

LIOC ENDANGERED SPECIES CONSERVATION FEDERATION, INC.



NEWSLETTER

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LONG ISLAND OCELOT CLUB



JOEY poses for Canadian artist Murray Killman - more on Page 17



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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.

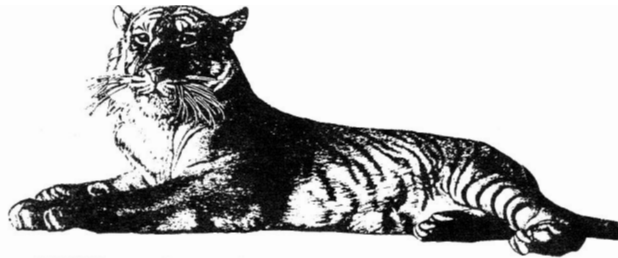
WRITING EXPERIENCE: None whatsoever

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 newsletter is waiting on YOU.



CATS OF THE WORLD

THE CHEETAH

Edited by Elaine M. Burke
Photos by Future Promise

The cheetah died without resistance. With two companions he had entered the territory of three other male cheetahs and had been instantly attacked.

The victim's response (was surprising), for he barely tried to defend himself. While his two companions kept their distance, he was repeatedly savaged. The assailants continued for twenty minutes, tearing out mouthfuls of fur and biting so savagely that the crunch of bones could be heard 15 yards away. Even when they stopped to rest, the victim made no attempt to flee. The (end) came almost as an afterthought. One attacker ambled over and administered a choking, fatal bite. In half an hour it was over. The victim lay dead, scarcely a square inch of his hide untouched, and the two other invaders routed. Peace returned to the Serengeti Plain.

To me the fate of that one cheetah typifies the plight of his species. Cheetahs today are outnumbered by their enemies, they are largely defenseless, and, where unprotected, they are likely headed for extinction. Slowly, inexorably, cheetahs have been exterminated from large portions of their former range in Africa and the Middle East. Once also plentiful in India, cheetahs have totally disappeared there, the victims of hunters and loss of habitat.

Only careful study and protection of remaining cheetah populations can ensure the species' survival. Research is vital, for in order to guarantee cheetahs' survival, one must know their habitat requirements, feeding habits, mating patterns, family structure, life expectancy-in short, every possible aspect of cheetah life. [A]

We imagine Africa as a vast untapped source of nature; miles of open grassland...hauntingly beautiful tropical jungles filled to the brim with animals running free.

But the truth is -- Africa itself is dying. Between economic hardships and ecological disasters the great continent is struggling to stay alive.

Scientific name: *Acinonyx jubatus*

Common Name: cheetah, cheeta, chita, 16th to 19th century "leopard"

Size: Length: 6.9 ft (2.1m)
Weight: 120-130 lb (55-60 kg)

Coat Pattern: Adults: Medium to small spots against a background of yellowish gray, tawny, or rufous; black line extends from the inner corner of the eye to the upper lip outlining the muzzle.

Cubs: Mantle of long silver hair on head and back; dark spots on a dark background on the lower body.

Special

Features: Fastest land mammal in the world. Attainment of speeds up to 70 mi/hr (115 km/hr). Structural specializations enabling fast pursuit includes enlarged air passages, heart, lungs, adrenals; long slender legs; specialized set of muscles for high acceleration. Shares features of skull, body proportions, and predatory behavior with the snow leopard. Black "tear" markings around eyes help reduce glare from sun.

Already 80% of the tropical rainforest of the Ivory Coast is gone. We know a desperate farmer will kill the elephant which tramples his crops. A herdsman will protect his cattle against the wild cats and other predators, while his cows and goats over graze and destroy the fragile grasslands which support the natural prey of many animals. The preserves and parklands are a beginning in the effort to save the animals. And yet, protection of even these small parcels of land is difficult in the least. The dangers are not only from poachers or agricultural growth but from the tourists themselves. Million of visitors in their jeeps and vans are destroying the countryside by literally running over it with their tires and killing the plantlife. Clusters of vans gather wherever animals are to be found, disrupting their natural behavior. The cheetahs of Amboseli, (until recently) had difficulty teaching their young to hunt due to the disruption of the tourists; and were leaving the protection of the parks. Today, visitors are now required to stay on the marked trails giving the park back to the animals; fortunately recent reports claim cheetahs increasing in numbers.

In these times, the importance of captive breeding cannot be over stated. Whether or not you will be involved in the breeding or raising of cheetahs, information on behavior, nutrition and management could be useful toward other species. The sharing of information is critical and vital in our efforts to save the cats of this world. Which means you must make the effort to contribute to this pool of knowledge. Hand-write or type out anything you think might be useful and send it to me c/o the address below. Information of any kind, on any species, will be greatly appreciated and shared.

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

Distribution: Considered extinct outside of Africa, except for small populations in Iran and USSR. Pleistocene fossils up to 3 million years old of a giant cheetah found in Europe, India, and China. North American cheetah found in Pleistocene deposits as old as 20,000 years.

Habitat: Open grassland, savannas, woodlands, bushlands

Prey: Thomson's gazelles, impalas, other small animals such as guinea fowl, and the young ungulates - yearling zebra or topi.

Offspring: Estrus lasts about 2 weeks. Gestation period 90 - 95 days. The number of young per litter is usually 3 to 6. The cubs weight 0.5 lb to 0.7 lb each at birth, open their eyes after 4 to 11 days, and are weaned when 3 to 6 months old. Follow mother at about 6 weeks. Leave at 15 to 17 months. Attain sexual maturity at 21 to 22 months.

A PAST TO EXTINCTION

The cheetah, as St. George Mivart pointed out, differs more from all other cats than any two other cats differ from one another. It is the most stream-lined and long legged of felines, built entirely for speed.

The fact that cheetahs could easily be tamed and trained for hunting was realized at a very early date. On a Mesopotamian seal from the third millennium B.C. can be seen an animal led on a leash which is thought to be a cheetah, possibly with a hood over its head. Egyptian tombs and rock temples contain excellent representations of tame cheetahs, and although they seem to have been in use since the Third Dynasty, the great number of 18th and 19th Dynasty paintings show them at that time almost to have rivalled dogs in their popularity as hunting companions. The Assyrians utilized cheetahs, and so did the Minoans, who probably imported them from Egypt. In Syria and Palestine the Crusaders saw gazelles hunted with the aid of cheetahs, which they usually referred to as "leopards," and a 15th century king of Armenia is reported to have had a "pack," of a hundred of these animals.

Hunting with cheetahs is usually associated with Eastern countries, but at times this exotic sport enjoyed great popularity among European nobility. There was practically no Italian Renaissance court without hunting "leopards."

As shown on numerous paintings, woodcuts, and tapestries, the animals were carried out into the hunting field on horse-back, perched on a pillow behind the handler. They were then released to run down hares and roe-deer.

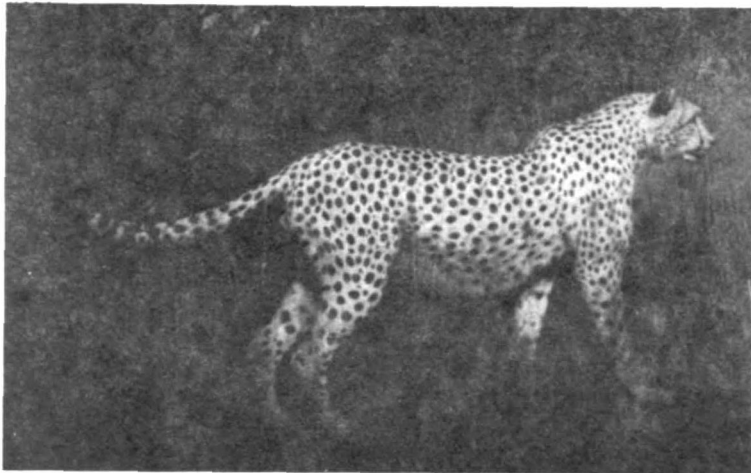
An Englishman, Fynes Moryson, who visited Prague at the end of the 16th century, saw two tame cheetahs of which he wrote:

"They were of a yellow colour; spotted with blacke, the head partly like a cat, the body like a greyhound, and when the huntman went broad, they leapt up behind him, sitting upon the horse like a dog on the hither parts, being so swift as they could easily kill a hart (male red deer)."

It was realized long ago that cheetahs captured (as) adult(s) were more easily trained than those taken as cubs. In India, cheetahs remained a status symbol of nobility until quite recent times, and there was a certain class of men who devoted themselves entirely to the trapping and training of these animals.

In a book published in 1929, it was pointed out that the cheetahs used for hunting by Indian princes were now all imported from Africa. In 1928 the Indian cheetah was considered very scarce and in 1952 it was declared extinct.

condensed from WILD CATS of the world
C.A.W. Guggisberg, 1975



General Information

The cheetah is distinctly different from the other felids in both its anatomy and behavior, and yet in many ways it is the epitome of feline grace and speed. The cheetah is a sprinter, seldom running distances more than 0.3 mi (0.5 km), but within that distance, it is the fastest of any animal. This speed is an important component in the cheetah's unique hunting sequence.

Predation: The cheetah usually hunts in open terrain. Instead of always stalking its prey, it often starts its run to catch the prey from 330 to 600 ft (100 to 200 m) away (in contrast to the lion's stalking approach to within 165 ft (50m) or even much less). The chase is frequently longer than that of other large cats--up to 1,000 ft (300m) at high speed--but the cheetah is unable to continue pursuit if the prey is not pulled down in a few hundred meters. These are generalizations, however; the cheetah shows some variation in its hunting techniques.

Cheetahs prey on relatively small ungulates, predominately Thomson's gazelles on the Serengeti plains and impalas in the woodlands of the Kruger National Park and Nairobi National Park. Thomson's gazelles average 35 to 45 lb (16 to 20 kg); the largest animal Schaller observed killed by cheetahs in the Serengeti was a yearling topi that weighed 200 lb (90kg) and was killed by two male cheetahs together. The impalas predominant in Kruger weigh a little over twice as much as a Thomson's gazelle. Kruuk and Turner documented cheetahs preying occasionally on medium sized animals, such as wildebeests or young yearling zebras, but only rarely compared to the number of small or small sized prey.

The preferred prey size appears to be related to the cheetah's generally solitary hunting habits and its method of pulling down prey. The cheetah is not as powerfully built as the lion, tiger or jaguar, for example, and by itself cannot successfully handle very large prey. The total length of the cheetah is actually very similar to the leopard's average length, about 6.9 ft (2.1m), but stands approximately 3 inches (8cm) higher at the shoulder, and surprisingly enough, the cheetah weighs more. Average weights are reported to be 120 to 130 lb (55 to 60kg) or 22 to 45 lb (10 to 20kg) more than the average weight of the leopard. The heavier weights for the cheetah are surprising given the very slender appearance of the cheetah compared to the more muscled physique of the leopard.

The variations in prey preferences among the areas mentioned above may reflect geographical or ecological differences, or it may represent a sample error resulting from a large amount of variation between individual groups of cheetahs. Some groups specialize in one type of prey animal; this specialization may even be continued by at least one subsequent generation. Studies based on only a very few groups of cheetahs need to take such specialization into account.

There is also variation in the extent to which stalking behavior is employed in the early stages of a hunt. Kruuk and Turner never saw an adult stalking prey, although they noted the apparent use of high grass to get closer to a herd of antelope. Schaller witnessed the entire range of possibilities: a cheetah might walk toward a gazelle with no attempt at concealment, or it might stalk its prey using cover for concealment, crouching, and standing motionless whenever an individual looked up from grazing. Randall L. Eaton did not observe cheetahs crouching as other cats do during a stalk, but, rather, they would walk very alertly and then freeze motionless if the prey looked up.

Frequently a cheetah bounds toward a unaware herd and gets close enough to choose an individual before the herd realizes the danger. An open approach, whether walking or running, appears to involve the victim in its own selection: the

cheetah fixes on, and pursues, one individual, usually the one that runs first or otherwise, stands out from the herd. This chosen victim is pursued to the exclusion of others, even those nearer or more available, and may succeed in losing the cheetah if it can mix back with the herd.

Once a victim is chosen, it is pursued for several hundred meters if necessary. During its initial spurt of speed, the cheetah regularly attains 60 mi/hr (95 km/hr). Milton Hildebrand took films of a cheetah, obviously not extending itself, running at 56 mi/hr (93 km/hr), and Schaller cites records on racetracks of 70 mi/hr (114.6 km/hr). In contrast, the maximum speed of a horse is about 43 mi/hr (72 km/hr), although it has much greater endurance at top speeds than does the cheetah. The cheetah is capable of remarkable acceleration to these top speeds, reaching about 45 mi/hr in two seconds. These high speeds are brief, however; once the cheetah draws close to the intended victim, it must slow down somewhat to follow each turn of its quarry. The cheetah can follow the gazelle or impala quite closely. Hildebrand explains that for a galloping mammal to turn, it must lead with its inside foreleg. This means, that as the forefeet strike the ground in quick succession, the forefoot on the side to which the animal is turning must hit the ground first each time the forefoot comes down. The cheetah's advantage is that unlike the ungulate (hoofed animals), it can change lead the instant before the forefeet land, so that the cheetah can turn immediately after a zigzagging quarry.

The actual catching of the prey is complicated by the speed with which both predator and prey are moving. Larger prey appear to be struck with the forepaws above the fore- or hind legs, bowling the animal over. The cheetah throws its weight on the forequarters of the downed animal and grasps its throat from the ventral (underside) side. Smaller prey may be overcome from above and behind as the cheetah catches up, or batted aside with a forepaw and then grasped. Medium-sized prey such as gazelles may be slapped or pulled at with the forepaw, throwing the gazelle to the ground or even flipped over. This kind of attack frequently leaves a large gash in the animal's rump or flank, presumably from the cheetah's dewclaw, the "thumb" partway up the inside of a cat's foreleg. More detailed observations with gazelle- or impala sized prey in captivity have shown that the cheetah actually hooks its dewclaw in the victim's hide and pulls by shifting its own weight posteriorly. This sudden drag on one side easily throws the galloping animal off balance and to the ground.

Most prey animals are killed by apparent strangulation. The cheetah grasps its victim by the throat and holds it for up to 15 to 25 minutes. The skin may not even be broken, and internal bleeding seems slight; Schaller and Eaton both concluded from many carcasses that death results from strangulation. (Ewer, however, warns that it is unwise to generalize to far from examinations of carcasses and argues that some prey is killed so swiftly that death must have resulted in some cases from damage to the central nervous system). Smaller prey is frequently dispatched with a dorsal neck bite, usually crushing the braincase of younger prey. The cheetah's canines are clearly not modified for the typical neck bite, which severs the spinal cord as it is used by most felids; instead, the cheetah has short, rather small canines, with very little space between them and the rest of the teeth. The more posterior cheek teeth are large with rather expanded accessory cusps, perhaps to aid in the crushing-like grasp on the throat of prey.

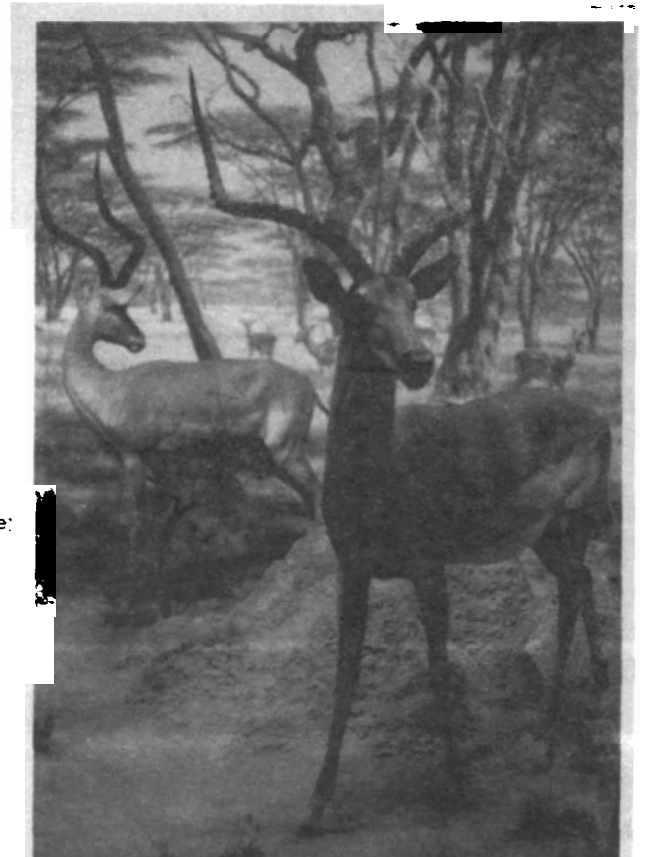
The prey is usually dragged to cover, sometimes as much as several hundred meters away. This behavior reduces the chance of vultures or other scavengers drawing attention to the kill. Cheetahs cannot defend their kill against hyenas, leopards, lions, or even a large determined group of vultures.

Lions or leopards kill cheetahs if given a chance and have much less to lose from a scrap: a wounded lion is fed by the pride or can scavenge, a hurt leopard stalks more slowly but still has a chance at prey, but a wounded cheetah is unable to overtake its swift prey and cannot scavenge from other carnivores; it dies from starvation. Therefore, a cheetah, which must kill its small prey every day will not defend its kill. Of the 238 kills Schaller observed made by cheetahs, 20 or 8.4% were stolen by lions, 11 or 4.6% by hyenas, and 1 by a leopard. If the cheetah finishes its meal without interruption, it makes no attempt to further cover or hide the carcass, nor will it return to it for a second meal.

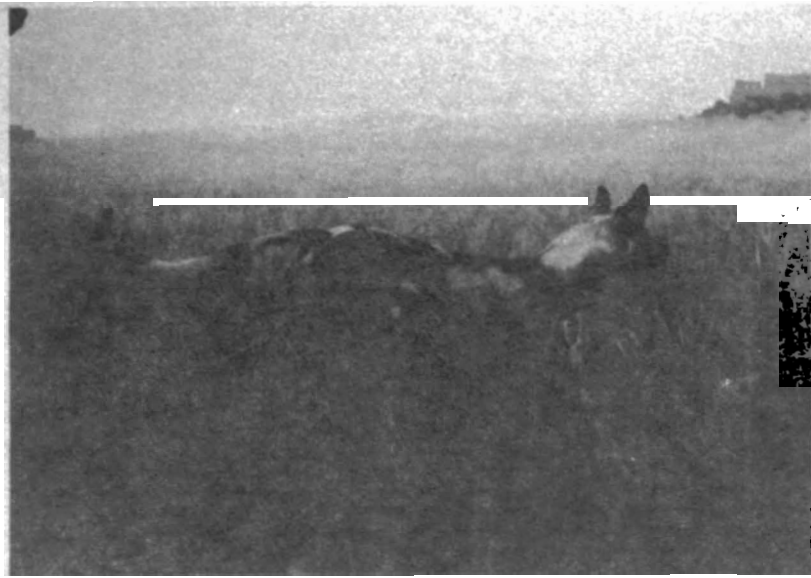
After the prey is killed and dragged to cover, the cheetah sits exhausted for perhaps half an hour before beginning to eat. After even an unsuccessful chase, the cat is incapable of another serious try for at least 30 minutes. The cheetah's respiratory rate reflects the intensity of effort put into such speed. One male calmly lying in the shade was found to breathe at a rate of 16 breaths per minute; in contrast, a second male took 156 breaths per minute following a chase and kill, and a female 135 to 140 breaths per minute for several minutes following a chase.

Habitat: The cheetah is usually considered an inhabitant of open country, living on the grasslands where it can see its prey at a distance and can take advantage of open terrain for the chase. Eaton, however, argues that this belief is biased and is the result of the cheetah having been sighted and photographed more often in open country. Cheetahs also inhabit woodland, hunt occasionally in dense, dry woodland, and are frequently found in bushlands. In all kinds of habitat, cheetahs occasionally climb into trees or onto termite mounds or high rocks, using these vantage points as lookouts from which to sight potential prey.

Some disagreement also exists among the data on cheetah group size and composition. Many discussions of cheetah biology include a mention of its more sociable nature compared with that of the solitary leopard. Results of a cheetah survey,



Impala preferred prey of cheetah in woodlands of Kruger Nat. Park



clear pattern with the size of the potential prey. For example, larger animals such as wildebeests and zebras may permit a cheetah to approach to 64 feet but will flee from a lion at 130 feet; similarly, a female of these species would protect her calf against a cheetah but not against a lion, for in the latter case the female herself might also be killed.

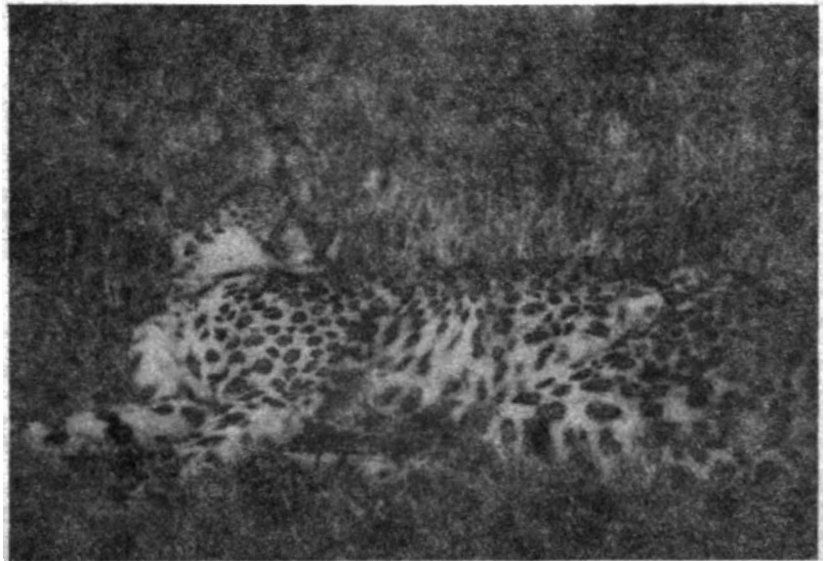
Most curious is the "mobbing" behavior shown by many African species in response to a cheetah. Giraffes, or birds such as crowned cranes, will watch a cheetah or even approach it; this behavior draws the attention of other species that cannot see as far over the plains. At times several animals follow a cheetah, keeping the potential threat in sight. Cheetahs are much less successful in hunting when the prey is alerted than when the prey is unaware until after the cheetah's final rush has begun.

The cheetah's precise hunting behavior is apparently a product of both innate behavioral traits and learned components. Young cubs use some of the same motions in play that they later use to pull down prey, but older cheetah cubs appear not to know how to actually bring prey down until they have watched an adult several times. Similarly,

which included data from 15 groups of adults, showed 9 groups to be all-male and 6 to be of both sexes [1]. In contrast, Schaller never saw adult females together as part of a group. Males were temporarily with a female when courting, and adult males formed companionships as male nomadic lions did. Schaller notes that he did see adult females with large cubs, and that these groups might have been considered all adult by a casual observer. Renate McVittie has discussed the possibility that the cheetah might be more social (i.e., adult females might associate) in areas where competition from other large predators is low, such as southwest Africa. The hypothesis is that in these areas the cheetahs would not suffer from the increased visibility associated with group living. The data are not entirely clear, since some increase in group size could be due directly to an increased survival rate of the young (because of a decrease in the loss of cubs to the large predators active elsewhere in the cheetah's range), but there appears to be an increased frequency in groups too large to be single family units and of adult females in groups of two or more.

The four groups of cheetahs studied by Eaton included three with more than one adult and one with a female and her small cubs. Nearly all hunting was done together by all adults of the group rather than by separate individuals, but no cooperation among groups was observed. Within each of the groups comprising more than one adult, one male was identified as the leader, deciding direction of movement for the group, initiating hunts, and choosing the prey.

Prey: The prey species are frequently alerted to the presence of a cheetah by the behavior of conspecifics (others of the same species i.e. impala) or even other animals not usually preyed upon by cheetahs. There have been several descriptions of seemingly perverse behavior on the part of potential prey: not only do they become alert to the presence of a lion or cheetah, but they actually approach some predators. Gazelles watch lions from a distance of 95 to 130 feet, and by such behavior keep the lion in sight, preventing it from stalking successfully. Prey do not usually follow hyenas or wild dogs, however; these predators do not conceal themselves during a hunt. The flight distance of smaller prey also varies with the species of predator, so that jackals may approach fairly closely, hyenas less closely, and so on for the lion, leopard, and cheetah; the largest flight distance is in response to the wild dog, which pursues and overtakes prey over very long distances. Flight distance and behavioral response also vary in a



top photo

Wild Dogs of Africa

young cubs bite at each other's neck, but usually direct such bites to the back of the neck as in the typical felid killing bite. They learn from the adult to direct the bite at the throat of the prey and to hold it until the victim stops kicking.

Several observers have witnessed a mother bringing a live fawn or young gazelle back to her cubs. After she dropped it in front of the cubs, the cubs have the opportunity to chase the fawn when it tries to flee. Depending on the cub's age and stage of development, they may chase it but be unable to bring it down, or may bring it down but not know how to kill it. Such maternal behavior has also been observed in lions and tigers. At approximately 6 months old, cheetah cubs begin to accompany their mothers occasionally on hunts, and by 12 months are usually capable of bringing down and killing prey by themselves.

Offspring: Cubs are born after a gestation period of 90 to 95 days. Litter size ranges from three to six cubs (3 - 8 young Walker's), averaging four or perhaps as many as five or six. The newborn cubs are helpless and blind, weighing only 0.5 to 0.7 lb (0.25 to 0.3 kg), but developing more quickly than any of the other large cats. Their eyes open after about a week, and they begin to walk, unsteadily, by two weeks. By 3 months they are

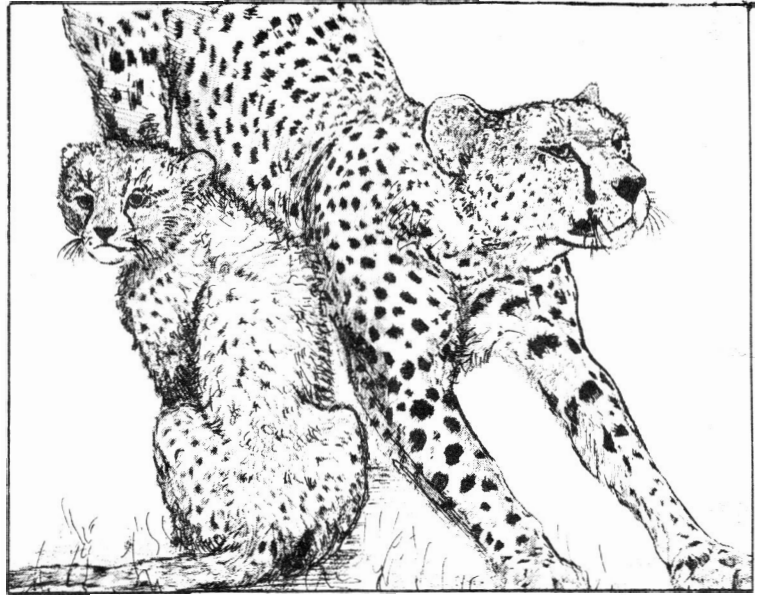
weaned, and by 8 months they have their full adult dentition. In areas such as the Serengeti where groups of adults are uncommon, the young cheetahs separate from their mother at 16 to 18 months. Eaton says that 4 years old appears to be prime age for males; records on longevity in captive cheetahs have been recorded up to 19 years [2].

Very young cubs have a curious color pattern. It is common for an animal to be lighter on its underside than on its back and flanks; this coloration tends to make the animal less obvious and therefore is a fundamental type of concealing coloration. Newborn cheetahs have, in contrast, a conspicuous pelage with a silver gray or white mantle of longish fur covering the top of the head and back. The undersides are very dark, with unobvious dark spots. This pattern is very similar to the pelage of the ratel or honey badger. The ratel is one of the most aggressive animals of its size (approximately 3 ft long - 1 ft high and weighing 25 lb), incredibly fierce, and capable of excellent defense against even much larger predators. Ratels have routed packs of spotted hyenas, inflicting lethal wounds on cape buffalo, and successfully attacked packs of wild dogs. It has therefore been suggested that the very similar sized cheetah cub may benefit from mimicking the ratel's coloration and possibly its gait. Potential predators are frequently loath to even approach a ratel, and could very well be misled, especially at a distance, by the young cheetah's coloration.

This hypothesis, that the coloration and gait of very young cheetahs mimic the coloration and gait of the ratel, is further supported by several observations. The distribution of the ratel--through most of Africa, the Middle East, and into India--is very similar to that of the cheetah. Mimicry is effective only if the mimic lives in the same area as the model. Also, the ratel is fairly common throughout this distribution, which increases the effectiveness of the mimicry since predators have more of an opportunity to learn how unpleasant a ratel is. Finally the cubs lose their conspicuous coloration at approximately 3 months old, at a time when they are growing larger than a ratel and when their locomotory abilities are sufficiently developed to enable them to successfully flee from potential predators. They begin to accompany their mother during the next few months, remaining behind only when she actually hunts; in these circumstances, the normal, spotted, camouflaging pelage is safer for the growing cubs. As with the leopard, the white tip, or black-and-white striped end, of the cheetah's tail is possibly a signal that helps the cubs keep their mother and each other in sight.

When very young, the cubs remain quietly hidden when the mother goes off to hunt. When they are a few weeks old, the mother may regurgitate meat to feed the cubs. Schaller never observed this behavior (it is reported from captive specimens) but suggests that it only occurs while the cubs are younger than 6 weeks old, too young to follow the female to the kill. When the cubs become mobile, the female calls them to the kill by chirping--single notes rather like a birdcall--or chirring, which is more of a staccato sound and less loud. During mutual grooming or when the cubs rest next to their mother, cheetahs often purr loudly. Eaton describes an "ughh" sound with which a female deterred her cubs from following her, but Schaller never heard this from Serengeti females setting out to hunt.

Population Cheetahs have a must higher rate of reproduction than the other big cats. They produce more cubs more frequently. Yet the cheetah is one of the most critically endangered species of cats and never seems to have had extremely high population levels anywhere.



The low density seems to be partly, but not entirely, due to spacing behavior on the part of the cheetah; individual males or groups scent mark, so that when cheetahs subsequently encounter these marks within 24 hours, they turn in another direction. Cheetahs use scent marking only to avoid contact with each other (except when males determine a female to be in estrus); they do not have mutually exclusive territories and, indeed, may follow the herds of prey in migrations.

The current problem with the cheetah's population levels seems to be twofold. The first factor responsible for dwindling population levels is that cheetah cubs suffer high mortality; perhaps as much as 70 percent or more. This mortality can be traced to the female's inability to defend her cubs against many predators as well as to disease and malnutrition. The second factor contributing to reduced population levels is human pressure: the necessary prey species are rapidly disappearing, and much of the optimal habitat for cheetahs is also the optimal land for agriculture and other human uses. Norman Myers concludes that as a species, the cheetah has a worse chance of surviving than even the critically endangered Bengal tiger, because the biology of the tiger enables a far larger population to maintain itself in a sanctuary than is possible for a cheetah. The necessary measures for saving the cheetah (in its native land) require larger reserves and appropriate management to maintain stock of the small ungulates.

Distribution: The cheetah's distribution once encompassed the suitable habitats in Africa, the Middle East, and most of India; it is now extinct in India and is rare or extinct in Arabia. The Iranian population, almost extinct, recently started to recover on reserves, where cheetahs prey on wild sheep or hares. These Asian populations are generally considered a distinct subspecies, *Acinonyx jubatus venaticus*, differing from the African form in having a slightly larger body size, longer fur, and darker coloration.

The African populations are shrinking as human use reduces the amount of appropriate habitat available. Within this area there does not seem to be sufficient variation to justify subspecies, so the African form is called *A. jubatus jubatus*. The possible exception is a mutant form that was found at one time in Zimbabwe (then Rhodesia). In this cheetah the black spots fused together into a series of irregular stripes. Peacock classified this variety as a distinct species and named it the King Cheetah, *Acinonyx Rex*, but was later found to be a rare color variety of the normal cheetah, indistinguishable from *A. jubatus*, except for coloring.

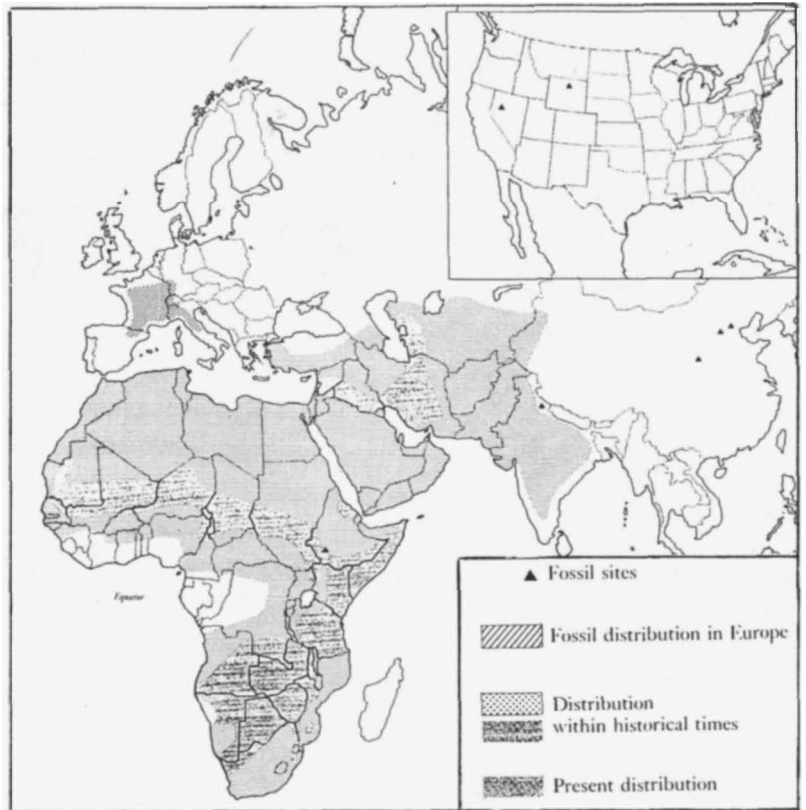
cheetahs . . . produce more
cubs more frequently . . . yet
are one of the most
. . . critically endangered . . .
species of cat

Fossils: The cheetah's distribution was even more extensive in prehistoric times. A very large cheetah, *Acinonyx pardinensis*, lived in Europe, India, and China during the Pliocene and Pleistocene, approximately 1 million to 3 million years ago. Although this animal was the size of a modern lion, its limbs were proportioned as they are today in *A. jubatus*, from which we can infer that this giant cheetah also pursued its prey swiftly across the grassland that covered Europe. This giant cheetah may not have been quite as fast as the modern cheetah, however, because of its mass (a function of the volume of the animal) would have been proportionately larger given the same linear proportions, and the animal would have therefore been slower. On theoretical ground, Milton Hildebrand considers the smaller, modern cheetah to be the optimal size for maximum speed. As with the cave lion, the giant cheetah shows a decrease in size during the middle Pleistocene, so that by the late Pleistocene the fossil forms are very similar to the recent species.

Cheetahs also lived in North America in the Pleistocene. A 20,000-year-old skull and partial skeleton from a deposit in Nevada, and skulls and skeletons older than 11,000 years from a sinkhole in Wyoming, show striking similarities to the modern cheetah. From the bones left of this North American cat, "*Felis trumani*", it can be deduced that it was more cursorial (having legs adapted to running) than is typical for felids.

Claws: There is some confusion about the cheetah's claws. Many summaries have stated that the cheetah has nonretractile claws. This misunderstanding began early, perhaps with St. George Mivart, and has been repeated throughout literature. However Peacock, and much more recently William J. Gonyea and R. Ashworth, have clearly described the condition of the claws in the cheetah. The claws are nearly, if not fully retractable as in other felids. The ligaments are present and functional, and the ends of the middle phalanges (digital bone) are asymmetrical (although not as much as in the lateral digits in *P. leo*). The main differences between cheetahs and other felids are that the cheetah's claws themselves (except the dewclaw) are shorter and much straighter than in other felids, and there are no sheaths of skin covering the retracted claws. Thus the retracted claws are clearly visible on top of each digit. Much of the blunting is perhaps caused by the extension of the claws during the chase for increased traction.

The lack of sheath skin is probably related to some other adaptation of the paw for running. Peacock points out the lack of webbing between the toes: the individual digits are separated more than is typical for felids. Also the toe pads are very hard and sharp, and are pointed anteriorly; these pads act like cleats when the animal breaks from a fast run or turns suddenly. The pad accompanying the large, curved dewclaw is itself very sharp and highly cornified (horny tissue), rather than soft as in other felids. The dewclaw pad is used in an infrequent but but stereotyped form of aggression against other cheetahs. Intraspecific aggression is extremely rare in wild populations, even at a kill; aggression appears to occur between males courting the same female.

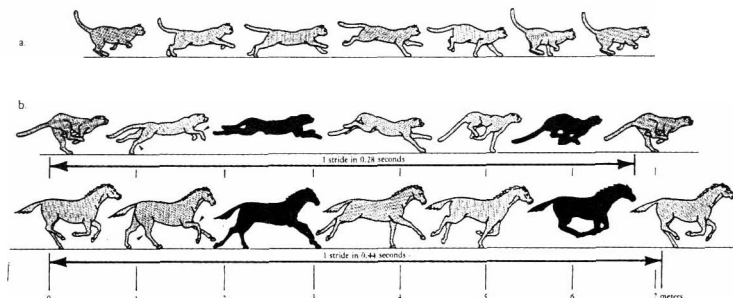


Endurance: An aspect of a cursorial adaptation is endurance. Here the ungulates are much more capable. If the cheetah does not catch its prey within 1,476 ft to 1,640 ft, it quits exhausted, whereas ungulates can generally run for several kilometers or more. The structure of the ungulate leg contributes to this ability by an arrangement of ligaments that act as springs, helping to straighten the leg after weight has been put on it, and thus increasing efficiency. In contrast, the cheetah leg is more like that of other mammals, so that propulsion comes entirely from muscular force.

The physiology of the cheetah also appears to restrict its stamina. Although the nasal passages are enlarged, as are the lungs, heart, and adrenals, the heavy, rapid breathing after a chase is indicative of an enormous energy expenditure and a large oxygen debt. The cheetah's body temperature has been measured at 105 F during a 400 yd sprint, a dangerously high temperature for the brain. Even the small size of the canines may be a result of the crowding of their roots by the enlarged nasal passages for increased air intake.

Cheetahs, as well as most other cursorial carnivorans, use the flexibility of their spine to lengthen their stride. In comparison, ungulates keep a relatively stiff, straight back. In the running illustration, the shaded figures illustrate the most flexed and most extended phases of a cheetah's and a horse's stride during a gallop. The back of the horse has not noticeably changed shape, while the cheetah's spine curves sharply. The cat's back is hyperextended going into the extended phase of the stride, allowing the hind limbs to push against the ground longer and the forelimbs to reach out even farther. In the flexed phase, the back bows so deeply that the hind legs actually come forward, ahead of where the forelegs last landed, so that much extra ground is passed over between strides. This flexion and extension of the back adds about 30 inches or 11%, to the cheetah's total stride length.

The cheetah's stride differs most from the horse's and the domestic cat's in the unsupported phases of the stride. In a sense the cheetah is almost flying: for 50% or more of the distance covered, the cheetah has no feet on the ground.



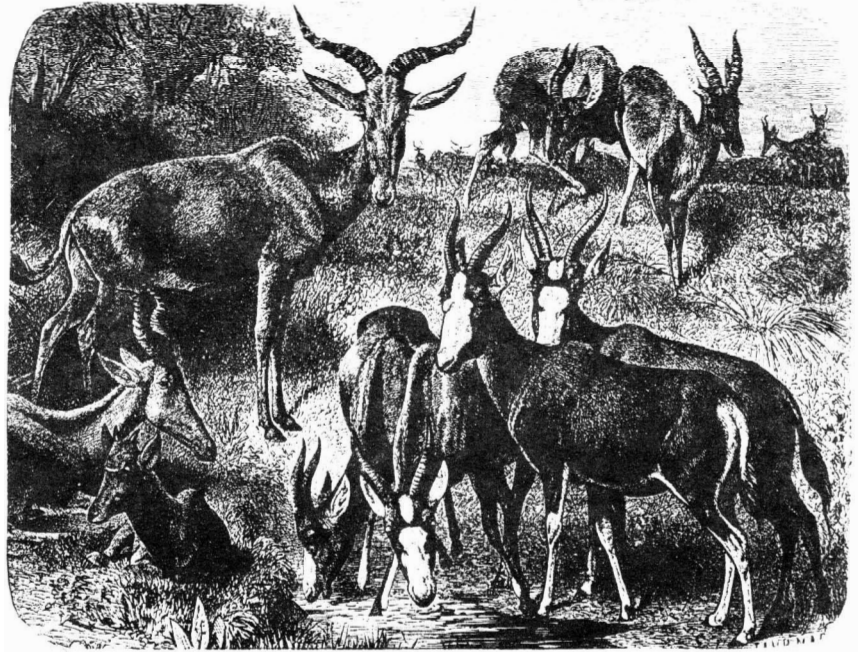
Life on the Cheetah Circuit

condensed from
Life on the Cheetah Circuit
by David A. Burney
Natural History 5/82

On the East African plain, two mini-buses, loaded with tourists and camera equipment, approach a family of cheetahs resting in the ragged shade of a thorn tree. Moments later, two more vehicles arrive; their passengers join the chorus of clicking cameras and exclamations in various languages. The rare and elegant speed champions of the animal world beat an undignified retreat into nearby bushes. Six miles away, outside the boundary of the Masai Mara National Reserve in southwestern Kenya, a group of well armed Masai herdsman are slowly moving their cattle toward a distant settlement in the hills. The men sing and whistle as they unknowingly drive the herd straight toward another cheetah family crouched in a patch of tall grass. Undetected by the Masai, the cheetahs flee for cover.

Are human activities chasing these endangered cats to extinction? Some experts believe that even in and around Africa's national parks and game reserves human activity is adversely affecting the cheetahs and other endangered animals.

In the Mara region, the vast grasslands of the northern part of the Serengeti ecosystem are subjected to two principal land uses: as a game reserve and as a rangeland for livestock. The 580 square mile Mara reserve attracts about 45,000 (1982) tourists per year. These visitors tour the area by motor vehicle, viewing one of the world's great wildlife spectacles. Reserves and parks help make tourism Kenya's second largest industry. Surrounding the Mara reserve on three sides are more than 1,160 square miles of similar habitat, which supports Masai tribesmen and their livestock, as well as wildlife and some tourism. South of the reserve lies the much larger Serengeti National Park of Tanzania and two wildlife management areas. The cheetahs move freely between the reserve and "Masailand" as the Mara region is generally known.

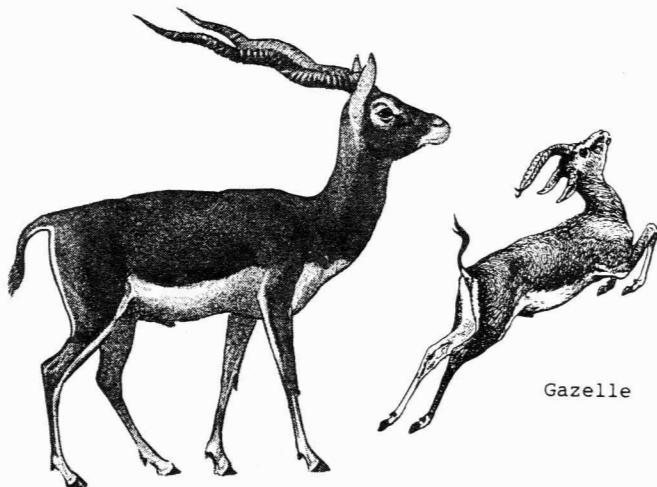


Although the cheetah is one of the most sought after creatures in the Mara, the wily cats often escape detection by tourists and their guides. The cheetah's spotted coat and concealment behaviors often enable them to disappear suddenly when they have had enough of tourists. More than 500 tourist vehicles passed within 800 feet of cheetahs we were observing from a distance, but about one-third of the groups never discovered the cats.

Cheetahs' response to tourist vehicles are variable. Some individuals are more tolerant of approaching cars than others. Drivers who approached with care were usually rewarded by being able to observe the cheetahs at length. Cars moving toward cheetahs in a slow, indirect fashion were usually able to avoid frightening them away. Cars moving quickly and directly to the cheetahs were much less successful. Cheetahs (and most other animals as well) react nervously when a large number of cars form a circle around them. People getting out of cars caused a reaction in the cheetahs even at surprisingly long distances—650 feet or more. When tourists got out of a vehicle near cheetahs, the cheetahs usually moved away quickly. Camera noises, soft talking, and quiet movements inside the car almost never had a visible effect. In general, patient drivers and cooperative observers, were rewarded by a tolerant response from the cheetah.

Certain cheetahs were remarkable tame and easy to approach, but others ...fled every approaching vehicle before it came within 300 feet. A female that we named "Polly" was an extreme case of the opposite sort. Hundreds of tourists see and photograph her each year. Professional safari drivers refer to cheetahs like her as "polite." (cheetahs' which shy from vehicles are called "cowardly." The preferred word is "shy") Even noisy, rapidly driven cars often lurch up to within 15 feet of Polly without provoking her to flee. She has been made the star of several wildlife movies in Europe, and has modeled for some of the best known wildlife photographers in the world. One cinematographer even filmed her giving birth to a litter of 5 cubs.

A cheetah's hunting success might be adversely affected if it has to spend much time and energy escaping tourists. This is probably true for cheetahs termed "shy." Surprisingly, the rate of hunting success for car-tolerant cheetahs was slightly higher. They often appeared to use cars as a screen in order to approach gazelle, impala, and other favored prey in the open country. Arriving cars also served to distract prey that had been maintaining a safe distance from a hungry cat.



Black Buck

Gazelle



Young Cheetah



Ratel or Honey Badger

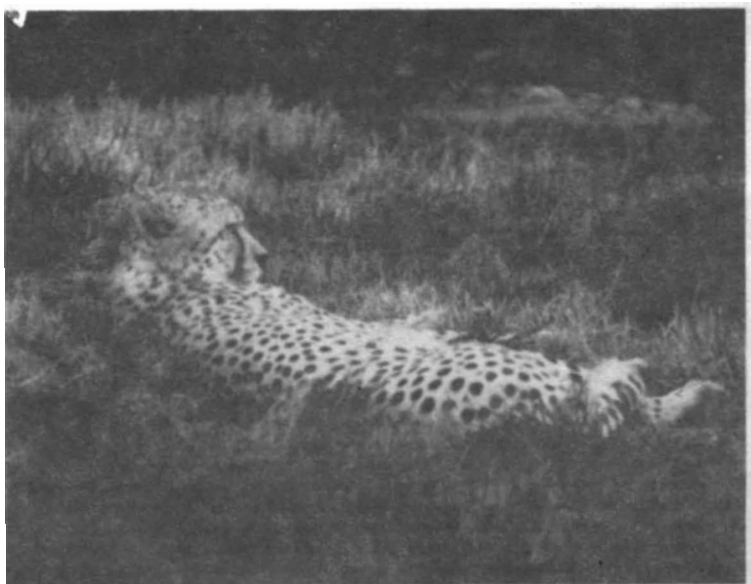
Although a single encounter with a vehicle is a major disruption for a cheetah, the cumulative effect from a succession of vehicles is potentially more serious. Shy cheetahs would sometimes be chased by one car after another; at times twenty or more cars would be involved over an entire morning or afternoon period. Two shy male cheetahs that were hunting in the reserve just after dawn were three miles away by noon, hiding in thick cover outside the reserve. In the parks such as Amboseli National Park in Kenya, where the density of tourists is several times as great as in most parts of the Mara, cheetahs may be disturbed so frequently that their hunting or other important behaviors are disrupted. Researchers working in this heavily visited park have suggested that this may be the case.

Also interesting is the relationship between cheetahs and the Masai tribesmen outside the reserve. We recorded 76 encounters between Masai on foot and cheetahs. Compared with the tourist data, there were some remarkable differences. In all cases, both "shy" and "polite" cheetahs fled from Masai tribesmen at 300 feet or more. The cheetahs do well to flee when they see Masai; although these Iron Age nomads are more concerned with their livestock than pursuing wild animals, they are effective with spears and poisoned arrows. Other tribesmen can attest to the fierceness of the Masai. These tall, wandering herdsmen entered their present homelands in southern Kenya and northern Tanzania only a little more than a century ago, probably migrating south from the Nile Valley. Colonial records indicate that they did not settle in the Mara region until after World War I, but by the late 30s they were firmly established in the area.

Although the Masai are traditionally feared by other peoples, their sparse distribution and tolerance of wildlife has enabled many animals to thrive in Masailand that have been virtually exterminated in the lands of agricultural tribes in East Africa. Our data indicate that the Masai are usually tolerant of, or at least indifferent to, the cheetah. They universally reported that cheetahs almost never bother their carefully guarded herds, but the lions sometimes do. They seldom see cheetahs, although the cats and the Masai are often in the same area. In nearly all cases, the cheetahs detect the tribesmen's approach at long distances and move away quickly without being detected. Since the Masai have taboos against eating most types of wild meat, they don't compete with the cheetah for prey.

The Masai's dogs, however, may pose a problem for cheetahs. On one occasion, we observed a big male cheetah that had eaten a wildebeest calf - drag himself and his distended belly to the shade of a nearby tree to sleep off the meal. Before he had rested long, however, two Masai boys carrying spears came strolling down a nearby road with four dogs at their heels. When the cheetah raised up to investigate the noise, the dogs spotted him, ran up barking and encircled the tree. The cheetah stood up, bristled like an alley cat, and bared his teeth. The dogs ran straight back to their startled masters, and the cheetah escaped in the ensuing confusion. Another time, at dusk, a mother cheetah defended her four small cubs against Masai dogs, but two cubs were missing in the morning.

We witnessed another example of the interrelationship between cheetahs and Masai at a small Masai settlement. This collection of low huts made of sticks and cow dung, surrounded by corrals made of cut thornbushes, had been abandoned for several weeks when a family of cheetahs approached the place. Eventually the mother and her cubs cautiously entered the compound and thoroughly explored the dwellings. We saw cheetah families playing near abandoned settlements on two other occasions. Masai are traditionally quite mobile, changing abodes every year or so; apparently cheetahs quickly reclaim territory they have temporarily lost to these nomads.



Cheetahs must cope with other, more permanent types of human dwellings in the Mara. Tourists are accommodated in luxurious tented camps and hotels. An even greater number of service personnel--park rangers, tour-vehicle operators, cooks, and other staffers--live nearby. In the vicinity of these tourist facilities and along the roads, construction projects employing many workers are currently in progress. All these people add up to a substantial non-Masai population in the Mara region.

When these people are on foot, cheetahs show the same fear of them as they do of the Masai. Oddly enough, roadgraders, bulldozers, and even airplanes elicit milder responses--about the same as tourist vehicles. Once, as an airplane landed and taxied by a cheetah about 80 feet away, a tourist-tolerant male seized the opportunity to kill a distracted Thomson's gazelle, and did not abandon his meal even when the plane taxied back to permit the passengers to take pictures.

Construction sites appeared to have less impact than might be expected. When the workmen were not around, cheetahs were fond of lying in the fresh dirt piles left by the bulldozers. Polly, a very tolerant female, even had a litter of small cubs in a dry stream bed only about 300 feet from a small gravel quarry. One consequence of this tolerant behavior was that word of her location spread rapidly, and twenty tourist vehicles or more would show up each day that she remained there. Since she was just off a main throughfare, it was not unusual for her to have up to six vehicles at a time for company throughout the morning and afternoon. Under such circumstances, she seemed reluctant to leave the cubs, and her hunting was restricted. Thus cheetahs may be at some disadvantage when they try to raise cubs near where people are concentrated.

Paradoxically, while tourists and native people pose potential threats to East Africa's wildlife, they may also be the animals' only hope.

General Information: The Big Cats the paintings of Guy Coheleach 82

[A] Cheetahs of the Serengeti, National Geographic, vol.157, No 5, May 1980
[1] ...1970 Group Interactions ... in cheetahs.

[2] Walker's Mammals of the World vol.II
Ronald M. Nowak, John L. Paradiso, 4th edition 84.
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Infectious Diseases of Nondomestic Cats

Katherine E. Quesenberry, D.V.M.*

PARASITIC DISEASES

PART III

Most common helminths identified in domestic cats are found in exotic felids. Nematodes reported in exotic felines include ascarids, hookworms, whipworms, acanthocephalids, stomach worms, lungworms, and trichinellids. Platyhelminths, including cestodes and trematodes and rickettsial diseases have been frequently observed. Protozoal and rickettsial diseases have been frequently reported. Coccidiosis is a common disease in young cats. Babesiosis, hepatozoonosis and feline infectious anemia have been reported.

Toxoplasmosis is an important disease of exotic felids. This protozoan may be transmitted by the ingestion of wild rodents. As in domestic cats, both intestinal and tissue forms of the disease may occur. Clinical signs vary with the organ system involved. Central nervous system involvement is common. Clinical signs of ataxia and seizures may be unresponsive to anticonvulsant therapy. In a survey of wild bobcats in West Virginia and Georgia, 18 per cent of the cats tested for toxoplasmosis had serum titers greater than 1:16 by direct hemagglutination. Fecal examinations for Toxoplasma oocysts were negative. This finding is not uncommon, because oocysts are only shed during the initial phase of the life cycle and are found only in a very low percentage of infected cats. This study suggested that bobcats and other wild felids may be the definitive hosts for Toxoplasma gondii, with prey species such as rodents and opossums serving at the intermediate host.

Treatment of toxoplasmosis in domestic cats includes administration of sulfadiazine (60mg per kg per day orally, divided four times a day) and pyrimethamine (0.5 to 1.0 mg per kg orally in a single daily dose.) for at least two weeks. A higher dosage of sulfadiazine (120 mg per kg per day, divided four times a day) has been suggested in exotic felids. Supplementation with folic acid (1 mg per kg per day orally) should be included in the treatment regimen, especially in pregnant animals. If clinical signs and associated organ damage are severe, the prognosis for improvement is poor.

Cytauxzoonosis is a fatal disease of domestic cats that has been recently investigated in nondomestic felids. In domestic cats, clinical signs include pyrexia, anorexia, listlessness, icterus, dehydration, and death. Piroplasms, or ring forms of the parasite may be seen in circulating red blood cells. Histopathologic examination reveals schizonts in the cytoplasm of mononuclear phagocytes lining the vascular channels of the liver, spleen, lungs, lymph nodes and bone marrow. The occurrence of Cytauxzoon-like organisms in the red blood cells of two cheetahs has been reported. The cheetahs were born and raised in captivity in the United States except for a 2 month period spent in Africa. Neither cat was symptomatic for cytauxzoonosis. Blood from one cheetah was experimentally injected into the peritoneal cavity of a domestic cat. The cat did not develop any clinical signs of infection, and no organisms were found in the red blood cells on repeated samplings.

Blood from domestic cats terminally ill with cytauxzoonosis was experimentally injected into bobcats. Fatal disease was produced in one bobcat, whereas a second became parasitemic but developed no clinical signs. Blood from the parasitemic bobcat did not produce clinical disease when inoculated into domestic cats. Para-

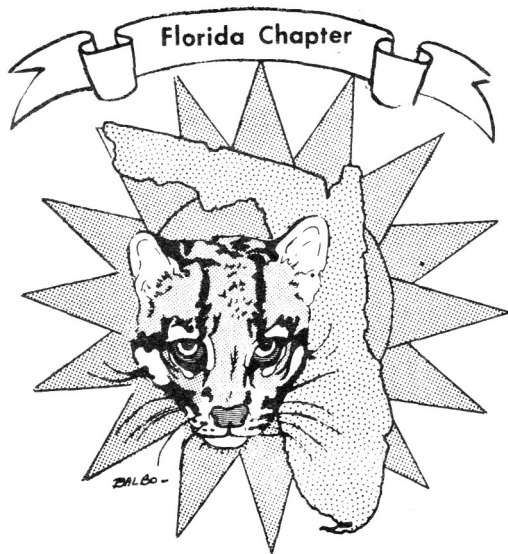
sitemia was induced when blood from four asymptomatic wild-trapped bobcats with the intraerythrocytic piroplasms was injected into domestic cats. One of these cats died with clinical and histopathologic lesions characteristic of cytauxzoonosis. When virulent cytauxzoon organisms of domestic cat origins were injected into both bobcats and domestic cats, the bobcats remained asymptomatic while the domestic cats died. Schizogenous tissue forms were not present in bobcats or parasitemic domestic cats on histopathologic examination. From these studies, it has been concluded that bobcats are a natural host for C.felis, harboring the intraerythrocytic form of the organism. The question is unresolved as to whether C.felis is a single species that produces variable clinical signs, or whether its two species that produce two separate disease syndromes.

Giardia spp. has been identified as a cause of acute severe diarrhea in cheetahs. This protozoal parasite primarily affects the duodenum and proximal jejunum and exists in the motile trophozoite form or the infective, nonmotile cyst form. Transmission is through consumption of food or water contaminated with cysts. Wildlife species such as beaver and elk may serve as reservoir hosts, and outbreaks may occur from ingestion of water from streams contaminated with excreta from these animals. In domestic cats, diarrhea may be acute, chronic and intermittent. Feces may be tan and watery and exhibit steatorrhea. Appetite is variable. Diagnosis is through examination of the feces for trophozoites or cysts. Lugol's 2 per cent iodine solution is useful to stain cysts on direct smears or fecal flotation. Trophozoites may be demonstrated on direct saline smears or iodine stains of fresh feces. Because shedding may be intermittent, multiple fecal samples should be examined. In cases in which fecal examinations are negative, duodenal aspirations or intestinal biopsies may be necessary for diagnosis. Giardiasis is treated with metronidazole (Flagyl-Searle Laboratories) or quinacrine (Atabrine - Winthrop Laboratories) A toxic reaction consisting of seizures and ataxia has been seen in cheetah treated with metronidazole at the dosage rate advised in the dog and cat (60 mg per kg per day for 5 days). The dose of metronidazole should be decreased in exotic cats to avoid toxicosis.

Adult heartworms (Dirofilaria immitis) have been found postmortem examinations in exotic felids. Histopathologic lesions including pulmonary edema, and eosinophilic infiltration of the alveolar and bronchial walls suggested allergic alveolitis in one case. Diagnosis of heartworm disease in exotic cats may be difficult. In domestic cats, clinical signs include weight loss, emesis, dyspnea, coughing, and hemoptysis. Only a very low percentage of domestic cats exhibit a microfilaremia. In suspected cases, blood should be checked for microfilaria. Radiography and serologic testing for anti-dirofilarial antigens should also be utilized. Prophylactic therapy with diethylcarbamazine should be considered in high risk areas. Most infected nondomestic felids are probably asymptomatic.

Common external parasitic diseases may pose unique problems in exotic felids. Many cats with flea infestation do not scratch, and debilitation and anemia may be severe before diagnosis is ever made. Other external parasites that have been described include earmites, mange mites, and ticks. Therapy should employ topical antiparasitic agents that are safe to use on domestic cats.





MEETING REPORT

Our meeting this November took place at the home of Marion Allen who lives on a few wooded acres near Tampa in a town called Thonotassassa. It's a real nice area just a half a mile from a state park.

It was one of the hottest Novembers on record which made it great for an afternoon out in the sunshine visiting with all the Club members and playing with all the cats. Problem was.....there were no cats present except for one old Siamese hanging around the area that didn't even belong to Marion and there were NO club members outside of Dennis and your's truly. Kind of hard to have a cat meeting under those kind of circumstances.

The poor turnout resulted from complications beyond everyone's control. The Treanors were definately going to be there, but Danny's Grandma passed away that weekend and they had to make a trip out of town to attend the funeral. We extend our sympathies to the Treanor family.

Jean Hatfield was unable to come up as the teenager that helps her feed the cats decided he didn't want to any more, so she had to stay home and attend to the "zoo" herself.

Marion herself had problems that morning. In trying to do a good deed, to protect some of the animals that were left on her property by some previous tenants, Marion gathers them up and takes them temporarily to animal control. This was to protect them from the cats coming to the meeting and visa-versa. She had plans to retrieve them when the meeting was over.

Anyway, as Marion got out of her car, the past tenants attacked her with a soda bottle and busted her head open. (Does this sound like the makings of a soap opera) This is the way it was folks, I guess they figured she was dumping their animals. Strange how people are. They weren't concerned when they moved out and left them with her, knowing Marion would feed them, but they were highly insulted when they thought she was going to take them to the pound. Oh, well, and so it goes.

When we arrived Marion had just got back a short time before from having her head attended to and there was a NEW couple sitting there that we had never met before, watching Marion with facination as she began fixing lunch.

She brought out a frozen lump of chicken and proceeded to wrap it in tinfoil with the paper and styro-foam STILL on it, then took it out and put it on the grill as she was telling these new people about getting hit over the head that morning. They didn't say anything but being as Dennis knows her a little better, he asked her if she was a little light in her loafers, or something to that effect. She assured him she was alright and went in the house to get the rest of dinner.

While Dennis and I were wondering if she had a concussion or not, we tried to make friendly conversation with the new people. Another couple arrived that hadn't

attended a meeting before, and were real interested in the cats. Fortunately, I brought Tara's pictures as usual and an album full of convention pictures. So, these new folks did see what an exotic looked like.

In the mean time, Marion was messing around out by the grill and we started smelling this wonderful aroma of barbequed chicken. In no time at all Marion was calling us to lunch and we went in to dish up a really GOOD dinner of all sorts of things and DELICIOUS BBQ CHICKEN minus the plastic and styrofoam. She says she lets it thaw out wrapped up like that and then takes it out and puts it on the grill after it cooks part way. It really cooked good, and you couldn't even taste the plastic.

Since we had such a poor turnout, she insisted that I not take up a donation for lunch as the ones who were there were guests. It was alright by me, cause I hate to panhandle people for money anyway.

Marion made a few phone calls knowing that these new folks would love to see some exotics and after lunch she took them over to a friend's house and showed them a whole zoo-full of cats. That was really sweet of her cause I'm sure she must have had a king-sized head ache from that awful run-in she had that morning. We really appreciate that Marion. It's hard enough organizing a meeting without going through what she went through what she did that day. We still think she's a little light in her loafers, though (just kidding, Mar).

Those attending were: Marion and her friend Marlin Reinecker, Dennis & I, John and Ann Webinga from Winter Haven, Harry & Ann Lackey from Sanford.

There will be no January meeting this year, but we're all looking forward to something special in March. Just what it will be, we're not sure of yet. (We're a very laid back bunch down here).

If you ever get down south, ya'll come and see us cause I'll always be your,

Fellow Feline Fanatic and Friend from Florida
Barb Grimes

Election Results

The results of the election are as follows:

President - Fred Boyajian

Vice President - Bill Boyle

Term Directors - J. B. Anderson
Virginia English
Karen Jusseaume
Shirley Wagner

These folks will serve for the 1987/88 term. The committee reports the participation in this election was the best ever.

The majority was in favor of advertising by a overwhelming number. The addresses and phone numbers of the board members can be found on Page 2.



Printing By **PRINTRIGHT** Oregon and Washington



Lynx Repopulation

Reprinted from CAT NEWS, publication of the Cat Specialist Group of the International Union for Conservation of Nature and Natural Resources.

Readers Write

In response to the Editorial "Change to What & at What Cost?" in the July/August issue we got the following responses:

A New York member wrote: When an organization or the Newsletter gets too political it loses its appeal - "down-home" information and experiences with animals by fellow members provides a feeling of security and confidence for the less experienced and tempts the way to try ownership. After all, the organization and the newsletter is only for the "animal fancier" with a bent toward the exotic aspect.

The Newsletter might add biographies of experienced owners-how they started, facilities, daily routines, family, pros & cons, etc. If I didn't go to convention, I'd know very little about the other members or their animals. I think that this would be of interest to the average member-perhaps one from each branch on a rotating basis?

And a long-time California member commented:

LIOC going "professional" that's a crock! and an attempt to do so will just drive away existing members who are members because they have a "pet" and want pet news. Any attempts at saying LIOC is a "professional" organization, would, I'm afraid, be laughed at by just the people the club is trying to impress. As for running articles from other magazines like the National Geographic ect., why don't you just let the members know about them where to find it, and those interested can read it at their library.

LIOC members need to work together...for the benefit of the animals they claim to want to preserve. In the past few years, there has been a lot of in-fighting one faction being at odds with another. This is the type of thing that can destroy a club. I think the club should literally clean house and return to the organization it was meant to be-a friendship group of people with the same interests sharing the information they gain from their very special "pets". That, in my opinion, is the change that should be made. Then if LIOC member want to be recognized, it's members can organize donations to conservation groups in the name of the Club.

And one more thing, The Breeders Directory should have only those actually breeding their cats and producing kittens. NOT those people who just are wishing their catd would produce or "may someday" have kittens-those people ARE NOT breeders.

PLEASE NOTE:

The next topics for the feature item will be:

Serval

Clouded Leopard

If you would like to contribute information or photos, please send to:

Elaine Burke
163 Old New London Rd.
Salem, CT 06415

Lynx, which became extinct in Switzerland at the turn of the century, have been reintroduced in recent years and there are now about 50 in the country. The public has not totally accepted the lynx, and hunters complain of competition for deer and other game.

Drs Urs Breitenmoser and Heinrich Haller of the University of Bern, Switzerland, who have been studying spatial organization and feeding habits of lynx in the Swiss Alps, report that ungulates gradually adapt to the presence of lynx, but their space requirements increase.

At present the lynx in the northern Alps occurs mainly in large forest areas where the population density is estimated at one adult to 85 km.*

Home ranges of four lynx in the northern Alps where the lynx was first established, varied from 450 km* to 275 km for males and 135 km* to 96 km* for females. In the Valais (central Alps) an adult female was tracked over 46 km*. The home range of one female was almost completely overlapped by that of a male.

Occasionally lynx roamed outside their home range, especially males during the mating season, and one male ranged over 1,860 km*. A young female, which dispersed and lived with a range of only 5 km* in a valley not used by lynx before, probably captured prey more easily because it was a new area.



Breitenmoser and Haller found that lynx in the study area fed mainly on the two smaller ungulates. Eighty-eight prey items included 48 roe deer, 30 chamois, five hares two domestic sheep, two marmots and one red squirrel. Analyses of feces showed that neither small rodents nor birds were of any importance as lynx prey. A male and a female hunting in the same area showed different preferences in killing roe deer and chamois (12:14 and 21:7 respectively). Distances between consecutive kills varied from 5 to 10 Kms*. Exploitation of killed ungulates in undisturbed sites was 88%, close to civilization-62% Adult lynx killed one ungulate every 6.6 days, a female with two cubs of 10 months one every 2.7 days.

The yearly consumption of one lynx was estimated at 60 roe deer or chamois, and the total consumption in the study area was 3-9% of the ungulate population. It is considered that feeding strategy, i.e. surprise attack, is one of the main reasons for the large home ranges and the low population density of lynx in the northern Alps.

A study by Antero Suoranta and Lounais-Hameen Luonto of ten years of game death records in southwest Hama, Finland, where lynxes have survived naturally, showed that 25% died through attacks by dogs; 15% died of starvation, 11% fell victim to road traffic, 9% were poached, and 7% drowned...only 5% were killed by lynx.

Necrology

SNOOKIE-Ocelot to heart failure on January 9, 1987. Bonnie Hadley writes: He had been showing signs of a bad heart for a couple of years now and our first real cold snap down here (Florida) was apparently too much for him.

I acquired Snookie and mate Widget in 1966. They were about two months old and wild-caught. Snookie was the tamer of the two. Snookie and Widget produced six kittens that I can remember and they have survived all their offspring. Since he was wild caught, his exact age is not documented, but in March of 1966 he couldn't have been over a couple months of age. He is survived by Widget who still appears to be in good health.

I don't know how his life span compares to other ocelots in captivity, but I do feel that I was lucky to have had him as long as I did. I will miss him very much.

KHAYAM, the cheetah which graced us with her presence at an Oregon Convention a few years ago and which starred in several television productions, died late last month (December) from complications of a kidney transplant.

The transplant, the first for a cheetah, was performed by Dr. John Barry, Director of the Kidney Transplant Program at Oregon Health Sciences University in Portland, Ore.

Khayam was 10 years old and died at the home of her keeper, Laurie Marker who worked at Wildlife Safari.

Sensory Motor Stimulation

For the past decade my behavioral research studies on non-domestic animals have spanned several species of aquatic as well as terrestrial mammals, culminating with an intensified research commitment which specializes in the field of non-domestic felines.

If asked to cite one primary emotional trait common to all animals including hominids, I would respond with the requirement for sensory-motor stimulation; defined, 'sensory' meaning all things pertaining to the senses of touch, taste, smell, sight and hearing, and 'motor' referring to physical movement.

During an undergraduate psychology course, we were required to conduct sensory-motor deprivation studies on ourselves and to submit a paper on the results. This necessitated that each student cut himself off from one or more of the six senses (including motor) for a period of 24 hours. Some opting to suspend themselves from virtually all sensory stimulation, floated themselves alone and immobile on a raft in a pool wearing a full wet suit, ear and nose plugs and a blindfold. Many reported hallucinatory visions after only 10 hours and abandoned the assignment. Others, selecting less drastic deprivation, reported exaggerated sensations in the remaining operable sensory areas, many resulting in increased irritability, tension and edginess. All agreed that their respective experiences created varying degrees of negative stress.

Non-domestic animals are innately brain-wired for survival through the use of their highly specialized sensory-motor skills and have the energy potential to employ those skills. When an animal is captive, his need to use those skills is removed. For example, he does not have to hunt as he is supplied with food from his caretaker. Rarely is he ever able to use the potential of his motor-skills, as usually his cage territory is minimal. Even in the best of captive situations, non-domestic animals live in the shadow of sensory-motor deprivation, which I hypothesize causes some level of

negative stress, perhaps subtle or frequently blatant.

While playing with my servals or Geoffroy's cat, more likely than not, if the games become too easy, they will themselves create a more stimulating and challenging version of the rules. A toy thrown for the cat to retrieve will be successfully repeated several times until the cat on his return deposits the toy purposefully in some cranny, requiring that he use his mental and physical skills to retrieve it once more before returning it to me.

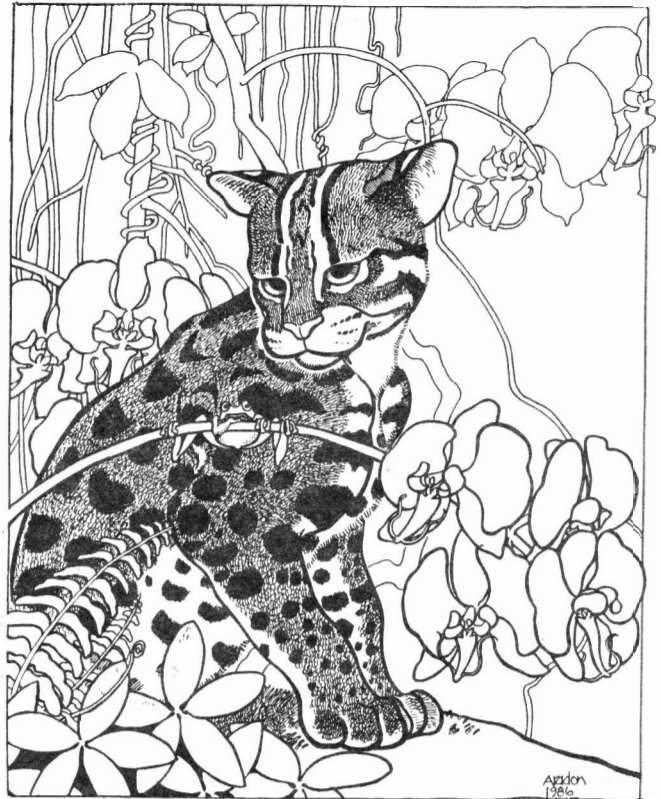
For other examples, what cat can resist the motor challenge of chasing a moving object, the audio stimulation of crackling paper, or not playing escape and recapture while tossing his prey?

The emphasis of my research concentrates on methods which could help to supply motor-sensory stimulation to captive animals, thereby possibly aiding in stress reduction.

Inadvertently, a month ago I discovered an excellent device for this purpose. My son had devised a dirt track close to the outside cat runs, where he proceeded to put his 25-30 MPH remote controlled hobby car through its turn-on-a-dime paces. Within seconds of hearing the high-pitched squeal and whine of the moving toy, every cat was poised and pensive at the wire, contemplating the big pounce. Used inside on an oversized den floor, the cats galloped and leaped after the mechanism, employing their numerous hunting skills, and eventually rendering the cats tired and contented.

Utilizing some imagination and energy, there are no limits to the stimulating scenarios you can create for the non-domestic feline. The results of your efforts could provide improved emotional health and balance, reduced stress, improved physical condition, regulated appetite, productive breeding programs and a generally more contented and happy animal.

Suzi Wood



ARDEN ARADON did this rendering of a Leopard Cat from the photos in LIOC's information brochure. The orchids forming the setting are Phalaenopsis amabilis and are native to oceanic southeast Asia and it's islands- a suitable companion to the leopard cat.

Arden has offered more artwork if we will send pictures of cats to build his reference library. Any of you wishing to do so may send them care of the Newsletter and I will forward them to Arden and send copies of any resulting artwork to you of your cat.

C.I.T.E.S. Notes

The CITES (Convention on International Trade in Endangered Species) Technical Committee, met June 23-27, 1986 and endorsed a working group recommendation for urgent studies on the status of a number of species, including five South American Cats - *Felis geoffroyi*, *F. colocolo*, *F. pardalis*, *F. tigrina* and *F. weidi*. It was noted that work had already started in Bolivia where a survey is being conducted by Dr. Jose Teilho

* * *

World Wildlife Fund/US has called for the continuation of detailed reports by the European Economic Community (EEC) members on their implementation of the Convention, despite the EEC's proposed accession to the convention as a single party.

In a report prepared for the U.S. State Department, as a preliminary assessment of the situation, WWF/US said that the accession was based on the premise of a uniform, harmonized system throughout the EEC for controlling external wildlife trade, which could theoretically justify relaxing border controls between member states.

A report by the Secretariat commented that illegal trade was flooding into the EEC through weak points and the implementation of CITES in the EEC is obviously extremely poor in this respect. The Secretariat singled out France and Italy as having major enforcement problems and said that freeports were a significant loophole. "It is a fact that CITES controls are not exerted in such freeports and in this respect, the Hamburg freeport in the Federal Republic of Germany is known to be a major conduit through which CITES specimens enter the EEC without CITES documents and controls.

In a highly critical report, which was presented to a meeting of the CITES Technical Committee in June, WWF/US said that the EEC probably represented the world's largest market for cat and reptile skins and certain other unfinished wildlife products, and thus its role could be critical in ensuring effective worldwide enforcement of CITES.

Some points relevant to felids in the report are:

- Paraguay is cited as the country of origin for numerous shipments of wildlife, many of which contained (sub) species not occurring in Paraguay, which in any case, banned wildlife hunting and export in 1975.

- In 1985, shipments of several thousand spotted cat skins from Bolivia were accepted for import into France despite a decision by CITES Standing Committee to refuse felid skins from Bolivia until that country established control methods. The skins were subsequently transported to the Federal Republic of Germany, where authorities ordered seizure. However, because they could not legally refuse to accept valid CITES documentation, (in this case from France) the order could not be held.

- French Guiana is a funnel for illegal wildlife from South America to the EEC because shipments constitute internal trade to France and therefore to the EEC.

- Spain is due to become a CITES party in August, 86 but when the country joined the EEC in January, "apparently enormous stockpiles of cats skins and other wildlife products became for the most part, freely available to the EEC.

- Imports to France of Paraguayan origin included skins of 1,000 *geoffroyi*'s cats, 7167 *oncilla*, 3,257 *margays* all imported via Argentina and probably illegal in light of the Paraguay's ban on hunting and export. The skins of 2,600 ocelots imported directly from Paraguay may have been from *F.p. mitis* and Appendix I subspecies and thus banned from commercial trade.

- The Federal Republic of Germany has apparently not exercised any control over trade with other CITES members of the EEC. Cat skin imports included 530 leopard cats from North Korea, where the subspecies does not occur, via the USSR, 2,500 skins and one garment of *geoffroyi*'s cat from Paraguay and re-exported from Switzerland, three garments of ocelots and 131 skins of *F. sylv. estris* from India, which did not report the export, 9,000 skins of *F. tigrina* (*oncilla*) from Paraguay via Japan as well as 82 re-exported via Austria and Japan, 30 garments of *F. chause* from India which did not report the re-export.

- Belgium imported 1,000 *F. geoffroyi* skins from Paraguay via Argentina
- Greece, not yet a Party to CITES, but Denmark reported exports to Greece of 360 *Lynx rufus* skins.
- Guatemala has provisionally suspended, from March, 1986, all hunting, capture, local trade, export and re-export of wild fauna while a study is carried out on the country's faunal resources and conservation.
- Also in March, 1986, Uruguayan authorities raided shops in Montevideo and seized 2,388 raw skins, 4,093 tanned skins, 47 garments, pieces and accessories and 58 kg of mixed skins. They confiscated those found with false identification stamps. Among the seizures were *Geoffroy's* cat skins and an ocelot coat.



While on a tour in Africa last summer, Pope John Paul accepted gifts made of protected wildlife. Kenya gave the Pontiff a rug made of Columbus monkey skins. The Cameroun presented him with an elephant tusk carved with his name. Both animals are supposedly protected under the Convention in International Trade in Endangered Species.

According to the Northcoast Environmental Center, a survey in Bangkok, Thailand, of 188 tourist shops revealed that 112 of them were selling articles made from endangered species.

Singapore Trade Banned

By Patt Morrison

In an unusual action begun quietly, the U.S. Fish and Wildlife Service banned all wildlife imports from Singapore - worth an estimated \$17 million each year - because of the country's refusal to abide by international protections for rare animals.

The action by the Fish & Wildlife Service has virtually shut down Singapore's lucrative \$12 million home grown tropical fish trade with the U.S., most of it processed through Los Angeles International Airport.

And, more important to environmentalists, the ban has ended Singapore's alleged \$3 million to \$5 million traffic to the U.S. in illicitly obtained animal products.

The problem arose, officials said, because the U.S. as a signatory to the Convention of International Trade in Endangered Species (CITES) requires that every animal product imported also carry a certificate of origin, to prove that the animal did not come from a country where it is protected as and endangered or threatened species.

"We've been dealing with Singapore through the State Department for more than a year, to get documentation," said Kathleen King, an enforcement specialist with the service. "They have not been cooperative, and finally, we refused clearance to all shipments."

King said Singapore usually doesn't declare the country of origin and in fact re-exports protected animals and products taken illegally from their native lands. In effect, this is "laundering" the product, said World Wildlife Fund expert Ginette Hemley.

What prompted the Fish & Wildlife Service to take action, King said, was importation of the rare pangolin, a mammal that resembles an anteater. It is known to live wild only in Thailand, Indonesia and Malaysia, where it is protected. Yet pangolin hides are exported from Singapore each year, and clearly these animals don't live in Singapore.

King said a similar ban was placed on the Philippines last year, when the government refused to detail where its animal products originated. The ban, which included the profitable reptile shoe trade from the U.S., lasted three days before the Philippine government agreed to meet U.S. documentation standards.

First secretary for Economics is concerned about the lost of the tropical fish industry and says Singapore has pledged to sign the CITES convention.

Legislation

UPDATE ON PROPOSED MODEL STATE ZOOLOGICAL LAW

The first draft of a model state law to regulate all phases of exotic animal ownership, sale, transportation and welfare has been circulating for comment. It was written at the University of Georgia (Athens) at the request of the U.S. Department of Agriculture's (USDA) Animal and Plant Health Inspection Service (APHIS) upon inquiry of the U.S. Animal Health Association (USAHA) for disease control measures to insure that disease was not transmitted from exotics to our native livestock and poultry. The draft, in its present form, went well beyond the scope of its original intent and is very restrictive, causing much alarm and hysteria.

Relax for the moment; this first draft is being COMPLETELY REVISED. On January 23rd, I went to a meeting in Washington, D.C. as your representative to officially comment on this proposal to U.S.D.A. officials and the regulations' authors, Dr. Victor Nettles and Peter Swiderek. In my opinion, they were very receptive and genuinely interested in our comments, so that a much more workable second draft will be produced that should be beneficial to all parties, including the animals. How drastic the promised changes will be remains to be seen however, so we must still be vigilant.

What is important is that this meeting came about through the efforts of one person, Pat Hoctor, publisher of the Animal Finders Guide. He was so effective in getting the attention of both the U.S.D.A. and the bill's authors that they agreed to meet with a group of his choosing. This was no minor feat and I felt privileged to attend. He assembled a group of 20 representing some of the largest commercial dealers, auctions, breeders, game ranchers, circuses, exhibitors, private owners and petting zoos in the country. They commented on buffalo, wolves, deer, llamas, birds, reptiles, primates, cats, etc. With the exception of a few attorneys, these people are involved with and very experienced in all phases of animal ownership and welfare on a full-time basis, as their chief livelihood.

To make this possible, Pat Hoctor enlisted the aid of attorney Marshall Myers of Myers and Atterman to moderate the meeting and articulate the various positions. Marshall is a PIJAC (Pet Industry Joint Advisory Council) attorney and very familiar with the infrastructure of government regulators and will be forwarding a written summary to be used in review for the second draft revision due this April.

For my part, it was to convey LIOC's position against any infringement upon the rights of responsible private ownership of any exotic as a private collector to enhance the species through education and propagation, even on a noncommercial basis.

It would be impossible to review each comment here, but the point to remember is that all of us there were unified with a common purpose to produce a workable law and the government officials were receptive. They know we will return in force if we are ignored.

There are now great inconsistencies between state laws and there have been many efforts in recent years to pass a model law by many interest groups. In my opinion, the logic of "us versus them" or the position of "no new rules" is not realistic in this society. It is much better to produce a reasonable regulatory mechanism based on facts, than to let a lopsided law evolve and have to fight it in 50 different state legislatures. We need to assure all factions that we are not part of any problem, perceived or real, and that in fact we have many constructive solutions. The result should be of benefit to the animals to insure future captive propagation. Animal welfare, public health and safety can co-exist with guaranteed rights of private ownership. ↗

Fred Boyajian

✱

Member Theresa Magee recommends WILDKATZEN 1987-a wall calendar dedicated to the exotic felines. The profits from this 9 x 12 color calendar benefit the International Snow Leopard Trust. Order by sending \$5.95 plus \$1.00 postage to:

The Conservation Consortium
P.O.Box 82093, Dept CM
San Diego, CA 92138

Missouri has repealed a law that authorized the bounty paid on coyotes, wolves and wild cats and has permitted County Clerks to offer rewards for the destruction of gophers, moles, ground squirrels and chipmunks.

Kentucky, Maryland, Maine, Nebraska, Tennessee and Virginia are among those who recently revised their laws affecting the possession of wildlife. Most have increased restrictions so it would be wise to check further if you live in these states.

* * * * *

The state of Mississippi has adopted new regulations which curb ownership of most exotic animals and prohibits ownership of all species of exotic cats.

Divided into three classes, exotics in Class I (which include all species of Felidae, Canidae and numerous others) are prohibited. Class II animals may be owned under stringent permit regulations and Class III (non poisonous snakes, domesticated species of rabbits, gerbils, quinea pigs, etc) are not restricted.

You may obtain a full copy of this law by writing:

Department of Wildlife Conservation
P.O.Box 451
Jackson, MISS 39205

MOUNTAIN LION ALERT!



The California Fish & Game Commission will begin a series of three hearings on a proposed hunting season on mountain lions.

Since 1972, mountain lions have been protected from hunting. Until 1986, mountain lions were protected by a legislatively-mandated moratorium. Unfortunately, Governor Deukmejian vetoed legislation that would have extended the hunting ban. Although the ban was lifted in 1986, the Fish & Game Commission did not open the sport hunting season last year due in large part to the tremendous public opposition to the action.

Again, an overwhelming outpouring of public opposition to the resumption of mountain lion hunting is needed to prevent the issuance of over 200 permits to take this "trophy" in 1987.

Please take a moment to write the following making your opposition to the resumption of mountain lion hunting known:

California Fish & Game Commission
1416 9th Street
Sacramento, CA 95814

Governor George Deukmejian
State Capitol
Sacramento, CA 95814



Pal Joey



Canadian member Murray Killman writes: Here in Canada one by one, laws are being passed to outlaw the keeping of exotics as is happening in the U.S. Murray, also a well-known artist, has a 33 acre compound and has on a limited basis opened his compound to the public. Shown on the cover is Joey, a five year old cougar. This says Murray, is the "real" Joey - the cover photo caught Joey in a yawn! He loves to have his back rubbed when I visit him every day. In fact, if Murray tries to leave too soon, Joey lets him know it. Left is one of Murray's recent works, a pastel rendering of a Canadian Lynx.

CONVENTION '87

***COMING
YOUR
WAY!***

August 5-9

Atlanta, Ga.

President's Perspective

ON THE WINDS OF CHANGE

Happy New Year and many heartfelt thanks for your support. I must applaud all of you and the Branches for the overwhelming interest that was shown in the recent election campaign. The ballots reflect over 3 times the amount of participation than in previous years. That's good for all of us. The greater the participation, the greater the consensus. For the record, your votes for the winning candidate clearly indicated a desire for a more progressive course for LIOC. The most important single issue, the question of advertising was favorably decided 4 to 1, another clear mandate for change.

But before we embark, I would like to take a moment to reflect on my predecessor, Ken Hatfield. He has left some big shoes to fill after leading us for 12 years through some often very turbulent times. We all salute the splendid job you did Ken, and hope you remain active with us as council and Life Director.

Also, the "loyal opposition" should be recognized. In any post election phase it is important that we reband together again in a spirit of co-operation, setting aside divisive feelings for the better of LIOC. In any organization there will be diverse views. The worst that could happen is that we stop hearing from you and LIOC goes off on another tangent. I respect your viewpoints and look for solutions to include serious concerns.

There is also a great number of you whom I have never met, or vaguely remember from past years at convention. Your views, pro and con, are very important to me and LIOC. So, all of you SPEAK UP! You have voted for a new beginning and you know some of our thoughts, but now we want to know yours. Please fill in the questionnaire and return it. Tell me what you do and what you would like LIOC to accomplish in 1987 as well as what you will help and what you would like to volunteer for. Be sure to include your phone number. If writing is not your style, call me toll-free 1-800-251-5800 anytime but preferably after 5 PM EST. Please remember that unless you specify otherwise, your call will be recorded. Your responses will determine what goals we set for 1987.

I feel my major role in LIOC is to be the motivating force that seeks out issues and brings them forth for all sides to address and then make sure the solution is implemented. Any real changes will be made by LIOC and not it's President.

Your new Board wants to respond but can only do so with greater participation on your part. For LIOC to do more, you also must be willing to volunteer some of your time. As a Board we can not solve your problems or help your animals unless you are an active part of the solutions.

Fred Boyajian

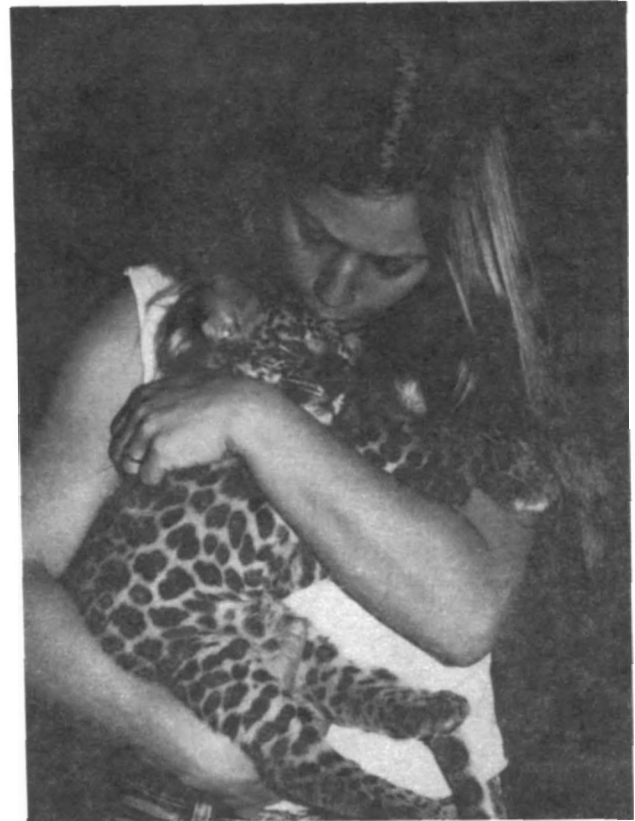


What's your View?

Enclosed in this issue you will find a questionnaire. Please take a few moments and fill it out as completely as possible. This will help your Officers and Directors in determining the direction LIOC should take in the future. It will also give us a better picture of who LIOC is and what our members need.

Also, please do feel free to express any feelings, thoughts and ideas you may have which will help us serve you and your felines.

l.i.o.c. gallery



I know everyone that has babies knows what these moments are like. You never forget them. This is Sabu at 2½ months-so sleepy and so sweet! Sabu is 2 years old now and is still sweet. He lives outside most of the time and weighs 120 lbs. But when he comes inside he is very gentle and careful. **He loves playing ball** enjoys scaring the death out of people-especially at the BurgerKing drive thru window-he loves their hamburgers! **But most of all he still loves to cuddle.** He doesn't use his mouth at all. He's the best natured leopard I've seen. He's very special to me because he fills a space in my heart that has been empty for so long. Kathy Metzner



Sandra Pinto with 11 month old Sasha

Deadly Race

Cheetahs are "racing towards extinction" according to an article written by Larry Doyle and released through the UPI Services. The best efforts to breed them in captivity, he said- may be thwarted by the food given to them in zoos.

Researchers at the Cincinnati Zoo claim that a common commercial food which is rich in two plant estrogens may be responsible for the high increase in liver disease and infertility found in the endangered cats. Dr. William Balistreri, a zoo vet, presented a paper on this subject at a national meeting of liver specialists recently. Others have been more cautious about the results, stating there is much to learn about the cheetahs and the cause of their problems.

"We really don't know whether this is something that is intrinsic to the species or whether we're somehow aggravating it", said one official. However, the speaker agreed that if the diet being fed to the animals was the cause, then "we're all going to hurry and take them off that diet".

It is known that cats do not use vegetable protein efficiently and require more protein than other carnivores.

There are now fewer than 15,000 cheetahs in the world, including 204 in the U.S. Only three litters have were born in 1986.

A study of liver tissue taken from 102 cheetahs from 102 zoos showed that 60% had some form of vascular damage to their livers.

About 75% of the big cats in this country, found in zoos, are fed a commercially prepared diet, consisting of horse meat by-products soy and bone meal, and vitamins. The soy meal contains high levels of the plant estrogens daidzein and genistein.

Estrogens, in addition to acting as contraceptives, are also known to promote certain kinds of cancers and diseases when taken in large doses.

Researchers have started feeding cheetahs in Cincinnati a chicken diet rather than the commercial diet. Early blood tests indicate improved liver function in the animals. The chickens are more expensive, but one official noted, "we're talking about the price of a species"



NO 4034 - PUMAS by Klaus Meyer Gasters



Migratory Feline?

At a meeting of the parties to the Convention on Migratory Species of Wild Animals a decision was made to include the snow leopard, *Panthera uncia* in Appendix I, which covers endangered species.

Range states must prohibit taking of animals listed in Appendix I unless for scientific purposes, to enhance the propagation or survival of the species, to accommodate the needs of traditional subsistence users, or extraordinary circumstances so require. Range states are committed to conserve where feasible and appropriate, habitats which are important to the survival of the species; to remove, prevent, reduce and control factors, activities and obstacles that seriously impede migration of the species; and to the extent possible, reduce, control and prevent factors which are endangering or like to further endanger the species.

The snow leopard is the only member of the Felidae family to be included in the Convention appendices, and although the extra protection is welcomed, many feel that the snow leopard and cats generally, do not fit the Convention's definition of a "migratory species", which is:

the entire population or any geographically separated part of population of any species or lower taxon of wild animals, a significant proportion of whose members cyclically and predictably cross one or more national jurisdictional boundaries.

Reprinted from Cat News

Drive To Save World's Rain Forests

A world-wide campaign to save the world's rain forests has been launched in San Francisco by a group of environmentalists. The drive should be of special interest to those in the pet industry since much of the livestock sold in the trade, from birds to tropical fish, come from areas of African and South American rain forests.

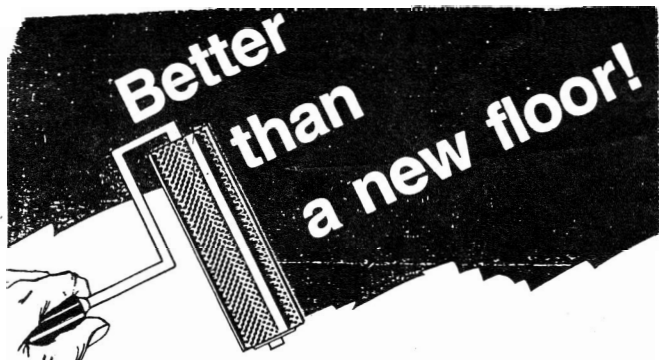
Rain forests are disappearing at the rate of 100 acres every minute and the new coalition plans a variety of actions to reduce the loss. Included in their plans are two major consumer boycotts and a drive to stop the World Bank from financing development projects in tropical forests. The move is backed by 35 organizations in 12 nations.

Although rainforests account for only two (2) percent of the earth's surface, experts claim they contain 50 percent or 5 million of the world's species of plants and animals. The list of rain forests includes those in Hawaii, South America, Africa and Indonesia.

Of special concern is a \$62 million project in the Brazilian Amazon which would develop an area the combined size of Texas and Kansas to create ten new cities, a hydro-electric dam and many ranches and plantations.

The group said it is considering boycotts of tropical hardwood products, and even fast foods from restaurants which buy beef from Central American ranchers who bulldoze rain forests to raise more cattle.

Reprinted from Pet Business



DUR-A-GARD Epoxy Finish

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

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
SALT SPRAY RESISTANCE, 25% solution		
@ 90°F.....	MIL-F-52505	No effect after 100 hrs.
THERMAL SHOCK.....	MIL-F-52505	No cracking or loss of adhesion
ABRASION RESISTANCE, CS-17 Wheels(2)		
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.

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	45 Min.	EXPOSURE 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 (8%)	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-Flex 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	LI08 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
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1-800-251-5800