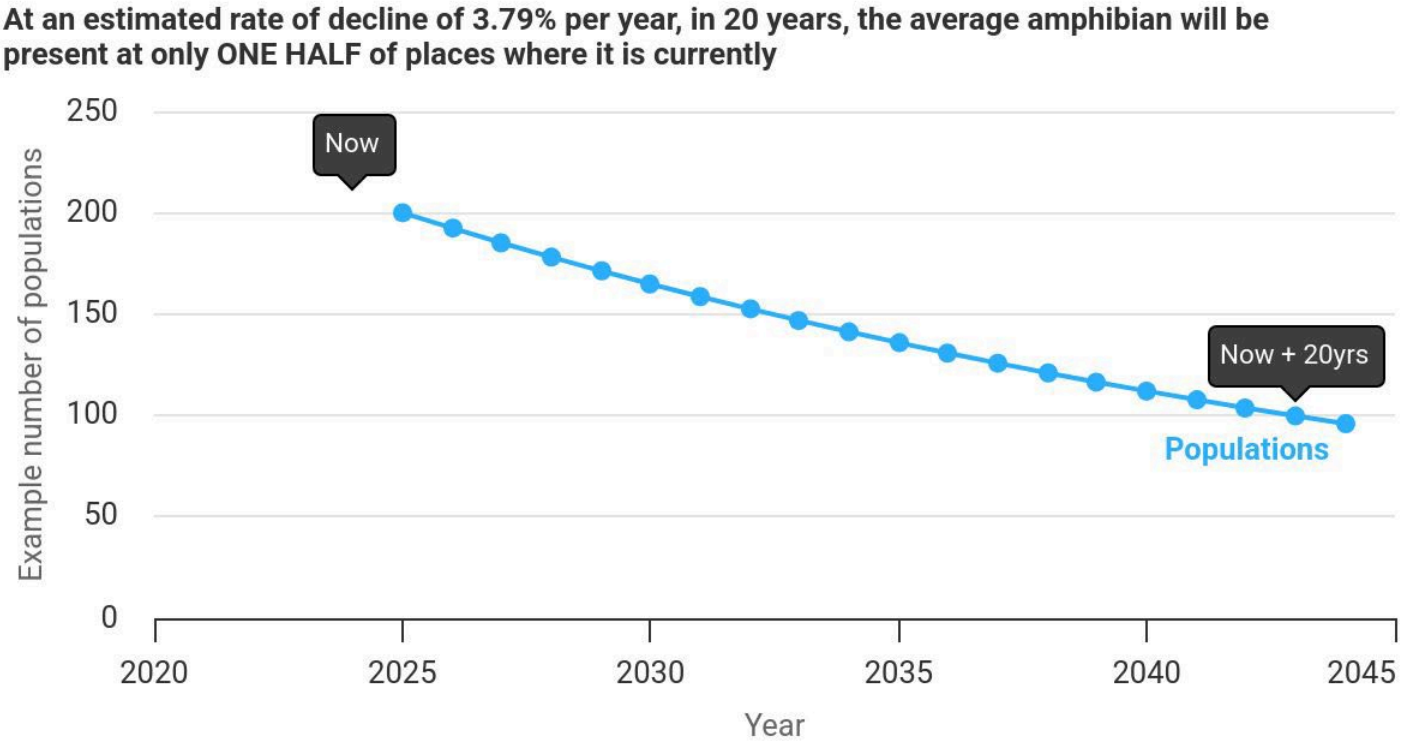
State of Amphibians in the U.S.

Data Visualization Analysis Teacher Guide

Background

Amphibian declines represent a major environmental concern with global implications. Scientists began noticing these declines over 30 years ago, and we now know that amphibians are at higher risk of extinction than other groups like birds, mammals, and reptiles. This decline is so serious that some experts compare it to the largest extinction events in Earth's history. The reasons are complex—factors like pollution, disease, habitat loss, and climate change all play a role and can vary by region and species. These population losses affect entire ecosystems and pose real-world challenges for conservation. The graph helps illustrate the current status of amphibians in the U.S. and the major threats they face, providing a foundation for teaching about biodiversity, ecology, and human impact on the environment.



Grant, E.H.C., Miller, D.A., Schmidt, B.R., Adams, M.J., Amburgey, S.M., Chambert, T., Cruickshank, S.S., Fisher, R.N., Green, D.M., Hossack, B.R. and Johnson, P.T., 2016. Quantitative evidence for the effects of multiple drivers on continental-scale amphibian declines. Scientific reports, 6(1), p.25625.

Observe

1. What do you notice about this visualization? Record 3 observations. Consider axes, title, type of visualization (line graph, bar chart, map, bubble chart, or other), time, etc.

    - ***There is a caption, rather than a title, that describes the rate of decline of amphibian populations***
    - ***The visualization is a line graph***
    - ***The X axis represents time and ranges in year from 2024 to 2046***
    - ***The Y axis represents an example number of populations and ranges from 0 to 250***

Analyze

1. List the variables in the visualization.

    - ***The variables in this visualization include year and the number of populations.***
2. A relationship between variables exists when one influences the other. Do you notice a relationship between any of the variables in the visualization? If so, describe the relationship you observe.
    - ***The example number of populations decreases over time. The number of populations decreases by 50% over 20 years.***

Interpret

1. What trends or patterns do you notice in the data? In 1 -2 sentences, summarize the main takeaway of this visualization.
    - ***The number of amphibian populations decreases over time in the future.***

2. If you had to explain this to an adult, what would you tell them in 2 – 3 sentences?

    - ***The number of amphibians found in our environment are going to be decreasing over time in the future.***

Connect

1. How does this visualization connect to your world?

    Answers will vary. Consider the following:

    - ***Perhaps we should be thinking about how we can maintain and conserve amphibian populations. Habitat fragmentation, climate change, and pollution may be drivers in the decline of amphibian populations.***

2. How does this connect to what we are learning about in class right now?

    Answers will vary