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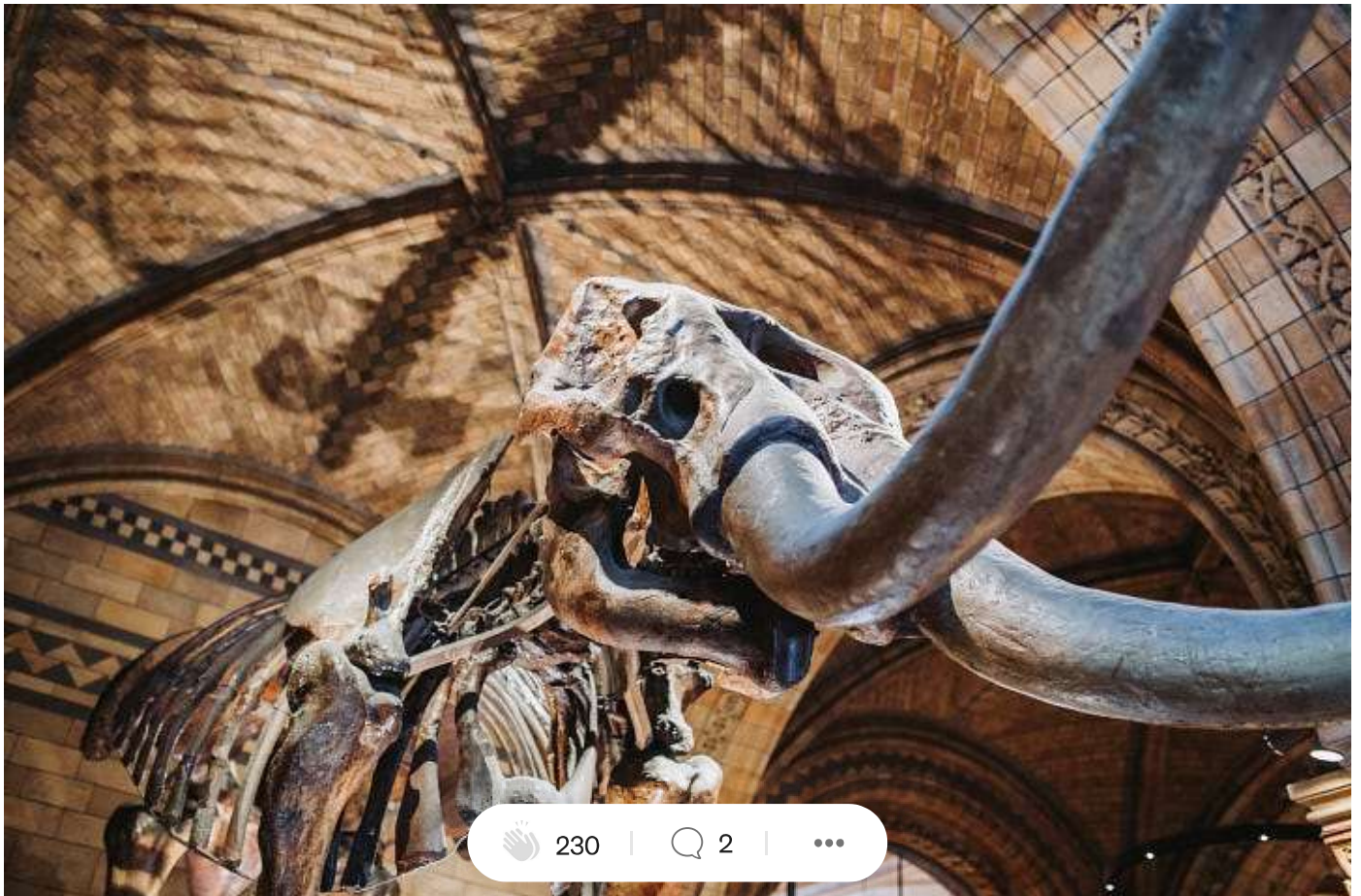
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19 Questions About the Imminent De-Extinction of Woolly Mammoths *

Apart from ethics and climate change that is

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230



2



Colossal, the biotech company that's genetically modifying elephant DNA to bring us an elephant-woolly mammoth hybrid to save the permafrost and the world, says we'll be welcoming fluffy little calves by 2027. We could be a decade from wild, arctic herds.

So. Woolly Mammoths. Yep.

I have some questions.

1. What will they eat?

Transforming the tundra back into grassland (that's what it was like when woolly mammoths roamed), as a goal, means that's not what it is now. I bet a mammoth eats a lot of plants. What will the mammoths eat while stomping around and knocking down trees, waiting for the transformation?

Maybe they like bananas.

2. Will there be mammoth rides?

The first mammoths are intended to be fostered by elephants in zoos. Does that mean there will be walk-up mammoth rides for \$5 a go?

3. Why not cattle?

There used to be cattle too.

If the goal is to get rid of trees and have grazing herbivores who can break up moss, trample snow, knock down trees, and fertilize soil — why not cattle? There are cold-weather cattle, bison, oxen, and so on.

We've got a separate problem where rainforests are cut down to make room for cattle farming, which is not great for the rainforest, we want trees there.

We could move the tree-cutting and cattle-farming operations to the arctic where this would be beneficial and bring back the trees in the rainforest. Win-win!

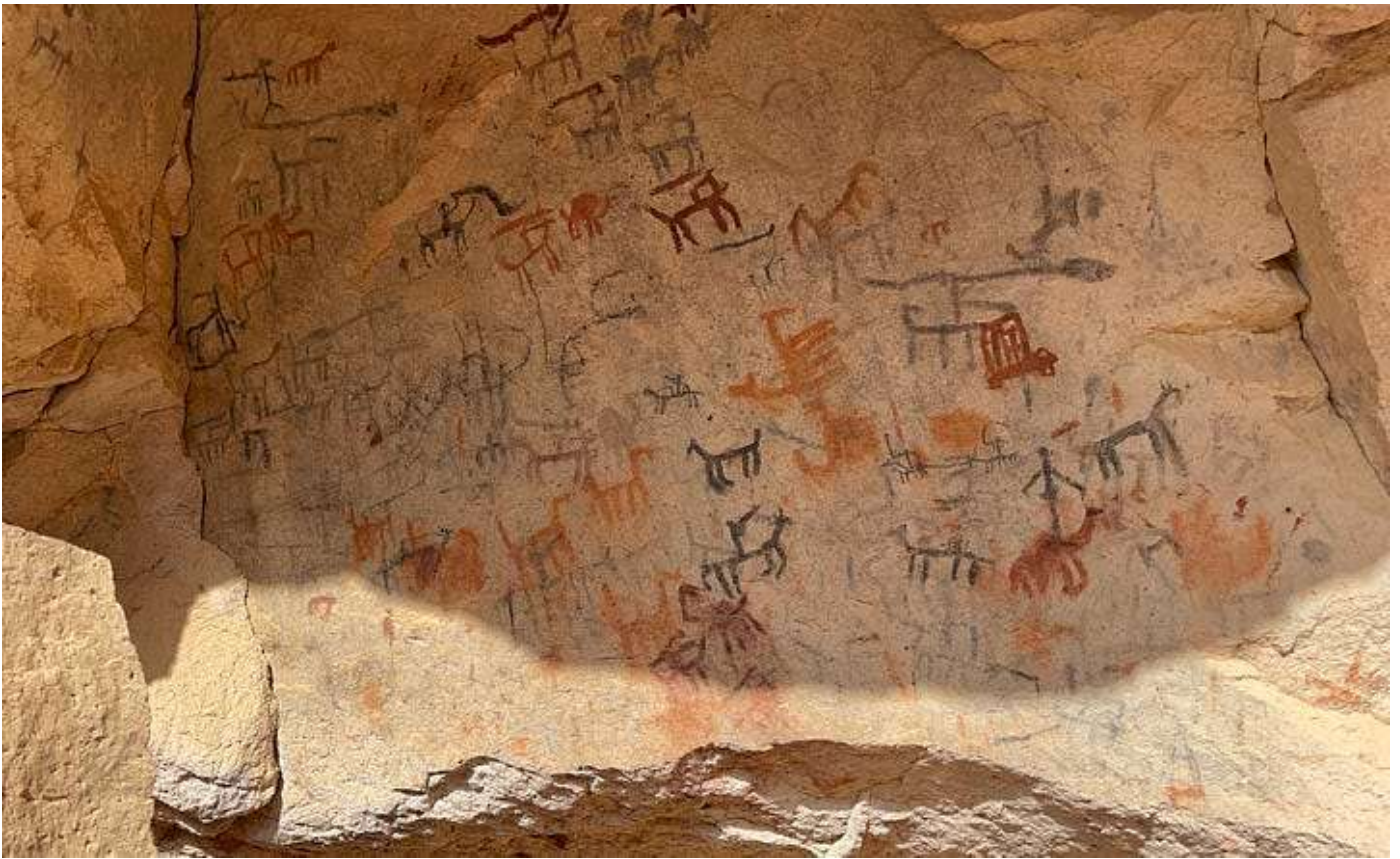


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4. What kinds of instincts will a woolly mammoth have?

What determines instincts? Mammoths had vast migration patterns, vast. Was there a rhythmic timing to their movements? Was there a special place to mate? To give birth? To make graveyards? Did they have a favorite food that no longer exists?

What if they don't have the right instincts for the new world? Or if instincts are forgotten over time, or lost with the gene editing process, or the cues have changed?

5. Will mammoth wrangler be a new career option?

If they migrate, how do we get them to stay where we want them?

How do you sign up to become a mammoth herder? How many years of college will be required? Will there be health insurance?

6. Is Russia cool with this?

Colossal is based in the USA. The original plan was to reintroduce woolly mammoths into Siberia. Notwithstanding current political engagements, the USA and Russia have

had tense relations and impressive competitions for many years. Even if an amicable ending were arrived at tomorrow, would they even want our GMO woolly mammoths?

If they don't, will Alaska want them? Does Alaska need mammoth help?

7. What if they get sick?

Asian elephants aren't adapted to the tundra, or the cold grasslands we hope to turn it into — could the new mammoths be missing vital immunity to present-day diseases?

Will woolly mammoths need veterinarians or zoologists?

8. What about everyone else?

If we expect woolly mammoths to impact the area, the climate and the ecosystem, aren't we worried that reintroduction would cause a big impact? There are over 21,000 species living in the arctic right now, how will they feel about this?

How will the people who live in the area feel about this? Are mammoths good neighbors?

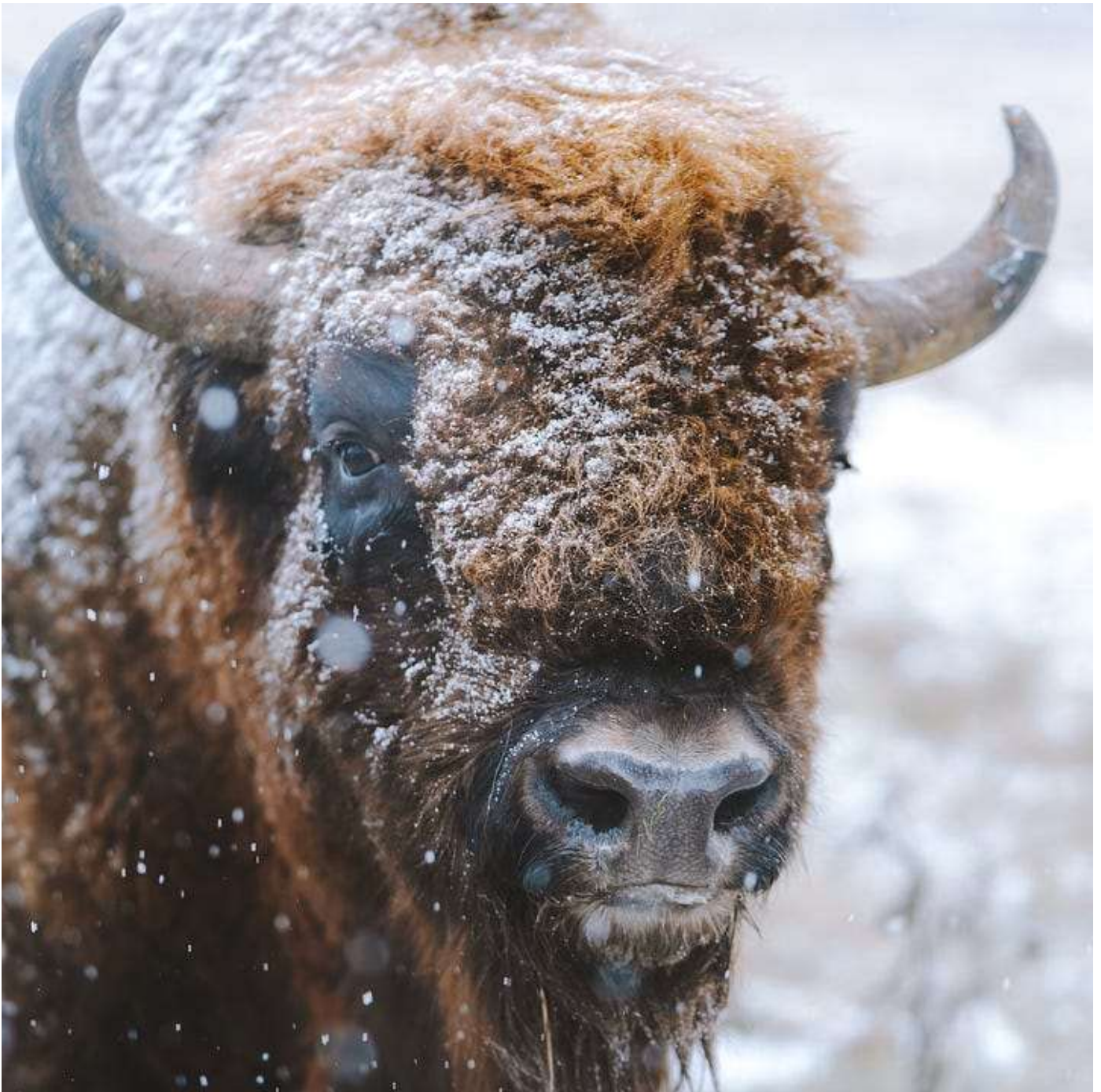


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9. Does a woolly mammoth need to know things that elephants don't know?

If so, how will we teach a woolly mammoth to be a woolly mammoth? Our fluffy little bundle of joy will spend its formative years with adoptive elephant parents in a zoo. Will that adequately prepare them for a wild life roaming the arctic?

Maybe bison remember what woolly mammoths are like and can help, tell the old mammoth tales if you will.

10. What about murder-mammoths?

I watched a documentary once about how elephants, especially orphan elephants, can have a lot of psychological issues, including violent and destructive behaviors and attacks on towns. How will we nurture mammoth mental health? How will we help them form a kind and supportive culture?

Or will we just allow them to terrorize any place they feel like, risking backlash from humans, who, historically, don't care for real or perceived threats from nature?

11. Will mammoths like each other?

Like will they like-like each other? Or will they like Asian elephants? I don't exactly understand how mammoth attraction instincts work — makes sense since I'm not certain how human attraction works either.

Wait, will the hybrid GMO elephant-mammoths be able to reproduce? Will they be a viable wild population or will each one need to be genetically engineered and grown?

12. Are they wildlife or intellectual property?

Now that we're talking about GMOs, will GMO mammoths be treated like GMO corn? Would it be illegal then for a mammoth farmer to breed baby mammoths? Or allow mammoths to breed on their own? Or if they reproduce in the wild, would the ruling government need to pay? Is any of this an IP infringement?

If they are IP, will the license holder be liable for damages?

13. Would they be endangered?

There would be so few in the beginning, would the new woolly mammoths be protected as endangered species? Would any land they walk on be re-regulated as an endangered species critical habitat? What if they didn't make it, would this then be a new extinct species?



Photo by [Chris Curry](#) on [Unsplash](#)

14. Can we make more Asian elephants?

This genetic technology is super cool, but since we're talking about de-extincting animals, why couldn't we preemptively de-extinct Asian elephants? They're endangered right now and we're using their eggs and DNA to make little woolly mammoths. Can we use their eggs and DNA to make little Asian elephants too?

What about rhinoceros? They're critically endangered. Are those last two northern white rhinos still under guard in Kenya? We could make more rhinos! Oh! We could edit their genes like we are the elephant genes and make woolly rhinos (yep, that's a real thing) and they could stomp around in the tundra too.

Do rhinoceros and mammoths get along?

15. Is mammoth fur soft?

Fiber artists swoon over unique, rare, super soft yarns — it's even cooler if they come with heat-retention or water-repellent qualities. Would mammoths benefit from a sheering in the spring? Maybe as global warming advances it would become necessary for their well-being.

Or maybe mammoth fur is coarse and strong and could be twisted into ropes or hearty textiles. Just how woolly is a woolly mammoth?

16. What about poachers?

Antique mammoth tusks, found as the tundra warms, are already part of a thriving underground ivory market. We haven't figured out how to keep poachers away from elephants, walruses, and rhinoceros, how would we keep them away from woolly mammoths? I'm sure many pieces of this modern-day, strong, primal animal would be considered powerful medicine and rare status.

17. What about the wind?

If cattle farts are problematic, won't mammoth farts be, um, a mammoth problem?

18. What if it doesn't work?

The park where they're testing this out with bison and other large grazers, Pleistocene Park, has been operating since the '80s and isn't self-sufficient. How much support

would we need to provide to accomplish this plan across the whole arctic? At what cost?

Will making mammoths and establishing them in the area actually be more effective and efficient than increasing bison, musk oxen, yaks, elk, and horses in the area?

The average permafrost temperatures are about 2 degrees Celsius colder in the park than in nearby areas, is that enough to help?



Cast of Rhamphorhynchus muensteri O2 — Pterosaurs Flight in the Age of Dinosaurs photo by Tim Evanson, licensed under CC BY-SA 2.0 — <https://www.flickr.com/photos/timevanson/45708566502/in/photostream/>

19. Would it be prudent to also bring back pterodactyls?

Ok, first, I know that's not what they're called, but I grew up with double spaces too — just hear me out.

Some pterodactyls had wingspans the length of a bus, we could definitely ride one of these. How better to herd our new herds of woolly mammoths than on pterodactyl-back? We'd avoid terrain issues, mucky mudslides from the melting permafrost,

human interaction in case they're murder-mammoths, and interfering in the habitat of a newly endangered species. All wins here.

We'll just need to edit some crocodile/chicken DNA...

Scientists Are Bringing Back The Woolly Mammoth To Prevent Climate Change

The company, Colossal, is using gene editing technology "CRISPR" to reincarnate the megafauna of the past.

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