

## **Natural Resources Conservation and Development Level III**

Based on March 2018, **Version 3 Occupational  
standards (OS).**

**Module Title: Coordinating Sustainable Community-  
based Wildlife Resource Utilization and Ecotourism**

**LG Code: AGR NRC3 M 20 LO (1-6) LG (94-93)**

**TTLM Code: AGR NRC3 TTLM 0621 v1**

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Adama, Ethiopia**



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<b>L #94</b>	<b>LO #1 Utilize Consumptive and Non Consumptive Wildlife</b>
<b>Instruction sheet</b>	
<p>This learning guide is developed to provide you the necessary information regarding the following content coverage and topics:</p> <ul style="list-style-type: none"> <li>• Identifying ways of consumptive wildlife</li> <li>• Identifying relevant sources of information</li> <li>• Considering OHS hazards</li> <li>• Rule and regulation of wildlife resource utilization</li> <li>• Maintaining needs of customer wildlife hunting</li> <li>• Identifying non consumptive wildlife utilization</li> <li>• Conducting civet musk collection, tourism and photography</li> </ul> <p>This guide will also assist you to attain the learning outcomes stated in the cover page. Specifically, upon completion of this learning guide, you will be able to:</p> <ul style="list-style-type: none"> <li>• Identify ways of consumptive wildlife</li> <li>• Identify relevant sources of information</li> <li>• Consider OHS hazards</li> <li>• Rule and regulation of wildlife resource utilization</li> <li>• Maintain needs of customer wildlife hunting</li> <li>• Identify non consumptive wildlife utilization</li> <li>• Conduct civet musk collection, tourism and photography</li> </ul>	
<b>Learning Instructions:</b>	
<p>Read the specific objectives of this Learning Guide.</p> <ol style="list-style-type: none"> <li>1. Follow the instructions described below.</li> <li>2. Read the information written in the “Information Sheets”. Try to understand what are being discussed. Ask your trainer for assistance if you have hard time understanding them.</li> <li>3. Accomplish the “Self-checks” which are placed following all information sheets.</li> <li>4. Ask from your trainer the key to correction (key answers) or you can request your trainer to correct your work. (You are to get the key answer only after you finished answering the Self-checks).</li> <li>5. If you earned a satisfactory evaluation proceed to “Operation sheets</li> <li>6. Perform “the Learning activity performance test” which is placed following “Operation sheets” ,</li> <li>7. If your performance is satisfactory proceed to the next learning guide,</li> <li>8. If your performance is unsatisfactory, see your trainer for further instructions or go back to “Operation sheets”.</li> </ol>	



## Information sheet 1. Identifying ways of consumptive wildlife

### 1.1. Introduction

#### Definition

Wildlife traditionally refers to undomesticated animal species but has come to include all organisms that grow or live wild in an area without being introduced by humans. Community-based conservation is just what it sounds like: efforts to protect biodiversity in which the local community participates as much as possible. Among conservationists and wild-life managers it is becoming widely accepted that the future of wildlife in developing countries depends largely on its capacity to deliver benefits to rural people and that the most effective way of delivering benefits to rural people is to give them the right and the responsibility to manage wildlife.

Wild animals are animals that are:

- Not domesticated
- Do not rely on humans for food, shelter or water
- They do not interact with humans regularly in a social or agricultural capacity.

Wild animals may have habitats that are reserved by humans but their main characteristic is that they are not tamed to be kept as pets or raised for food. Invertebrates consist of animals like insects, worms, crustaceans, mollusks, and cephalopods. Vertebrates consist of animals like mammals, reptiles, fish, birds and amphibians. These animals if not domesticated are all considered wild animals.

According to this definition some of wild life includes:

- Crocodiles
- Ostrich
- Civet cat
- Zebra
- Monkey
- Leopard

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- Wolf
- Giraffe
- Woodpecker
- Camel
- Starfish
- Owl
- Tiger etc.

Deserts, forests, rainforests, plains, grasslands, and other areas, including the most developed urban areas all have distinct forms of wildlife. In other the utilization of wildlife is the use of wildlife resource in a wise manner and this has to be sustainable through photographic and hunting tourism as a way of reducing old wildlife and at the same time generating revenue to enhance management effectiveness.

## **1.2. Consumptive wildlife**

Consumption in tourism can be defined as the direct use or removal of wildlife through activities such as hunting (Freese 1998, cited by Meletis and Campbell 2007). Consumptive wild life tourism is defined as a form of leisure travel undertaken for the purpose of hunting or shooting game animals or fishing for sports fish either in natural sites or in areas created for these purposes. It includes killing or capturing wildlife through:

- Hunting
- shooting or
- Fishing.

### **Consumptive Exploitation**

- Harvesting wildlife populations for the purpose of subsistence or recreation.

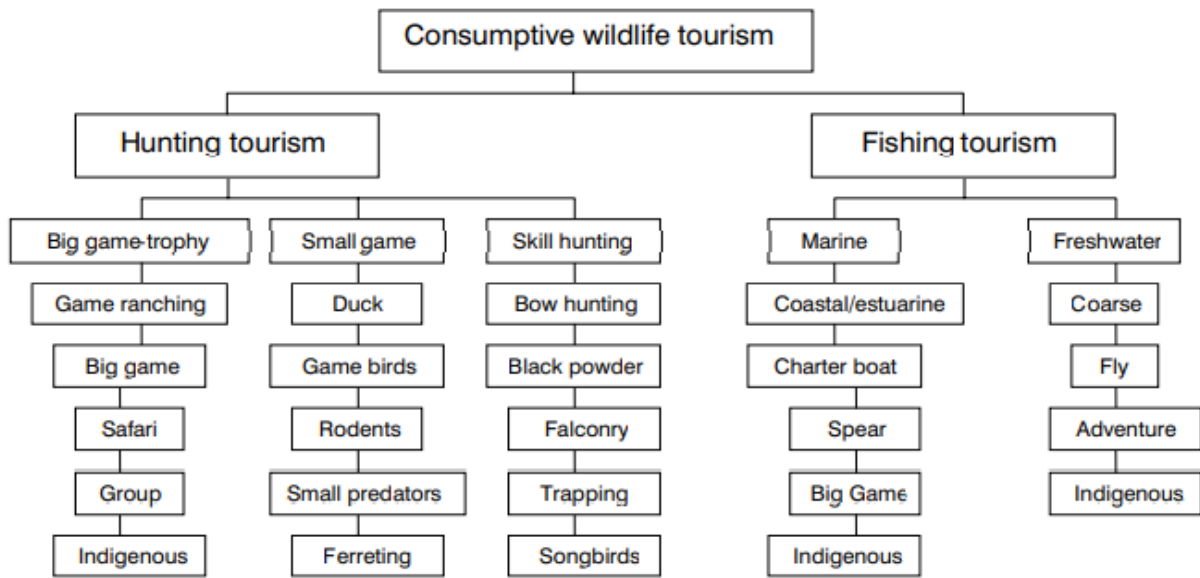
Forms include:

- Commercial hunting: often regulated, though not in the case of black markets

(Poaching)

- Subsistence hunting: difficult to regulate
- Collection for parks, zoos, and the pet trade

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**Figure 1. Consumptive wildlife tourism activities. Source: Bauer and Herr (2004)**



<b>Self-check 1</b>	<b>Written test</b>
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Name..... ID..... Date.....

**Directions:** Answer all the questions listed below. Examples may be necessary to aid some explanations/answers

**Test 1: choose part** (4points).

1. From the following which one is way of consumptive wild life

A. Hunting B. Fishing C. Shooting D. All

2. Wild animals are animals that are

A. Not domesticated

B. Do not rely on humans for food, shelter or water

C. They do not interact with humans regularly

D. All

E. None

3. Which one is included under non consumptive wild life

A. Watched B. Bird- watching. C. Sketching and photography D. All

**Test II. Short Answer Questions**

1. Define wild life (3 point)

2. List some type of wild life (3 point)

**Answer Sheet**

Name: \_\_\_\_\_

Score = \_\_\_\_\_  
Rating: \_\_\_\_\_

**Note: Satisfactory rating 10 points**

**Unsatisfactory - below 10 points**

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## Information sheet 2. Identifying relevant sources of information

### Definition

Information is defined as news, knowledge, instruction and required procedure received or given from one to another. An example of information is what's given to someone who asks for background about wild life resource utilization. It is the summarization of different types of data. Accessing and utilizing information about wild life, through technological developments.

Collecting information from different source is important to get the information required on utilizes consumptive and non consumptive wildlife.

These relevant source of information collected from:

- Internet, related books and related materials
- Technical manuals
- Workplace guidelines
- Recorded documents/logo/history
- Sharing best practice

Successful community-based natural resources and wildlife management involves a set of conditions and measures all of which need to be addressed.

These include:

- Policies, laws and regulations which allow and enable effective action at the local level
- Effective institutions at all levels – from national government to local government to village and community including non-governmental and civil society organizations – and provision of technical, economic and management capabilities;
- Knowledge management to provide the information and knowledge that is needed for good economic, governance and environmental outcomes;



- Capacity building, in other words investment in human resources, which is required in the domains of environment, economics (marketing, business skills) and governance (rights, organizational management);
- Integration of policies and laws in different sectors, which are sometimes contradictory and confusing and therefore tend to inhibit investment in natural resource management.



<b>Self-check 2</b>	<b>Written test</b>
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Name..... ID..... Date.....

**Directions:** Answer all the questions listed below. Examples may be necessary to aid some explanations/answers

**Test 1: choose part** (4points).

1. From the following which one is relevant source of information about Consumptive and Non Consumptive Wildlife
- A. Internet      B. Workplace guidelines      C. Technical manuals      D. A and B      E. All

**Test II. Short Answer Questions**

1. List points that must be considered under successful community-based natural resources and wildlife management activities(3 point)

**Answer Sheet**

Name: \_\_\_\_\_

Score = \_\_\_\_\_  
Rating: \_\_\_\_\_

**Note:** Satisfactory rating 7 points

Unsatisfactory - below 7 points

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### Information sheet 3. Considering OHS hazards

#### 3.1. Occupational health and safety for wild life consumptive

Wildlife may present a danger to field employees ranging from nuisance level to life-threatening. Depending on the location the major risks may be large mammals, reptiles or insects and include potential attacks bites or the diseases that result from bites. In addition to safety issues many animals that may be encountered are endangered species and are protected by legislation. All field employees have a responsibility to avoid disturbing the environment including animals as much as possible.

#### 3.2. Risks and Hazards

Risks and hazards related to wildlife include the following:

- Death and/or injuries caused by animal attacks (bears, crocodiles, snakes, leopard, monkeys)
- Camp invasions by bears caused by poor choice of camp location, lack of preparation (no bear deterrents, firearms, electric fencing, bear guards), poor camp maintenance and inadequate food and waste handling (available attractants)
- Snakebite (tissue damage from venom) caused by not following safe traversing procedures, lack of training; increased risk of tissue damage due to improper treatment for snakebite, panic of the victim
- Anaphylactic shock caused by stings from insects (bees, wasps, ants) to people with allergies
- Diseases caused by insect bites: examples include malaria, dengue fever, Lyme disease, yellow fever, various forms of encephalitis, plague
- Diseases caused by animal bites such as tetanus, rabies diseases caused by contact with animal waste products such as Hanta viral disease, histoplasmosis



- Insect and rodent infestations caused by poor kitchen cleanliness, poor housekeeping practices
- Damage to property (invasion of camp) caused by not following SOPs inadequate food and waste handling resulting in available attractants
- Vehicle collisions with large animals caused by driving in hazardous areas at high risk times at too high a speed

### **3.3 OHS requirement**

Occupational health and safety requirement include:

- Use qualified and experienced personnel
- Advertise attractive information
- Prepare well designed and selected waste disposal sites
- Care taken during community income sharing activities
- Avoiding environmental impact during hunting
- Care taken during crocodile feeding and saluting
- Care taken during reproduction season
- Appropriate care taken during civet collection and domestication

### **3.4. Responsibilities (Due Diligence) Regarding Wildlife**

Compliance with regard to wildlife safety issues should include:

Take all reasonable precautions to protect the health and safety of every employee. Comply with jurisdictional occupational health and safety (OHS) and wildlife legislation and regulations.

- Perform risk assessments to determine the threat from wildlife, including wildlife habitats at a project location and in traverse areas.
- Develop written safe operating procedures (SOPs) and site specific SOPs, as required, that address wildlife risks. SOPs should address the observations and conclusions of risk assessments.



- Make sure supervisors are trained, competent and provide supervision of employees who work where wildlife encounters may be a risk.
- Provide sufficient and appropriate equipment and support so employees can work and traverse safely, especially in bear country.
- Provide training to make sure employees are:
  - ✓ Knowledgeable about (SOPs) and emergency response plans (ERPs) that address wildlife risks and hazards
  - ✓ Knowledgeable about potential wildlife threats and how to react to encounters
  - ✓ Competent in the use of their personal protective equipment (PPE) and deterrent equipment.



<b>Self-check 3</b>	<b>Written test</b>
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Name..... ID..... Date.....

**Directions:** Answer all the questions listed below. Examples may be necessary to aid some explanations/answers

### Test I. Short Answer Questions

1. List Risks and hazards related to wildlife (5 point)
2. Write occupational health and safety requirement during wild life consumptive (5 point)

### Answer Sheet

Name: \_\_\_\_\_

Score = \_\_\_\_\_

Rating: \_\_\_\_\_

**Note:** Satisfactory rating 10 points

Unsatisfactory - below 10 points



## Information sheet 4. Rule and regulation of wildlife resource utilization

### 4.1. Introduction

Wildlife management is the process of keeping certain wildlife populations, including endangered species at desirable levels on the basis of scientific, technical and traditional knowledge. Sustainable wildlife management adds to this objective the aim of balancing the economic, ecological and social values of wildlife with a view to protecting the interests of present and future generations. Thus, this concept goes beyond the protection of interests related to hunting and protection for individual species and rather focuses on wildlife as a renewable natural resource in a holistic way.

Law is a key tool to achieve sustainable wildlife management. It sets the parameters for protection and use of wild animals. Over time legislation has shifted from narrow command and control to a more comprehensive approach based on broader concepts such as the conservation and sustainable use of biodiversity. This trend is informed by a number of factors among them first the recognition of the interdependence among different species and the direct and indirect threats to wildlife and second the broad appeal of a people-centered approach to wildlife management meaning the participation of concerned individuals in wildlife-related decision-making the involvement of local communities in wildlife management and the sharing of its benefits.

### 4.2. Species-based international agreements

Endangered species legislation involves a specialized legal approach to wildlife management. It focuses exclusively on the identification and restoration of species that have reached critically low population levels on the basis of defined criteria and procedures for listing these species and at least two general mechanisms designed to ensure recovery of individual species. Listing criteria and procedures are based on science based definitions of “threatened” and/or “endangered,” both of which imply an assessment of the status of the species and the threats to their continued survival.





#### **4.3. The Convention on International Trade in Endangered Species of Wild Flora and Fauna (CITES, Washington, 1973)**

This convention aims to ensure that international trade in specimens of wild animals and plants does not threaten their survival. CITES therefore protects endangered species by restricting and regulating their international trade through export permit systems. For species threatened with extinction which are or may be affected by trade export permits may be granted only in exceptional circumstances and subject to strict requirements. The importation of these species also requires a permit while trade for primarily commercial purposes is not allowed.

According to this convention a species is considered to be “threatened with extinction” if it meets or is likely to meet at least one of the following criteria:

A. The wild population is small and is characterized by at least one of the following:

- An observed, inferred or projected decline in the number of individuals or the area and quality of habitat; or
- Each subpopulation being very small; or
- A majority of individuals being concentrated geographically during one or more life-history phases; or
- Large short-term fluctuations in population size; or
- A high vulnerability to either intrinsic or extrinsic factors.

B. The wild population has a restricted area of distribution and is characterized by at least one of the following:

- Fragmentation or occurrence at very few locations; or
- Large fluctuations in the area of distribution or the number of subpopulations; or
- A high vulnerability to either intrinsic or extrinsic factors; or
- An observed inferred or projected decrease in any one of the following:
  - ✓ The area of distribution
  - ✓ The area of habitat
  - ✓ The number of subpopulations
  - ✓ The number of individuals
  - ✓ The quality of habitat



✓ The recruitment.

C. A marked decline in the population size in the wild which has been either:

- Observed as ongoing or as having occurred in the past (but with a potential to resume)
- Inferred or projected on the basis of any one of the following:
  - ✓ a decrease in area of habitat
  - ✓ a decrease in quality of habitat
  - ✓ levels or patterns of exploitation
  - ✓ A high vulnerability to either intrinsic or extrinsic factors or a decreasing recruitment.

The Convention requires states to adopt legislation that:

- Designates at least one management authority and one scientific authority;
- Prohibits trade in specimens in violation of the Convention;
- Penalizes such trade
- Calls for the confiscation of specimens illegally traded or possessed.

Migratory species means the entire population or any geographically separate part of the population of any species or lower taxon of wild animals a significant proportion of whose members cyclically and predictably cross one or more national jurisdictional boundaries. "Conservation status of a migratory species" means the sum of the influences acting on the migratory species that may affect its long-term distribution and abundance.

Conservation status will be taken as favorable when:

- Population dynamics data indicate that the migratory species is maintaining itself on a long-term basis as a viable component of its ecosystems;
- The range of the migratory species is neither currently being reduced, nor is likely to be reduced on a long-term basis;
- There is, and will be in the foreseeable future sufficient habitat to maintain the population of the migratory species on a long-term basis; and



- The distribution and abundance of the migratory species approach, historic coverage and levels to the extent that potentially suitable ecosystems exist and to the extent consistent with wise wildlife management.

Endangered species in relation to a particular migratory species means that the migratory species is in danger of extinction throughout all or a significant portion of its range.

"Range" means all the areas of land or water that a migratory species inhabits stays in temporarily, crosses or overflies at any time on its normal migration route.

"Habitat" means any area in the range of a migratory species which contains suitable living conditions for that species.

#### **4.4. Area-based international agreements**

Another specific approach in wildlife conservation legislation is that of identifying specific areas that are critical for the survival of certain wildlife species (migration routes, feeding or breeding grounds, etc.) once again through a listing system. This legal approach, therefore, prioritizes the protection of habitats as special conservation areas for wildlife. The main area-based treaties are the Convention on Wetlands (Ramsar Convention, Ramsar, 1971) and the Convention Concerning the Protection of the World Cultural and Natural Heritage (World Heritage Convention, Paris, 1972). Area-based international obligations are usually implemented at the national level through the creation of protected areas legislation (national parks, nature reserves, etc.), as well as with legislation ensuring the prevention or minimization of negative interferences in or near these areas. It should be recalled that species-based treaties also call on parties to protect endangered wildlife habitats along with other management measures

#### **4.5. Legal options**

Where certain wildlife management goals are not immediately achievable, it may be useful to look for ways to “phase in” or create “trigger” legal provisions. In other words, treat legislation as preliminary and target timeframes or events that are most likely need before a given legal requirement can be imposed. Structuring the law this way will create an immediate potential but ensure that prerequisites first be met before rights may be exercised. For example, if community management of a trophy hunting concession is



the desired goal it may be useful to establish a legal requirement that trophy hunting will only be allowed where:

- Scientific evidence demonstrates that a viable wildlife population exists to support such hunting (example of a “trigger”)
- The community has initiated specific management activities and entered into an agreement for collaborative management with the appropriate agency (example of a “trigger”).

An example of a “phase-in” approach to handle a new concept is the use of “grace periods” where existing practices may continue for a specified period of time before some other requirement must be fulfilled.

#### **4.6. Protection Rules**

Among the most common protection rules are those which set out prohibitions applicable to hunting. These prohibitions are of different types. Limitations in the quantity of animals which may be hunted (for example under a single license or within a certain period) are not common in the principal legislation as they are more frequently placed in subsidiary legislation periodically adopted or incorporated as license conditions.

##### **4.6.1 Limitations to Hunting**

Regarding hunting methods and weapons, many prohibitions are common to most of the legislation which has been examined. This is the case, for example, regarding the use of drugs, poison, explosives, fire, as well as hunting from moving vehicles. Methods of hunting, however, are a typical part of local traditions and therefore additional prohibitions in this regard may vary greatly from one country to another.

##### **4.6.2. Protection of Specific Species**

Legislation setting out protection rules may limit its scope to more valuable or rare species, or extend to apparently less interesting species or wildlife or biodiversity as a whole. The legal mechanism for protecting specific species is often to provide for a classification of animals which are to receive varying degrees of protection and therefore for the creation of lists. This approach is quite common and in some places remains the principal protection tool. Often however, it is combined with the statement of broader conservation principles.

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#### **4.6.3. Assessment of Harmful Processes**

Reflecting recent developments in international law, a number of domestic laws have started to require the assessment and mitigation of any processes which may be potentially harmful on wildlife, rather than limiting their scope strictly to protection and management. Malawi, for example, requires "wildlife impact assessments" for any "process or activity" which may have an adverse effect on wildlife. Although only the Minister may undertake the assessment, any person who has reason to believe that such an adverse effect will be produced may make a request to undertake it.

#### **4.6.4. Protection of Biodiversity**

The protection and management of biodiversity have started to be addressed in numerous legal systems, either by incorporating relevant objectives in environmental or wildlife management legislation or by adopting separate specific legislation.

#### **4.7. Management Planning**

Most recent wildlife laws devote some provisions to management planning, spelling out the basic dynamics of the management process and addressing protection as well as sustainable exploitation. They often require the surveying of animal populations and habitats and the formal adoption of management plans. The following are some examples. The Spanish law includes basic principles for the management of natural resources and biodiversity. It requires competent administrations to formulate natural resource management plans, with specified contents, and which are to prevail over any other planning instruments which may apply over the same areas (arts. 4 and 5). Hunting is subject to a "technical plan" aiming at the protection of game, to be adopted in accordance with regional legislation (art. 33).

#### **4.8. Regulation of Hunting**

Hunting plays an important economic and social role in many countries, where it may be a significant source of food and revenue. Even where this is not the case, it often remains a popular sport. In many European countries in which hunting is supported by powerful interest groups, wildlife management and therefore the adoption of relevant legislation tends to be the subject of a lively political debate. Often the issues at stake simply come down to the question of whether hunting should be allowed or not, whether

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generally or, more often, with respect to certain species or in particular areas or at certain times of the year. This has in practice tended to limit wildlife management to the dichotomy between hunting and non-hunting.

## **4.9. Use of Licenses**

### **4.9.1. Licenses as a Management Instrument**

Licenses or other kinds of permits are a typical administrative instrument for the management of natural resources and are utilized also in relation to wild animals, to authorize hunting or other kinds of uses. Licenses can contribute to management where they are effectively used to limit the number of animals which may be taken under a single license, based on a periodical assessment of sustainable levels of exploitation and adequate plans. Provisions which clearly relate the number of animals allowed to be taken under licenses to surveys or management plans, however, are rare, while ample discretion tends to be left to the administration in this regard.

### **4.9.2. Licenses for Hunting**

Most countries require some kind of authorization for hunting, and in some cases different kinds of hunting licenses are set out in the legislation. Categories are not uniform. Some are based on different degrees of protection granted to the animals concerned or on different types and size of animals. There may also be different licenses depending on the purpose of hunting (whether for recreation or tradition/subsistence), and licenses for visitors as opposed to residents.

### **4.9.3. Other Types of Licenses**

Taking of animals for scientific or educational purposes is also usually subject to a specific type of authorization. The latter country requires these permits to be issued by the Director rather than any licensing officer, and the conditions set out in Guinea are even more restrictive, as scientific permits may be issued only to people belonging to scientific institutions, and no hunting must be involved unless related to the objective of the research and duly authorized under a permit.

## **4.10. Game Ranching and Breeding**

Game ranching and breeding can be important contributors to food availability and revenues in rural areas. They may also have a significant impact on the environment and particularly other animals and generally biodiversity. It is therefore important for the

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applicable legal framework to take both concerns into account, attempting to strike a balance between the encouragement of these initiatives and conservation concerns. The following are some examples of relevant provisions in the legislation which has been examined.



<b>Self-check 4</b>	<b>Written test</b>
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Name..... ID..... Date.....

**Directions:** Answer all the questions listed below. Examples may be necessary to aid some explanations/answers

### Test I. Short Answer Questions

1. List the criteria adopted by convention on species are threatened with extinction  
(5 point)
2. Write characterized criteria to say wild population is small (5 point)

### Answer Sheet

Name: \_\_\_\_\_

Score = \_\_\_\_\_

Rating: \_\_\_\_\_

**Note:** Satisfactory rating 10 points

Unsatisfactory - below 10 points





## Information sheet 5. Maintaining needs of customer wildlife hunting

### Self check 5

## Information sheet 6. Identifying non consumptive wildlife utilization

### 6.1. Introduction

Non-consumptive Wildlife Tourism (NCWT) is defined as tourism, undertaken to view and/or encounter the focal organism in its natural setting and without purposefully removing or permanently affecting that organism. By this definition NCWT has the minimal effects on both the focal organism and its environment and therefore differs from captive and semi-captive wildlife tourism (e.g., zoos, wild animal parks). Although wildlife watching/viewing (includes video-recording and photographing) is the most common form of NCWT and tends to be seen has zero impact.

Primary non-consumptive uses include general wildlife observation, bird-watching, bird-feeding and wildlife and bird photography. In other definition non-consumptive wild life uses are generally considered to be those in which any wildlife is watched, studied, or recorded without being killed such as in hiking, bird- watching etc. Some non-consumptive uses may actually be vicarious such as movie, television and gallery viewing of wildlife. Secondary uses include nature walks, membership of wildlife organizations, ownership of wildlife pets and visits to zoos.

### 6.2. Non consumptive wildlife

Non consumptive uses are generally considered to be those in which any wildlife is:

- Watched
- Studied or recorded without being killed such as in hiking
- Bird- watching.

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- Sketching and photography.

In other definition non consumptive is use of wild animals that does not involve removing individuals from populations

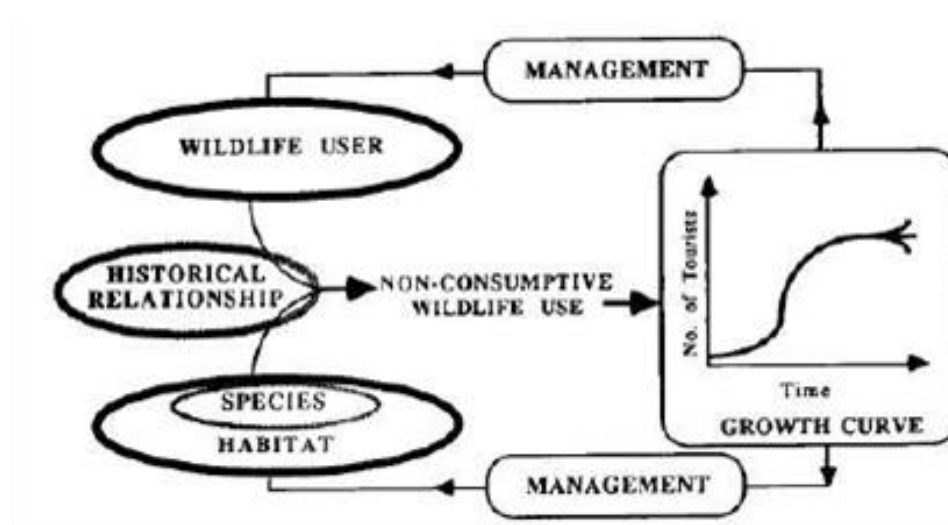
- Non-extractive, examples include:
- Bird watching
- Catch-and-release fishing
- feeding wildlife
- Photography
- Ecotourism

In order to better manage NCWT there is a need to classify the major components of wildlife tourism and indicates the role of and relationship between these components.

Duffus and Dearden (1990) suggest a conceptual framework for non-consumptive recreational use of wildlife (Figure 2). Their model uses an interaction between ecology, the recreational user and the historical context of the human-wildlife relationship.

The components of NCWT classified into three main elements. These are:

- 1) The historical context of human-wildlife relations (two parts: the impacts of human on animals and their habitats; traditional perceptions towards wildlife)
- 2) The wildlife (the focal species or species groups and the requirements of the species for survival)
- 3) The wildlife user (tourists engage in NCWT).





**Figure 3. The core components of NCWT (Duffus & Dearden, 1990)**

Potential Ecotourism Benefits of non-consumptive wild life include:

- build environmental awareness and respect
- provide positive experiences for both visitors and hosts
- provide direct financial benefits for conservation
- provide financial benefits and empowerment for local people



<b>Self-check 6</b>	<b>Written test</b>
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Name..... ID..... Date.....

**Directions:** Answer all the questions listed below. Examples may be necessary to aid some explanations/answers

### Test II. Choose part

1. From the following which one is ways of non-consumptive wild life

A. Bird watching      B. Photography      C. Ecotourism      D. All

2. Which Potential Ecotourism Benefits of non-consumptive wild life

A. provide positive experiences for both visitors and hosts

B. provide direct financial benefits for conservation

C. provide financial benefits and empowerment for local people

D. All

### Test II. Short Answer Questions

1. what is non-consumptive wild life mean (5 point)

### Answer Sheet

Name: \_\_\_\_\_

Score = \_\_\_\_\_

Rating: \_\_\_\_\_

**Note:** Satisfactory rating 10 points

Unsatisfactory - below 10 points

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## Information sheet 7. Conducting civet musk collection, tourism and photography

### 7.1. Conducting civet musk collection

Civet musk is a foul smelling scent produced by the anal glands of the male civet cat (FAO, 2000) this is because males produce larger quantity and better quality musk than females. Civet Musk is one of the rarest fragrance materials. It has been used for hundreds of years in traditional medicine and as an exotic perfume ingredient and fixative. Currently, the main animal musks used in perfumery and traditional medicines are sourced from:

- Civet Deer
- Beaver
- Whales
- Muskrat
- Hyrax.etc

#### 7.1.1. Civet cat

The African civet cat is native to Ethiopia, Guinea, the Senegal and other places in equatorial Africa. Civets are grouped under order Carnivores and family Viverridae and their status was categorized under not threatened. Civet cats are naturally wild in Ethiopia however, it was estimated that more than 200 farms with about 4000 civets in captivity found in Ethiopia (FAO, 2000). Most of these farms found in the low-lying areas of west Ethiopia whereas few of them found in south Ethiopia.



**Figure 4. African civet and its product (musk)**

### **7.1.2. Feeding habit**

Even though, civet cats are primarily carnivorous they are opportunistic omnivorous and in captivity they fed on a mixture of fruit and vegetables, maize meal and meat and they also fed on insects, rodents, invertebrates and birds.



**Figure 5. African Civet, Night, Nocturnal, South Luangwa National Park, Zambia, September 2006, Civettictis civetta**

### **7.1.3. Husbandry and management**



The African civet has been kept in captivity in Ethiopia for hundreds of years for musk production. Civets are trapped in the wild using a noose with a bell attached. Most civet farmers keep 10-15 civets for years in individual cages. Their cages are so small that they are unable to even turn around which causes severe welfare problems. The cages are placed in rows on trestles in dark rooms of airless smoke-filled huts. Smoke is used to get rid of fly worry (FAO, 2000). For this purpose fire is left smoldering to maintain high temperature, which farmers believe increase the amount of musk production.

#### 7.1.4 Collection and trading of musk

Civet musk is a foul smelling scent produced by the anal glands of the male civet cat. This is because males produce larger quantity and better quality musk than females. Musk is collected using a spoon made from cow horn every 11-12 days during the rainy season and 9-10 days during dry season therefore, a civet will yield about 300- 400g musk a year (FAO, 2000). Ethiopia has a worldwide monopoly for civet musk production and annually exports about 2,000kg of musk worth about US\$ 900,000 (FAO, 2000). This civet is exported to Europe and the United States for perfumery.



**Figure 6. African civet musk in Bullocks made up of cattle horn (Photo: Bekele TD, 2012)**





Traditionally, the civet musk is used for medicinal purposes in Ethiopia, especially for body ailments ranging from the relief of headache, discoloration on skin, itching and as a cure for several other diseases.

#### 7.1.5. Trapping African Civet from the Wild

Methods used to trap civet from wild include:

- Traditional methods
  - ✓ Net trap
  - ✓ String snare
- The modern technique
  - ✓ Trapping cage



**Figure 7 A modern cages fabricated to trap African civet (Photo: Bekele TD)**

#### 7.2. Tourism and photography

Photographic tourism is that form of special interest tourism in which tourist visits a particular place or wild life with the primary aim of photographing subjects that are unique to him. The scope of photography may range from landscapes, portraits, architectures, culture, food and wildlife to even macro subjects. The two important features of photographic tourism are 'objective behind visiting a particular place' and 'uniqueness of subjects'.

The subjects of photographic tourism may include:

- Landscapes

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- Wildlife
- People and their culture,
- Food habits and dress codes of the travel destination that would stimulate his desire to explore the land with the primary objective of taking photographs.



**Figure 8. Tourism and photograph**



<b>Self-check 7</b>	<b>Written test</b>
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Name..... ID..... Date.....

**Directions:** Answer all the questions listed below. Examples may be necessary to aid some explanations/answers

**Test I. Choose part (4 point)**

1. Which one is the main civet musk used in perfumery and traditional medicines

A. Civet Deer    B. Beaver    C. Whales    D. Muskrat and Hyrax.    E. All

2. Civet musk can be collected both during the rainy season and dry season

A. True    B. False

**Test II. Short Answer Questions**

1. What is civet musk (5 point)

2. How civet musk could be collected (5 point)

**Answer Sheet**

Name: \_\_\_\_\_

Score = _____
Rating: _____

**Note: Satisfactory rating 14 points**

**Unsatisfactory - below 14 points**



## Operation Sheet 2

**Objective:** to conduct civet musk collection

Materials, tools and equipment required:

- Pen
- Field books
- Binoculars, GPS, maps
- Field bags and tents, sleeping bag, sponge mattress
- Digital camera
- Knife, scissors
- Musk collection dish etc.

Procedure:

1. Wear safety cloths
2. Collect all tools, materials and equipment used.
3. Identify civet area
4. Collect civet musk



<b>LAP Test</b>	<b>Practical Demonstration</b>
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Name: \_\_\_\_\_ Date: \_\_\_\_\_

Time started: \_\_\_\_\_ Time finished: \_\_\_\_\_

Instructions: Given necessary templates, tools and materials you are required to perform the following tasks within 2 hour.

Task 1- Identify non consumptive wild lie

Task2. Collect civet musk



<b>L #95</b>	<b>LO #2 Establish and manage wild animal farming</b>
<b>Instruction sheet</b>	
<p>This learning guide is developed to provide you the necessary information regarding the following content coverage and topics:</p> <ul style="list-style-type: none"> <li>• Identifying wild life farming site</li> <li>• Relevant tools and equipment for work activities</li> <li>• Constructing wild life habitat</li> <li>• Providing habitat for wild animals</li> <li>• Marketing wild animals trophies</li> </ul> <p>This guide will also assist you to attain the learning outcomes stated in the cover page. Specifically, upon completion of this learning guide, you will be able to:</p> <ul style="list-style-type: none"> <li>• Identify wild life farming site</li> <li>• Relevant tools and equipment for work activities</li> <li>• Construct wild life habitat</li> <li>• Provide habitat for wild animals</li> <li>• Market wild animals trophies</li> </ul>	
<b>Learning Instructions:</b>	
<p>Read the specific objectives of this Learning Guide.</p> <p><b>9.</b> Follow the instructions described below.</p> <p><b>10.</b> Read the information written in the “Information Sheets”. Try to understand what are being discussed. Ask your trainer for assistance if you have hard time understanding them.</p> <p><b>11.</b> Accomplish the “Self-checks” which are placed following all information sheets.</p> <p><b>12.</b> Ask from your trainer the key to correction (key answers) or you can request your trainer to correct your work. (You are to get the key answer only after you finished answering the Self-checks).</p> <p><b>13.</b> If you earned a satisfactory evaluation proceed to “Operation sheets</p> <p><b>14.</b> Perform “the Learning activity performance test” which is placed following “Operation sheets” ,</p> <p><b>15.</b> If your performance is satisfactory proceed to the next learning guide,</p> <p><b>16.</b> If your performance is unsatisfactory, see your trainer for further instructions or go back to “Operation sheets”.</p>	



## Information sheet 1. Identifying wild life farming site

### 1.1. Introduction

Wildlife farming refers to the raising of traditionally undomesticated animals in an agricultural setting to produce: living animals for canned hunting and to be kept as pets; commodities such as food and traditional medicine; and materials like leather, fur and fiber. Some conservationists argue that wildlife farming can protect endangered species from extinction by reducing the pressure on populations of wild animals which are often poached for food. Others claim that it may be harmful for the majority of conservation efforts, except for a select few species.

Wildlife farming requires substantial investments of time and money. The costs of even small-scale wildlife farming may still be significant for the poor, remote, or landless people often envisioned as wildlife farmers. Wire fencing, concrete, or cage materials may be prohibitively expensive for farmers. The time and costs of transporting infrastructure materials into remote areas are often extremely high.

### 1.2. Wild life farm site

Wildlife farming is the rearing of non-domesticated animals for the purpose of captive breeding. It is a polemical and controversial topic among conservationists in terms of its ecological suitability and profitability compared with subsistence hunting. Some researchers believe that wildlife farming is unlikely to contribute to the conservation of fauna. They argue that the high costs of farming compared to hunting, lack of appropriate technical skills and funds, and cultural constraints hinder such initiatives (Mockrin et al. 2005; Nasi et al. 2008).

Site management for wildlife must form part of a sustainable farm business to ensure the longevity of the important farmland habitats you help to create and conserve.

The best management choices to support wildlife on the farm will depend on several factors. These include:

- Farm type
- Geographical location
- The species already present in the area.



However, there are many relatively simple steps you can take to provide the wildlife on your farm with the three key ingredients to thrive:

- Spring/summer food to help them breed and feed their young
- Nesting/breeding sites
- Winter food and shelter

The key elements of wild life farming site are:

**Existing Habitats:** Habitats already established on the farm are often the most wildlife-rich. Looking after the existing features on the farm and managing them well should be the priority when providing space for wildlife.



**Figure 9. Habitat for different wild life**

**Field Boundaries:** Field boundaries perform important functions for the farm, but also provide valuable habitat for wildlife. Well-managed boundary features can support a range of wildlife as well as connecting habitats across the landscape.

**Wet Features:** Water is a crucial element for wildlife. With the right management wet habitats can provide some of the most wildlife-rich areas on farmland.

**Flower-rich Habitats:** Many native flowering plants depend on farming practices for survival, including rare arable specialists and the wildflower-rich grasslands which were once common-place across the landscape.



**Seed-rich Habitats:** Traditional agriculture provided seed-rich habitats throughout the year that wildlife evolved to exploit. Many birds became farmland specialists, relying on these habitats for food, especially through the winter.

**Farmed Area:** Small tweaks in the management of the farmed area can deliver benefits to specific species or the overall farmed environment.





<b>Self-check 1</b>	<b>Written test</b>
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Name..... ID..... Date.....

**Directions:** Answer all the questions listed below. Examples may be necessary to aid some explanations/answers

**Test I. Choose part (4 point)**

1. The best management choices to support wildlife on the farm include

A. Farm type      B. Geographical location      C. The species type      D. All

2. From the following which one is a key element of wild life farming site

A. Habitats      B. Field Boundaries      C. Farmed area      D. All

**Test II. Short Answer Questions**

1. What is civet musk (5 point)

**Answer Sheet**

Name: \_\_\_\_\_

Score = \_\_\_\_\_

Rating: \_\_\_\_\_

**Note: Satisfactory rating 9 points**

**Unsatisfactory - below 9 points**



## Information sheet 2. Relevant tools and equipment for work activities

### Relevant tools and equipment used for work activities includes:

- Computer, software
- Stationary, brochures, booklets and pamphlets, field books
- Cable and its accessories for internet networking
- TV, radio, internet
- Binoculars, GPS, maps
- Mountain bicycle
- Field bags and tents, sleeping bag, sponge mattress
- Digital camera
- Abattoirs
- Knife, scissors
- Dart gun
- Musk collection dish
- Mesh wire, nails, barbed wire
- Hammer



<b>Self-check 2</b>	<b>Written test</b>
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Name..... ID..... Date.....

**Directions:** Answer all the questions listed below. Examples may be necessary to aid some explanations/answers

### Test I. Short Answer Questions

1. List relevant tools and equipment used for wild life work activities (5 point)

#### Answer Sheet

Name: \_\_\_\_\_

Score = \_\_\_\_\_

Rating: \_\_\_\_\_

**Note:** Satisfactory rating 5 points

Unsatisfactory - below 5 points



### Information sheet 3. Constructing wild life habitat

#### 3.1 Introduction

Habitat is a combination of food, water, shelter, and space arranged to meet the needs of wildlife. Even a small yard can be landscaped to attract birds, butterflies, beneficial insects, and small animals. Trees, shrubs, and other plants provide shelter and food for wildlife. The plants you use for food and cover will help determine the wildlife species attracted to your backyard. Nesting boxes, feeders, and watering sites can be added to improve the habitat.

#### 3.2. Planning Your Wildlife Habitat

Planning is necessary for attractive and productive wildlife habitat. You have both a horizontal area to work with -- the size of your lot -- as well as a vertical area that stretches from your soil to the treetops. The vertical area is composed of the canopy formed by the tallest tree branches; understory vegetation consisting of smaller trees, shrubs, and vines; the floor which is often dominated by low-growing groundcovers; and the basement where a variety of organisms exist in the soil. Different wildlife species live in each of these zones, so numerous habitats can be provided on a small piece of land. Trees and shrubs are the backbone of any landscaping design and are important for wildlife shelter. Many tree and shrub species are excellent sources of food for wildlife. Proper selection of plant material can meet both the aesthetic needs of the homeowner and the food and shelter needs of wildlife. Remember that you are part of the habitat!

#### Steps to Create Habitat for Wildlife

1. Identify all existing plants, if any. Note:
  - Condition of the plants and their locations.
  - How much shade the trees and shrubs provide.
  - Are trees evergreens or do they drop their leaves in the fall?
  - Do they provide valuable food sources?
2. Make a sketch of your yard noting all existing plants, buildings, utilities, and pathways. You may even consider removing some plants. In some cases, trees

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have been planted too close to buildings or have grown much larger than the previous owner envisioned. Some species may be of little wildlife value and may not be particularly attractive. Once you have identified existing plants you want to save, start exploring options for plants that will work well with these species. The existing plants around your yard may be adequate to attract some wildlife, but a few changes can effectively enhance the existing habitat. Diversity in the landscape is necessary. Some plants provide food but very little cover; others provide cover but little food.

3. Add trees, shrubs, flowers, and groundcovers to your plan. Not all the planting needs to be done at once. If money or time is limited, consider it a work in progress.
4. Plant a variety of trees first. Select evergreen species for year-round cover and shelter. Select fruit or nut-bearing plants for a food source. Native species are well suited for providing wildlife habitat because they are adapted to the local soil, climate, and wildlife. Additional considerations for choosing and placement include:
  - Eventual size. Whether they are evergreen or deciduous (trees that drop their leaves).
  - Neighboring properties.
5. Flowering and fruiting habit. Select plants that flower and bear fruit at different times of the year. Some shrubs that produce berries can provide food throughout the year. Trees with nuts and fruit can also provide seasonal foods. Fill in with smaller shade-tolerant understory trees and shrubs. Adding these to an existing landscape will enhance the vertical structure that is common in natural landscapes. Many smaller trees and shrubs are colorful in the spring when they flower and provide berries for fall and winter feed.
6. Flowering annuals (plants that live one growing season) and perennials (plants that live for more than a year) add color to the yard and can be added at any stage to attract birds and butterflies. If your yard is large, consider using part of it for tall native grasses that provide beauty, as well as a natural source of food and shelter. A native wildflower garden provides the same function. Even on a small



lot, native wildflowers, as well as some common garden species, can provide attractive habitat for a variety of birds and butterflies. Avoid straight lines and perfect symmetry. Natural habitat has curves and clumps of vegetation. Wildlife is not particularly attracted to a well-manicured lawn. Wildlife is more likely to come out into the open for viewing when the boundary of the yard is designed and maintained as a retreat for animals.



<b>Self-check 3</b>	<b>Written test</b>
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Name..... ID..... Date.....

**Directions:** Answer all the questions listed below. Examples may be necessary to aid some explanations/answers

**Test I. Choose part (2 point)**

1. constructing wild life habitat included all, except,

A. Food      B. Water    C. Shelter and space    D. All      E. None

**Constructing wild life habitat**

The best management choices to support wildlife on the farm include

A. Farm type      B. Geographical location      C. The species type      D. All

2. From the following which one is a key element of wild life farming site

A. Habitats      B. Field Boundaries    C. Farmed area    D. All

**Test II. Short Answer Questions**

1. List steps to create habitat for wildlife (5 point)

**Answer Sheet**

Name: \_\_\_\_\_

Score = \_\_\_\_\_

Rating: \_\_\_\_\_

**Note: Satisfactory rating 7 points**

**Unsatisfactory - below 7 points**

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## Information sheet 4. Providing habitat for wild animals

### 4.1. Wildlife Habitat Management

All wildlife species need food, cover (or shelter), space, and water. Wildlife managers manipulate these resources to increase or decrease the population size in response to management objectives. Ultimately, all wildlife must meet their need for energy. Individuals must balance their energy intake with the energy needed to maintain physiological process and reproduction. Food can be provided through supplemental sources such as food crops and orchard plantings, bird feeders, or timber management. Agricultural practices may be used to plant crops for wildlife or forests may be burned, thinned or harvested in order to manipulate natural vegetation for wildlife.

Habitat management activities may increase cover or shelter. Such activities can include supplying bird and bat houses in urban environments, creating snags or brush piles for natural cover, burning or disking (plowing) vegetation to reduce density or change species composition. Wildlife needs cover for protection from the weather including wind, heat, and cold; protection from predators and competitors; and escape cover for resting and raising young. Adequate cover minimizes energy loss to cold and wet conditions and helps animals maintain a positive or at least neutral energy balance.

Wildlife also needs adequate space for hunting and securing food and other life necessities. If wildlife populations are too dense, competition between individuals will contribute to stress and could lower survival rates or reproductive productivity. Water needs are often met from natural vegetation and free-standing water such as ponds and streams but humans may supplement water resources through management by supplying bird baths and (in the western deserts) watering holes.

Space is important for wildlife as is the distribution of habitat resources. Nearly all animals have a home range – an area on the landscape where the animals can acquire





the daily and seasonal resources needed to survive. Some wildlife species will defend all or a portion of the home range from competitors of the same species. This defended space is called a territory. Wolf packs and large cats such as cougars and bobcats typically exhibit this behavior. Territorial behavior may be apparent throughout the year as with predators or only seasonally such as when the adults are raising young as in Canada geese.

The distribution of habitat resources must occur within the range that an animal can traverse in a limited time. The home range of larger animals like deer can be hundreds of acres or measured in square miles for large carnivores like cougars and bears. It can be as small as a few acres for smaller animals like mice and small birds. All the necessary requirements must occur within this space or the animal will not survive.

Habitat management includes manipulating resources through the use of numerous tools and techniques. Wildlife may prefer young, frequently disturbed environments or old stable environments or something in between the two. Succession is an ecological concept that describes how plant communities change over time. Generally, a plant community has a characteristic animal community associated with it.

Managers manipulate vegetation to create a mosaic of successional habitats across the landscape. Fire, herbicides, machinery, and timber harvesting are tools used to change vegetation and manipulate habitats to favor or discourage certain wildlife species. Edge is the contact zone between two different habitat types such as a forest and field. Some wildlife species are adapted to use the resources found in edge habitats while other species prefer large unbroken tracts of undisturbed habitat.

Wildlife managers study the preferences and behavior of target species and take actions to meet the needs of the species being managed. Rarely can a single area provide all the resources for many species. Managers must decide on which species to favor on each area and manage the area accordingly. Across the landscape, many areas will provide habitat for the maximum diversity of wildlife species.



## 4.2. Wildlife Population Ecology

Biotic potential is limited by genetics (elephants cannot have 10 offspring in one litter) and modified by the environment and health of the animal (old or sick mice are not likely to have ten offspring). The environment plays a role in population increase as well. Abiotic factors such as hurricanes, flood, fire, acid rain, global warming, pollution, and avalanches are examples of mortality factors that limit population increase. Biotic factors such as disease, parasites, starvation, hunting, accidents, habitat loss, and predation are examples of mortality factors that also limit population increase.

## 4.3. Wildlife Population Management

**Carrying Capacity:** Wildlife managers try to maintain wildlife populations in balance with available habitat resources. The ability of a habitat to support any given level of wildlife is referred to as the carrying capacity of the habitat. When wildlife populations are below carrying capacity, resources are not being fully utilized. When populations are lower than the desired objectives, managers implement activities designed to increase reproductive output and survival. This generally includes habitat manipulation. Other techniques include legal protection for migratory or endangered species, captive breeding and release, and restocking.

Successful population management can result in wildlife densities that are too high for the available habitat. Wildlife overabundance can result from a sudden loss of habitat forcing individuals into less space or from successful reproduction in the absence of predators or other mortality factors. If the former is the cause, balance is often restored in a short time. However, if wildlife populations are allowed to grow in the absence of natural regulation from predators then undesired consequences can include overgrazing and habitat destruction, conflicts with humans, increased health and safety concerns, and sudden die-offs of individuals.

Overgrazing and habitat destruction by one wildlife population can result in loss of habitat for other species. Conflicts with humans can result in damage to human



landscapes and property. Healthy and safety concerns can include disease and predation risks. Carrying capacity really has two components. Biological carrying capacity is the ability of the habitat or environment to support a given population size. Cultural carrying capacity is the tolerance humans have for a given population size.

**Habitat Management:** Habitat management may be one of the best ways to increase or decrease wildlife populations. Habitats can be created using the tools we discussed above. Habitats can be improved with fire and timber harvest or other techniques. For direct management, habitat must be acquired before management can take place. For management across broad ecosystems, the land must be owned by the government, or agreements must be made among mixed public and private landowners. Various incentives, regulations, or educational programs also may be used to encourage management by private forest landowners.

Habitat acquisition is accomplished through a variety of methods. The federal government and individual states can acquire land by purchase or donation. Non-government organizations also acquire, manage, and sometimes donate land for wildlife management activities. Funds for state wildlife management and habitat acquisitions come from user fees like licenses and specialized taxes on outdoor equipment. Only rarely do general tax revenues support wildlife management at the state level.

**Wildlife Damage Management:** When wildlife populations become too abundant, managers step into to resolve human-wildlife conflicts. Generally, when this occurs, cultural carrying capacity has been exceeded. Lethal and non-lethal methods are available for wildlife damage management. Public education may solve simple problems like raccoons eating pet food. A solution may be as simple as sealing the pet food in containers with tight lids. However, other conflicts may require more complex solutions. Habitat modification can be used to alter habitats and make it unattractive to nuisance wildlife. Exclusion methods such as fences or other barriers may prevent wildlife from causing damage. Another method may include chemical repellents which can be effective in certain situations. A final solution may require lethal control such as mouse traps and poison baits or sport hunting.

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<b>Self-check 4</b>	<b>Written test</b>
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Name..... ID..... Date.....

**Directions:** Answer all the questions listed below. Examples may be necessary to aid some explanations/answers

### Test I. Short Answer Questions

1. What wild life management mean (5 point)
2. What are the basic needs for wildlife species (5 point)

### Answer Sheet

Name: \_\_\_\_\_

Score = _____
Rating: _____

**Note:** Satisfactory rating 10 points

Unsatisfactory - below 10 points



## Information sheet 5. Marketing wild animals trophies

### 5.1. Introduction

Wild animals contribute to local economies through their by-products such as skins, hides, bones, shells and horns, but accurate information on income accruing to local communities from the marketing of such products is not available. Some wild animal species may be more valuable for their trophy (e.g. elephants, rhinos) or for their skins (e.g. carnivores, reptiles). Some of these items e.g., ivory and rhino horn have intrinsic value and people will continue to choose such items and pay high prices for ornaments made from these even when there are substitutes.

Hides and skins may be used locally for the manufacture of items of clothing such as shoes, bags, belts and hats or may be transported for sale in city markets or exported for the manufacture of more sophisticated leather products. Ostrich and crocodile skins are valuable commodities used for the production of fancy and high quality leather goods. The skin of other reptiles such as pythons and lizards are also in great demand. Local craftsmen use bones and horns of wild animals for the manufacture of various artifacts which are sold to supplement household income.

### 5.2. Wild animals' trophies

Basically, trophy hunting is the killing of animals, usually wild animals, for pleasure, display or bragging rights. When the animal is hunted, the trophy hunter will carve out the part or parts that they wanted from the animal and usually leave the rest of the animal. The practice, therefore, results in the death of the animal and loss of its parts for display as a trophy. The “trophy” is a part of the animal such as the horns or head and is usually kept by the hunter and taken home. Meat of hunted animals is usually used for food by local communities or the hunter. It may be a distinct activity from or overlap with hunting for recreation or meat.



The most coveted animals to kill are the big five. The Big Five is made up of endangered animals like:

- Lions
- Leopards
- Rhinos
- Elephants and
- Cape buffalos.

The “Big Five” was coined by trophy hunters as some of the largest and most dangerous animals to hunt. Today, the name represents the most iconic animals in Africa.



**Figure 10. Trophy hunting of white rhino in South Africa .**

### **5.3. Effects of trophy hunting on animal populations**

When poorly managed trophy hunting can cause negative ecological impacts for the target species such as:

- Altered age/sex structures
- Social disruption
- Deleterious genetic effects
- Population declines in the event of excessive off-takes



- Threaten the conservation and
- Influence the behavioral of non-target species.

#### **5.4. Effects on habitat loss**

Biological Conservation stated that trophy hunting is of "major importance to conservation in creating economic incentives for conservation over vast areas including areas which may be unsuitable for alternative wildlife-based land uses such as photographic ecotourism". Financial incentives from trophy hunting effectively more than double the land area that is used for wildlife conservation relative to what would be conserved relying on national parks alone according to the study published in Biological Conservation.

#### **5.5. Marketing wild animal trophy**

The International Union for Conservation of Nature recognizes that trophy hunting, when well-managed can generate significant economic incentives for the conservation of target species and their habitats outside of protected areas. When well-managed trophy hunting can be sustainable and generate significant economic incentives for the conservation of target species, but that there are valid concerns about the legality, sustainability and ethics of some hunting practices. In some contexts, there may be valid and feasible alternatives to trophy hunting that can deliver the above-mentioned benefits but identifying, funding and implementing these requires genuine consultation and engagement with affected governments, the private sector and communities. Trophy hunting provides an economic incentive for ranchers to continue to breed those species which reduces the threat of the species' extinction.

#### **5.6. Benefits of trophy hunting**

- It benefits a country, financially
- It contributes to taxidermy
- Trophy hunting could end poaching
- It controls animal population
- It could fund conservation purposes

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- Trophy hunting helps protect the land
- Trophy hunting creates conservation incentives
- It can benefit local people through income generating

<b>Self-check 5</b>	<b>Written test</b>
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Name..... ID..... Date.....

**Directions:** Answer all the questions listed below. Examples may be necessary to aid some explanations/answers

**Test 1. Choose part (2 point)**

1. From the following which one is the most coveted animals for trophy hunting.

A. Lions      B. Leopards      C. Rhinos      D. All

**Test II. Short Answer Questions**

1. What is trophy hunting (3 point)
2. List negative impacts of trophy hunting on animal populations (5 point)
3. List benefit of proper trophy hunting (4)

**Answer Sheet**

Name: \_\_\_\_\_

Score = _____
Rating: _____

**Note: Satisfactory rating 14 points**

**Unsatisfactory - below 14 points**





<b>L #96</b>	<b>LO #3 Develop community based and sustainable wildlife utilization strategy</b>
<b>Instruction sheet</b>	
<p>This learning guide is developed to provide you the necessary information regarding the following content coverage and topics:</p> <ul style="list-style-type: none"> <li>• Identifying cultural taboos and traditional practice</li> <li>• Identifying and establishing wildlife conservation area</li> <li>• Promoting community participation in wildlife conservation</li> <li>• Preparing strategic plans accordance with time frame</li> <li>• Designing the benefit of local community from conservation</li> <li>• Implementing the utilization of endangered wildlife species</li> <li>• Developing infrastructure to enhance ecotourism</li> <li>• Monitoring and evaluation of wildlife resource</li> </ul> <p>This guide will also assist you to attain the learning outcomes stated in the cover page. Specifically, upon completion of this learning guide, you will be able to:</p> <ul style="list-style-type: none"> <li>• Identify cultural taboos and traditional practice</li> <li>• Identify and establish wildlife conservation area</li> <li>• Promote community participation in wildlife conservation</li> <li>• Prepare strategic plans accordance with time frame</li> <li>• Design the benefit of local community from conservation</li> <li>• Implement the utilization of endangered wildlife species</li> <li>• Develop infrastructure to enhance ecotourism</li> <li>• Monitor and evaluation of wildlife resource</li> </ul>	
<b>Learning Instructions:</b>	



Read the specific objectives of this Learning Guide.

1. Follow the instructions described below.
2. Read the information written in the “Information Sheets”. Try to understand what are being discussed. Ask your trainer for assistance if you have hard time understanding them.
3. Accomplish the “Self-checks” which are placed following all information sheets.
4. Ask from your trainer the key to correction (key answers) or you can request your trainer to correct your work. (You are to get the key answer only after you finished answering the Self-checks).
5. If you earned a satisfactory evaluation proceed to “Operation sheets
6. Perform “the Learning activity performance test” which is placed following “Operation sheets” ,
7. If your performance is satisfactory proceed to the next learning guide,
8. If your performance is unsatisfactory, see your trainer for further instructions or go back to “Operation sheets”.



## Information sheet 1. •Identifying cultural taboos and traditional practice

### 1.1 Cultural taboos

Culture is comprised of values, beliefs and norms shared by a group of people. In this sense, 'culture conditions individuals' perceptions of the world, influences what they consider important and suggests courses of action that are appropriate and inappropriate'. Broad comparisons of whole cultures have the tendency to ignore vast variations in values, beliefs and norms. Cultural factors for example can influence and regulate people's behaviors towards the species and their habitats (e.g. consumption patterns) and therefore act as an important driver of environmental change. With respect to wild life use, there are four types of cultural taboos. These are:

- Habitat
- Species
- Method of wildlife conserving and
- Segment taboos

Integrate rural people into wild life conservation through community-based conservation programs is an old tradition. These efforts were largely based on economic incentives with little or no attention given to the role of culture and traditions in building support for conservation. Wildlife conservation strategies are useful in promoting conservation and local empowerment. Cultural taboos in relation to wild life conservation related regulations include:

- Sharing of wild meat among members of the community
- When found fighting, only one animal allowed to be killed
- Hunting mostly targeted the adult and male animals
- Setting free wild animals found trapped
- Restrict hunting of some species unless special permit obtained from tribal chief



- Restrict hunting of certain species to specific seasons to allow
- Ensure sustainability of the resource
- Limit firewood collection for cooking and heating to dead trees
- Allocate specific use(s) to tree species depending on availability,

## 1.2. Traditional practice of wild life conservation

The traditional cultural practices previously regarded as inferior or incompetent are increasingly gaining recognition as an important complement to existing conservation strategies. Traditional cultural practices by communities have accumulated knowledge on conservation, management and the use of wildlife species such as:

- Mammals
- Birds
- Reptiles
- Fish
- Invertebrates for different purpose.

The main identified uses of wildlife by different communities include:

- Food
- Medicine
- Sales values
- Decoration and jewelry making values and
- Multipurpose values etc.

Communities living around forest areas use wildlife in their culture and tradition. Wildlife is not only used for consumption but also for traditional medicines, craft materials and spiritual purposes. Primary wildlife is used for consumption. This is because many people depend on bush meat as a means to survive during time of hardship (e.g. unemployment and crop failure) or to gain additional income for special needs (e.g. school fees, festivals and funerals).

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<b>Self-check 1</b>	<b>Written test</b>
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Name..... ID..... Date.....

**Directions:** Answer all the questions listed below. Examples may be necessary to aid some explanations/answers

**Test 1. Choose part (2 point)**

1. Traditional or cultural practices by communities have accumulated knowledge on

A. Conservation   B. Management   C Use of wildlife species   D. All

2. Cultural factors can influence people's behaviors towards the species and their habitats

A. True   B. False

**Test II. Short Answer Questions**

1. List the main identified uses of wildlife by different communities (5 point)

2. List cultural taboos in relation to wild life conservation related regulations (4)

**Answer Sheet**

Name: \_\_\_\_\_

Score = _____
Rating: _____

**Note: Satisfactory rating 11 points**

**Unsatisfactory - below 11 points**



## Information sheet 2. Identifying and establishing wildlife conservation area

### 2.1. Introduction

Conservation is the protection, preservation, management, or restoration of wildlife and natural resources such as forests and water. Through the conservation of biodiversity the survival of many species and habitats which are threatened due to human activities can be ensured. Other reasons for conserving biodiversity include securing valuable Natural Resources for future generations and protecting the well-being of eco-system functions.

### 2.2. Wildlife conservation area

Wildlife conservation can broadly be divided into two types:

- In-situ
- Ex-situ

**In-situ:** Conservation of habitats, species and ecosystems where they naturally occur. This is in-situ conservation and the natural processes and interaction are conserved as well as the elements of biodiversity.

**Ex-situ:** The conservation of elements of biodiversity out of the context of their natural habitats is referred to as ex-situ conservation. Zoos, botanical gardens and seed banks are all example of ex-situ conservation.

In-situ conservation is not always possible as habitats may have been degraded and there may be competition for land which means species need to be removed from the area to save them.

### 2.3. Identifying protected areas

Protected areas are those in which human occupation or at least the exploitation of resources is limited. The definition that has been widely accepted across regional and global frameworks has been provided by the International Union for Conservation of Nature (IUCN) in its categorization guidelines for protected areas. There are several



kinds of protected areas which vary by level of protection depending on the enabling laws of each country or the regulations of the international organizations involved.

These include:

- National Parks
- Wildlife Sanctuaries
- Conservation Reserves
- Community Reserves
- Marine Protected Areas

#### **2.4. Establishing wildlife conservation area**

Wildlife needs our help. Human activity has changed and eliminated habitat, locally, and on the global scale and birds, butterflies and other wildlife are pushed into ever-shrinking wilderness areas. Providing a sustainable habitat for wildlife begins with your plants. That's why we call it a wildlife habitat "garden." When you plant the native plant species that wildlife depends on you create habitat and begin to restore your local environment. Adding water sources, nesting boxes and other habitat features enhance the habitat value of your garden to wildlife. Here, is what your wildlife conservation area should include is:

**Food:** Native plants provide nectar, seeds, nuts, fruits, berries, foliage, pollen, and insects eaten by an exciting variety of wildlife. Feeders can supplement natural food sources.

**Water:** All animals need water to survive and some need it for bathing or breeding as well.

**Cover:** Wildlife need places to find shelter from bad weather and places to hide from predators or stalk prey.



**Places to Raise Young:** Wildlife need resources to reproduce and keep their species going. Some species have totally different habitat needs in their juvenile phase than they do as adults.

**Sustainable Practices:** How you manage your garden can have an effect on the health of the soil, air, water, and habitat for native wildlife as well as the human community.

## 2.5. Sustainable wildlife management use

FAO promotes SWM within protected areas and across all habitats as a key element in achieving sustained nutrition and income for rural populations and indigenous people, and achieving its goal of zero hunger. As well as safeguarding human and environmental health SWM contributes to the reduction of rural poverty and the improvement of livelihoods. Through the Wildlife and Protected Areas Management Programme, FAO is actively involved in supporting Member countries to:

- Develop innovative mechanisms to reduce unsustainable hunting practices;
- Promote the sustainable use and management of wild meat;
- Provide technical assistance and strengthen capacities to deal with human wildlife conflicts;
- Enhance cross-border collaboration and strengthen the governance of protected areas;
- Design and implement relevant field projects and initiatives.





<b>Self-check 2</b>	<b>Written test</b>
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Name..... ID..... Date.....

**Directions:** Answer all the questions listed below. Examples may be necessary to aid some explanations/answers

**Test 1. Choose part (2 point)**

1. Conservation of habitats, species and ecosystems where they naturally occur is called  
A. In-situ conservation    B. Ex-situ conservation    C. A and B
2. **Which one has to be consider when establishing wildlife conservation area**  
A. Food source    B. Water availability    C. Cover    D. Places to Raise Young E. All

**Test II. Short Answer Questions**

1. List protected areas that categorized by IUCN (5 point)

**Answer Sheet**

Name: \_\_\_\_\_

Score = _____
Rating: _____

**Note: Satisfactory rating 7 points**

**Unsatisfactory - below 7 points**



### Information sheet 3. Promoting community participation in wildlife conservation

#### 3.1. Community participation

The wildlife management associations have agreed in their internal rules and regulations to operate within a close circle whereby pepper soup sellers buy only from registered hunters. This obliges more unregistered hunters to register and function within the framework of the strategy to be able to carry out their trade successfully. Wildlife conservation sector has to be introduced and trained community members to carry out other income generating activities to reduce total forest dependency which lead to the destruction of wild life habitat.

#### 3.2. Control of poaching:

It has been very difficult to bring hunters that are not resident in the community to the discussion table. Such hunters come in unnoticed always through the conspiracy of some community members. Hunted animals are transported and sold out of the village in neighboring urban areas. To combat this group of hunters, the communities developed joint control wildlife management committees with local participant. This is very effective in checking illegal hunters out of the system in some areas even though poaching still remains a problem in different wild life conservation area of different countries.

#### 3.3. Financial sustainability:

A major problem identified in the implementation of the conservation strategy is financial sustainability of the community institutions or villagers. The cost incurred in managing wildlife is far more than the benefits derived from its management. Village institutions are therefore unable to make enough money to sustain the management system.



As part of solution to this problem, the capacity of communities has been developed on broader forest management and communities encouraged expanding to broader forest management where benefits accruing from the management of other forest resources can support the cost of wildlife management. Many communities in different region are now following up the community forestry process whereby the government entrust the management of a piece of forest to a community that in return enjoys all the benefits of its management. Also income-generating activities were introduced to augment earnings of hunters and those involved in wildlife management.

### 3.4 Awareness creating

A lot of awareness has been raised in the communities about wildlife management issues through continuous sensitization. Community members are more conversant with the wildlife law and its provisions. There has been a change in attitude of community members from indiscriminate hunting to hunting of more available and less rare species. This is an indication of the level of awareness on the threads to wildlife in the area.

### 3.5. Volunteer.

One way to support an organization is to donate your time. Many offer volunteer programs. You can help clean beaches, rescue wild animals or teach tourists about your local habitat.



**Figure 11. Organizations such as Save the Rhino provide volunteer opportunities in Kenya, Uganda and Zimbabwe.**

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<b>Self-check 3</b>	<b>Written test</b>
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Name..... ID..... Date.....

**Directions:** Answer all the questions listed below. Examples may be necessary to aid some explanations/answers

### Test I. Short Answer Questions

1. How we Promote community participation in wildlife conservation (5 point)

#### Answer Sheet

Name: \_\_\_\_\_

Score = \_\_\_\_\_  
Rating: \_\_\_\_\_

**Note: Satisfactory rating 5 points**

**Unsatisfactory - below 5 points**



## Information sheet 4. Preparing strategic plans accordance with time frame

### 4.1. Strategic plan for wildlife conservation

Preparing strategic plan for wild life conservation is very important to manage and conserve wild life and their habitat. Strategic planning process mattered for wildlife conservation and community as general because:

- The plan can become a living part of their lives and organizations
- The plan allows greater understanding of core values and generates an understood purpose
- The plan builds consistency and clear expectations of accountability

### 4.2. Strategic planning process

Strategic plan for wild life conservation include:

#### I. Emphasis on Process

First off, process matters a great deal to wildlife planners in successful strategic planning, even if it means getting extra support.

#### II. Stakeholder Involvement

Achieving active and diverse stakeholder involvement also mattered to different wildlife planners around the nation, as they started developing their strategic plans. Colorado Parks and Wildlife (CPW), for instance, considered public and staff feedback very important during the process according to Katie Kalinowski, CPW's Policy and Planning Supervisor.

#### III. Staff Involvement

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Getting excellent feedback from stakeholders is always valuable Even in draft form nearly every member of the program had read and had some experience applying the plan. Everyone in the program also had the opportunity to provide feedback and comments. This helped make sure that individuals knew how their work contributed to achieving the overall goals.”

#### **IV. Make Plans Tangible**

This step forced people to know what plan objectives they worked on and it made the strategic plan tangible and relevant.”

The objective of strategic plan is to:

- Create community-based institutions and strengthen their capacity to be able to manage wildlife sustainably;
- Develop locally defined rules and regulations that can support sustainable management efforts based on local realities and within the confines of the national wildlife legislation;
- Define community hunting areas and sustainable off take;
- Develop a local (simple) monitoring and evaluation system with all stakeholders.



<b>Self-check 4</b>	<b>Written test</b>
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Name..... ID..... Date.....

**Directions:** Answer all the questions listed below. Examples may be necessary to aid some explanations/answers

### Test II. Short Answer Questions

1. Why strategic planning process for wildlife conservation is needed (4 point)
2. Lis the objective of wild life conservation strategic plan (3 point)

### Answer Sheet

Name: \_\_\_\_\_

Score = _____
Rating: _____

**Note:** Satisfactory rating 7 points

Unsatisfactory - below 7 points



## Information sheet 5. Designing the benefit of local community from conservation

### 5.1. Benefit of local community

Through community-based conservancies, locals are learning how to hold their representatives accountable and how to replace them when necessary. Meanwhile, representatives are learning how to manage resources and funds on behalf of their members. Benefits of local community from conservation of biodiversity include:

- Increased food security
- Increased wealth
- More household assets
- Higher levels of employment
- Diversified livelihood options
- Greater access to health and social infrastructure
- Revitalized cultural institutions
- Improved governance
- Greater community organization
- More participation in natural resource management
- Increased empowerment of women
- Reinvigorated common property regimes
- Increased resilience





**Figure 12. Essential elements for ecotourism in community setting**



<b>Self-check 5</b>	<b>Written test</b>
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Name..... ID..... Date.....

**Directions:** Answer all the questions listed below. Examples may be necessary to aid some explanations/answers

### Test II. Short Answer Questions

1. Lis benefits of local community from conservation of biodiversity (5 point)

#### Answer Sheet

Name: \_\_\_\_\_

Score = \_\_\_\_\_

Rating: \_\_\_\_\_

**Note:** Satisfactory rating 5 points

Unsatisfactory - below 5 points





## Information sheet 6. Implementing the utilization of endangered wildlife species

### 6.1. Endangered wild life species

**Definition:** An endangered species is an animal or plant that's considered at risk of extinction. A species can be listed as endangered at the state, federal and international level. Also endangered species defined as type of organism that is threatened by extinction. Species become endangered for two main reasons:

- Loss of habitat and
- Loss of genetic variation.

#### 6.1.1. Loss of Habitat

A loss of habitat can happen naturally. Dinosaurs, for instance, lost their habitat about 65 million years ago. The hot, dry climate of the Cretaceous period changed very quickly, most likely because of an asteroid striking the Earth. The impact of the asteroid forced debris into the atmosphere, reducing the amount of heat and light that reached Earth's surface. The dinosaurs were unable to adapt to this new, cooler habitat. Dinosaurs became endangered, then extinct.





**Figure 13. Endangered then extinct dinosaurs**

Human activity can also contribute to a loss of habitat. Development for housing, industry, and agriculture reduces the habitat of native organisms.

Development can also endanger species indirectly. Some species, such as fig trees of the rain forest, may provide habitat for other species. As trees are destroyed, species that depend on that tree habitat may also become endangered.

### **6.1.2. Loss of Genetic Variation**

Genetic variation is the diversity found within a species. It's why human beings may have blond, red, brown, or black hair. Genetic variation allows species to adapt to changes in the environment. Loss of genetic variation can occur naturally. Cheetahs are a threatened species native to Africa and Asia. These big cats have very little genetic variation. Biologists say that during the last ice age cheetahs went through a long period of inbreeding. As a result there are very few genetic differences between cheetahs. They cannot adapt to changes in the environment as quickly as other animals and fewer cheetahs survive to maturity.



**Figure 14. Siberian tiger is an Endangered (EN) tiger subspecies.**

Human activity can also lead to a loss of genetic variation. Overhunting and overfishing have reduced the populations of many animals. Reduced population means there are fewer breeding pairs. A breeding pair is made up of two mature members of the species

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that are not closely related and can produce healthy offspring. With fewer breeding pairs, genetic variation shrinks.

When deciding whether a species should be added to the Endangered Species List, the following criteria are evaluated:

- Has a large percentage of the species' vital habitat been degraded or destroyed?
- Has the species been over-consumed by commercial, recreational, scientific or educational uses?
- Is the species threatened by disease or predation?
- Do current regulations or legislation inadequately protect the species?
- Are there other man-made factors threatening the long-term survival of the species?

If the answer to one or more of the above questions is yes, then the species can be listed under the Endangered Species.

A threatened listing means that the species is likely to become endangered within the foreseeable future.<sup>1</sup>

Five factors are considered when listing a species to be threatened:

- 1) Damage to or destruction of a species' habitat;
- 2) Overutilization of the species for commercial, recreational, scientific, or educational purposes;
- 3) Disease or predation;
- 4) Inadequacy of existing protection; and/or
- 5) Other natural or manmade factors affecting its continued existence.

## **6.2. Save Endangered Species**

**The most 10 easy ways to that can do to save endangered species are:**

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- Learn about endangered species in your area.
- Visit a national wildlife refuge, park or other open space
- Make your home wildlife friendly.
- Native plants provide food and shelter for native wildlife.
- Herbicides and pesticides may keep yards looking nice but they are in fact hazardous pollutants that affect wildlife at many levels.
- Slow down when driving.
- Recycle and buy sustainable products.
- Never purchase products made from threatened or endangered species
- Harassing wildlife is cruel and illegal.
- Protect wildlife habitat.



<b>Self-check 6</b>	<b>Written test</b>
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Name..... ID..... Date.....

**Directions:** Answer all the questions listed below. Examples may be necessary to aid some explanations/answers

**Test 1. Choose part (4 point)**

1. One is the main reasons for species to become endangered  
A. Loss of habitat                      B. Loss of genetic variation      C. A and B
2. From the following which one is factors to be consider when listing a species to be threatened  
  
A. Damage or destruction of a species' habitat;  
B. Inadequacy of existing protection  
C. Disease or predation prevalence  
D. All

**Test II. Short Answer Questions**

1. List the most 10 easy ways to save endangered species (5 point)

**Answer Sheet**

Name: \_\_\_\_\_

Score = _____
Rating: _____

**Note: Satisfactory rating 9 points**

**Unsatisfactory - below 9 points**







## Information sheet 7 Developing infrastructure to enhance ecotourism

### 7.1. Introduction

Ecotourism is connected with something positive, namely experiencing wildlife and undisturbed landscapes, acquiring knowledge about natural history, ecology, biodiversity etc. as well as supporting local people. Today the number of ecotourism projects in developing countries increase rapidly. Traveler's to developing countries increases nearly twice as much compared to travelers to industrial countries (Möller 2001). Several different definitions of the word ecotourism exist (Page & Dowling 2002), but the International Ecotourism Society defines ecotourism as “responsible travel to natural areas that conserves the environment and sustains the well-being of local people”. This is considered to be the most common and adopted definition of all definitions for ecotourism.

### 7.2 Principles of ecotourism

There are about eight principles that an ecotourism product should fulfil:

- Focus on giving visitors the opportunity to personally and directly experience nature (Natural area focus).
- Opportunities to experience nature in ways that leads to greater understanding, appreciation and enjoyment (Interpretation).
- Represent best practice for environmentally sustainable tourism (Environmental sustainability practice).
- Contribute directly to the conservation of natural areas (Contribution to conservation)
- Provide ongoing contributions to the local community (Benefiting local communities.)
- Be sensitive to, interpret and involve the culture/s existing in the area (Cultural respect).
- Consistently meet consumer expectations (Customer satisfaction).
- Be marketed and promoted honestly and accurately so that realistic expectations are formed (Responsible marketing).



### 7.3. Ecotourism infrastructure

Ecotourism infrastructures that involve areas with ecotourism or potential for ecotourism include:

- Physical environment
  - ✓ Soil and hydrology classification and its risks (e.g. erosion, nutrient loss)
  - ✓ Water resources and water bodies; quality and quantity
  - ✓ Landscape characteristics and quality, both from an environmental and from a cultural point of view
  - ✓ Cultural heritage
- Biological environment
  - ✓ Vegetation, habitats, biotopes
  - ✓ Wildlife; species' biology, migration patterns, food chains etc.
  - ✓ Sensitivity of ecosystems
  - ✓ Conservation status, national parks etc.
- Socio-economic environment
  - ✓ Demography population structure and trends
  - ✓ Socio-cultural lifestyles and conflicts
  - ✓ Social and economic structure and organization
  - ✓ Existing infrastructure and its interaction in the area
  - ✓ Established ecotourism interests in the area

### 7.4. Community development

Tourism can be a key driver for local community development. When proper planning and design of a tourism operation are in place, the positive economic returns can be used to maintain and improve the host community's standard of living and quality of life. This can be achieved through a number of initiatives, including improvements to infrastructure and telecommunications, education, training, and healthcare.

Not to mention, tourism in protected areas can also ensure sustainable growth in the host community by emphasizing the value of local arts and culture as well as the importance of native environmental sites and wildlife, all of which contribute to the initial motivators that generate tourism to the area in the first place. As one of its central pillars, ecotourism aims to support and strengthen the local community.

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### **7.5. Operators improve infrastructure**

A successful tourism destination must be accessible. Therefore, tourism operators must invest in the infrastructure and telecommunication of the local and surrounding communities. This includes maintaining and upgrading roads, promoting sustainable means of transportation to and from the protected area, and building communications networks such as landline telephones, cellular phone towers, internet access, etc. The importance lies in physically and remotely connecting tourists and the greater outside world to the local villages and protected area.



<b>Self-check 7</b>	<b>Written test</b>
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Name..... ID..... Date.....

**Directions:** Answer all the questions listed below. Examples may be necessary to aid some explanations/answers

### Test II. Short Answer Questions

1. Lis Ecotourism infrastructures (5 point)

#### Answer Sheet

Name: \_\_\_\_\_

Score = \_\_\_\_\_

Rating: \_\_\_\_\_

**Note:** Satisfactory rating 5 points

Unsatisfactory - below 5 points





## Information sheet 8 Monitoring and evaluation of wildlife resource

### 8.1. Monitoring wildlife resource

Effective monitoring of wildlife resources through every phase of its extraction and utilization is a critical element in ensuring that:

- The resource base is intact and can sustain future generations.
- It also critically important for documenting trends and learning from the past (i.e., adaptive management)

In natural resource management monitoring is a critical component of an informed process for making decisions through different step.

I) First, monitoring is important for decision-making, as when managers need to know the state of the protected area before deciding on the appropriate course of action during the management cycle. For example, managers need to know if the protected area is intact or degraded. They also need to know the level of illegal hunting in the protected area.

II) Second, monitoring is critical for evaluating the effectiveness of management actions in the protected area relative to objectives.

III) Third, in an adaptive management setting, monitoring provides the feedback loop for learning about the protected area. Given the limited resources for conservation and the urgency of many conservation problems, donors, managers and scientists are increasingly keen to ensure that conservation funds are spent on management actions that are most effective in reducing threats to biodiversity.

IV Monitoring is critical to determine trends in biological diversity over space and time with an emphasis on evaluating the effectiveness of management actions and policies.

Habitat monitoring arises from the need for wild life and habitat information in:

- Land management planning, for which structured monitoring can facilitate plan revisions or amendments
- Recovery of threatened and endangered (T&E) species and sensitive species; and



- Environmental analyses for projects as prescribed in various laws, regulations, and policies

## **Types of Monitoring**

Holthausen et al. (2005) defined three types of monitoring for terrestrial animals and their habitats.

1. Targeted monitoring: Target monitoring keeps track of the condition and response to management of species and habitats that are identified as being of concern or interest.
2. Cause-and-effect: This type of monitoring investigates the mechanisms that underlie habitat and species response to management and other forms of disturbance.
3. Context monitoring: Type of monitoring which is broader in scope, addresses a wide array of ecosystem components at multiple scales without specific reference to influences of ongoing management.

## **8.2 Evaluation**

Evaluation of wild life resource conservation is dependent on a number of criteria including:

- The magnitude and likelihood of wild life impact
- Spatial and temporal distribution of wild life
- The value of the wildlife and existing habitat
- The potential recovery of the affected or endangered species
- Habitat conservation processes,
- The amount of public concern
- Possible political consequences etc.

The appraisal of resource impacts will vary individually and an investigation of the general public opinion as well as the attitudes of different groups of interest is of major





importance in the case where ecotourism potential will be affected by a proposed project.



<b>Self-check 8</b>	<b>Written test</b>
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Name..... ID..... Date.....

**Directions:** Answer all the questions listed below. Examples may be necessary to aid some explanations/answers

### Test II. Short Answer Questions

1. What is monitoring in wildlife resource (2 point)
2. Defined three types of monitoring for terrestrial animals and their habitats (4 point)
3. Write down evaluation criteria for wild life resource conservation (4 point)

### Answer Sheet

Name: \_\_\_\_\_

Score = _____
Rating: _____

**Note: Satisfactory rating 10 points**

**Unsatisfactory - below 10 points**



<b>L #97</b>	<b>LO #4 Perform Wildlife Census and Sport Hunting Quota Setting</b>
<b>Instruction sheet</b>	
<p>This learning guide is developed to provide you the necessary information regarding the following content coverage and topics:</p> <ul style="list-style-type: none"> <li>• Conducting wild life inventory</li> <li>• Hunting quota</li> </ul> <p>This guide will also assist you to attain the learning outcomes stated in the cover page. Specifically, upon completion of this learning guide, you will be able to:</p> <ul style="list-style-type: none"> <li>• Conduct wild life inventory</li> <li>• Hunt quota</li> </ul>	
<b>Learning Instructions:</b>	
<p>Read the specific objectives of this Learning Guide.</p> <ol style="list-style-type: none"> <li>1. Follow the instructions described below.</li> <li>2. Read the information written in the “Information Sheets”. Try to understand what are being discussed. Ask your trainer for assistance if you have hard time understanding them.</li> <li>3. Accomplish the “Self-checks” which are placed following all information sheets.</li> <li>4. Ask from your trainer the key to correction (key answers) or you can request your trainer to correct your work. (You are to get the key answer only after you finished answering the Self-checks).</li> <li>5. If you earned a satisfactory evaluation proceed to “Operation sheets</li> <li>6. Perform “the Learning activity performance test” which is placed following “Operation sheets” ,</li> <li>7. If your performance is satisfactory proceed to the next learning guide,</li> <li>8. If your performance is unsatisfactory, see your trainer for further instructions or go back to “Operation sheets”.</li> </ol>	



## Information sheet 1. Conducting wild life inventory

### 1.1. Introduction

In general terms, inventories are conducted to determine the distribution and composition of wildlife and wildlife habitats in areas where such information is lacking, and monitoring is typically used to understand rates of change or the effects of management practices on wildlife populations and habitats. Wildlife camera trapping is the most ideal method to assess mammal species presence, absence, and distribution.

### 1.2. Estimating number of wildlife

Basically the methods of estimating animal numbers or densities can be divided into two categories:

- Based on direct counts of population units,
- Based on indirect counts and indices.

Wildlife managers use 4 general approaches to estimate population sizes of wildlife:

- Total counts
- Incomplete counts
- Indirect counts and
- Mark-recapture methods.

Census can be either conducted by direct counting or by indirect counting methods. In the direct count method the individuals are seen and counted whereas in indirect count method evidences left by animals are recorded to estimate the population.

#### 1.2.1. Direct Count Method:

Under the direct count method either all the animals present in an area can be counted (total count) or can be done by sample counts. Sampling could vary from a simple random sampling to complex stratified sampling. Counting all the animals in area particularly large tracts involves lot of resources and hence should be avoided. Among the direct count method

- Vehicle transect and
- King's census method is widely used.

I. Vehicle Transect or Road Count Method:

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Vehicle transect involves counting of animals on roads by travelling in a vehicle at a fixed speed and during a fixed time. The distance for such transect is fixed and the counting is done on the transect regularly.

Density of the animal is calculated using the formula given below:

$$\text{Density of Animal} = \frac{\text{Number of animals sighted}}{\text{Length of transect} \times \text{Width of transect}}$$

Transects should be placed in such a way that they cover all types of ecosystems found in an area. Adequate number of transects should be placed to capture the real picture of the area.

## **II. King's Census:**

Under the King's census, data regarding sighting of animals is collected from transects by the observers walking on transects. Transects are laid to cover all the ecosystems present in an area. Any single transect laid should as far as possible cut across all the vegetation type/ecosystem. If there are grasslands, shrub land and forests then transect should run through all these three vegetation type and not just one.

An observer along with one more person walks on transect preferably in the early morning hours and record all the sightings on transect with the angle of sighting and distance (angular distance). With the angular distance and angle of sighting the perpendicular distance of animals from the transect line is calculated. This perpendicular distance is used in calculating the area of transect walked. The density of animals is calculated with the use of the formula.

### **1.1.2. Indirect Count Method:**

The pug mark technique is one of the indirect count method still widely used in our country for estimation of larger carnivores like tiger and leopard. Generally, Pellet count method is used to estimate the ungulate density in most of the protected areas in our country. Under pellet count method, pellet groups are counted in sample plots preferably laid out on the transects (laid for conducting King's Census) and the density of the animals (species wise is estimated) is calculated with the data collected on the number of pellet groups. Information on defecation rate for animal surveyed, knowledge on pellet size and pellet rate in a day is required.

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### 1.1.3. Other Methods

Apart from the methods discussed above there are certain methods which are not included in the direct or indirect count method viz.:

- Water hole census
- Capture-recapture method

**Water Hole Census:** In absence of trained and experienced staff, generally “Water Hole Census” is conducted to estimate the densities of animals. In this method, observations on sighting are collected at water holes (during summer) for 24 hours preferably from 6 PM to 6 PM on full moon days. The basic assumptions made in this method are that every animal has an equal opportunity to visit a water hole and every animal drinks water at least once in a day.

Number of animals sighted are counted and recorded throughout the 24 hours and later on, the data is compiled species wise to arrive at the density figures. This method also gives an index or trend regarding the population and not the estimate of the population. If information on frequency of water consumption by animals for the area is collected, the figures compiled can be corrected for the repeat visitors and the trend can be refined a little. This is one of the easiest methods and with little training (along with volunteers from colleges, NGO's, etc.) even the illiterate staff can collect some useful information. For these reasons, this is the most popular method in many parts of our country.

**Capture-Recapture Method** This is neither a direct method nor indirect method but a combination of certain elements from both. This method is used in monitoring works of turtles, tortoises, crocodiles, birds, etc. First, certain numbers of animals are captured, marked and released. Second, again some animals are captured from the same area and checked for the marked animals.



<b>Self-check 1</b>	<b>Written test</b>
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Name..... ID..... Date.....

**Directions:** Answer all the questions listed below. Examples may be necessary to aid some explanations/answers

### Test II. Short Answer Questions

1. Write the two basic methods of estimating animal numbers or densities (2 point)
2. List the 4 general approaches to estimate population sizes of wildlife:(4 point)

### Answer Sheet

Name: \_\_\_\_\_

Score = \_\_\_\_\_

Rating: \_\_\_\_\_

**Note:** Satisfactory rating 6 points

Unsatisfactory - below 6 points







## Information sheet 2. Hunting quota

### 2.1. Introduction

**Quota Hunt** A Quota Hunt is a managed hunt that allows a set number of hunters to participate. A quota is placed on a hunt to protect natural resources (wildlife and their habitats) provide a high- quality hunting experience and maintain a high level of safety.

A quota is a government-imposed trade restriction that limits the number or monetary value of goods that a country can import or export during a particular period. Countries use quotas in international trade to help regulate the volume of trade between them and other countries.

Has a diagnosed disease which creates a severe mobility impairment

Remember these simple steps for applying hunting quota:

- Establish your customer account, which can be used for applying for quota hunts, buying licenses and more.
- Review quota hunt information and make your selections online. You can change your preferred dates up until the draw date indicated for each hunt.
- Access your account 24/7 or whenever you wish to see draw status and fulfillment information.

### 2.2. Note to Quota Hunt Applicants

Because safety of the public and Department staffs takes precedence over the quota hunt opportunities listed on the following pages, the Department may cancel or modify operational procedures of some hunts to maintain consistency with the Governor's guidelines for group activities and social distancing. The Department will strive to provide as much advanced notice of any changes to the details listed below.

Quota hunts provide hunters' opportunities to access public lands that otherwise may be closed to hunting. Hunters can participate in random drawings to hunt:

- Waterfowl
- White-tailed deer
- Black bear
- Quail



- Rabbits and turkeys etc

To participate quota hunting, hunters must apply pre-season and submit a non-refundable application fee.



<b>Self-check 1</b>	<b>Written test</b>
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Name..... ID..... Date.....

**Directions:** Answer all the questions listed below. Examples may be necessary to aid some explanations/answers

### Test II. Short Answer Questions

1. What is quota hunting mean? (2 point)

### Answer Sheet

Name: \_\_\_\_\_

Score = \_\_\_\_\_

Rating: \_\_\_\_\_

**Note:** Satisfactory rating 2 points

Unsatisfactory - below 2 points





## Operation Sheet 2

## Perform Wildlife Census and Sport Hunting Quota Setting

**Objective:** To conduct Wildlife Census and Sport Hunting Quota Setting

Materials, tools and equipment required:

- Pen
- Field books
- Binoculars
- GPS,
- Maps
- Field bags and tents, sleeping bag, sponge mattress
- Digital camera

Procedure:

1. Wear safety cloths
2. Collect all tools, materials and equipment used.
3. Identify wilderness area
4. Conduct Wildlife Census census



<b>LAP Test</b>	<b>Practical Demonstration</b>
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Name: \_\_\_\_\_ Date: \_\_\_\_\_

Time started: \_\_\_\_\_ Time finished: \_\_\_\_\_

Instructions: Given necessary templates, tools and materials you are required to perform the following tasks within 2 hour.

Task 1. Conduct wild life census





<b>LG#98</b>	<b>LO #5 Establish means of promotion and advertisement</b>
<b>Instruction sheet</b>	
<p>This learning guide is developed to provide you the necessary information regarding the following content coverage and topics:</p> <ul style="list-style-type: none"> <li>• Establishing experience sharing mechanisms</li> <li>• Identifying tourism potential areas</li> </ul> <p>Documenting and reporting work completion and outcomes This guide will also assist you to attain the learning outcomes stated in the cover page. Specifically, upon completion of this learning guide, you will be able to:</p> <ul style="list-style-type: none"> <li>• Establish experience sharing mechanisms</li> <li>• Identify tourism potential areas</li> </ul>	
<b>Learning Instructions:</b>	
<p>Read the specific objectives of this Learning Guide.</p> <ol style="list-style-type: none"> <li>1. Follow the instructions described below.</li> <li>2. Read the information written in the “Information Sheets”. Try to understand what are being discussed. Ask your trainer for assistance if you have hard time understanding them.</li> <li>3. Accomplish the “Self-checks” which are placed following all information sheets.</li> <li>4. Ask from your trainer the key to correction (key answers) or you can request your trainer to correct your work. (You are to get the key answer only after you finished answering the Self-checks).</li> <li>5. If you earned a satisfactory evaluation proceed to “Operation sheets</li> <li>6. Perform “the Learning activity performance test” which is placed following “Operation sheets” ,</li> <li>7. If your performance is satisfactory proceed to the next learning guide,</li> <li>8. If your performance is unsatisfactory, see your trainer for further instructions or go back to “Operation sheets”.</li> </ol>	





## Information sheet 1. • Establishing experience sharing mechanisms

**Expirience sharing mechanism includes:**

- Wild life identification
- Identification of consumptive and non-consumptive wild life
- Wild habitat establishing
- Census
- Hunting methods
- Identification of tourism potential area
- Tourism and photograph



<b>Self-check 1</b>	<b>Written test</b>
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Name..... ID..... Date.....

**Directions:** Answer all the questions listed below. Examples may be necessary to aid some explanations/answers

### Test II. Short Answer Questions

1. What are important areas for experience sharing among communities, in wild life conservation? (2 point)

### Answer Sheet

Name: \_\_\_\_\_

Score = _____
Rating: _____

**Note:** Satisfactory rating 2 points

Unsatisfactory - below 2 points





## Information sheet 2. Identifying tourism potential areas

### 2.1. Introduction

Tourism is a social, cultural and economic phenomenon which entails the movement of people to countries or places outside their usual environment for personal or business/professional purposes. A tourist attraction is a place of interest where tourists visit, typically for its inherent or exhibited natural or cultural value, historical significance, natural or built beauty, offering leisure and amusement

### 2.2. Tourism potential area

#### Natural beauty

This area such as beaches, tropical island resorts with coral reefs, hiking and camping in national parks, mountains, deserts and forests, are examples of traditional tourist attractions to spend summer vacations. Other examples of cultural tourist attractions include historical places, monuments, ancient temples, zoos, aquaria, museums and art galleries, botanical gardens, buildings and structures (e.g., castles, libraries, former prisons, skyscrapers, bridges), theme parks and carnivals, living history museums, signs, ethnic enclave communities, historic trains and cultural events. Factory tours, industrial heritage, creative art and crafts workshops are the object of cultural niches like industrial tourism and creative tourism. Many tourist attractions are also landmarks.



**Figure 15. Menegsha suba sabata forest buety**

### **2.3. Potential tourism laces in Ethiopia**

With the most UNESCO World Heritage Sites than any other African country (including Egypt), Ethiopia is a hidden gem that is overlooked by many travelers. With such cultural diversity, archaeological pedigree and natural beauty, there's a good reason why it's a so high on the Wild Frontiers travel list. From our years of experience travelling in Ethiopia, we have pulled together what we think are the best places to visit in Ethiopia.

#### **Bale Mountains National Park**

The Bale Mountains National Park is a protected area of approximately 2,200 km<sup>2</sup> and is located around 400 km southeast of Addis Ababa. Its high mountains, sweeping valleys, dramatic escarpment and wide expanses of forests provide visitors with a diversity of vistas unique to the Ethiopian highlands.



**Figure 16. Bale mountain national park**

UNESCO has estimated that more mammal species would become extinct were the habitats of the Bale Mountains to decline than if any other area of equivalent size on the globe were to disappear. When this is combined with rare amphibian species, endemic birds and spectacular flora, it is easy to see why the park is designated as a Biodiversity Hotspot by Conservation International.

### **Danakil Depression**

The Danakil Depression is found in Northern Ethiopia, close to the border with Eritrea. With parts of Danakil 100 metres below sea level, this is one of the lowest places on Earth and also one of the hottest in average yearly temperature. Access is difficult as the area is only passable for 4x4 vehicles and accommodation is scarce meaning visitors' camp each night at fixed sites. Arguably one of the best places to visit in Ethiopia, those that do make the journey is rewarded with some of the most extraordinary landscapes anywhere on earth.





**Figure 17. Dankil Depression**

Two active volcanoes, Mount Ayalu and Erta Ale have large lava lakes, whilst the Dallol Sulphur Springs is a photographers' dream. The Awash River ends in a huge salt mine, where workers carve rough-hewn blocks of salt for sale, an extraordinary sight to behold.

## **Simien Mountains**

Besides the colourful Ahmaric tribes, the Simien Mountains are also home to a vast assortment of wildlife, where Gelada Baboons, the Simien fox, bushbuck and the magnificent Lammergeyer vulture can be found. But the wonder of the Simiens does not lie so much with the animals or the people that live there, it is simply to watch the sunrise or fall over a land that time forgot. Climbing to an altitude of 4,620m, stretching 100 miles east to west, the Simien Mountains are one of the largest ranges in Africa. With their vaulting granite columns, towering escarpments and plummeting valleys, they are also among the most spectacular.



**Figure 18. Simien mountain national park**

### **Arba Minch**

With stunning views in all directions, the town of Arba Minch is situated in a truly spectacular location. It lies at an elevation of 1,300m in the foothills of the Rift Valley and mountains rise up to almost 4,000m to the west. The town comprises 2 separate settlements, Sikela and Shecha that are 4 km apart and connected by a sealed road, so although the total population is around the 75,000 marks it still retains a small-town atmosphere.

### **Awash National Park**

This scenic national park is situated in the dry acacia savanna of the Rift Valley some 200km from Addis Ababa. A magnificent 150m-deep gorge, carved by the Awash River, forms the southern boundary of the park, including a substantial waterfall. To the north, you'll see the ragged edges of Mount Fantelle, a dormant volcano whose crater towers above the surrounding bush.

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**Figure 19. Awash national park**

Other highlights include the Filwoha Hot Springs, which feed a series of beautiful translucent blue pools and Lake Beseka. Although 80 mammal species have been recorded in Awash, the game viewing is less of an attraction than the scenery and birdlife. Awash National Park is regarded as one Ethiopia's top birding destinations, with over 450 species. Including the endemic yellow-throated serin and the Ethiopian cliff swallow.

## **Bahir Dar**

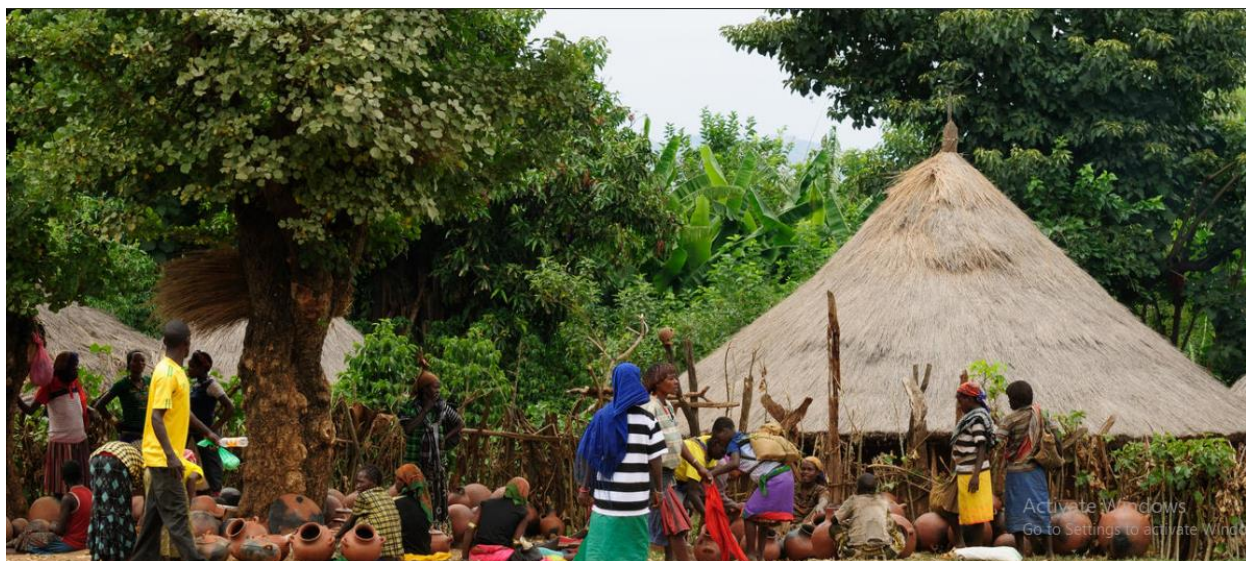
Bahir Dar, with its wide avenues of palms and scenic lakeside location, is one of Ethiopia's most attractive towns. Located on the southern shore of Lake Tana, it is an ideal base from which to explore the lake and surrounding area, which includes the Blue Nile, falls.



**Figure 20. Blue Nile fall**

## Jinka

Although Jinka is the administrative capital of the South Omo zone it exists in almost isolation from the rest of the country and has a relaxed, rural feel. Set at an altitude of 1490m it is quite temperate and its Saturday market attracts traders from all over the area.



**Figure 21. Jinka south omo**



In general, tourist attractions can contribute to government revenues through direct contributions are generated by taxes on incomes from tourism employment and tourism businesses, and by direct levies on tourists such as departure taxes.

In addition tourism can contribute by:

- Provide employment.
- Stimulate infrastructure investment.
- Contribute to local economies.



<b>Self-check 2</b>	<b>Written test</b>
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Name..... ID..... Date.....

**Directions:** Answer all the questions listed below. Examples may be necessary to aid some explanations/answers

### Test II. Short Answer Questions

1. What is tourism? (2 point)
2. List tourism potential area in Ethiopia (5 point)

### Answer Sheet

Name: \_\_\_\_\_

Score = \_\_\_\_\_

Rating: \_\_\_\_\_

**Note:** Satisfactory rating 7 points

Unsatisfactory - below 7 points





<b>L #99</b>	<b>LO #6 Monitor and Evaluate Wildlife Areas</b>
<b>Instruction sheet</b>	
<p>This learning guide is developed to provide you the necessary information regarding the following content coverage and topics:</p> <ul style="list-style-type: none"> <li>• Monitoring and evaluating open hunting areas</li> <li>• Documenting data</li> </ul> <p>This guide will also assist you to attain the learning outcomes stated in the cover page. Specifically, upon completion of this learning guide, you will be able to:</p> <ul style="list-style-type: none"> <li>• Monitor and evaluate open hunting areas</li> <li>• Document data</li> </ul>	
<b>Learning Instructions:</b>	
<p>Read the specific objectives of this Learning Guide.</p> <ol style="list-style-type: none"> <li>1. Follow the instructions described below.</li> <li>2. Read the information written in the “Information Sheets”. Try to understand what are being discussed. Ask your trainer for assistance if you have hard time understanding them.</li> <li>3. Accomplish the “Self-checks” which are placed following all information sheets.</li> <li>4. Ask from your trainer the key to correction (key answers) or you can request your trainer to correct your work. (You are to get the key answer only after you finished answering the Self-checks).</li> <li>5. If you earned a satisfactory evaluation proceed to “Operation sheets</li> <li>6. Perform “the Learning activity performance test” which is placed following “Operation sheets” ,</li> <li>7. If your performance is satisfactory proceed to the next learning guide,</li> <li>8. If your performance is unsatisfactory, see your trainer for further instructions or go back to “Operation sheets”.</li> </ol>	



## Information sheet 1. Monitoring and evaluating open hunting areas

### 1.1. Monitoring

Monitoring open hunting areas is the systematic process of collecting, analyzing and using information to track a programmer's progress toward reaching its objectives about open hunting wild life and to guide management decisions. Monitoring usually focuses on processes, such as when and where activities occur, who delivers them and how many people or entities they reach.

### 1.2. Evaluating open hunting areas

Evaluation is a systematic process to understand what a program on open hunting area does and how well manage the open areas to manage wild life. Evaluation results can be used to maintain or improve program quality and to ensure that future planning can be more evidence-based.



<b>Self-check 1</b>	<b>Written test</b>
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Name..... ID..... Date.....

**Directions:** Answer all the questions listed below. Examples may be necessary to aid some explanations/answers

### Test II. Short Answer Questions

1. What is monitoring? (2 point)
2. Define evaluation of open hunting area (2 point)

### Answer Sheet

Name: \_\_\_\_\_

Score = \_\_\_\_\_

Rating: \_\_\_\_\_

**Note:** Satisfactory rating 4 points

Unsatisfactory - below 4 points



## Information sheet 2- Documenting data

### 2.1. Documenting

Documentation plays a crucial role in any treatment setting. Documentation helps to assure continuity of care and assist for wild life conserver. It's important for practitioners, who may serve the community down the line have proper information. Not all documents are records. A record is a document consciously retained as evidence of an action.

Workplace documents measures skills that individuals use when they read real workplace documents and use that information to make job-related decisions and solve problems.

The work place documents include:

- Wild life resource
- Habitat
- Tourism potential area
- Civet musk collection procedure
- Tools and equipment used
- Policies and regulations of wild life conservation.





<b>Self-Check 2</b>	<b>Written Test</b>
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**Answer the following question!**

**Directions:** Answer all the questions listed below. Use the Answer sheet provided in the next page:

**Part I Fill the black space**

1. Why documenting (4%)
2. List down things that documentation in wild life conservation (3%)

.

**Note: Satisfactory rating 7 points**

**Unsatisfactory below 7 points**

You can ask you teacher for the copy of the correct answers.

**Answer Sheet**

Name: \_\_\_\_\_

Date: \_\_\_\_\_

Score = _____
Rating: _____

**Note: Satisfactory rating - 10 points**

**Unsatisfactory – below 10 points**



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This Teaching, Training and Learning Materials (TTLM) was developed on June, 2021 at Adama, Pan- Africa Hotel.

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