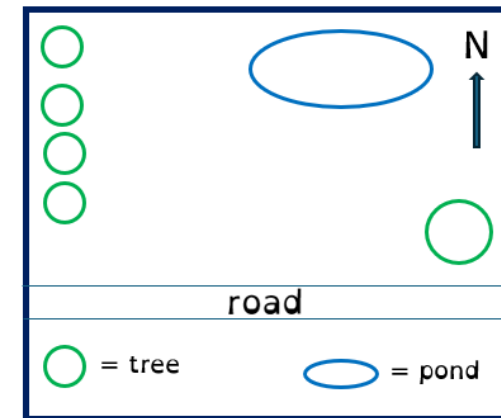




## Chapter 6 - Habitat Study

### Example: Woodland/Grassland Habitat

1. Draw a **map** of the area - use a legend and a compass. Mark the main features on the map from above and use a legend to show what they mean. Make sure to face North and show this on your map.



2. Use various instruments and identify **5 plants** and **5 animals**.

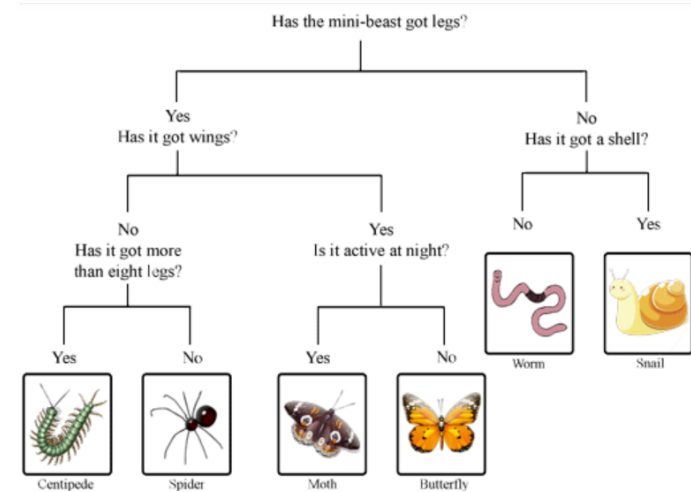
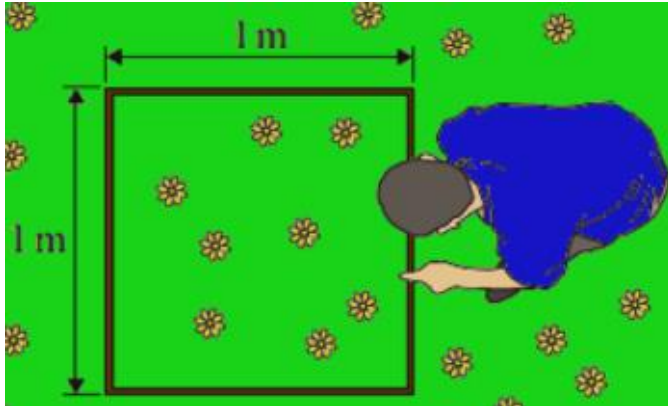


For this we can use a key, a guide, or phone app to show us the different plants and animals in an area.



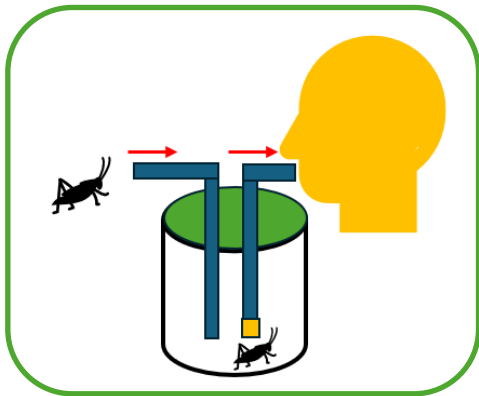


## Plants (Flora) – We use a Quadrat and a key



## Animals (Fauna) - Pooter, Pitfall trap, Beating tray and key

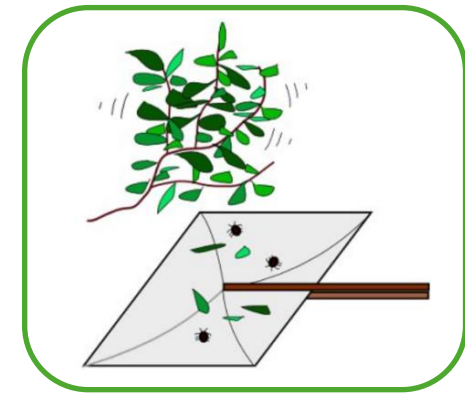
**Pooter – suck in insect**



**Pitfall Trap – insect falls in**



**Beating Tray - catch**





## Example of 5 Animals and 5 Plants in grassland area

Name	Location	Collection Method
Oak	In covered area	By Hand
Woodlouse	Shaded rotten wood	Pooter
Dandelion	In open area	Quadrat
Robin	Edge of trees	By Sight
Beech	Edge of open area	By Hand
Ivy	On fence	By Hand
Rabbit	Edge of Hedgerow	By Sight
Grass	In open area	By Hand
Slug	In covered area	Pitfall Trap
Spider	On Tree	Beating Tray





## Using a Quadrat

A Quadrat is used for both **qualitative** (yes/no) and **quantitative** studies (**numbers**).

### Percentage Frequency – Qualitative (yes/no)

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





# Percentage Cover – Quantitative (numbers)

This time we look at the crosshairs on the quadrat.

There are 36 places where the wires meet. We check



$$\% \text{ Cover: } \frac{\text{Total number of hits}}{\text{Total number of points} \times 100}$$

for the presence of a plant under each of these and add them to the table. We ignore grass.

Name	1	2	3	4	5	6	7	8	9	10	Hits	Points	%Cover
Grass	-	-	-	-	-	-	-	-	-	-	-	360	%
Dandelion	10	9	8	9	10	7	9	8	10	7	87	360	24%
Buttercup	6	6	7	5	6	6	5	7	6	8	62	360	17%
Daisy	8	8	7	6	8	9	8	6	9	8	77	360	21%
Clover	8	9	7	6	7	6	7	8	9	9	76	360	21%
Doc	4	4	7	10	5	8	7	7	2	4	58	360	16%

Each row adds to 36





## To Estimate the Numbers of Animals

### Capture/Recapture Method

We capture some animals and mark them all.

We release the animals and collect again at some stage later.

We count how many that we capture the second time have already been marked from the first capture. Then we calculate as above.

This method is **not exact** and is only an approximate guide to actual number of animals in a habitat. Marking or tagging should not interfere with the animal and should not make it more obvious to predators.

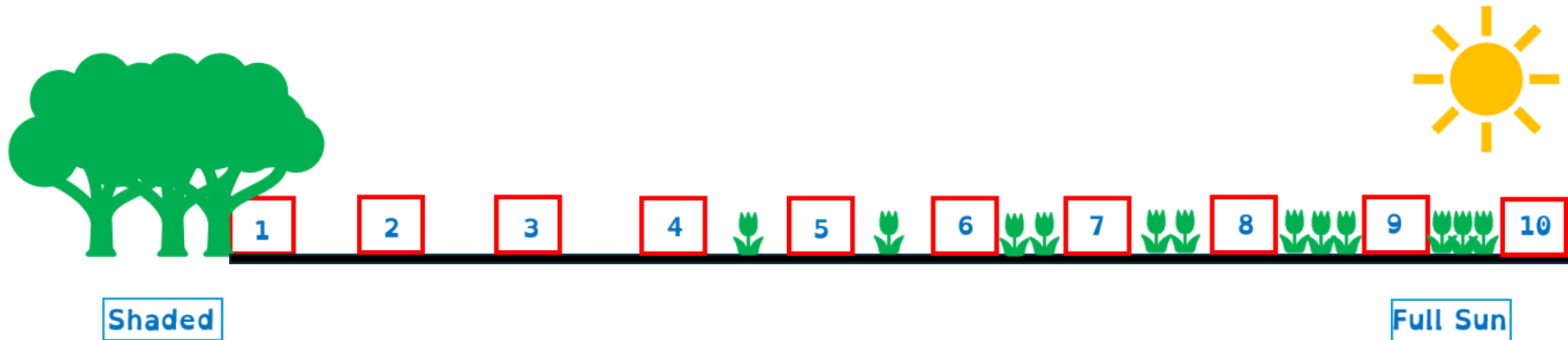
$$\begin{array}{r} \text{1st Capture} \quad \text{2nd Capture} \\ \downarrow \quad \quad \downarrow \\ \underline{15} \times \underline{15} = \underline{225} = \text{75} \\ \quad \quad \quad \downarrow \\ \quad \quad \quad \text{3} \end{array}$$

Marked from first capture





## Belt or Line Transect



- 🌱 A belt or **line transect** measures changes in **Abiotic factors**.
- 🌱 Each quadrat is measured at every metre from shade to sun.
- 🌱 E.g. measure the **air temperature, soil temperature and light**.  
This gives the change in the factor (gradient) along the line.
- 🌱 We look at the % frequency (**qualitative**) measurement along the line to see how changes affect different species of plants and animals.

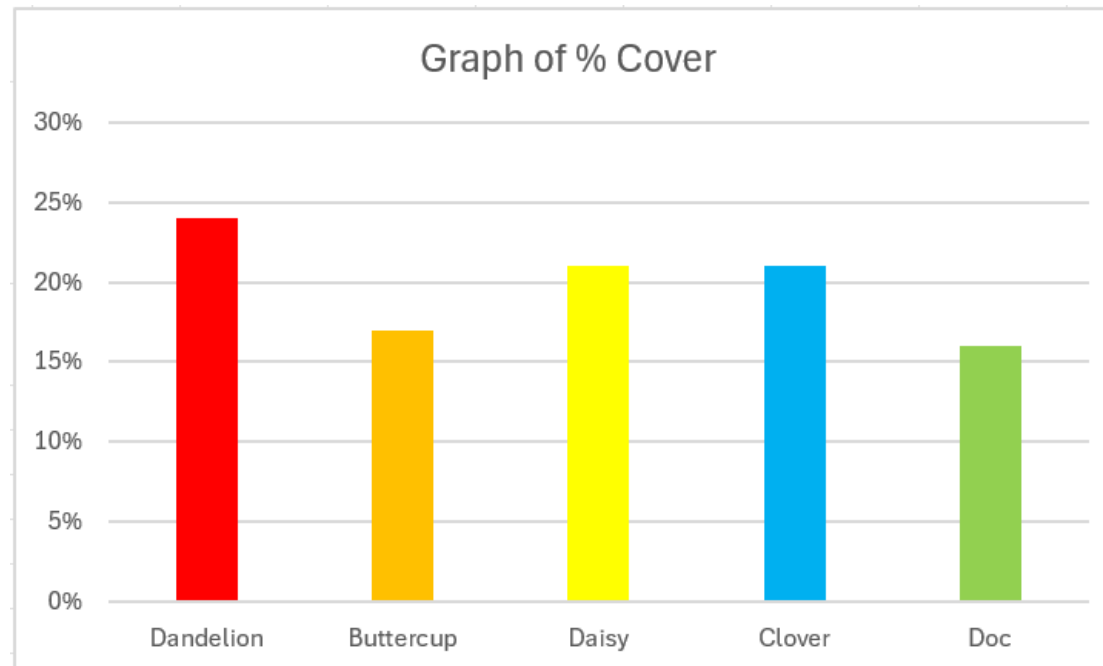




## Presentation of Results

### Percentage Cover – Quantitative Examples

Results can be in table form or drawn as a graph. Bar charts can be useful for this.







## Subjective Estimates

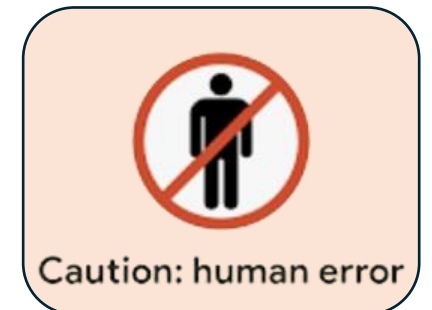
The **DAFOR** scale is based on your opinion of frequency. It's not as accurate as taking quadrat measurements.

**D**ominant **A**bundant **F**requent **O**ccasional **R**are

## Sources of Possible Errors

Errors may arise in the study of an ecosystem:

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





## Questions on this topic

**Q.1 Name 2 pieces of equipment used to carry out a plant survey?**

**Q.2 Give examples of 2 pieces of equipment used to capture animals?**

**Q.3 What is the difference between qualitative and quantitative?**

**Q.4 Briefly describe how Capture/Recapture works?**

