



Earth's Largest Organism Faces Slow Destruction, Warns Scientist

Description

Nestled in the Wasatch Mountains of western US, above a spring-fed lake, lies an extraordinary single organism that supports an entire ecosystem, upon which various plants and animals have depended for millennia.

Located in my home state of Utah, "Pando" spans an impressive 106 acres and comprises a vast stand of genetically identical quaking aspen clones.

While it may appear as a serene forest filled with individual trees, characterized by their striking white bark and delicate trembling leaves, Pando (which translates to "I spread" in Latin) actually consists of approximately 47,000 interconnected stems that spring from a unified root system.

Collectively, this single organism weighs around 6,000 metric tons, making it the heaviest known organism on the planet.

Aspen trees, known for forming clonal stands, abound in other regions; however, Pando's remarkable size sets it apart. Many clonal aspen stands in North America measure only a fraction of Pando's expanse, with western US examples averaging a mere 3 acres.

Pando's existence may stretch back up to 14,000 years, although individual stems generally have a lifespan of about 130 years. This impressive longevity, combined with its isolated location, has fostered a diverse ecosystem comprising 68 plant species and numerous animal inhabitants thriving in its shade.

Yet, for this ecosystem to persist, the health of Pando is crucial. Despite being safeguarded by the US National Forest Service and not at risk of deforestation, it faces existential threats from various factors.

Vulnerability to Overgrazing

One significant concern is overgrazing by deer and elk. Historical predator populations, such as wolves and cougars, once kept these herbivore numbers in check; however, their decline has resulted in burgeoning deer and elk populations.

These animals are increasingly drawn to Pando, as its protective woodland provides them with respite from hunting pressure. As older trees perish, more sunlight penetrates the forest floor, prompting the growth of new clonal stems. Yet, when these growths are grazed down by deer and elk, little new growth sustains the ecosystem.

Impact of Diseases and Climate Change



Additionally, the older stems of Pando are succumbing to multiple diseases, including sooty bark canker and leaf spot. While aspen diseases have historically existed, the long-term implications for Pando's ecosystem remain uncertain, given the lack of new growth and escalating threats.

Climate change poses the most pressing challenge, as Pando emerged after the last ice age and has thrived under relatively stable climatic conditions. Increasingly warm temperatures, prolonged droughts, and reduced water supplies threaten not only Pando's magnitude but also the entire ecosystem it supports.

Despite these concerns, Pando has demonstrated resilience throughout its history, navigating rapid environmental changes since European settlement and facing disease and grazing pressures. Conservation efforts, including initiatives by the Friends of Pando, aim to preserve this remarkable organism and its ecosystem for future generations.

Vocabulary List:

1. **Ecosystem** /'i:kəsɪs.təm/ (noun): A biological community of interacting organisms and their physical environment.
2. **Overgrazing** /,oʊ.vər'greɪ.zɪŋ/ (noun): The consumption of vegetation by animals at a rate that exceeds the growth of the vegetation.
3. **Vulnerability** /,vʌl.nə.rə'bɪl.ɪ.ti/ (noun): The quality of being open to injury or attack; defenselessness.
4. **Disease** /dɪ'zi:z/ (noun): A disorder of structure or function in a human animal or plant especially one that produces specific symptoms.
5. **Resilience** /rɪ'zɪl.jəns/ (noun): The ability to recover quickly from difficulties; toughness.
6. **Sustains** /sə'steɪnz/ (verb): To support hold or bear up from below; to bear the weight of as a structure.

Vocabulary quizzes

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

1. Which word means to explain something clearly?
Option: Anomaly
Option: Elucidated
Option: Resurgence
Option: Vulnerability
2. Which word refers to isolating or hiding something?
Option: Ecosystem
Option: Sequestering
Option: Formulation



Option: Hydration

3. Which word describes something that is important or meaningful?

Option: Insights

Option: Significant

Option: Destabilize

Option: Syndrome

4. Which word represents the ability to change or vary?

Option: Resurgence

Option: Variability

Option: Monitoring

Option: Energizing

5. Which word means to release or give off something?

Option: Complications

Option: Emitting

Option: Sustainable

Option: Radiance

6. Which word denotes taking action against something harmful?

Option: Alleviation

Option: Vulnerability

Option: Resurgence

Option: Combating

7. Which word means to refill or renew something?

Option: Ecosystem

Option: Resurgence

Option: Replenish

Option: Overgrazing

8. Which word describes the act of making something unstable?

Option: Syndrome

Option: Destabilize

Option: Monitoring

Option: Vulnerability

9. Which word refers to observing or checking something over time?



- Option: Radiance
- Option: Monitoring
- Option: Sustainable
- Option: Electrolytes

10. Which word relates to maintaining something for the long term?

- Option: Insufficient
- Option: Ecosystems
- Option: Sustainable
- Option: Hydration

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

11. Her smile was so bright; it lit up the room with _____ .
12. The doctor diagnosed the patient with a rare _____ that required specialized treatment.
13. The children huddled together aware of their _____ in the storm.
14. The researcher gained valuable _____ into the behavior of the endangered species.
15. The fields suffered from _____ by livestock leading to soil erosion.
16. The marine _____ was rich with diverse marine life.
17. The surgery was successful but there were unexpected _____ during recovery.
18. Adequate _____ is essential for maintaining good health especially in hot weather.
19. The community showed remarkable _____ in rebuilding after the natural disaster.
20. The team worked on a new drug _____ to combat the infectious disease.

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

21. The sudden drop in temperature was considered an in the weather pattern.
22. The region is known for its rich soil due to the area being active.



23. Her generous donation brought much-needed to the struggling community.
24. The water supply was to meet the needs of the growing population.
25. The political unrest threatened to the fragile peace in the region.
26. There has been a noticeable in interest for traditional crafts in recent years.
27. The lively music had an effect on the crowd lifting their spirits.
28. Sports drinks contain to help replenish nutrients lost during exercise.
29. The outbreak of a new prompted health officials to take immediate action.
30. The rainforest a vast array of plant and animal species.

Answer

Multiple Choice: 1. Elucidated 2. Sequestering 3. Significant 4. Variability 5. Emitting 6. Combating 7. Replenish 8. Destabilize 9. Monitoring 10. Sustainable

Gap-Fill: 11. Radiance 12. Syndrome 13. Vulnerability 14. Insights 15. Overgrazing 16. Ecosystem 17. Complications 18. Hydration 19. Resilience 20. Formulation

Matching sentence: 1. Anomaly 2. Volcanically 3. Alleviation 4. Insufficient 5. Destabilize 6. Resurgence 7. Energizing 8. Electrolytes 9. Disease 10. Sustains

CATEGORY

1. Sci/Tech - LEVEL5

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