Lesson from Video: Tracking Lion Communities in Gorongosa

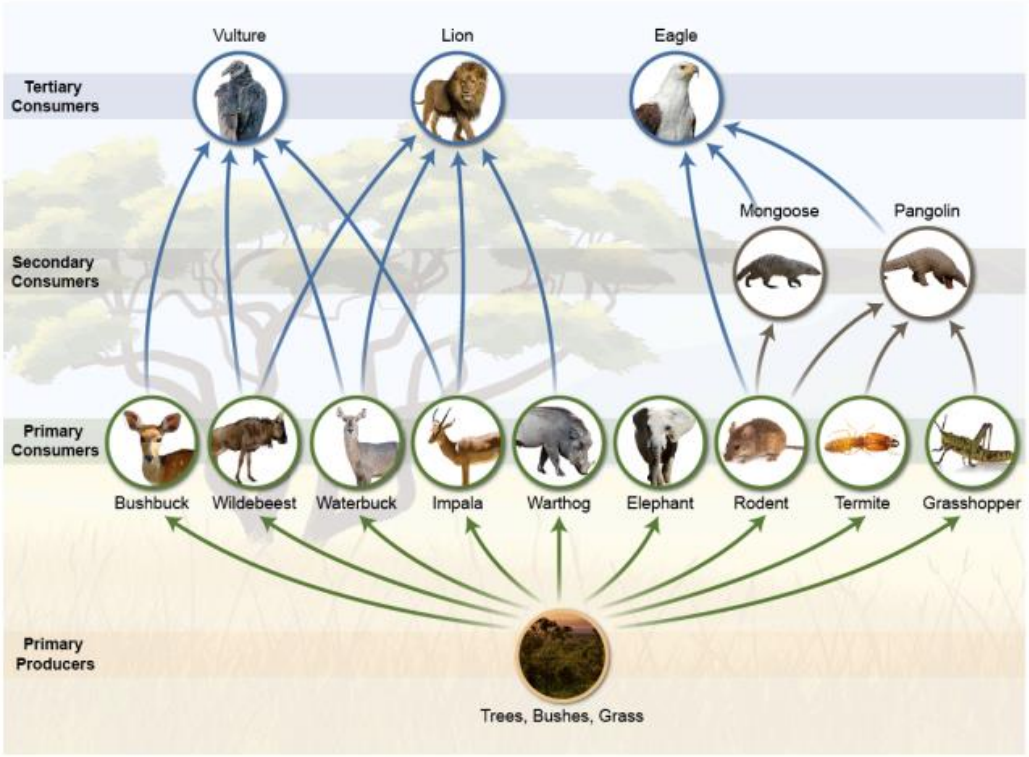
1. Technology has changed the way scientists conduct their research. Provide two pieces of evidence from the film to support this claim: "Technology is crucial for lion research in Gorongosa National Park."

2. Celina and Domingas, the two research assistants in the film, are from Mozambique, the country where Gorongosa National Park is located. For global restoration and conservation initiatives, list two reasons why it is important for the park to employ local people.

3. On the next page is an example of a food web that includes lions (Figure 1). Use the food web and any information from the film to answer the following questions:

a. On average, 10% of the energy from one trophic level is available to the next level. Approximately what percentage of energy is available to the lions (tertiary consumers) in the ecosystem represented in Figure 1 (assuming the primary producer level represents 100% of the energy)? Show your work to justify your answer.

b. Use scientific reasoning and the food web to explain why, in general, it makes sense that the lion population is taking longer to recover than herbivore populations.



4. The lion researchers in the film have studied 20% of the park and identified 41 lions. (Show your work/justify your answer for each section.)

a. The entire Gorongosa park is 4,000 km^2. Approximately how large (in km^2) is the portion of the park that has been studied?

b. What is the density of lions (in lions/km^2) in the portion of the park that has been studied?

c. Assuming that the density of lions is the same throughout the entire park, about how many lions are there total in Gorongosa National Park?

d. The 20% of the park that has been studied has roads, so it is accessible by vehicle. Based on this information, do you think it is more likely that your estimate from part (c) is too high or too low? Explain your answer.

5. Researchers have discovered that the pride's territory defended by a male lion can extend 330 km^2. Explain how the scientists used GPS collars, satellites, and computers to determine the size and geographic distribution (shape) of a lion pride's territory.

6. If your group joined the research team shown in the film, what **TWO** new scientific questions would you like to try to answer?