>2</sup>. The park was founded in 1967. The most important animals in the park are Swayne's hartebeest and Burchell's Zebra. Some 38 species of mammals and 190 species of birds exist in the park.



Fig.3.21 Part of the landscape of Nech Sar National Park

## Lesson

## 3.2

## Review

### Activity B

#### A. Questions based on facts:

- Explain how plants and wild animals co-exist to maintain natural balance.
- Explain the mutual interdependence of flesh eating and grass eating animals on a given grass land area.
- Discuss the contribution of natural vegetation and wild animals as tourist attractions in Ethiopia.
- Explain how Ethiopia becomes beneficiary of tourism.
- Why is the Nech Sar National Park often visited by tourists?

#### B. Things to do:

- Look for references and write a short account of the interdependence between vegetation and wild animals.



## The Effect of Rapid Population Growth on Natural Vegetation and Wild Animals

**Competency:** At the end of this lesson, you will be able to:

- Analyze the effects of rapid population growth on vegetation and wild life.

### Key Terms

↔ Migration

↔ Carrying Capacity

↔ Depletion

### A. Loss of Vegetation

- How is vegetation lost?
- What are the consequences of vegetation loss?
- Suggest what should be done to control loss of vegetation, to check animal migration and prevent forest resource depletion.

In developing countries including Ethiopia, underdevelopment and high rate of population growth are the sources of environmental problems.

There is substantial evidence that growing population has already exceeded the capacity of local natural resources in developing countries like Ethiopia.

Generally, with rapid rate of population growth in Ethiopia, the carrying capacity of the environment has declined. Obviously a high growth rate of population creates demand for more resources. It also influences the rate at which resources are exploited. In a situation where technology lags behind, the demand for resources, primitive methods of exploiting land and other resources continues to operate in order to meet basic needs. These traditional means of exploiting natural resources have been proved to be environmentally harmful and economically unproductive. Therefore, vegetation loss is the result of ruthlessly felling trees for need of farmland, fire wood and construction.

### B. Animal Migration

- What does animal migration mean?
- Discuss what will happen if wild animals cannot find food due to the destruction of their habitat.
- Discuss the importance of protecting wild animals as part of your country's heritage?
- What will happen to the area which has lost its animals?
- What do you suggest for wise use of natural resources in your area?

Wild animals persist in a given environment when there is less or highly minimized disturbance. If their natural habitat is destroyed, wild animals are forced to abandon their permanent areas and flee to other lands. Natural habitats could be destroyed due to natural and human made problems. The animals would abandon their habitat and migrate to other lands where they could find their lost needs safely and regularly. Thus, in order to keep animals in their original places, the habitat should be protected consistently.

### C. Forest Resource Depletion

- **How are forest resources used in your area?**
- **Are the forests affected due to misuse?**
- **Explain any mechanism used to reforest the deforested areas.**
- **Why is it necessary to use natural resources wisely?**

The land covered with forest has been devastated at alarming rate. This is mainly because forests are cleared to get additional farmland and to make room for constructing houses that serve new settlements. Thus, trees are cut for house construction, for fuel wood, for making furniture, for other infrastructure etc.

Forests could also be affected by wild fire. During dry season, due to increased heat, fire may arise caused by friction. This minimizes the extent of forests or damages the forest as a whole unless checked by humans. Long term drought could also affect the forest cover in a given natural environment as the moisture in the soil and nearby rivers or streams is finished or depleted. Unless forest resource management is practiced, it is likely that forest cover dwindles from time to time due to human intervention. Trees may be felled illegally or on purpose to meet certain interests. If this uncontrolled activity goes on unchecked, the forest cover shrinks. To overcome forest cover shrinking that would, in fact, lead to forest depletion in the long run, people should be taught that they should replace trees cut by seedlings so as to attain sustainable forest cover in that given area of theirs.

Forest depletion incurs loss of natural balance. When the natural balance is disturbed, animals lose their habitat. Humans who live within the reach of the forest and those who live in a near by field are to suffer the consequence. This is because the usual climate changes, underground water level decreases and soil moisture highly reduces and soil erosion sets in. When soil erosion intensifies, the forest floor suffers from loss of fertile soil. This in turn impedes forest resources to replenish and flourish for future use and this is dangerous in fact.



*Fig.3.22 Land area with removed forest cover*

## Lesson

## 3.3

## Review



### Activity

#### A. Questions based on facts:

- How does rapid population growth affect natural vegetation and wild animals?
- Show the relationship between the decline in natural vegetation and the loss of wild animals.
- How can you control loss of vegetation?
- Discuss why wild animals migrate from their origin to other lands.
- What causes forest resource depletion?

#### B. Things to do:

Look for references and write a short account on:

- Loss of Vegetation
- Animal migration
- Forest Depletion

Write a short essay as to how to check and control:

- Vegetation loss
- Animal migration
- Forest depletion

**Competencies:** At the end of this lesson, you will be able to:

- State how you can participate in conservation activities.
- Describe the major methods of conserving natural vegetation and wild animals.
- Relate these activities to local or familiar environments and involve in conservation.
- Show appreciation to the importance of the endemic animals of Ethiopia and the Horn.

### Key Terms

- ↔ Conservation
- ↔ Afforestation

- ↔ Reforestation
- ↔ Illegal hunting

### A. Conservation

- What is conservation?
- What are the possible methods of conservation?
- What are the benefits of conservation?



**Conservation is a sustainable use and protection of natural resources including plants, animals, mineral deposits, soils, clean water, clean air, and fossil fuels such as coal, petroleum, and natural gas.**

The following conservation methods, capacity building and institutional development are suggested to resolve the problems related to growing deforestation in the country.

### ◆ Conservation Measures

#### Afforestation

- What is afforestation?
- Where do you practice afforestation?
- What is the advantage of afforestation?
- Are there afforestation schemes in your area?
- Who is responsible for the afforestation?



Afforestation is a process of transforming an area into forest. It is practiced in areas where trees have not been grown previously. This is done to maintain the natural balance in given areas. Thus, this activity helps to increase forest cover in a given environment. When forest cover improves, it is likely that migratory animals regain habitat. Birds secure shelter. Different species of trees are introduced so that their economic use becomes effective and demand oriented. Possibly, the amount of moisture added to the atmosphere increases and this regulates the local climate of the area. Moreover, it adds beauty to the surrounding landscape.

### Reforestation

- What is reforestation?
- What is the advantage of reforestation?
- Why should you reforest?

Reforestation is a process by which once lost forests are regained. This is done by planting seedlings in the place where there was forest cover in the past. Usually deforested areas are once again covered with plants through reforestation. Reforestation is advantageous in regaining habitat for wild animals, withstanding soil erosion, regulating the local climate and bringing back the lost beauty of the landscape due to forest depletion.

### Controlling wild fires

- What are wild fires?
- What causes wild fires?
- How are wild fires controlled?

Wild fire is a rapidly spreading fire. Wildfires are fires set on vegetation or forest without the knowledge of humans. During the dry seasons, wild fires may rise from friction in forests. They may also be caused by persons who drop cigarette tips with fire unintentionally. Wild fires are devastating unless controlled by combined efforts of fire brigade and the local people (See Fig.3.23).



**Fig. 3.23** Wild fire devastating a forested area

## B. Avoiding Illegal Hunting

- What does illegal hunting mean?
- How is illegal hunting controlled or avoided?
- If there is a hunting ground in your area, explain on what basis people hunt wild animals?
- What can you suggest to avoid illegal hunting?
- Discuss the advantage of avoiding illegal hunting.

Illegal hunting is a practice of killing animals without having any license. Illegal hunting is practiced in areas where wild animals are available. Illegal hunting arises from lack of getting proper training in maintaining the natural environment. It also arises from selfish motive. Thus, to avoid illegal hunting the provision of environmental education is vital. Through environmental education, it is possible to raise public awareness on the use and management of components of the natural environment. People should be friendly to their natural environment so that they use the resources wisely.

## C. The National Parks of Ethiopia and Conservation Organizations

- What are national parks?
- Discuss the need for establishing national parks.
- Why should national parks be established when nature is capable of replenishing itself?
- Debate in groups for and against establishing national parks.

National parks are unique public lands or bodies of water within a country. They are set aside by governments to protect natural environments which include plant and animal species, beautiful landscapes, geologic formation, historical or archeological sites.

National parks are managed for public recreation, providing exceptional locations where visitors can view wild life and enjoy the outdoors. Public lands are protected against hunting, livestock grazing, logging, mining and other activities.

In Ethiopia, there are many national parks. They are dependable tourist attractions. Along with national parks, there are sanctuaries where animals and birds are highly protected. Thus, killing wild animals is prohibited. In general, parks and sanctuaries are the most important reserves for conserving vegetation and wild animals. There are also game reserves where animals and birds are protected. Here killing animals and birds is allowed for persons with license.



**Fig.3.24 National parks, Sanctuaries and game reserves**

- ✓ **In national parks killing animals and birds is restricted.**
- ✓ **In sanctuaries killing is prohibited.**
- ✓ **In game reserves killing animals and birds is allowed with license.**

The following conservation actions are recommended to protect and achieve sustainable use of national parks.

- Establishing of national parks, sanctuaries and game reserves.
- Wild animals' protection through national legislation.
- Establishing strong laws that prohibit illegal hunting.
- Protection of the natural habitats of wild animals.
- Educating the public for environmental protection at local levels.
- Monitoring and administering the existing conservation areas properly.



There are many organizations that protect the environment and animals in Ethiopia. There is also an international organization which is concerned with the protection of the environment. This organization is known as UNEP. It means United Nations Environment Program. Its headquarters is found in Nairobi-Kenya.

One of the local organizations actively functioning in Ethiopia is EWNHS (Ethiopian Wildlife and Natural History Society). The Ethiopian Wildlife and Natural History society is an independent membership based society. It was legally established in Ethiopia in September 1966. EWNHS, as NGO, is one of the most prominent organizations in Ethiopia advocating for wise use and conservation of natural resources and the environment. As the oldest non-governmental environmental conservation organization in Ethiopia, it has played a decisive role in the appreciation and conservation of the natural heritage of the country for almost five decades.

## Lesson

## 3.4

## Review

**Activity****A. Questions based on facts:**

- Explain the distinction between afforestation and reforestation.
- Why should illegal hunting be avoided?
- Compare and contrast national parks and sanctuaries.
- List some of the endemic animals and birds of Ethiopia.
- Mention organizations which protect the environment and wild animals, such as Ethiopian Wild life Society.

**B. Things to do:**

- Draw a sketch map and show the major National Parks and Sanctuaries of Ethiopia
- Group work:
  - Debate on the advantages and disadvantages of hunting wild animals.
  - Design posters against illegal hunting and the destruction of forests to put up in your local area.

## Role Play

Abebe and Tesfaye live in a village near the Semen Mountains National Park. They both feel that they are as capable hunters as their fathers. Their friends, Hailu and Alemu, equally appreciate their feeling.

The four friends have often visited the park. The first time they went to visit the park, the person in charge had told them that there were various types of animals, birds and plants. He also informed them about the spectacular chains of mountains in the park. He further explained to them that there were endangered wild animals in the park. For instance, he said, “Walia and Semien Fox are very small in number. Though Walia is a kind of wild goat, no hunter is ever allowed to kill one.”

One day Abebe and Tesfaye conspired to kill a Walia as there was desperate meat shortage in their area. They vowed to each other not to confide the secret to anyone.

As usual the four friends met one day. They started discussing about the visit of the park they have had. Alemu said, “I was fascinated by the look of that graceful Walia.” His friends appreciated his view. Tesfaye, with a slip of the tongue, unsparingly confided to his friends what himself and Abebe planned to do. All of a sudden, Hailu stood against the idea. He went on explaining, “Walia Ibex is a rare animal to Ethiopia and the world at large. It is an endangered animal as we were told during our visit. Do you know what endangered animal means? It means nearing depletion.” Alemu also staunchly supported Hailu’s idea. But Abebe and Tesfaye resisted their friends’ idea. However, Alemu and Hailu stood firmly against killing Walia. Finally, Abebe and Tesfaye were convinced to stop their conspired hunting. Consequently, they all agreed and bade farewell.

## Summary

- Vegetation in the Horn includes bushland, succulent shrubland, dry ever green forests, woodlands, rock vegetation, and semi desert vegetation.
- Vegetation, in Ethiopia, consists of high mountain vegetation, forests, woodland savanna, and steppe and semi desert vegetation.
- Ethiopia has many wild animals which include both common and endemic animals.
- Ethiopia has also numerous birds of different species. Some birds are endemic to Ethiopia.
- Natural vegetation and wild animals keep the natural balance of every ecosystem in Ethiopia.
- Rapid population growth affects natural vegetation and wild animals.
- Natural vegetation and wild animals should be conserved for sustainable use.
- Conservation measures include afforestation, reforestation, controlling wild fire, avoiding illegal hunting and establishing national parks and sanctuaries.



## Glossary

- **Afforestation:** planting trees where there have not been trees.
- **Carrying capacity:** the ability of the land area to feed people who reside on it. E.g. suppose one hectare of land supports a family with four members. If the number in the family increases by one or two, the carrying capacity of the land decreases. In other words, the share per hectare decreases when the denominator increases.
- **Community:** a group of people with a common background or with shared interests within society.
- **Conservation:** the wise use of resources.
- **Depletion:** the state of being emptied or finished because of unreserved usage.
- **Endemic animals:** animals regularly found in a particular country or area.
- **Farmer:** person who leads his/her life on cultivating land.
- **Illegal hunting:** killing wild animals without having any permission.
- **Migration:** movement from one place to another due to pull or push factors.
- **Natural balance:** The harmonious condition among all things of nature.
- **Natural vegetation:** plants found in nature on land.
- **Precipitation:** Deposits of water in either liquid or solid form which reach the earth from the atmosphere.
- **Reforestation:** planting trees in areas where forests have been destroyed.
- **Tourism:** the activity of traveling for pleasure or study.
- **Wild animals:** animals that live in forests and grasslands.



- \_\_\_\_\_ 12. One of the following best explains endangered animals:
- They are less understood in their indigenous areas.
  - They are exposed to the verge of extinction.
  - They have stopped reproduction.
  - They are naturally limited by number.
- \_\_\_\_\_ 13. Which one is the well known habitat for arboreals?
- Savanna grassland
  - Forest
  - Scrub
  - Shrub

#### IV. Fill in the Blank Item

*Fill in the blank spaces with appropriate words or phrases.*

14. Low land forests include \_\_\_\_\_ and \_\_\_\_\_
15. Common name for a group of plants characterized by seed bearing cones is called \_\_\_\_\_ forest.
16. Arboreals are \_\_\_\_\_ animals.
17. The vegetation that covers the north-central and south eastern highlands of Ethiopia is known as \_\_\_\_\_.

#### V. Give Short Answer Item

*Give short answers to the following questions:*

- List conservation methods of natural vegetation?
- Explain why rapid population growth endangers a given natural environment.



### Check List

*Put a tick (✓) mark in each of the boxes for activities you can perform*

**I can:**

1. Identify the major types of natural vegetation in Ethiopia and the Horn.
2. List the major types of wild animals in Ethiopia and the Horn.
3. Distinguish between common and endemic animals of Ethiopia and the Horn.
4. Justify the importance of natural vegetation and wild animals in Ethiopia and the Horn.
5. Discuss the importance of protecting the habitat and wild animals.
6. Explain to others why it is important to protect the vegetation and wild animals.
7. Analyze the effects of rapid population growth on vegetation and wild life.
8. State how I can participate in conservation activities.
9. Describe the major methods of conserving natural vegetation and wild animals.
10. Relate these activities to local or familiar environments and become involved in conservation.
11. Show appreciation to the importance of the endemic animals of Ethiopia and the Horn.