

# UNIVERSITY *of* MISSOURI

DEPARTMENT OF VETERINARY MEDICINE & SURGERY

COLLEGE OF VETERINARY MEDICINE

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To whom it may concern:

This letter is provided as supportive information for the development of legislation pertaining to cat breeding, cat health and cat welfare. Please find my attached CV to document my position in animal scientific research, teaching and health management.

I am a geneticist and I have studied domestic cats and their breeds since 1992, over 32 years. My research has led to the discovery of approximately 30% of the 195 currently known DNA mutations in cats that affect health and appearance. Many of the DNA variants I have discovered are highly associated with or define specific cat breeds. Genetic testing for the DNA variant I discovered for polycystic kidney disease (PKD) has led to a significant reduction of PKD, nearly eradication, in the Persian breed family of cats. In 2004, the PKD frequency in Persians, worldwide, was 25 – 38%, and now that frequency is estimated as less than 5%. Importantly, my overall research goal is to reduce pain and suffering in cats and their breeds and to improve the overall health and welfare of both the individual cat and their populations. I should note that while I admire many cat breeds, I do think a few need to be “retired” and a few require moderation of extreme type (hypertype).

I am intimately involved with many breeds and have discovered the DNA variants that cause dwarfism (munchkin), hairless (Sphynx), rex coats (Devon, Selkirk and Cornish), and the folded ear of the Scottish fold breed. As part of these discoveries, I have worked closely with breeders, owners and veterinarians to consider the health aspects of each DNA variant and its affect on the specific breed. As part of our publications on the DNA variants for these traits and diseases, I generally provide scientific data that considers the health and welfare of each breed in regards to the specific DNA variant and I provide health and welfare management recommendations as part of my research studies.

Here in, I provide suggestions, new information and new considerations to be part of the development of legislation that is focusing on the health and welfare of animals and protections for consumers of pedigreed and domestic animals. I think the current legislators are working diligently to obtain fair and unbiased information and I would hope you consider my expertise as part of your evidence for supporting your decisions. New technologies have allowed the introduction of new considerations and perceptions that were not previously available or recognized in earlier deliberations.

1) DNA testing is standardized and readily available from many European commercial animal genetic testing services. Standard sets of DNA markers have been published and approved by the International Society of Animal Genetics (ISAG) and are currently used worldwide for animal identification and parentage testing. Samples for DNA testing can easily be collected non-invasively using buccal swabbing. If animals are to be registered via a microchip as identification, a DNA profile should be included, which will be unique to each individual and can trace the parentage and origins of the individuals as the database increases.



A DNA profile can't be altered or switched with another animal, whereas microchips can become non-functional or transferred to other animals. In cats, my research has helped lead the development of the standardized DNA markers approved by ISAG.

2) If animals and the breeders are to be registered, then enforce a registration with an established animal registry as well, when appropriate. In the case of cats, registries such as FIFe, WCF, TICA, CFA, LOOF and many independent cat clubs are available in Europe. These registries support their breeders with information and mentoring regarding health and welfare and each registry has expectations and provide some policing for proper animal welfare and health management. Likely, many of the concerns with animal breeding and selling pertain more so to “back-yard”, less professional breeders, who then promote unhealthy varieties of specific breeds, which leads to unfair consequences for responsible breeders, including loss of income and livelihood. The back-yard breeders are more likely to be misleading the consumer and providing poor or little information regarding pet ownership.

3) An animal of a specific breed should have mandatory genetic screening for known variants that cause diseases within that breed and the breeders / veterinarians should then follow recommended standards for good breeding practices as they pertain. A list of recommended tests and breeding strategies to reduce and or eliminate health concerns is available from the World Small Animal Veterinary Association (WSAVA) – Hereditary Disease Committee (HDC) and the International Society of Animal Genetics (ISAG). I also provide this information on my own website:

<https://cvm.missouri.edu/research/feline-genetics-and-comparative-medicine-laboratory/what-breeds-need-what-genetic-tests/>

4) Establish moratoriums for the “retirement” of specific breeds that have detailed, scientifically documented health concerns that cannot be reduced or eliminated by better breeding practices. For cats, the WSAVA and other veterinary associations clearly recognize the Manx and Scottish fold breeds have DNA variants that cause a breed defining trait and these DNA variants also causes a high frequency of health concerns within that breed, such as Manx Syndrome in the Manx breed and osteochondrodysplasia in the Scottish fold breed. The associated health concerns are unpredictable and better breeding strategies will likely not eradicate the health problems from the breed due to the high correlation with the DNA variant. My research lead to the discoveries of DNA variants in Manx and Scottish folds and I think these breeds should be retired from the cat registries within the 15 – 20 years (life span of currently born cats). These moratoriums will also allow veterinarians to freely provide healthcare and owners/breeders will not be concerned with seeking healthcare for their cats within the allowed timeframe.

5) Enforce better breeding practices and healthcare in cooperation with breed registries. Brachycephalic conditions and their associated health concerns are of significant importance and instead of banning breeds, registries should document changes that will be implemented to moderate extreme conformation in animals. The WSAVA HDC committee is committed to working with breeders and registries to establish a variety of methods to support moderation of hypertypes. Different methods include but are not limited to: a) education of breeders and judges, b) education of the consumer, and, c) revision of breed standards. This type of enforcement has been previously suggested as part of the Avis du Conseil wallon du bien-être des animaux (24 Novembre 2020) and a means to support the efforts can be provided via the WSAVA and other veterinary associations.

6) Continue to develop expert panels of various stakeholders to inform legislators and to provide assistance with making scientifically-based decisions, with supportive data. In the case of the Sphynx, the dermatological concerns noted in previous reports are readily alleviated with proper grooming. Naked / nude / hairless cats do require grooming, thus, obtaining hairless / nude cats from established, cat registry breeders, would support better transfer of knowledge to the consumer for proper grooming techniques. The noted dermatological conditions in the report from Utrecht could be easily prevented, just as long haired cats often need grooming. Some cats are better at self-grooming than others, just as some people have better hygiene than others. Cats presented in cat shows are generally the best examples of the breed, while cats presenting at tertiary clinics, such as university hospitals, are generally the worst examples of a breed and become the subjects of case reports and scientific publications. A majority of cats represent intermediates of the extremes and responsible cat breeders and their associations are working towards better breed management.

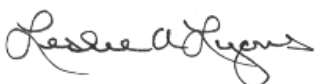
Regarding cats with no whiskers, the presented scientific evidence detailed how a cat uses its whiskers. There is NO evidence that a cat without whiskers can not function fully and properly as any other cat. The mammalian body has many redundancies to allow compensations. It is well recognised that some DNA variants have “reduced penetrance” and although their presence should indicate a health problem, the other genes of the body compensate for a deficiency. Cats with no tails, cats with no whiskers, have not been proven to have handicaps or deficiencies. The banning of these breeds is not supported by scientific data but by supposition, heresay, and emotion.

Regarding dwarf cats, my own work has suggested not breeding of two dwarf cat parents and selection for the tallest cats, hence establishing a size minimum. The selection of hypertypes of dwarfism, “rug-huggers” should not be encouraged and registries that allow the breed should set appropriate standards to prevent health concerns. Many established dog breeds are chondroplastic, however, scientific documentation of increased related health concerns is minimal, specifically the rate and severity of osteoarthritis. Thus, dwarf cat breeders are encouraged to work with an established radiographic study by the Orthopedic Foundation for Animals (OFA), that is working towards documentation of orthopedic problems associated with cat dwarfism. Because the genes are different for cat dwarfism as compared to those of several dog breeds, the dwarf cats do not have risk for intervertebral disc ruptures and the associated paralysis.

Overall, the rapid advancement of science, and particularly the genetics of companion animals, has opened new means for health and welfare management. Stakeholders, such as the WSAVA-HDC, ISAG, and other associations are now becoming more involved with supporting breeders and helping to manage animal health and welfare. As intermediaries between the breeder and government, registries, ISAG, and WSAVA-HDC can help monitor, support, and develop interventions to help maintain healthy animals with the best possible welfare.

I hope you can consider these newly available ideas, means and concepts for consideration in policy and legislation development. I am most happy to be of additional service ([lyonsla@missouri.edu](mailto:lyonsla@missouri.edu)).

Best regards,

A handwritten signature in cursive script, appearing to read "Leslie A. Lyons".

Leslie A. Lyons, PhD