

Breeding Policy for the Ragamuffin Cat

RagaMuffin Breeding Policy

Table of Contents

INTRODUCTION	3
HISTORY	3
SUMMARY OF THE RAGAMUFFIN BREEDING POLICY.....	4
GENETIC MAKEUP OF THE BREED	5
COLOUR RESTRICTION (CS &CB).....	5
AGOUTI (A).....	6
NON-AGOUTI (A).....	6
TABBY PATTERNING GENES.....	6
<i>Mackerel (Mc)</i>	6
<i>Ticked (T)</i>	6
<i>Spotted (Sp)</i>	6
<i>Classic (mc)</i>	6
ORANGE (O).....	7
BROWN (B).....	7
DILUTE (D).....	7
WHITE SPOTTING.....	7
TYPE	8
SELECTION FOR BREEDING PROGRAMMES.....	8
<i>Inbreeding</i>	8
IN SUMMARY:.....	9
PHOTO GALLERY	10
HEALTH & WELFARE	11
AD-PKD- POLYCYSTIC KIDNEY DISEASE.....	11
FELINE INFECTIOUS PERITONITIS (FIP).....	11
BAC RECOMMENDATIONS	12
FURTHER NOTES	12

RagaMuffin Breeding Policy

Introduction

This Breeding Policy accompanies and supplements the RagaMuffin Registration Policy and should be read in conjunction with that document. If there are any queries regarding either document, these should be referred to the RagaMuffin Breed Advisory Committee. As a single breed BAC, the UK RagaMuffin Cat Society Committee constitutes the RagaMuffin BAC.

The aim of this Breeding Policy is to give advice and guidance to ensure breeders observe what is considered "best practice" in breeding RagaMuffin cats with the over-riding objective of improving the RagaMuffin cat to meet all aspects of the RagaMuffin Standard of Points, which describes the ideal RagaMuffin cat.

Breeders should learn how to understand the breeding value of their RagaMuffins and how to make decisions in their breeding programmes that are 'best for the breed' in its ongoing development.

History

In the early 1960s Ann Baker, of Riverside, California, developed a number of breeds of cats, collectively known as "Cherubims". The distinguishing characteristics of these breeds were their exceptionally docile, sweet temperaments, large size, and easy care coats.

The exact method by which she developed these breeds is clouded in controversy, misinformation and even conjecture. The truth is that no one knows exactly how or why these cats are the way they are. The fact that her cats possessed the qualities claimed are undisputed, and that they still maintain these qualities today is remarkable, a fact that makes the exact inception inconsequential. What is known is that the first cats used in her breeding programs were those that roamed free in her Riverside neighbourhood. They came in all colours. And, there were no pedigreed cats used to develop the original gene pool.

Determined to direct the progress of her Cherubim cats, Ann Baker developed strict rules for anyone wishing to breed them. She set up her own registry, the International Ragdoll Cat Association (IRCA), and required all her breeders to register only with her and patented the name Ragdoll for use only with cats of her breeding and registry.

In 1993 a group of breeders including Janet Klarmann, Curt Gehm and Kim Clark persuaded Ann Baker to retire and planned to take over management of the association. After a few months, however, Ann Baker refused to relinquish control. In 1994, a group of IRCA breeders decided to leave and form their own group because of increasingly strict breeding restrictions.

Since their cats included all colours and patterns and they were not able to use the Ragdoll name, they first focus was on what to call the cats. In the process of submitting a standard to the American Cat Fanciers' Association (ACFA), Janet Klarmann credits Curt Gehm of Liebling Cats in Virginia with the choice of "RagaMuffin". The explanation given was that since the original gene pool developed from the street cats of Riverside, they were truly Ragamuffins – endearing little urchins!

The M is capitalized "because they're big huggable, loveable Muffins," said Janet Klarmann, who bred under the Encore Prefix. The new name stuck and in May 2001 the cats gained championship recognition.

RagaMuffin Breeding Policy

From the beginning, RagaMuffin breeders have faced the challenge of gaining acceptance for their cats as a distinct breed, despite their common origins with Ragdolls. The patterns that form so important a part of the Ragdoll standard receive little emphasis from RagaMuffin breeders. They accept every colour and pattern, with or without white.

The Breed is officially recognized by the following Registering Bodies:

- **The Governing Council of the Cat Fancy (GCCF)**
- **The World Cat Federation (WCF)**
- **American Cat Fanciers Association (ACFA)**
- **Cat Fanciers Association (CFA)**
- **The American Association of Cat Enthusiasts (AACE)**
- **United Feline Organization (UFO)**
- **Cat Fanciers' Federation**
- **ICE (International Cat Exhibitors) in America and Japan and**
- **Oesterreichischer Royal-Cat-Club (OERCC) in Austria/Europe**

The Health and Temperament of the RagaMuffin are the most important attributes of the breed therefore only cats with these qualities should be chosen for breeding so that this is passed on to their progeny.

It is the policy of the RagaMuffin Breed Advisory Committee that the RagaMuffin of the future remains the same as the original cats that were bred and imported from the USA.

Summary of the RagaMuffin Breeding Policy

Only offspring resulting from a RagaMuffin to RagaMuffin mating are eligible for registration on the full or supplementary registers as RagaMuffins.

Breeders should try to breed RagaMuffins that adhere closely to the original type as described in the Standard of Points.

The RagaMuffin Breed Advisory Committee recommends that RagaMuffin parents should have compatible pedigrees that avoids over repetition of common ancestors.

The Colourpointed RagaMuffin Variant is essential to the breed. It is the only way, when combined with the Burmese pattern, to produce Mink (Darker Pointed). At this time, it is not eligible to be shown but is invaluable in its use in a breeding programme.

All RagaMuffins and Colourpointed RagaMuffin Variants¹ registered on the GCCF Active Register must be tested DNA negative for the known Ragdoll HCM gene and PKD - OR are from negative lines and microchipped for unique identification in accordance with the GCCF RagaMuffin Registration Policy. Siberian cats used in an outcross programme should also adhere to the Registration Policy and should be age 3+ with a clear echocardiogram within the previous 12 months. Official confirmation of results must accompany all registration applications. Before the registration of any white RagaMuffin cat on the Active Register, a BAER certificate of freedom from deafness for the white parent(s) must be supplied to the GCCF.

¹ The use of the word 'Variant' when referring to the Colourpointed RagaMuffin is used to describe the variation of pattern and not to an outcross to another breed.

RagaMuffin Breeding Policy

Genetic Makeup of the Breed

In the RagaMuffin Breed there are two colour restriction genes, the one that you would find in the Siamese and the one you would find in the Burmese. Neither of these genes is dominant over the other. When put together this achieves a blended effect, as you would find in the Tonkinese. The Burmese colour restriction pattern is referred to in the USA as Sepia with the Tonkinese Pattern referred to as Mink.

Consideration should always be given to keeping as wide a genetic base as possible, therefore the RagaMuffin Breed Advisory Committee recommend that breeders should always check the compatibility of prospective parent RagaMuffins, not only by health and type but that pedigrees avoid repetition of common ancestors.

The size and variety of the RagaMuffin gene pool is believed to be good. Although the RagaMuffin breed originated with one limited group of Ann Baker's cats, outcrossing was used during the breed's further development with other breeders giving a broad based gene pool. In the USA, Domestic Longhairs were used up until 1st May 2001, Persians (including Chinchillas) were used until May 2006 and Ragdolls were used until 1st May 2010. These outcross options have good diversity within their own respective gene pools and their use allowed the RagaMuffin to develop a sound foundation for ongoing genetic diversity and genetic health.

All closed gene pools gradually shrink as a result of genetic erosion, so ongoing outcross options are needed to provide a periodic boost of new blood. The GCCF registration policy for RagaMuffins allows outcrossing to Siberians that are themselves one of the cat fancy's most genetically diverse breeds. This gives an option for new bloodlines to be developed and a source of fresh genetic material to guard against loss of genetic diversity and its negative health consequences. Carrying out an outcross mating and developing a new blood line is a long process and should only be undertaken by experienced, committed breeders. RagaMuffins from new outcross lines are registered on the reference register until sufficient generations have been bred to regain and stabilise good RagaMuffin type.

The RagaMuffin gene pool contains a number of both dominant & recessive genes, all of which are predictable and allow for accurate predictions of matings. All cats have 19 pairs of chromosomes upon which there are many thousands of genes that govern the eventual shape, size, sex, colour pattern and hair length of the individual animal.

There is an allele series that controls the distribution of colour pigment in a hair of the cat. The genes in this series are as follows: Full Colour, Burmese, Siamese, Albino. It is only possible for a cat to have two of these alleles at one time. If the full colour gene is present it will be dominant over any of the others. If the albino gene is present it will be recessive to any of the other alleles. If, however, the Siamese gene is present it will be recessive to the full colour gene but dominant over the albino. Of these four genes, no more than two can be present in one cat because they are all located in the same place on the same chromosome pair. Therefore in the case of the RagaMuffin, the key genes influencing the colours and patterns are as follows:

Full Colour gene, dominant over the other alleles.

Colour Restriction (cs & cb)

The Siamese Colour Restriction allele is responsible for the Colourpointed coat pattern in the RagaMuffin. The cs gene causes the normally black coat colouration to be expressed as Seal, and for the colouration to be limited to the points. The colouration is dependent on the temperature. At the

RagaMuffin Breeding Policy

points, which are generally a cooler temperature, the Seal colour is expressed, whereas on the body, where the temperature is generally higher, the colour is lighter. The Burmese colour restriction gene (cb) produces the slight reduction in pigment seen in the Burmese and other breeds, sometimes including the RagaMuffin. This is produced when two copies of the gene are present. A great many genes dealt with in cat breeding are either dominant or recessive to the other gene in the pair. Occasionally, however, we run into 'incomplete dominance'. In this case, neither gene in the pair is strong enough to be completely dominant over the other. When this happens the characteristic appears as something different than either gene would have made it alone. An example of this in cats is darker colour in Tonkinese and other breeds including the RagaMuffin. This is produced when the cat has one gene for Siamese pattern and one gene for Burmese pattern. Neither gene is dominant and an in-between colour appears on the coat.

Agouti (A)

The natural "wild type" gene that is the basis of the tabby cat. The base agouti pattern is bands of black on a yellow background, resulting in bands of colour along the shaft of the hair. Other genes work to change the pigment to other colours (see below).

Non-Agouti (a)

The result of a genetic mutation and a recessive gene. Responsible for changing the original Tabby patterning into a solid, although often in certain light the 'ghost markings' of the underlying tabby pattern may still just be visible. Other genes work to change this black pigment to other colours (see below).

Tabby patterning genes

Traditionally it had been believed that the three forms of tabby pattern were inherited as an allelic series; however it now appears as if at least two, and probably three, different loci are responsible for the various tabby patterns (Lorimer, 1995). At one locus are the alleles for mackerel and blotched (classic) tabby patterns with mackerel dominant to classic; at another locus is the Abyssinian or ticked pattern, which is epistatic (masking) to both mackerel and blotched; and at the third locus there appears to be a modifying gene for either the classic or mackerel patterns resulting in the spotted tabby pattern. The patterns can be summarised as follows:

Classic (mc)

A mutation of the mackerel allele recessive to all other tabby patterns which gives a blotched pattern with the characteristic "butterfly" motif across the shoulders and "oysters" on flanks.

Mackerel (Mc)

The basic striped tabby pattern that overlays the agouti base (ie "wild" form)

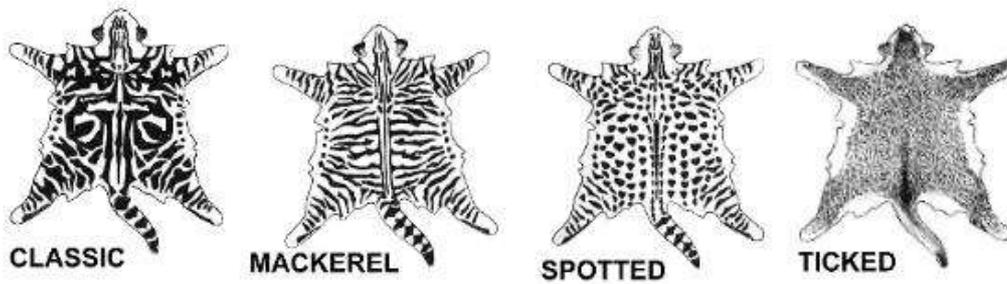
Spotted (Sp)

Current thinking is that it is likely that a specific single gene causes the spotted tabby pattern, breaking up the mackerel or classic pattern into elongated or rounder spots respectively.

Ticked (T)

An incompletely dominant gene that removes most of the stripe pattern leaving the ticked agouti base pattern on the body with minimal overlaying stripes on legs, chest (necklace) and face.

RagaMuffin Breeding Policy



Orange (O)

A mutation on the X chromosome and is sex-linked. It eliminates the melanin pigment from the hair fibres, replacing it with phaen melanin, a lighter compound appearing yellow or orange depending on the density of the pigment. The agouti to non-agouti mutation does not have a discernible effect on red or cream coloured cats, resulting in these self-coloured cats displaying tabby striping regardless of the agouti gene. This explains why you can usually see some tabby pattern on red and cream coloured non-agouti cats, even if only on the head/face. Rufus polygenes, as yet unidentified, affect the richness of the orange gene's expression. All male cats carrying the O gene will be red. A female carrying the O gene on both X chromosomes will be red. A female who carries the O gene on only one chromosome will be Tortie. Other genes work to change this colour. See Dilute (below).

Brown (b)

A recessive gene. Homozygous (bb) cats will have a Chocolate coat colour, unless the colour is affected by the dilute gene. Results in a change in the pigmentation from Seal to Chocolate. Other genes work to change this colour. See Dilute (below).

Dilute (d)

A recessive gene that reduces and spreads out the pigment granules along the hair-shaft and turns a Seal to Blue, Chocolate to Lilac, and Red to Cream.

White Spotting

White spotting is a very common mutation that causes patches of white in what is called a "piebald" pattern. The range of variation is quite remarkable: from white toes, to white feet; a white streak on the nose or a white chin, to a white bib; a white belly and legs, to white over most of the body, leaving only a few patches of colour; or even a completely white coat. White spotting can be thought of as a mask over the colour that the cat naturally carries. People who have cats with just small patches of tabby markings on the head and tail and white everywhere else tend to think of them as white cats, but they are really tabbies all over. The tabby pattern is simply hidden by the white spotting. The Gloving gene, as seen in the Birman cat can be carried recessively by some Ragdolls and Siberians so it is safe to assume that it could be present in the RagaMuffin gene pool. The RagaMuffin BAC advise breeders that, although it is not desired in RagaMuffins it could occasionally be seen and some cats could be carriers, so if any breeder suspects they have it in their lines they can use DNA testing to confirm.

RagaMuffin Breeding Policy

Type

A RagaMuffin, as in all breeds, is actually two cats, one you can see (the outer appearance) is the phenotype. Then there is the RagaMuffin you cannot see, his genetic makeup. Everything he has inherited from his ancestors, everything he will pass onto his own offspring..... the genotype. It is not often that phenotype and genotype are the same, this happens when an animal produces the same as themselves no matter what they are bred to. There are many cases when good cats do not produce anything near as good as themselves. Which is why a Champion bred to a Champion does not necessarily produce Champion offspring.

The RagaMuffin is a cat with no extremes. Care should be taken when breeding to ensure that the breed does not move away from this. For example, there should be no extreme 'stop' at the bridge of the nose, as this can result in short muzzles, equally an overly long muzzle may result in a straight profile. Breeders need to continue to work on improving the type of the RagaMuffin and fixing the correct look. The type should not be compromised in the breeding programs unless trying to preserve a line.

As stated in the Standard of Points, the head of the RagaMuffin is paramount to its 'type' and it is important to maintain the roundness of its appearance including the full cheeks and puffy whisker pads which should avoid a snipey angular pinched look. The health of the RagaMuffin is also of utmost importance and should not be compromised.

It must never be forgotten that the Breed has always been renowned for its laid back sweet nature and this should also be maintained in any breeding programme.

The prime motive is to perpetuate the RagaMuffin as a recognisable breed; to improve the quality of the breed as measured against the Standard; and also to gain success on the show bench. The skill in breeding lies in the choice of the individual cats and how these cats may be mated with each other – these two acts should be regarded as completely separate, although interconnected.

Selection for Breeding Programmes

The phenotype of the individual cat is made up of a large number of genetic characteristics of varying expression. The ideal RagaMuffin cat is one in which the expression of each of these characteristics is just right in the eyes of the breeder – this means that an intermediate expression will be required for some characteristics, but a more extreme expression required for others. This expression is controlled by selective breeding. However, selection by itself is not very efficient in eliminating heterozygous genotypes (the producers of variation and diversity) – it is one of the tools available, but has its limitations.

Inbreeding

Inbreeding is an inclusive term covering many different breeding combinations and degrees of relationship – including the more distant, less intense. It is consistently more efficient in eliminating heterozygous (varying and diverse) genotypes and increasing homozygous (same) genotype, thereby ensuring a greater likelihood that kittens will closely resemble their parents. Used here, the term does not mean close, purposeful, inbreeding of closely related cats (brother/sister, father daughter), but rather the moderate form that results from the mating of not too distantly related (but not directly related) cats (first cousins, half brother/half sister, second cousins, etc). Some inbreeding is essential to stabilise conformation around a definite type. In-breeding is the act of

RagaMuffin Breeding Policy

mating individuals of various degrees of kinship, and if continued it produces ever increasing homogeneity in the offspring.

It is important to monitor the percentage intensity of inbreeding for any mating – use this consideration as a key part of the decision making process when considering any mating, and remember: “The more intense the in-breeding, the more careful must be the selection”. “Loss of innate genetic variability must not be too great”.

The overall approach should be one of balance and moderation in the degree of inbreeding coupled with consistent selective breeding with a clear objective in mind – i.e improvement of key aspect and/or the elimination of weak traits or defective genes.

Breeding systems and practices need to operate so as to ensure the RagaMuffin gene pool contains enough variation to give scope to continue improving the breed and avoid the danger of either fixing type too quickly (before the ideal of the standard is reached) or deleterious genes being expressed and fixed in the breed. Breeders need to use inbreeding to gain sufficient homogeneity to fix recognisable RagaMuffin type and all key aspects that determine the breed, but with sufficient variation to both enable improvement, and maintain health and vigour, avoiding fixation of defective genes or unwanted traits (and to ensure the elimination of anomalies).

Anomalies – the problem of the genetic anomaly is something of which all breeders should be aware – this is not to suggest that such anomalies are common but the cat must be expected to have its quota of defects just as are found in other animals.

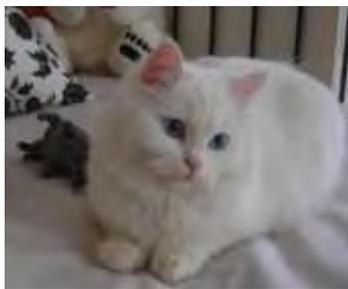
The golden rule is that health is paramount and must be constantly and consistently monitored; any evidence of weakness or the emergence of lack of vigour must be dealt with immediately through modification of the breeding system. No cat with any evidence of health problems or lack of vigour should be used for breeding.

In Summary:

- Health must be the overriding consideration in any RagaMuffin breeding programme
- The good and bad features of the individual cats should be assessed and weighed against each other before any mating
- When planning a breeding programme, breeders must realise that doubling of the good traits in a cat also results in doubling the defects; the breeding of cats with similar faults should be avoided at all costs otherwise there is a danger of fixation.

RagaMuffin Breeding Policy

Photo Gallery:



RagaMuffin Breeding Policy

Health & Welfare

Hypertrophic Cardiomyopathy (HCM):

Before the RagaMuffin was imported into the United Kingdom in 2009, all foundation cats were DNA tested for the known Ragdoll Hypertrophic Cardiomyopathy gene. With the exception of one female, all individuals tested clear of these HCM genes. The one individual who was Heterozygous for the gene was removed from breeding programmes. It is the policy of the breed that any further imports, and/or any official outcross breed should DNA test clear of this particular gene. In the case of the Siberian, it is required that cat in question should be aged 3 + with a clear cardiogram within the previous 12 months.

Very importantly, the absence of the mutation in a cat DOES NOT mean that it will never develop HCM. It means that it does not have the known mutations that can cause the disease at this time. In the future, additional mutations may be identified that can be tested for as well.

AD-PKD- Polycystic Kidney Disease

As above, all of the original imported RagaMuffin cats imported into the UK in 2009 were DNA tested clear of this inherited disease. It is the policy of the breed that all further imported, and/or cats used as official outcrosses for the breed should also be DNA tested clear of the gene.

Feline Infectious Peritonitis (FIP)

This is not an inherited disease; however, a genetic predisposition in cats of various breeds to the development of FIP was identified by Dr's Foley and Pedersen in 1996. They examined pedigree and health data from 10 generations of cats in several pure-bred catteries and found that the inheritance of susceptibility to FIP could be very high (about 50%). At present the advice from veterinary scientists is not to repeat matings that have produced FIP succumbing kittens.

It is likely a polygenetic trait rather than a simple dominant or recessive mode of inheritance. Inbreeding, by itself, is not a risk factor. Selecting for overall disease resistance is a helpful tool for breeders. The likely defect in immunity to FIP is in cell-mediated immunity. Therefore cats that are susceptible to FIP are also likely susceptible to some other infections as well, especially fungal and viral infections. This finding gives breeders the ability to achieve success in reducing the risk of FIP by using pedigree analysis to select breeding cats from family backgrounds that have strong resistance to FIP and other infectious diseases. See link:

<http://www.cfa.org/articles/health/FIP.html> There are studies taking place at UC Davis into the genetic aspects of FIP and breeders' participation is requested if they lose a cat or kitten to this disease. For details of this see: <http://www.sockfip.org/fip-studies.html> For more information and advice on this disease see: www.icatcare.org .

General Defects There is a publication 'Guide To Defects Listed In The GCCF Standard Of Points' which goes into detail of the general defects that can affect any cat. Some of these defects (i.e. polydactyl - abnormal number of toes on either front or back legs) would be considered undesirable in a breeding cat. *For further reading on cat genetics and breeding practices refer to: "Robinson's Genetics for Cat Breeders & Veterinarians" by Vella, Shelton, McGonagle and Stanglein, published by Butterworth & Heinemann.*

RagaMuffin Breeding Policy

BAC Recommendations

The BAC recommends that breeders re-appraise themselves of this Breeding Policy, the RagaMuffin Registration Policy, and the RagaMuffin Standard of Points and the general GCCF Breeding Policy at least once a year. RagaMuffin breeders are encouraged to work closely with other like-minded breeders to improve the RagaMuffin breed whilst maintaining a diverse gene pool.

The BAC recommends that breeders do not purchase a stud boy until they have at least three queens, and have raised at least one litter of kittens, nor is it recommended that a breeder sell a stud boy to a breeder who has yet to raise a litter of kittens. It is also recommended that novice breeders do not sell kittens on the active register to any other novice breeder. Any experienced breeder who sells a kitten for breeding to a novice breeder must be willing to mentor the novice breeder, or to take responsibility for finding them a mentor who lives closer to them.

Further Notes

At the time of writing this document there are many more advancements in science taking place that will aid Breeders in their breeding programmes. One of which is especially important for RagaMuffin breeders and is the test for the Silver gene which covers Silver, Shaded and Smoke.