

Ancient Feline Skeleton Reveals Mysteries of Cats as Pets

This rare discovery during a recent excavation along the former Silk Road in Kazakhstan offers interesting insights about the life of cats over 1,000 years ago. The well-preserved skeleton enabled researchers to reconstruct the cat's life, providing a glimpse into the early human-pet relationship.

Analysis by Dr. Karen Shaw Becker

STORY AT-A-GLANCE

- Recent research suggests domestic cats might have been pets of Kazakh pastoralists more than 1,000 years ago
- The study of the nearly complete skeleton of an ancient male cat reveals indicators that he was cared for by humans, including dietary markers, lifespan, and the fact that he was buried
- DNA analysis confirmed that the skeleton was likely to be of the *Felis catus* L. species, or domestic cat
- Cats are considered by some (but not all) experts to be "semi-domesticated," especially when compared to dogs

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If you're a seasoned cat person, you know that feline family members very much prefer that everything in life be on their terms. This includes when and how much they eat, where and how long they sleep, bathroom essentials, their general living environment and when and how they interact with others who share that environment.

Since cats are considered by some experts to be semi-domesticated (as compared to, for example, domesticated dogs — more about this later), it's logical to assume the reason is that they haven't been hanging with humans for eons like their canine counterparts. This coupled with their naturally independent nature, no doubt plays a significant role in their desire to control their environment and interactions with everyone in it.

Domesticated dogs, on the other hand, have evolved to adapt to the lifestyle and follow the lead of the humans in their environment. The question is, when did cats and humans begin to bond? The answer may lie in part in a newly published study.

What an Ancient Cat Skeleton Has Revealed

According to a recent post in online tech journal SlashGear:

"A popular saying claims that cats choose their people, not the other way around. This feline seduction has been traced back more than 1,000 years thanks to a newly detailed ancient cat skeleton, a new study reports. The skeleton reveals that humans traveling the Silk Road trade routes likely cared for cats along the way, treating them as pets similar to the way humans treat them today."¹

The nearly complete ancient cat skeleton referenced in this quote was unearthed during an excavation along the former Silk Road in southern Kazakhstan in a deserted city called Jankent/Dzhankent.

An international team of researchers led by Martin Luther University Halle-Wittenberg (MLU), Korkyt-Ata Kyzylorda State University in Kazakhstan, the University of Tübingen and the Higher School of Economics in Russia reconstructed the cat's life, which revealed some very interesting insights into human-pet relationships at the time. The results of the study were published in the journal *Scientific Reports* in July.²

The researchers believe domestic cats might have been pets of Kazakh pastoralists (livestock herders) more than 1,000 years ago. According to lead study author Dr. Ashleigh Haruda, the male cat "did not have an easy life" and "suffered several broken bones during its lifetime."³ However, the researchers believe he most likely made it past his first year of life, which is a clear indication that humans were taking care of him.

DNA Analysis Confirms Felis Catus L. aka Domestic Cat

Haruda pointed out that it's quite surprising and rare to discover a well-preserved skeleton of an animal during an excavation. In the case of the cat, the entire skull including the lower jaw, parts of the upper body, the legs and four vertebrae were found. This indicates he was probably buried by the humans who cared for him.

In addition to the discovery of several fractures thanks to 3D images and X-rays of bones, isotope analyses of bone samples provided information about the cat's diet, which was very high in protein in comparison to other cats and also dogs during that time period. Since the cat had almost no teeth at the end of his life, the researchers believe he was fed by humans since he would've been unable to capture or eat prey.

A DNA analysis proved the skeleton was indeed likely to be of the *Felis catus* L. species, or domestic cat, and not a close relative of the **wild steppe cat**. According to Haruda, it's remarkable that cats were being kept as pets in this region around the 8th century AD, because the humans who roamed the territory were thought to only keep animals that were essential to their lives.

If people were keeping and caring for "non-essential" animals during this period, it indicates a cultural change that was thought to have occurred at a much later time period in Central Asia.

About That 'Semi-Domesticated' Business

A 2014 analysis of the genome of an Abyssinian cat, a domestic female named Cinnamon whose lineage was traced back several generations, revealed certain genes responsible for domestication. However, the researchers concluded that cats are only "semi-domesticated," especially when compared to dogs. From the study abstract:

"Cats are considered only a semi-domesticated species, because many populations are not isolated from wildcats and humans do not control their food supply or breeding.

We therefore predicted a relatively modest effect of domestication on the cat genome based on recent divergence from and ongoing admixture with wildcats, a relatively short human cohabitation time compared with dogs, and the lack of clear morphological and behavioral differences from wildcats, with docility, gracility, and pigmentation being the exceptions."⁴

Not everyone is buying the semi-domesticated label, however. "There's no difference between a domesticated cat and a domesticated anything else," according to Greger Larson, an evolutionary biologist at the University of Oxford. "Good luck trying to get a goat or a sheep to spend the night in your house."⁵

Do Cats Tame Themselves?

According to Smithsonian.com, "In its simplest form, to domesticate an animal means to tame it, through breeding and training, to need and accept the care of humans."⁶

Dogs are believed to have been domesticated anywhere from 18,000 to 30,000 years ago, when they separated from their wolf ancestors and began spending their days and nights around humans.

Cats, on the other hand, seem to have begun their journey to domestication around 4,000 years ago according to some experts, or 8,000 to 9,000 years ago according to others.

Wes Warren, an assistant professor in the Department of Genetics at the Washington University School of Medicine in St. Louis and lead author of the Cinnamon genome study, believes that around 5,000 years ago a commensal relationship developed between cats and humans. Humans initially desired cats as pets because they kept rodents away from food sources.

However, Warren says what isn't known is whether the relatively minor taming of cats has been caused by humans, or whether cats have essentially tamed themselves.

Genetic Differences Between Cats and Tigers

Cinnamon's genome was compared to the genomes of a tiger, a cow, a dog and a human. Earlier genetic studies have shown that *felis catus* (the domestic cat) and *felis silvestris* (a small wildcat native to Africa, Europe, and Asia) are not all that different.

But Warren discovered some differences between Cinnamon and the tiger, especially in terms of behavior. He found genes in Cinnamon that would make her more likely to approach humans and interact with them, and also to seek rewards. These same genetic sequences are also starting to be uncovered in rabbits, horses, and other domesticated animals. According to Smithsonian.com, "This is not evolution, but the effects of human interventions."

Over the years, humans have bred dogs much more selectively than cats, with the goal of producing specific behaviors and temperaments, among other characteristics. Cats have been bred primarily for looks, for example, fur colors or patterns. Interestingly, a domestic cat's stripes are still no different than a wildcat's stripes. And Warren adds:

"Cats have retained their hunting skills and they're less dependent on humans for their source of food. With most of the modern breeds of dog, if you were to release them into the wild, most would not survive."

So, Are Feline Family Members Domesticated or Not?

It seems the answer depends on your definition of "domesticated." Some experts believe it's a simple matter of being tame enough to live with humans from one generation to the next, and cats certainly qualify. But others believe there's more to it — that domestication involves "complex genetic and behavioral changes that transform a creature inside

out."⁷

Warren believes cats cannot be considered domesticated under the second definition. He points out that there are affectionate cats, but there are also plenty of wary and aggressive cats, and he believes the spectrum of feline behavior is wider than we see in dogs. Warren also points to the notorious feline independent streak:

"Cats only come to you for affection when they feel like it," he says. "They pretty much take care of themselves."

The question is, if cats really don't need us, have they actually been domesticated by us? Honestly, this isn't a question I'm desperate to answer. I cherish the occasional flashes of wildness I see in every cat I meet. What's not to love about sharing your life with a beautiful animal who is at times a cuddly companion, and other times, a creature of the wild?

Sources and References

¹ [SlashGear, July 9, 2020](#)

² [Haruda, A.F. et al. The earliest domestic cat on the Silk Road. Scientific Reports volume 10, Article number: 11241 \(2020\).](#)

³ [EurekAlert! News Release, July 9, 2020](#)

⁴ [Proceedings of the National Academy of Sciences, Vol. 111, No. 48, November 10, 2014](#)

^{5,7} [Slate, July 5, 2015](#)

⁶ [Smithsonian.com, April 30, 2015](#)
