

Speciation

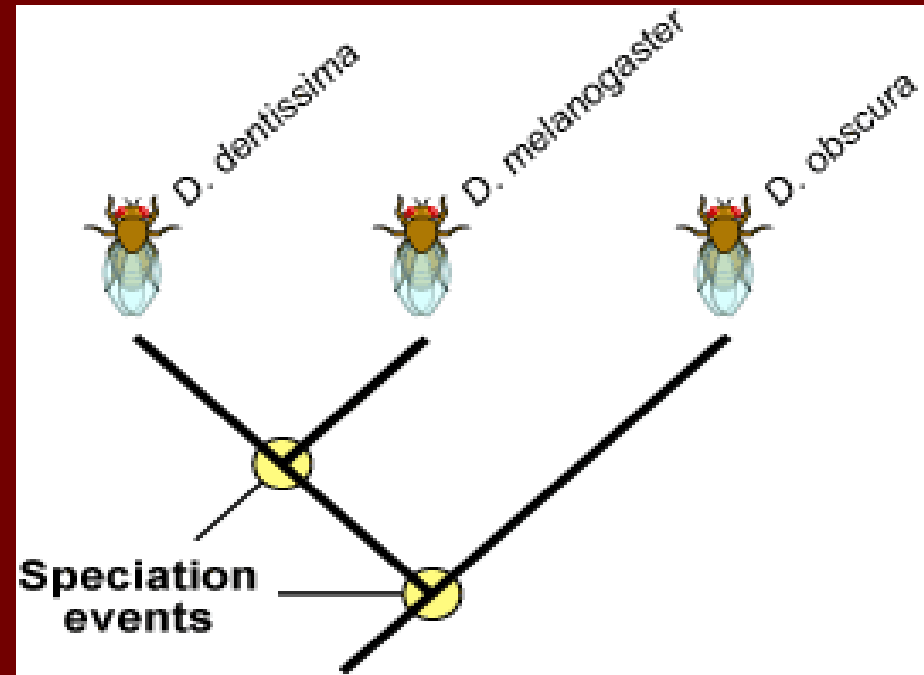
What is a species?

- A member of a population that actually or potentially can interbreed in nature, not according to similarity of appearance.



Speciation

- Is an event that produces two or more separate species from an original species.



What causes speciation?

- Geographic Isolation
 - When two species are kept from interbreeding due to some physical barrier.

What Causes Speciation

- Reduction of gene flow
 - A population extends over a broad geographic area. Individuals in the far west would have zero chance of mating with individuals in the far eastern end of the range.

Geographic Isolation

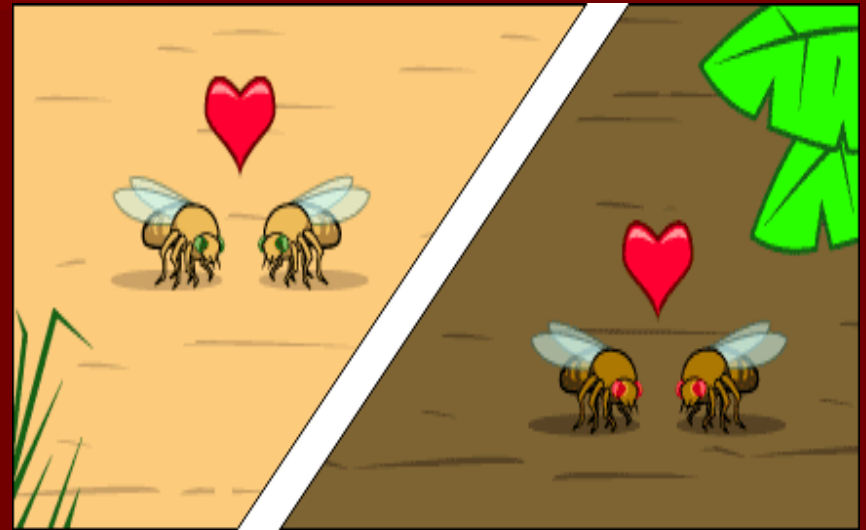
The scene: a population of wild fruit flies minding its own business on several bunches of rotting bananas, cheerfully laying their eggs in the mushy fruit...



- **Disaster strikes:** A hurricane washes the bananas and the immature fruit flies they contain out to sea. The banana bunch eventually washes up on an island off the coast of the mainland.



- **The populations diverge:** Ecological conditions are slightly different on the island, and the island population evolves under different selective pressures and experiences different random events than the mainland population does.

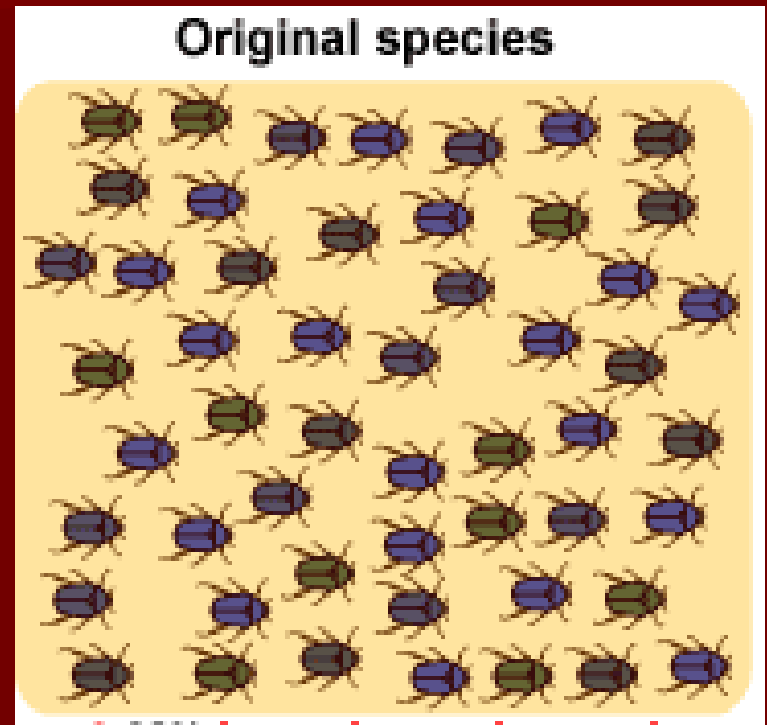


- **So we meet again:**
When another storm reintroduces the island flies to the mainland, they will not readily mate with the mainland flies since they've evolved different courtship behaviors. The lineage has split now that genes cannot flow between the populations.



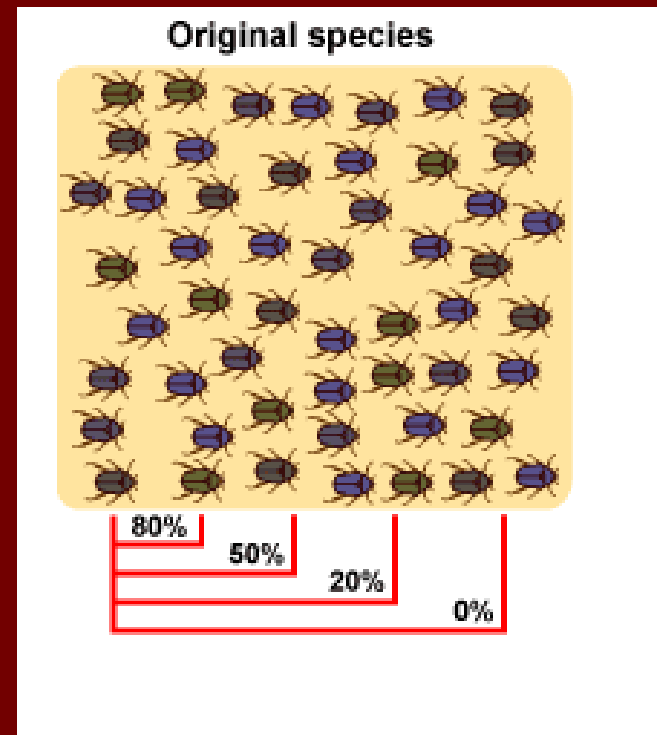
Reduction of Gene Flow

- Two populations of beetles are spread out across a vast land.



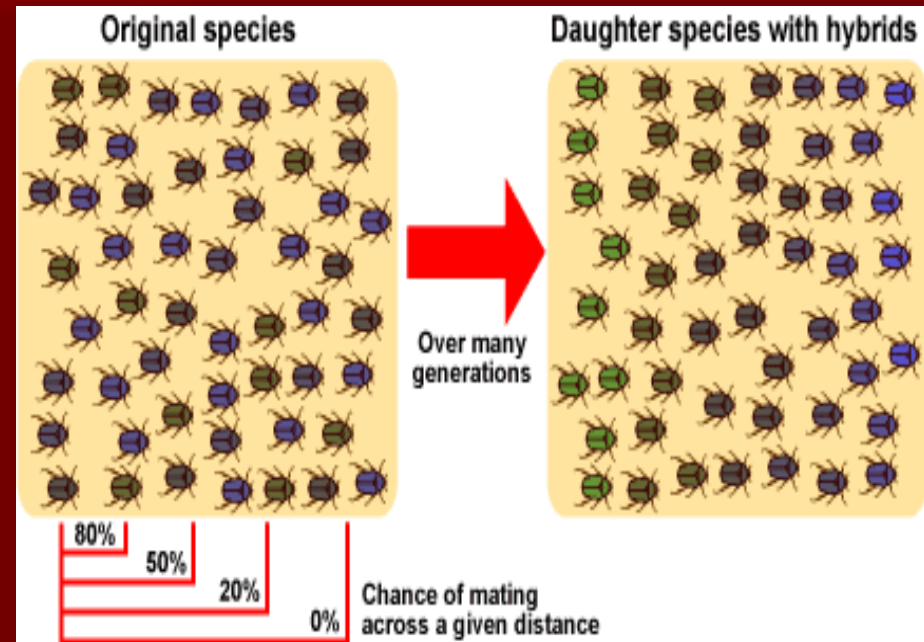
Reduction of gene flow

- The East beetles only mate with east beetles and the west beetles only mate with west beetles



Reduction of gene flow

- Eventually our beetles two or three different species because reproduction only occurred with beetles of the same area.



- EAST DOESN'T MEET WEST!