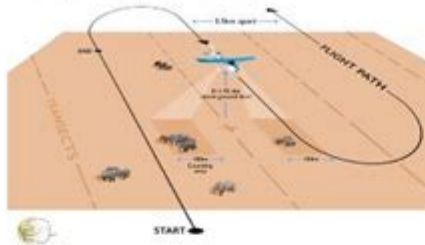# The Great Elephant Census Answer Key

8. Apply what you learned from the film:

The Great Elephant Census involved over 100 scientists working in many countries. Within each country, they divided survey areas into regions, called strata, of varying shapes and sizes. Teams then flew along transect lines to estimate the number of elephants in each stratum. The lines in the diagram to the left represent the transects that a plane follows during an aerial survey of each stratum. The counting strips are 150-m-wide areas on either side of each transect where elephants are counted. The table below shows the data that were collected for one stratum.

Transect	Transect length (km)	Width of counting strip (km)	Counting strip area (km²)	# of elephants spotted in counting strips	Elephant density in counting strip (#/km²)
A	9.1	0.3	2.7	1	0.37
B	22.5	0.3	6.8	4	0.59
C	27.2	0.3	8.2	7	0.86
D	22.8	0.3		0	
E	32	0.3	9.6	0	0
F	21.4	0.3	6.4	0	0
G	29.6	0.3	8.9	4	0.45
H	20.2	0.3	6.1	5	0.83
I	22	0.3	6.6	0	0
J	9.2	0.3	2.8	0	0
K	4.6	0.3		4	
Average Elephant Density for Stratum (round to nearest hundredth)					

a. Calculate the missing values in the data table. Here are a few formulas to help you out ...

   Area = length × width   Population Density = # of animals/area

   Average = sum of all of the densities/# of transects

b. The total stratum area is 803.7 km². Using the mean elephant density for the stratum that you calculated, calculate an estimated # of elephants that could be found in this stratum.

c. What might explain the wide range of elephant densities among the different transects of the stratum? Give two reasons, one that relates to elephant behavior and one that relates to the survey design.

The Great Elephant Census Answer Key is a pivotal resource that contributes to our understanding of elephant populations across Africa. This initiative, launched in 2014, aimed to provide comprehensive data on the status of African elephants, which have faced significant threats from poaching and habitat loss. The census involved extensive aerial surveys and the collaboration of various organizations, researchers, and volunteers. In this article, we will delve into the methodologies used in the Great Elephant Census, the significance of its findings, and the implications for elephant conservation efforts.

Background of the Great Elephant Census

The Great Elephant Census was a landmark project designed to assess the population of African elephants in 18 countries across the continent. Elephants are vital to the ecosystems they inhabit,

and their declining numbers pose a serious threat to biodiversity. The project was spearheaded by the non-profit organization, the Elephant Crisis Fund, and funded by the Paul G. Allen Family Foundation, among others.

Objectives of the Census

The primary objectives of the census included:

1. **Population Estimation:** To provide an accurate count of African elephants across various regions.

2. **Habitat Assessment:** To analyze the habitats where elephants live and identify areas of concern.

3. **Conservation Strategies:** To inform conservation strategies and policies based on empirical data.

4. **Awareness Raising:** To elevate global awareness about the plight of elephants and the need for conservation efforts.

Methodology of the Census

The methodology used in the Great Elephant Census was innovative and rigorous, ensuring that the data collected was both reliable and comprehensive. Here are the key components of the methodology:

Aerial Surveys

The census primarily relied on aerial surveys conducted using a fleet of lightweight aircraft. These surveys allowed teams of researchers to cover vast areas of land in a relatively short period. Key features of the aerial surveys included:

- **Standardized Flight Paths:** Researchers followed predefined flight paths to ensure consistency in data collection.

- **Experienced Observers:** Trained observers were responsible for counting elephants and recording their locations from the aircraft.

- **Geospatial Technology:** Advanced GPS technology was utilized to map elephant populations accurately.

Collaboration with Local Organizations

The success of the Great Elephant Census relied heavily on partnerships with local conservation organizations and governments. This collaboration facilitated:

- **Data Sharing:** Local organizations provided valuable insights and historical data on elephant populations.

- **Field Support:** Local teams assisted in logistics and ground support during the aerial surveys.

Data Analysis

Once the data was collected, it underwent rigorous analysis to ensure accuracy and reliability. The analysis involved:

- **Statistical Modeling:** Advanced statistical models were applied to estimate total elephant populations and assess trends.

- **Geographic Information Systems (GIS):** GIS technology was used to visualize the data and identify critical habitats and migration corridors.

Key Findings of the Census

The results of the Great Elephant Census were alarming yet crucial for understanding the current state of elephant populations in Africa. Some of the key findings included:

Population Decline

The census revealed that African elephant populations had declined by approximately 30% between 2007 and 2014, primarily due to poaching for ivory. This decline underscores the urgent need for effective conservation measures.

Regional Variations

The findings highlighted significant regional variations in elephant populations:

- **Southern Africa:** Relatively stable populations were found, particularly in countries like Botswana, Namibia, and South Africa.

- **East and Central Africa:** Severe declines were noted, especially in countries such as Tanzania and the Democratic Republic of the Congo.

Habitat Fragmentation

The census also indicated that habitat fragmentation posed a serious threat to elephant populations. As human populations grow and land is developed for agriculture and urbanization, elephants face increasing challenges in finding food, water, and space to roam.

Implications for Conservation Efforts

The findings of the Great Elephant Census have far-reaching implications for conservation strategies aimed at protecting elephants and their habitats:

Policy Development

The data provided by the census serves as a critical tool for policymakers. Governments and conservation organizations can use this information to develop targeted policies aimed at:

- **Strengthening Anti-Poaching Efforts:** Enhanced enforcement of anti-poaching laws and regulations can be prioritized based on the most affected regions.

- **Habitat Protection:** Identifying key habitats and migration corridors can help inform land-use planning and conservation efforts.

Community Engagement

Successful conservation strategies must involve local communities. The survey results can be used to engage communities by:

- **Promoting Sustainable Practices:** Encouraging sustainable land-use practices that benefit both people and elephants.

- **Building Awareness:** Raising awareness about the ecological importance of elephants and their role in local ecosystems.

International Cooperation

The global nature of the elephant crisis necessitates international collaboration. The data from the Great Elephant Census can help inspire cooperative efforts among countries, NGOs, and international bodies to combat poaching and protect elephant populations.

Conclusion

The Great Elephant Census Answer Key is not just a collection of data; it is a call to action. The alarming findings of population declines and habitat threats necessitate an urgent response from governments, conservation organizations, and local communities. By utilizing the insights gained from this comprehensive study, we can better protect one of the world's most iconic species, ensuring that future generations will have the opportunity to witness the majesty of African elephants in the wild. The ongoing commitment to conservation is essential in reversing the trends highlighted by the census and fostering a sustainable coexistence between humans and elephants.

Frequently Asked Questions

What is the Great Elephant Census?

The Great Elephant Census is a comprehensive survey aimed at estimating the population of African elephants across various countries in Africa, using advanced aerial survey techniques.

Why was the Great Elephant Census conducted?

It was conducted to provide crucial data on elephant populations to inform conservation efforts and policy-making, especially in light of rising threats from poaching and habitat loss.

When was the Great Elephant Census initiated?

The Great Elephant Census was initiated in 2014 and completed in 2016, covering 18 countries across Africa.

What were the main findings of the Great Elephant Census?

The census revealed a significant decline in African elephant populations, with an estimated 352,271 elephants remaining in the surveyed areas, highlighting a 30% decrease between 2007 and 2014.

How did the Great Elephant Census gather data?

Data was gathered through aerial surveys using planes equipped with high-resolution cameras, allowing researchers to count elephants in their natural habitats.

What is the significance of the data collected from the Great Elephant Census?

The data is vital for understanding the status of elephant populations, assessing the effectiveness of conservation strategies, and directing resources to areas most in need of protection.

Who funded the Great Elephant Census?

The census was funded by the Paul G. Allen Family Foundation and other partners, reflecting a collaborative effort to address elephant conservation challenges.

What challenges did the Great Elephant Census face during its implementation?

Challenges included logistical issues in remote areas, varying weather conditions, and the need for local collaboration to access certain regions for effective surveying.

What actions have been proposed based on the findings of the Great Elephant Census?

Proposed actions include increasing anti-poaching efforts, investing in habitat protection, and enhancing community engagement in conservation initiatives.

How can individuals contribute to elephant conservation following the Great Elephant Census findings?

Individuals can contribute by supporting conservation organizations, advocating for wildlife protection policies, and promoting sustainable practices that reduce human-elephant conflict.

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