



A Science-Based Approach to Restoring Gorongosa's Wildlife

OVERVIEW

This worksheet complements the short video "[A Science-Based Approach to Restoring Gorongosa's Wildlife](#)" from the *Scientists at Work* series.

PROCEDURE

1. Prior to watching the film, read the questions below.
2. Watch the film.
3. If working with a partner or in a small group, discuss and answer the questions below. If working alone, think about and answer the questions below.

QUESTIONS

1. What was the cause of the large-animal population decline in Gorongosa National Park?
2. What information do the scientists gather to help park managers decide which species need the greatest support as populations of large animals recover?
3. Animal counts conducted by the scientific team revealed that many populations are recovering. What are two factors mentioned in the film to explain the recovery?
4. The zebra is a species that saw a tremendous population decline during the years of the civil war. Why is a healthy and sizable zebra population considered a critical part of the ecosystem in the park?
5. When considering zebra reintroduction, why would it be preferred to introduce individuals from nearby populations?
6. Give an example of a species that was reintroduced unsuccessfully.
7. Capturing and relocation is stressful for the animals. In the zebra example, what are the stages of reintroduction and what purpose does each step serve?
8. Why is the buffalo considered a success story for reintroduction?
9. Park managers use the term "adaptive management"; what do you think that term means and what are two benefits of this approach?

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Extension

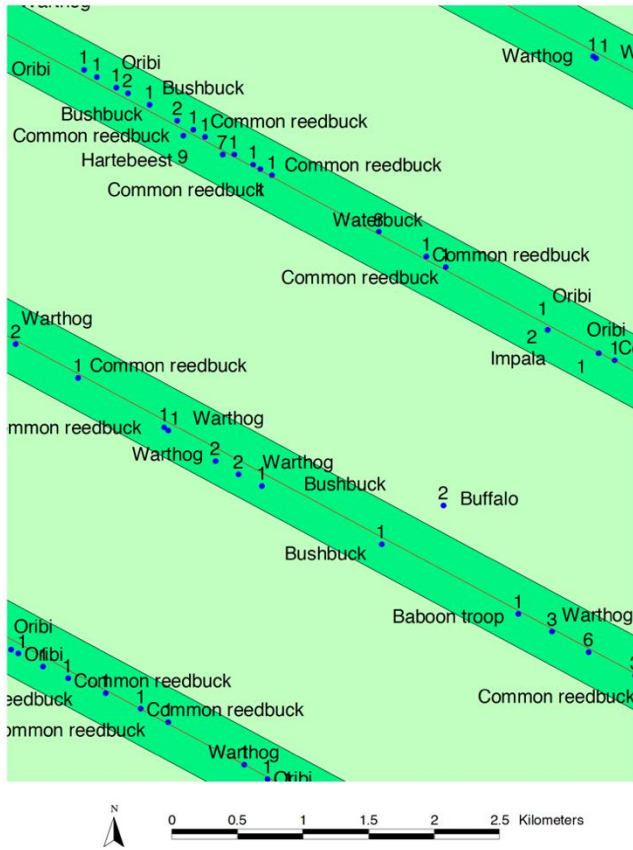


Figure Courtesy Gorongosa Restoration Project

The figure shows a sample of data from an actual aerial survey in Gorongosa. The lines are survey transects flown by the helicopter, the shaded areas are the strips in which they count the animals, and the dots are GPS points of animal sightings labeled with species and number of animals in each group. Total animal populations are estimated by: (1) counting the number of each species in the observation strips (dark shaded areas), (2) calculating the density of each species in the observation strips, and (3) extrapolating that to the full area of the survey, in this case all of Gorongosa park.

Transect lines are spaced 2 km apart, and the width of the counting strip for each transect is 500 m. What percentage of the total area is sampled? _____

The dimensions of the area shown in the figure are 5.9 km x 4.7 km. Using the percentage above, what is the area of the observation strips?

The total area of Gorongosa park is 4,067 km².

Complete the data table below for the given species.

	# in observation strips	Density in strips (#/km ²)	# in park
Warthog			
Hartebeest			
Buffalo			
Oribi			

Why do you think scientists only count animals in part of the total area?

What major assumption do scientists make when using this method to determine animal populations?

Some animals such as elephants, buffaloes, and baboons live in groups. How might such behavior affect the population calculations made using this sampling method?