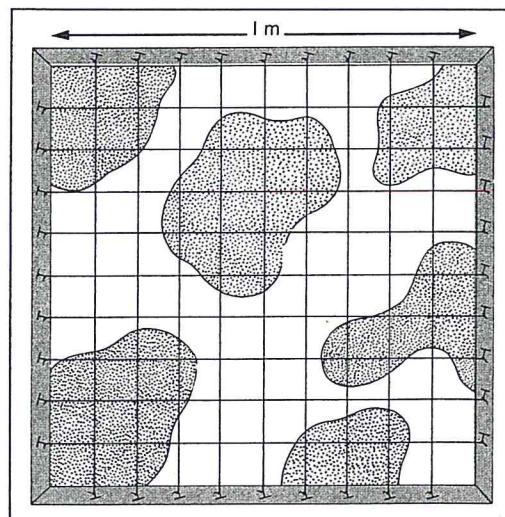


## Random sampling

- It is impractical to count every individual, e.g. dandelions in a field or limpets on a rocky shore so a **quadrat** can be used for random sampling of small areas.
- It is assumed that the area in the quadrat is representative of the whole area.
- The quadrat position can be determined using random coordinates generated by a computer.
- The species under the quadrat are identified, and the abundance measured in a number of ways:
  - **Density of a species** – count the number of individuals in all the quadrats then calculate the mean number per unit area, e.g.  $10 / \text{m}^2$ .
  - **Frequency of occurrence** – if a species occurs in 10 out of 20 quadrats, the frequency of occurrence is 50%.
  - **Percentage cover** – estimate the quadrat area covered by a species.
  - **ACFOR & DAFOR scales:**

	Limpets			% cover
<b>Abundant</b>	5 or more / $0.01 \text{ m}^2$		<b>Dominant</b>	76 – 100
<b>Common</b>	1 – 4 / $0.01 \text{ m}^2$		<b>Abundant</b>	51 – 75
<b>Frequent</b>	5 – 9 / $\text{m}^2$		<b>Frequent</b>	26 – 50
<b>Occasional</b>	1 – 4 / $\text{m}^2$		<b>Occasional</b>	6 – 25
<b>Rare</b>	Fewer than 1 / $\text{m}^2$		<b>Rare</b>	1 – 5

- Use the quadrat in many random locations in the area, and calculate the mean.



A grid made by dividing a one-metre quadrat into 100 squares. The stippled areas represent patches of grass. Grids can be made any size to suit the particular habitat being studied.