

# Key words

- ★ species
- ★ population
- ★ community
- ★ Habitat
- ★ Niche
- ★ ecosystem



**2.1.6 Define the terms species, population, habitat, niche, community and ecosystem with reference to local examples.**

# species



*a group of individuals which can interbreed  
and produce fertile offspring*

*Horse x donkey = sterile mule*

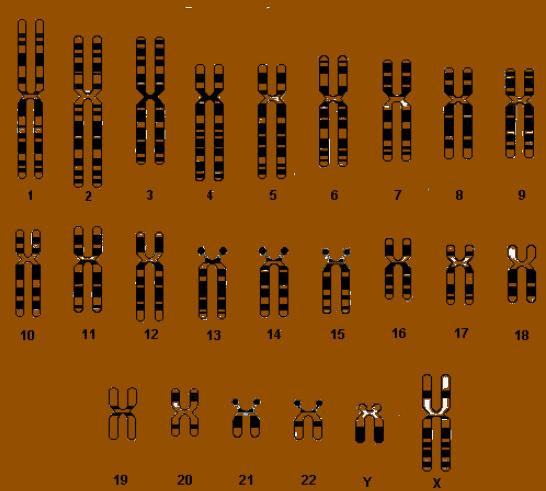
*lion x tiger = sterile tigon*



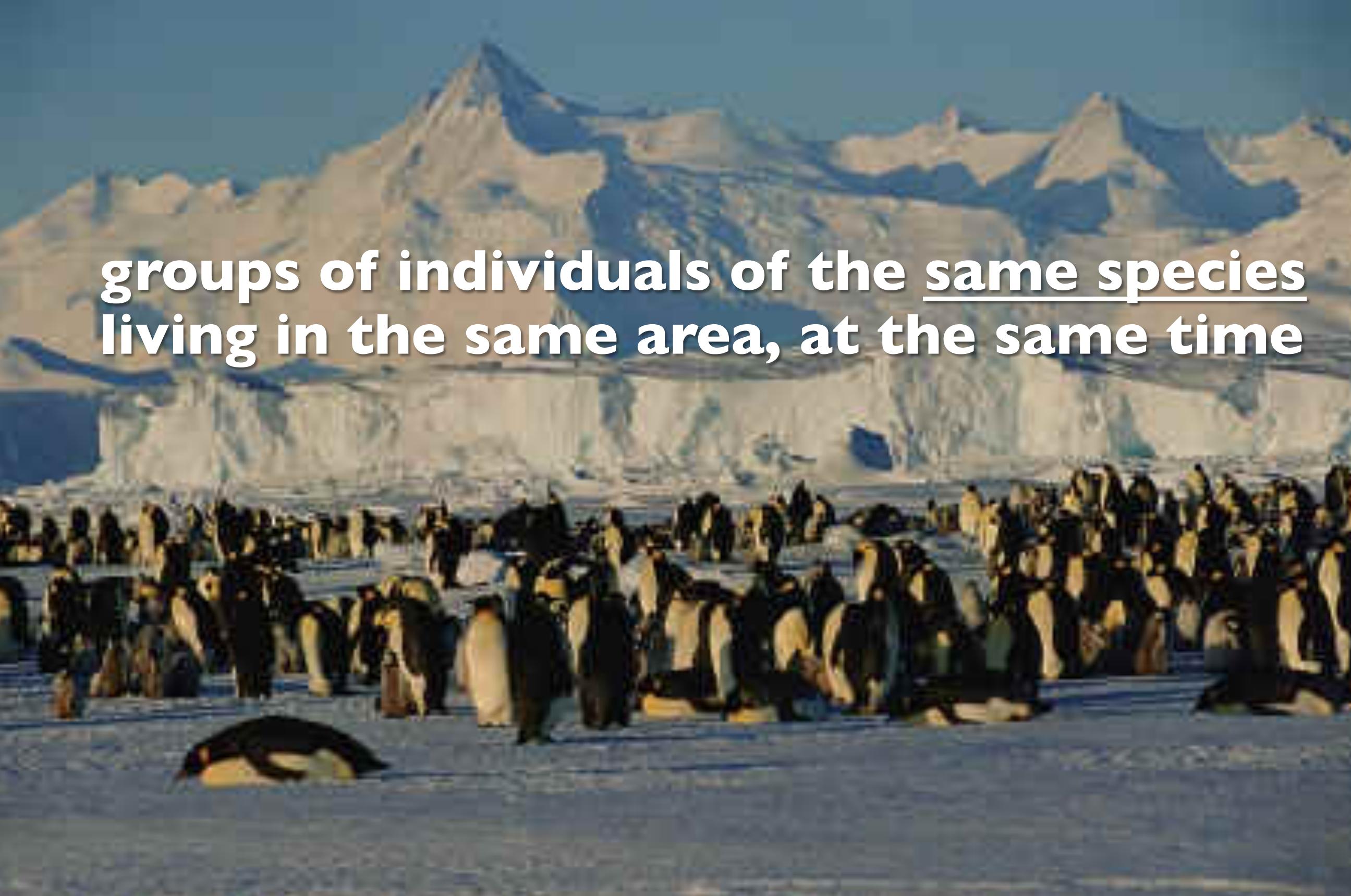
**Figure 14.2C** Hybrid sterility: a horse and a donkey may produce a hybrid (and sterile) offspring, a mule



*Hybrids may form between species, and these individuals may physically be able to mate, but they are infertile because chromosomes fail to pair*



# *Populations*

A photograph of a massive colony of King penguins on a sandy beach. In the foreground, many penguins are standing in the water, their black and yellow bodies silhouetted against the bright sand. The beach extends into the distance, where a dense line of penguins stretches across the frame. In the background, a range of mountains with snow-capped peaks rises against a clear blue sky.

**groups of individuals of the same species  
living in the same area, at the same time**



*Populations of different species living and interacting in the same area form a **community** – (the living components of an ecosystem)*

*The **habitat** of a particular species is the physical environment in which that species is normally found (the species address!)*

# Niche

- The **role** that a species plays in a community
- Niche and habitat are NOT the same. Many species may share a habitat but every species has a unique niche.

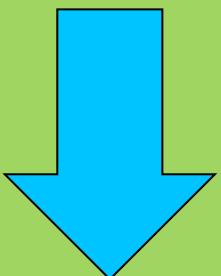
- The niche is the particular role an organism has in an ecosystem.
- The niche includes where an organism lives, spatial habitat (e.g. frogs live in mud burrows at edge of a pond), feeding activities (e.g. green frogs eat aquatic larva of mosquitoes) and interactions with other species.
- These interactions can be competitive (e.g. frogs and small fish compete for aquatic larva), herbivory (e.g. rabbits eat the grasses of the dunes), predation (e.g. blue herons eat the green frogs), parasitism (e.g. leeches suck the blood of a fish) or mutualism (e.g. lichens are a cooperative relationship between alga and fungus).

- A niche can be fundamental (the perfect situation). For example, the heron eats frogs and lays its eggs in the grasses of the pond.
- A niche can be realized. The realized niche is the reality that the organism must live with. For example, if the pond has dried up due to drought, the heron is in direct competition with the other birds for food and space. If competition is severe, the principle of competitive exclusion may apply. This states that no two species in a community can occupy the same niche.

# The niche of an organism includes:

1. Habitat
2. food sources
3. Its use of abiotic resources – light, CO<sub>2</sub>, oxygen etc
4. The way in which it is influenced by abiotic factors – the max & min temperatures in which it can survive
5. The way in which it interacts with other individuals of the same species and with individuals of other species.

No two species can occupy  
the same niche  
at the same time...



**Competition**

# Ecosystem

A community of interdependent organisms (*biotic*) and the physical (*abiotic*) environment they inhabit.