



LYKOI

CFA JUDGES WORKSHOP

09.21.2023

Photo Credit: Martin Potgieter @sphynx_dobby_lykoi_lobe



LYKOI

CFA JUDGES WORKSHOP

Presented by:

Dr. Connie Hurley DACVS-SA

Board Certified Veterinary Surgeon

Wisconsin Veterinary Referral Center (WVRC)

Photo Credit: Martin Potgieter @sphynx_dobby_lykoi_lobe

Breed History



Photo Credit: Brittney Gobble, Lykoicats.com

Breed History

“Lykoi”, which in Greek, roughly translates to “wolf”, is a breed derived from a naturally occurring coat mutation found in the feral cat population. The Lykoi has been dubbed “the Werewolf cat” due to its characteristic appearance.

The breed was named in 2010 by Patti Thomas, who found the 1st documented mutations in Virginia, USA.

Genetic and health testing was performed on these natural mutant felines to ensure no disease or disorder was the cause of hair loss.

- Tests for infectious diseases (bacterial, fungal, parasitic)
- DNA tests for known genetic diseases, color, and blood type
- Skin biopsies
- Echocardiograms
- Tests for Sphynx and Devon Rex genes

Background Photo Credit: Brittney Gobble, Lykoicats.com

1st Mutations

Original Mother of Mutants:
Eve Havah



Given to Patti Thomas, a
Sphynx breeder, on September
4, 2010 due to concern about
unusual coat.

Wolfie Silver Lining (Male)
Ray of Hope (Female)



Veterinary exams & testing
confirmed no pathologic
dermatologic issue underlying
this unusual coat appearance.

Born July 4, 2010



DNA tests confirmed the coat was
not a result of the Devon Rex gene
(re) or the Sphynx (hr) gene
encoding on Keratin 71 (KRT71).
Since confirmed to be mutations at
the Hr Locus unique to Lykoi.

Photos Credit: Patti Thomas, Katitudz Lykoi
Background Photo Credit: Brittney Gobble, Lykoicats.com

Breed History

- No genetic relationship was found to Sphynx or Devon Rex, and since to Selkirk Rex or Cornish Rex.
- No infectious causes were noted
- No genetic defects were identified on DNA panels
- Histopathology:
 - Biopsy results showed fewer hair follicles and fewer hairs per follicle with more lymphocytes than average at the hair follicles.

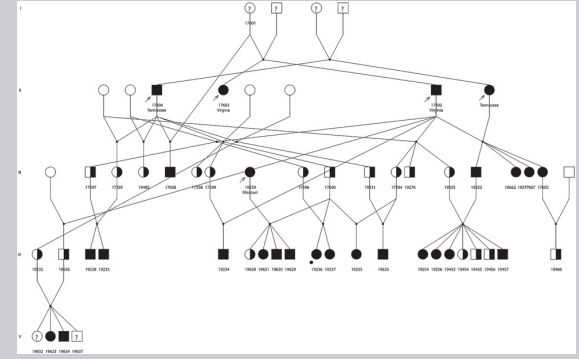
The cats were found to be healthy and the hair pattern was not related to disease or disorder.



Background Photo Credit: Brittney Gobble, Lykoicats.com

Breed History

- The first intentionally bred litter of “Lykoi” was produced in 2011 between the natural mutations found in Virginia and an additional pair of natural mutations of similar appearance located in Tennessee, USA.
- It was determined that the “Lykoi” was indeed a natural mutation.
- Through further breedings, it was determined that the “Lykoi” appearance was a recessive trait that could be outcrossed and recovered, breeding true, and that unrelated populations producing kittens of this appearance were breeding true when crossed.
- Numerous variants have been discovered originating in multiple populations across the United States and abroad, with the Lykoi mutation seeming to be a common mutation in the feral cat populations.



Breed History

DNA testing options for the Lykoi hairless gene variants are now available.

- **Wisdom panel** identifies two Lykoi variants. Some lykoi will test negative or positive for only one gene, if they carry alternate variants.
 - **Variant 1** = CatScan **hr^{TX}**
 - **Variant 2** = CatScan **hr^{VA}**
- **NeoGen CatScan:** 6 identified alleles at the Hr (Hairlessness, Lykoi Type) locus
 - **hr^{Ca}** = c.C>T; g.chrB1:36047518
 - **hr^{Fr}** = c.indel 1 bp deletion (del T) 3 bp insertion (ins CAG); g.chrB1:36040933
 - **hr^{NC}** = c.C>T; g.chrB1:36047047
 - **hr^{TN}** = c.2 bp insertion (ins GT); g.chrB1:36040784-36040785
 - **hr^{TX}** = c.G>A; g.chrB1:36045776
 - **hr^{VA}** = c.4 bp insertion (ins GACA); g.chrB1:3605156

Background Photo Credit: Brittney Gobble, Lykoicats.com

Breed History

[Order Testing](#)
[Included Tests](#)
[Sample Types](#)
[About](#)
[FAQ](#)
[Contact](#)

0

Connie

	<div> <div>R Locus - Selkirk Rex Curly Variant - SR</div> <div>R Locus - Devon Rex Curly Variant - re</div> <div>R Locus - Sphynx Hairless Variant - hr</div> </div>	<div> <div>0</div> <div>0</div> <div>0</div> </div>	
	Curly Coat (Cornish Rex Type)	Cu/Cu	Straight coat
	Dilute Coat Color - D Locus	D/d	Non-dilute (dilute carrier)
	Dominant White and White Spotting - W Locus	w/w	No white spotting
	Folded Ears with Osteochondrodysplasia	f/f	Typical (non-folded) ears
	Golden/Sunshine Coat (Siberian Type) - Wb Locus	Wb/Wb	Non-sunshine tabby
	Hairlessness (Lykoi Type) - Hr Locus	hr ^{TN} /hr ^{TN}	Hairless or Hypotrichia
	<div> <div>Hairlessness (Lykoi Type) - Hr Locus - hr^{Ca}</div> <div>Hairlessness (Lykoi Type) - Hr Locus - hr^{Fr}</div> <div>Hairlessness (Lykoi Type) - Hr Locus - hr^{NC}</div> <div>Hairlessness (Lykoi Type) - Hr Locus - hr^{TN}</div> <div>Hairlessness (Lykoi Type) - Hr Locus - hr^{TX}</div> <div>Hairlessness (Lykoi Type) - Hr Locus - hr^{VA}</div> </div>	<div> <div>0</div> <div>0</div> <div>0</div> <div>2</div> <div>0</div> <div>0</div> </div>	



Background Photo Credit: Brittney Gobble, Lykoicats.com

Breed Research

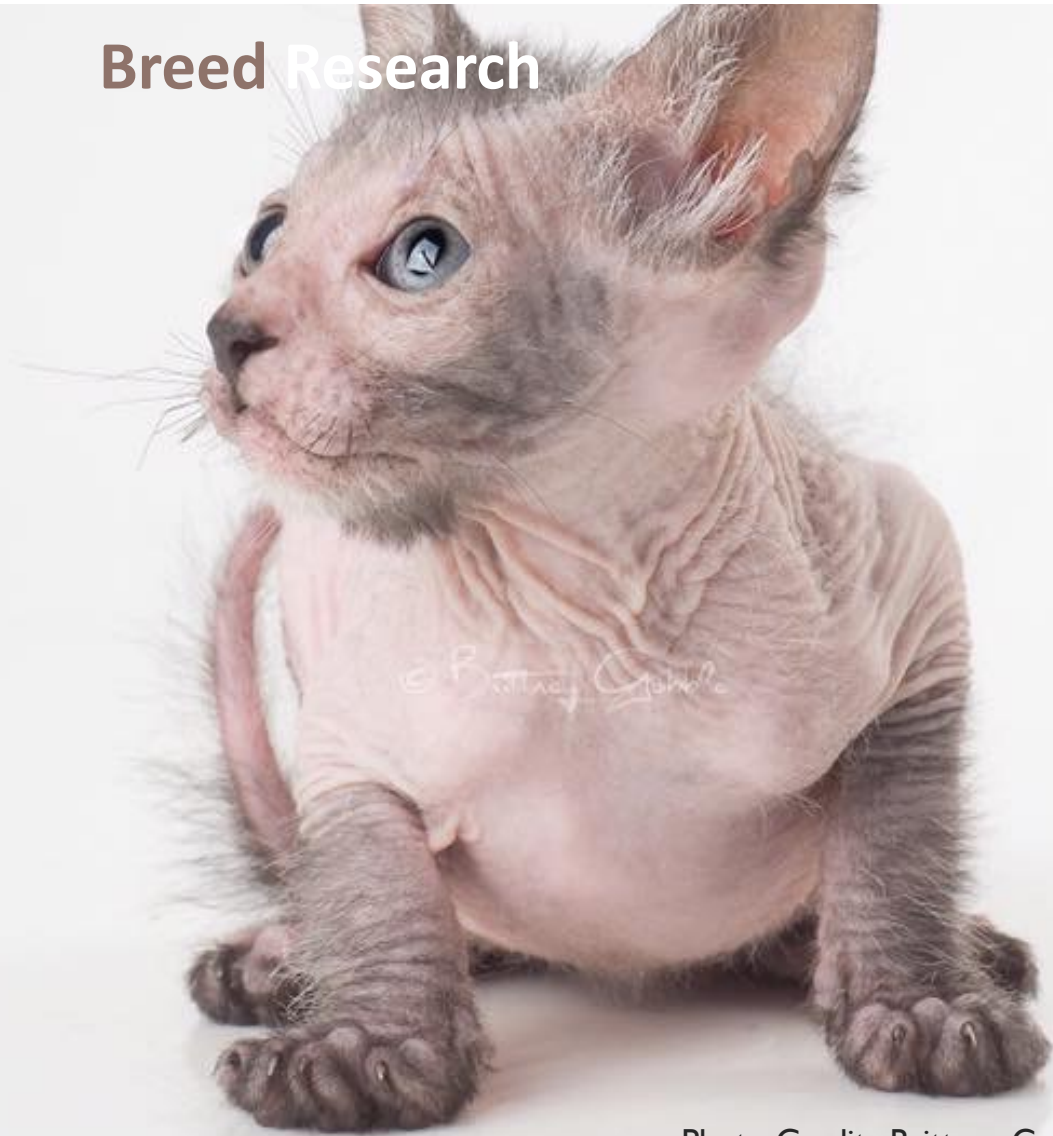


Photo Credit: Brittney Gobble, Lykoicats.com

Scientific Research On The Lykoi Cat

Clinical and Histological Description of Lykoi Cat Hair and Skin

by Dr. Leslie Lyons, Feline & Comparative Genetics, University of Missouri

The dramatic hair coat phenotype of the Lykoi cat was researched at the University of Missouri by Dr. Leslie Lyons and her team in 2016.

Their goals were to:

- Provide a clinical and histological description of the Lykoi cat skin, hair follicle, hair shaft, hair follicle density, and pilosebaceous components
- Examine Lykoi cat skin dermatoscopically
- Compare Lykoi histological findings to domestic shorthair (DSH) cats.
- Determine how the new traits of interest affect that cat's health
- Determine if the novel traits discovered could support new breed development
- Determine if the novel traits discovered could be used as biological models

Lykoi Hair and Skin Components Studied:

- | | |
|-----------------------|---------------------------|
| •Hair Coat | •Teeth |
| •Skin | •Hair Shafts |
| •Vibrissae (whiskers) | •Hair Follicle Density |
| •Claws | •Pilosebaceous Components |

Original

Clinical and Histologic Description of Lykoi Cat Hair Coat and Skin

リコイ猫の被毛と皮膚に関する臨床的および組織学的記述

Michelle L. LeRoy^{1,2*}, David A. Senter^{1,2}, Dae Young Kim³, Barbara Gandolfi², John R. Middleton², Karen E. Trainor⁴, Delia M. Bouhan², Leslie A. Lyons²

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Abstract: Hair and skin abnormalities of domesticated animals are readily identified and are biomedical models for ectodermal dysplasias. The hair coat of the Lykoi cat, a new cat breed, is a dramatic phenotype and has not been clinically or histologically described. Dermatoscopic examination was performed and skin biopsies were collected from seven Lykoi cats and seven dermatologically normal domestic shorthair (DSH) cats. All skin structures were examined on longitudinal and transverse sections. Immunohistochemistry for CD3 and Cytokeratin 8/18 was performed for comparison with DSH cats. Dermatoscopic images were compared. Lykoi had a significant reduction in average numbers of follicles per hair follicle group as compared to DSH cats, 14.7 ± 2.9 and 23.4 ± 5.4 , respectively. Median (range) numbers of hairs per hair follicle group were 1.3 (0.4 – 5.7) and 18.8 (10.6 – 26.6), respectively. Mean (\pm SD) hair follicle depth was 0.95 mm \pm 0.15 and 1.14 mm \pm 0.21 for Lykoi and DSH cats, respectively. Mean (\pm SD) primary hair shaft diameters were 39 μ m \pm 0.029 and 47 μ m \pm 0.011 for Lykoi and DSH cats, respectively. Mean (\pm SD) total sebaceous gland area per hair follicle group was $19,937.7$ pixels² \pm $10,254.9$ and $9,833.7$ pixels² \pm $5,784.5$ for Lykoi and DSH cats, respectively. Unlike DSH, Lykoi had mild to severe perifollicular to mural lymphocytic infiltration in 77% of observed hair follicle groups, and follicles were often miniaturized, dilated, and dysplastic. The Lykoi has a unique feline phenotype that may serve as a novel dermatological biomedical model.

Key words: ectodermal dysplasia, feline, *Felis silvestris catus*, hair coat, hair follicle

Background Photo Credit: Brittney Gobble, Lykoicats.com

Scientific Research On The Lykoi Cat

Principle Findings:

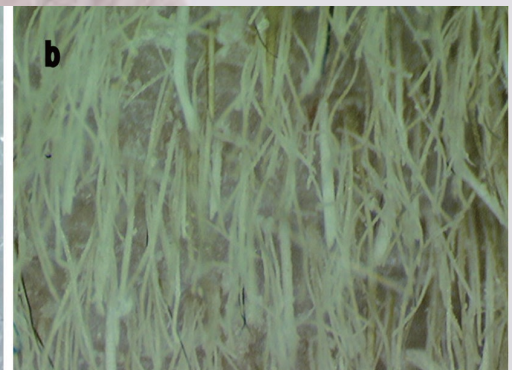
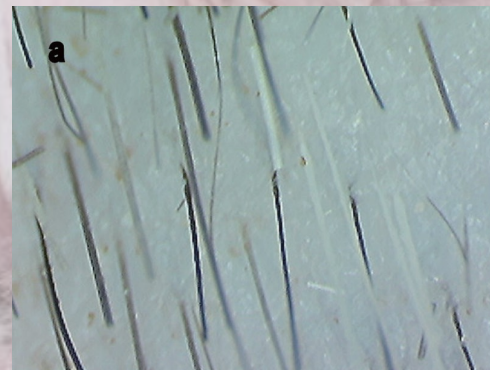
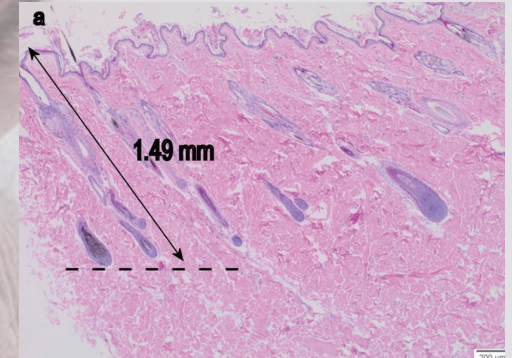
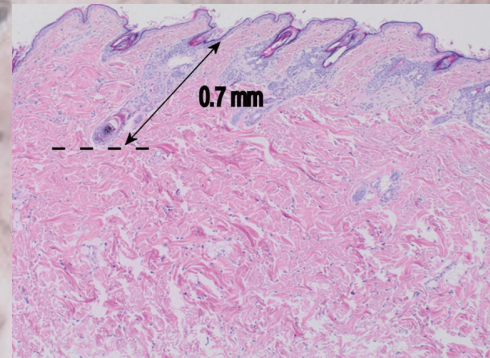
Lykoi hair follicles are developed in a way which prevent the undercoat from being maintained in the same manner as other cats. Consequently, they molt and can go completely bald some of the time, only to re-grow a new coat.

#1 - Lykoi have fewer hair follicles than a normal coated cat.

#2 - Lykoi have fewer hairs in a hair follicle unit than a normal coated cat and hair bulb depth is shallower than in a normal coated cat.

#3 - Secondary hair follicles were fewer in number in Lykoi cats.

#4 - There is a higher number of Lymphocytes (white blood cells/immunity) in the hair follicles of Lykoi cats.



Lykoi coat

DSH Coat

Breed Standard



Photo Credit: foxnews.com (Reuters)

Breed Standard



Photo Credit: Preston Smith

The Lykoi is a partially hairless breed of cat with a coat that is unique to them.

A combination of distinct traits set the Lykoi apart from all other breeds:

- 1) **Roaning**; an amelanistic color pattern of intermixed white and colored guard hairs. The pattern is found in other animals, such as horses, but has not been noted in any other breed of cat.
- 2) **A lack of undercoat.**
- 3) **Sparse hair on legs, feet and face mask.**

The large, bright, walnut shaped eyes combined with these distinct traits, give the “Lykoi” a unique, werewolf-like appearance.

Breed Standard

Category: Shorthair

Classification: Mutation

Allowable outcross breeds: Domestic shorthair

Number of generations needed for pedigree: 2

Colors: Solid colored cats express the characteristic coat dramatically. **All colors and patterns are accepted.** Amelanistic (roan) pattern in the coat will vary in appearance depending on color. White lockets, buttons, and belly spots allowed.

AOV: None. Longhair Lykoi can be registered for breeding and can be shown in Exhibition Class.

Breed Notes: Due to the limited gene pool, any cat naturally born having the sparse hairless and intermixed amelanistic (roan) hair may be registered if approved by three CFA AB Judges and Breed Council Chair. These cats can be shown if they meet the breed standard.

HEAD Total 30

Muzzle/Chin/Nose	10
Size/Shape	5
Ears	5
Eyes	5
Profile	5

BODY Total 25

Structure/Size	10
Musculature	5
Legs/Feet	5
Tail	5

COAT Total 45

Texture/Density	20
Color/Roaning	15
Mask	10

Muzzle - 5 Points



Well-Developed Muzzle

Muzzle is medium in length; fleshy, gently rounded
hairless whisker pads with a definite whisker break.
Muzzle ends with a well-developed chin.

Photo Credit: Brittney Gobble, Lykoicats.com

Chin - 5 Points



Well-Developed Chin

Muzzle ends with a well-developed chin, aligned vertically with nose; full but neither projecting or receding.



Chin is small and receding.

Photos Credit: Brittney Gobble, Lykoicats.com

Nose - 5 Points



Proper Profile

Slightly rounded from the top of the head to the brow with a smooth concave curve from brow to bridge of medium length nose. No hard stop. Nose is hairless and leathery to the touch, slightly rounding down at end.

Photo Credit: Brittney Gobble, Lykoicats.com

Head Shape - 5 Points



Proper Head

The head is a modified wedge with rounded contours from nose to cheeks to ears. Slightly rounded forehead. Slightly longer than wide.



Forehead is flat, head is short, wider than tall.

Narrow muzzle and small chin.

Photos Credit: Brittney Gobble, Lykoicats.com

Ears - 5 Points



Proper Ears

Tall, open at the base, rounded tips and set high on the head, vertical and erect.



Ears too wide apart, less upright, more pointed, shorter.

Photos Credit: Brittney Gobble, Lykoicats.com

Eyes - 5 Points



Proper Eyes

Large, walnut shaped, slanting upward with an open expression. Hairless rims desirable.



Eyes are too round.

Photos Credit: Brittney Gobble, Lykoicats.com

Body - 25 Points



Proper Structure 10 Points

Conformation strikes a medium between slightly slendered, semi-foreign and the elegance of the foreign body type. Proportion and larger balance allowed in males. Neck is medium length; neither thin nor overly muscular. The coat is grizzled in appearance, but soft and silky to the touch.

Photo Credit: Brittney Gobble, Lykoicats.com

Body - 25 Points



Musculature 5 Points

Solid weight, showing muscular strength without excessive bulk. Males are typically larger than females.

Photo Credit: Brittney Gobble, Lykoicats.com

Body - 25 Points



Legs/Feet 5 Points & Tail 5 Points

LEGS/FEET: The legs and feet are sparsely haired. Medium boning; medium length. Feet appear refined and oval shaped. Toes are long in appearance.

TAIL: Tail is shorter than body and tapers to a point.

Photo Credit: Brittney Gobble, Lykoicats.com

The Unique Coat of the Lykoi



Photo Credit: Preston Smith

The coat of the Lykoi truly sets them apart in the feline world.

Roaning – intermixed fully white hairs with colored guard hairs, appearance varying with the underlying color/pattern. The Lykoi is the only breed with roaning.

Lack of Undercoat – The coat is comprised of the guard hair layer, lacking the fine undercoat of a fully coated breed. 2) A lack of undercoat.

Face mask and sparse hair on legs, feet, and ears due to lack of undercoat and less coat in general.

The large, bright, walnut shaped eyes combined with these distinct traits, give the “Lykoi” a **werewolf-like appearance**.

Background Photo Credit: foxnews.com (Reuters)

Coat - 45 Points



Coat Texture & Density - 20 Points

Coat Mask - 20 Points

Coat Color / Roaning - 10 Points



Photos Credit: Brittney Gobble, Lykoicats.com
Background Photo Credit: foxnews.com (Reuters)

Proper Coat Texture & Density - 20 Points



Absent Undercoat.
Guard hairs short to medium length
Soft and silky to the touch.
Ideally, 50 to 100% body coverage with guard hairs, varying with age and stage of molt cycle.
Penalize less than 30% of body coverage.



Coat is too sparse.

Photos Credit: Brittney Gobble, Lykoicats.com
Background Photo Credit: foxnews.com (Reuters)

Proper Mask - 15 Points



Hairless Mask

The face exhibits a hairless mask connecting the nose, muzzle, eyes and ears giving the classic werewolf appearance.



Poor Mask

Lacks proper mask, guard hairs too dense surrounding eyes and whisker pads.

Photo Credit: Brittney Gobble, Lykoicats.com

Color / Roaning - 10 Points



Coat Color / Roaning - 10 Points

LYKOI COLORS: Solid color cats express the characteristic coat dramatically. **All colors and patterns are accepted.**

Amelanistic (roan) pattern in the coat will vary in appearance depending on color.

COLOR/ROANING: Colored and amelanistic hairs are intermixed throughout the coat, with each hair either colored or white, from root to tip. **The ideal range of amelanistic coverage is 30 to 70%**, and varies depending on depth of coat color.

LOCKETS: **White lockets, buttons and belly spots are allowed**



Photos Credit: Brittney Gobble, Lykoicats.com
Background Photo Credit: foxnews.com (Reuters)

Color & Roaning - Variation

ROANING: A unique coloration in which solid white hairs are thickly interspersed with normal pigmented hair throughout the cat's coat.

The amount of roaning can vary depending on cat, color, and phase in molt cycle. The accepted range of colored hair percentage is **30 to 70%, with 50% being ideal.**

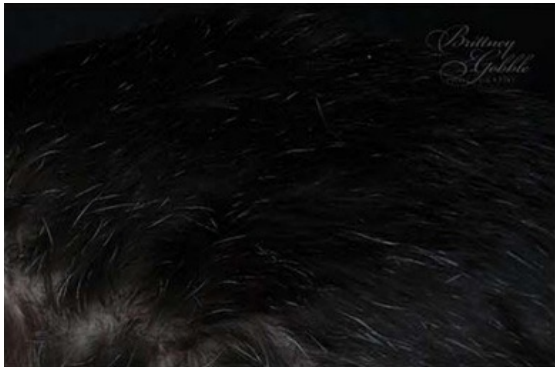


Roaning in Blue Coat vs. Roaning in Black Coat

Background Photo Credit: foxnews.com (Reuters)
Photo Credit: Brittney Gobble, Lykoicats.com

Roaning Variation

The white hairs of roaning, will comprise 30-70% of the coat on a black cat.



Background Photo Credit: foxnews.com (Reuters)
Photo Credit: Brittney Gobble, Lykoicats.com

Molting in the Lykoi



The ever-changing Lykoi

- Lykoi are born fully haired
- Within one week, the muzzle, eyes, and paws begin to show hair loss
- The first molt – kitten molt – maximal at 4 to 6 weeks
- Adult molting – varies with age, season, hormones, and the individual cat – generally 1-2 times yearly
- Variable pattern, but commonly begins at the head, spreads down the neck, limbs, belly, then up the sides, regrowing in the same pattern.



Black / Blue

Background Photo Credit: foxnews.com (Reuters)
Photo Credit: Brittney Gobble, Lykoicats.com

Molting in the Lykoi

The ever-changing Lykoi

Kitten Class - Molting

- The kitten molt can persist into the 4 to 5 month range in females.
- Male kittens tend to lag behind females in molting and regrowth, particularly from 4 to 6 months, so males are often more sparsely coated than females during that time.

Adult Molting – variable, commonly 1-2 times yearly.

- Heavy molting noted following having a litter.
- Less frequent molting common in premiers.



Background Photo Credit: foxnews.com (Reuters)
Photo Credit: Brittney Gobble, Lykoicats.com

The 1st Molt



Day 1



Day 7



2 Weeks



4 Weeks



7 Weeks



9 Weeks



12 Weeks

Molting in the Lykoi

The ever-changing Lykoi

Lykoi hair epilates (falls out) much easier than standard coats, and is easily lost through rubbing or playing with other cats.

Molting begins at the head, moves down the neck and belly, then up the sides in stages, regrowing in the same pattern.



Background Photo Credit: foxnews.com (Reuters)

Molting Coat



In-Molt Coat



Typical Coat



Extreme Coat

Lykoi rarely keep the same coat all year. There are different stages based on hormones, weather, etc. The coat also depends on the bloodlines and the individual cat. However, some Lykoi do tend to keep the same coat all year long.

Due to the nature of the gene, Lykoi are unable to grow a full undercoat at any time. They do shed, and while some families with allergies have no issue with the breed, Lykoi are not hypoallergenic.

Background Photo Credit: foxnews.com (Reuters)
Photos Credit: Brittney Gobble, Lykoicats.com

Breed Colors

All Patterns & All Colors accepted

Shorthairs accepted for competition, longhairs may be registered for breeding and entered in exhibition class.

All eye colors accepted



Blue & Black Roan



Seal Point



Odd-Eyed Black Roan



Odd-Eyed Red Roan



Blue Roan Bi-Color

Breed Colors



White



Blue Point



Black Roan Bi-Color



Classic Tabby

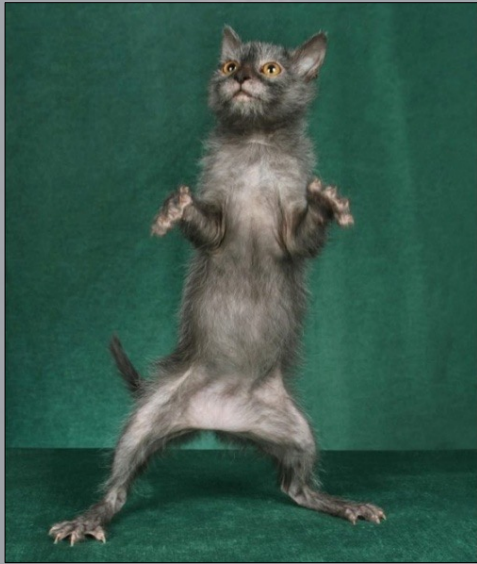
All colors and patterns are accepted, all eye colors, roaning visible on all non-white portions of the coat, with mask and sparse coat lacking undercoat in all variants.

Breed Personality



Photo Credit: Theresa Fouche

Breed Personality



Energetic

Very active, curious cat and enjoys interaction. Lykoi will stalk their toys, other pets, and even people. They raise up on their hind legs, posing there before they pounce. They, like many dogs, love playing chase and many will eagerly learn to fetch with their favorite human.



Affectionate

Prefers hunting over cuddling yet insists on attention. The Lykoi are very loyal and tend to bond well with people and other pets; especially other Lykoi. They are cautious at first but once they are assured that the new people or pets are safe, they will quickly warm up to them.



Inquisitive & Intelligent

Lykoi are the first to scope out their environment. They make cautious observations then take control of their surroundings. They learn their name and will come when called. Because of their strong prey drive, intelligence, and protective nature, people say the werewolf-look also defines their personality.

Photos Credit: Theresa Fouche



Breed Personality

Curiously Observant



"When I first met Quill, his shining eyes were what held my attention most. Like golden full moons. **He was timid initially, but not aggressive in any way, and studied me closely as I chatted with his owner.**

It only took a few minutes for his **curious nature to get the best of him** and he ventured closer to me. I was then quite shocked at how soft his sparse hair was. I had expected him to feel coarse and bristly, but his hair was **silky and lovely**. He continued to **take in his surroundings visually**; preferring to stay close to his owner. This being unlike many cats who would be venturing around the room smelling and examining every inch.

Karma was the next Lykoi that I had the pleasure of meeting. In the hospital, she behaved very similar to Quill. **Quiet, cautious and observant** with the silkiest coat. However I then had the luxury of visiting her in her home. While she still had an **underlying air of caution, she was eager to begin playing, but on her own terms**. Overall, my first impression of the Lykoi is that they are **wonderfully silky cats who are curiously observant, playful but mysterious**, and prefer to do things on their own terms."

Photos Credit: Dr. Kate Albrecht-Lupton, DVM

Questions & Discussion





Tessa.lo
PHOTOGRAPHY

“Bastian”
Blue Roan Male – 5 Months



Tessa.lo
PHOTOGRAPHY



Tessa.lov
PHOTOGRAPHY

“Houdini”
Black Roan Male – 8 Months



Tessa.lov
PHOTOGRAPHY



**“Strange”
Black Roan Female – 1 Year**





“Lobo”
Black Roan Male – 10 Months





Larry Johnson
PHOTOGRAPHY

“Genesis”
White Female – 7 Months



Larry Johnson
PHOTOGRAPHY