Natural Resource Conservation and Development.

Level II

Learning Guide # 49

Unit of Competence: Assist Sustainable Wildlife Conservation and Development

Module Title: Assisting Sustainable Wildlife Conservation and Development

LG Code: AGR NRC2 M11 1019.

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LO2: Establish and manage wildlife conservation areas

Instruction Sheet	**Learning Guide #49**

This learning guide is developed to provide you the necessary information regarding the following **content coverage** and topics –

- ➤ Indentifying Protected Areas
- ➤ Characteristics of Wildlife Habitat refuges
- ➤ Determining Location and Boundaries for wild life refuge
- ➤ Identifying Time and Resources for mantainance .
- ➤ Identifying Environmental Risks and Hazards.
- ➤ Protecting and maintaining Desirable Animal species and habitat refuges

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 –**

- ➤ Identify Protected Areas
- ➤ Identify characteristics of wildlife habitat refuges
- ➤ Determine location and boundaries for wild life refuge
- ➤ Identify time and resources for maintenance.
- ➤ Identify environmental risks and hazards.
- ➤ Protect and maintain desirable animal species and habitat refuges

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 Sheets4, Information Sheets5 and Information Sheets 6.
4. Accomplish the "Self-check 1, Self-check2, Self-check 3, Self-check 4, Self-check 5 and Self-check 6" **in page - 5,8,12,15,21and 24** 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	Identifying Protected Areas

2.1. Identifying Protected Areas

Introduction
IUCN

The enlisting of protected areas is the fundamental strategy being used towards the conservation of the world's natural environment and biodiversity.

The International Union for the Conservation of Nature (IUCN) has developed the Protected Area Management Categories System to define, record and classify the wide variety of specific aims and concerns when categorizing protected areas and their objectives. This categorization method is recognized on a global scale by national governments and international bodies such as the United Nations and the Convention on Biological Diversity.

IUCN Categories

1. Strict Nature Reserve

2. Wilderness Area

3. National Park

4. Natural Monument or Feature

5. Habitat/Species Management Area

6. Protected Landscape/Seascape

7. Protected area with sustainable use of natural resources

As elsewhere in the world, modern conservation efforts (Adams, 2004) emerged from the realization that hunting (both sport and subsistence) was having an impact on wildlife populations.

Thus, in 1909 Ethiopia passed its first wildlife legislation designed to regulate 'sport' hunting – particularly of elephants. Despite this and up to 1944, the fauna and flora were still largely viewed as an infinite source of food and other materials, and as a source of sport for the upper echelons of society and expatriates in the country.

The Preservation of Game Proclamation of 1944 reinforced earlier legislation to regulate hunting and to prevent the over-hunting of certain species.

With interest from international conservation organizations, pivotally UNESCO, the Ethiopian Wildlife Conservation Organization (EWCO) was established in 1964 (see history in Hillman, 1993a) to establish the network of protected areas. Because of a lack of wildlife management experience (cf. the experience that was built in neighboring Kenya and Uganda through their colonial pasts) the majority of the early work – the production of legislation and the designation of protected areas – was largely carried out by expatriates.

Protected/conservation area of Ethiopia.

National Parks: Conservation areas which may include terrestrial land or land covered by lake, or other wetlands set aside for the purpose of conserving and protecting wildlife and objects of aesthetic, ecological and scientific interest. The following activities are prohibited in the national parks. These are hunting, cultivating, grazing livestock, felling trees, burning vegetation, residing in, or exploiting natural resources in any manner, unless these activities are for the development and management of the park.

Sanctuaries: They are set aside to conserve characteristic wildlife communities or to protect a particularly threatened species or habitat. Prohibited activities in sanctuaries include grazing of cattle, settling, and hunting of animals, unless acting in accordance with the conditions of a permit, or written permission of the general manager or a game warden.

Wildlife reserves or game reserves: These areas are set aside for protecting and propagating wildlife and its habitat; however, it is not as exclusive as a national park. Persons are prohibited from residing in game reserves without written permission from the authority. Persons authorized to reside in game reserves have the right to cultivate their land and to pasture and water domestic animals therein. Prohibited activities include possession of firearms and hunting of animals.

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 permits from the wildlife authority.

In Ethiopia there are nine National Parks, of which only two are gazetted (Awash and Semien Mountains National Park). In addition, there are three sanctuaries and game reserves, and 17 Controlled Hunting Areas.

Table 1. Summary of the major protected areas in Ethiopia.

Name	Status ** = Gazetted	Size sq km	Region	Importance
Bale Mountains	NP	2040	Oromiya	Afroalpine, dry montane woodland, moist montane forest: Mt Nyala, Ethiopian wolf.
Simien Mountains	NP **	225	Amhara	Afroalpine, walia ibex, Ethiopian wolf
Gambella	NP	5061	Gambella	Swamps, Woodland, lechwe, kob
Omo	NP	4068	Southern	Wood–Scrubland, Large ungulate assemblage, Elept,
Mago	NP	2162	Southern	Wood-Scrubland, large ungulate assemblage, Elept,
Awash	NP **	156	Oromiya/Afar	Semi-Arid thorn-bush, oryx, gazelle
Abiatta - Shalla	NP	800	Oromiya	Rift Valley Lakes, avifauna
Yangudi - Rassa	NP	4731	Afar	Arid
Nech Sar	NP	514	Southern	Savannah wildlife; Swayne's Hartebeest
Total Area NP	(only 2 Gazetted)	19757		
Alatish	NP planned	2000	Amhara	Woodland Savannah
Bebille Elephant	WLS	6982	Afar	Semi-Arid Elephants
Senkelle	WLS	54	Southern	Swayne's Hartebeest

Hartebeest				
Yebello	WLS	2500	Oromiya	Scrub and Bush Crow
8 x Wildlife Reserve	WR			Many regions
18 x Hunting Areas	CHA			All over, many on
58 x Forest Priority Areas	FPA	13,863		Only those with closed forest

Self-Check – 1	Written Test

Name: _____   **Date: _____**

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

1. Write down at least seven national parks of Ethiopia. (7pts)

   Matching (2pts each)

   A   **B**
   2. Biotic factor   A. Temperature
   3. National park   B. Bebille Elephant
   4. Sancuture   C. Simien Mountains
   5. Physical factors   D. Predator.

Note: **Satisfactory rating – 8 points**   **Unsatisfactory - below 8 points**

Answer Sheet

Score = _____

Rating: _____

Information Sheet-2	Characteristics of Wildlife Habitat refuges

2.2. Characteristics of Wildlife Habitat refuges

Habitat (which is Latin for "it inhabits") is an ecological or environmental area that is inhabited by a particular species of animal, plant or other type of organism. It is the natural environment in which an organism lives, or the physical environment that surrounds (influences and is utilized by) a species population.

Wildlife habitat is an area that offers feeding, roosting, breeding, nesting, and refuge areas for a variety of bird and mammal species.

Generally, wildlife habitat can be categorized under:

- Terrestrial habitat
- Marine habitat
- Wetland Habitat

Wildlife refuge, also called a wildlife sanctuary, may be a naturally occurring sanctuary, such as an island, that provides protection for species from hunting, predation or competition, or it may refer to a protected area, a geographic territory within which wildlife is protected. Such wildlife refuges are generally officially designated territories, created by government legislation, though the land itself may be publicly or privately owned.

The purposes of a wildlife refuge can include:

- Recovery of local wildlife species
- Restoration of natural environments
- Study of wildlife and natural environments
- creating simulated natural environments.

Wildlife refuges may contain remnant native vegetation as well as habitat provided by wildlife corridors, windbreaks, woodlots or farm dams.

Numerous factors of the environment affect wildlife habitat. These factors vary in time and space and interact in complex ways to favor or hinder the functions of wildlife.

The place to live is what we mean by habitat; a space where wildlife secures habitat resources and an environment suited to a particular species. Ecologist often classifies environmental factors as:

Biotic

- Food quantity.
- Food quality.
- Predation.
- Disease.

Physical

- Temperature
- Precipitation.
- Snow characteristics.
- Humidity.
- etc.

Edaphic (soil).

- Depth.
- Moisture.
- Texture.
- Chemistry.
- etc.

These physical, biotic and edaphic factors are determining characteristics of wildlife habitat. It is often possible to confuse habitat with ecological niche. One has been described as the animal's 'address' and the other as its 'profession'. The two terms are not that easily separated, since the animal's 'profession' is carried out only at a particular 'address'.

The term habitat is sometimes also confused with the geographical range. Actually, geographical range is a broader term indicating the map area in which a species occurs. But one expects to find a particular species only in suitable habitats within a geographic range. The particular range or extent of distribution of a species is determined generally by:

- Climate,
- Vegetation and,
- Topography to which the species can become adapted.

In all habitats there is a limit to the number of animals of any one species that can be supported. That is known as the carrying capacity of the habitat. The question what determines carrying capacity is not as easy to answer as it might seem. Certain obvious factors are involved:

- The right kind of food, and the quantity of it available
- The presence of water, for most animals
- The right kind of soil, for some species
- The necessary topography-mountains, plains, lakes, streams
- Cover-meaning arrangements of land and vegetation suited to nesting, resting, hiding, flying and all the various activities the species perform.

Self-Check – 2	Written Test

Name: _____   Date: _____

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

1. what is habitat? (3pts)
2. Mention the purposes of a wildlife refuge (4pts)
3. Mention wildlife habitat categories (3pts)

Note: **Satisfactory rating - 5 points**   **Unsatisfactory - below 5 points**

Answer Sheet

Score = _____

Rating: _____

Information Sheet-3	Determining Location and Boundaries for wild life refuge

2.3. Determining Location and Boundaries for wild life refuge

We should determine location and by what the habitat bounded in accordance with the vertebrate pest management strategy and monitoring program legal and recognizable boundary of wildlife habitat should be maintain.

Local Conservation planning area

- Create and/or update your area comprehensive plan so it properly plans for growth, conservation of fish, wildlife, and plant habitat, and recreation. Work with state agencies, conservation organizations, and land trusts to use available data to create a landscape vision for your area.

- As you update your comprehensive plan look at existing and proposed growth areas.

- Many areas are now being forced to develop additional growth areas. Town infrastructure policies contribute to the fragmentation, degradation and/or destruction of habitat.

- Inventory all public conservation lands in your area and review the management plans for these properties. Include publicly owned lands that have conservation potential but are not yet designated as such. ***Work with local planners, land trusts, and state agencies*** to evaluate the status of habitat protections and recreational opportunities on these lands and to design corridors that allow species to move freely between habitats, e.g., *between riparian* and upland habitats.

- Create an Open Space Plan for your area. Work with a local land trust to inventory local parcels of land that could, in combination with other private or public lands, be considered large blocks of habitat. Conduct a public meeting with residents to identify additional areas of natural resources or open space concern. *Ask residents to identify those areas that are most important including additional habitat or rare features not currently mapped, geologic features, historical sites, scenic views, important landscapes, farms, and trail systems.*

- Develop a list of conservation focus areas for resources overlap both the land trust and habitat of area.
- Consider creating *trail corridors* that serve wildlife and recreation needs.
- Create a local planning process to evaluate the accumulated amount of shoreline development as it relates to habitat loss.

Outreach/Public Information of areas

A. Conduct information and outreach effort to inform landowners of the value of riparian habitat, high value plant and animal habitats, and large undeveloped habitat blocks.

B. Develop a database of local property owners who host Significant or Essential Habitat. Create local support systems that supply these landowners with information on habitat retention and improvement.

C. Create a local recognition or reward system for landowners who maintain open space through current use programs.

D. Invite local legislators to tour high value habitats in your area and explain the connection between the habitats and your community's way of life. Provide a list of licensed foresters with a working knowledge of how to manage forests for both habitat and timber.

E. Offer a workshop for forest landowners using Biodiversity in the Forests of Maine:

F. Invite the local land trust to display newsletters and brochures at the area hall, library, and public events.

G. Make the Beginning with Habitat maps and documentation readily available to the public so they can view them easily and become familiar with the information.

Local Regulations of protected area

- ✓ After adoption of the comprehensive plan by your area, form an implementation committee to make any necessary revisions to local regulations.
- ✓ Require a combination of very low densities and cluster development on properties with high value habitat so development can be steered away from those habitats.
- ✓ Require provisions in local ordinances for review of development applications by the appropriate regional office when a proposal potentially conflicts with a mapped resource.

- ✓ Consider developing and adopting an impact fee program with funds allocated at least in part to protecting open space.
- ✓ Promote zoning that allows for multiple uses of farmland or woodlots, including activities such as educational or recreational services, food sales, hay and sleigh rides, etc.
- ✓ Consider how to fulfill the stated criterion, which states that the proposed subdivision will not have an undue adverse effect on the scenic or natural beauty of the area, aesthetics, and historic sites, significant wildlife habitat identified by related organization or rare and irreplaceable natural areas or any public rights for physical or visual access to the shoreline.

Land Protection Measures

a) Coordinate land trust priorities for land protection with area priorities.

b) If a property with high value habitat is on the market, and especially where the town has not adequately protected it (allowing reasonable use through very low density and open space zoning), the select board, planning board, conservation commission, and local conservation groups can work together to consider and potentially pursue acquisition of the property.

c) Encourage landowners with high value habitat on their property to enroll in either the Farmland and Open Space or Tree Growth Tax Programs.

d) Purchase development rights on large undeveloped blocks to manage the land as fish, plant, and wildlife habitat.

e) Purchase conservation easements that stipulate no development and allow public access for recreation, if compatible with the land.

f) Explore opportunities to protect habitat via conservation easement or fee ownership

Regional Coordination of PA

- ❖ Review maps of high value habitat and/or open space plans with local officials from neighboring protected area, land trusts, and other conservation organizations.
- ❖ Meet cooperatively with neighboring protected area, land trusts, conservation organizations, and your regional planning commission to discuss the conservation of large blocks of habitat across political boundaries.
- ❖ Meet cooperatively with neighboring protected area planning groups to discuss consistent regulations for shared habitats and waterways.

❖ Meet cooperatively with neighboring protected area, land trusts, and conservation organizations with mutual watersheds to explore the protection of water quality and develop watershed protection plans across political boundaries.

Self-Check – 3	Written test

Name: _____   **Date:** _____

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

1. List down monitoring program and recognizable boundary of wildlife habitat maintenance. (4pts)

      a._____

      b._____

      c._____

      d. _____

Note: **Satisfactory rating - 2 points**   **Unsatisfactory - below 2 points**

Answer Sheet

Score = _____
Rating: _____

Information Sheet-4	Identifying Time and Resources for maintenance.

2.4. Identifying Time and Resources for maintenance.

- Human resources
- Financial provision
- Physical material including trapping materials, firearms, ammunition, poisons, fencing materials, veterinary products, excavators, front-end loaders, digging material, Vehicles, others equipment required to complete the wildlife habitat refuge maintenance job etc.
- Land, water and transportation facility
- Plant materials (seedling, seed etc...)
- Management Tools:

  - Prescribed fire.
  - Exotic plant control through mechanical biological and chemical means.
  - Education/Interpretation.
  - Law Enforcement.
  - Partnerships: Division of Forestry, Refuge Friends Group, National Park

- Service, Park Service, Fish and Wildlife Conservation Commission.

Estimating time required to complete wildlife habitat maintenance job is useful

Open space planning

- ✓ Assess whether the existing supply of public-access wildlife conservation lands in an area is economically optimal, or whether additional areas would provide net economic gains.
- ✓ Identify open spaces whose conservation generates the highest benefits, and direct development to locations that minimize losses in open space values/maximize gains from open space conservation.
- ✓ Quantify expected losses in wildlife-associated recreation that result from changes in land use plans and zoning regulations

✓ Incorporate (increased) preservation of natural areas into development plans/zoning regulations. Increases in property values translate into increased property tax revenues after the next reassessment of property values by the county assessor's office.

Conservation incentives for private landowners

- Estimates of the value of ecosystem services provided by private lands can help strengthen the case for tax breaks, ecosystem service payments or other incentive mechanisms for private landowners who dedicate their lands to conservation uses, or for the introduction of wildlife habitat tax credits for private lands. The toolkit can help in establish the size of tax breaks or habitat credits.

- the toolkit can help in the justification and appropriate scaling of property tax exemptions or tax credits for agricultural land that provides wildlife benefits

Prioritization of lands for public conservation spending

- The toolkit can help states in the prioritization/ranking of lands that are competing for limited conservation cost share funds, by providing estimates of the values generated by the various lands/properties.

- The toolkit can help quantify wildlife-associated recreation benefits to help justify the economic importance of a particular wildlife area or activity in applications for federal or state wildlife grants and habitat conservation funds (e.g., USFWS' Partners Program; various USDA conservation programs)

- The toolkit can help calculating the benefit-cost ratios of different and competing wildlife projects.

Self-Check – 4	**Written Test**

Name: _____   **Date:** _____

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

1. Mention resource required for wild life refuge maintenance. (3pts)
2. What is the usefulness of estimating time to complete wildlife habitat maintenance? (4pts)
3. What management Tools will be used for wild life refuge maintenance(3pts)

Note: **Satisfactory rating - 5 points   Unsatisfactory - below 5 points**

Answer Sheet

Score = _____

Rating: _____

Information Sheet-5	Identifying Environmental Risks and Hazards.

2.5. Identifying Environmental Risks and Hazards.

1. Habitat destruction

Habitat destruction is the process in which natural habitat is rendered functionally unable to support the species present. In this process, the organisms which previously used the site are displaced or destroyed, reducing biodiversity. Habitat destruction by human activity mainly for the purpose of harvesting natural resources for industry production and urbanization. Clearing habitats for agriculture is the principal cause of habitat destruction. Other important causes of habitat destruction include mining, logging, trawling and urban sprawl. Habitat destruction is currently ranked as the primary cause of species extinction worldwide. It is a process of natural environmental change that may be caused by habitat fragmentation, geological processes, climate change or by human activities such as the introduction of invasive species, ecosystem nutrient d elution and other human activities mentioned below.

The terms "**habitat loss**" and "**habitat reduction**" are also used in a wider sense including loss of habitat from other factors, such as water and noise pollution.

Natural Causes of habitat destruction

Habitat loss and destruction can occur both naturally and through anthropogenic causes. Events leading to natural habitat loss include climate change, catastrophic events such as volcanic explosions and through the interactions of invasive and non-invasive species. Natural climate change, events have previously been the cause of many widespread and large scale losses in habitat. For example, some of the mass extinction events generally referred to as the "Big Five" have coincided with large scale such as the Earth entering an ice age, or alternate warming events. Other events in the big five also have their roots in natural causes, such as volcanic explosions and meteor collisions. The Chicxulub impact is one such example, which has previously caused widespread losses in habitat as the Earth either received less sunlight or grew colder, causing certain fauna and flora to flourish whilst others perished. Previously known warm areas in the tropics, the most sensitive habitats on Earth, grew colder, and areas such as Australia developed radically different flora and fauna to those seen today.

The big five mass extinction events have also been linked to sea level changes, indicating that large scale marine species loss was strongly influenced by loss in marine habitats, particularly shelf habitats . Methane-driven oceanic eruptions have also been shown to have caused smaller mass extinction events.

Human Impacts of habitat destruction

Since radiating out from its birthplace in Africa, Homo sapiens has been the cause of many species' extinction. Due to humans' propensity to shape and modify their environment, the habitat of other species often become altered or destroyed as a result of human actions. Even before the modern industrial era, humans were having widespread, catastrophic effects on the environment. A good example of this is found in Aboriginal Australians and Australian mega fauna . Aboriginal hunting practices, which included burning large sections of forest at a time, eventually altered and changed Australia's vegetation so much that many herbivorous mega fauna species were left with no habitat and were driven into extinction. Once herbivorous mega fauna species became extinct, carnivorous mega fauna species soon followed. In the recent past, humans have been responsible for causing more extinction within a given period of time than ever before. Deforestation, pollution, anthropogenic climate and human settlements have all been driving forces in altering or destroying habitats. The destruction of ecosystems such as rainforests has resulted in countless habitats being destroyed. These hotspots are home to millions of habitat specialists, which do not exist beyond a tiny area. Once their habitat is destroyed, they cease to exist. This destruction has a follow-on effect, as species which coexist or depend upon the existence of other species also become extinct, eventually resulting in the collapse of an entire ecosystem. These time-delayed extinctions are referred to as the extinction debt, which is the result of destroying and fragmenting habitats. As a result of anthropogenic modification of the environment, the extinction rate has climbed to the point where the Earth is now within a sixth mass extinction event, as commonly agreed by biologists. This has been particularly evident, for example, in the rapid decline in the number of amphibian species worldwide.

The forces that cause humans to destroy habitat are known as *drivers* of habitat destruction. Demographic, economic, sociopolitical, scientific and technological, and cultural drivers all contribute to habitat destruction.

Demographic drivers include the expanding human population; rate of population increase over time; spatial distribution of people in a given area (urban versus rural), ecosystem type, and country; and the combined effects of poverty, age, family planning, gender, and education status of people in certain areas. Most of the exponential human

population growth worldwide is occurring in or close to biodiversity hotspots. The boom in human population and migration of people into such species-rich regions are making conservation efforts not only more urgent but also more likely to conflict with local human interests .The high local population density in such areas is directly correlated to the poverty status of the local people, most of whom lack an education and family planning.

The rapid expansion of the global human population is increasing the world's food requirement substantially. Simple logic instructs that more people will require more food. The impending global food crisis will be a major source of habitat destruction. Commercial farmers are going to become desperate to produce more food from the same amount of land, so they will use more fertilizers and less concern for the environment to meet the market demand. Others will seek out new land or will convert other land-uses to agriculture. Agricultural intensification will become widespread at the cost of the environment and its inhabitants. Species will be pushed out of their habitat either directly by habitat destruction or indirectly by fragmentation, degradation, or pollution. Any efforts to protect the world's remaining natural habitat and biodiversity will compete directly with humans' growing demand for natural resources, especially new agricultural lands.

2. Habitat fragmentation

Habitat fragmentation as the name implies, describes the emergence of discontinuities (fragmentation) in an organism's preferred environment (habitat), causing population fragmentation. Habitat fragmentation can be caused by geological processes that slowly alter the layout of the physical environment (suspected of being one of the major causes of speciation or by human activity such as land conversion, which can alter the environment much faster and causes extinctions of many species.

The term habitat fragmentation includes five discrete phenomena:

- Reduction in the total area of the habitat
- Decrease of the interior : edge ratio
- Isolation of one habitat fragment from other areas of habitat
- Breaking up of one patch of habitat into several smaller patches
- Decrease in the average size of each patch of habitat

Human causes

Habitat fragmentation is frequently caused by humans when native vegetation is cleared for human activities such as agriculture, rural development, urbanization and the creation of hydroelectric reservoirs. Habitats which were once continuous become divided into separate fragments. After intensive clearing, the separate fragments tend to be very small islands isolated from each other by cropland, pasture, pavement, or even barren land. The latter is often the result of slash and burn farming in tropical forests.

Conservation implications

Habitat fragmentation is often a cause of species becoming threatened or endangered. The existence of viable habitat is critical to the survival of any species, and in many cases the fragmentation of any remaining habitat can lead to difficult decisions for conservation biologists. Given a limited amount of resources available for conservation is it preferable to protect the existing isolated patches of habitat or to buy back land to get the largest possible continuous piece of land? This ongoing debate is often referred to as SLOSS (Single Large or Several Small).

One solution to the problem of habitat fragmentation is to link the fragments by preserving or planting corridors of native vegetation. This has the potential to mitigate the problem of isolation but not the loss of interior habitat. In rare cases a Conservation reliant species may gain some measure of disease protection by being distributed in isolated habitats.

Another mitigation measure is the enlargement of small remnants in order to increase the amount of interior habitat. This may be impractical since developed land is often more expensive and could require significant time and effort to restore.

The best solution is generally dependent on the particular species or ecosystem that is being considered. More mobile species, like most birds, do not need connected habitat while some smaller animals, like rodents, may be more exposed to predation in open land. These questions generally fall under the headings of Meta population's island biogeography.

Some hazards associated with the wildlife resources

- ✓ Disease
- ✓ Global Warming
- ✓ Habitat Loss
- ✓ Invasive Species
- ✓ Over exploitation
- ✓ Pollutants

Self-Check – 5	Multiple choice.

Name: _____   Date: _____

Directions: Answer all the questions listed below. Use the Answer sheet provided in the next page. Choose the correct answer (2pts each)

1. _____is the process in which natural habitat is rendered functionally unable to support the species present.
   - A. Habitat destruction
   - B. Habitat maintenance
   - C. Habitat management
   - D. None

2. Habitat loss and destruction can occur due to,
   - A. Natural causes
   - B. Anthropogenic causes
   - C. Human factor
   - D. All

3. Which one of the following is demographic drivers of habitat loss?
   - A. education status of people in certain areas
   - B. rate of population increase over time
   - C. spatial distribution of people in a given area
   - D. All

4. One is not hazards associated with the wildlife resources
   - A. Disease
   - B. Global Warming
   - C. Invasive Species
   - D. None.

5. Habitat fragmentation includes one of the following except,

A. Reduction in the total area of the habitat

B. Increase of the interior

C. Isolation of one habitat fragment from other areas of habitat

Note: **Satisfactory rating - 5 points**   **Unsatisfactory - below 5 points**

Answer Sheet

Score = _____

Rating: _____

Information Sheet-6	Protecting and Maintaining Desirable Animal species and habitat refuges

2.6. Protecting and Maintaining Desirable Animal species and habitat refuges

Conserve Existing Habitats

One of the most important ways to help threatened plants and animals survive is to protect their habitats permanently in national park, nature reserves or wilderness areas.

Approach of wildlife habitat refuge maintenance

- Plantation of food source plants in open areas, creating artificial water holes, salt licks, cover etc.
- Prescribed cutting, burning or grazing of vegetation to maintain certain vegetation/succession stage
- Maintaining trails watch tower, hides or cleared look-out point for management purposes or visitor use.
- Maintaining open feeding areas or clearing trail side vegetation to render wildlife more visit able to visitors.
- Enhancing soil (fertilizing and liming)
- Restoring streams
- Creating nest boxes
- Installation of the structures including excluding fencing

> ➤ Monitoring pest occurrence, remove pest habitat and trapping pest

Manipulation of wildlife population

- ❖ Limit population levels.
- ❖ Reduce competition
- ❖ Allow for rang extension
- ❖ Adjust age and sex ratios
- ❖ Treat for diseases.
- ❖ Predator control   etc.

Protecting Desirable species from any factors

- ■ Stopping habitat alteration, which is a primary cause of wildlife extinction; In practice, this means enforcing conservation laws, renouncing logging concessions, and controlling tree felling, collection of other forest produce, forest fires and clearing and burning new farm land. In certain cases, the habitat may require restoration by artificial means, i.e. seeding, planting or other propagation methods of vital food plants, clearing and maintenance of grazing grounds.
- ■ Extending or increasing protection to migration corridors, breeding sites or roosts or nesting sites (e.g. provision of nest boxes)
- ■ Developing habitat management: This includes all forms of manipulation of the vegetation to make it more suitable for the species in question.
- ■ Actively protecting the endangered species; This involves improving patrols, controlling illegal hunting and trapping, and adopting special intensive anti-poaching measures.
  e.g. actually guarding animals by day and enclosing them at night as had to be done with the introduced white rhinos in Kenya's Meru National park.
- ■ Reducing predation of the young by physically excluding potential predators:
  e.g. by fencing turtle nests to prevent egg predation by monitor lizards and wild pigs.
- ■ Head-starting: This can include artificial hatching of eggs and rearing of young to reduce early mortalities, but there may be difficulties in releasing the young again as many species need to imprint on either their parents or their birthplace.
- ■ Provisioning' providing extra food, water, minerals at salt licks and shelters or by planting favorite food plants is often quite effective and is usually only necessary for a short period or critical part of the year.

Problems may arise if this results in causing unnatural concentrations of animals, which render them vulnerable to predation or disease.

- Controlling or elimination exotic or non-indigenous animals- which may severely disturb and compete with the indigenous community; such introduced animals are a major cause of Island extinction.

- Controlling or eliminating feral animals (i.e. domestic animals that have run wild) as they may kill.

- Reducing the levels of predators. This is justifiable only if the predators are exotics. Indeed, the local predators are often the most threatened species of the ecosystem. Usually predators are actually helping to maintain optimal density and good health in a prey species by removing sick animals from the population

- Controlling disease- High mortality, whether caused by disease, predation, hunting or poaching, (except for commercial reasons) has rarely led to extinction of a wild life species

- Relocation part of a population: - Where suitable habitats are available, part of the population of an endangered species should be moved there to avoid the risks of having only one, or a few, populations of a particular species.

- Restocking -This can be used to re-establish a population in areas where it has become extinct or is very rear by relocating individuals form wild stock elsewhere or releasing captive-bred animals.

- Breeding in captivity, or from seed and sperm banks: This can be a last means to save a species from extinction. Captive propagation should be carried out in a safe place, for instance in zoos of good reputation or institutions especially equipped for propagation endangered species. Captive breeding may also be done on site, in the species' own habitat, under rigorous protection.
  There may be some problems in capturing wild animals for breeding stock, e.g. shock, stress, and mortality during immobilization and transportation. The animals' physiology and behavior may also change in captivity and adversely affect breeding success.

- Creating new legislation: This may be necessary when existing laws are no longer appropriate to guarantee survival of the species.

Relevant legislation and local regulation for wild life habitat maintenance

➤ Environmental protection
➤ Threatened species conservation
➤ Humane treatment of sick animals
➤ Apply wildlife habitat modification techniques
➤ Identification and reporting of suspected outbreaks of exotic disease
➤ OHS regulations
➤ Common law principles relating to property, stock, duty of care and due diligence.

Self-Check – 6	Written Test

Name: _____   Date: _____

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

1. Write down at least four legislation and local regulation for wild life habitat maintenance (4pts)

2. Mention the mechanisms of protecting desirable species from negative impacts (3pts)

3. What is the importance of Manipulating wildlife animal (3pts)?

Note: **Satisfactory rating - 5 points**   **Unsatisfactory - below 5 points**

Answer Sheet

Score = _____

Rating: _____

1. Young, J. (2012) Ethiopian Protected Areas: A "Snapshot". Word Press, Addis Ababa, 23.
2. EBI (2014) Ethiopia's Fifth National Report to the Convention on Biological Diversity. Ethiopian Biodiversity Institute, Addis Ababa.
3. Wolff, J.V. (1961) Wildlife in Ethiopia. Ethiopian Forestry Review, 2, 3-13.