

# **Are Cats Domesticated?**

**A study on Felis Catus Traits and  
Domestication Spectrum**

Sharareh Faramarz (66772120)

COGS 401

Dr. Lawrence Ward

## Introduction

Cats are inseparable part of human life. Everyone knows what a house cat is. This small, furry and playful mammal is kept as pet in almost all the cultures and countries. People seem to like cats despite the fact that they do not offer a valuable service other than companionship. Nevertheless cats have continued to be in man's life since long time ago. Cats were venerated in ancient Egypt, and the instances of domestication dates back to as early as the Neolithic from around 9,500 years ago. It may look like cats' domestication are taken for granted since there is little harm they can do to us but that can be attributed to their relatively small size as well. This paper will discuss the evidence for and against cats' being domesticated with the help of available literature, and deeper analysis of them, as well as proposing an experiment to further study the general traits of house cats compared to wild cats.

In order to define cats as domestic or wild we need to first define the word domesticated. The definition of domestication do not vary much in different sources. The National Geography defines domestication as "the process of adapting wild plants and animals for human use. Domestic species are raised for food, work, clothing, medicine, and many other uses. Domesticated plants and animals must be raised and cared for by humans. Domesticated species are not wild." Britannica dictionary uses the term "human mastery of wild animals and plants". House cats seem to fit both definitions but let's analyze this further.

## **Why is it important?**

Cats are the second most popular pet in the United States by number of pets owned, after one freshwater fish. Although they do not offer services that dogs provide, such as protection and unconditional love, still their companionship is desirable. It is easy to take care of a house cat, they are carnivorous and need minimal maintenance compared to dogs. This companionship is what makes the topic interesting, because if man is really keeping a domesticated animal in their life they should be sure about it. It seems that some significant abilities of cats also interest some. Their ability to hunt vermin and their highly developed intelligence which sometimes outsmart humans in their daily affairs such as finding the food stash or having their way of getting what they want makes them unique. Cats show love and affection towards humans but further study is required to see if this affection is real or it is just a survival instinct controlling human emotions. The abovementioned reasons make cats complex cognitive systems worth studying.

Research from the University of Edinburgh and the Bronx Zoo suggests that cats have personalities similar to those of African lions. The study also found out that domestic cats share some personality traits such as: Dominance, impulsiveness and neuroticism. Cats are solo hunters by nature. They do not live in groups and are independent of each other. But this does not mean they do not need the companionship of humans at all. They can use their owners as a safe point to return to in time of danger, or not. The puzzling point is the choice they make when danger comes along. It seems like many of

the house cats prefer a safe spot any place other than their owner's warm hands. There is no trust when it comes to survival.

In a research published in journal PLOS One, the researchers observed how 20 cats reacted when they were placed in an unfamiliar environment together with their owner, with a stranger or on their own. Although the cats were more vocal when the owner left them in the room rather than the stranger left them, the researchers didn't see any additional evidence to suggest that the bond between a cat and its owner is one of secure attachment. They categorized the vocalization as a sign of frustration. Cats do not need humans. In fact they do not listen to commands or accept the mastery of humans over themselves like dogs do.

### **Cat Ancestors, Selective Selection vs. Natural Selection**

There are 600 million house cats around the world. National geography believes that the wildcats may have been captured around 10,000 or 12,000 years ago when humans were settling down to farming. But people probably weren't going out and catching—or herding—cats. There are two possible theories about the way cats entered human life. Either they evolved naturally and became companions to the humans, or they were selected by humans to be captured, tamed and used to their benefits. The research favors selective selection, stating “the cats just sort of domesticated themselves. People today know that you can't keep a cat inside, and 10,000 years ago in the Fertile Crescent you couldn't just shut the window.” One of the speculations in determining if the house cats are domesticated is to analyze the coevolution of human and cat.

Coevolution happens when organisms that are ecologically intimate such as predators and prey influence each other's evolution but the process occurs over hundreds or thousands of generations, and extraordinary circumstances. They have adapted to the life with humans by time though, for example leopard, a dangerous species which is strong enough to kill a person, lives in a tiny national park in Mumbai surrounded by millions of people does not choose to do so and it is still considered a wild animal. Wesley Warren, a geneticist at Washington University in St. Louis published a study explaining the result of analysis of several wildcats and domestic cats' DNA. His findings showed that cats have genetically diverged much less from their wildcat ancestors and the cat genome has more modest signatures of selective selection compared to dogs.

Whether the result of natural or selective selection, house cats are still solo hunters. Humans provide food, shelter, security, love and companionship to the cats and cover their every need. But it looks like it is not satisfactory for them at all. Even with the provided food cats still go hunt at night and sometimes they even bring back their trophy in the form of dead animals for their owners. Their need and desire seem to be separate in modern life. Studies show that their genomes haven't undergone major changes throughout time. House cats still have the broadest hearing range among carnivores, allowing them to detect their prey's movement. They also retain their night-vision abilities and the ability to digest high-protein, high-fat diets. Their genes haven't evolved to make them dependent on humans for food.

## The evolution of the cat

A feline family tree, with estimated dates when new lines evolved:

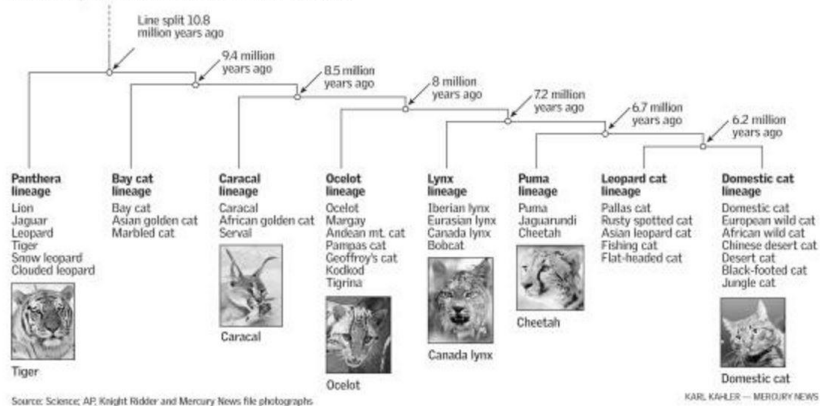


Fig.1 Evolution of the cat into several lineages

Figure 1 shows how the domestic cat relates to its "recent" relatives. The development timeframe of 6.2 million years between leopard cat and domestic cat is quite significant.

## Analysis of Previous Studies

Cat owners believe that their cats are affectionate towards them. This can be attributed to their intelligence rather than real affection. Daniel Mills, a professor of veterinary behavioral medicine at the University of Lincoln, worked on a series of experiments to see how cats react to their owners being away. The study was conducted on 20 cats and the famous psychologic experience from 1970's were conducted on them, the same study was originally conducted to measure the attachment between the parents and their child. With mother as the "secure base" the child was confident enough to go explore the furthest corner of the room rather than mother being replaced with a stranger. The study yielded the same results when reproduced with a dog and the

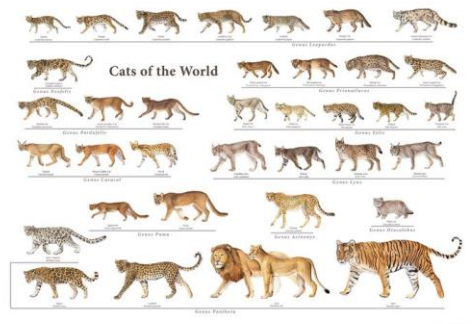
Are cats Domesticated?

Sharareh Faramarz 66772120

owner. Both child and dog saw their parent and owner as the source of comfort, joy and safety. Daniel and his team then tried out the experiment with cats. The question of the study was to see if the cat uses their owner as a “point of reference” but the findings showed that the relationship between the cat and owner is not a secure attachment. As much as humans would like to believe on this relationship, with the human at the center for providing food and safety, the results of the experiments proved otherwise. It is still not clear whether the cats love their owners back. In fact the genetic and archaeological studies suggest that the cats are wilder than we think and more recent studies add to this. The inclination therefore were to categorize cats as semi-domesticated rather than domesticated.

## Proposed Research

The proposed method of the study is a generalizable case study on a group of cats’ family. The subjects would be cats’ species (wild cat and house cat) as dependent variables and the owners as independent variables. The sample size of the subjects will be 20. The research will focus on the cats of different breeds, 10 of them chosen from domestic category and 10 from wild cats.



Versus

Are cats Domesticated?  
Sharareh Faramarz 66772120

Table-1 below shows the selected breeds for the purpose of this study. Although the selection from breeds is quite random, the attempt should be made to select the breeds that are easier to study on and their habitat is similar to the other category.

<b>Index</b>	<b>Domestic Cat</b>	<b>Wild Cat</b>
1	American Shorthair	African wild cat
2	Birman	Canada Lynx
3	Cornish Rex	Serval
4	Persian	Jungle Cat
5	Japanese bobtail	Puma
6	Russian Blue	Marbled Cat
7	Siamese	Sand Cat
8	Siberian	Leopard
9	Turkish Angora	Kodkod
10	Scottish Fold	Caracal

Table 1- Breeds selected for the study

In this study, for the domesticated group of cats, the effort will be made to reduce their dependency on the owners by ascertaining that the owner is not the sole provider of the food, shelter and affection. The aim will be to approximate the living condition of a wild cat to a domesticated one and deprive them from a domesticated life during a period of 6 months. Both breeds will live in close proximity of each other as much as possible. A glass wall will separate them. Within this timeframe the behavioral change of both wild cat and domesticated one will be measured and analyzed.

The study will reveal how much cats are tamed under the influence of human beings and whether they will show wild behaviors if the opportunity and exposure is provided to them. After 6 months the owners will meet with their cats and the behavioral change is



measured. One interesting by-product of this research could be any behavioral change in wild cat's traits which will reinforce the selective selection theory.

It is expected that the domestic cats show less dependency towards their owners but not as much as becoming wild. They may pick up some of the instinctive wild traits but their intelligence will overcome their instinct at the end.

### **Risk Factors and limitations**

There are some limitations to the extent the study can cover. The close proximity of the breeds is not a possibility because of their territory and dominance traits. Different breeds of cats whether domestic or wild may show different behavioral pattern that are hard to classify. Creating equal conditions for different breeds is a tedious and expensive task and requires a lot of backend research. Then the abundance of food or diet and the ability of hunting which is a definitive factor in forming the behavior needs special control and measurement, and last but not the least it is hard to measure the level of wildness in a lab setting. We may have to change our definition of domestication for the purpose of this study.

### **A new angle – Domestication spectrum**

To report the results of the study it will be more precise to use a spectrum of domestication rather than the absolute terms of domesticated, semi- domesticated and wild. The cats will be classified based on their behavioral patterns after the specified

timeframe. It is expected that the spectrum vary equally towards both ends, showing a pattern of domestication trait by the breed which is adopted as pet more often.

## **Conclusion**

The sophistication in cats' behavior make them interesting subjects for repeated analysis in order to figure out the domesticity. Researches in this field suggest that house cats are semi- domesticated rather than fully domesticated as they show patterns of behavior as their wild ancestors do. Also the study on their genes shows that they have kept the required traits for living independently from humans. Observations from informal short surveys also show that cats do not accept the mastery of humans and they continue their own desired behavior in the absence of their owners. It is practically hard to train cats to do what humans want them to do. They will pretend to act as expected but having the opportunity they return to their natural instinct. My proposed research will shed the light on the differences between the two extreme points of wild and domestic cats, creating a spectrum of domestication between them. Optimistically the categorization will be distributed evenly and the spectrum show consistency in two classes. The cats will show consistent behaviors within their classifications too because the only cats that live in large extended family groups- lions- are excluded from this research. Therefore the results of this case study can be generalized to other wild and domestic cat groups as well. Further studies can also categorize the remaining breeds into the different places in the spectrum. At the end we will have a broad range of cats breeds ordered by their level of domestication.

## REFERENCES

Zeder MA (2015). "[Core questions in domestication Research](#)". Proceedings of the National Academy of Sciences of the United States of America **112** (11): 3191–

8. [doi:10.1073/pnas.1501711112](https://doi.org/10.1073/pnas.1501711112). [PMC 4371924](#). [PMID 25713127](#)

[http://news.nationalgeographic.com/news/2007/06/070628-cat-ancestor\\_2.html](http://news.nationalgeographic.com/news/2007/06/070628-cat-ancestor_2.html)

[http://www.research.ed.ac.uk/portal/files/17472323/Personality\\_Structure\\_in\\_the\\_Domestic\\_Cat.pdf](http://www.research.ed.ac.uk/portal/files/17472323/Personality_Structure_in_the_Domestic_Cat.pdf)

<http://www.cnet.com/news/research-says-your-cat-might-be-thinking-about-killing-you-really/>

<http://www4.uwsp.edu/psych/s/275/Science/Coevolution03.pdf>

<https://sites.google.com/site/humanhabitatproject/home/the-domestication-spectrum>

<http://www.slashgear.com/nvidia-gpu-neural-network-makes-googles-cat-spotter-look-dumb-18286783/>

<http://www.fastcompany.com/1841365/theres-more-googles-artificial-brain-finding-cats-internet>

<http://www.smithsonianmag.com/smithsonian-institution/ask-smithsonian-are-cats-domesticated-180955111/?no-ist>

<http://www.theatlantic.com/national/archive/2014/11/man-cat-dog-best-friend-pet/382740/>

<http://www.historyworld.net/wrldhis/PlainTextHistories.asp?historyid=ab57#ixzz44vCzKqOf>  
<http://cel.webofknowledge.com/InboundService.do?product=CEL&SID=4CyffqY1MBY93TnJl87&UT=WOS%3A000174695400009&SrcApp=Highwire&action=retrieve&Init=Yes&SrcAuth=Highwire&Func=Frame&customersID=Highwire&IsProductCode=Yes&mode=FullRecord>

<http://www.newyorker.com/tech/elements/are-cats-domesticated>

<http://www.telegraph.co.uk/science/2016/03/14/cats-do-not-need-their-owners-scientists-conclude/>

<http://www.pnas.org/content/111/48/17230.full>

<http://www.wimp.com/catsowners/>

<https://www.pinterest.com/pin/496944140107732254/>

Are cats Domesticated?

Sharareh Faramarz 66772120