

Study: Cats have more than 9 lives, and plenty of cousins

New DNA research shows felines both wild and domestic evolved from common ancestor

By Richard Willing
USA TODAY

Never mind that scratching post. Your kitty now has her own family tree.

By studying DNA mutations that have developed over time, a team of researchers has traced the American domestic cat and its cousins — including the lion, leopard and panther — to a common ancestor that lived in Central Asia more than 10 million years ago.

The team's results were reported in Friday's edition of *Science* magazine.

Warren Johnson, the research team's leader, said the evolutionary study could benefit researchers who use cat DNA to pursue cures for cancer and other human illnesses.

Being able to pinpoint cats that may be especially resistant to disease or climate change "could be very useful" to researchers, said Johnson, a staff scientist at the National Cancer Institute's Laboratory of Genomic Diversity in Frederick, Md.

The researchers from the United States, Ireland, Portugal and Brazil found that cats have survived at least

10 intercontinental migrations and major geological events, including the separation and re-linking of continents and dramatic changes in sea levels. Today, they inhabit all continents except Antarctica.

Cats "are the most successful predators alive today — other than us," said Stephen O'Brien, chief of the Laboratory of Genomic Diversity and a member of the research team.

According to the report, the "great roaring cats," including the lion and panther, were first to evolve from the common cat ancestor. They spread across Europe and Asia beginning about 10.8 million years ago, the researchers found.

Eurasian bay cats, African golden cats and caracals, and ocelots, lynxes and pumas followed, the researchers reported.

The research team found that the domestic cat lineage developed about 6.2 million years ago. Cats were bred for pest control and pets beginning about 10,000 years ago.

Researchers filled in the family tree by comparing changes in DNA, which carries an organism's genetic code, among the cat lineages that currently exist. Cat fossils were used to help determine when cats that carry particular DNA markers emerged as separate lines, Johnson said.



By Gene Sloan, USA TODAY

Call of the wild: A study found that the lineage of domestic cats, such as this one, developed 6.2 million years ago; "great roaring cats" evolved 10.8 million years ago.

"Cats have gone through a lot and they are still with us," Johnson said. "Part of their attraction (to humans) is what the paper demonstrates — they retain something of their wildness."

Though more than 10 million years old, cats are relative newcomers in the realm of zoology. Dogs, the cancer institute researchers say, began to evolve from their last common ancestor about 20 million years ago. Humans, though, are thought to have diverged from chimpanzees less than 6 million years ago, the researchers say.

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Before reading:

Before distributing the article, list the following words on the board, and challenge student pairs or groups to find a connection between them. (They can create a story that includes all the words, use logic to develop a theory about them, etc.) Encourage students to find an innovative answer, rather than a “correct” one. Ask several groups to share their ideas.

cat

million

sea

Antarctica

cures

climate

roaring

After, direct students to read the story and highlight each of the seven words. As a class, review the connection between the words as outlined in the article.

Extension questions and activity for “Cats have more than 9 lives”

DISCUSSION

What discovery have researchers made about domestic cats? How could studying the lineage of felines benefit human beings? Why does the word “survivor” apply to cats? Which “great roaring cats” evolved first? Why did humans begin breeding felines? Why are people attracted to cats?

ACTIVITY

Imagine a world in which animals can express their opinions about current issues. Next, adopt the role of either a cat or a dog, and write a letter to the editor of USA TODAY. Explain why you are outraged, perplexed, pleased, etc. by the news about cats. Include at least two quotes from the article. (Feel free to make your letter humorous.) Finally, read your work aloud for peers.