

What do predators do?

- 1) search images
- 2) avoid / use toxins
- 3) get through armor

- ambush hunting

- stalking hunting - can be long searching

- pursuit hunting - not a lot of searching, can be long

The Latitudinal gradient

- What is diversity?

↳ species richness = the # of species present

↳ Evenness = the relative abundance of species

- species richness increases with area

- what is the latitudinal gradient in species diversity?

↳ more species at lower latitudes (tropics than at poles)

Potential hypotheses for cause of the gradient:

1) Climate Stability

2) Increased competition

3) Increased predation

4) Increased energy - Ecological hypothesis

5) Evolutionary time - Evolutionary hypothesis

reject!

1) Climate Stability

↳ tropics have lowest annual temp range for globe

↳ disturbance hypothesis, seasons hard to handle

- seasons are disturbance, makes species very hard to survive

2.) Increased Competition



3) Increased Predation

↳ result of higher diversity NOT cause!

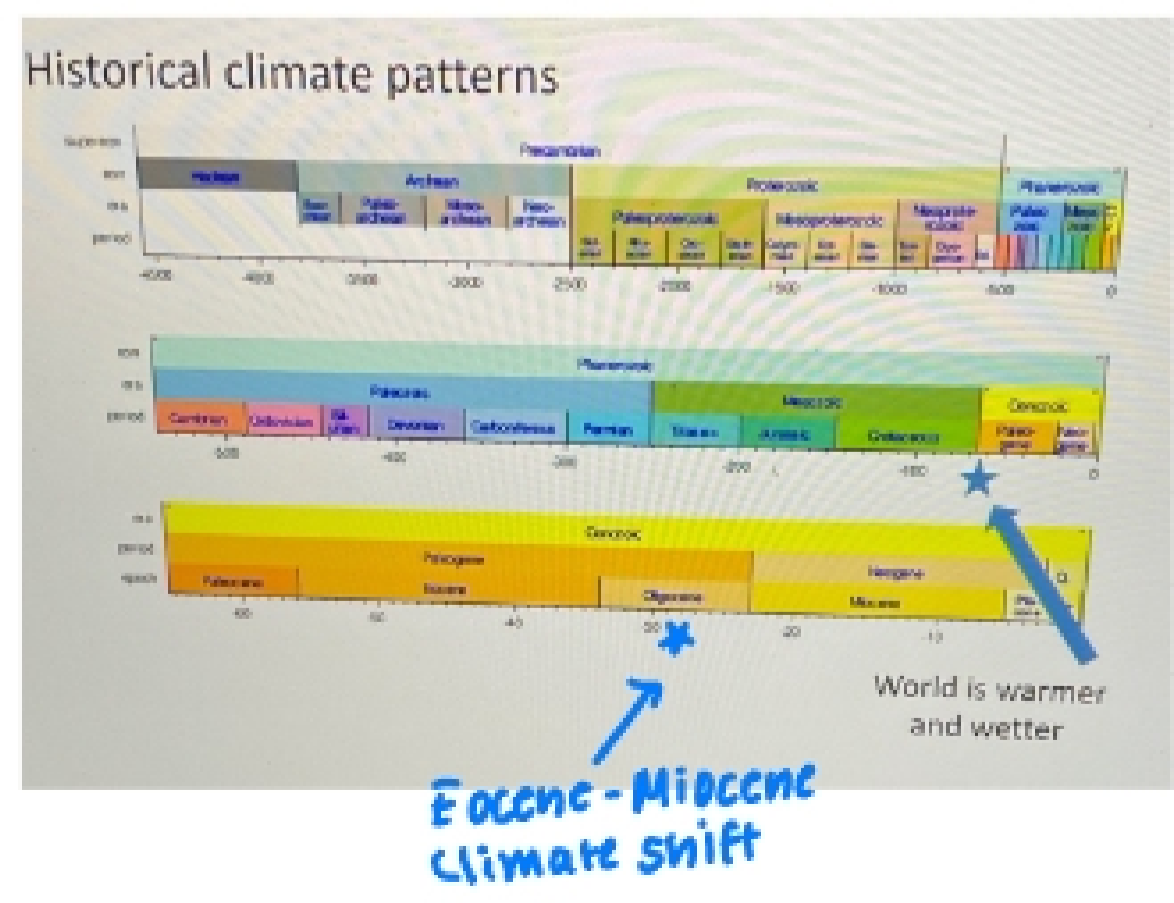
4) Increased Energy: 3 predictions

1) increased productivity

2) overwintering tolerance

3) Ambient energy

5) Evolutionary Time



- tropical forests are far smaller than in the Cretaceous

Niche conservatism:

- when organisms maintain their ancestral niche in the face of environmental transitions

Issues with energy hypothesis:

- 1) correlation doesn't equal causation
- 2) Increased energy doesn't answer the question

The gradient in western hemisphere birds:

- Dr. Bradford Hawkins
- on side of evolutionary explanation