

sloth family secrets

Ancient molecules reveal a surprising Ice Age relative.

A small tree dweller. An extinct ground sloth. A connection hidden in ancient DNA.

MEET THE RELATIVES

Choloepus: small, upside-down, professional napper. Its closest relative? Mylodon darwinii, a car-sized ground sloth (Delsuc et al., 2019).

SPOT THE DIFFERENCE

	Two-fingered sloth Choloepus	Darwin's ground sloth Mylodon darwinii
STATUS	Alive and napping	Extinct for ~12,000 years
HOME	Rainforest treetops	Patagonia, on the ground
VIBE	Hangs upside down all day	Too big to hang. Walked.
SIZE	Cat-ish: 0.5–0.75 m	Car-ish: ~3 m
WEIGHT	About 4–9 kg	About 2,000 kg

BODY LENGTH, DRAWN TO SCALE



WEIGHT, DRAWN TO SCALE (BY AREA)



Mylodon: over 200× heavier. Big-boned, literally.

Size and range: San Diego Zoo Wildlife Alliance (n.d.); Natural History Museum, London (2021).

HOW DO SCIENTISTS KNOW?

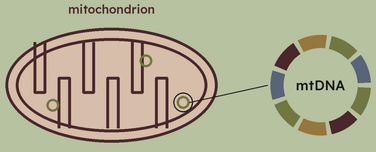
Ancient DNA

Scientists read mitochondrial DNA from 10 extinct sloths. Verdict: two-fingered sloths sit right next to Mylodon (Delsuc et al., 2019).

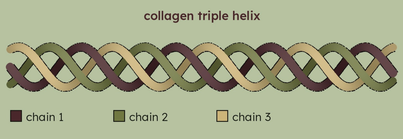
Ancient proteins

Another team checked collagen from old bones. Same answer. Two kinds of evidence, one family (Presslee et al., 2019).

THE RECEIPTS



mtDNA: a tiny ring of DNA. Cells carry tons of copies, so some survive in old remains.



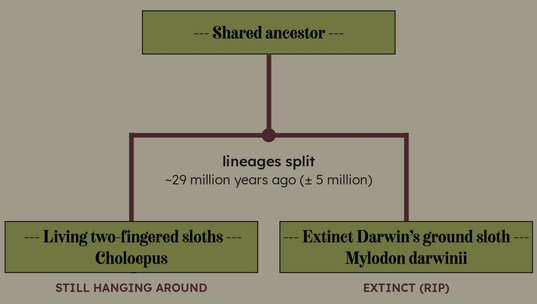
Collagen: a tough, triple-twisted bone protein that outlasts DNA.

COUSINS, NOT GRANDKIDS

Neither sloth came from the other. They split from a shared ancestor ~29 million years ago, give or take 5 million (Delsuc et al., 2019).

WHY THIS MATTERS

Looks can lie. Molecules reshuffled a sloth family tree that was built on bones alone (Delsuc et al., 2019; Presslee et al., 2019).



Not grandparent and grandkid. Cousins.

References:

- Delsuc, F., Kuch, M., Gibb, G. C., Karpinski, E., Hackenberger, D., Szpak, P., Martinez, J. G., Mead, J. I., McDonald, H. G., MacPhee, R. D. E., Billet, G., Hautier, L., & Poinar, H. N. (2019). Ancient mitogenomes reveal the evolutionary history and biogeography of sloths. Current Biology, 29(12), 2031–2042.e6. https://doi.org/10.1016/j.cub.2019.05.043
- Presslee, S., Slater, G. J., Pujos, F., Forasiepi, A. M., Fischer, R., Molloy, K., Mackie, M., Olsen, J. V., Kramarz, A., Taglioretti, M., Scaglia, F., Lezcano, M., Lanata, J. L., Southon, J., Feranec, R., Bloch, J., Hajduk, A., Martin, F. M., Salas Gismondi, R., . . . MacPhee, R. D. E. (2019). Palaeoproteomics resolves sloth relationships. Nature Ecology & Evolution, 3(7), 1121–1130. https://doi.org/10.1038/s41559-019-0909-z

THE TAKEAWAY

Don't judge a sloth by its cover. Check its DNA.



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