

# **Course- WL 703, Principles of Wildlife Management**

**Course Instructor; Dr. Sangam Khalil**  
**Dept. Forestry Range & Wildlife Management**

## **7<sup>th</sup> Lecture**

### **Wildlife Movements:**

#### **Categories:**

- Local movements
- Migratory movements
- Dispersal

#### **Local Movements;**

Local movements are in the areas where animal fulfill daily requirement i.e home range

If not fulfill inside home range then animal will migrate and perform daily activities

#### **Number of Home range**

One HR: Animal permanently live there-----Sedentary animals----i.e less movement showing animals e.g Island animals

#### **Several HR:**

Due to annual migration

e.g Bighorn Rams—have 2-6 homerange

i.e Spring HR, Winter HR, Summer HR, Salt lick HR

#### **Size of HR:**

Depends on size , sex, feeding habits

e.g carnivores have large home range to chase its prey

Herbivores- small home range

### Reduction in HR

- If a female is breeding -home range reduce
- Similarly reduce HR--- severe wheather,
- Lactating period of female
- Excess of predators
- Reproductive demands
- Deep snow

### Measuring HR

#### 1. Radiotelemetry

In the past, radio transmitters were simple very high frequency (VHF) transmitters attached externally to the bird or implanted with an accompanying power supply, antenna and mounting material. Recent technological advances have resulted in the development of Platform Terminal Transmitter and Global Positioning System transmitters with capabilities far beyond those of conventional VHF radio transmitters. While modern PTT and GPS transmitters operate using the same basic principles as VHF radio transmitters (emission of an electromagnetic signal at a specified frequency which is detected by receivers tuned to the frequency), these more advanced transmitters use orbiting satellites to receive and relay transmitter signals. Thus, VHF, PTT and GPS transmitters have very different characteristics which render them suitable for very different species and studies

#### 2. Catch and Release

Capture tag and release—measure the animal movement--- then make up the map of it by recapturing it from another place and make map to study its home range.

### MIGRATORY MOVEMENTS

#### Two ways

- Emmigration
- Immigration

Animal populations are not static. The number and distribution of animals in the population is constantly changing. Populations grow in size due to births or immigration. Immigration is the movement of individual animals to a new area. This may be due to a higher availability of resources in that area. When natural habitat is cleared for human developments, the native wildlife that originally lived in the area is often removed. After development is complete,

generalist species like raccoons will immigrate to the area to make use of new resources, such as birdfeeders and waste in garbage cans.

Deaths and emigration decrease population size. Emigration is the movement of individuals out of a population. This can result when resources like food or nesting sites become scarce in an area. When deer populations grow too large due to a lack of natural predators, deer will emigrate from natural habitat to adjacent urban and agricultural areas where landscape plants and agricultural crops can be used as food resources.

Types:

#### Altitudinal migration

**Altitudinal migration** is a short-distance animal **migration** from lower altitudes to higher altitudes and back. It is commonly thought to happen in response to climate and food availability changes as well as increasingly due to anthropogenic influence.

**Migratory birds** are for **example** great grey owl, great-spotted woodpecker, waxwing and coal tit. If there isn't enough food, then they migrate to find better places.

#### Latitudinal migration

The **latitudinal migration** usually means the movement from north to south, and vice versa. Most birds live in the land masses of the northern temperate and subarctic zones where they get facilities for nesting and feeding during summer. They move towards south during winter.

E.g Big horn sheep--- in northern hemisphere migrate for food and predator escape

4 spp of cranes—from central Asia , Siberia to Pak

Houbara Bustard

#### Factors effecting migration:

Different factors play their role in the initiation of migration. External factors like **climate**, natural disasters, drought, shelter, food shortage, etc may cause animals to migrate to seek better conditions. For example – Consider a species of the deer that live in a certain park.

#### DISPERSAL

**Dispersal** behavior refers to the **movement** of an individual **animal** from the location of its birth to its location of reproduction and differs from the cyclic patterns of migration

behavior. **Dispersal** behavior, or the lack of **dispersal**, results in the distribution of a species or population.

### **Density-independent dispersal**

Organisms have evolved adaptations for dispersal that take advantage of various forms of kinetic energy occurring naturally in the environment. This is referred to as density independent or passive dispersal and operates on many groups of organisms (some invertebrates, fish, insects and sessile organisms such as plants) that depend on animal vectors, wind, gravity or current for dispersal.

### **Density-dependent dispersal**

Density dependent or active dispersal for many animals largely depends on factors such as local population size, resource competition, habitat quality, and habitat size.

Due to population density, dispersal may relieve pressure for resources in an ecosystem, and competition for these resources may be a selection factor for dispersal mechanisms.

Dispersal of organisms is a critical process for understanding both geographic isolation in evolution through gene flow and the broad patterns of current geographic distributions