

Species Interactions

There are 5 categories of species interactions. Some of these may be pretty familiar to you. Can you name all 5?

Categories of Species Interactions

1. Predation

2. Competition

3. Parasitism

4. Mutualism

5. Commensalism

Each category is based on the effect
each species has on the other

Predation

-Predation is when one organism of 1 species (**predator**) consumes part or all of another organism of another species (**prey**)

-Can be: **herbivores** (plant-eaters) or **carnivores** (meat-eaters)

-This is a **win-lose** relationship (predator wins, prey loses)





Typically the above photos are what we think of when we think of predation, but the photo at the side is also an example



What makes a good predator more effective?

- speed
- heightened senses like hearing, vision
- claws or teeth for grabbing and shredding
- camouflage (to sneak up on prey)



Revenge of the prey – how do they survive?

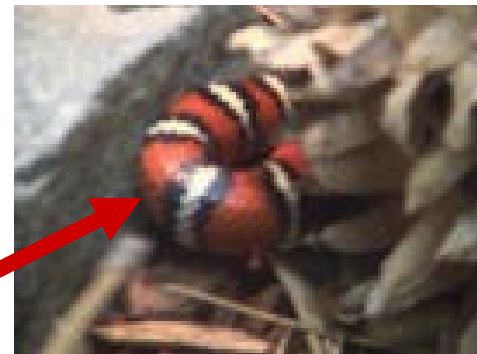


Prey animals may develop speed, heightened awareness, colonial living, camouflage or mimicry

Mimicry is when 1 species looks like another species (usually 1 that is venomous or bad-tasting)



The coral snake is venomous but the CA king snake isn't



Plants can't run and hide, so how do they protect themselves?

Plants can have **physical defenses** like thorns, needles, tough leaves

They can also have **chemical defenses** that are poisonous, irritating or bad-tasting



Animals who encounter poison ivy are also affected & learn real quick to leave it alone!



Competition

Interspecific competition is competition between 2 different types of species for the same resource

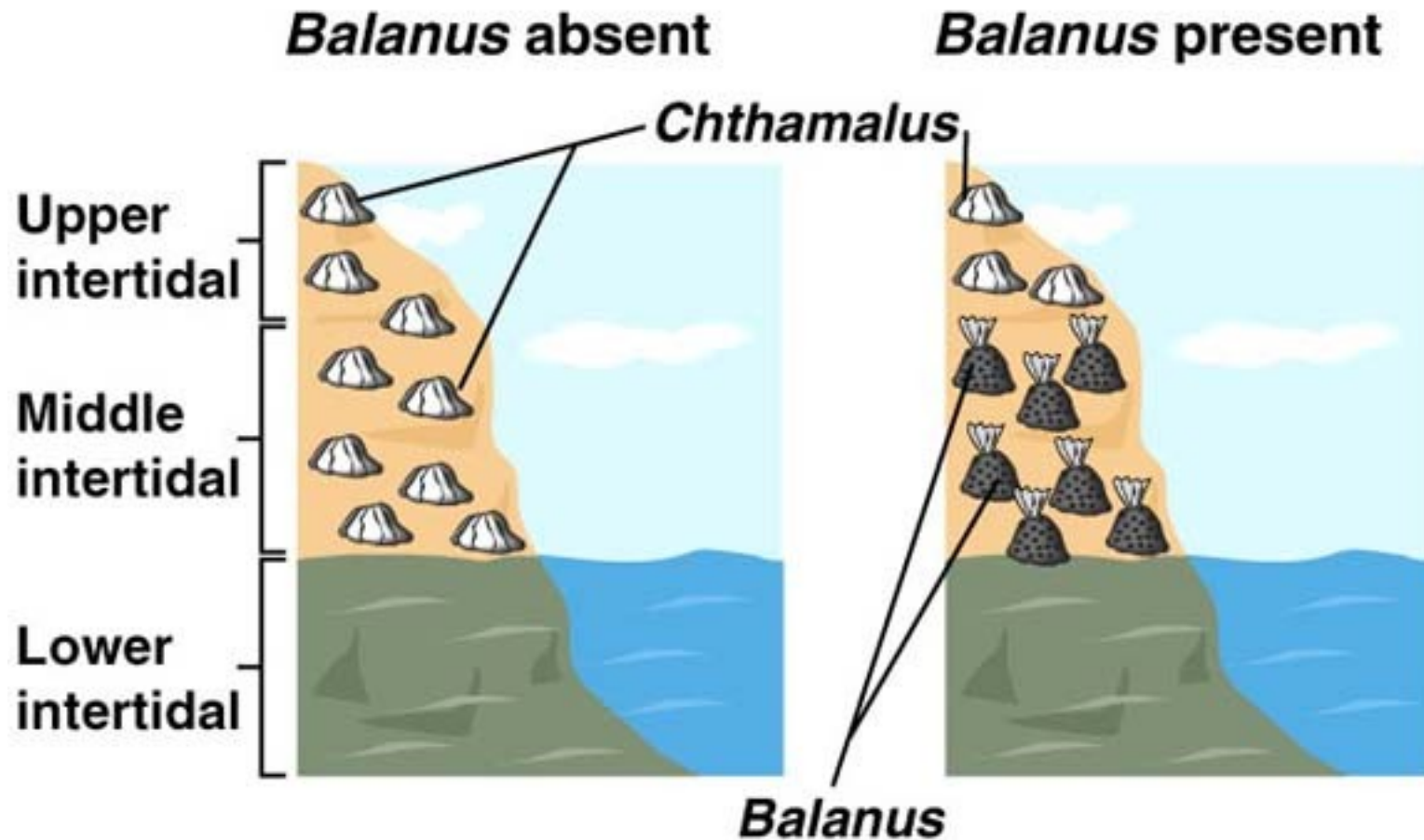
Examples include:

- plants competing for light or space
- 2 predators competing for the same prey

Results of competition:

- 2.Competitive exclusion** – 1 species is eliminated from the community because it is worse at getting the resource
- 3.Reduced niche size** – species lives in a more limited environment than it can actually tolerate
- 4.Character displacement** – competitors evolve slight differences so they no longer compete for the same resource

Barnacle competition

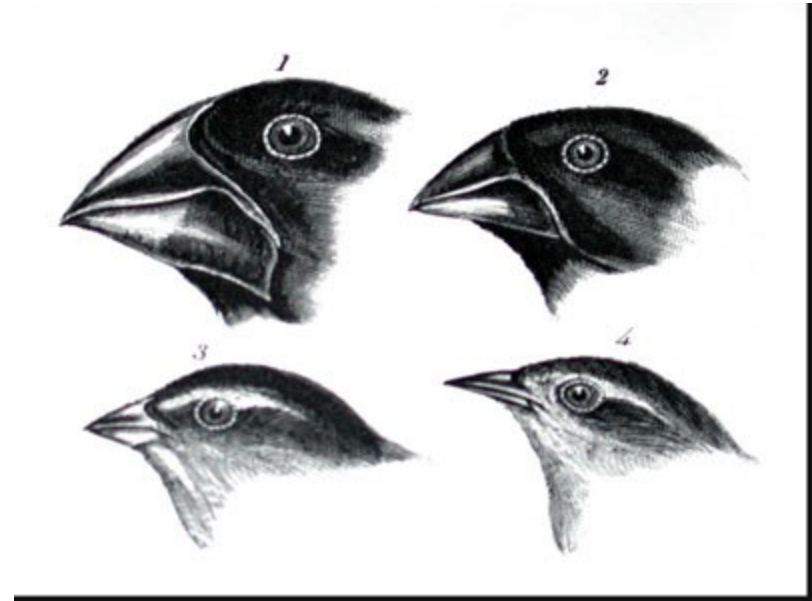
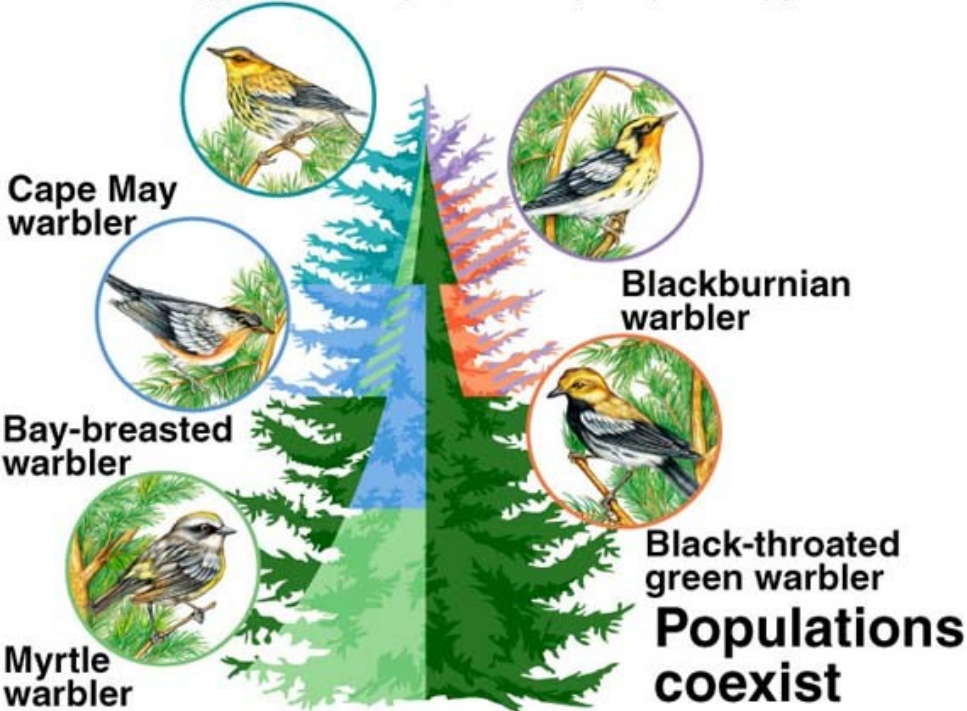


Balanus grows faster & crowds out *Chthamalus* in the lower tidal zones (excludes) leaving *Chthamalus* to survive in the dryer upper zone (reduced niche)

Results of competition cont.:

4. **Resource partitioning** – species share resources by using different parts

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Which of the above photos shows resource partitioning and which shows character displacement?

Symbiosis

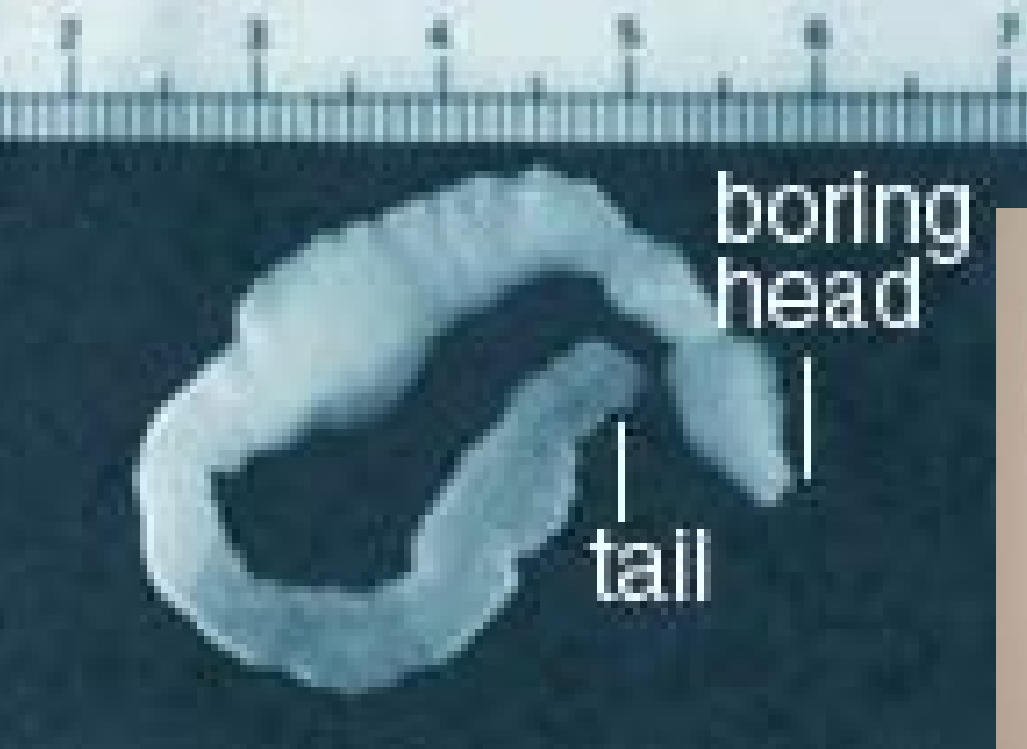
Symbiosis = long-term close relationship between 2 different organism

There are 3 types:

3.Parasitism (win-lose situation)

parasite benefits from its relationship to its *host* (usually does not kill host)

- **ectoparasite** – lives on outside of host (ex. flea, tick)
- **endoparasite** – lives inside host (ex. Tapeworm)



Perhaps not the wisest of diet plans. Is this an endo or ectoparasite?



Symbiosis cont...

2. **Mutualism** (**win-win situation**)

- both species benefit
 - examples include:
 - * flowers and their pollinators
 - * clownfish & sea anemones
 - * zebras, hippos & oxpicker birds



News Alert:

- New field studies suggest that the oxpicker birds aren't helping remove as many ticks as previously thought!



- Perhaps this is not a case of mutualism
- Apparently they pick at wounds on the zebras or prefer to eat ticks that have engorged themselves on blood so maybe they are really _____?

Commensalism

3. **Commensalism** – one species benefits, the other is not affected (although it actually may be mutual but we don't understand the benefits!)

Ex: - scavengers who feed on dead things

- buffaloes & cattle egrets

(buffalo displace insects as they walk & egrets feed on them)



Commensalism

Cattle don't get much benefit but egrets get small prey items flushed out into the open

Scavenger – special case of commensalism. The vultures did not kill the hyena (also a scavenger!) but now get the benefit from eating it.



Cat Flea
Ctenocephalides felis



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