

Name: _____

Frogs that can take the heat expected to fare better in a changing world

Climate change may outpace deforestation as habitat threat in tropics

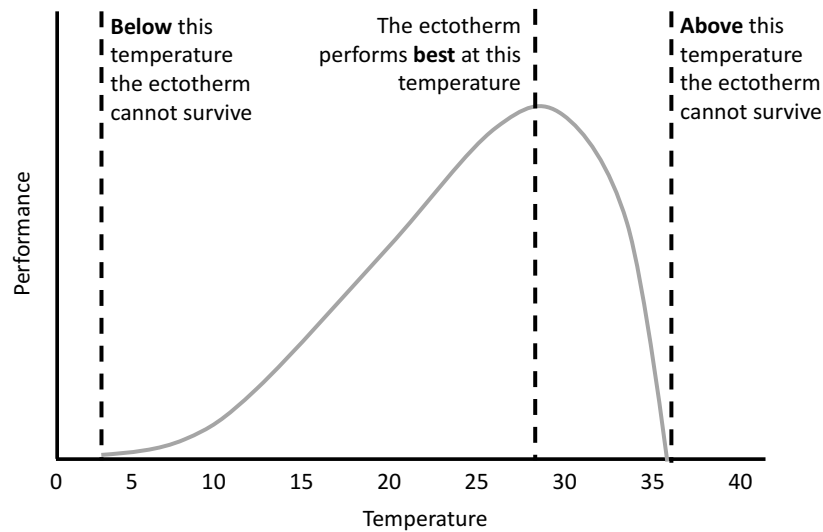
1. True or False: Frogs are disappearing globally. _____
2. What is thermal tolerance? _____

3. What is the full scientific name for the fungus referred to as Bd, or the amphibian chytrid?

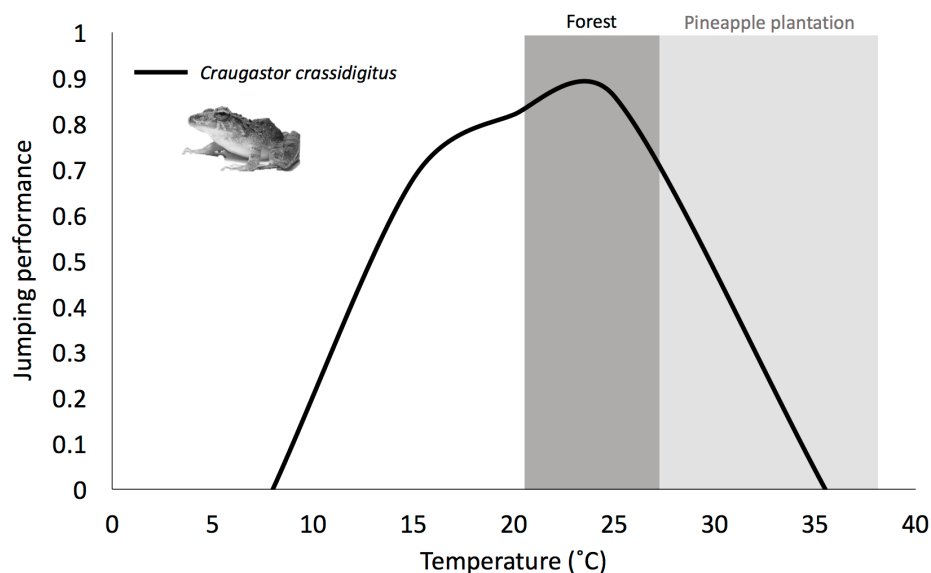
(Genus) (species)
4. Why is this fungus being studied? _____

5. In which environment does Bd grow best?
 - a. hot environment
 - b. cool environment
6. Which frog would be more likely to escape infection by the fungus?
 - a. a frog with high thermal tolerance
 - b. a frog with low thermal tolerance
7. What two factors may lead to more frog disease outbreaks, according to Brian Todd, Associate Professor of Conservation Biology in the UC Davis Department of Wildlife, Fish, and Conservation Biology?
 - a. climate change
 - b. pollution
 - c. pathogen transport facilitated by globalization
 - d. increasing numbers of mosquitos
8. According to the research findings presented in the article, which may occur faster?
 - a. loss of thermally suitable habitat due to climate change
 - b. loss of habitat due to deforestation

9. Biologists use **thermal performance curves** to understand how well ectotherms' bodies work at different temperatures. Performance can be measured for any activity that an ectotherm's body needs to do that could affect the ectotherm's survival, such as jumping distance or swimming speed. Scientists then measure differences in the ectotherm's ability to do these activities, such as jumping far, at different temperatures. Here is an example of a thermal performance curve:



Using the thermal performance curve for the tropical frog species *Craugastor crassidigitus* below, answer questions a-c. On this graph, the vertical axis is jumping performance, where higher values (near 1) correspond to longer jumps by the frog.



- The highest temperature this species can survive in is _____°C.
- This species jumps the farthest at _____°C.
- This species usually lives in a forest, which has daytime temperatures of 20-27°C (dark grey shading on graph). Pineapple plantations have daytime temperatures of 27-37°C (light grey shading on graph). If the forest is cleared for a pineapple plantation, do you think this species will be able to survive? Explain your answer.
