

# Chapter 6 - Habitat Study

## Learning objectives

- To visit and gain a broad overview of one particular ecosystem and the diversity of living organisms it contains
- To identify several habitats from the selected ecosystem and identify five plants and five animals using simple keys
- To identify and use a variety of collection instruments in an ecological study
- To describe a qualitative survey and conduct a quantitative survey of plants and animals in a selected ecosystem, presenting data appropriately and identifying possible sources of error in the study
- To describe the relationship between an organism's adaptation to a habitat and three abiotic factors in that habitat
- To describe an organism's role in energy transfer and construct food chains, a food web and a pyramid of numbers in a selected ecosystem
- To analyse and assess the results of an ecological study and prepare a report.

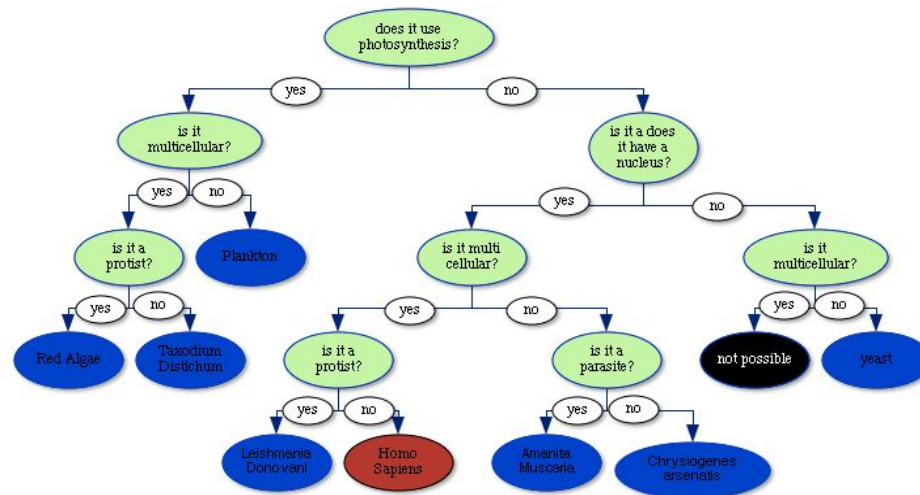
# Woodland/Grassland Habitat

1. Draw a **map** of the area - use a legend and a compass

2. **Flora** - use a key



3. **Fauna** - use a key

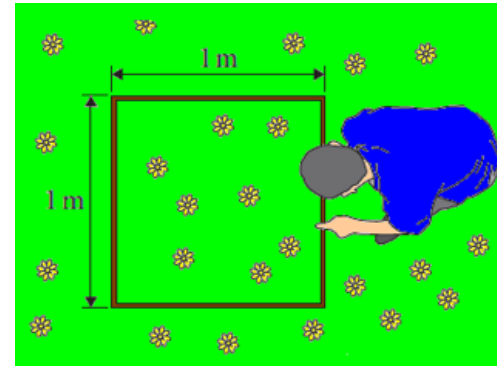


# Habitat Study

To study a habitat using various instruments and to identify 5 plants and 5 animals.  
Draw the habitat and use compass and legend.

Equipment used,  
Animals - pooter, pitfall trap, beating tray and key  
Plants - quadrat and key

Quadrat used for qualitative and quantitative  
Capture/recapture can be used on animals



e.g.

A pencil was thrown over our shoulder at random and the quadrat was placed there.  
The names of the plants present in the quadrat were written down.  
This was repeated 10 times and each plant was ticked off when present.

Make a food chain and web and complete a pyramid of numbers.  
Look at 3 abiotic factors such as light, wind, temperature.  
Look at adaptations of a plant and animal to it's habitat.  
Finally, analyse the data and present it in various forms.

## Sample Results

Name	Where Found	Collection
Robin	under trees	looked
Oak	in the wood	By hand
Beech	in the wood	By hand
Ivy	on a tree	By hand
Holly	at edge	By hand
Nettles	at edge	Not collected
Buttercup	in grass	By hand
Grass	in soil	By hand
Dandelions	in grass	By hand
Wood louse	under rock	Pooter
Slug	under rock	Collection jar
Spider	In tree	Beating tray

## Percentage Frequency - Quantitative

Name	1	2	3	4	5	6	7	8	9	10	Total	%
Grass	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	10	100
Dandelion	✓	✓	✓	✗	✗	✓	✓	✓	✓	✓	8	80
Buttercup	✓	✗	✓	✓	✓	✗	✓	✗	✓	✗	6	60
Daisy	✗	✓	✓	✓	✗	✓	✗	✓	✓	✓	7	70
Clover	✓	✓	✓	✓	✓	✗	✗	✓	✗	✓	7	70
Doc	✗	✓	✓	✗	✓	✗	✓	✗	✓	✗	5	50

## Percentage Frequency

$$\text{Clover} = \frac{4}{15} \times 100 = 27\%$$

$$\text{Grass} = \frac{15}{15} \times 100 = 100\%$$

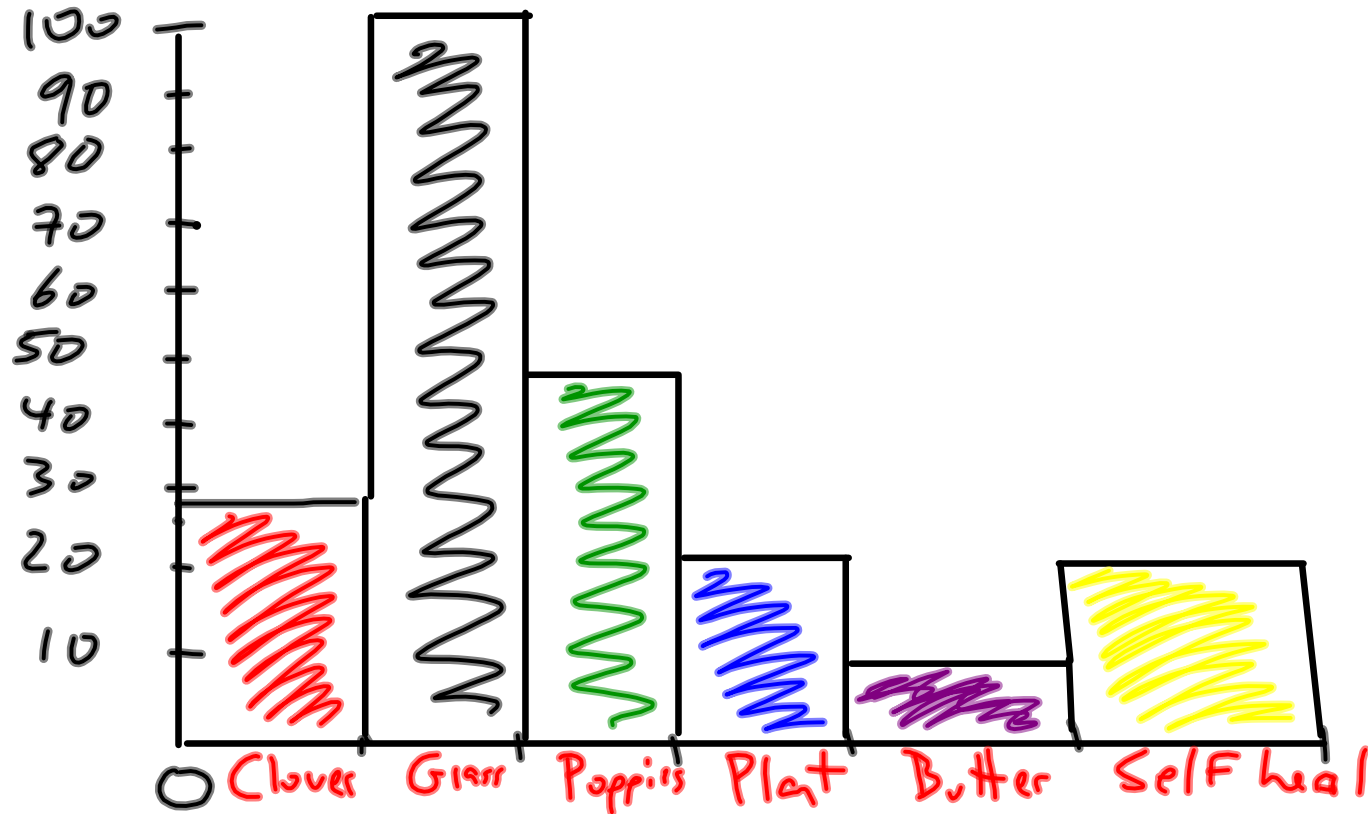
$$\text{Poppies} = \frac{7}{15} \times 100 = 47\%$$

$$\text{Plantain} = \frac{3}{15} \times 100 = 20\%$$

$$\text{Buttercup} = \frac{1}{15} \times 100 = 7\%$$

$$\text{Self heal} = \frac{3}{15} \times 100 = 20\%$$

# Presentation of Results



## Subjective Estimates

The Dafor scale is not accurate as everyone can have a different opinion

Dominant	e.g. grass
Abundant	e.g. poppies
Frequent	e.g. Clover
Occasional	e.g. Plantain, Self heal
Rare	e.g. Buttercup

## Objective Estimates

For plants - we can use a **Quadrat study** to get a more accurate result.

For animals - we use **Capture/Recapture** method to estimate numbers.



## Example of Capture/Recapture

**1st Capture**      **2nd Capture**

$$\frac{15 \times 15}{3} = \frac{225}{3} = 75$$

↑  
**Marked from first capture**

actual number was  
**60**

# Possible Errors

**Errors** may arise in the study of an ecosystem in the following ways:

- Mistakes may be made in judgement and recording
- Conditions change in the ecosystem over time
- Accidental discoveries may be made
- The habitats studied may not accurately reflect the overall ecosystem.

