

LIOC ENDANGERED SPECIES CONSERVATION FEDERATION, INC.



# NEWSLETTER

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## LONG ISLAND OCELOT CLUB



Photo by Elaine Burke. Although her "official" title is Assistant Editor, perhaps it would be more appropriately "Features Editor". Elaine, as you can see from her first contribution, is an accomplished photographer and artist. Her fine work will enable us hopefully to continue to produce more of these 20 page issues.



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ALL NEWSLETTER RELATED MATERIAL SHOULD BE SENT TO THE EDITOR, SHIRLEY WAGNER

## Help Wanted

## REPORTERS

LIOC urgently needs material for its newsletter publication. We can only share those experiences, funny, happy, sad or tragic, which are sent to us. This sharing is a part of the enjoyment of exotic ownership

WRITING EXPERIENCE: None whatsoever

PREREQUISITES: Love of exotic cats

TYPE OF MATERIAL: Articles of happy and sad experiences, technical articles, opinions of any and all exotic cat related subjects (including LIOC) all ] short and long items, also day to day experiences, announcements of : adoptions, pregnancies, births, deaths,(with autopsy report if one was done) all subjects of interest; all questions - give other members a chance to help.

SALARY: The love and gratitude of all exotics, their owners and the Newsletter Editor.

STARTING TIME: IMMEDIATELY! The newsle is waiting on YOU.



# CATS OF THE WORLD

## THE SNOW LEOPARD

Edited by Elaine M. Burke

Number 1. in a series of articles concerning the distribution of exotic felines in the past and present world; the impact of human development in their natural range; captive management and behavior; and conservation efforts in the wild.

The intention of these articles is to assist in the development of information available to those intrigued with the feline. It should be understood that information of this kind is only a portion of an ever evolving source of material. With every year new ideas and accomplishments are produced to help bring species of cats closer to an existence of permanent cohabitation, with man, in this world.

A variety of diets for mature cats and their cubs will be furnished when possible. These are to be considered a foundation to work from only. Each cat is an individual in its dietary and behavioral needs. What might work well with one may not work with another due to varieties of reasons, such as (but not limited to); environmental differences, allergies, illness (genetic or otherwise), unknown factors. What might be difficult for a breeder to accomplish today may be accepted as the norm in the future.

We can only work and hope that our future generations will also experience the presence of a living cat in all its glory, unique and without equal.



When the snow clouds retreated, the gray slopes and jagged cliffs were gone, as were the livestock trails and raw stumps of felled oaks. Several inches of fresh snow softened all the contours. Hunched against December's cold, I scanned the slope, looking for the snow leopard which was somewhere a thousand feet above near a goat it had killed the previous day. But only cold prowled the slopes. Slowly I climbed upward, kicking steps into the snow and angling toward a spur of rock from which to survey the valley. Soon scree (brush) gave way to a chaos of boulders and rocky outcrops, the slopes were motionless and silent as if devoid of life.

Then I saw the snow leopard, a hundred and fifty feet away, peering at me from the spur, her body so well molded into the contours of the boulder that she seemed a part of them. Her smoky gray coat sprinkled with black rosettes perfectly complemented the rocks and snowy wastes, and her pale eyes conveyed an image of immense solitude. As we watched

each other the clouds descended once more, entombing us and bringing more snow. Perhaps sensing that I meant her no harm, she sat up. Though snow soon capped her head and shoulder, she remained, silent and still, seemingly impervious to the elements. Wisps of clouds swirled around, transforming her into a ghost creature, part myth and part reality. Balanced precariously on a ledge and bitterly cold, I too stayed, unwilling to disrupt the moment. One often has an empathy with animals, but rarely and unexpectedly (does) one attain a state beyond the subjective and fleetingly almost seems to become what one beholds; here, in this snowbound valley of the Hindu Kush, I briefly achieved such intimacy. Then the snow fell more thickly, and, dreamlike, the cat slipped away as if she had never been.

condensed from Stones of Silence  
G. Schaller

**Scientific Name:** Panthera Uncia, Uncia, Uncia Uncia

**Common Name:** snow leopard, once (from the french lyncaea meaning lynx), ounce, sabu, Burdum

**Size Length:** 1.8 - 2.3 m  
5.5 - 7.6 ft  
**Weight:** 25 - 75 kg  
55 - 165 lbs  
60 - 100 lbs (NY Zoological Soc.)

**Gestation :** 90 - 100 days (Walker's Mammals)  
98 - 103 days (NY Zoological Soc.)

**Offspring:** 2 - 3 cubs

**Birthweight:** 0.55 kg  
1.2 lb

**Predation:** Prey can consist of ibex, markhor, wild sheep, tahr, piping hare, bobak, mice and birds. During the winter, its lower altitude prey includes deer, hare, tragopan pheasant, gazelle, and wild boar.

**Distribution:** Himalayas from Afghanistan, and western Pakistan through Tibet and Nepal, mountains of the USSR, China, Mongolian Republic

**Population:** 380 in worldwide captivity, 220 of which are in North America. The numbers reported in the wild conflict from the low thousands to under 1,000.

## GENERAL INFORMATION

Condensed from, The Big Cats;  
The paintings of Guy Coheleach,  
(except where noted)

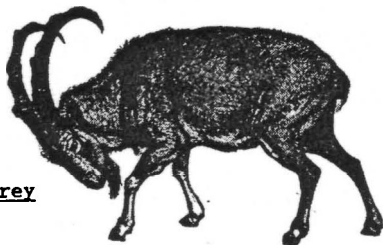
**Scientific Name:** There is some controversy concerning the proper genera of this animal. Most use the genus Panthera Uncia. Others feel that since the snow leopard does not roar and that it has some osteological (skeletal) features in which it resembles the cheetah, including longer legs (relative to length of spine), and some aspects of the shape of the skull, it should be classified as Uncia uncia.

**Coat Color** The snow leopard inhabits the **and Pattern:** rocky, cold mountain reaches of the Himalayas and Central Asia. In response to its cold environs, the snow leopard's fur, especially in winter is thick and long and tremendously insulating. The ground color is either pale gray or pale brown gray. The black markings appear in the form of solid spots on the face, neck, and legs, as well as rosettes or irregular circles with darker gray centers on the flanks upward to three rows of elongated spots and rings down the back to the base of the tail. Two rows of rosettes continue down the tail to end in thick solid black bars on the dorsal part of the last third of its length. The tail is very long and thickly furred; its length no doubt increases its usefulness in helping the snow leopard maintain balance on steep slopes. The paws are proportionally large, with the front paws distinctly larger than the hind ones.

**Special Features:** In addition to its luxuriant coat and very long tail, special features of the snow leopard may be found in the skull. In profile, this cat's skull is depressed at the top of a relatively wide rostrum (nasal). Above this the forehead is broad and domed, accentuating the characteristic snubbed-nosed look of this species. The expansion of forehead is caused by an enlargement of the larger nasal chambers and sinuses, which may be a response to the snow leopard's extremely cold

habitat (1). There is a ligamentous hyoid in the snow leopard (2), based on the dissection of a young individual in which was observed a short ligament in the position of the epihyal (3). However, in contrast to the other species in Panthera, the snow leopard has never been known to roar. ( Hemmer describes a wide variety of other vocalizations.... grunting, miaowing, moaning, puffing, growling, hissing, etc., as well as purring in the same fashion as the smaller felids (4)). Since it is sometimes difficult to identify ligaments in young individuals or to determine whether or not a structure will ossify as the animal matures, the characterization of the snow leopard as a close relative of the roaring cats is not well supported. Recent analysis of the skull and dentition of felids suggests that the snow leopard might be related to the cheetah lineage (5); however this hypothesis requires further testing before the question of the snow leopard's relationships can be considered answered.

Hemmer cites a report that the snow leopard's pupils are somewhat pointed at the upper and lower ends when contracted, rather than round, like those of most pantherines (6). The shape of the pupil is not as extreme as the vertical slits in the eyes of many of the smaller cats, but would seem to be an interesting morphological intermediate. The irises of the snow leopard are very pale and yellowish, adding to the striking appearance of this handsome animal.



Wild Goat...natural prey  
of the snow leopard

## DISTRIBUTION OF THE SNOW LEOPARD



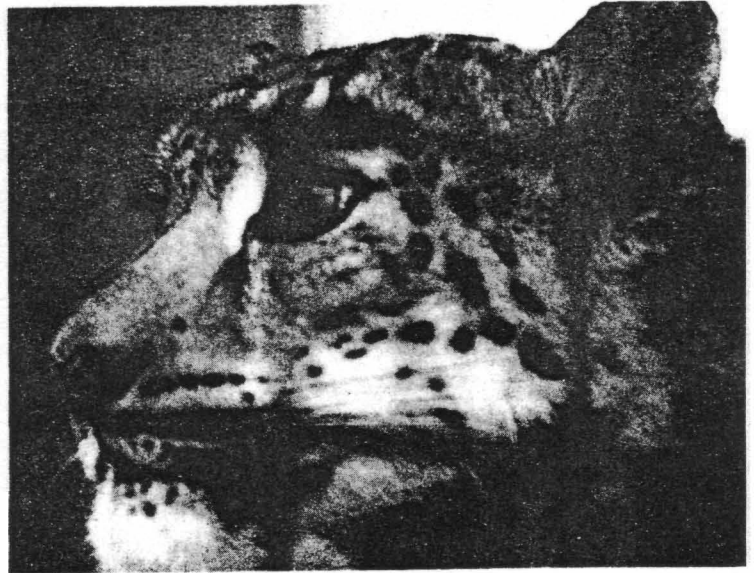
Present distribution

Question marks and broken lines  
indicate uncertain limits of distribution

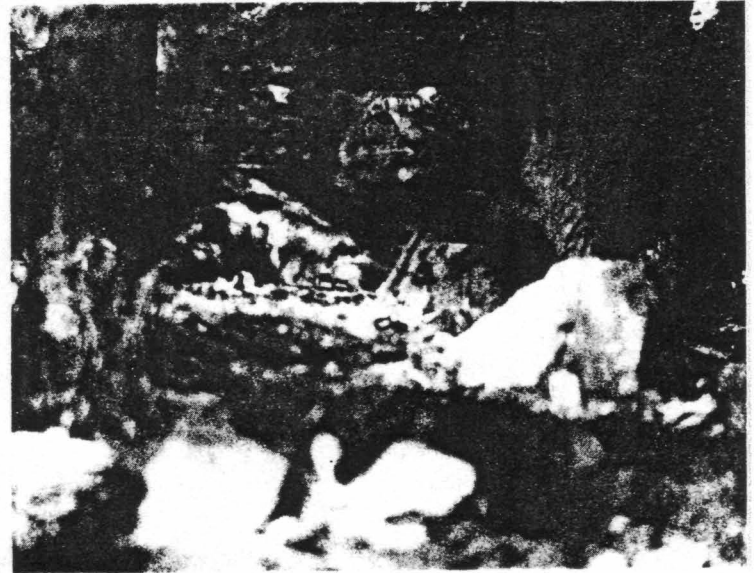
The snow leopard is very sparsely distributed within the shaded region shown here. Because it is rarely seen, and because of confusion between the snow leopard and long-haired forms of the "true" leopard (Panthera pardus), the extent of its distribution is uncertain.

**Distribution:** The snow leopard is thought to be distributed throughout the Himalayas from Afghanistan and Pakistan in the west through Tibet and Nepal as well as the mountains to the north - the Tien Shan range in the USSR and China and the Altai Mountains in the USSR and the Mongolian Republic(7). The question marks on the map reflect the dubious records outside the likely range of the snow leopard. Reliable data from many regions are scarce, and for those reported sightings from central China, there is a strong probability of confusion with the pale-colored, long-haired subspecies of the leopard, Panthera pardus orientalis, of that region.

**Population Levels:** There are 380 snow leopards in captivity worldwide; 220 of which are in North America. The first snow leopard came to the US in 1903, to the Bronx Zoo. Today, 20 years later, there are 17 snow leopards at the Bronx Zoo and a report of 48 captive born snow leopard cubs. Best estimates of the total wild population in the low thousands. Officially protected in the USSR, India, Pakistan, China, and Nepal(8). Current population levels of the snow leopard seem to be very low throughout its range. The Red Data Book, ( which summarizes information about endangered species) cites population estimates for the whole Himalayan region of only 200 to 600 individuals(9). Despite these low population levels and the legislation passed in Pakistan, the USSR, and elsewhere to protect this cat, hunting continues. Tourists still buy illegal skins in India and Pakistan for as much as, \$150.00 each. Rodney Jackson notes that most of the killing of snow leopards in western Nepal is done by impoverished native tribesmen, the Bhotia, as a part of a strong hunting tradition(10). This hunting continues even after the recent drop in the sale value of pelts to a fourth of their previous value in the local markets because of the trade restrictions. Much of the impetus for continued hunting must be the response of a hunter's village to the killing of a snow leopard by the hunter; T.J. Roberts reports descriptions of feasting and celebration in honor of a successful hunter because the cat is thought to be a serious threat to the local goat herds(11).



**Habitat:** Within their mountain range, snow leopards are found mostly in the treeless rocks and alpine meadows between the timberline and the permanent snow. In the Himalayas, the snow leopard ranges from 2,700 up to 5,200 m (8,856 to 9,512 ft.), or even up to 6,500 m (12,320 ft) in the summer, while in winter they descend the valleys into the coniferous forests to as low as 1,500 m (4,920 ft). In Siberia they may be found locally as low as 600 to 700 m (1,960 - 2,290 ft)(12). Plant life may include rhododendrons, oak and conifer forests and the lichen covered rocks of the higher extremely cold tundra.



**Social Behavior:** Snow leopards are thought to be predominately nocturnal, although it is not uncommon to see them early morning or evening. They usually hunt alone, although they are not unsociable even though they are essentially solitary. Hemmer cites various reports of hunting in groups of up to five, play between two adults, and the participation in captivity, at least, of the male in the rearing of the cubs. Both males and females deposit scent and feces and make scrapes, to mark their range. Schaller found that not only were well-used routes marked, but that prominent places along these routes were more frequently marked, such as sharp bends or promontories.



**Offspring:** The snow leopard becomes sexually mature and begins reproduction in its third year. The mating season takes place in winter and early spring. Gestation takes place from 90 to 100 days, (98 to 103 days -NY Zoological Society), and birth takes place as early as April in Russia, or in June or July in the Himalayas. The female snow leopard builds a den beneath rocks or in rocky crevices, then lines the den with her own fur. A litter usually contains two or three cubs ( sometimes as few as only one or as many as five). The cubs may weigh about 0.55 kg (1.2 lbs) at birth, about 1 or 2 percent of the adult weight, and are approximately 0.4 m (1.3 ft) long in total length. They open their eyes after seven days, the first teeth erupt in three weeks, and they eat their first solid food at 2 months of age. Their wooly coats are much darker than that of the adult, heavier marked with three black longitudinal bands down the back and dark spots on the sides. They grow rapidly and may begin to leave the den at 5 to 6 weeks old and follow their mother at 3 months. The family may stay together through the first winter. In the past, as late as 15 years ago, the lifespan of a wildborn snow leopard averaged 1 to 3 years once placed in captivity. The average lifespan of a snow leopard today, in captivity, is now 20 years; the estimated lifespan in the wild is only thought to be 10 years.

## THE SNOW LEOPARD TODAY AND YESTERDAY

reprinted from the 1980

Int. Pedigree Book of Snow Leopards

F. Freeman

Director of Education, Woodland Park Zoo  
Seattle, WA., 98103

The snow leopard is a phantom cat. No one has been able to make more than a fleeting observation of it in the wild, and yet it has captured the imagination of millions. It is found in poetry, philosophy, religion, fiction, and scientific journals, and yet, surprising little is known of this animal. Why?

It was only 200 years ago, in 1779, that the snow leopard was accurately described as a different species from the spotted leopard. Earlier, in 1761, a famous French naturalist, Count de Buffon, published a book with a colour drawing of a large, spotted cat. By the arrangement and by the character of the spots, it resembled the snow leopard, but the copy accompanying the drawings described the behavior and distribution of the cheetah.

It wasn't until more than 130 years later, in 1903, that a snow leopard came to the United States. It was presented as a gift to the New York Zoological Park by one of its trustees. (Like Steuben glass, the snow leopard has been considered the ultimate gift since its discovery.)

At that time, there were only two other snow leopards in captivity in the world. One was in London, which had received the first snow leopard in the Western World in 1891, and the other at the Tiergarten in Berlin.

Dr. William T. Hornaday, the director of the Bronx Zoo, immediately noted a difference in the spotted leopard: He wrote, "Chang (as the animal was called) is as good tempered as a house cat and when fed, is as playful as a kitten."

In the Standard Library of Natural History, published in 1908, there is a comment which corroborates Dr. Hornaday's observation. This anonymous writer states: "In captivity, it is far the tamest and gentlest of the large carnivora, not excepting the puma. Unlike the latter, it is a sleepy, quiet animal, like a domestic cat. The specimen shown here belonged to a lady in India, who kept it for some time as a pet. It was then brought to the zoological gardens, where it was more amiable and friendly than most cats. The writer has entered its cage with the keeper, stroked it, and patted its head, without it in the least ruffling its good temper. The heat of the lion house did not suit it, and it died of consumption."

Unfortunately Chang, the male at the Bronx Zoo, did not fare any better. One night the watchman on the night rounds called the police to say that a snow leopard had escaped through the skylight. The police came and shot the cat. I understand Dr. Hornaday's feeling when he angrily said, "That animal was murdered at midnight by a conjunction of rattled men, when it might easily have been caught if anyone present had done one thing with good judgement!"

Generally, though, there was not much interest at that time in the snow leopard, even as a game animal. R. Lydekker in his 1907 The Game Animals of India, Burma, Malaya, and Tibet, wrote, "There does not appear to be much calling for special mention of this species." He did add that a friend of his came across a snow leopard lying on a rock but, "was not fortunate enough to add its skin to his trophies." It's fortunate he wasn't a New York policeman.

During the last seventy years very little has been added to our knowledge of this inscrutable feline. The reason has been the remote and rugged terrain in which the snow leopard is found. Add to this the scarcity of the species and you are looking for the proverbial needle in the haystack -- only this time the haystack may be 20,000 feet high.

George Schaller, in his book Mountain Monarchs, said "I ventured into the mountains with the hope of studying snow leopards but my attempts failed as almost perversely the animals eluded my efforts to observe them." Still, Dr. Schaller has given us valuable information, including observations on one female for 28 hours over a period of seven days.

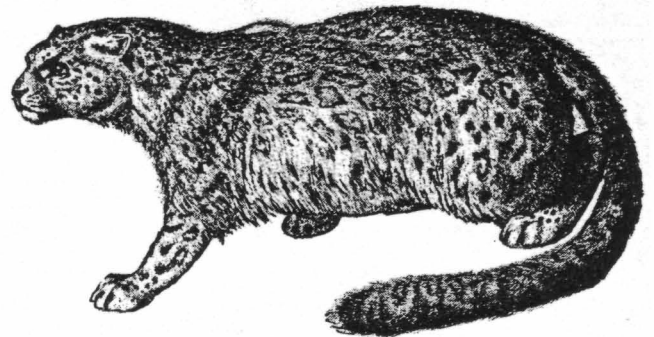
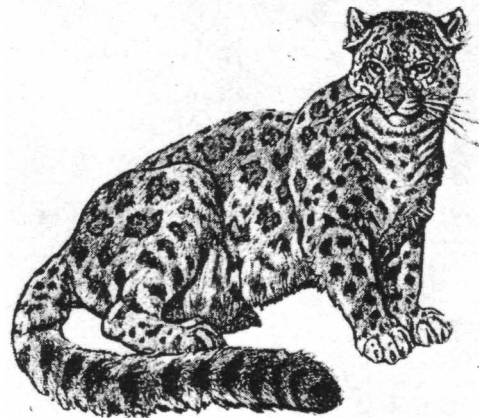
We do know that the snow leopard is a true mountain mammal. Although it has been sighted as low as 2,300 feet, generally it is found at altitudes of 9,800 to 14,800 feet. It has been reported as high as 18,400 feet.

Although its range is large, extending from the Southern Himalayas westward through Pakistan and north into the Soviet mountain ranges, its density is low everywhere. It is considered an endangered species throughout its natural range.

Much of the region in which the snow leopards still live is on the border of the Soviet Union and China. This is considered off limits to foreigners, so we are dependent on the Russian journals for information. Now, thanks to Kathy Braden, a geographer who first observed the snow leopards with me at Woodland Park Zoo in 1974, a number of translations have been made.

The USSR considers the snow leopard a rare mammal and it is now protected, as is its prey. In the region of the South East Kazakhstan there have been restrictions for a long time, but hunters, "accidentally," catch five or six animals a year.

The snow leopard exist in low numbers and probably always have. This would be an adaptation to having to make a living in areas of comparatively low productivity. The author of the Kazakhstan article emphasized the need for further protection. He felt the species could not be considered to have any hope of survival at any lower numbers.



Nineteenth-Century illustrations  
of two snow leopards, artists unknown

Other Soviet biologists are also concerned with the decrease in numbers of this rare cat. In a book titled, Large Predators an article by V. S. Pokrovskiy gives figures on the availability of snow leopard skins over the past few years. In the Pamir region, for example, more than 425 skins were taken from 1953 through 1968. Three hundred and twenty-five of these were taken during the first ten years, but only fifty snow leopard skins were available during the last five years.

The hunting of snow leopards is now forbidden in the USSR, but its numbers continue to decrease. In addition to the fur market, another reason for decrease is until approximately 1976 there was an unlimited catch of live snow leopards for export. From 1937 through 1969, close to 400 animals were caught. Between 1963 and 1967, snow leopard numbers declined and only 64 snow leopards were able to be taken out of the wild.

Other factors are also important. Wild goats and sheep, the natural prey of the snow leopard, are also having drastic drops in their populations due to hunting pressure. Add to this the destruction of habitat by the ever-increasing encroachment of man with his domestic stock, plus the deeply ingrained tradition by the local mountain populations of killing the carnivores, and the picture for the snow leopard is bleak.

Soviet biologists also comment on the cat's placid and trusting nature. However, this is in contrast to local villagers who have the widely-held opinion that the snow leopard is extremely dangerous. Famous hunters in the mountains still wear caps made of snow leopard fur as a sign of their daring and bravery.

*Editor's note: So much respect is given the serval for its fighting ability that traditionally its pelt has been worn by chiefs of several African tribes. Perhaps the original reason for the wearing of snow leopard fur was due to a similar appreciation of the animal and its abilities.*

The Soviet articles written in the 1950's have a number of references where snow leopards, having noticed or run into human beings, did not hurry to hide or run away. A reserve Ranger in the region of the Kshi-Kaindy Ravine heard his dog barking. Climbing up the rocks to the dog, the ranger saw an adult snow leopard only a few yards away. The cat did not run but instead thrust its paws forward, (often a playful, curious gesture) and curled its tail high. The ranger killed it with one shot. Upon investigation, it was discovered to be a pregnant female.

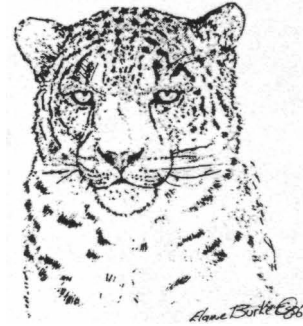
In another instance, a snow leopard went into a sheep pen high in the Dzailay Mountains. The sheep herd's wife, hearing noises, ran and dragged it out by the tail. The snow leopard did not try to defend itself and was killed by an approaching shepherd.

There have been only two instances reported where human beings have been attacked by a snow leopard. Both were near the Alma-Ata region of the USSR. The first instance occurred in 1940 when a male snow leopard attacked two people. He was killed, examined, and found to be rabid. In the second case, a very old, toothless animal jumped on a man from a cliff. The man stunned it with a stick, tied it up, and carried it off to his village.

As for me, the fascination with this elusive cat began in 1972 when Woodland Park Zoological Gardens was given a pair of wild-caught snow leopards. They were a gift from John Kellogg, a Seattle Zoological Society Board member. The animals had been caught for export only two months earlier by Soviet wildlife authorities.

Excitement over their pending arrival was high, but the feeling of joy quickly turned to one of concern, for a literature search came up with only bad news. Kaunas Zoo, the leading breeder of snow leopards in the USSR, stated that the snow leopards

did not adjust easily to captivity, were highly susceptible to pneumonia, tuberculosis and feline enteritis, and seldom lived for more than 1, 1 1/2 or 2 years in captivity. Furthermore, Kaunas officials stated, they especially did not do well in low altitude zoos.



Seattle is at sea level and there wasn't much we could do about that. We could not send them on to another zoo because it didn't seem there was anyone else who had the answers on their captive management. Moscow had set goals for zoo export of the species so it was not possible to return them to their native Khirgizian mountains.

But there was something I could do as an individual and that was to observe this pair, at least for a few months, and take notes on their behavior. Those months have now turned into years, and I am still happily looking and learning.

Basically, there are few justifications for taking a snow leopard out of the wild. One is the situation where the animal is in a habitat where it most certainly will be killed. Another is education. That is, to teach the general public what a snow leopard is and why it is important to save its range. The third is so that research can be conducted to help save the species from extinction and, hopefully, eventually reintroduce it back into the natural habitat.

It is ironic that the very reason it has proved difficult to study the snow leopard in its home range may one day make it possible to return this cat to its rugged mountains. For, in the long run, this terrain cannot support man or his domestic stock. Instead, emphasis should be placed on another support for the local population. If part of these areas could be preserved as national parks, income could be brought in by tourists who would visit the areas to view the wildlife and scenery.

If this were to happen, then we would need to be well prepared for reintroduction of captive-born snow leopards. This means not only the best techniques of wildlife management, but also breeding as large a captive gene pool as possible. In addition, we should ideally have as broad a base of physiological and behavioral data as there are animals in captivity. Toward this aim, the First International Snow Leopard Conference was held in Helsinki in 1978 and the second has been scheduled to be held in Zurich in 1980.

*Editor's note: The Fifth International Snow leopard Symposium was held in India, in October 1986.*

What is it about the snow leopard that, in spite of its elusiveness, has captured the imagination of so many? One answer is that in the snow leopard we can see or feel the spirit of mountains. Also in this cat there is a freedom to roam a region so rugged and wild that it often defies you to put one foot in front of the other, let alone leap. And the animal lives there not with destruction but with beauty.

For in the end, it isn't important that we actually see a wild snow leopard. The important thing is that it, like the mountains, just be there.

## The Snow Leopard: IN THE WILD

condensed from  
Scenes of Silence  
Chandler

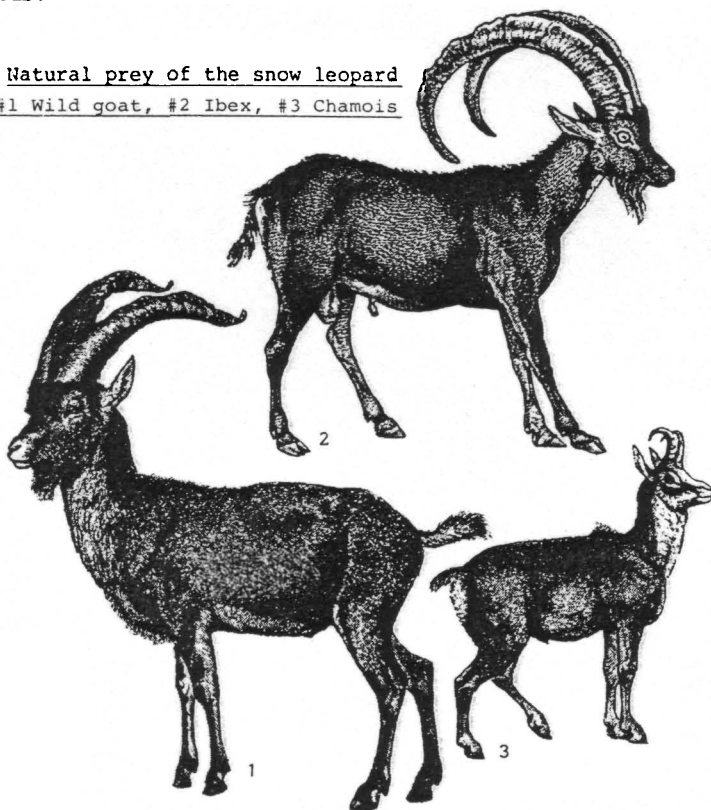
Mountains usually give me a sense of space, but in the Chitral Gol the views were always blocked by slopes and peaks, hemming me in except at night. Tucked into my sleeping bag, with the mountains dissolving into formless darkness, I gazed at the clouds drifting by until I was almost dizzy from hurtling through space and only the scent of juniper and the whispering stream far below reminded me of my mountain perch. No snow leopard passed my blind while I was there. But two days after I discontinued the vigil, one (snow leopard) detoured to my blind and even entered it before continuing up the slope without touching the nearby bait (goats). Two weeks of effort had produced no result. Then one morning .... a goat was dead .... I saw my first snow leopard. She reclined on a promontory with a small cub beside her, a tiny black and white puff of fur. She watched as several jungle crows descended to the kill, the tip of her long tail flicking, and then stalked to the goat to protect it from these scavengers as well as from the Himalayan griffon vultures that circled overhead. The cub soon retreated into a rocky cleft, but its mother remained in the open. After a few hours I decided to find out how close an approach she would permit. Casually I meandered up the slope, alternately sitting and drawing closer in a seemingly purposeless manner until at 250 feet I halted. Crouched on a boulder, she stared at me with frosty eyes. I left her then, but returned several hours later with another goat. As I approached she slid backward off her rock. Molding herself to the contours of the boulders and shrubs, she became almost invisible as she glided uphill to an enormous rock behind which she halted to watch me, only the top of her head visible. I left the goat to a sapling. And exhilarated by her casual distance of me, I ran down the mountain and up the valley to Kasawere to pick up my sleeping bag, then then back...to spend the night, needing only one and a half hours for a trip that normally required over four.



At dawn I took my scope and began watching the snow leopard from the valley floor. The cub was clambering among the rocks about 15 feet from its mother when suddenly, as if needing reassurance, it bounded over to her to touch its forehead against her cheek. It ate from the goat carcass for forty minutes, then returned to its mother and rubbed cheeks with her in greeting, licked the top of her head, and vanished from sight into its rocky cleft. I guessed that the cub was about four months old, probably born in August and conceived in May, though according to local people, snow leopards usually court in March or April. Two weeks pass before a newborn cub can walk and not until four weeks of age does it venture from its den... With cubs being relatively immobile for the first two months of life, a female need secluded haunts and easily available food to raise a litter successfully. This female had been seen with two cubs a few weeks earlier. Somehow she had lost one. Nevertheless, it was remarkable that even one survived. With wildlife so scarce, snow leopards must depend on domestic sheep and goats. Droppings revealed just how important livestock was to the cats in this area: 45 percent contained livestock remains. Slow to kill and eat, the cat with its prey is soon discovered by a herdsman, who either chases the cat away or shoots it. In winter, desperate for food, snow leopards may skulk around village huts to snatch unwary dogs or claw their way into livestock pens. Cornered by irate villagers, the timid snow leopard may then be beaten to death with staves and axes. Although a snow leopard is large...70-.87 lbs - and potentially dangerous, no record exists of one having become a man-eater.

### Natural prey of the snow leopard

#1 Wild goat, #2 Ibex, #3 Chamois





Editor's Note; This situation of raiding livestock VS possible starvation was not known 50 years ago. Wild goat herds, such as the markhors, existed in the thousands not just a few hundred. The same is true f most of the snow leopards natural prey.

I decided to spend the night near the leopardess and her cub, and in the fading light unrolled my sleeping bag on a level ledge 150 feet from her. As soon as I was settled she returned to her kill. Here in this unpeopled night world, the mountains were hers, the eternal desolation of rock and snow invested her with an archaic permanence.

Soon darkness engulfed us, and then there was only the sound of the wind sweeping along icy mountain flanks and occasionally the grating of tooth on bone.

The moon surmounted the ridge, turning the slopes to muted silver, but the kill remained deep in shadow. Still later it began to snow, moist flakes that soaked through my bedding. When the rocks finally emerged from darkness, I rolled up my sodden belongings. In the fog and swirling snow I could just see the snow leopard, dry and protected in the shelter of an overhang. I had learned nothing new that night, but the hours of silence, the celestial beauty of the mountain in moonlight, and above all, the knowledge of having been a part of the snow leopard's world filled me with quiet ecstasy.

Within three days the snow leopard became remarkably tolerant of my presence, permitting me to approach to within 120 feet before retreating. However, the cub seldom showed itself. The female spent much of each day near her kill to protect it from scavenging birds. In addition to crows, griffon vultures and an occasional golden eagle, the kill had attracted five lammergeier (bearded vultures) - two adults and three juveniles - which banked past the cliffs on eight foot wing spans as they surveyed the kill site with ruby eyes. Lammergeier are known to carry bones high up into the air, then drop them onto rocks so as to obtain marrow from the shattered fragments. Almost y I presented the snow leopard with a fresh , enticing her to remain in the area. Usually she killed it after dark, but late one afternoon I witnessed the event.

After watching the goat intently for forty-five minutes, she slowly moved down the slope, body pressed to the ground, carefully placing each paw until she reached a boulder just above her prey. There she hesitated, then suddenly leaped to the ground behind the goat. The startled animal whirled around with lowered horns, and the equally surprised, snow leopard reared back, swiping the air once with her paw. But when the goat turned to flee, she lunged and with one smooth motion clamped her teeth into its throat while grabbing its shoulder with her massive forepaws. Slowly the goat sank to its knees. A light tap from her toppled it on its side. Crouching or sitting, she continued to grip its throat until after eight minutes all movement ceased.

Abruptly, one night the snow leopard and her cub departed. I traced their tracks uphill through a stand of conifers to some precipices and then paused. Should I follow or leave them in peace? I reluctantly turned back down the slope. For one week they had provided me with a unique experience, and I longed for the day when I might renew our acquaintance.

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## International Snow Leopard Trust

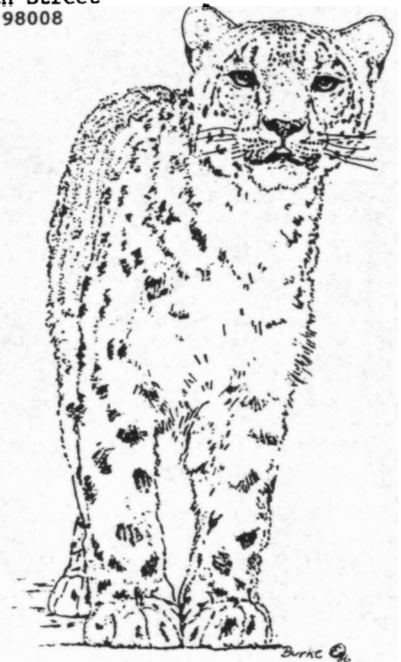
The snow leopard trust, since its beginnings in 1981 has accomplished much to benefit this highly endangered feline. The trust has developed many international research programs designed to foster understanding of these rare and special cats. The Indian project is bringing together American and Indian biologists to conduct a survey of snow leopard habitats in northern India. The Trust also sponsors research in Nepal and keeps in close contact with Soviet field biologists. Additionally the Trust is establishing educational programs in the US, India, and Nepal.

In the future, the Trust, plans to tackle the difficult issue of restocking snow leopards in their original habitat. Preservation or restocking cats in the almost inaccessible mountains requires a carefully thought out long-term program. Although the Trust is realistic about the challenges of such a survival program, it is firm in the belief that a world without wild cats, such as the snow leopard, would be a poorer place.

The Trust publishes a newsletter, presents lectures and offers snow leopard sweat shirts. Funds that are raised go directly into programs - the staff is entirely voluntary - and contributions are tax deductible.

Membership in the Trust is open to all who share the organization's goals:

The International Snow Leopard Trust  
16463 S.E. 35th Street  
Bellevue, Wa. 98008



\* I would like to thank the Int. Snow Leopard Trust for all the valuable information they supplied for this article, particularly Helen Freeman - director. Their goals are ones to be admired and supported by all of us. Thank you.

*Elaine M. Burke*

Questions can be addressed directly to the Trust or to me at:

Future Promise Exotic Preserve  
P.O. Box 2126  
Norwich, CT. 06360

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## Captive Management Of Snow Leopard Cubs

condensed from Captive Management of Snow Leopard Cubs  
Helen Freeman & Michael Hutchins, Seattle  
Garten N.F., Jenna 48 (1978) 1, S. 49-62  
(except where noted)

Little information exists on the behavior, physiology and captive management of snow leopards. One major problem is the lack of a detailed field study (this lack is being remedied by the field work of Rodney Jackson, see National Geographics June 86, vol. 169, #6- E. M. Burke); however, even if the density of snow leopards were higher, they would still be extremely difficult to observe due to the rugged and often impassable terrain in which they live. Therefore, by necessity, much of our knowledge concerning snow leopard biology will have to originate from captive research programs.

**Table 1. Morphological and Behavioral Development of a Hand-reared Male Snow Leopard**

Behavioral or Morphological Feature	Age in Days
Eyes open (complete)	11
Umbilicus off	11
Ears open	15
Stands and walks	17
First teeth (top and middle incisors)	18
Defecates without stimulation	25
Claws retract	26
Sits up, plays with towel	36
Laps liquid from pan	43
Holds tail up	47
Eats solid voluntarily	48
Washes face with paws	49
Plays stalk and chase	53

rearing has been, and evidently still is, a relatively common procedure for raising captiveborn felids. In many cases zoo personnel have no choice but to remove a cub that is being mistreated or neglected by the parents. However, recent developmental studies on mammals have shown that inadequate socialization and/or imprinting can result in modifications of social behavior which may even affect later sexual preferences (Kinghammer).

The following is a summary of a captive management related questionnaire sent by Helen Freeman to zoos having snow leopard births prior to or during 1973.

Out of the twelve zoos under consideration, 4 hand reared all of their cubs, 4 allowed the female to raise her litters, 2 hand reared some litters and let the female raise others, and 1 allowed both male and female to remain in the enclosure throughout the cub's development...the reasons and/or justifications for the removal and hand-rearing of cubs were highly variable. One zoo reported having limited facilities and a lack of confidence in their primiparous female, and 4 cited suspected neglect or mistreatment by the parents.

Snow leopard cub mortality has been attributed to several reasons, such as, parental killing, feline enteritis, pneumonia, endo-parasites, and tuberculosis. Although the reasons varied considerably, it is interesting to note that the most frequent causes of death were abortions and stillbirths (16%) and mistreatment by the parents (16%). These factors were closely followed by pneumonia (11%) and enteritis(8%) as the major killers of young snow leopards.

### Rectal Temperature Range of Snow Leopard Cubs in Degrees Centigrade

Temperature C°	NOTES
36.1 - 38.1	Normal Range
32.2 - 33.0	At Birth
37.1 - 37.5	
37.0	3 weeks, with cold
37.3 - 38	First 3 weeks

Because of the lack of published information, a question concerning the rectal temperature range of the snow leopard was included in the survey. A 5.9°C difference between the lowest and highest temperature was found. The extremely low reading is probably due to the fact that newborn felids are unable to regulate their own body temperatures (Foster).

Several brands of milk substitutes were used in the feeding of hand-reared snow leopard cubs. (The chart) shows the change in diet from birth to 8 weeks of age.

Formulas and Supplements for Hand-reared Snow Leopard Cubs (Birth-8 weeks)			
Formula at birth	Formula at 4 weeks	Formula at 8 weeks	Supplements
Esbilac (Powder Mix)	Esbilac (Powder Mix) with Carnation milk and water (1:1)	Liquid Esbilac: Solids stirred	Vigornal Vitamin Drops: Calcium Gluconate
KMR diluted with distilled water	KMR: Full strength	KMR: Full strength Feline Zo/P/Presm Diet	Additional calcium provided with solid foods
KMR: 92ml every 3 hours from 0.30 to 0.30 h	KMR with addition of 2 eggs per can; fed 6 times daily	Zo/P/Presm Feline Diet after 9 weeks	Birth to 2 weeks: 0.3cc Pedavite per day; 2-5 weeks: 0.6cc Pedavite per day
KMR diluted 1:1 with distilled water		KMR undiluted, 177ml 3 times daily: Zo/P/Presm Feline Diet	ablace
Esbilac and bottled water (1:1)	Esbilac (from bottles); Zo/P/Presm Feline Diet (from syringe)	Esbilac (from bottles); Zo/P/Presm Feline Diet (from pan)	0.3cc ablace per day beginning at 12 days of age, 0.5cc first blood beginning at 13 days of age, 0.1cc Vitamin in each bottle of Esbilac beginning at 2 weeks of age. 3cc Liquid Glo-Coat and 4 grams of salt-free butter per day increased at the rate of 1cc per pound/per cub.

One of the questions included in the survey concerned the incidence of hair loss in the snow leopard cubs. 5 of 7 respondents reported the onset of excessive hair loss a few days after birth. The time of onset was variable (ranging from 7, 10, 12, 22 days.) The two zoos which did not experience this problem were also those in which the mother raised the young, suggesting that this condition may be caused by a nutritional deficiency in artificial formulas. However, since no study has actually evaluated the cause of hair loss, other possibilities might be high incubator temperature, humidity or a lack of maternal grooming. One zoo observed hair loss in its hand-reared litters, but not in its mother-reared. Two other zoos found no indication of infection in skin cultures prepared from afflicted nursery-reared cats. One zoo said it had observed this condition in other species of cold climate felids, and (another zoo) in all of its hand reared lions (P leo) and an occasional spotted leopards (P pardus.) One zoo noted that when their cubs were 4 weeks of age, hair grew back rapidly when the humidity was maintained at 65%, however, Woodland Park obtained the same results by increasing the amount of fat in the diet. This was accomplished through the addition of salt-free butter and Liquid Glo-Coat.

# Infectious Diseases of Nondomestic Cats

## PART II

## VIRAL DISEASES

Feline panleukopenia is an important disease in nondomestic felids. The etiologic agent, a parvovirus, is transmitted (1) by direct contact, (2) through contamination with urine, feces, or body secretions of an infected cat, (3) transplacentally, or (4) through biting insects. Clinical signs may include pyrexia, vomiting diarrhea, or neurologic abnormalities. Hematology may reveal severe leukopenia and anemia. "Star disease", a syndrome recently described in lions, has been attributed to panleukopenia. Of a collection of 86 cubs and 5 adults, 65 lion cubs exhibited ataxia soon after birth. Epileptiform seizures, which seemed to be triggered by sudden movements would begin by 3 months of age. A flattened cerebellum and variable degrees of hydrocephalus were consistently found on postmortem examination. Inclusion bodies were observed in tissue culture cells from affected cubs. Although the type of inclusions was not specified in this report, the inclusion bodies were suggestive of feline panleukopenia virus. A transplacental or neonatal viral infection in these cubs may have resulted in neurologic disease similar to the cerebellar ataxia syndrome in neonatal domestic cats. It was suggested that the lion may be relatively resistant to the development of the typical clinical form of panleukopenia seen in domestic cats.

A convulsive syndrome with panleukopenia virus infection has been reported in nondomestic felids. Grand mal seizures were observed in eight cats of three different species, ranging in age from 6 months to adult age. Death occurred within 5 days of onset of clinical signs. A mononuclear cell inflammatory infiltrate was present in the meninges on postmortem examination. All affected cats had been vaccinated at 6 month intervals with a modified live virus vaccine. Although etiologic agent was not isolated, panleukopenia was strongly suspected, again suggesting an atypical clinical picture in nondomestic felids.

Postmortem lesions in the enteric form of the disease include edema of regional lymph nodes and a pale, edematous small intestine with a "ground glass" appearance to the serosal surface. Extensive erosion of intestinal mucosal surfaces may be present, with mucus and necrotic debris present in the intestinal crypts. Histologically, intranuclear eosinophilic inclusion bodies may be visible in remaining epithelial cells. Treatment of suspected cases of panleukopenia is symptomatic and supportive. Fluid and electrolyte balance must be maintained. Food and water intake should be restricted in the enteric form of the disease. Antibiotic therapy may be instituted as needed for treatment of secondary bacterial infections. Infected cats must be isolated, and strict sanitation measures employed. The virus is capable of survival on fomites for up to 1 year at room temperature and is resistant to chloroform, ether, phenol, and acid and alkaline pH. Vaccination remains the best method of disease prevention.

Feline viral rhinovirus (FVR) is common and highly infectious disease among nondomestic felids. The disease is caused by a herpesvirus, which reproduces epithelial cells of the upper respiratory tract and conjunctiva. It is transmissible by direct contact, aerosols or secretions from mucous membranes. After a 2-5 day incubation period, the virus may be shed for up to 3 weeks during the clinical course of the disease. Carriers may intermittently shed the virus for at least a year. Clinical signs usually include anorexia, depression, and a serous to mucopurulent ocular and nasal discharge. Dyspnea, pyrexia, palatal ulcerations, ulcerative keratitis, and corneal opacities may develop. Sneezing of bloody droplets has been reported in lions. Abortions associated with rhinotracheitis virus have been reported in clouded leopards. Secondary bacterial infection including bronchopneumonia, may occur. Postmortem findings include datarrhal rhinitis, tonsillitis, edema of the tracheal and bronchial mucosa, emphysema and pulmonary congestion. Diagnosis is based on clinical signs, virus isolation from exudates obtained early in the disease course, impression smears demonstrating inclusion bodies, or the presence of serum-neutralizing antibody

on convalescent serum. Treatment is symptomatic and includes maintenance of fluid and electrolyte balance as well as antibiotic therapy for secondary bacterial infections. Appetite should be encouraged by offering fresh prey. Feeding through a pharyngostomy tubing may be necessary in severe cases. Mortality in exotic felids with FVR is higher than in domestic cats due to the difficulty of supportive care. Prevention of FVR is through routine vaccinations, minimizing stress, isolating the affected animals, and limiting exposure to domestic cats.

Clinical signs of infection with feline calicivirus are similar to FVR, with oral ulcerations being more commonly observed. Treatment is similar to that for FVR. Most cats will recover uneventfully from the disease. Prevention is through vaccination.

Feline infectious peritonitis (FIP) has been diagnosed with increasing frequency in nondomestic felids. Several strains of the coronavirus that causes the disease may exist. There are (1) the FIP form, (2) Feline enteric coronavirus-1 which may affect 10 percent of domestic cats with enteric disease, (3) feline enteric coronavirus-2, a ubiquitous virus in the domestic cat population that causes mild diarrhea in kittens, and (4) a coronavirus that is associated with hemorrhagic gastroenteritis. Exposure to feline enteric coronavirus-2 will result in a positive FIP serum titer, which may account for a percentage of positive FIP titers in the general domestic cat population.

There are three well-recognized forms of FIP in domestic cats: (1) the effusive or wet form; (2) the non-effusive or pyogranulomatous form; and (3) combinations of both. In exotic felids, the wet form of the disease has been most frequently described. Clinical signs in exotic felids include depression, anorexia, dyspnea, and ascites. In an outbreak in cheetahs, physical findings included chronic diarrhea, weight loss depression, dehydration, variable anorexia, chronic gingivitis, and occasionally icterus. Azotemia, hyperbilirubinemia, anemia, thrombocytopenia, hyperproteinemia, leukocytosis, lymphopenia, and neutrophilia with a degenerative left shift were observed in one animal. Disseminated intravascular coagulopathy has been observed in domestic cats, possibly secondary to vasculitis. Postmortem findings usually include yellow plaques on visceral serosal surfaces. A fibrinous, viscous, yellow effusion may be present in the abdominal and thoracic cavities.

FIP virus is also implicated in the kitten mortality complex, a syndrome of reproductive failures and neonatal mortalities in domestic cat breeding colonies. Abortions, stillbirths, metritis, and fetal resorptions are seen in queens. Kittens will "fade" immediately after birth or become depressed, anorexic and die within the first few weeks of life. Catteries that experience this syndrome are usually feline leukemia virus (FeLV) negative, but have a high incidence of clinical FIP or FIP antibody-positive cats. A similar "fading kitten" syndrome has been seen in a 3-week-old cheetah. This cub, from a collection experiencing a FIP outbreak had a positive FIP titer of 1:100. Generalized severe lymphoid depletion was found on postmortem examination.

It is postulated that exposure to feline coronavirus will cause a localized upper respiratory disease in approximately 25% of the domestic cat population. Most cats will either recover or become chronic carriers. The lethal form of the disease is thought to arise from an Arthus-type reaction. This form will develop in low percentages of exposed cats, several weeks to months after the primary infection. In the cheetah outbreak, 18 of 38 cats died of fulminant FIP or coronavirus-related diseases including chronic enteritis, hemorrhagic gastroenteritis, and hepatic and renal disease. This high mortality rate suggests that, in the cheetah, a much higher percentage of exposed cats may develop the lethal form of the disease. In domestic cats, 40-50% of the FIP cases have concomitant infections with feline leukemia virus or Hemobartonella felis. The relationship, if any, between these diseases in exotic felids is unknown.

Diagnosis of FIP is based on clinical signs, aspiration and analysis of thoracic or peritoneal fluid, tissue biopsy, and serologic testing in clinically ill cats. In the general domestic cat population, 10-40% of all cats may be seropositive for coronavirus. Titers of 1:400 in a clinically ill cat are considered consistent with FIP; however, a positive titer does not necessarily correlate with an active infection. In the index case of the cheetah outbreak, a FIP titer of

1:1600 was present in the serum and peritoneal fluid. Serology indicated the disease outbreak in the collection was coincident with the arrival of the aforementioned cheetah. Titers ranging from 1:100 to 1:25,600 present in cheetahs that subsequently died of FIP.

There is not specific treatment for FIP. Therapy is directed toward suppressing the inflammatory reaction. Corticosteroids, cytotoxic drugs (for example cytoxan) anabolic agents, antibiotics and maintenance of nutrient intake are employed in the treatment regimen. Mortality rate of FIP in nondomestic felids is almost 100%. With the increasing incidence of this disease, strict control methods must be employed. Serum antibody titers to FIP should be measured to determine the exposure of an existing feline collection. Titers of all potential new additions should be determined and exposure to domestic cats minimized.

A paramyxovirus has recently been associated with encephalitis in large cats. A 6-year-old male Siberian tiger that exhibited depression, rotary nystagmus, head tilt, hypermetria, and progressive ataxia prior to death, was found to have a nonsuppurative meningoencephalitis on postmortem examination. Intranuclear and intracytoplasmic inclusion bodies suggestive of a paramyxoviridae infection were found in reactive astrocytes in the brain. A 4-month-old Bengal tiger developed rear-leg chorea 3 weeks after an acute onset of depression, pyrexia, and seizures. The tiger was maintained with an anticonvulsant therapy for 18 months before euthanasia because of progressive paresis and debilitation. During the clinical course of the disease, antibody titers for canine distemper virus increased considerably in cerebrospinal fluid and increased fourfold in the serum. Nonsuppurative meningoencephalitis, demyelination, and perivascular cuffing were present in the brain and spinal cord on postmortem examination. Eosinophilic intranuclear inclusion bodies characteristic of canine distemper virus were found in astrocytes. Both cases have since been confirmed positive for canine distemper virus by indirect immunofluorescence and biotin/avidin peroxidase (ABC) staining. In a report involving littermates from a line of white Bengal tigers, five cubs after developing respiratory distress and abnormal ologic signs. Serum antibody titers to many animal human viruses were insignificant (the individual viruses tested were not noted). Postmortem lesions included bronchopneumonia, thymic atrophy, splenic lymphoid depletion, and a nonsuppurative meningoencephalitis. Intracytoplasmic and intranuclear inclusion bodies in affected tissues and in glial and ependymal cells noted on electron microscopy were consistent with paramyxovirus.

The pathogenesis of paramyxovirus infections in nondomestic felids is unknown. The lymphoid depletion and negative serum titers in the tiger cubs suggests that these infections may immunocompromise the host. Both confirmed cases of canine distemper in tigers had a common history of exposure to domestic dogs. Immunodeficiency may predispose to infection by viruses normally nonpathogenic for felidae. Vaccination for DCV with a killed vaccine has been suggested. Killed CDV vaccines are not commercially available, and the population of exotic felids at risk, as well as the efficacy and rationale of such procedures has yet to be determined.

Epizootics of poxvirus infections in several species of exotic felids have occurred in European and Asian zoos. Two major syndromes occur - a dermal form and a fatal pulmonary form. The dermal form varies in severity, with clinical signs including anorexia, cutaneous eruptions, pustules, and alopecia. In severe cases, crusts and pustules may cover the entire body and fatalities can occur. The pulmonary form is characterized by anorexia, lethargy, pyrexia, tachypnea, paroxysmal coughing, wheezing, cyanosis, and 100% fatal. A mixed form, with both pulmonary and skin lesions, has been seen in some species. Postmortem lesions in the pulmonary form may include pulmonary hemorrhages, fibrinonecrotic bronchopneumonia, and sero-fibrinous pleuritis histologically. Focal necroses may be present in the liver and spleen. Mucosal ulcerations may be seen in the oral cavity, trachea and larynx. Cytoplasmic poxvirus inclusions are seen in epidermal cells of the skin and mucosa in the dermal form and in the bronchial and alveolar epithelial cells in the pulmonary form.

An orthopoxvirus closely resembling cowpox was isolated from 18 of 19 animals examined at the Moscow Zoo. An identical virus was isolated from white rats used as a food source. The zoo epizootic closely followed pox outbreaks in the rat colony. A cowpox virus was isolated from affected nondomestic cats in an epizootic in England. The source of the infection could not be determined. Virus transmission from wild rodents was suspected.

Table 1. Suggested Vaccination Protocol for Exotic Felids

DISEASE	IMMUNE STATUS	INITIAL VACCINATIONS	VACCINE TYPE	BOOSTER
Panleukopenia (parvovirus)	1. Neonates (less than 8 weeks): colostrum deprived; or dam unvaccinated or with unknown vaccination history	1. First vaccine at 2 weeks, then every 2-3 weeks until 16 weeks of age	1. Inactivated. IM or SQ	1. Annual MLV* or inactivated
	2. Kittens, cubs: vaccination status of dam current within 6-12 months	2. First vaccine at 8-10 weeks, then every 3-4 weeks until 16 weeks of age	2. Inactivated. IM or SQ	2. Annual MLV or inactivated
	3. Adults—previously vaccinated	3. Vaccinate at first examination of newly acquired animal	3. Inactivated or MLV, IM or SQ	3. Annual MLV or inactivated. Booster females before breeding if possible
	4. Adults—unknown vaccination history	4. Vaccinate on first examination; revaccinate in 3-4 weeks	4. Inactivated. IM or SQ	4. Annual MLV or inactivated
Rhinotracheitis (herpesvirus), calicivirus, feline pneumonitis† (Chlamydia spp.)	1. Kittens, cubs	1. First vaccine at 6-8 weeks, then every 3-4 weeks until 16 weeks of age	1. Inactivated. IM or SQ	1. Annual or biannual MLV or inactivated
	2. Adults—previously vaccinated	2. First examination of newly animal	2. Inactivated or MLV. IM or SQ	2. Annual or biannual MLV or inactivated
	3. Adults—unknown vaccination history	3. First examination; revaccinate in 3-4 weeks	3. Inactivated. IM or SQ	3. Annual or biannual MLV or inactivated
Rabies (rhabdovirus)	1. See text			

\*Modified live virus.

†No inactivated feline pneumonitis vaccine commercially available.

Control of poxvirus outbreaks may be difficult because of the possibility of wild mammals, especially rodents, serving as reservoir hosts. Biting insects and mechanical vectors may be factors in transmission of the disease. Diagnosis of pox should be based on isolation and identification of the virus from skin or mucosal biopsies, thoracic aspirates, or mucosal swabbings. Suspect cases should be isolated, and food and water intake should be encouraged. Antibodies have been used to control secondary bacterial infections. Corticosteroids and oral progesterone therapy have been incriminated in development of more severe clinical disease. Vaccination trials with smallpox vaccines have been attempted in cheetahs. Serologic antibody responses were insignificant or negative in these trials.

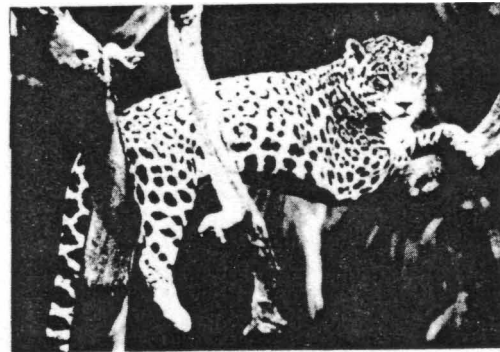
Rabies is recognized as an important disease in both captive and wild felids. Three cases of rabies in lions are associated with the development of violent behavior, roaring and paralysis. Nonsuppurative meningitis and perivascular cuffing were present histologically in the brains of all cases. Eosinophilic inclusion bodies similar to Negri bodies were found on cytologic evaluation of brain smears of one animal. A Carpathian lynx developed symptoms of rabies after 24 months in captivity. Rabies was confirmed in this case by fluorescent microscopy and animal inoculation. It was suggested that the lynx may serve as a wildlife reservoir host. Vaccination of nondomestic animals against rabies is not recommended by the National Association of State Public Health Veterinarians. Still, annual rabies prophylaxis is utilized in some zoological parks in endemic areas. Inactivated vaccines are used at first examination of newly acquired animals, and boosters given at yearly intervals. Kittens or cubs are first vaccinated at 4-6 months of age.

Hepatitis associated with a viral agent has been described in exotic felids. Intranuclear inclusion bodies were found in the hepatocytes of a panther that had exhibited hepatitis and icterus. A spotted leopard with chronically elevated SGOT (AST) and SGPT (ALT) values had positive serum antibody titers to hepatitis B virus. In a survey of sera from 358 individual nondomestic cats, 24% had antibodies that reacted to hepatitis B surface antigen. A high percentage (71%) of snow leopard sera exhibited antibody reactivity to such antigens. Lesions consistent with hepatitis B virus were found in snow leopard serum samples from snow leopards with evidence of DNA polymerase activity. In man, hepatitis B virus is associated with chronic active hepatitis and serum sickness. The significance of such antibody titers in exotic felids with liver disease has not been determined.

There is no evidence thus far of an association between leukemia lymphosarcoma, and feline leukemia virus in exotic cats. Leukemia has been reported in cougars, leopards, and tigers, and lymphosarcoma has been seen in the cheetah and lion. When performed in these cases, virus isolation and FeLV antibody tests have been negative. Positive FeLV tests using the ELISA technique have been observed in exotic cats. In some cases, however, conflicting results on ELISA-FeLV tests of the same sera have been reported from different laboratories. Specimen handling, laboratory technique, and recent vaccination of the individual may all be factors in erroneous test results. Studies indicate that virogenesis capable of coding for FeLV may occur only in domestic cats and closely related Felis species. Other wild felids lack the nucleic acid sequence that permits replication of FeLV and other retroviruses. However, FeLV has been isolated from cell cultures of an Asian leopard cat that had been in contact with domestic cats. It is theorized that horizontal transmission of the virus from domestic cats may have occurred in this case. The frequent exposure of captive exotic felids to domestic cats, the ability of some Felis species to interbreed with domestic cats, and the susceptibility of cell cultures of tiger, ocelot, and lion fibroblasts to experimental infection with FeLV indicate that FeLV infections in exotic felids may be possible. Further research is needed in this area; surveys of the incidence of FeLV positive cats in nondomestic species are now ongoing.

A rotavirus has been isolated in several cases of diarrhea in large cats. The exact role the virus plays in producing disease is unclear. In many species, including man, rotavirus is associated with severe diarrhea, especially in neonates. Other bacterial or viral agents may be important factors in the pathogenesis of rotaviral disease in domestic cats. Rotavirus has been associated with feline coronavirus infections in cheetahs.

- CONTINUED PAGE 15 ▽



In a recent alert, the World Wildlife Fund is asking for donations to supply a preserve in Central America for the preservation of the new world's largest cat—the jaguar. The 170 square mile preserve was established through the cooperation of Wildlife Conservation International (a division of the New York Zoological Society) the Belize government and the Belize Audubon.

Belize, which was once called British Honduras, is located on the northeast coast of Central America. About the size of New Jersey, this small country encompasses almost 9,000 square miles of rain forest, caves, mangrove swamps and Maya ruins. Along its eastern shore is the longest barrier reef in the Western Hemisphere.

The Cockscomb Basin, located in south-central Belize, is surrounded on three sides by a high ridge of hills and on the fourth by foothills of the Maya Mountains.

Because it is one of the least developed countries in Central America, Belize still has great potential for positive conservation action. Located in the most ecologically diverse region of Central American nation, the Cockscomb Basin Jaguar Reserve was officially opened in February of 1986. Estimated costs of running this preserve are \$219,500 per year. A small cost for the designated jaguar preserve in the world.

Illegal poaching is still a great problem for the world's jaguars along with the habitat encroachment and destruction that is taking its toll on all the large cats.

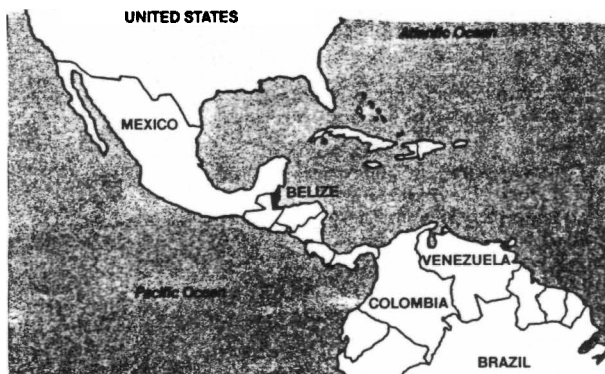
The Aztecs thought the jaguar was the god of all the earth...bringing on night by swallowing the sun and secretly stalking the jungles. The fact is, because of its secretive life in dense jungles, the jaguar is one of the least studied animals in the world.

The jaguar is the only member of the genus Panthera (big cats) to be found in the Americas, where it is considered to be the new world equivalent to the leopard.

Although the jaguar is classified with the big cats, which can roar, it does not seem to do so, a characteristic it shares with the snow leopard. It grunts frequently when hunting (a sound hunters imitate by grunting into a gourd whose sound the jaguar answers). It snarls and growls when threatened. The male also has a mewling cry used in the mating season.

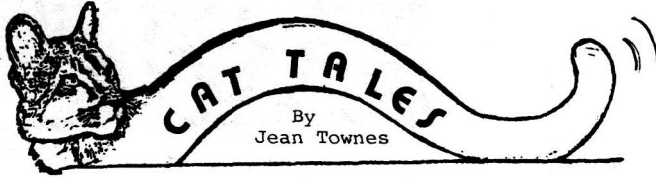
Jaguars prefer dense forest or swamps with good cover and easy access to water although they will hunt in more open country if necessary. They swim and climb very well. Seemingly solitary except during the mating season, they maintain a territories which vary from

2-200 sq. mi. depending on the prey density. They are occasionally known to travel up to 500 miles but why they undertake such long journeys is unknown.



Hi Folks,

Have decided I had better practice what I preach. So, from time to time I'll be sharing, with you, some of the many stories about past experiences with the exotics I have known, raised, lived with, laughed at and cried over. These stories are entitled "CAT TALES". It is my hope you will find them entertaining and informative.



### BANGKOK'S GOLDEN TREASURES

It was quite a few years ago when friends of mine, who had lived for a time in Thailand, brought back with them a number of spritely little leopard cats. All were virtually rescued from Bangkok's morning market place and the sure fate of becoming just another spotted fur trinket, as in the case of the clouded leopard skins that were a common sight in the market place...as my friends explained, the Thais would not waste food on a worthless cat, if it didn't sell live, then the skin would always bring a few bot (Thai money). Fortunately, the leopard cats my friends had purchased were all fairly young and could be handled...with care! While in Thailand, the cats had the run of the house with servants to see to their care and feeding. They lived in the lap of luxury you might say.

I recall a story about one particular cat who was extremely small and even as an adult, reminded me of a squirrel. This pixie-like denizen of the forest was plagued by a heavy infestation of ear mites but just wouldn't allow herself to be fussed with...unless that is, she was riding about in the car and then she would tolerate anything! It was never figured out whether she was frozen with fear, or soothed by the ride, but it did solve the problem and her ears were cleaned and medicated as she sat atop a pillow in her owner's lap while their driver motored through the countryside. Even after their return to the States, this curious little female always got her DT shot, ears cleaned, and claws clipped while being chauffeured around town.

Back home in the U.S., an elaborate extension was built off the master bedroom to house all the spotted felines. It was furnished with shelves, a climbing tree, window with a sundeck and a cat sized door that opened up into the bedroom so that they could visit with their human friends at will. It was a purrrfect life.

Years went by, the population increased and all got along beautifully together. There was one problem that marred this ideal commune. The small female (of chauffeur car fame) always ate her kittens as they were being born. Try as they would, my friends weren't able to prevent this from happening. Great precautions were taken- even to placing TV monitors inside her den with the hope of catching her in labor and thus being able to rescue the kittens in time. But it was all to no avail, as the event always took place when they were away or fast asleep.

One day I received a call from my friends who said they had to go out of town but the PROBLEM CAT was pregnant again and due very soon. They didn't want to leave her alone and would I cat-sit if they brought her over? I, of course, agreed and set about getting a cage ready.

It was about an hour later when cat and owners arrived at my door and I temporarily set the carrier in the bedroom, so we could have a quick cup of coffee and discuss how to handle this situation.

It was then that I heard a very odd noise emanating from the bedroom and got up to investigate. Suddenly... all the discussion was moot, for there in the carrier momcat was just giving birth. I yelled for help and grabbed the cat's scruff to prevent her from eating the kitten. Reflex action....as you realize this is a strange cat that didn't usually allow herself to be handled - except in a car and there wasn't time to call the chauffeur! Amazingly though, I didn't get bitten. By then, my friend had arrived on the scene and I gave him the job of holding the cat's scruff while I

dashed about for scissors, alcohol and towels.

One towel went over the cat's head so she could chew on that and not the hand that held her. I worked with the kitten - cutting the cor, removing the sac and stimulating the small body that was perfect in every way and beautifully marked with rich, dark spots. The new little female was dried, warmed, given her first meal and placed in her own carrier. Momcat was just fine and though she was watched closely for the next ten hours, no more kittens were forthcoming.

The cat-sitting became kitten raising and when my friends returned from their trip, they asked me if I would like to keep the adorable bit of fluff that had already stolen my heart. Besides, after all we'd been through together...how could I say no?!

Since this new addition to my family was so small, but could make her wishes known with an ear-piercing screech, I duly christened her "Nit Noy Pu Ying Boc Jai" which in the Thai language means "Little Miss Loud Mouth" though I eventually ended up calling her "Pocket Cat".

Pocket was just that, diminutive like her mother. She never weighed over 4 pounds, a tiny black and gold treasure, who's ancestors lived in the land of temples.

By the way "Pocket" was the only surviving kitten her mother ever had.

So ends this CAT TALE

NOTE OF INTEREST:...all successful breedings of the shy leopard cat that I know of, have taken place only when the cats have been housed in enclosed areas with solid walls. NOT in open-walled outside runs of wire or chain-link....many litters of kittens were born to my own leopard cats in their enclosed runs but during the two year period when I put them into open-air enclosures, no successful breedings ever occurred....Any Comments?

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"Let all bitterness, and wrath, and anger, and clamour, and evil

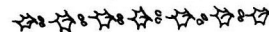
speaking, be put away from you, with all malice."

Ephesians 4:31

During the Holiday Season more than ever, our thoughts turn gratefully to those who have made our progress possible. And in this spirit we say, simply but sincerely

Thank You and Best Wishes for the Holiday Season and a Happy New Year

The Officers, Directors and Staff of LIOC



## ▷ - INFECTIOUS DISEASES - CONT.

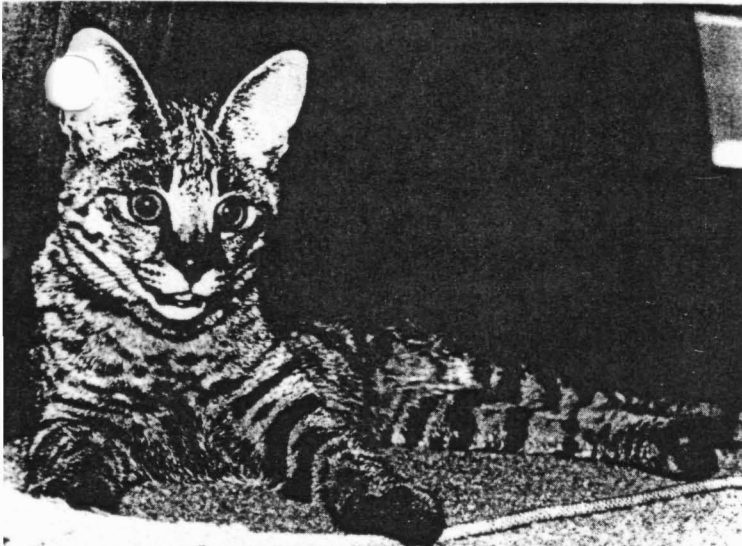
Other viral diseases of exotic felids previously reviewed include reovirus, parainfluenza and feline infectious papillomas.

### VACCINATION RECOMMENDATIONS

A well-planned vaccination program is very important in disease prevention in nondomestic cats. Several points must be considered when developing a vaccination schedule.

Commercial vaccines currently available are not developed for use in exotic felines; thus their efficacy may be highly variable. The kinetics of antibody formation and catabolism in both young and adult animals are unknown in most nondomestic feline species. In a limited study involving lion cubs from the same litter, hand-reared cubs had lower serum immunoglobulin levels during the first 37 days of life than did littermates allowed to nurse naturally. This study suggests that antibodies transferred via the dam's milk may be an important form of passive immunity. Further investigation with a wide variety of nondomestic felids is needed.

Both modified live and inactivated vaccines have been used clinically in exotic felines. The efficacy of vaccination procedures and the persistence of antibody titers have recently been investigated in both juvenile and adult animals. Vaccination with both modified live virus (panleukopenia) and inactivated combined (panleukopenia, rhinotracheitis, calicivirus) vaccine will produce seroconversion of previously negative individuals, and a significant rise in existing serum neutralizing antibody titers. Titers following immunization of adult cats with combined inactivated vaccines will persist for at least 7 months, with the optimum response obtained by vaccinating twice, 4 weeks apart. Doubling the vaccination doseage in large cats or giving three serial vaccines to adults, will not significantly increase serum neutralizing antibody titers. Problems associated with the use of modified live panleukopenia, rhinotracheitis and calicivirus vaccines have been reported in some species, including vaccine-induced infection and postvaccinal myelitis. Pregnant females should not be vaccinated with MLV because of potential teratogenesis in the developing fetus. Suggested vaccination protocols are listed in Table 1.



On April 7th, 1986, one spotted, bouncing, 8 ounce female kitten was born to a Sealpoint Siamese cat. The kitten was sired by one of my male serval off-spring, who resides in Pennsylvania. The domestic mother cat weighs approximately 8 pounds; the serval sire "Ernie" weighs between 30-35 pounds. Referring to records I've kept on all my serval cubs from birth to placement, the kitten's weight was comparable to an average serval cub of the same time span. After that initial period, her rapid growth and weight gain began to taper some, although she consistently remained considerably larger than a domestic kitten of equal age.

The kitten's black spotting pattern is an exact duplication of a serval, against a grayish-brown background color. The ocelli, or "eye spots" on the back of her ears are clearly present in pale silver. Her ears quite prominent, her legs lengthy, her body structure rangy and her tail length medium.

Behaviorally or physically it is interesting to observe a hybrid and attempt to decipher the domestic or exotic origins of particular traits. From her domestic mother, she may have inherited her propensity as a talker, immaculate potty habits and her athletic climbing ability. The combination of domestic/exotic characteristics include her voice quality, head shape, medium tail length and her assertive temperament. The kitten's specialized serval genes are apparent through her reputation as an accomplished hisser and slapper, her basic orthopedic structure and movement, coat markings, large ears, facial expression, body language, her wariness of strangers, and in true exotic spirit is extremely affectionate, however restraint of any type is not well tolerated.

The kitten enjoys a wide variety of foods, preferring to only nibble on domestic cat preparations while maintaining a healthy appetite for raw meat, chicken necks and canned evaporated milk.

While it has been rumored that this type of hybrid was bred some years ago, to date research efforts in Europe as well as here in the U.S. have not been able to document the case. For practical purposes, this kitten is considered a first of its kind. Without comparison model or a standard available, at eight weeks of age the infant's hearing, sight, reflexes and coordination were tested. All functions were excellent, as compared to general feline skills.

At six months of age, she now weighs 10 pounds. She received killed panleukopenia virus vaccine at 8 weeks, 12 weeks and a 4 in 1 modified live booster at 16 weeks. There were no adverse effects to any of the injections. The kitten appears to be a picture of health and vigor however this is only the initial tip of the iceberg. There remains a great deal to learn and understand about the combined genetic influence on long term health, behavior and general development.

This hybrid combination will be known as the Savannah

Suzi Wood



## Have a Safe Christmas

In the joyful rush of the holiday season, special care need be taken to avoid disaster where our cherished cats are concerned.

Many (most) holiday plants including poinsettias and mistletoe are poisonous. Tinsel, bright and shiny on the tree is sure to clog an intestine if ingested by a curious feline.

And what cat could resist a climb in a tree? An unobtrusive piece of nylon line, from tree to wall will prevent an unwanted disaster.

Instead of "chemical" snow, why not consider a mix of Ivory Snow (soap) flakes mixed with boiling water and whipped with an electric mixer-spoon on branches for a wonderful, natural look. Soap is harmless and the smell is not too attractive to the cats.

Consider placing a "wildlife" tree in your yard-close enough to the window so that you can appreciate the rewards of your labor.

String it with pinecones dipped in peanut butter, and even rolled then in birdseed, or orange cups filled with suet, or seed. String with raisins, cranberries, peanuts, and unsalted popcorn; add ears of dried corn and your sure to make the wild critters around you enjoy their holiday season as well.

One caution however, if you start feeding birds in the winter, please continue it through the entire season. Once conditioned to look for food in your yard they may suffer if the habit is broken and food doesn't appear.

# Cougars Recruited to Aid Panthers

Associated Press Reporter Ed Birk

Two cougars from Texas may have been recruited to help the endangered Florida Panther in a breeding experiment biologists say could help re-establish lost panther habitats in North Florida.

The female cougars from the mountainous desert region of Brewster County on the West Texas border with Mexico will be mated with a captive male at the White Oak Plantation. The private breeding camp near Jacksonville, Florida works to save endangered species from around the world.

The 5-year old panther, nicknamed "Big Guy" has been in captivity since he was hit by a car in 1984 on Alligator Alley between Miami and Naples. One of the cougars is 18 months old, barely old enough to breed, and the other is about 3 years old, said Chris Belden a state wildlife biologist.

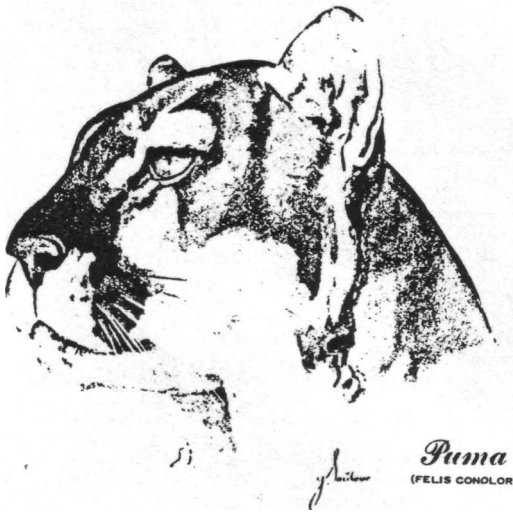
At the same time as the breeding, Wildlife biologists will search for a suitable habitat, likely in the panhandle, into which they will release the cougar/panther cubs, said Tom Logan, Chief of wildlife research for the Florida Game & Fresh Water Fish Commission.

If the young cats survive on their own, then they will be replaced by purebred panther kittens.

"We're attempting to halt the extinction process," said Logan. "We've not had very many opportunities to do that in wildlife."

Preparing the cougar/panther kittens will require close attention.

Their prospective mothers will first have to be certified free from disease. Once born, the kittens will be sterilized to prevent creation of a new subspecies. They also will wear radio-tracking collars so biologists can learn their habits.



And although the kittens will be born in captivity, biologists will take care to keep from domesticating both the cougar/panther hybrids and eventually any pure panther kittens that may be born.

"What we don't want to do is turn a pair of young Florida panthers into an area and the first thing they do is get run over or shot, or turn up on somebody's doorstep wanting to be petted or eat the dogfood," Logan said.

Only a few dozen panthers are believed still living in Florida. The panther is one subspecies with 28-30 cousins (other subspecies) including the cougars from Texas and the mountain lion. The Eastern Cougar has already been declared extinct. The panther could be next as it is the only endangered species of mountain lion.

Counted among the most threatened animals in the world, the Florida panther is the only subspecies of cougar remaining east of the Mississippi River, said Belden.

Now the tawny felines roam an area in South Florida, mainly in and around the Big Cypress National Preserve.

CONTINUED PAGE 17

## THE BIRTHS



Pat Wille report in with a 12 week old cub and news that another litter of cougars are due soon. This mother usually delivers in litters of 2-3 cubs.

Dale & Shirley Jackson report a population explosion of oncillas. Rusty Loo gave birth in late August to a set of twins-male & female, sired by Katia. One kit was entrusted to Pat Quillen for raising as the mother is not reliable when it comes to kittens. After the little male was removed, she began plucking hair from the remaining kitten. Shirley removed the little girl and put her on a Siamese queen that had just delivered. The siamese accepted her and she began nursing. The siamese milk was supplemented with Pat Quillen's goat milk-based formula every 3-4 hours. She did very nicely until she was two weeks old and then seemed to be going backwards. I took her at that time and she slowly gained weight as she took more formula. She never sucked from the bottle but chewed it as I slowly forced the milk through. She has always been a stubborn, headstrong kitten, fighting against eating and being held so I named her "Cabecuda, Portugese for stubborn.

Now at 7 weeks, she refuses solids, have only had a few licks in the last couple of weeks. For a week now she has chewed holes in the nipple at each feeding. I'm running out of places to buy nipples. She takes about 3/4 oz at each feeding. Frankly I'm pooped.

A second litter was born to P.J. (she was at convention) also by Katia (he's quite a stud). They were born September 10th. She was shy about my handling them and unfortunately, a "bug" went through the cattery-diarrhea, lack of appetite and vomiting, P.J. caught it so these two were flown to Pat Quillen also as it was really their only chance. One of the little males didn't make it but the other seems to be doing OK.

Natinyha, was also pregnant by Katia but miscarried. If I had known Katia was so potent, I wouldn't have put all three females in with him. I thought he was too young-WRONG!



AS EVERYONE IS AWARE, THIS IS THE LAST YEAR THAT CHARITABLE CONTRIBUTIONS WILL BE ALLOWED FOR NON-ITEMIZERS ON THEIR FEDERAL TAX RETURNS. WHY NOT TAKE ADVANTAGE OF THIS NOW WITH A CHRISTMAS GIFT TO LIOC. YOUR DONATIONS WILL ENABLE LIOC TO EXPAND OUR PROGRAMS AND ARE FULLY TAX DEDUCTIBLE THIS YEAR.







## MEETING REPORT

The New England and Mid-Atlantic Chapters held their final 1986 meeting jointly on October 18th, 1986 at the home of Elaine and Bob Burke in Salem, Conn. The autumn leaves were spectacular as we journeyed through the rolling hills to this cozy, rural setting.

Present were Mid-Atlantic's President Suzi Wood, Vice President John Van Stry, New England President Karen Jusseaume, Secretary/Treasurer Millie Payton, Mike Mustascio, Steve Marino, Sandy and Dom Pinto, Doris and Milt Demarest, Priscilla Meallo and Mark, Lill Mickle, Jeanne & Anthony Zuckert, David Sparandaro, Betty Human, Diahne Stahl, Edward De Varennes, and our hosts, Elaine and Bob Burke.

The meeting began informally with a tour of the Burke's feline facilities currently housing Rajah serval and Katpa bengal hybrid. Security devices surrounding the doors to the pens were explained to the newer members as well as fire emergency measures.

The formal portion of the meeting opened with the subject of the 1986 Elections. For review, a sample ballot was circulated explaining the preferential balloting procedure. For those unfamiliar with the individual candidates running for office, we offered profiles of their experience, accomplishments and their positions on the key issues of this election. The majority supported the campaign exconcept designed to encourage the general membership to vote on the basis of increased familiarity and understanding of the issues.

Sandy and Dom Pinto presented their case concerning their tiger "Sasha" who received incorrect and unfair publicity in their hometown of Darien, Conn. Permits denied combined with circulated petitions caused the Pintos to place the tiger temporarily in Texas to avoid confiscation. Contrary to the newspaper and television publicity, the cat had been well cared for and housed securely. The animal is 90% blind due to the genetically oriented cataract disease common among captive tigers and she was totally dependent on her owners. (Veterinarians have determined that surgery will restore her eyesight to 40%) The Pintos have employed



Starting at bottom L-R: Row 1, dog "Holiday", Row 2: Bob Burke, Anthony Zuckert, Sandy Pinto, Diane Stahl, Doris Demarest, Steve Marino, Suzi Wood, Ed DeVarennes, Elaine Burke, Milly Payton, John Van Stry, Mark, Priscilla Meallo, Dominic Pinto, Betty Human, Milt Demarest, Jeanne Zuckert, David Sparandaro, John Van Stry Behind the Camera: Karen Jusseaume.

attorneys at both the state and federal levels. It was suggested that they also contact the American Civil Liberties Union due to the act of discrimination involved. The Northeast LIOC collectively pledged its support wherever needed to help the Pintos.

Recent Chapter meeting minutes have been video recorded, courtesy of Millie Payton and Mike Mustascio. All enjoyed watching the tape post-formalities. Our day finalized with a walk outside for a group photo, then adjournment to the kitchen for supper before traveling home.

The next Northeast gathering will be after the holiday and snow season in 1987. Please notify either Karen Jusseaume or Suzi Wood for information- all are invited. (Their addresses are shown on page 2)

Respectfully submitted  
Suzi Wood



## MEETING REPORT

Several of us met for breakfast at the Oak Tree on September 20th for the one hundred, sixty mile trek to Ann Gordon's in Bothell, Washington. We thoroughly enjoyed her compound and her four month old snow leopard stole the hearts of us all - besides fingers, pants, jackets, etc. he grabbed on his flying leaps. Ann also has a tiger, lion, cheetah, cougar, servals, bobcat, wolf, coati mundi, hawk, skunk, opossum and kinkajou. These are all used in her educational lectures.

About 4:00 we headed for the ferry across to Kingston, then on to Sequim, Washington - home of the Olympic Game Farm. It was dark when we arrived so we checked into our motel then met for dinner.

Several more members joined us Sunday morning for our tour of the cat compound led by Jan Bebee (you may remember her from Convention '84). The drive-thru later was a lot of fun. We saw rhino, elk, buffalo, bear, deer and donkeys besides ground hogs, geese, rabbits and others.

Liz Ghent led the way to the local hamburger stand for a final get together before we headed home in different locations. We had no formal meeting, just a good time with good friends.



## COUGAR RECRUITED - CONT.

Each of the independent animals ranges several hundred miles in search of food, shelter and occasionally a mate.

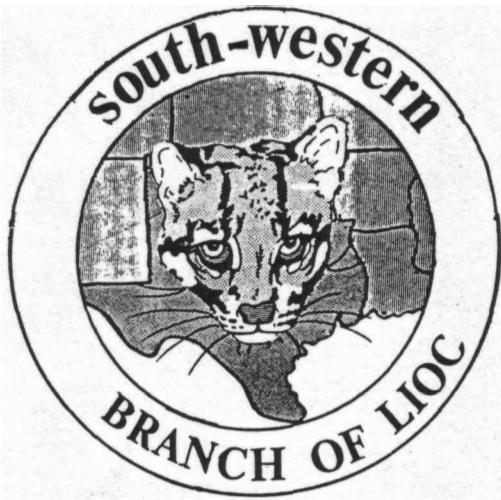
Logan said two primary problems have contributed to the panther's demise in Florida: human persecution and loss of habitat caused by population increases and urban development.

Persecution included shooting by ranchers trying to protect livestock or just out of fear.

"The panther is an indication of our quality of human life," Logan said. "We can't continue to change and degenerate our natural areas as we have."

The two female cougars cost about \$1,300 to bring from Texas and a five or six year study of possible habitats will cost up to \$100,00 per year. The breeding work at White Oak Plantation, which is owned by Gilman Paper Company, will be donated.

Contributed by Monika Jordan.



#### MEETING REPORT

On a cool autumn day, with a 20% chance of forecasted rain, the Southwestern branch met again at the home of Lois and Walter Marshall in West Columbia, Texas, some 40 miles southwest of Houston. The 20 % forecasted rain turned out to be 100%, but did clear off and the sun shown brightly for us all to go out and visit Walter's excellent compound of beautifully caged and cared for felines which included Siberian tigers, cougars, black panthers, bobcats, jaguars and leopards. We are admittedly a rather peculiar group of feline lovers, some of us driving over 300 miles to get together. Behaving more like long-lost cousins at a family reunion, there is much hugging and handshaking and real, unpretentious friendly and concerned greetings. We are almost obnoxious when it comes to attempting any kind of formal business meeting, due to our strong desire to visit with one another. Perhaps this is because we don't get to meet together as often as we would like due to the vast distances we have to travel to get together, or maybe because we are all avid visitors. It's truly a warm and refreshing feeling when this group does get together, most any site will do, but the home of Lois and Walter Marshall seems somehow even more enjoyable.

I hate to labor the fact, but this Walter Marshall is SOME KIND OF CHEF! You always feel that he would never again top this particular meal when you eat at his house, it seems almost impossible that he could, but darn if each time he doesn't manage to surpass the last. For this particular meeting, he and Lois prepared a most sumptuous Italian feast, everything from wine and jalapeno quiche for appetizers through two different types of salads, spaghetti with authentic Italian seasoned meat sauce and meat balls, a lasagne that was indescribable, and home-made rolls rounded out the meal that would make any Italian mother green with envy. Dessert of pineapple cheesecake and chocolate nut cake had to be postponed until after the business meeting because we were all too pleasantly uncomfortable to partake immediately following this overindulging.

Jean Hamil, our President, called the meeting to order and, after welcoming our visitors and new members, I attempted to give a report of our National Convention held recently in New Jersey.

Monica and Mark Jordan from Alexandria, Louisiana gave a very interesting presentation of an unfortunate incident of a Vivian, Louisiana mauling of a child by his father's cougar. As per usual, the very slanted publicity which follows such an incident was presented along with Monica's very aptly stated reply to the Editor pointing out how unfair it is to judge all cat owners because of one unfortunate incident. Applause for Mark & Monica!

This was followed by a most interesting and enjoyable presentation by Dr. Mike Tews on his PhD thesis in the research of the ongoing study of the ocelot population covering three generations existing in the Rio Grande Valley in South Texas. His talk was made more interesting by his slide presentation and he was most helpful in answering all our questions. We are delighted to welcome him back to the ranks of LIOC and it's Southwest Branch after his long trek in the wilds of south Texas and research studies in Ohio. Dr. Tews is a delightful young man, with extreme dedication to


all felines and especially the ocelot. He has written several interesting articles in various magazines including National Geographic and Texas Monthly. He is an avid worker at the Ceasar Kleberg Wildlife Research Institute.

Following the business meeting and cheesecake, our usual raffle was held and plans were made to hold our Spring meeting in Canton, Texas when the First Monday Trade Day is held. This is a 3 day flea market now covering 150 acres which is touted as the largest flea market in the world, famous now for over a century. Here we dispose of all the junk we have stored in our garages, attics and storage buildings, selling it at below value and enriching the club treasury with the funds. Of course, many of us buy other folk's junk and our garages and attics result at about the same level, but we always have a grand ole time in the equalizing process.

Attending this meeting were: Jean & Carl Hamil, Harriet Leake, John & Elfriede Vickery, Roger & Faye Harmon, John Stokes, Don & Jan Kotas, Ron Barker, Monica and Mark Jordan, Ray & Lucille Coulter, John and Beverly Oglesby, Dr. Mike Tews, Pete & Toni Ritenour, Christine Chandler, J.W. & Ruth Richte, and of course our fabulous hosts, Walter and Lois Marshall with friends and relatives.

Submitted by:  
Roger Harmon

You too can  
be a  
**STAR!**



At convention this year, David Baskin suggested LIOC put together a video tape presentation on LIOC. This could be used as promotional material and to acquaint others with the organization. The Board of Directors asked Dave to spearhead this project with the assistance of Danny Treanor who is in television.

We ask that you submit VCR recordings of you and your cats for use in this presentation. These clips will be edited and used wherever possible to show the workings of LIOC. If you do not have a VCR ask a friend who does to come tape you working, playing and interacting with your cats.

The Video, after completion and approval by the board, will be made available to members for their own enjoyment, or to assist them in programs at schools and other organizations

PLEASE MAKE THE EFFORT TO CONTRIBUTE TO THIS. IT WILL TO A LARGE DEGREE DETERMINE WHAT LIOC ATTEMPTS IN THE FUTURE. LET'S MAKE IT A SUCCESS.

MAIL VCR TAPES TO: David Baskin  
161 Lake Shore Dr  
Duxbury, MA 02332



**L.I.O.C. NEEDS YOU!**

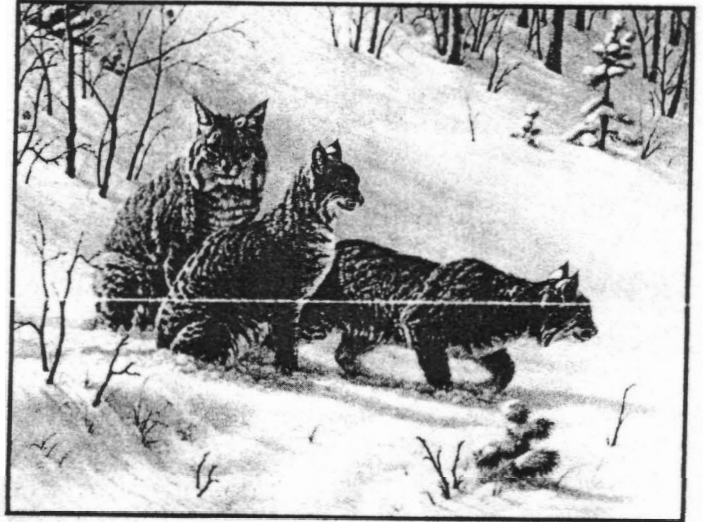
## Gift Suggestions

For Christmas giving, James E. Faulkner, through Nature's Nest Gallery has released two prints, limited to 1000 signed and numbered.

Ordered separately, they will retail for \$45.00 each. However, you may order the pair (image 15½ x 19¾) for \$70.00. They will both bear the same number and Nature's Nest will pay the postage.

### NATURE'S NEST GALLERY

1447 Coyote Cir. Rt. 6 Black Hawk, CO 80403  
(303) 582-5466 MC and Visa welcome



#### "FIRST WINTER"

A fresh snowfall has covered the Colorado mountains. While watching a herd of Elk, you come upon a mother bobcat and her ten month old kittens. The kittens are excited by the elk, but the mother knows they are too big to hunt. Being ever alert, she sees you approaching and, in a flurry of snowflakes, are gone.

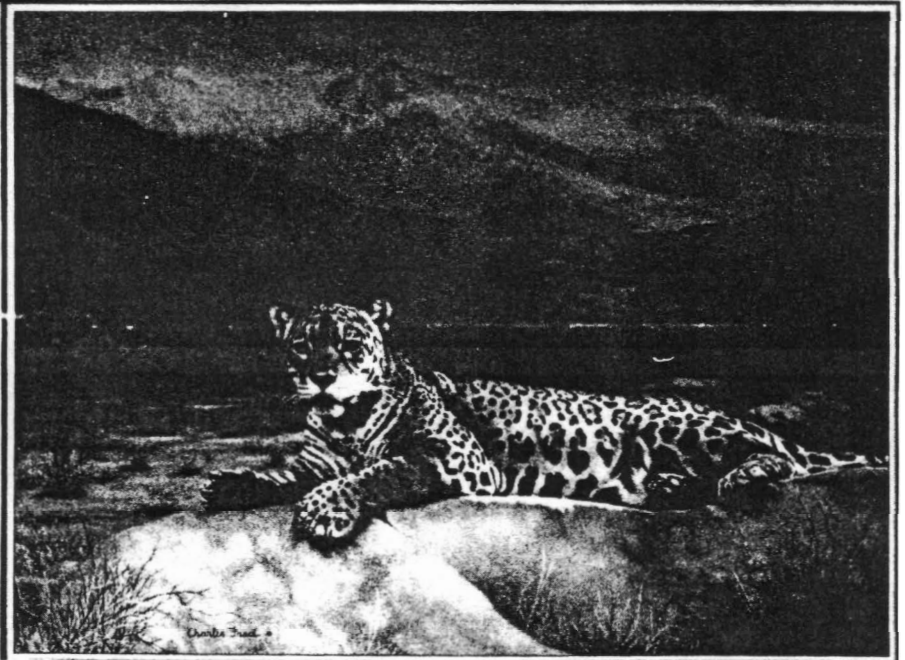
#### "PLAYFUL MOMENT"

High in the Himalayan mountains, a mother Snow Leopard surveys her domain. Spring is near and her son is almost as large as she. He will soon be going out on his own, but still loves to play. His mother is not in the mood for play, but her twitching tail, (the largest in the cat family) makes a wonderful toy.



And, closer to home, Charles Frace's newest is of LIOC member J.B. & Reva Anderson's jaguar, Chicquita. Charles and wife Elke, spent 2 days with the Andersons observing Chicquita and mate Pepe. J.B. reports they are "wonderful, caring, wildlife and cat folks".

Limited to 3,950 signed and numbered prints, "First Light" is available from American Masters Foundation, 10688 Haddington, Suite 200, Houston, TX 77043 (713) 932-6847. It measures 21-3/8" by 29" and is priced at \$125.00





**Dur-A-Gard Physical Properties**

HARDNESS (Shore D).....	ASTM D-1706	70-80
WATER ABSORPTION.....	ASTM D-543	0.37% after 7 days immersion
LINEAR SHRINKAGE.....	ERF 12-64	.002" per inch
TENSILE STRENGTH.....	ASTM D-638	3,000 psi minimum
FLEXURAL STRENGTH.....	ASTM D-790	4,000 psi minimum
COMPRESSIVE STRENGTH.....	ASTM D-695	16,000 psi
IZOD IMPACT (ft. lb./in. notch).....	ASTM D-256	0.50
BOND STRENGTH TO CONCRETE.....	ACI-403	Concrete fails before loss of bond
ULTIMATE ELONGATION.....	ASTM D-638	20%
HEAT DEFLECTION TEMPERATURE.....	ASTM D-790	No slip or flow at 242°F.
FUNGUS & BACTERIA RESISTANCE.....	MIL-F-52505	Will not support growth of fungus & bacteria
<b>SALT SPRAY RESISTANCE, 25% solution</b>		
@ 90°F.....	MIL-F-52505	No effect after 100 hrs.
THERMAL SHOCK.....	MIL-F-52505	No cracking or loss of adhesion
<b>ABRASION RESISTANCE, CS-17 Wheels(2)</b>		
Wgt. Loss, 1000 gr. load, 1000 cycles.....		.035 Gm Loss
U.V. RESISTANCE.....	MIL-F-52505	No chalking or loss of adhesion
TOXICITY.....		Non-toxic
POT LIFE.....		23 min. or 45 min.

Dur-A-Gard may be applied with roller or brush, but it's no paint! Dur-A-Gard's epoxy finish is lustrous and long lasting. In fact one coat of Dur-A-Gard will last longer than ten coats of latex paint! Dur-A-Gard not only wears well, it resists chemicals, acids, solvents, oils, and harsh detergents... retains its waterproof, easy-to-clean, glossy finish in any one of 16

appealing colors. Dur-A-Gard adheres to wood and metal, and it's a "natural" for concrete floors.

It's easy to apply... merely combine Dur-A-Gard's two components and spread with roller or brush. A non-slip texture may be obtained by adding a suitable grit during application. Simple instructions are included in every order.

**FOR BEST RESULTS:**

The surface to be covered must be bondable, dry, and clean. The temperature during application, and for several hours thereafter, must be over 50°F. One coat may be satisfactory for many areas, but two coats are recommended for more uniform color and

greater durability. On average concrete apply the first coat at the rate of about 250 square feet per gallon and the second coat at 300 square feet per gallon. Dur-A-Gard may be applied as thickly as desired and can be used to fill and level a rough surface.

**DUR-A-GARD RESISTANCE TO CHEMICALS**

REAGENT	EXPOSURE		
	45 Min.	24 Hrs.	7 Days
Acetone	E	NR	NR
Acetic Acid (10%)	E	E	G
Acetic Acid Glacial (100%)	E	NR	NR
Ammonium Hydroxide (28%)	E	G*	NR*
Benzene	E	E	E
Chloroform	E	G*	NR*
Calcium Chloride (30%)	E	E	E
Clorox (Full Strength)	E	G*	NR*
Coca Cola	E	E	G*
Cottage Cheese	E	E	E
Chromic Acid (10%)	E	G	NR
Citric Acid (30%)	E	G*	NR*
Ethyl Alcohol (95%)	E	G*	NR
Ethylene Glycol	E	G	NR
Ethylene Dichloride (10%)	E	G	G
Ferric Chloride (10%)	E	E	G*
Gasoline	E	E	E
Glycerine	E	E	E
Hydrogen Peroxide (6%)	E	G	NR
Hydrochloric Acid (20%)	E	E	G
Hydrofluoric Acid (10%)	E	NR	NR
Hydraulic Fluid	E	E	E
Isopropyl Alcohol	E	E	E
Lactic Acid (20%)	E	E	G*
Methyl Isobutyl Ketone	E	E	E
Methylene Chloride	E	NR	NR
Mineral Spirits	E	E	E
Motor Oil	E	E	E
Mustard	E	G*	G
Nitric Acid (10%)	E	G*	NR*
Phosphoric Acid (85%)	E	E	E
Salt Water	E	E	E
Spic and Span (30%)	E	E	E
Syrup	E	E	E
Sulfuric Acid (30%)	E	E	E
Sodium Hydroxide (30%)	E	G*	G
Silver Nitrate (10%)	E	G*	G
Tide Detergent	E	E	E
Trichloroethylene	E	G	NR
Tri-sodium-phosphate	E	E	E
Toluene	E	E	E
Urine (Synthetic-6.6% urea)	E	E	G

Legend: E — Excellent, no chemical deterioration.  
 G — Good, sample discolored but no chemical deterioration.  
 NR — Not Recommended, sample deteriorated. Contact Dur-A-Gard to ascertain if a more chemical resistant formulation is available.  
 \*Resistance to attack by this chemical can be improved by using Dur-A-Glaze #1 or #2 as a topcoat(s).

**CAT PROOF !!**

**Great for walls too!**

DUR-A-GUARD EPOXY COATING is available in 15 colors: White, Black, Medium Gray, Dark Green, Light Green, Dark Blue, Light Blue, Dark Brown, Cocoa Brown, Tile Red, Canyon red, Yellow Ochra, Bright Yellow and Light Yellow.

Order sufficient amount of a color to finish the entire job. Slight batch-to-batch color variations may occur.

AVAILABLE TO LIOC MEMBERS AT DEALER COST

THAT'S A 40% DISCOUNT!

UNIT SIZE	SHIPPING WEIGHT	LIOC PRICE
1 1/2 gallon	18 lbs	79.06
3 gallon	34 lbs	149.33
15 gallon	164 lbs	701.81

Normal coverage - floors- 250 square feet per gallon per coat. Walls- 350 square feet per gallon per coat.

Thicker coatings may be appropriate for heavy traffic areas.

DUR-A-GUARD is USDA and OSHA approved.

ORDER FROM: Great Eastern Distributors  
 3071 Peachtree Rd. N.E. Suite 111  
 Atlanta, Georgia 30305  
 1-800-251-5800