


WFS 453
AMPHIBIAN ECOLOGY AND CONSERVATION
SPRING 2009

**Ultraviolet-B Radiation effects on
Amphibian Populations**

Wade Young
University of Tennessee-Knoxville
Department of
Forestry, Wildlife, and Fisheries



Objectives:

Discuss causes of ultraviolet-B radiation.

Discuss effects of ultraviolet-B radiation on amphibian populations.

Discuss amphibian defenses to ultraviolet-B radiation.

Discuss why this is the most detrimental cause of amphibian decline.

Discuss who this decline may effect and why we should care.

Causes of ultraviolet-B radiation


Human-induced production and release of chlorofluorocarbons and other chemicals

Volcanic activity

Impact from comets and asteroids, solar flares, and other cosmic events

Effects of ultraviolet-B radiation on amphibian populations

- Mutations and cell death
- Decreases hatching success of some species
- Slows growth rate
- Impairs immune system



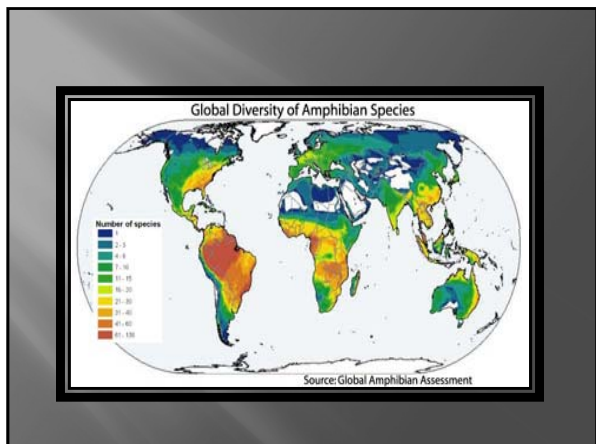
Amphibian defenses to ultraviolet-B radiation

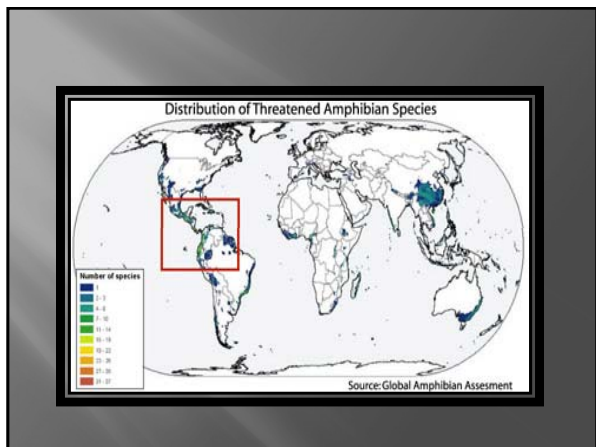
Behavioral mechanisms:

Physiological mechanisms:

Why is ultraviolet-B radiation the most serious cause of amphibian decline?

- Covers ALL habitats of amphibians
- Most persistent decline factor
- Can effect an entire species not just a localized population
- Damage to the ozone layer that causes UV-B radiation can not be reversed





**Who will this decline effect?
Why should we care about it?**

Unknown amount of people and other species effected
What species will be next to fall to UV-B radiation?
What possible disease cures will be lost with the loss of these species?

Questions?