



Wrangel Island Mammoths: Genetic Diversity and Survival Insights

Description

A recent study analyzing the genetic makeup of the last woolly **mammoths** on Wrangel Island has revealed fascinating insights into how this population managed to survive for 6,000 years despite challenges such as severe **inbreeding** and low genetic **diversity**. Initially descended from a mere eight individuals, the group expanded to 200-300 members. While genetic issues were not the direct cause of their **demise**, the exact reasons for their sudden disappearance remain a mystery.

The study, published in the journal *Cell*, highlights the importance of understanding how small populations cope with genetic hurdles and how these findings can inform contemporary **conservation** efforts for endangered species. The isolated population of **mammoths** on Wrangel Island, which became cut off from the mainland due to rising sea levels, offers a unique case study of population dynamics and genetic consequences.

Senior author Love Dalén emphasizes that the **mammoths** were not simply doomed to extinction due to their small population size, debunking previous theories. Instead, it was likely a random event that led to their disappearance. This groundbreaking research underscores the significance of studying ancient populations like the Wrangel Island **mammoths** in order to gain valuable insights into current biodiversity challenges.

The study also reveals how the **mammoths'** genetic **diversity** changed over time, showing signs of **inbreeding** and reduced diversity in critical immune response genes. Despite facing genetic challenges, the population managed to purge harmful mutations slowly over time. The enduring legacy of the Wrangel Island **mammoths** serves as a cautionary tale for modern **conservation** efforts, emphasizing the need to actively monitor and maintain genetic **diversity** in endangered populations.

While the final years of the **mammoths'** existence remain a mystery, future research aims to uncover more about their **demise**. By combining genetic analysis with fossil evidence, scientists hope to unravel the **enigmatic** story of these ancient giants. This study offers a compelling narrative of resilience, adaptation, and the ongoing quest to preserve Earth's diverse wildlife.

Vocabulary List:

1. **Mammoth** /?mæm??/ (noun): A large, extinct elephant-like animal with long, curved tusks and hairy bodies.
2. **Inbreeding** /??n?bri?d??/ (noun): The breeding of closely related individuals, especially to preserve desirable traits.
3. **Diversity** /da??v??s?ti/ (noun): The state of being diverse; variety.
4. **Demise** /d??ma?z/ (noun): The end or failure of an enterprise or institution; death.
5. **Conservation** /?k?ns??ve???n/ (noun): The action of conserving something, in particular, preserving



the natural environment, ecosystems, and wildlife.

6. **Enigmatic** /ˈɛnɪɡˈmætɪk/ (adjective): Difficult to interpret or understand; mysterious.

Vocabulary List:

1. **Inbreeding** /ɪnˈbriːdɪŋ/ (noun): The breeding of closely related individuals especially to preserve desirable traits.
2. **Diversity** /daɪˈvɜːrsɪti/ (noun): The state of being diverse; variety.
3. **Demise** /dɪˈmaɪz/ (noun): The end or failure of an enterprise or institution; death.
4. **Conservation** /ˌkɒnsəˈveɪʃən/ (noun): The action of conserving something in particular preserving the natural environment ecosystems and wildlife.
5. **Enigmatic** /ˌɛnɪɡˈmætɪk/ (adjective): Difficult to interpret or understand; mysterious.
6. **Genetic** /dʒəˈnetɪk/ (adjective): Relating to genes or heredity.

Vocabulary quizzes

Multiple Choice (Select the Correct answer for each question.)

1. What term refers to the payment received in exchange for work or services rendered?
Option: Connectivity
Option: Compensation
Option: Stabilize
Option: Outage
2. Which term is associated with traits passed down from parents to offspring?
Option: Inbreeding
Option: Diversity
Option: Genetic
Option: Sobering
3. What process involves digging and uncovering archaeological finds?
Option: Fragility
Option: Interconnectedness
Option: Excavation
Option: Biodiversity
4. Which term describes the process of growth or advancement?
Option: Collective



- Option: Cognitive
- Option: Development
- Option: Specimen

5. What term refers to a community of organisms interacting with their environment?

- Option: Announcement
- Option: Possibility
- Option: Development
- Option: Ecosystem

6. What term means making someone or something more known or accustomed to a particular situation?

- Option: Significant
- Option: Reception
- Option: Familiarizing
- Option: Outage

7. What term refers to a period when a service is unavailable or not functioning?

- Option: Enigmatic
- Option: Genetic
- Option: Outage
- Option: Stabilize

8. Which term denotes the potential for something to happen or exist?

- Option: Excavation
- Option: Diversity
- Option: Possibility
- Option: Locomotion

9. What term represents the state of being recognized or accepted?

- Option: Stabilize
- Option: Acknowledged
- Option: Inbreeding
- Option: Diversity

10. Which term describes the variety of life forms in a given ecosystem or habitat?

- Option: Collective
- Option: Cognitive
- Option: Specimen
- Option: Biodiversity

Gap-Fill (Fill in the blanks with the correct word from the vocabulary list.)

11. The _____ of the new office building was a top priority to ensure seamless



operations.

12. The efforts to _____ the economy were evident in the recent fiscal policies.

13. Ecology emphasizes the delicate balance and _____ of various species within an ecosystem.

14. The success of the project was attributed to the _____ effort of all team members.

15. Stimulating activities can enhance a child's _____ development and problem-solving skills.

16. The biologist carefully examined the rare plant _____ collected from the remote forest.

17. The sudden _____ of the iconic landmark left the community in mourning.

18. The national park was established to promote the _____ of endangered species and their habitats.

19. The documentary on climate change presented a _____ outlook on the planet's future.

20. The new product received a warm _____ from consumers during the launch event.

Matching Sentences (Match each definition to the correct word from the vocabulary list.)

21. The political upheaval resulted in widespread chaos and uncertainty in the region.
22. The artist's abstract painting left viewers puzzled by its mysterious and puzzling nature.
23. The population exhibited signs of reduced genetic diversity due to repeated mating within close relatives.
24. The multicultural city celebrated its rich array of traditions languages and cuisines.



25. The fragmentation of the ancient manuscript made it challenging to piece together the complete text.
26. The study focused on the evolution of early vertebrates and their modes of movement.
27. Financial markets were affected by the increased regarding the upcoming company merger.
28. The conservation efforts aimed to protect the rich of flora and fauna in the rainforest.
29. Scientists are exploring the of life existing beyond our planet in other galaxies.
30. The research findings had a impact on the understanding of climate change patterns.

Answer

Multiple Choice: 1. Compensation 2. Genetic 3. Excavation 4. Development 5. Ecosystem 6. Familiarizing 7. Outage 8. Possibility 9. Acknowledged 10. Biodiversity

Gap-Fill: 11. Connectivity 12. Stabilize 13. Interconnectedness 14. Collective 15. Cognitive 16. Specimen 17. Demise 18. Conservation 19. Sobering 20. Reception

Matching sentence: 1. Instability 2. Enigmatic 3. Inbreeding 4. Diversity 5. Fragmentation 6. Locomotion 7. Speculation 8. Biodiversity 9. Possibility 10. Significant

CATEGORY

1. Sci/Tech - LEVEL6

Date Created

2024/07/07

Author

aimeeyoung99