



Natural Resource Conservation and Development.

Level II

Learning Guide # 50

**Unit of Competence: Assist Sustainable Wildlife
Conservation and Development**

**Module Title: Assisting Sustainable Wildlife
Conservation and Development**

LG Code: AGR NRC2 M11 1019.

TTLM Code: AGR NRC2 TTLM111019 V1.

**LO3: Carry out Conservation of Endangered and
Endemic species**



Instruction Sheet	Learning Guide #50
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This learning guide is developed to provide you the necessary information regarding the following **content coverage** and topics –

- ❖ Occupational Health Safety
- ❖ Selecting Materials and tools
- ❖ Identifying and applying Conservation Systems
- ❖ Recording Data
- ❖ Recording Location and Times of observations.

This guide will also assist you to attain the learning outcome stated in the cover page. Specifically, upon completion of this Learning Guide, **you will be able to –**

- ❖ Apply occupational Health Safety
- ❖ Select Materials and tools
- ❖ Identify and apply Conservation Systems
- ❖ Record Data
- ❖ Record Location and Times of observations

Learning Instructions:

1. Read the specific objectives of this Learning Guide.
2. Follow the instructions described in number 3 to 6.
3. Read the information written in the “Information Sheets 1, Information Sheets2, Information Sheets3, Information Sheets 4, and Information Sheets 5
4. Accomplish the “Self-check 1, Self-check”2, Self-check 3, Self-check 4, and Self-check 5 **in page – 3,5,12,14 and 16** respectively
5. If you earned a satisfactory evaluation proceed to “Information Sheet 2”.
6. Submit your accomplished Self-check. This will form part of your training portfolio.



Information Sheet-1	Occupational Health Safety
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3.1. Occupational Health Safety

Introduction

Regular health and safety inspections are an effective tool in the hazard identification process. Together with accident investigation, these inspections form the main thrust in good occupational health and safety management. Not only do they provide an opportunity to identify the sources of potential hazards, but can be used to monitor occupational health and safety policies and procedures and determine how effectively these are translated into the workplace.

The inspection process allows a full examination and report on the status of occupational health and safety performance in a work area.

Essentially, it allows one to:

- Identify hazardous conditions and apply hazard control measures
- Monitor behavior trends
- Monitor and evaluate health and safety standards
- Improve health and safety standards
- Measure performance
- Check new facilities, equipment, processes, etc.
- Collect data for meetings, support of initiatives, etc.
- Maintain interest in health and safety
- Display supervisory commitment to health and safety

Physical Hazards

- Animal bites, kicks, or scratches
- Cuts or punctures from fins
- Capture equipment injuries caused by tools like dart guns or traps
- Ergonomic injuries caused by moving equipment in the field
- Restraint device injuries
- Hypodermic needle sticks



- Accidental exposure to anesthetic or immobilizing agents
- Equipment hazards such as rappelling, electrofishing, SCUBA equipment, or fires resulting from rocket-distributed capture nets

The OHS Act 1984 requires to identify potential hazards and to develop strategies to minimize the risk of injury or disease. It also requires employees to ensure their own safety by following instructions and correctly using any safety equipment provided.

Following organizational health & safety requirements is necessary.

For instance,

Wearing safety clothes

Having first aid kit

Far away hazardous chemicals from body

An effective program design requires input from health and safety specialists and will include the following elements:

- Administrative procedures,
- Facility design and operation,
- Risk assessment,
- Exposure control,
- Education and training,
- Occupational healthcare services,
- Personal protective equipment,
- Equipment performance,
- Information management,
- Emergency procedures, and
- Program evaluation.



Suitable personal protective equipment (PPE)

- Hat
- Boots
- Overalls
- Gloves
- Apron
- Water proof clothing
- Spray clothing
- Goggles
- Respirator or face mask, face guard
- Hearing protection
- Sunscreen lotion and hard hat and etc.

Self-Check – 1	Written Test
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Name: _____

Date: _____

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

1. What is the under OHS Act 1984? (3pts)
2. Write down at least three organizational health & safety required (3pts)
3. Write down at least four Suitable personal protective equipment (PPE) (4pts)

Note: Satisfactory rating – 5 points

Unsatisfactory - below 5 points

Answer Sheet

Score = _____
Rating: _____



Information Sheet-2	Selecting Materials and <i>tools</i>
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3.2. Selecting Materials and *tools*

Equipment and personnel are transported to conservation sites without injury or damage according to organization procedures.

Equipment is installed and protected from weather conditions according to manufacturer's specifications, safety and organization requirements.

Equipment and conservation procedures are tested in field conditions to enterprise and manufacturers'. Follow the procedure accordingly.

Some materials.

- **Measuring tape** -is used measure distance between two points.
- **Ranging pole** –used to correct slope reading using water level or clinometers.
- **Topo map** -is map that used to describe forest areas and forest resource.
- **GPS** – (Global Positioning System) –is used to gather information of particular area.
- **Compass**-is used to determine the direction in the forest inventory.
- **Use kit bags and helmets:** used to put some materials.
- **Workplace guidelines** – it is used to get some procedures.
- **Arial photo** - it is used to take the image of different wild animals and other related information from the sky.
- **Field note book**- is used to record some information.
- **Binocular** –it is used to see the wild animals which fear full and difficult to or animals that you cannot get on the open areas.
- **Video camera** – it is used to take the image of different wild animals and other related information.
- **Radio-tracking:** provides a method where by particular animals can be found wherever they are, whenever you want to find them. This is done by having a small radio-



transmitter attached to the animal, usually in a collar round its neck. This transmitter produces a continuous” bleeping” radio signal which is, inaudible but which can be detected by means of radio receiver and aerial. `You can find the direction, from which the signal is coming, and therefore can find the animal.

Self-Check – 2	Matching
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Name: _____ Date: _____

Directions: Answer all the questions listed below. Use the Answer sheet provided in the next page. (2PTS each)

A

1. ___ Compass
2. ___ Binocular
3. ___ Global Positioning System
4. ___ Topo map
5. ___ Video camera

B

- A. used to see wild animals which is difficult to see.
- B. used to determine the direction.
- C. take the image of different wild animals.
- D. describe forest areas and forest resource.
- E. used to gather information of particular area

Note: Satisfactory rating - 5 points

Unsatisfactory - below 5 points

Answer Sheet

Score = _____
Rating: _____



Information Sheet-3	Identifying and applying Conservation Systems
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3.3. Identifying and applying Conservation Systems

Ethiopia is fortunate in possessing a diverse fauna diversity and significant number of endemic species. In numerical terms, 22 out of 260 species of mammals, 27 out of 845 species of birds, 3 out of 78 species of reptiles, 17 out of 54 species of amphibians and 4 out of 101 species of fishes are endemic.

Conservation is the management of human use of the biosphere so that it may Yield the greatest sustainable benefit to present generations of people while maintaining its potential to meet the needs and aspirations of future generations

Conservation is thus inclusive term, meaning it includes management, preservation, maintenance, sustainable utilization, restoration and enhancement of the natural environment.

Wildlife conservation is a practice in which people attempt to protect endangered plant and animal species, along with their habitats.

The goal is to ensure that nature will be around for future generations to enjoy, and to recognize the importance of wildlife and wilderness lands to humans

Endemic species- any species that are native or restricted in specific area.

Endangered species - any species that is in danger of extinction throughout all or a significant portion of its range.

Threatened species - any species that likely to become an endangered species within the foreseeable future throughout all or significant portion of its range.



Conservation doesn't simply mean that locking away of resource. It is analogous to using the interest while keeping the capital Generally speaking wildlife conservation mean protection of wild life population or wise utilization of wildlife population.

There are several steps by which wildlife is conserved. In general, the conservation of wild life is mainly associated with the conservation of soil, water and vegetation. If these resources are better protected and managed favorable conditions would be created for wildlife conservation. The steps taken to conserve water would help to conserve soil vice versa.

Conservation program practiced to conserve various natural resources would also have indirect effects on the conservation of wild life.

Reasons for conserving / managing wildlife

1. To maintain essential ecological processes and life support systems.

Essential ecological processes are those processes that are governed, supported or strongly moderated by ecosystems and are essential for food production, health and other aspects of human survival and sustainable development. Such as soil regeneration and protection, the recycling of nutrients, ensuring the availability of quality / clear water, natural regulation of plants and animal population and the many other ecological processes. The maintenance of such processes and systems is vital for all societies regardless of their stage of development

2. To preserve genetic diversity

It is the range of genetic material found in the world's organisms, on which depend the breeding programs necessary for the protection and improvement of cultivated plants and domesticated animals. It is the variety of different genes, as found within a breeding population, within a whole species or of all species found within a given area.

The preservation of genetic diversity is both a matter of insurance and investment - necessary to sustain and improve agricultural, forestry and fisheries production to keep open future options, as a buffer against harmful environmental change and as a raw material for much scientific and industrial innovation.

3. To ensure the man's sustainable utilization of species and ecosystem.

The necessity of ensuring the utilization of an ecosystem or species is sustainable varies with a society's dependence on the resource in question. For a subsistence society,



sustainable utilization of most, if not all, its living resources is essential. The greater the diversity and flexibility of the economy, the less the need to utilize certain resources sustainable. Sustainable utilization is somewhat analogous to spending the interest while keeping the capital. Unfortunately, most utilization of aquatic animals, of the wild plants and animals of the land, of forests and of grazing lands is not sustainable.

4. Recreational and aesthetic value

Recreational value

People derive benefits of pleasure, adventure, and enhanced physical and mental health from outdoor activities involving the pursuit or sometimes-accidental enjoyment of wild life.

People can recreate by fishing, bird watching, photographing, hiking, and camping and by other wildlife based outdoor activities. Sometimes these activities are take place in conservation areas such as National parks, sanctuaries, game reserves which are set aside for the purpose, or sometimes they take place in remote or un-populated areas where there is little other possible use for the land.

The value people receive is usually measured by their willingness to pay for the outdoor recreation, to the extent that wild life is wholly.

Aesthetic value

It is the most personal and variously conceived value of wild life. Everyone appreciates the sight of a lion, leopard, colorful birds, beautiful mountain scenery, songs of ducks etc. This is beautiful that meets the eye and ear, and our response to it seems innate.

Aesthetic values of wild life are usually impossible to quantify. They are values that stir the emotions and they are often the first value that attracts and initiates people to the conservation of wildlife.

5. Educational and scientific values.

The scientific value of wild life is the value of wild populations as object of scientific study. Wild life and their habitats can be considered as field laboratories where scientists such as ecologists, evolutionists, geneticists, behavioral researchers and others can do study to extend their knowledge in their discipline.

The educational value of wildlife is realized in the use of wild life examples in schools and at nature centers and parks.



6. Cultural values of wild life

Many forms of wildlife and their products have great significance in local cultures/ ceremonies or beliefs. Certain trees and plants are collected for their special beliefs (healing properties) or for their ability to ward off evil spirits and events. Amongst certain societies / local communities, feathers (from ostrich or other different colorful birds), skins from certain animals (e.g. leopard), horns from Greater kudu or other animals are used or displayed at different ritual ceremonies.

Some common endangered & endemic species of wild animals in Ethiopia

Critically endangered:

- African wild ass (*equus africanus*)
- Bilen gerbil (*gerbillus bilensis*)
- Black rhinoceros (*diceros bicornis*)
- Ethiopian wolf (simian jackal/*canis simensis*) -endemic to Ethiopia
- Guramba shrew (*crocidura phaeuura*) -endemic to Ethiopia
- Harena shrew (*procedure harena*) -endemic to Ethiopia
- MacMillan's shrew (*crocidura macmillani*) -endemic to Ethiopia
- Walia ibex (*capra walie*) -endemic to Ethiopia

Endangered:

- Grevy's zebra (*equus grevyi*)
- Mountain nyala (*tragelaphus buxtoni*) -endemic to Ethiopia
- Nubian ibex (*capra nubiana*)
- Wild dog (*lycaon ppictus*)



wild life conservation areas of Ethiopia.

There are suitable areas where wildlife can be well protected and allowed to breed without being disturbed.

1. National park:

Conservation areas which may include terrestrial land or land covered by lake or other wetland set aside for the purpose of conserving and protecting wildlife and objects of aesthetic ecological and scientific interest.

The following are prohibited in national parks

- I. Hunting
- II. Cultivating
- III. Grazing live stocks
- IV. Felling trees.
- V. Burning vegetation
- VI. Residing in
- VII. Exploitation natural resources in any manner

2. Sanctuaries:

They are set aside to conserve characteristics of wildlife communities or to protect a particularly threatened species or habitat. Prohibited activities in sanctuaries includes

- Grazing of cattle
- Settling
- Hunting of animals, unless acting in accordance with the condition of permit or written permission of the general manager or game warden.

2. Wildlife reserves or game reserves:

These areas are set aside for protecting and propagating wildlife and its habitat, however it is not as exhaustive as national park Persons authorized to reside in game reserves have the right to cultivate their land and to pasture and water domestic animals there in prohibited activities in clued possession of firearms and hunting of animals



3. **Controlled hunting areas:**

The controlled hunting areas come under extractive protected areas where areas are managed to protect and utilize wildlife species. Hunting is allowed to those who have permit from the wildlife authority.

In Ethiopia there are 9 national parks, of which only two are gazette (Awash and Simien mountain national park). In addition, there are 3 sanctuaries and **game reserves** and 17 controlled areas.

- 1) Abijatta- Shalla lake national park
- 2) Awash national park
- 3) Bale mountain national park
- 4) Gambella national park
- 5) Mago national park
- 6) Nechisar national park
- 7) Omo national park
- 8) Simien mountain national park
- 9) Yangudi-Rassa national park
- 10) Senkelle swine's Hartebeest----- sanctuary
- 11) Yabello -----sanctuary

Conservation techniques of endangered and endemic species

Conservation techniques of endangered and endemic species include:

- ▶ Isolation of the entrance of domestic animals

To avoid genetic mixing (mating)

To reduce competition for food, water & space

To minimize disease transitions

- ▶ Use artificial insemination method

This is to flourish the endangered species back (by taking Male's sperm & get to female's fallopian tube for fertilization to occur)

- ▶ Avoid \minimize disturbances

Wild animals are sensitive to their environment so that any disturbances like car noise, sound of gun; torch etc will aggravate their shock & leads to migration and loss



- ▶ Avoid irregular hunting
- ▶ Prevent settlement of peoples at the vicinity of wild animals
- ▶ Control reckless destruction of forests
- ▶ Keeping the boundaries of wild life sanctuaries free.

Self-Check – 3	Written test
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Name: _____ **Date:** _____

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

1. Write down conservation techniques of endangered and endemic species (4pts)
2. List down at least three critically endangered species (3pts)
3. What is the reasons for conserving wildlife? (3pts)
4. What we mean by Aesthetic value of wild animal. (2pts)

Note: Satisfactory rating - 6 points

Unsatisfactory - below 6 points

Answer Sheet

Score = _____

Rating: _____



Information Sheet-4	Recording Data
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3.4. Recording Data

Records are a vital part of any conservation program, and are particularly important when an individual or an organization is trying to learn from previous work in an effort to improve the care given to wildlife.

Records should be kept on all animal admissions. Animal admission forms and animal examination forms can be used to ensure that vital information is gathered for each animal. Daily forms for animals and birds by enclosure or cage are required to verify that food, medications, and care are being provided. These records must be kept on file by the rehabilitator for future reference, should this be required.

Coding Standards

Coding standards should conform to specifications listed. The code letters used by wildlife rehabilitators and Rehabilitation centers should be strictly defined for comparison purposes.

R- (RELEASED): Any healthy, recovered fauna that is returned to its natural habitat.

T - (TRANSFERRED):

(1) any animal transported to another facility or wildlife rehabilitator for further rehabilitation efforts.

(2) Any animal determined to be non-releasable while undergoing wildlife rehabilitation efforts that is Placed in a non-rehabilitation situation.

P- (PENDING): Any fauna still undergoing rehabilitation efforts. These animals and birds are only added to summary statistics after final resolution.

DIC- (DIED IN CARE): Any fauna that dies subsequent to any handling, exam, treatment, or implementation of lifesaving measures in the care facility.

DOA - (DEAD ON ARRIVAL): Any fauna that dies before any life saving measures or treatments can be implemented in the care facility.

EAC- (EUTHANASED AFTER CARE): Any fauna that is suffering or non-releasable that is euthanized.



EOA- (EUTHANASED ON ARRIVAL): Any fauna euthanized after an initial exam, without further treatment measures being done.

Self-Check – 4	Written Test
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Name: _____ **Date:** _____

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

1. What is the importance of coding standards? (3pts)
2. What is record (2pts)

Note: Satisfactory rating - 3 points

Unsatisfactory - below 3 points

Answer Sheet

Score = _____
Rating: _____



Information Sheet-5	Recording Location and Times of observations
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3.5. Recording Location and Times of observations

While recording the data regarding conservation we have to record the location and times of observation too. This enables to recognize the characteristics of animal species in time & space. Therefore, it is important to fill the gaps in accordance with the requirements of animals and to prioritize our activities too.

Required Information

The following point should be record in Wildlife resource

- ❖ Your Name, Address and Telephone number
- ❖ Species name
- ❖ Site where the observation was made (location and time)
- ❖ Date of Observation
- ❖ Numbers of targeted wildlife
- ❖ Sex, age and colors
- ❖ Behavior of animal; feeding, rearing of young, mating, playing etc.
- ❖ Weight and Size of animals
- ❖ Habitat type and general condition of wild animal

The data records should become:

- legible: not to be illegal
 - accurate: avoid unnecessary or error
 - Complete: the recorded information should be full expressing the objectives that sated
- Compile and present wildlife resource data



Self-Check – 5

Written test.

Name: _____ **Date:** _____

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

1. what required information should be recorded in Wildlife resource? (4pts)
2. List characteristics of accurate data (3pts)

Note: Satisfactory rating - 4 points

Unsatisfactory - below 4 points

Answer Sheet

Score = _____

Rating: _____



List of Reference Materials

1. EBI (2014) Ethiopia's Fifth National Report to the Convention on Biological Diversity. Ethiopian Biodiversity Institute, Addis Ababa.
2. Wolff, J.V. (1961) Wildlife in Ethiopia. Ethiopian Forestry Review, 2, 3-13.
3. Tefera, M. (2011) Wildlife in Ethiopia: Endemic Large Mammals. Current Zoology, 6, 108-116.