

History and Evolution of the Domestic Cat, *Felis catus*

All cats, large and small, wild and domestic, belong to the cat family Felidae. Within this family are two sub-families: *Pantherinae* — the great cats, including the lion, tiger, leopard, snow leopard, and jaguar, and *Felinae* — the small cats. *Felinae* includes more than 30 different species, such as the lynx, ocelot, serval, margay, leopard cat, bobcat, jungle cat, wildcat, and the domestic cat. These cats are found throughout Africa, Asia, Europe, and the Americas.

Several small wildcats, like the European wildcat, *Felis silvestris*, are similar in appearance to the average house cat. However, it is specifically the African wildcat, *Felis silvestris lybica*, who is considered the ancestor of what is now the most popular companion animal in the world: the domestic cat, *Felis catus* (Driscoll et al., 2007).

The African wildcat is considered the ancestor of domestic cats partly because of its sociability. *Felis lybica* is a little larger and stockier than *catus*, but its coat is similar to that of the modern

tabby cat. Even today, African wildcats have been successfully socialized to humans, whereas the European wildcat, *Felis silvestris*, not considered a forebear to modern domestic cats, is almost impossible to tame (Serpell, 2000). Young European wildcats who live in captivity will quickly revert to a wild state as they grow older.

Personal Account from Louise Holton

Many years ago on a trip to the magnificent Kruger National Park in South Africa, I spotted an African wildcat. I did not realize at the time that the cat was *lybica*. The cat looked so much like a tabby cat, I thought a ranger's cat had wandered too far from home. Only later, while reading a book on Kruger, did I discover the cat I had seen was *lybica*! I can still see the wild look on her face as she peered at me from under some bushes. Years later the ACR staff saw several wildcats in a private reserve next to the Kruger National Park and in the neighboring country of Botswana.

Mummified cat remains have also shown the domestic cat's origins to be closer to *lybica* and modern molecular techniques show that the domestic cat is genetically similar to the African wild-

cat. In 2007, scientists established the origin of the domestic cat by analyzing the DNA of a thousand wild and domestic cats (Driscoll et al., 2007). By sampling genes from several subspecies across three continents, they found that *Felis lybica* living in the Near East were likely domesticated from 10,000 to 12,000 years ago (Handwerk, 2007).



African wildcat (Felis silvestris lybica), considered the ancestor of today's domestic cat.

Domestication of the cat occurred when humans settled the Fertile Crescent, stretching from the Nile in Egypt to the Tigris and Euphrates rivers in the modern-day Middle East. Around this time, human settlements started to grow crops, such as wheat and barley, and with that innovation also came the necessity to store unused grain. The wildcat found easy prey at the grain storage bins, which attracted large numbers of rodents (DK

Publishing, 2014). The two opportunistic species recognized what could be a mutually beneficial relationship; cats benefited from the availability of food sources around humans (as well as shelter from weather and other predators), while humans profited from a feline form of rodent control. Both of them found new companionship and usefulness in each other.

Traditionally, scientists had thought the cat was domesticated around 4,500 years ago in ancient Egypt. In 2004, a group of French archaeologists led by Jean-Denis Vigne discovered the remains of an eight-month-old cat buried with its human companion at a Neolithic site in Cyprus. This cat was dated back to 9,500 years ago. The Mediterranean island was settled by Turkish farmers who brought domestic animals with them. There are no native wildcats on Cyprus, so cats were probably imported from Turkey (Vigne et al., 2004).

Most domestic animals were tamed by people, but geneticist Dr. Carlos Driscoll, has written, "The cats were adapting themselves to a new environment, so the push for domestication came from the cat side, not the human side" (Driscoll et al., 2007).

Dr. Stephen O'Brien says: "But this little guy ... chose to be a little bit friendly and also was a very good mouser." The wildcat brought "two very valuable commodities" to these early humans. "One is, he helped dispatch rodents that were living on the grain stores and

second he probably provided some amusement to the early families and their children by being friendly,” O’Brien says. “So that was the beginning of one of the most successful biological experiments ever undertaken, where a ... deadly predator changed its attitude and became friendly with humans” (Thomet, 2007).



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European wildcat (Felis silvestris), similar in appearance to the domestic cat, but much less social toward humans.

Today the descendents of the domestic cat number more than 600 million (Driscoll et al., 2009). Unfortunately, the cat’s bigger wild cousins are not faring as well and are in great jeopardy. Habitat loss from the rampant overdevelopment of land has resulted in the loss of prey animals; thus, causing a near-extinction crisis for most of these wildcats.

New studies have discovered genetic markers that distinguish native wildcats from domestic house cats or feral cats (Randi et al., 2001). Since these cats have a similar genetic makeup, they easily interbreed; in some cases, such as the African and Scottish wildcats, interbreeding threatens to “hybridize” their genetically pure wild form out of existence.

In Great Britain and other countries, some true wildcats are protected by law. (Accurate genetic testing is important, so that officials can properly identify protected animals.) David Macdonald of Oxford University has spent ten years trying to preserve the Scottish wildcat, of which only 400 or so remain. “We can use some of the genetic markers to talk to conservation agencies like the Scottish Natural Heritage,” he said (Wade, 2007).

The Cats of Ancient Egypt

Because of this new evidence, domesticated cats are now believed to have arrived in Egypt from the Near East, rather than tamed from the resident wildcat species. However, some scientists admit that the African wildcats in Egypt could have been tamed by humans, and I have been told by a few South African friends that they had African wildcats befriend them.

In any case, cats were treated with great respect in Egypt. Many revered the cat goddess Bastet, and celebrated her

connection with the moon, fertility, and protection. Another name for Bastet or Bast, was Pasht, from which the word “puss” is thought to have been derived (Zax, 2007). Bubastis, the city of Bastet, became one of the major religious centers of Egypt and in 945 B.C. it was made the capital of Egypt (Mercer, 1919). Bastet was one of the most popular goddesses (Mark, 2012). A temple of red granite surrounded by water was built in her honor (Rosenow, 2008). The Egyptians portrayed Bastet either as a giant cat or as a woman with the head of a cat. The celebration of Bastet at Bubastis continued for two thousand years until it was finally outlawed by the Christian Emperor, Theodosius (Quammen, 2012).



Louise Holton

The ancient Egyptians revered cats and immortalized them in statue form.

Ancient wall paintings show cats and kittens sitting under chairs and on laps in much the same way as our household cats act today. Wall paintings depict the cat as a welcome member of Egyptian households, as well as a prominent figure in myth and legend (Wilkinson and Hill, 1983).

In ancient Egypt the death of a cat was deeply mourned. The entire household shaved their eyebrows to display their grief over the loss (Herodotus, 2008). Millions of cats were mummified and buried in cat cemeteries in Bubastis and other centers (Kurushima et al., 2012). These mummified cats were kept for centuries, but before valuable research could be done to establish the true origins of the domestic cat, the scientific value of these remains was overlooked and most were used as fertilizer (Lorenzi, 2012).

During this period in Egypt, cats were not allowed to be taken out of the country (Mark, 2012). However, the cultural significance of the cat and her ability to control rodent populations so entranced many foreign visitors that slowly many cats were smuggled out of Egypt and began their journey to the four corners of the world (DK Publishing, 2014).

Cats were first taken to the Far East, then, in the 10th Century, to Europe and England. Unknowingly, crusaders also brought rats and mice to Europe from the Middle East and these quickly proliferated in their new environment. The cat's ability to maintain control of the newly burgeoning rodent populations made her welcome in most countries (Serpell, 2000). Her popularity rose quickly in Japan when mice began destroying silk farms. Soon cats were taken on ships to control stowaway rodent populations. When the ships docked in new countries,

many cats jumped ship. These seafaring cats are the ancestors of the feral cat colonies found across the world today.

Cats were deliberately introduced to most of the world's islands to control rodent populations (Rodríguez et al., 2006; Courchamp et al., 1999). At least 65 major island groups have populations of introduced cats (Courchamp et al., 2003). This topic will be discussed in more detail in the "Cats and Predation" chapter.

The Persecution of Cats

The early Christian church was aware of the link between so-called pagan religions and cats as deities. As a result, the cat began to fall from favor during the Middle Ages. Western religions started encouraging the cruel torture and burning of cats, condemning them as pagan demons (Lawrence, 2003). During the 13th century the church blamed witchcraft for the social problems of the time, and cats became one scapegoat — along with witches and non-Christian believers (Serpell, 2000).

Many women who practiced ancient healing crafts, using old folk medicines, were accused of being witches. In some cases, women were killed solely because they cared for cats, because the church said they were conversing with the devil (Lawrence, 2003). Cats were accused of being witches' familiars or even witches in disguise. The Festival of St. John was

celebrated annually with the burning alive of cats in the town square (Darnton, 1986).

Australian ecologist Frankie Seymour explains in "The Great Feral Cat Con Job: The Ungentle Art of Scapegoating and Scaremongering:"

By the late Middle Ages, cats in Europe had been hunted, hanged and burned almost to extinction. Then, of course, the Black Death (Bubonic Plague) arrived in Europe and 25 million people ... died in five years because, for several hundred years before, there hadn't been enough cats to keep the rat population healthy. (Seymour, accessed 2014)

The persecution of witches and cats spread to the New World in cities such as Salem, Massachusetts. In 1692, more than 144 were accused of witchcraft, with more than 20 of them executed (Norton, 2007; Doty and Hiltunen, 2002).

This dark age left behind a legacy of superstition, myth, and misinformation about cats, some of which persists to this very day. Although more and more people have cats as companion animals, many others have an unreasonable aversion to cats. Some even suffer from ailurophobia — the irrational and panic-laden fear of cats. In a survey conducted in the 1980s, one out of four people surveyed disliked cats. And Noah Webster, in his dictionary, described the cat as "a deceitful animal and when enraged extremely spiteful" (DeForest, 1874).

Famous Cat Haters

Dwight D. Eisenhower (1890-1969). Eisenhower's loathing for cats was so great, he gave his staff orders to shoot any seen on the grounds of his home.

Johannes Brahms (1833-1897). One of his favorite forms of relaxation was to sit at an open window and attempt to kill neighborhood cats with a bow and arrow.

Napolean Bonaparte (1769-1821). This emperor was once found sweating with fear and lunging wildly with his sword at the tapestry-covered walls. The source of his fear was a small kitten.

Source: "Cat Haters," accessed 2014

Thankfully people do not burn cats at the stake any longer. However, a question resides in the minds of many, and was asked by the Animal Protection Institute (API) in 1994: "Is there a War Against Cats?" And we must agree with API, in that, "The all-out war against cats that Pope Innocent VIII initiated is the stuff of history. But today ... the war against cats goes on" (Lamont, 1994).

Conclusion

It is unfortunate that this "war on cats" is perpetuated to this day, as the negative view of cats is wholly outdated and not based upon facts. We of course no longer believe that cats are conjuring evil spirits, but some are still arguing that cats are

violent, dangerous predators who kill for sport and spread disease. Animal control agencies still euthanize untold numbers of feral cats, under the assumption that they are unwanted, uncared for, and have no place in our ecosystem.

Modern science has proven these misconceptions wrong and has brought us a deeper understanding of the feline species. Attitudes are shifting — there are now more pet cats than dogs in the U.S. — and humane policies for cat care and management are spreading. It seems we are finally waking up to our shared responsibility to care for the cats in our communities, and we hope this handbook will be an informative and important tool for those working on behalf of cats.