

Egyptian Mau Breeding Policy



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1. Introduction

The function of this breeding policy is to provide information and advice to all those involved in breeding Egyptian Mau cats. This policy should be read in conjunction with the GCCF Breeding Policy, the GCCF Egyptian Mau Registration Policy (Appendix 1) and the GCCF Standard of Points (SoP) for the Egyptian Mau (Appendix 2).

The overriding aim of all ethical Egyptian Mau breeders should be the improvement of the breed. To ensure that the breed has a secure future, breeders need to consider three attributes of the cats they are producing in descending order of priority:

1. **Health.** The health of Egyptian Mau cats is of paramount importance for the future of the breed. Cats with health problems are likely to suffer from impaired welfare, and neither breeders nor pet owners want the emotional and financial stress of coping with unhealthy cats. Breeders must take responsibility for ensuring that defects and health problems in their breeding cats and kittens are quickly identified and that steps are taken to prevent their perpetuation. Breeders must also take responsibility for ensuring that genetic diversity is maintained within the breed.
2. **Temperament.** Cats with poor temperament make unsatisfactory pets and can be impossible to show. The temperament of a cat is determined by an interaction between its genes, its early environment and its current environment. Breeders must therefore take responsibility for ensuring that their breeding cats have good temperaments and that they provide their kittens with adequate human socialisation during development.
3. **Type.** The term “type” is used to describe how a cat appears physically, including its head, body shape, its coat length and quality, its colour and coat pattern. The ideal type for an Egyptian Mau is set down in the breed’s Standard of Points. However, pedigree cats are defined by their ancestry as registered with a cat registry, meaning that any cat that meets the requirements of the Egyptian Mau Registration Policy can be registered with GCCF as an Egyptian Mau and used in an Egyptian Mau breeding programme. So, unless breeders constantly strive to breed selectively from only those cats that adhere most closely to the Egyptian Mau Standard of Points, the distinctive features of the breed will soon be lost. Whilst it is sometimes possible for experienced breeders to assess the type of their kittens without external input, the majority of breeders need help in learning how to correctly interpret and apply the Standard of Points. The process of showing cats competitively, whereby experienced judges provide feedback to breeders on the quality of their cats, is therefore a vital part of most breeding programmes. For this reason, all breeders are encouraged to engage actively in showing their cats and to avoid placing kittens on the Active Register with owners with no interest in showing.

Breed specific advice on the improvement of health, temperament and type is given later in this document.

2. The history and origins of the Egyptian Mau

The Egyptian Mau is an elegant spotted cat of moderate foreign type that bears a striking resemblance to the cats depicted in the art of the ancient Egyptians. Unlike some of the more recent attempts to recreate the look of these primitive cats by hybridizing established breeds, the Mau is considered to be a natural breed derived from the modern street cats of Egypt and hence potentially tracing its ancestry back to the cats first domesticated by the Ancient Egyptians.

Three colours of Mau are present in early pedigrees, silver (black silver spotted tabby), bronze (black spotted tabby) and smoke (black smoke with a heavy ghost spotted pattern). Given these three colours it is inevitable that self black Maus were also being produced, although these don’t appear on pedigrees until some years later. These four colours, silver, bronze, smoke and black comprise the vast majority of Maus bred to date. There is also limited evidence that blue Maus also occasionally occurred very early on, but it is only within the last couple of years that these have been registered by the Cat Fanciers’ Association, so we have no means of tracking the true origins of the dilute gene within the breed. Some

breeders believe that the dilute gene and possibly also the recessive classic tabby pattern gene which occasionally shows up in litters can be traced to outcrosses used in the early years of the breed in the USA, however, these two genes are certainly present in the genepool of modern-day Egyptian street cats, so it is possible that they were carried by the first Maus to arrive in the USA.

Maus in the UK

The breed expanded from its early beginnings in New York. By the 1990s there were breeders in the USA, Canada, Japan and continental Europe, the European Maus being reintroduced from cats bred in North America. However, the breed did not reach the UK, presumably because of the restrictions imposed by quarantine.

Melissa Bateson was finally responsible for introducing the Egyptian Mau to the UK in 1998. Her initial imports were: silver females, Emau's Isis of New Kingdom, Emau's Nephthys of New Kingdom and J's Iris Qetesh of New Kingdom and silver male Sharbees Mihos of New Kingdom. These cats were supplemented by additional silver and bronze imports over the next few years.

In January 1999 the Maus were granted the breed reference name "Egyptian Mau" by the executive committee of the GCCF. The breed received Preliminary Recognition from the GCCF in 2001, followed by Provisional Recognition in 2004, and finally Championship status in 2006.

Unlike other registries, such as CFA, GCCF does not currently permit the registration of cats of certified Egyptian origin and Egyptian Mau type as Egyptian Maus. All GCCF-registered Maus must have at least 3 generations of registered Maus behind them, and there are currently no permitted outcrosses. However, the gene pool of Maus in the UK contains descendants from traditional lines, Indian lines and more than one Egyptian import line. Therefore, despite the lack of allowable outcrosses, the gene pool of Egyptian Maus currently in the UK is reasonably diverse.

3. Egyptian Mau colours and patterns

3.1 Recognised Egyptian Mau colours

The Egyptian Mau is by definition a spotted tabby cat. Three colours of Egyptian Mau are currently recognised for showing with GCCF: "Bronze" (78 30) which is genetically a brown (i.e. black) spotted tabby; "Silver" (78 30s) which is genetically a black silver spotted tabby; and "Smoke" (78 36) which is genetically a black smoke showing a strong ghost spotted tabby pattern. All of these colours should display the spotted tabby pattern described in the SoP.



Additionally, the Registration Policy lists five other unrecognized colours that are permissible in Egyptian Mau pedigrees, but cannot be shown with GCCF. These are black self, blue spotted tabby, blue silver spotted tabby and blue smoke (with ghost spotted tabby pattern). The black self Mau is an inevitable consequence of the three recognized Mau colours, and can never be eliminated entirely by selective breeding. The blue Maus are the consequence of the presence of the dilute allele in the Mau gene pool (see Section 3. X below).

3.2 Basic colour genetics for the Egyptian Mau

In order to breed Egyptian Maus successfully it is useful to have a basic understanding of the genetics underlying the various colours and patterns in which Egyptian Maus can occur.

The colour and pattern of a cat are determined by its genes, with specific genes being responsible for different aspects of coat colour and pattern. Every cat contains two copies of each gene, one copy inherited from each of its parents. Some genes only come in one type meaning that the two copies are the same in all individuals. In the Egyptian Mau, an example of a gene that is the same in all individuals is the

black gene (designated **B**). All Egyptian Maus inherit a **B** allele from both of their parents and therefore have the genotype **BB**. An individual in which both alleles of a gene are identical is described as *homozygous* at that gene. Therefore, all Egyptian Maus are fundamentally homozygous black cats.

However, other genes can come in two (or more) types, known as *alleles*. In the Egyptian Mau the three colours of Mau accepted for showing are the product of just two genes: the **agouti gene** and the **inhibitor gene**, each of which has two possible alleles.

The **agouti gene** has two alleles, **A** (agouti) and **a** (non-agouti). **If a gene has two alleles then any individual can have three possible genotypes** resulting from the different combinations of the two alleles it inherits from its parents. In the case of the agouti gene, the three possible genotypes are **AA**, **aa** and **Aa**. Cats with the genotype **AA** have banded hairs and thus display a tabby pattern (e.g. the silver and bronze Maus). Cats with the **aa** genotype have non-banded hairs, and are thus either selfs or smokes. Cats with the third **Aa** genotype (known as *heterozygotes* because their two alleles are different) have banded hairs and look just like **AA** cats (i.e. silver or bronze). The **A** allele is therefore described as *dominant* over the **a** allele, because **Aa** cats are *phenotypically* (i.e. visually) indistinguishable from **AA** cats. It is the normal convention in genetics to designate a dominant allele with a capital letter (e.g. **A**) and a recessive allele with lower case letter (e.g. **a**). In summary, **AA** and **Aa** cats are silver or bronze whereas **aa** cats are smoke or black.

The **inhibitor gene** also has two alleles, **I** (inhibited) and **i** (non-inhibited). Cats with the **I** allele have silvery white undercoat and/or paler bands on their hairs because the **I** allele inhibits deposition of brownish pigments in the hairs. **I** is dominant to **i**. Thus the presence of the **I** allele converts a bronze to a silver and a black to a smoke. In summary, **Ii** and **Ii** cats are silver or smoke whereas **ii** cats are bronze or black.

All cats have both agouti and inhibitor genes, and between them, the two possible alleles of each of these genes are responsible for the silver, bronze, smoke and black Egyptian Maus. Table 1 shows all of the possible genotypes and their associated colours. Note that the genotype of a cat determines its appearance and also the colours of kittens it is theoretically possible for it to produce.

Table 1. Genotypes of different Egyptian mau colours

Genotype	Description	Appearance of cat
AAII	Pure, (aka <i>homozygous</i>) silver	Silver
AAIi	Silver carrying bronze	Silver
AaII	Silver carrying smoke	Silver
AaIi	Silver carrying smoke, bronze and black	Silver
aaII	Pure smoke	Smoke
aaIi	Smoke carrying bronze and black	Smoke
AAii	Pure bronze	Bronze
AaII	Bronze carrying smoke and black	Bronze
aaII	Pure black (aka <i>double recessive genotype</i>)	Black

3.2.1 How to work out the genotype of an Egyptian Mau

It is very useful to know the genotype of your cat since this will determine the colours of kittens it is able to produce and will help you to plan matings more effectively. The only mau genotype that can be inferred from the appearance of the cat is the black (because there is only one genotype of black Mau). With Maus of other colours it will be necessary to do some detective work. Sometimes it is possible to work out the genotype of your cat from a knowledge of the genotypes of its parents. However, more often it will be necessary to breed from a cat in order to get some idea of its genotype. There are a few simple rules that you can apply:

- If the cat has two **AAII** silver parents then it must also be **AAII**.
- If the cat has two pure bronze parents (**AAii**) then it must also be **AAii**.
- If the cat has two pure smoke parents (**aaII**) then it must also be **aaII**.
- If the cat has two black parents (**aaII**) then it must also be **aaII**.
- If the cat has a black parent then its genotype must be **Aali** if it is a silver, **AaII** if it is bronze and **aaII** if it is smoke (this is because it can only inherit the **a** and **i** alleles from the black parent).
- If a silver cat has a bronze kitten then it must be **Ii**.
- If a silver cat has a smoke kitten then it must be **Aa**.
- If a silver cat has a black kitten then it must be **Aali**.
- If a bronze cat has a black kitten then it must be **AaII**.
- If a smoke cat has a black kitten then it must be **aaII**.

It is good practice for stud owners to keep records of the colours and patterns of all the kittens produced by their studs and make this information available to the owners of queens mated to their studs.

3.2.2 How to work out what colours can be produced from a mating

There are some very basic rules that can be applied to predict what colour of kittens you might get from a mating. The following table summarises these rules.

Table 2. Possible colours of kittens arising from different mating combinations

		Stud colour			
		silver	bronze	smoke	black
Queen colour	silver	Any colour	Any colour	Any colour	Any colour
	bronze	Any colour	Only bronze	Any colour	Only bronze
	smoke	Any colour	Any colour	Only smoke	Only smoke
	black	Any colour	Only bronze	Only smoke	All kittens

Note: the possible offspring colours appear in the grey shaded cells.

However, it is often possible to make more specific predictions because the colours that a specific breeding produces will be affected by the genotype of both the dam and the sire. If you know the genotype of one or both parents, then it is possible to work out **on average** the colours of kittens to be expected from the mating.

Table 2 shows the construction of a Punnett square to determine the possible outcomes from breeding a smoke queen with the genotype **aaIi** with a silver stud with the genotype **AaIi**. First you have to work out all the possible types of eggs and sperm that could be produced by the parents and then all of the possible combinations of these. The table shows that this breeding should produce 6/16 (=37.5%) silvers, 6/16 (=37.5%) smokes, 2/16 (=12.5%) bronzes and 2/16 (=12.5%) blacks.

Table 2. Punnett square to compute the possible results of a mating

		Silver stud (AaIi)			
		AI	Ai	aI	ai
Possible sperm →					
Smoke queen (aaIi)	al	AaII = silver	AaIi = silver	aaII = smoke	aaIi = smoke
	ai	AaIi = silver	AaII = bronze	aaII = smoke	aaII = black
	aI	AaII = silver	AaIi = silver	aaII = smoke	aaIi = smoke
	ai	AaIi = silver	AaII = bronze	aaIi = smoke	aaII = black

Note: the possible offspring appear in the grey shaded cells.

Similar Punnett squares can be constructed for any combination of genotypes. The table in Appendix 3 shows the average outcome expected from all possible combinations of recognized colours of Egyptian Maus.

3.3 Blue Maus

Blue equivalents of all four of the black Mau colours sometimes occur. Blue Maus are caused by the recessive **d** allele of the **dilution gene**. Recognised colours of Egyptian Maus have either a **DD** or **Dd** genotype. The presence of the dominant **D** allele leads to full expression of the Black (**B** gene) that causes the tail tip, paw pads and bands on the hairs to be black in the recognized Mau colours. However, in **dd** cats this black colour is diluted to blue, resulting in the blue Mau.

Some facts about blue Maus:

- The **d** allele is known to be present in the UK Mau gene pool.
- To produce a blue kitten, both parents must carry the dilute allele (i.e. be **Dd**).
- If two blue carriers (**Dd** cats) are mated, then on average ¼ of the kittens will be blue and 2/3 of the non-blue kittens will carry blue (i.e. have a **Dd** genotype). However, the good news is that ¼ of the kittens will be of the homozygous **DD** genotype and will not be able to produce blue kittens.
- All offspring of a blue Mau will always carry the dilute allele.

Since blue is an unrecognized colour, breeders should strive to eliminate the **d** allele from their breeding cats and should make sure blue kittens are registered correctly. According to the Registration Policy offspring from blue Egyptian Maus shall be over stamped "Carries the dilution gene" and subsequent generations shall be over stamped "Mau carry the dilution gene." Additionally, non-blue parents of blue

Egyptian Maus shall be over stamped “Carries the dilution gene” and subsequent generations shall be over stamped “May carry the dilution gene”. Genetic testing for the **d** allele is now available meaning that elimination of the dilute allele from the Mau gene pool is now theoretically possible if all subsequent breeding cats were tested and only those without the **d** allele kept for breeding. Some breeders routinely test their breeding kittens for the dilute allele; this is a responsible course of action for potential stud cats. The Egyptian Mau Breed Advisory Committee (EMBAC) has no intention of pursuing the recognition of blue Maus at this time.

3.4 Classic (also known as blotched or marbled) tabby Maus

According to current thinking, two, and probably three, different genes are responsible for the various tabby patterns (Lorimer 1995) two of which have relevance to Egyptian Maus.

One gene controls whether a cat is fundamentally **mackerel (Mc)** or classic (**mc**) with mackerel dominant to classic. Mackerel (**Mc**) is the basic striped tabby pattern. Whereas classic (**mc**) is a recessive allele which gives a blotched pattern with the characteristic “butterfly” motif across the shoulders and “oysters” on the flanks. Current thinking is that Egyptian Maus can be fundamentally either mackerel or classic tabbies, with classic tabbies (i.e. the recessive **mcmc** genotype) being the more common form. However the reason that most Maus don’t usually appear to have either of these patterns is due to the action of another gene.

According to current thinking, the **spotted** gene (**Sp**) causes the spotted tabby pattern, breaking up the mackerel or classic pattern into elongated or rounder spots respectively. The gene has two alleles, with **Sp** which causes spotting dominant to **sp**. Thus **SpSp** and **Spsp** cats will be spotted and **spsp** cats will display the underlying mackerel or classic pattern. Since the spotted patterns derived from classic tabbies are often considered more attractive, it is likely that Egyptian Mau breeders have selected for a higher proportion of **mc** alleles in the Mau gene pool.



Kittens with the classic or blotched tabby pattern sometimes occur in Mau litters. Classic tabby kittens are therefore caused by **sp**, the recessive allele of the spotting gene. Spotted tabby Maus have either a **SpSp** or **Spsp** genotype. The presence of the **Sp** allele breaks up the classic tabby pattern into spots. However, **spsp** cats are classic tabbies.

- The **sp** allele is common in the UK Mau gene pool.
- To produce a classic tabby kitten, both parents must carry the **sp** allele (i.e. be **SpSp**).
- If two classic carriers (**SpSp** cats) are mated, then on average $\frac{1}{4}$ of the kittens will be classic and $\frac{2}{3}$ of the spotted kittens will carry classic.

Classic tabby kittens cannot be registered as Egyptian Maus. However, the kittens are beautiful and are typically easy to place as pets. Given the frequency of the **sp** allele and the lack of available genetic testing for carriers, it is not reasonable to attempt to eliminate the **sp** allele from the Mau gene pool at this time.

However, breeders are encouraged to supply information on the **sp** carrier status of kittens and stud cats. The EMBAC has no intention of pursuing the recognition of classic tabby cats of Egyptian Mau type.

Logically, if some Maus have an underlying mackerel tabby pattern, then it should be possible to get mackerel tabby Maus. This would occur when a mau with an **Mc** allele (either **McMc** or **Mcmc**) also inherits the a non-spotted **spsp** genotype. Although there is no official record of mackerel Maus occurring, it is possible that such cats do sometimes occur and are registered as spotted Maus with bad pattern flaws. Breeding from very stripy Maus is therefore not recommended since it is possible that they do not carry the essential **Sp** allele.

3.5 Blue-eyed Egyptian Maus

All Egyptian Maus are born with blue eyes but the eye colour should start to change towards the adult gooseberry green from around 6 weeks onwards sometimes passing through a hazel or yellowish phase. However, very rarely, Egyptian Maus occur that retain turquoise blue or aqua eyes into adulthood. This trait appears to be inherited as a recessive allele that has no other obvious effects on the colouration or health of the cat. Blue-eyed Maus still have fully black paw pad and tail tips suggesting that the allele responsible is different from those responsible for Burmese and Siamese cats.

- The blue-eye allele is rare but present in the UK Mau gene pool.
- Experience suggests that if a kitten's eyes are still blue at 12 weeks then it is blue-eyed – don't assume they will change later.
- To produce a blue-eyed kitten, both parents must carry the allele.
- If two blue-eyed carriers are mated, then on average $\frac{1}{4}$ of the kittens will be blue-eyed and $\frac{2}{3}$ of the green-eyed kittens will carry the blue-eye allele.

Blue eyes is a withholding fault in an Egyptian Mau, and breeders should place all blue-eyed kittens on the inactive register. Since blue-eyed kittens are healthy and **given that there is no genetic test available for this trait**, it is not reasonable to attempt to eliminate the allele from the Mau gene pool at this time. However, breeders are encouraged to supply information on the carrier status of kittens and stud cats.

3.6 Other colour faults to look out for

The occurrence of white spotting (typically a locket or a spot on the underside) has occasionally been reported in the Egyptian Mau, especially in cats descended from new Egyptian imports. White markings anywhere, other than those referred to in the colour description, are a withholding fault in the Egyptian Mau. White spotting is usually caused by a dominant gene, meaning that removing all cats with the trait from the gene pool will eliminate the trait. Therefore, all cats with white spotting, however small the white patch, should be placed on the inactive register.

There have been no reports in the UK of Maus with colours or patterns other than those described in the preceding sections. If kittens of a different colour or pattern are suspected, then breeders are advised to seek advice from the Egyptian Mau Breed Advisory Committee since it is imperative that we correctly identify and register any new variants.

3.7 Determining the colour of Egyptian Mau kittens

Knowing the genotypes of the parents can help you to predict what colours you can expect from a given mating. If you are uncertain about the colour of a kitten the first thing to do is to find out what colours the stud has previously produced. Failing that, here are a few guidelines to help you identify Mau colours correctly in newborn kittens.

Silvers can range from extremely pale greyish white to almost black at birth. The very dark ones usually have a solid black spine line and darker grey paws. Dark silvers can easily be distinguished from smokes by looking at the colour of the whiskers: the whiskers on a silver will be a mixture of black and white, whereas on the smoke the whiskers are all black. It can help to put a white card behind the whiskers to help you see their colour. Tarnished silvers often have a brown tinge to their backs at birth and can appear nearly bronze, however the faces are usually obviously silver rather than bronze on close inspection.

Smokes range from pale grey to almost black. Barring on the front legs of a smoke kitten will usually help to distinguish it from a self black. Smokes vary in how spotty they are at birth: some will be obviously spotty whereas others have little discernable pattern.

Bronzes can range from very cold greyish brown to rich rufous brown. The coldest bronzes are often hard to distinguish from silvers at birth. The best place to look is usually the face, since bronzes seem to develop their colour here earlier than on the rest of the body. Even a cold bronze will usually have rufous patches on its cheeks at birth. The best rufous bronzes are clearly bronze at birth but will further develop their colour as they mature.

Black kittens are very clearly black. They have no markings anywhere (although ghost markings can be seen in some lights especially in young kittens).

Other Mau colours are rare. Blues should be readily distinguishable from the black colours by the colour of the paw pads and tail tip, which will be blue rather than black, although this may be difficult to see in very young kittens.

Occasionally, Maus with the classic (blotched or marbled) tabby pattern rather than the usual spotted pattern occur in litters. Classic tabby Maus can occur in all colours and are readily identifiable from birth.

4. Breeding for good health

As stated in the Introduction, the health of the breed should be the primary concern of all Egyptian Mau breeders.

4.1 Known health problems in Egyptian Maus

To date, the UK population of Egyptian Maus has not shown evidence of many breed-specific health problems. However, it is always the responsibility of breeders to ensure that cats with heritable or potentially heritable diseases are excluded from the future gene pool. The following sections describe two health problems that are relatively common in UK Maus.

4.1.1 Umbilical hernias. Umbilical hernias are common in the Egyptian Mau breed.

Although these can be fixed surgically, they can present a potentially lethal condition if a strangulated hernia is not spotted within a few hours. Hernias can be very small and transitory – kittens need to be checked regularly for hernias during development especially if they are destined as potential breeding cats. Note that according to GCCF rules a cat with a hernia that has been surgically fixed is not eligible for showing. Advice to breeders regarding hernias:

- Check kittens daily for the presence of hernias – feeling the tummy while the kitten mews will often reveal a small hernia
- All kittens with hernias, however small, should be placed on the inactive register and ideally should be neutered prior to sale to prevent the temptation to breed from them
- Do not repeat a breeding that produces more than two kittens with hernias. Cats that repeatedly produce kittens with hernias with different mates should be neutered.
- Breeders should keep good records about all matings that have produced hernias and stud owners should be informed if a mating results in kittens with hernias.

4.1.2 Itchy skin conditions (“hot spots”). Represent a real problem in some Egyptian Maus. Symptoms can involve the development of lesions around the neck area, that the cat scratches until they are raw and/or overgrooming of the belly area or inside legs, again sometimes until the skin is raw. These problems are sometimes triggered by hormonal changes, for example occurring specifically when a queen is in oestrus, or after she has had kittens, but can also be triggered by allergies (e.g. to specific food) and

sometimes have no identifiable cause. Such conditions can be very distressing for both the cat and its owners and can lead to permanent scarring if not promptly treated. Badly afflicted cats should always be seen by a vet and oral steroid treatment can often be useful. However, usually the best cure for these problems is to physically prevent the cat from further scratching or licking of the afflicted area until it has completely healed and there are no scabs remaining. There are various ways in which this can be accomplished. The application of plastic claw caps (e.g. SoftPaws, available from vets or over the internet) to the rear claws is a very effective treatment for preventing scratching to lesions around the head and neck area. A jersey made from a tube cut from a pair of old tights can also be used to prevent scratching around the neck or licking of the underparts (see EMC newsletter for instructions – find reference). Elizabethan-type veterinary collars can also be used (most cats will habituate to these with time).

Cats that experience severe or repeated episodes of the above described skin conditions should not be used for breeding.

4.2 Maintaining genetic diversity

The GCCF Breeding Policy includes sound advice on the importance of avoiding inbreeding that we will not reiterate here. The gene pool of Egyptian Maus in the UK is small, and breeders are encouraged to consider importing cats from abroad to enlarge the gene pool.

There are currently no outcrosses allowable for the Egyptian Mau. However, broadening the Registration policy to allow cats with recent Egyptian imports in their pedigrees will begin to address this problem.

Experienced breeders should be aware of the possibility of increasing genetic diversity by careful inter-crossing of bronze and silver lines (since cats these are currently almost separate breeds in the UK). However, great care should be taken since this practice is likely to yield many cats with poor colour meaning that very careful selection of kittens for future breeding will be necessary.

5. Breeding for good temperament

There is considerable variance in temperament in Egyptian Maus which is likely to be attributable to both nature and nurture. There is some evidence to suggest that the breed is particularly sensitive to early experience highlighting the importance of early environment and specifically daily handling of newborn kittens. However, there are also likely to be genetic influences on temperament and cats that are particularly shy or of challenging temperament should not be used for breeding.

6. Breeding for good type

6.1 Pattern

The spotted tabby pattern is one of the defining features of the Egyptian Mau, and great care must be taken to preserve this trait. Breeders should avoid breeding from cats with any pattern flaw listed in the SoP. Whilst the spine line on a kitten will usually break up further as the kitten develops, vertical stripes on the torso can be identified from a very early age and will not break up with development.

6.2 Colour

6.2.1 Silver

Silver Egyptian Maus are the most common colour and also the most popular. Silver Egyptian Maus are defined by their pale silver ground colour and contrasting charcoal or black spots. Good silver Maus have no brown “tarnish” *anywhere* on the body and tarnish is considered a colour fault. This distinctive silver colouration can easily be lost by non-selective breeding, and it is therefore extremely important for breeders to understand the quality required. Whilst tarnish can change with age, the direction of change can be hard to predict. Therefore breeders should avoid breeding from silver cats with extensive tarnish. The exception to this rule is that tarnished silvers can sometimes be successfully used in bronze breeding programmes because the rufous polygenes that cause the tarnish can also be responsible for bringing increased warmth to bronzes.

In general the best silver cats will be produced by colour-breeding, the practice of breeding silvers to silvers. Smokes known to come from untarnished parents can also be successfully used in silver breeding programmes. However, smokes for which the colour of the parents is unknown should be treated with caution in silver breeding programmes, since it can be extremely hard to see whether a smoke cat carries tarnish genes.

6.2.2 Bronze

A bronze male Mau, Fatima Jo-jo (also known as Giorgio), was amongst the foundation cats imported into the USA by Princess Nathalie Troubetskoy in the 1950s, and as a consequence, bronze was one of the two original colours in which the breed was recognized. However, until the 1990s the bronze Maus took a back seat to the more popular silvers, and were generally only produced as a by-product of breeding programmes aimed at producing silvers. Indeed, in his 1972 CFA Yearbook article on the Egyptian Mau CFA judge Wain Harding remarked, "The bronze Mau is the rarer of the two colors and is somewhat less perfected." Harding went on to add that, "Until recently it has been impractical to do the bronze to bronze breeding that is necessary to improve the bronze color." As an Abyssinian breeder Harding was clearly aware of the colour breeding necessary to produce the warm colour already well developed in breeds such as the usual Abyssinian, but as yet not seen in the bronze Mau. It was not until the 1990s that some breeders began to specialize in bronze Maus and practise the bronze to bronze colour breeding advocated by Harding in the 70s. The results were dramatic, and by the mid 90s Sharon Partington of Sharbees cattery was producing bronze Egyptian Maus of exceptional warm rufous colour.

The bronze mau is genetically a brown (or more correctly, black) tabby that can range in colour from a cool greyish brown all the way to hot rufous brown. The cooler coloured bronze Maus more usually come from predominantly silver breeding programmes, whereas the hot rufous bronzes almost invariably come from two or more generations of bronze to bronze colour breeding. The warmth of a brown tabby is controlled by what are known as the "rufous polygenes". As their name suggests there are more than one of these genes, and they appear to work additively to produce warmth of color seen in the golden and rufous colored bronzes; the more rufous polygenes, the warmer the color. The aim of colour breeding is to build up the rufous polygenes by selecting for the warmest cats generation after generation.

To the novice Mau breeder the variation in colour of the bronzes can be extremely confusing and Roy Robinson's book, *Genetics for Cat Breeders* has contributed to this confusion by apparently referring to two types of bronze Mau, dark brown chocolates (bb) and paler brown cinnamons (bl bl). However, he is actually referring not to Egyptian Maus but to Oriental Spotted tabbies, that do occur in chocolate and cinnamon. The latter breed were known as Egyptian Maus in the UK in the 1970s and the error in Robinson's book has never been corrected. The chocolate (b) and cinnamon (bl) genes do not exist in the gene pool of the true Egyptian Mau, and all bronze Maus are genetically homozygous black, (BB) tabbies.

The development of the warm bronzes does not come without some valid concerns about the effects that they will have on the future of the breed. The need for color breeding of warm bronzes presents some problems: if warm bronzes are mixed with cold bronzes the color is lost or at least diluted, and if they are mixed with silvers the result will in all probability be tarnished silvers. Therefore carefully planned breeding programs and education of breeders will be necessary if we are not to see the color of both our bronzes and silvers suffer. In the UK stud owners have a particularly important role to play in educating novice breeders and discouraging matings between warm bronzes and clean silvers.

6.2.3 Smoke

The Egyptian Mau is unique amongst cat breeds in having a patterned smoke. Smoke Maus are usually a by-product of silver breeding programmes, and it is rare for breeders to mate smoke to smoke. For this reason smokes are currently the least perfected of the three colours of Maus but beautiful specimens have started to achieve show success in recent years.

6.2.3 Use of black Maus in breeding

The important thing to understand is that black Maus carry all of same genes that control the colour, contrast and pattern that you see expressed in silvers, bronzes and smokes, you just can't see the effects of these genes because they are masked by the self colour (you can sometimes see a ghost tabby pattern in

young black kittens). The parents of a black Mau are your best guide to the genes it will carry. A black Mau from two highly rufous parents is likely to produce highly rufous bronze offspring, and a black Mau from very ticky parents is likely to produce very ticky tabby offspring, because it will have inherited the genes for these traits from its parents.

Some Egyptian Mau breeders believe that black Maus can successfully be used in a breeding programme to clean up the contrast and clarity of cats with poor spotting. However, there is no genetic rationale for this belief, and it is unlikely that much will be gained from the practice. Breeding from a black Mau is in effect like picking a breeding cat with your eyes closed, which is not a very sensible strategy in a breed where more than 50% of the points are based on colour, contrast and pattern!

Should there be a concluding recommendation to breeders. Might this say that EMBAC encourages breeders to work closely with like-minded breeders to devise and implement a planned breeding programme?

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Appendix 1

GCCF Registration Policy for the Egyptian Mau

Appendix 2

GCCF Standard of Points for the Egyptian Mau

The Egyptian Mau is an elegant cat of moderate, foreign type characterised by a random spotted pattern seen both in tabby and smoke colours, and a unique 'worried' look. This facial expression is generated by large, gooseberry-green eyes set beneath a level brow and on either side of the parallel lines of the nose. The Mau is an active, well balanced, medium-sized cat with a strength and hard muscular feel that belie its graceful build. Males tend to be larger than females.

Head - A slightly rounded wedge without flat planes and of medium length. Not full-cheeked, but allowance should be made for jowls in adult males. Profile shows a gentle contour with a slight rise from the bridge of the nose to the forehead, which flows back into the arched neck without a break. Entire length of nose of uniform width when viewed from the front. The muzzle should flow into the contours of the head, it should be gently rounded, neither square and boxy nor pointed. The chin should be firm with a level bite.

Ears - Medium to moderately large. Broad at the base and moderately pointed, slightly flared with ample width between them. Set well back on the head, but cupped forward and alert. From a front view, the line of the ears should continue the planes of the head. Hair on the ears should be short and close lying. May be tufted.

Eyes - Large and shaped like rounded almonds. Set straight in the head beneath a level brow with a slight upward slant to the lower lid only.

Body - Medium long and graceful, showing well-developed strength and having a hard, muscular feel. Shoulder blades high and prominent. Allowance to be made for muscular necks and shoulders in adult males. A loose skin flap extends from the flank to the knee of each hind leg.

Legs and Feet - Elegant and in proportion to body, with medium boning. Hind legs proportionately longer, giving the appearance of being on tip-toe when standing upright. Feet small and dainty, almost round in shape.

Tail - Medium length, moderately thick at the base and tapering slightly.

Coat - Hair is of medium length, close-lying with a lustrous sheen. In the silver and bronze colours, the hair is dense and resilient in texture and accommodates two or more bands of ticking separated by lighter bands. In the smoke colour, the hair is silky and fine in texture.

Pattern description for all Egyptian Mau colours including smoke:

Head Markings - Forehead barred with characteristic "M" and frown marks. A complex "scarab" design is seen on the top of the head, behind which lines extend backward between the ears and continue down the back of the neck, ideally breaking into elongated spots along the spine. The cheeks are barred with "mascara" lines: the first starts at the outer corner of the eye and continues along the contour of the cheek, and the second starts at the centre of the cheek and curves upwards, almost meeting the first below the base of the ear.

Body Markings - Markings on the torso are to be randomly spotted with variance in size and shape. The spots can be large or small, round, oblong, or of irregular shape. Any of these are of equal merit but the spots, however shaped or of whatever size, shall be distinct, with good contrast between pale ground colour and deeper markings. Spotting pattern on each side of the torso need not match. Underside of the body spotted. As the spinal lines/elongated spots reach the rear haunches, they merge together to form a dorsal stripe which continues along the top of the tail to its tip. On the upper chest there are one or more broken necklaces. The shoulder markings are a transition between stripes and spots.

Leg Markings - The front legs are heavily barred and/or spotted and do not necessarily match. Haunches and upper hind legs to be a transition between stripes and spots, breaking into bars on the lower leg.

Tail Markings - The tail is heavily banded and has a dark tip.

Type (45)

Head and Neck	10
Muzzle.	5
Ears	5
Eye Shape and Setting	5
Body	10
Legs and Paws	5
Tail	5

Coat, Colour and Pattern (55)

Pattern	25
Coat Colour	15
Eye Colour	10
Coat Texture and Length	5

Total 100

Withhold all Awards for:

1. Extremely aggressive temperament.
2. White markings anywhere, other than those referred to in the colour description.
3. Lack of spots
4. Blue Eyes

Withhold Certificates or First Prizes in Kitten and Open Classes for:

1. Cobby or Oriental type.
2. Poor spotting and/or extensive pattern flaws.
3. Extensive brown tarnish (i.e. extending beyond the area of the muzzle) in a silver, or cold, grey tone to the ground colour in a bronze, or insufficient contrast between the ground colour and the jet black markings in a smoke.
4. Amber eyes in adults.
5. Three or more faults from the list below.
6. Any defect listed in the preface to the SOP booklet.

Faults:

The presence of any of these faults should be taken into account when judging a Mau, however one or two minor faults in an otherwise excellent cat should not be too heavily penalised.

1. Small ears.
2. Oriental eye set.
3. Lines of nose diverge when viewed from the front.
4. Prominent whisker pinch.
5. Muzzle square or pointed.
6. Weak chin.
7. Unbroken vertical stripes on the body, or stripes on the underside.
8. Unbroken necklaces.
9. Poor contrast between spots and ground colour.
10. Visible tarnish in a silver or lack of warmth in a bronze, or black locket on a smoke.

Colour Description

Eye Colour - Light green, "gooseberry green". Amber is acceptable only in kittens.

SILVER (78 30s)

Pale silver ground colour across the head, shoulders, outer legs, back and tail. Underside fades to a brilliant pale, silvery white. All markings black or charcoal grey with pale silver roots, showing good contrast against the ground colour. Back of ears greyish-pink, tipped in black. Inner ear should be a delicate, almost transparent, shell pink. Upper throat area, chin and around nostrils, pale clear silver appearing silvery white. Nose, lips and eyes outlined in black. Nose leather brick red. Paw pads black with black hair between the toes and extending beyond the paws of the hind legs.

BRONZE (78 30)

Warm coppery brown ground colour across head, shoulders outer legs, back and tail. Underside fades to a paler tone. All markings dark brown/black with paler roots, showing good contrast against the ground colour. Back of ears tawny-pink, tipped in dark brown/black. Inner ear should be a delicate, almost transparent, shell pink. Upper throat area, chin and around nostrils, pale ivory. Nose, lips and eyes outlined in dark brown with bridge of nose brown. Nose leather brick red. Paw pads black or dark brown with same colour hair between the toes and extending beyond the paws of the hind legs.

SMOKE (78 36)

Ground colour across the head, shoulders, outer legs, back, tail and underside consists of pale silver undercoat tipped with black. All markings jet black with silvery white or pale silver roots. There should be sufficient contrast against the ground colour for the pattern to be plainly visible. Upper throat area, chin and around nostrils lighter in colour. Nose, lips and eyes outlined in jet black. Nose leather black. Paw pads black with black hair between the toes and extending beyond the paws of the hind legs.

The history and origins of the Egyptian Mau

The Egyptian Mau is an elegant spotted cat of moderate foreign type that bears a striking resemblance to the cats depicted in the art of the ancient Egyptians. Unlike some of the more recent attempts to recreate the look of these primitive cats by hybridizing established breeds, the Mau is considered to be a natural breed derived from the modern street cats of Egypt and hence potentially tracing its ancestry back to the cats first domesticated by the Ancient Egyptians.

Ancient history

To trace the full history of spotted Egyptian cats we have to start in ancient Egypt around 4000 years BC when the first permanent settlements began to appear along the Nile and small cats of the genus *Felis* began their close, and long-lasting association with man. The most likely candidate for the ancestor of the domestic cat is a small wild cat similar to the modern day species known as the North African wild cat, *Felis sylvestris libyca*. This small cat measures about 600mm from nose to tail tip, and is long legged and lightly built with large, non-tufted ears. The coat colour varies considerably from rufous brown to sandy fawn or even silvery grey, and the coat pattern is similar to a broken mackerel tabby with a darker spine line, ringed tail, black tail tip and broken striped markings on the body. In general appearance, *libyca* is therefore not dissimilar from modern Egyptian Maus.

The ancient Egyptians did not have different words to distinguish between wild and domestic cats; all cats were referred to simply as '(s)he who mews'. In demotic this was *miu* or *mii* and in the later coptic *emu* or *amu*. The word 'Mau' is derived from one of these ancient languages, and simply means cat.

The first cats start to appear in Egyptian art from around 2000 BC, and give us a unique window onto the growing connection between cats and man. From 1900 BC the cats depicted in art are often in domestic contexts such as for example a relief from Coptos dating from about 1950 BC that shows a cat sitting underneath a woman's chair. By 1450 BC cats are commonplace in paintings of domestic scenes. Cats occur particularly frequently in the art of the New Kingdom (1570-1070 BC) and again in the Late Period (1070-332 BC). Cats are also pictured in the company of Egyptian hunters, sometimes with birds in their mouths, leading to the suggestion that the Egyptians may have used them either to flush birds out of the marshes or possibly to retrieve carcasses. In most cases, the cats depicted in Egyptian art bear a strong resemblance to the modern Egyptian Mau with elegant build, large ears and eyes and often spotted markings.

Cats assumed great importance in Egyptian religion from about 2000 BC onwards. From about 1500 BC it was believed that the sun god Ra could manifest himself in the form of a cat, the "Great Tomcat". Many ancient Egyptian paintings depict Ra in the form of a spotted cat slaying the snake demon Apophis with a knife. By 945 BC the cat had become associated with another goddess, Bastet, and sacred cats kept and bred in temple catteries were worshipped as living manifestations of the goddess. The popularity of this cult of Bastet continued into the Roman era (to 330 AD). Many beautiful bronze sculptures of cats survive from this period, and with their long elegant limbs, high shoulder blades and level brows they are strikingly similar to modern Maus.

Cat mummies, dating from around 1000 BC, have provided much important information about the ancient Egyptians' cats. Of the mummies that have been unwrapped, several have revealed the spotted tabby pattern characteristic of modern Egyptian Maus. There is therefore abundant evidence that elegant, spotted tabby domestic cats were common in ancient Egypt.

There seems little doubt that the Romans were responsible for taking spotted cats from Egypt to Italy and possibly other parts of Europe probably in the early centuries AD. Spotted cats closely resembling Maus in both markings and body type are clearly depicted in a number of Roman mosaics including one found at Pompeii. The Middle Eastern origins of the modern Egyptian Mau breed have been confirmed by a recent genetic analysis of the relationships between modern cat populations and breeds that places the Egyptian Mau in a group along with cats from Turkey, Israel, Egypt and Italy; the most closely related other breeds, which also appear in this group, are the Turkish Angora and Turkish Van (Lipinski et al. 2008).

Modern History of the Egyptian Mau breed

It is difficult to find much information about pedigree Egyptian Mau cats in Europe before World War II, however, Egyptian-type cats were certainly bred in France, Italy and Switzerland in the first half of the 20th century. Marcel Reney in "Nos Amis Les Chats" published in France in 1940 gives a clear description of the Egyptian foreign short-hair as a tall, slim cat with a modified long head and resilient coat. The standard for the pattern describes a spotted tabby with numerous spots. Spots were to be round or oblong, clearly outlined, and must not form lines. This description is very similar to that of the Egyptian Maus we know today.

During World War II the majority of cat breeds declined in Europe with the Egyptian Mau facing near extinction. We owe the survival of the modern Egyptian Mau to Nathalie Troubetskoy, an exiled Russian Princess whose story adds another romantic dimension to the history of the breed. Troubetskoy, born in 1897 in Lublin, Poland was a member of an influential Russian family. She studied art and medicine in Moscow and after serving as a nurse in Russia towards the end of World War I she moved to England where she lived and worked for 20 years, nursing, lecturing and broadcasting. Shortly before World War II she moved to Rome where she served as a nurse to the US 2675th Regiment upon its arrival in Italy. The story goes that one day in the early 1950s while Troubetskoy was living in Rome, a young boy presented her with a silver-spotted female kitten that he had been keeping in a shoe box¹. Apparently, the kitten had been given to the boy by a diplomat working at one of the Middle East embassies. Troubetskoy was immediately taken with the striking appearance of the kitten and sought to learn more about where it came from. Her research led her to conclude that the kitten was an Egyptian Mau, a breed known on the show benches in Italy before the War, but now all but extinct. Troubetskoy became determined to save the Egyptian Mau breed and set about acquiring more cats.

She started with two cats, Gregorio, a black male, and Lulu (also sometimes referred to as Ludol) a silver spotted female. Later Troubetskoy used diplomatic contacts to increase the gene pool available to Italian breeders by importing further cats from the Middle East. One of these imports was Geppa, a smoke male. Troubetskoy's first litter of Maus was born in Italy in 1953 followed by a second in 1954. She is reported to have exhibited these first kittens widely in Europe.

In 1956 the princess emigrated to the USA taking three of her Maus with her to form the foundation for her cattery named Fatima. What is now known as the *traditional line* of Egyptian Maus traces its ancestry back to just two of these foundation cats: an elegant and reputedly tempestuous silver female Fatima Baba, (Geppa x Lulu) and her large bronze son, Fatima Jojo (Gregorio x Fatima Baba), also known as Giorgio. The third Mau imported by Troubetskoy, a daughter of Baba and Jojo named Liza, apparently never bred. There is some evidence that the Princess may have imported a further male Mau sometime after arriving in the USA. Although officially there have never been any outcrosses to other breeds, it is generally accepted amongst Mau breeders that Troubetskoy and other early US breeders were forced to resort to some unofficial out-crossing during the 60's and 70's to ensure the health of the breed, meaning that the official pedigrees from this period are probably not entirely accurate.

Upon arrival in the USA Troubetskoy registered her Maus with the Cat Fanciers Federation (CFF) in which the breed soon gained championship status. Baba (formally Ch. Baba of Fatima) was the first champion in North America. The Egyptian Mau soon acquired a keen group of supporters committed to preserving the distinctive qualities of the breed. The Maus were soon recognized by other cat registries in North America including the Canadian Cat Association and the Cat Fanciers' Association (CFA, North America's largest pedigree cat registry), with championship status in CFA being finally reached in 1977.

By the late 1970s Maus began to suffer from the effects of their extremely limited gene pool, and it became imperative to find some new blood to improve the health and vigour of the breed. Jean S. Mill (Millwood) located two rufous bronze spotted tabby kittens of pronounced Egyptian type in a zoo in New Delhi. In 1980 she imported these siblings, named Toby and Tashi, into the USA. The cats were registered

¹ Some reports suggest that this first kitten was the silver female named Baba that Troubetskoy subsequently imported to the USA. However, both the early pedigrees and other accounts of the story suggest that Baba was bred by Troubetskoy.

with the American Cat Association in 1982, and Toby's line was accepted by The International Cat Association (TICA) shortly thereafter. The progeny of these cats bearing the Millwood cattery name were finally recognised by CFA as Egyptian Maus in the late 1980s after a battle in the course of which the cats were first accepted only to have this acceptance temporarily retracted. The final acceptance of the Indian lines by CFA hinged on an argument that Egyptian cats could have reached India via traditional trade routes, thus maintaining the status of the Mau as a natural breed with no allowable outcrosses. The descendants of Toby and Tashi are known as the *Indian line*. The Indian Maus were also used to found one of the most influential lines of Bengal cats. The majority of modern-day Maus combine Indian and traditional lines in their pedigrees. The Indian Maus brought with them the desired health benefits of an increased gene pool and also improved the contrast and clarity of the spots when bred with traditional Maus. The Indian lines are also responsible for a change in the colour of bronze Maus from a sandy brown to the richer rufous coppery brown favoured in the show ring today, and the glitter gene which gives bronzes in particular a sparkling sheen. Some breeders feel that the introduction of the Indian lines also resulted in a loss of the traditional Mau head type with its characteristic, heavy brow and worried expression. It is currently a goal of these breeders to produce cats that combine the improvements in health, colour and pattern brought by the Indian lines with the stunning traditional Mau head.

Following the assimilation of the Indian lines, CFA changed its registration policy for Egyptian Maus to allow cats that meet the Mau standard and have the proper geographic origin (i.e. Egypt) to be registered as Egyptian Maus. This change in policy resulted in a new wave of *Egyptian imports*. In the 1980's breeder Cathie Rowan (Rocat) brought 13 Maus from Egypt to the USA, however, it seems there was limited interest in these cats from other breeders, and descendants of these imports are not widely available. In the early 1990's J. Len Davidson brought in four more Maus from Egypt and has been responsible for developing these lines under the cattery name Grandtrill. Two of these imports are Giza and Wafaya, both bronze females. The Grandtrill lines are currently being used by a number of breeders in North America. In the early 2000's, French breeder Marie-Christine Hallepee (Fondcombe) imported a further two bronze males named (Sahoure and Masalma) from Egypt. These cats have successfully been used to enlarge the European Mau gene pool. More recently still, several cats have been imported into the USA via the Egyptian Mau Rescue Organisation, and some of these have been successfully registered as Egyptian Maus.