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Home	News	Animals	Biology	Environment	Health & Medicine	Tech	Science	Space	Video	
TRENDING TOPICS ANIMALS BIOLOGY ENVIRONMENT EVOLUTION BIODIVERSITY										

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Fossil Evidence Suggests Dogs Evolved with Climate Change

Scientists recently analyzed North American dog fossils as old as 40 million years to connect the dots between predators' evolution and climate change.

"It's reinforcing the idea that predators may be as directly sensitive to climate and habitat as herbivores," Christine Janis, professor of ecology and evolutionary biology at Brown University, said in a statement. "Although this seems logical, it hadn't been demonstrated before."

Janis worked with lead author Borja Figueirido, a former Brown Fulbright postdoctoral researcher, now a professor at the Universidad de Málaga in Spain. Their findings were recently published in the journal, *Nature Communications*.

To start, because the climate in North America roughly 40 million years ago was warm and wooded, fossils show that the dog species then were small animals. They resembled mongooses more than modern-day dogs. Also, the species during that time were not equipped with forelimbs specialized for running.

As the global climate began cooling and becoming open grasslands a few million years later, dogs had to change with it.

According to the report, Figueirido, along with his research team, including Jack Tseng of the American Museum of Natural History in New York, examined the elbows and teeth of 32 species of dogs spanning the period from 40 million years ago to 2 million years ago. The researchers saw clear patterns, including that the vegetation was opening up and dogs were becoming predators capable of chasing prey.

"The elbow is a really good proxy for what carnivores are doing with their forelimbs, which tells their entire locomotion repertoire," Janis said in a statement. In that, he also noted that before there was room for running through open grasslands, it was not necessary for predators to pounce because: "They'll smack into a tree."

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