PERSIAN LONGHAIR BREED ADVISORY COMMITTEE

Breeding Policy

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Introduction

With the formation of a consolidated BAC for Persian Longhairs, the requirement to produce a breeding policy has given the BAC the opportunity to review the Registration Policies and Standards of Points for Persians. Some of the policies for the individual pattern groups have not been reviewed or revised for some years. During this time, the Fancy has altered considerably, with the number of Persians being shown dropping dramatically, with a consequent reduction in breeders and breeding cats but also, on the plus side, the ability to show longhairs from Exotic or Exotic/Persian breeding at championship level in the section.

The aim of this breeding policy is to give advice and guidance to breeders to enable them to observe what is considered "best practice" in breeding Persian Longhairs. The aims of these amendments are to:

- open up the gene-pool
- enable breeders to outcross
- make it easier for breeders to import outcross bloodlines

The over-riding factor should always be to maintain health, and preserve the unique qualities of this stunning breed, coat colour, length and texture, beautiful large, round eyes and sweet facial expression, which makes them sought after both for showing and as wonderful family pets.

Origins of the Breed

The breed's name refers to Persia, the former name of Iran, where similar cats are found. Recognized by the Cat Fancy since the late 19th century, it was developed first by the British, and then mainly by American breeders after the second World War. The selective breeding carried out by breeders has allowed the development of a wide variety of coat colours and patterns. It has been the most popular breed in the United States for many years but its popularity has seen a decline in Britain and Europe in the last decade.

Prior to the period beginning in the mid 19th Century, the origins of the Persian and the other cats that would later meld into the one breed of that name, are not clear. Archaeological evidence places the domestication of the cat at around 4000 years ago in Egypt. Sleek, shorthaired cats are depicted in art and religious artefacts of that period, and thousands were entombed as mummies. Early civilization records that the Romans introduced the domestic cat throughout Europe, and sailing ships finally carried them to the New World and later yet to Australia.

Some naturalists believe that mating between the European Wild Cat or the Pallas Cat, both of which have a longer, denser coat that evolved to protect them from harsh climates, with the earliest domestic cats, introduced the long hair into the domestic cat's gene pool. Others believe that a genetic mutation occurred spontaneously rather than by slow evolution. In either event, the long hair was to become the hallmark and the crowning glory of the Persian.

The first Persian was presented at the first organized cat show in 1871 at the Crystal Palace in London, organized by Harrison Weir. As specimens closer to the later established Persian conformation became the more popular types, attempts were made to differenti-

ate it from the Angora. The first breed standard (then called a *points of excellence* list) was issued in 1889 by cat show promoter Weir. He stated that the Persian differed from the Angora in the tail being longer, hair more full and coarse at the end and head larger, with less pointed ears. Not all cat fanciers agreed with the distinction of the two types, and in "*The Book of the Cat*" by Frances Simpson, published in 1903, she states that "*the distinctions, apparently with hardly any difference, between Angoras and Persians are of so fine a nature that I must be pardoned if I ignore the class of cat commonly called Angora".*

Miss Simpson, rather romantically, claimed that her first Persians - a pair of blue-eyed whites - were obtained in 1869 from "...a sailmaker's pocket, from a foreign vessel, which put into a seaport town for repairs after a severe storm."

Dorothy Bevill Champion lays out the difference between the two types in "*Everybody's Cat Book*" published in New York in 1909.

"Our pedigree imported long-hairs of to-day are undoubtedly a cross of the Angora and Persian; the latter possesses a rounder head than the former, also the coat is of quite a different quality. The coat of the Persian consists of a woolly under coat and a long, hairy outer coat. In summer it loses all the thick underwool, and only the long hair remains. The hair is also somewhat shorter on the shoulders and upper part of the hind legs.

Now, the Angora has a very different coat, consisting of long, soft hair, hanging in locks, inclining to a slight curl or wave on the under parts of the body. The hair is also much longer on the shoulders and hind legs than the Persian, this being a great improvement; but the Angora fails to the Persian in head, the former having a more wedge-shaped head, whereas that of the modern Persian excels in roundness.

Of course. Angoras and Persians have been constantly crossed, with a decided improvement to each breed; but the long-haired cat of to-day is decidedly more Persian-bred than Angora."

Champion lamented the lack of distinction among various long-haired types by British fanciers who, in 1887, decided to group them under the umbrella term "Long-haired Cats".

Blue Persian prize-winner at Westminster in 1899.

CH Fulmer Zaida was a renowned Silver female owned by Lady Decies. This cat won more prizes than any other in the Fancy, numbering over 150.

Pattern Groups

Prior to the formation of the amalgamated Persian Longhair BAC, the five distinct pattern groups were catered for by their own individual BACs. This has led to the formation of a variety of registration policies, however, this is being addressed in this document.

The pattern groups are:

Self Persians

- Black
- White (blue-eyed, orange-eyed and odd-eyed)
- Blue
- Red
- Cream
- Chocolate
- Lilac

Tipped, Shaded & Smoke Persians

- Smoke (Black, Blue, Chocolate, Lilac, Red, Tortie, Cream, Blue-Cream, Chocolate Tortie and Lilac Tortie)
- Chinchilla (Black and Blue—green-eyed; dilute series are currently non-championship)
- Golden Persian (Black and Blue—green-eyed; dilute series are currently non-championship)
- Shaded Silver (Black & Blue—green-eyed; dilute series are currently non-championship)
- Cameo - Shaded & Tipped (Black, Blue, Chocolate, Lilac, Red, Tortoiseshell, Cream, Blue-Cream, Chocolate Tortoiseshell, Lilac-Cream)
- Pewter (Black & Blue)

Tabby Persians—Classic, Mackerel and Spotted Pattern

- Silver Tabby (Black, Blue, Chocolate, Lilac, Red, Cream, Black Tortie, Blue Tortie, Chocolate Tortie, Lilac Tortie)
- Brown (Black)
- Blue
- Chocolate
- Lilac
- Cream
- Red
- Black Tortie
- Blue Tortie
- Chocolate Tortie
- Lilac Tortie

Tortoiseshell, Tortie & White and Bi-Colour Persian

- Tortoiseshell
- Blue-Cream
- Chocolate Tortie
- Lilac– Cream

- Tortie & White
- Blue Tortie & White
- Chocolate Tortie & White
- Lilac Tortie & White
- Tortie Tabby & White
- Blue Tortie Tabby & White
- Chocolate Tortie Tabby & White
- Lilac Tortie Tabby & White
- Tortie Silver Tabby & White
- Blue Tortie Silver Tabby & White
- Chocolate Tortie Silver Tabby & White
- Lilac Tortie Silver Tabby & White
- Tortie Smoke & White
- Blue Tortie Smoke & White
- Chocolate Tortie Smoke & White
- Lilac Tortie Smoke & White
- Tortie Shaded Cameo & White
- Blue Tortie Shaded Cameo & White
- Chocolate Tortie Shaded Cameo & White
- Lilac Tortie Shaded Cameo & White
- Tortie Tipped Cameo & White
- Blue Tortie Tipped Cameo & White
- Chocolate Tortie Tipped Cameo & White
- Lilac Tortie Tipped Cameo & White

- Bi-Colour Persian (Black, Blue, Choclate, Lilac, Red, Cream)
- Bi-Colour Tabby & White (Brown, Blue, Chocolate, Lilac, Red, Cream)
- Bi-Colour Silver Tabby & White (Black, Blue, Chocolate, Lilac Red, Cream)
- Bi-Colour Smoke & White (Black, Blue, Chocolate, Lilac, Red, Cream)
- Bi-Colour Shaded Cameo & White (Black, Blue, Chocolate, Lilac, Red, Cream)
- Bi-Colour Tipped Cameo & White (Black, Blue, Chocolate, Lilac, Red, Cream)

Bi & Tri-Colour cats (excluding the Silver series) can have orange, blue or odd-eyes.

Colourpoint Persians

- Solid points (Seal, Blue, Chocolate, Lilac, Red, Cream)
- Tortie Points (Seal Tortie, Blue-Cream, Chocolate Tortie, Lilac-Cream)
- Tabby Point (Seal, Blue, Chocolate, Lilac, Red, Cream, Seal Tortie Tabby, Blue-Cream Tabby, Chocolate Tortie Tabby, Lilac-Cream Tabby)

Genetic Make-up

The Persian gene pool has relatively good diversity compared to other cat breeds, this could be due in part to the breeding and registration practices which have maintained some genetic divisions between different Persian varieties; recent changes to allow some more freedom will guard against fragmentation and pockets of higher inbreeding levels within varieties. The Persian sits in the Western European area of the phylogenetic tree.

Agouti (A) – the natural "wild" gene that is the basis of the tabby cat. The base agouti pattern is bands of black on a yellow background; in the cat this is overlaid with one of the tabby patterns.

Non- agouti or "hypermelanistic" (a) - a recessive gene mutation that turns the original "wild" tabby cat into a self black by overlaying the agouti base colour with melanic pigment, making the whole animal appear black, although often in certain light the underlying tabby pattern may still just be discernible. Other genes work to change this black pigment to other colours.

Inhibitor (I) – a dominant gene that suppresses the development of pigment in the hair of the coat, typically producing hairs that are fully coloured only at the tip and have a silvery white base. It has greater effect on the lighter pigment in an agouti cat, removing the yellow colour and turning the base colour white or "silver". In the case of a non-agouti cat the inhibitor removes colour from the base of the hair-shaft to produce a silvery white hair with a coloured tip, i.e a Smoke. This allele appears to interact with other genes to produce various degrees of tipping, ranging from deeply tipped silver tabby to lightly tipped silver shaded tabby.

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 classic; 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:

Mackerel (Mc) – the basic striped tabby pattern that overlays the agouti base (i.e. "wild" form).

> Description: - Narrow unbroken line from head to base of tail with narrow broken line either side. Narrow vertical lines run down body. Necklaces (may be broken); spotted or barred belly; leg bars; narrow tail rings.

Ticked (T) – an incompletely dominant gene which 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.

> Description: - Two or three bands of colour extending well down the hair shaft. "M" on forehead; skull cap on kittens. Necklaces may be broken or unbroken; may have belly spots, may have tail rings or continuation of the spine line.

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.

Description: - Clearly defined spotting. Round and evenly distributed. Lines over head breaking on shoulders. Bars or spots on legs. Necklaces (may be broken); belly spots. Complete or broken tail rings.

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.

Description:- "M"; Lines over head; Butterfly; Parallel spine lines; Oysters; Markings symmetrical; Broken necklaces; Blotched, spotted or barred belly; Tail banded

Wide-banding (Wb) – this has been hypothesized either as a gene (Robinson) or more probably a group of genes (Joan Wasselhuber, who coined the term "wide-banding genes"): increasing evidence for their existence has led to wide acceptance. Undercoat width genes determine the width of the undercoat whether or not the cat has a silver inhibitor gene. The term "undercoat" used here refers to part of the hair shaft closest to the body, and includes both guard hairs and the shorter hairs often referred to as "undercoat" hairs. The variability seen in the undercoat widths in cats points to the polygenetic nature of wide-banding genes. If a single gene it is likely an incompletely dominant gene mutation, the effect serving to push the darker, pattern colour in the cat up away from the hair base towards the tip, turning the normal tabby patterns into a Shaded or Tipped cat. Precisely how the agouti, inhibitor and wide-banding genes interact on a molecular level is not clear - one possibility is that the wide-banding genes influence the agouti protein production to remain high so that eumelanin pigment remains inhibited or down-regulated; another possibility is that the wide-banding gene encodes for a second inhibitory protein that also down-regulates eumelanin.

Long-hair (l) – a recessive gene mutation which produces a semi-long haired cat. Cat hair coat colours, patterns and texture are determined by the combined action of several genes. One gene – *fibroblast growth factor5 (FGF5)* – determines hair length. Short hair is a dominant trait determined by the wild-type form of *FGF5*. Long hair is a recessive trait. Four mutations in *FGF5* have been identified that are associated with long hair in cats. Long-haired cats can carry two copies of the same mutation (homozygote recessive) or have two different mutations, one on each chromosome (compound heterozygote). Three of the mutations are fairly breed specific, while the fourth is present in all long-haired cat breeds and crossbreds, as follows:
Mutation 1 (M1): present in Ragdolls
Mutation 2 (M2): present in Norwegian Forest Cats
Mutation 3 (M3): present in Maine Coons and Ragdolls
Mutation 4 (M4): present in all breeds of long hair cats, including Persians, Ragdolls, Maine Coons, and Norwegian Forest Cats.

Chocolate (b) and Cinnamon (b1) – two mutations of the basic black non-agouti gene which modifies black into dark brown or medium brown respectively. Cinnamon is not currently recognised in Persian cats.

The white masking gene, (W). The "W" gene prevents the normal replication and migration of pigment producing cells during embryologic development. As a result, *WW* and *Ww* cats have a greatly reduced number of melanocytes and appear white, no matter what other colour genes it may carry. Only a cat that is homozygous recessive (*ww*) will

express normal pigmentation. Also called Dominant white (more properly "epistatic white" since it occurs on a different gene to the black-based or red-based colours).

White spotting or piebald spotting gene, S/s, - has variable expression, so that an *SS* cat often has more extensive white patching than an *Ss* cat. It is this gene that creates the familiar white blaze across the face, a white bib, *tuxedo* pattern, or dappled paws. A hypothetical Sb allele ("gloving gene") may cause the mittens in Birman and Snowshoe breeds. Some researchers believe that there are separate white spotting genes for distinct forms of white pattern, such as the white locket that some cats have on their neck or bellies.

Himalayan (Siamese) gene (cs) – Kittens that are homozygous for this gene are born varying in colour from grey through white to pale apricot-white according to the eventual colour of the points (mask, ears, legs and tail) which in the darker seal points may start to appear about a week after birth but may take much longer to become visible in the paler colours such as lilac and cream. This is due to the fact that in these cats the pigment only appears on the cooler extremities of the body; while in the mother's womb the kitten is kept too warm for the pigment cells to develop. This temperature dependant pigment production is called acromelanism. Acromelanism is present in other animals for example the Himalayan pattern rabbit. In Colourpoints the longer body fur remains paler than in the equivalent shorthaired Siamese counterpart as it maintains a higher temperature near the body surface preventing the pigment cells from forming. The Himalayan gene is also responsible for the blue eyes found in Colourpoints and is totally separate from the genes causing blue eyes in white or bi-colour and tri-colour cats. Deafness is not associated with the Himalayan gene in the same way as it is with the dominant gene, W, for white cats.

Orange (O) – This gene eliminates all melanin pigment (black and brown) from the hair fibres, replacing it with phaeomelanin, a lighter compound appearing yellow or orange depending on the density of pigment granules. The O allele is also epistatic over the non agouti genotype; that is, 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 independent of their genotype at this locus. 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, can affect the richness of the orange gene's expression.

Dilute (d) – a recessive gene which reduces and spreads out the pigment granules along the hair-shaft and turns a black to blue, chocolate to lilac and red to cream.

Polygenes – these are collections of genes which modify the effect of the main dominant and recessive genes above. A build up of polygenes creates a bigger effect, for example a collection of certain polygenes increases the length and density of the long-hair gene to create the Persian, and a build-up of polygenes serves to enhance the effect of the main colour genes, turning the effect of the orange gene from the sandy colour of the ginger domestic tom to the rich vibrant red of the Red Persian. It is likely that a group of polygenes is the reason for variation in the degree of tipping in the Shaded Persian, the polygenes working to create the band-width in interaction with the inhibitor gene (when present) resulting in the range of pattern from tipped to heavily shaded.

Whilst, it is important to be aware of the genetic makeup of our breeding cats the focus should remain on health, type, coat quality, conformation and temperament above all else.

Breeding System

The following points should be noted by all breeders of Persian cats:

Persians should **only** be bred with other Persian type cats. (The only exceptions are where they are permitted out-crosses within another GCCF breeding programme, e.g. Selkirk Rex.) However, progeny are variants of the outcross breed and cannot be used in a Persian breeding programme.

The approved colour breeding rules are stated in the enclosed Registration Policies.

The level of in-breeding and line-breeding should always be carefully considered.

Listed in this document are the main genes that define Persians through the expression of pattern, colour and coat, but of course there are a large number of other genes that together create the shape and conformation of Persian cats.

In order to ensure the continued development of good type, breeders need to have a clearly defined and well understood ***breeding system***. This means the development and management of a breeding programme in which certain cats are affirmatively selected to be bred to others, for predetermined reasons. It is equally important that breeders allow no matings until they have given careful consideration to the outcome.

In particular three key rules must be followed:

Health & temperament must be the overriding considerations in any 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.

The primary motivation must be to perpetuate Persians as a distinct breed; to improve the quality of the breed as measured against the standard & preserve and enhance the breadth of the gene pool.

The skill in breeding lies in the choice of the individual cats with the required physical or pedigree traits and understanding how the combination of these cats will affect the progeny. It should be recognised that the best show cats do not always produce the best kittens and combinations should be carefully considered.

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 heterozygeous (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 in-breeding is essential to stabilise conformation around a definite type. In-breeding is the act of mating individuals of various degrees of kinship, and if continued it produces ever increasing homogeneity in the offspring, with eventual deleterious impact on genetic health (inbreeding depression).

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 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 becoming fixed in the breed. Breeders need to use inbreeding to gain sufficient homogeneity to fix recognisable type and colour, 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).

Permitted Outcrosses—Persians with one or both parents Exotic Shorthairs.

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 byButterworth & Heinemann.

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. (See Genetic Defects).

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.

Genetic Health Issues

Polycystic Kidney Disease - PKD is a deleterious gene mutation which causes enlarged kidneys composed of dilated cystic channels, resulting in early kidney failure and death. PKD has been very common in Persian cats; around 36-49% of all Persians have been reported to have the condition (Cannon *et al* 2001, Barrs *et al* 2001, Beck & Lavelle 2001, Barthez *et al* 2003, Cooper 2000, Bonazzi *et al* 2007. Domanjko-Petri *et al* 2008, Bonazzi *et al* 2009). The prevalence of the AD-PKD gene is known to be decreasing in UK Persians, probably as a result of the successful implementation of a pre-breeding screening programme for the disease, but it is still common. It is believed to be the commonest genetic disease in cats. Breeds related to Persians—Exotic Shorthairs, British Shorthairs and Ragdolls have also been shown to be affected by the condition (Barrs *et al* 2001).

Only Persian cats that are deemed to be PKD Negative will be registered on the Active Register as suitable for breeding (see Persian Registration Policy for the PKD testing protocol). PKD Positive cats can be registered on the Genetic Register.

Progressive Retinal Atrophy (Persian)

PRA(P) is a form of early-onset progressive retinal atrophy that is inherited in an autosomal recessive fashion. Onset of photoreceptor loss is around 5 weeks of age with severe loss by 16 weeks of age, meaning most affected cats are blind by 16-17 weeks of age. Cats that carry the mutant gene have normal vision. It is estimated that around 4-5% of the UK/European cats tested were carriers of the Persian PRA mutation. A PCR-based pyrosequencing assay to quickly and accurately identify the genetic mutation known to cause PRA in Persian and related breeds has been developed. The DNA test is available at Langford Veterinary Services (Bristol University) and at VGL (UC Davis).

Breeders are strongly recommended to test breeding cats if they suspect they carry this condition.

It is intended that from 1st January 2016, imported Persians will need to be tested clear, prior to registration on the Active Register with GCCF.

Brachycephaly

Brachycephaly is not a defect - it is the term used to describe the shortening of the head that is a distinctive feature of both Persians and Exotic Shorthair cats. All the characteristic features of brachycephaly are the consequence of selective breeding to favour short head type. The development of the bones in the skull and jaws has been altered, resulting in a shortening of the maxilla, nasal bones and the basal bones of the skull, in comparison with other cats.

Persians and Exotic Shorthairs bred with moderately brachycephalic head type and well balanced features should not experience health problems as a result of their head type.

Breeders of Persians and Exotic Shorthairs must be aware that breeding cats with <u>extreme brachycephaly</u> results in a range of anatomical deformities that can result in serious chronic health problems in these cats.

It is recommended not to use intranasal vaccines for brachycephalic cats.

The conditions that can arise as a result of extreme brachycephaly are as follows:

Dental - Bite Faults and Malpositioned Teeth

Incorrect bites are an issue in the Persian breed and there are enough incidents to necessitate breeders monitoring their cats and kittens regularly and carefully to help reduce the incidence of this problem.

The shortening of the maxilla (upper jaw bone) and nasal bones is not always accompanied by corresponding shortening of the mandible (lower jaw bone) hence an undershot bite is common. Twisting and malocclusion are also common results of the disproportionate growth of upper and lower jaws. The shortened upper jaw can also result in malpositioning and crowding of the teeth. Sometimes teeth can be seen emerging from the hard

palate or the side of the gum. For this reason it is advised that breeders ask their veterinary surgeon to carefully check the mouth of all young cats for abnormalities of this type. Malpositioned teeth can sometimes cause injury to opposing structures and need to be removed. Overshot bites are seen less commonly. In kittens slightly overshot bites often level up as the kitten matures.

It is therefore recommended to breed from cats with level bites with no misalignments or twists and a wide jaw to try and eliminate incorrect bites and jaw formations from the breed.

Level bite

Overshot bite

Undershot bite

Brachycephalic Airway Syndrome (BAS)

This term refers to the clinical syndrome characterised by breathing difficulty that results from extreme degrees of brachycephalicism. Anatomical features which contribute to this problem are restriction of the nostrils, often associated with reduction in size of the nose leather, narrowing and tortuousity of the nasal passages and excessively long soft palate which effectively obstructs the internal nares. A potentially fatal consequence of severe BAS is weakening of the diaphragm, resulting in hiatus hernia. This results in reflux of acid gastric contents which has been known to cause oesophageal perforation and even fatal haemorrhage.

It is therefore recommended that cats with BAS should not be bred from. Cats with small nose leathers and small nostrils should be avoided and breeders should select for large, open nostrils and large nose leathers.

Nasolacrimal Duct Obstruction

This is another consequence of excessive shortening of the nasal bones. It leads to chronic epiphora (tear overflow) which leads to skin problems (see below) and tear staining.

It is therefore recommended that breeders avoid the use of cats with nasolacrimal duct obstruction in breeding programmes, and that two such cats should never be bred together.

Skin Fold Dermatitis and Pyoderma

Excessive shortening of the nasal bones can result in deep folds of surplus perinasal skin. The moist airless environment in the depths of these folds predisposes to proliferation of bacteria and fungi which are present on normal skin but have the propensity to cause inflammation and infection in large numbers. Infections can become severe and purulent (Pyoderma) if neglected. Excessive skin folds may also irritate the eyes in severe cases thus contributing to keratitis (corneal inflammation) -see below.

It is therefore recommended that breeders should assess potential breeding cats for predisposition to skin fold dermatitis and pyoderma and select cats which do not have surplus perinasal skin or deep skin folds.

Exposure Keratitis and Corneal Sequestra

Shortening of the skull in extreme brachycephalicism can reduce the depth of the eye sockets resulting in abnormal prominence of the eyes. This leads to excessive drying of the cornea and increased susceptibility to environmental irritants. Excessive perinasal skin folds can also contribute to irritation. Keratitis (inflammation of the cornea), corneal ulceration and corneal sequestra (focal degeneration and pigmentation of superficial corneal tissue) can result. While Persians appear predisposed to sequestra, it isn't clear whether it is due to an inherited predisposition or a side-effect of their facial conformation. These conditions can cause severe pain to the cat and treatment can be difficult as the problems are liable to recur. In rare cases, especially if neglected, blindness and panophthalmitis, necessitating removal of the eyeball can result.

It is therefore recommended that cats displaying these conditions should not be used for breeding.

Doming of the Skull

Shortening of the bones at the base of the skull leads by necessity to abnormal doming of the cranium, often with irregular protrusions and depressions which detract from the overall appearance of the cat. If taken to the extreme this condition could, in future, cause brain compression and disrupt the flow of cerebro-spinal fluid resulting in severe neurological symptoms, as occurs in some brachycephalic dog breeds.

It is therefore recommended that breeders assess the shape the skulls of potential breeding cats and avoid the use of any with irregularities.

Breeders must be aware of the potential risks to the welfare of their cats when selecting for shorter noses.

Care should be taken in selection of breeding cats and to avoid matings between cats which are close to acceptable limits. In this situation, due to random assortment of genes, there is a real risk of producing kittens which will show more extreme brachycephaly than either parent and suffer severe chronic health problems as a result.

Grooming and Coat Maintenance

It is worth mentioning here the necessity for grooming of all Persian cats; they require regular grooming to maintain the long, silky coat in optimum condition. Especially during the spring and summer months, when moulting, they can shed a large amount of dead fur that needs to be carefully combed out, or the coat will mat and knot. In the winter months, the coat can become very long and requires daily grooming. Eyes should be regularly cleaned, and all Persians benefit from an occasional bath. Kittens should be acclimatised to being groomed from a very young age, so that it becomes a regular routine. Problems with grooming and coping with a long coat are one of the most regularly cited reasons for Persians being given up for re-homing.