

# Further evidence points to footprints in New Mexico being the oldest sign of humans in Americas

October 5 2023, by Christina Larson

---



This Oct. 2023 photo made available by the National Park Service shows Human footprints infilled with white gypsum sand. at the White Sands National Park in New Mexico. Fossil human footprints discovered in White Sands, New Mexico

likely date back to between 21,000 and 23,000 years ago, according to two lines of scientific evidence published Thursday, Oct. 5, 2023. Credit: NPS via AP

New research confirms that fossil human footprints in New Mexico are likely the oldest direct evidence of human presence in the Americas, a finding that upends what many archaeologists thought they knew about when our ancestors arrived in the New World.

The footprints were discovered at the edge of an ancient lakebed in White Sands National Park and date back to between 21,000 and 23,000 years ago, according to research [published Thursday](#) in the journal *Science*.

The estimated age of the footprints was first reported in [Science in 2021](#), but some researchers raised concerns about the dates. Questions focused on whether seeds of aquatic plants used for the original dating may have absorbed ancient carbon from the lake—which could, in theory, throw off radiocarbon dating by thousands of years.

The new study presents two additional lines of evidence for the older date range. It uses two entirely different materials found at the site, ancient conifer pollen and quartz grains.

The reported age of the footprints challenges the once-conventional wisdom that humans didn't reach the Americas until a few thousand years before rising sea levels covered the Bering land bridge between Russia and Alaska, perhaps about 15,000 years ago.

"This is a subject that's always been controversial because it's so significant—it's about how we understand the last chapter of the peopling of the world," said Thomas Urban, an archaeological scientist at

Cornell University, who was involved in the 2021 study but not the new one.



This Oct. 2023 photo made available by the National Park Service shows White Sands National Park Resource Program Manager, David Bustos at the White Sands National Park in New Mexico. Fossil human footprints discovered in White Sands, New Mexico likely date back to between 21,000 and 23,000 years ago, according to two lines of scientific evidence published Thursday, Oct. 5, 2023. Credit: NPS via AP

Thomas Stafford, an independent archaeological geologist in Albuquerque, New Mexico, who was not involved in the study, said he "was a bit skeptical before" but now is convinced.

"If three totally different methods converge around a single age range, that's really significant," he said.

The new study isolated about 75,000 grains of pure pollen from the same sedimentary layer that contained the footprints.

"Dating pollen is arduous and nail-biting," said Kathleen Springer, a research geologist at the United States Geological Survey and a co-author of the new paper. Scientists believe [radiocarbon dating](#) of terrestrial plants is more accurate than dating [aquatic plants](#), but there needs to be a large enough sample size to analyze, she said.

The researchers also studied accumulated damage in the crystal lattices of ancient quartz grains to produce an age estimate.



This undated photo made available by the National Park Service in September 2021 shows fossilized human fossilized footprints at the White Sands National

Park in New Mexico. Fossil human footprints discovered in White Sands, New Mexico likely date back to between 21,000 and 23,000 years ago, according to two lines of scientific evidence published Thursday, Oct. 5, 2023. Credit: NPS via AP

Ancient footprints of any kind—left by humans or megafauna like big cats and dire wolves—can provide archaeologists with a snapshot of a moment in time, recording how people or animals walked or limped along and whether they crossed paths. Animal footprints have also been found at White Sands.

While other [archeological sites](#) in the Americas point to similar date ranges—including pendants carved from [giant ground sloth remains](#) in Brazil—scientists still question whether such materials really indicate human presence.



A single human footprint at site. Credit: National Park Service



Fossilized footprints in White Sands National Park. Credit: USGS, NPS, Bournemouth University





Footprints at the base of trench in White Sands National Park. Credit: USGS



Prints at base of trench, White Sands National Park. Credit: USGS

"White Sands is unique because there's no question these footprints were left by people, it's not ambiguous," said Jennifer Raff, an anthropological geneticist at the University of Kansas, who was not involved in the study.

**More information:** Bente Philippsen et al, Dating the arrival of humans in the Americas, *Science* (2023). DOI: [10.1126/science.adk3075](https://doi.org/10.1126/science.adk3075).  
[www.science.org/doi/10.1126/science.adk3075](https://www.science.org/doi/10.1126/science.adk3075)

Jeffrey S. Pigati et al, Independent age estimates resolve the controversy of ancient human footprints at White Sands, *Science* (2023). DOI: 10.1126/science.adh5007.  
[www.science.org/doi/10.1126/science.adh5007](https://www.science.org/doi/10.1126/science.adh5007)

© 2023 The Associated Press. All rights reserved. This material may not be published, broadcast, rewritten or redistributed without permission.

Citation: Further evidence points to footprints in New Mexico being the oldest sign of humans in Americas (2023, October 5) retrieved 28 April 2024 from <https://phys.org/news/2023-10-evidence-footprints-mexico-oldest-humans.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.