HOW TO USE THIS RESOURCE

Show the figure below to your students along with the caption and background information. The "Interpreting the Graph" and "Discussion Questions" sections provide additional information and suggested questions that you can use to guide a class discussion about the characteristics of the graph and what it shows.
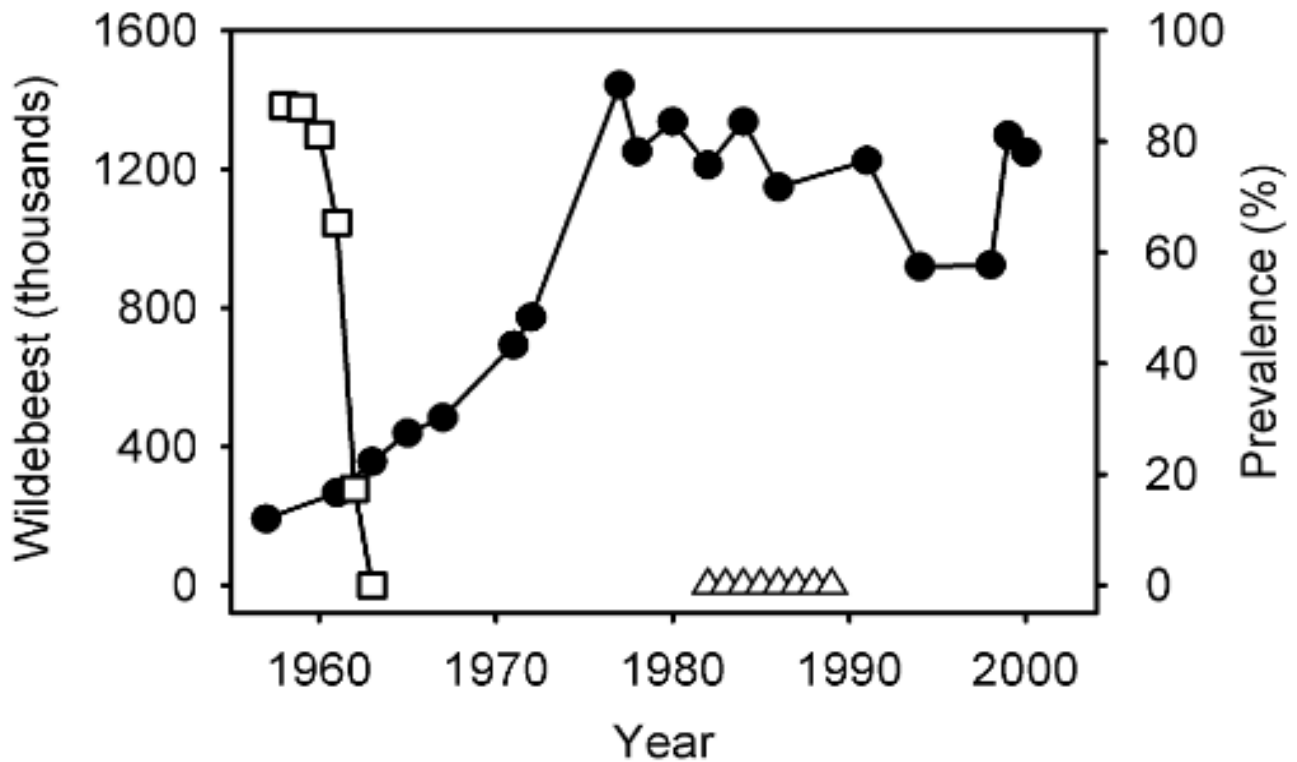
Caption: Number of wildebeest in the Serengeti ecosystem (shaded circles, left y-axis) and the prevalence (i.e., percentage) of individuals infected by rinderpest disease (unshaded squares and triangles, right y-axis) from 1958 to 2003.

BACKGROUND INFORMATION

In the 1960s, wildlife managers in Serengeti National Park, Tanzania, noticed that the wildebeest population was increasing rapidly. Researchers began studying the cause of the sudden increase. To do this, they first had to understand what was controlling wildebeest numbers before the increase, and what changed in the 1960s. One candidate they considered was disease. Rinderpest is a viral disease that infects cattle, wildebeest, and other hoofed animals. The disease had affected cattle and wildlife in the Serengeti region for decades. Death rates were extremely high, especially among wildebeest calves. A program to vaccinate cattle began in the 1950s, and scientists monitored how the program affected wildebeest populations. In 2011, the United Nations declared that vaccination efforts had eradicated rinderpest across the globe. Rinderpest became the second viral disease, after smallpox, to be wiped out.

The researchers later went on to explore how the eradication of rinderpest, and the rise in wildebeest numbers, affected other species in the ecosystem. They found that larger wildebeest populations consumed more grass, which in turn reduced the wildfires in the region. Wildfires also suppress trees, so the decrease in wildfires resulted in an increase in tree density.