- Humidity:

in dry air conditions, pop. ~~adv~~ of species adapted to ↓ humidity greater than pop. of species w/out adaptation

*Dry air: greater conc. grad of water: more water lost by transpiration.

3.4.1 BIOL

within a habitat a species occupies a niche governed by adaptation to both biotic (e.g. competition) and abiotic conditions (eg temperature).

Adaptation → A feature that members of a species have that increases their chance of survival and reproduction. (3 types...)

- Physiological
  Processes inside the body
- Behavioural
  How an organism [illegible]
- Anatomical
  structural features of body

3.4.1 BIOL

Adaptations to abiotic conditions	Adaptations to biotic conditions
• Otters have webbed paws so can walk AND swim. Higher chance of finding food ∴ can hunt on land/in water	• Chimpanzees use twigs to fish termites out of mounds = access to another food source
• Whales have blubber for warmth. They can therefore live in places which might be colder but has plenty of food.	• Scorpions dance before mating: attracts mate of same species, making successful mating more likely.
• Brown bears hibernate, which lowers metabolism. Conserves energy in the cold.	• Some bacteria produce antibiotics – kills other species ∴ less competition.

3.4.1 BIOL

3 factors to consider w/ quadrats

1) Size of quadrat
   - Depends on size of organism being counted.
2) No. of sample quadrats
   - More samples = more reliable
   - Too many = time-consuming
   - Non-fluctuating running mean = representative sample
3) Position of each quadrat within study area
   - Random sampling = statistically significant results

Random sampling

Avoids bias, so data is valid.

- Long tape measures @ ⊾/coordinates ∞ generated from calculator.
- Place quadrat at intersection of each pair of coordinates

3.4.1 BIOL

Population size ~~also~~ Can ~~varies~~ vary due to interactions between organisms, e.g. competition/predation.

Competition

Arises when 2 or more individuals share resource that is insufficient to ~~the~~ fully satisfy all requirements

Intraspecific competition → competition between members of the same species

Interspecific competition → competition between members of different species

leads to competitive exclusion principle — no two species occupy same niche indefinitely w/ limited resources. one species has advantage (is better adapted to condition at that point in time). Population of this species ↑, other ↓ → complete removal (if conditions remain the same)

3.4.1 BIOL

Examples of intraspecific competition

- Limpets competing for algae (main source of food)
- Oak trees: in a large population of small oak trees, some will grow larger + restrict availability of light (+water/minerals) to the rest, which therefore die.
  Pop. reduced to relatively few dominant oaks.

Availability of resources being competed for in intraspecific competition determines size of population
Greater availability = ↑ pop. size.