

The Origin of “Species”



Emma & Charles Darwin

species: group of pops, have potential to interbreed in nature, produce viable, fertile offspring (but can't with other species).



Species #2

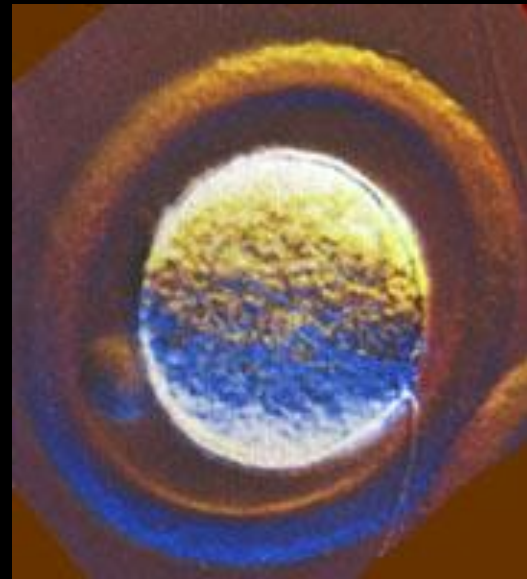


Species #3

Reproductive Isolation is key

Barriers to repro include:

- Prezygotic
- Postzygotic



Pre-zygotic barriers

1. Habitat isolation



African



Asian

[Click here for an animation demonstrating allopatric speciation due to habitat isolation](#)
(From your ESP)

Prezygotic barriers

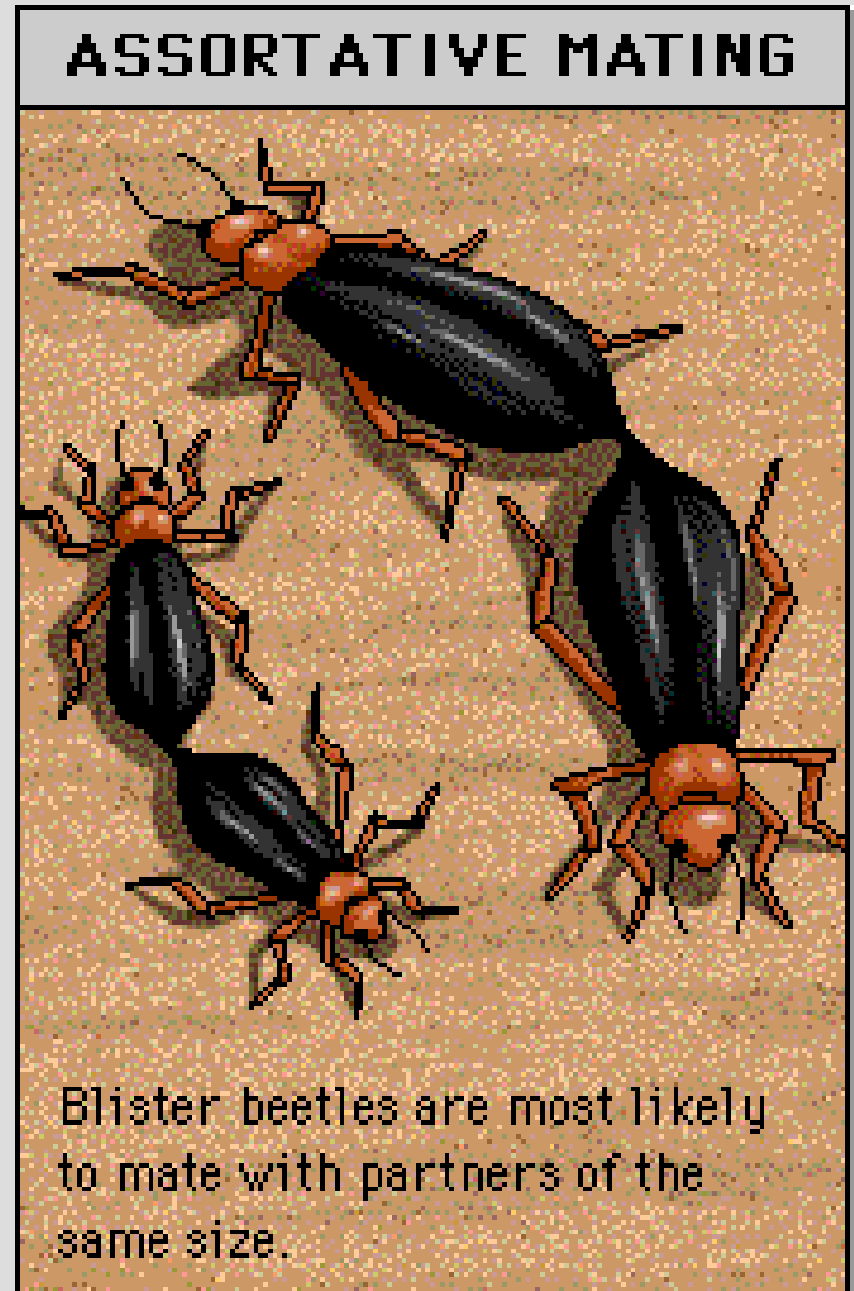
2. Behavioral isolation

- mating signals



Behavioral Isolation

2. One morph (form) selectively breeds with only the same morph



Prezygotic barriers

Temporal isolation=breed at different times/seasons



Petunia
spring bloom



Mums
fall bloom

Prezygotic barriers

Mechanical isolation

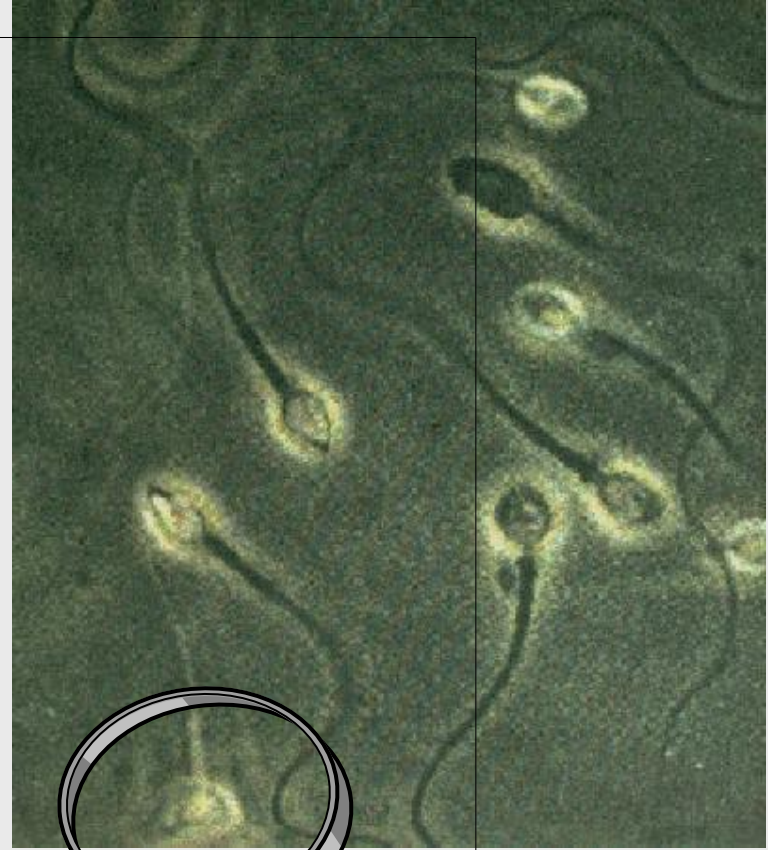
- reproductive parts don't fit



Different insects pollinating black sage and white sage

Prezygotic barriers

- *Gametic isolation* even if gametes get together they don't recognize each other (membrane proteins i.d. them)



Post zygotic barriers

Reduced hybrid viability

- spontaneous abortion

DNA doesn't make sense

Post zygotic barriers

Reduced hybrid fertility = hybrids live but can't reproduce



[Click here to check out other hybrid oddities!](#)

Post zygotic barriers

Hybrid breakdown=hybrids live and produce offspring (F1) but F2 is feeble or sterile



Bio species concept is limited:

1. Asexual organisms don't breed with each other.



Bio species concept is limited:

2. Concept is sometimes too rigid:

coyotes, dogs, wolves can interbreed *and* have off-spring. In fact, new genetic evidence suggests that dogs and wolves should be the **SAME** species.

[Click here to see a video about the evolutionary relationship between domesticated dogs and wolves!](#)

