# L.I.O.C. Endangered Species Conservation Federation Inc.

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BOB, enjoys his boat outings with his owner Jean Hamil. When this was taken he was about  $2\frac{1}{2}$  years old.



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Convention's over and it was good seeing many of you again. Being in the middle of no where, it was nice to be able to talk with lots of people who share the same passion for cats I do. Visiting Boston was nice too. According to my son, the hotel was the best he's ever seen, since it had a swimming pool and free ice cream in the lobby.

Seriously though, I am developing a concern that the type of cats we are keeping and breeding are decreasing in variety. Bobcats, cougars, servals and lynxes seem to make up the majority of animals. This seems to be supported by the advertising in <u>Animal Finders Guide</u>. Endangered species law permits for captive born animals can be obtained, but the paperwork for the person with only one or two animals is almost prohibitive. Likewise, the USDA is getting overbearing. If you only have one pair of exotics and produce and sell one kitten, you need to bet a permit.It's almost like the government has decided that, if they can't ban us, they'll make it so much trouble to be legal that we'll get rid of our animals. Enough of that for now.

More positively, it was brought home at convention that one of our organization's most important functions/purposes is education. Getting out information on care of the animals and how to maintain their health is very important. Gayle Schaecher of Pacific Northwest Exotics showed us a pamphlet her group is putting together which is in the question/answer format. She will make one available to anyone who wants one (free), but I suspect a stamped envelope (large enough for a  $5\frac{1}{2} \times 8\frac{1}{2}$  pamphlet would be appreciated. Also, she encouraged anyone with additions to send them to her. A reminder that EXOTICA has been reprinted and is available from the Editor.

One educational probelm has been coming up is the problem of finding veterinarians who are knowledgable and willing to handle exotics. It occurred to me that one thing we might do about it is to set up a scholarship fund which would be used to support veterinary students who will study exotic (especially exotic feline) medicine. I'd like to throw this out to the membership - What do you think?

John Perry

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# DEPT. OF AGRICULTURE'S WAR ON WILDLIFE!

In 1988, the U.S. Department of Agriculture's "animal damage control" program purposefully killed:

4,600,000 birds 9,000 beavers 76,000 coyotes 5,000 racoons 1,200 bobcats 300 black bears 200 mountain lions just to name a few.

In the process, over 400 pet dogs and 100 cats plus numerous other "non-target" animals also died.

In an effort to justify the continuation of the ADC program, the US.D.A. has just issued its "Draft Environmental Impact Statement" A limited number of these 3 lb documents may be reviewed by contacting the U.S.D.A., APHIS/ADC office in your state.

The Animal Damage Control program plans to spend \$29.4 <u>million</u> dollars in 1990 to continue these programs - an increase of almost 4 million dollars over the 1989 budget.



ADC agents keep "score" of mountain lions killed by cutting off their heads. Over 332 were killed in 1989.

This is your tax dollars going to eradicate our wildlife heritage.

Just in Nevada, according to the U.S. Humane Society, in 1988, 41 cougars were killed as they were "suspected" of killing 520 lambs, and a single calf - a little over 1 kill per lion per month.

You can register your opposition to these appalling practices by writing Secretary of Agricul-

ture Clayton Yeutter and your congressman, asking that your federal tax dollars not be spent in this manner! Condensed from U.S. Humane Society literature, contributed by Jean Hamil





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# Focal Palatine Erosion Associated With Dental Malocclusion in Captive Cheetahs

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# INTRODUCTION

The cheetah is one of the most sought after species for public and private zoological collections. Although they were exhibited in London as early as 1829, none were bred in captivity until 1960 (Jones, 1981). Approximately 30 litters have been born in captivity in the US since 1977. No wild-caught cheetahs have been imported since 1972. Consequently, the remaining wild-caught animals are old and increasingly unsuitable for reproduction (Lindburg, personal communication).

In 1981-82 we assembled data on 85 cheetahs - 59 live individuals and 26 museum skulls. When our data were assembled and examined collectively, the profile of a developmentally disabling oral condition emerged. This self-inflicted localized wound through the roof of the mouth has been labled focal palatine erosion (FPE). FPE has been identified in museum specimens, wild-caught individuals presently living in captivity, and in captive-born individuals. This disorder has been associated with diet, specific blood lines, macronodular renal disease, chronic suppurative rhinitis, and noma. The implications of this syndrome for a captive breeding program appear to be significant, particularly in light of the fact that the cheetah has very little genetic variation (O'Brien et al, 1981), an aberrant sperm form (Howard et al, 1981), and rather poor reproductive history (Jones 1981)

# METHODS

Following the discovery of FPE in a female at the San Diego Wild Animal Park in 1981, a total population of 59 live cheetahs and 26 museum skulls were examined for the defect. Data on each animal's history, diet and ancestory were collected.

Live cheetahs studied were from five zoological parks, and all affected animals are detailed in Table 1. With the exception of one cheetah from East Africa, the study animals were imports from SW Africa and their offspring. Eight of these animals were wild caught and kept in captivity for over 10 years and the remaining 51 were captive born and raised. Thirty-nine cheetahs at Wildlife Safari in Winston, Oregon, were examined by their veterinarian after the disorder was described at the cheetah conference held there in December 1981.

The study animals were given either soft commercial diets or animal carcasses. The commercial diets were widely used feline diets consisting primarily of horsemeat, chicken and animal by-products. These were either canned or packaged frozen and had the consistency of raw hamburger. If bones were provided, they were beef ribs or knuckles with little or no meat attached.

The animal carcasses included deer, horse, beef, chicken and occasional exotic hoofstock. These were given whole or divided into large sections.

The method of restraint used for the oral examination was manual or general anesthesia. Five cheetahs were examined postmortem. Any cheetah which exhibited localized palatine erosion related to malocclusion of the lower first molar was classified as having FPE.

Two cheetahs from the Sacramento and Milwaukee zoos were included in the survey following personal communication with the veterinarians or researchers involved at those facilities. Three affected skull specimens identified at the American Museum of Natural History collection in New York were the result of an examination of twenty-four adult specimens by their curatorial staff at the authors' request, and two unaffected skull specimens from the San Diego Natural History Museum were personally examined. The criterion used to determine FPE in skull specimens was perforation of the palatine bone medial to the lower first molar. SInce this condition would only occur in more advanced cases, these data were evaluated separately from the live specimens.

# DESCRIPTION AND PATHOGENESIS OF FPE

The previously undescribed defect identified in this study consists of a self-inflicted wound through the palate, medial to the upper first molars. In all cheeta-s there is normally a light indentation of the palatine mucosa in the general area of the greater palatine foramen, apparently to accomodate the predominate distal cusp tip of the lower first molar.

FPE has been identified as early as 10 months of age (Table 1, case 6). The initial lesion is a slight, localized cellulitis and may be easily overlooked as a typical eruption or "teething" disorder [Levesque et al, 1981].

As the dental cusp tips make regular contact with the palatal mucosa, a destructive circular pattern of mucosal cellulitis with loss of normal mucosal pigmentation occurs. The tooth eventually penetrates through the palatine bone itself, causing further inflammation. Eventually, a localized osteomyelitis occurs as the recurrent trauma compromises the reparative capability of the bony palate. With continued traumatic impaction of foreign particulate matter into the defect, a gangrenous noma like process [Buchanan et al, 1981] begins to spread throughout the adjacent oral-facial tissues resulting in a large oral-nasal fistulous defect which extends completely through the palatine bone into the nasal passage, destroying the nasal turbinates. In the most severe case, a destructive osteonecrosis progressed all the way up to the bony support of the orbit of the eye, destoying the posterior one-third to one-half of the nasal turbinates, leaving a fisulous defect between the mouth and the nasal passage. Dental malocclusion of one degree or another has always been observed in association with the tissue damage.

In advanced cases, via the circulatory system, an intermittent chronic bacteremia occurs with all of the associated systemic consequences, such as renal failure, bacterial endocardítis, and bacterial arthritis.

### FREQUENCY AND DISTRIBUTION

Analysis of 19 cheetahs fed commercial diets and imported in 1970 from SW Africa, or their offspring, showed a 70% increase of FPE. The Wild caught vs captive-born animals were analyzed independently and the figures were unaffected. Analysis of the diet with further consideration to import groups show that all but one affected cheetah were 1970 imports or their offspring. (This analysis excluded one animal of E. African origin with FPE.) This disease was absent in 39 cheetahs fed natural diets that were 1972 imports or decendents (Table 2).

# TABLE 1. Oral Examination Data-(Live Cheetahs)

<b>l.D.</b> <sup>al.</sup>		Sex	Age	Animal's history <sup>a</sup>	Exam information and symptoms	Oral condition
No. 1	Cleo WAP-21	F	7 or 8	Captive born LCS. Par- ents, 1970 imports.	Routine exam after quarantine. Severe foul breath.	Severe bilaterial erosion ex- tending to ocular orbit. Supporting bone absent. 4th PM absent bilaterally and 1st M forward. Cavities filled with decaying grass and foxtails.
No. 2	Sheba WAP-14	F	71/2	Captive born at WAP. Stolen as cub and re- turned by unknown per- son in 1/80.	Blood-tinged mucous discharge from nose, gagging behavior.	Erosion on left side extend- ing through nasal passage, inflammation from decay- ing foxtails & twigs. Upper left molar absent.
No. 3	Nyrie WAP-20	F	4	Born and raised at LCS. Breeding loan to WAP. Sept. 1981. Parents 1970 imports.	Routine exam after quarantine.	Erosion on left side extend- ing up to nasal passage. Slight inflammation on right side.
No. 4	Lena LCS-1	F	6	Born and raised at LCS. Parents 1970 imports. Lit- termate: Naibi.	Routine exam.	Erosion on left side. Filled with foxtails, slight inflam- mation.
No. 5	Naibi LCS-2	F	6	Born and raised at LCS. Littermate: Lena (blind in left eye due to unknown causes).	Routine exam.	Erosion on left side with loss of pigmentation.
No. 6	Arusha ISIS No. 181008	M	10 months	Born WLS, sent to SDZ for show animal, 1981. Parents 1972 imports.	Hole through palate observed by keeper.	Deep puncture-type hole on right side, no foreign mat- ter, elongated distal crust. Upper molars absent on right side.
No. 7	Suki ISIS No. 100233	F	15 +	Wild caught from E. Af- rica. Sacramento Zoo since 1977.	Drooling, runny nose, licking up food.	Deep abscesses almost to nasal cavity bilateral through palate. Several smaller wounds around edge of palate. More le- sions medial to bottom teeth. Infection and bleed-
No. 8	Kigori	F	5	Born at WAP 4/24/75. Milwaukee Zoo since 1976. Parents 1972 im- ports. Littermate to Ge-	Symptoms of oral-na- sal problems.	ng gums. Severe malocclu- sion. Right mandibular molar. Lesion open to right max. sinus. No cryptococcus.
No. 9	Hermie WAP-8	М	14 +	latt. SAP—1970 import.	Routine exam and postmortem.	Slight erosion, incomplete fistulas, teeth normal.
No. 10	) Middleman WAP-22	М	6	Born at WAP 5/14/76. Raised at WAP and died of virus disease. Litter- made: Sundown.	Necropsy (examined several months before under sedation and defect was not de- tected).	Narrow deep hole on left side with slight erosion on right.

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# FOCAL PALATINE EROSION - cont.

1.5.4	<b>C</b>	Exam information			
<u>1.U.</u>	Scx Age	Animai's history	and symptoms	Utal condition	
No. 11 Jillani	F 6 1/2	Born at LCS in TX, 11/9 75. Parents 1970 imports Gladys Porter Zoo until 8/11/76. Presently at SDZ.	<ul> <li>Underweight, rough</li> <li>coat. Conjunctivitis &amp; foul breath. Liver</li> <li>damage.</li> </ul>	<ul> <li>1/2 × 1 cm lesions on left</li> <li>side full of decay and de- bris.</li> </ul>	
No. 12 Pepper LCS-3	a ya <b>F</b> asa Gina da ka	Born LCS. Parents 1970 imports. Littermate: Cleo.	Postmortem. Died of kidney failure.	Bilateral lesions penetrated completely through the pal- ate on left side. Infection present and full of decayed grass. Lymph nodes swol- len.	
No. 13 Gelatt WAP-24	М 7	Born at WAP 4/25/75. Cataracts in both eyes, partial. Breeding loan to private party until 5/12/ 82. Return to WAP. Lit- termate:Kigori.	Routine exam after quarantine.	Erosion and discoloration bilaterally.	
No. 14 Blackfoot	M 14 +	1970 Import. Kept at WAP.	Postmortem.	Lesion on both sides; perfo- rated on left. General denti- tion normal, middle top incisors absent. Distal cusp on left side blunt.	
No. 15 Green	M 14 +	1970 Import. Kept at WAP.	Postmortem.	Slight fistula on left. Mo- lars appear normal. Tips broken off and right canine split up to gumline.	

# TABLE 1. Oral Examination Data-(Live Cheetahs) (continued)

<sup>a</sup>Abbreviations: WAP-San Diego Wild Animal Park, San Pasqual, California; LCS-Lion Country Safari, Irvine, California; WLS-Wildlife Safari, Winston, Oregon.

# TABLE 2. Occurrence of Defect in Individuals Raised at Five Different Institutions

Institution	No. examined	FPE cases	Diet
Winston <sup>a</sup>	39	0	Carcass
Other zoos	20 <sup>b</sup>	15	Commercial

<sup>a</sup>Note that Winston has 2x as many subjects examined with no occurrence of FPE.

<sup>b</sup>Includes one individual obtained from Winston as a young juvenile.



A frontal view of two cheetah skulls contrasting normal nasal openings and turbinates on the right with severe osteonecrosis and destruction of nasal bone and turbinates on the left (Photo credit Tom Ables)

One animal from the 1972 group received a commercial diet and developed FPE.

Examination of 26 museum skulls revealed four cheetahs with palatine bone perforation inflicted by the opposing molar. These abnormal skulls were found among eight animals known to be zoo riased. Fourteen specimens which were wild collected (some as early as the 1930s) did not show evidence of FPE.

# RELATIONSHIP TO DENTITION

Focal Palatine erosion appears to be caused by malloccluded dentition. In the most severe case (cse 1), bilateral lower fourth premolars were missing and there was extreme mesioangular inclination of the lower first molars. This resulted in an elevation of the distal cusp tip of the lower first molars bilaterally which, in turn, cuased that portion of the tooth to make contact with the soft tissue of the palate each time the mouth was closed. This continuous self-inflicted trauma eventually penetrated completely through the palate into the nasal passage. This condition (FPE) was aggravated by the presence of impacted decayed grasses and food debris resulting in considerable further tissue destruction and osteonecrosis.

# ACCOMPANYING BEHAVIORAL SIGNS

Signs of abnormal behavior or pathology are not always easily observed with this disease, and in some cases, were only discovered during necropsy. In the first severe case observed (case 2), a blood-tinged mucous discharge from the nose was the chief complaint which prompted a comprehensive physical examination. This







Museum skull specimens with advanced focal palatine erosion (FPE).

animal displayed signs of snorting and sneezing in an apparent attempt to dislodge an irritant from the nasal chamber. Examination revealed varying degrees of soft and hard tissue erosion and perforation through the lateral aspect of the palate in the area bounded by the greater balatine foramen, the midline of the palate, and the maxillary left first molar that extended into the nasal passage. The entire posterior nasal cavity was impacted with decaying grasses, necrotic tissue twigs and several hundred "foxtails", (spiked, flowering grasses). In another individual case (case 1), breliminary examination revealed similarily impacted debris in the nasal passage. However, when seen one week later for treatment, the nasal passage was essentially free of debris, suggesting that the sneezing and coughing were effective.

### RELATIONSHIP TO RENAL FAILURE

Radiographs of the mandible in case 1 [using the method of Zontine, 1975] were examined, revealing medullary osseous tissue which lacked the latticelike trabeculation patterns of characteristic of healthy osseous structures, and which is suggestive of systemic bony disorder or atrophy from disuse of the masticatory apparatus. Spolnick et al [1981] discuss the radiographic manisfestations of renal disease and point out that a number of systemic diseases have oral manisfestations, but unfortunately many of their radiographic appearances are not characteristic for a particular disease. The radiographic changes associated with renal osteodystrophy include subperiosteal bone resorption, altered jaw density, localized destructive lesions, tooth abnormalities, and extraneous calcifications. The necropsy report of the cheetah described in case 12 associated the cause of death with severe kidney failure which was accompanied by chronic suppurative lymphadenitis associated with the oran-nasal osteomyelitis and FPE.

# DIAGNOSIS, CONTROL AND TREATMENT

Focal palatine erosion is diagnosed by direct visual observation of the lesion and lower first molars. Early lesions are characterized by chronic localized cellulitis and the five classic signs of inflammation. It is cossible that alteration of the normal blood chemistry may indicate a lesion in a general and nonspecific manner. More severe lesions are associated with specific osseous changes and chronic bacteremia. Consequently, any effective screening method for renal osteodystrophy could prove to be diagnostic of FPE. Spolnick et al [1981] suggest that "dental and hand radiographs would be the safest and most efficient means of screening patients for renal osteodystrophy, because of their high diagnostic potential." Zontine [1975] and others have adequately described the appropriate radiographic techniques. Marshall [1976] has correlated the relationship between oral radiographs and both dental development and skeletal development (hand and wrist), which may be of help in interpreting intraoral radiographs in exotic species. Smuts et al [1978] discuss in detail the eruption sequence of deciduous and permanent teeth in large felids.

FPE was initially treated with appropriate systemic antibiotics to manage the ever-present localized cellulitis and bacteremia. Page and Scroeder [1982] note that the tetracycline derivative minocycline is one of the most effective antibiotics for the treatment of periodontal infections because it reaches concentrations in the gingival fluid approximately fivefold higher than in the blood. Decaying grasses, food and other debris were removed from the nasal passage, and the entire defect area flushed, debrided and treated with a local bacteriostatic agent. The first cheetah (case 2) treated also displayed symptons of severe allergic rhinitis, that did not respond to treatment until the patient was relocated onto a concrete

floored enclosure free from grass.

Less severe cases were treated by reducing the tip of the offending dental cusps, medicating the exposed pulpal tissues, restoring the biting surface, and prescribing antibiotics to encourage soft tissue repair and regeneration. The surgical knowledge required to repair the oral-nasal defect is readily available and, although the task represents a significant commitment in time and expense, reconstruction is possible with a repositioned tissue graft. The graft site should be evaluated postoperatievely for healing and scheduled for follow-up as necessary.

# DISCUSSION:

# DIETARY CAUSE

Malalignment of the dentition could be the result from trauma during the development of the teeth and/or masticatory apparatus, or from other developmentally related causes like nutritional imbalance, dietary deficiency, or simply atrophy caused from disuse [Tiecke et al, 1959]. However, Melhoo's [1982] investigation suggests that most morphological differences observed between wild and captive carnivores are environmental, rather than genetic in origin [personal communication]. Diet is clearly an environmental factor. The recent work by Corruccini and Beecher [1982] reveals that a group of 43 squirrel monkeys raised on soft foods show more rotated and displaced teeth, crowded premolars and absolutely and relatively narrower dental arches. They further conclude that chewing stress is an epidemiological factor with possible preventive implications for occlusal disorders, and that relation of masticatory demand to processed foods provides a consistent model for predicting the inevitable transition from predominantly good to bad human occlusion within on generation's time, as experienced by many societies when diets shift to soft, processed foods (emphasis added).

All of the animals in our study that exhibited FPE were raised on a soft, commercially prepared diet. Although occasional bones were provided in some cases, the authors observed that cheetahs showed little interest in chewing on them unless quite a bit of meat was still attached. In no case were they observed using their molars. These cheetahs may laso not have been provided with the proper masticatory stimulous during their developmental period, which could have resulted in the abnormal dentition at maturity. The affected cheetahs may have experienced changes in their jaw structure such as those described by Hollister [1917] and Melhop [1982]. The physiology of exercise and the impact of regular excercise upon the mammalian skeletal muscular system are important developmental factors. The most significant item noted when observing cheetahs ingesting a soft commercially prepared carnivore diet is the lack of vigoroug tearing and chewing exercise associated with the eating or gulping behavior.

The masticatory apparatus of the carnivore has been designed and perfected by strenuous use for a long period of time. Rapid loss of muscle strength and tissue mass appear to be associated with a regular diet of soft food. It is possible that cheetahs require additional "hassle factor per mouthful of nutrients" [Fagan, 1980a, b], not just to sustain their normal levels of facial muscle mass, but to prevent the development of oral defects. A case of dental malocclusion and focal palatine erosion in a clouded leopard was recently seen at the San Diego Zoo and suggests that other species may be similarly affected as well.

In 1917, Hollister at the National Zoo described some effects of environment on a goup of over 100 East African lions. He contrasted zoo animals with a similar group of wild-killed specimens and found definite differences in their skulls. The captive lion skulls were shorter, broader, and massive in structure. Hollister believed the changes were the result of atrophy from disuse of the muscles involved in normal killing and consumption of prey. "Changes in the skull which would be accepted as of specifics or possible of generic value in wild animals from different regions are thus produced in the life of a single individual within five to seven or eight years, almost as if by mutation."

Colyer's [1936] analyses of 1,236 wild-collected felids revealed only 6% with any type of dental anomaly. None of the 17 cheetahs he examined shoed dental abnormality. In our study, the fact that all four cases of advanced FPE found in museum skull specimens were from zoo-raised animals, and that FPE has not been found in any of the wild-killed specimens, strongly supports the idea that FPE has a direct relationship to conditions characteristic of captive environment.

# POSSIBLE GENETIC CONTRIBUTION

The genetic supposition is based on the fact that irregularity in size, shape or absence of teeth can be inherited [Tiecke et al, 1959]. All of the affected animals in our study showed some degree of malocclusion, macrodontia, or partial anodontia. Case 1 with absent premolars may have been the result of genetic factors and all of her offspring are being watched for similar abnormalities. FPE may also prove to be a genetic condition that predisposes an individual to the disorder with the actual defect manifesting itself later, depending upon various environmental conditions.

In our study, approximately 86% of live cheetahs with FPE were part of a single shipment from SW Africa in 1970 or their decendents (see chart) Only one animal of 40 from a similar shipment in 1972 developed FPE, which may suggest a genetic factor present in the first group, although the corresponding dietary data may by more revealing than the actual cause.

The recent studies of O'Brien et al [1981] show that wild cheetah populations have extremely low levels of genetic variation, equivalent to at least 20 generations of sib mating! It is difficult to conceive that a defect of the magnitude of FPE is soley of genetic origin and yet appears in so few generations of captive breeding.

# CONCLUSIONS

The profile of an apparent development and/or genetic oral-nasal defect labled focal palatine erosion has been described. The exact etiological origin of this defect remains to be determined. If FPE proves to be of genetic origin, the implications for a captive breeding program may be significant. If it is developmental in origin, the management questions may be equally significant.

It is necessary to examine many more live cheetahs, especially those in the wild, before more absolute conclusions can be reached. Our conclusions to date are as follows:

1. Focal palatine erosion medial to the upper first molars appears to be a self inflicted traumatic disorder associated with abnormal size or position of the lower first molars in cheetahs.

2. In ALL cheetahs, there is normal anatomic indentation of the palatine mucosa in this general area, apparently to accomodate the distal cusp tip of the lower first molar.

3. Focal palatine erosion ranges from the slight loss of palatal pigmentation with inflammatory cellulitis to a large oral-nasal boney defect extending through the palatine bone resulting in osteonecrosis and noma.

4. Insufficient wear and atrophy from disuse of the masticatory apparatus from lack of proper dietary stimulation is believed to be a major cause of FPE.

5. Heritability may be a factor since all but two animals were part of, or offspring of, cheetahs shipped from SW Africa in 1970 (although these animals were also fed a commercially prepared soft diet).

6. Particles of foreign matter and food debris which lodge in the focal palatine defect result in localized infection and further tissue damage.

7. This disorder has been found exclusively in captive cheetahs fed a soft commercially prepared diet with occasional rabbit or chicken supplement.

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# HUNTING CURBED

Conservationists have won an injunction against commercial cougar and black bear hunting in two national forests in Oregon. Federal Magistrate Michael Hogan said the U.S. Forest Service failed to assess adequately the impact of federal special-use permits allowing guides to use hounds for hunting the animals. But Hogan refused to halt similar hunting in three other Oregon forests where he said assessments required under the National Environmental Policy were legally sufficient. He also declined to block noncommercial hunts and declined to order the Forest Service to conduct its own impact studies rather than relying on the Oregon Department of Fish and Wildlife.

The injunction affects the Rogue River and Wallowa-Whitman national forests. The Forest Service hopes to win court approval of new assessments by next winter. The other forests are the Siuslaw, Umoqua and Willamette. An appeal of the negative rulilings is being considered said a spokesman for several conservation groups that sued the Service. Critics contend hunting permits are being issued without adequate knowledge of the impact on the animals' numbers. They also are concerned about the cumulative impact of other activities such as poaching, logging and roadbuilding.

AND IN CALIFORNA voters used the initiative process in 1989 to seek protection for mountain lions from trophy hunters and habitat preservation for a variety of wildlife. A coalition of conservation organizations conducted a highly successful campaign to place a comprehensive wildlife measure before the voters.

Volunteers gathered more than 670,000 signatures of registered voters, nearly twice the number needed. The initiative, approved by the voters in June, 1990 – outlaws trophy hunting of mountain lions (The big cats can stll be taken if they threaten people or livestock.) Under the new law, \$30 million is to be set aside annually for a wildlife conservation fund. This level of funding is to continue for 30 years, bringing the total to \$900 million. Two thirds of the money is to be spent on acquisition of habitat for endangered species, the rest for deer and mountain lion habitat.

From Defenders of Wildlife Contributed by Jean Hamil

# FOCAL PALATINE EROSION - Cont.

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# CHEYENNE PIONEERS NEW HIP REPLACEMENT

By Dava Sobel

It was after a particularly vigorous session of lovemaking that Cheyenne went lame again. His artificial hip implanted three years yearleier on account ofhis arthritis, had loosened under the stress of his activities - leaping 30 foot cliffs and doing his utmost to keep his species, the endangered Himalayan Snow Leopard, from disappearing from the face of the earth. Doctors hastened from Sacramento, California to Canada's Calgary Zoo to see him.

The loosening and failure of replacement joints is an all-too-common occurrence among arthritis sufferers, even if they are elderly and sedentary. But the solution found for Cheyenne holds out hope for all of them.

Already distinguished for being the first feline receipient of a total

hip replacement, in 1983, Cheyenne recently underwent surgery to replace part of his replacement. He how sports a new hip socket, made by Techmedica of California, that doesn't depend on glue to hold it in place. Instead the titanium implant is covered with patches of wire mesh, into which Cheyenne's own bone is expected to grow.

Cheyenne's specialists, both from the University of California at Davis School of Medicine, are Howard Paul, a veterinarian who is using the new hip material in dogs, and William Bargar, who is trying them on people.

Not only is the new design cementless, Paul says, it is custom fitted. Working from Xrays and CAT scans, technicians build plastic models of the patients bones and mold the artificial joint to fit them. Most conventional implants, by comparison, are "off the rack" although they come in a wide variety of sizes and shapes.

Reprinted from OMNI Contributed by Al Porges

# SAD NEWS

Danny Treanor sends the sad news that Critter margay passed away in his sleep on August 21st. Critter was a domestic born Douglas kitten and sired 9 kittens. He was just short of 21 years old.



Despite the gray and wet skies, Convention 90 kicked off Thursday, August 9th, with sunny dispositions as old friends from across the country were reunited.

Thursday was spent checking in, perusing the sale table and visiting with those we hadn't seen since last year and some new folks, we look forward to seeing next year.

Thursday evening en mass, we trouped to the Medeivel Manor, a dinner theater, set in the days of old. Guests of the "Lord of the Manor" we were entertained by balladeers, court jesters and plenty of food and drink. The food was plentiful, if a bit messy - there were NO utinsils - we ate with our fingers, or sipped as the case may be, even the soup was served "au natural".

Friday the General Membership meeting was convened. As always, the discussion turned to what other educational aids were needed. It was asked that we provide some type of "stock" literature that could explain to new members the ins and outs of the legalities of exotic ownership.

A general discussion was held on how to attract more folks to convention and to the club membership in general.

Nominees for office next term, Lynn Culver and Katie Knight-Monteiro were introduced. It was explained that due to the lack of a quorum, no votes could be taken on any of these matters. A current membership list was made available and all present were asked to check to make sure their names, addresses were correct.

Problems encountered with receiveing the Newsletter in Canada were discussed. It was stressed that under our 3rd class mailing status, we do not get returned mail and the newsletters are not forwarded so it is very important to notify Member Services of any changes promptly. It was suggested that perhaps, foreign members should be sent their newsletters first class - especially since we charge more for these memberships.

Those present also wanted to see a membership directory, and this was discussed along with changing from the lengthy "application" to a shorter one. It was felt folks did not understand the need for this, and perhaps did not CONVENTION - cont.

fill it out due to this. Perhaps a shorter version of the application, renewal notice, followed up in the case of newmember, with the longer questionairre in their "welcome packet" explaining its purpose would be more effective. And, once a year the same sent to current members, also with a letter of explanation would suffice.

Jeff Bellingham, assisted by Jerry Boyle, offered to hose Convention 91 in Las Vegas. Allowing non-members to attend and advertising the Convention in other publications such as Animal Finder's Guide was discussed. The consensus was that perhaps by renewing the practice of having more outside speakers would draw more attendees. It was stressed that a firm agenda would have to be set before we could attempt to do this.

Jerry Boyle, also offered to do a video on caging. He asked that members send him videos of their caging with the understanding that he would look at it with a very critical eye - and suggest alternatives which would improve the cage. No names would be used, but it was felt that many cages are constructed and then the flaws are noticed. In this way, those building cages for the first time would avoid many common mistakes.

Friday afternoon, was left open as this is when the Executive Board usually meets. Since the Board was short of a quorum this year, a short meeting was held with those attending being: President John Perry, Life Director & Editor Shirley Wagner, Term Directors Al Porges and Jeff Bellingham as well as nominees Lynn Culver and Katie Knight-Monteiro.

A letter from Barbara Wilton was read explaining her absence as well as tape from Ethel Hauser on the same subject was played. Both had to do with the Lottie presentation which the Board does not control.

Connie Hatfield faxed the financial statement to the hotel, but since she was not available to answer questions, there was little discussion. It does appear however that funds are available to cover current projects. No membership report was available however.

A conversation was held concerning the material currently being sent out in our information packet. Since Barbara was not present to advise on exactly what is being sent out, we were unable to make any decisions on this matter and it was decided to look at this material with a thought to updating it in the future, after it has been reviewed.

Saturday was a day for sightseeing, shopping and visiting the museum. Some braved the wet and others just loafed in the hospitality room, visiting.

As always, Saturday eveing was the banquet. Our guest speaker was Dr. Bill Sedgwick of Tufts School of Veterinary medicine. Dr. Sedgwick has a varied and extensive background in exotic medicine having served as vet at several zoos, as well as teaching the subject. He gave an interesting talk covering many aspects of exotic care, accompanied by slides from his varied practice. It is comforting to know we have experts like him available to care for our charges.

As is the practice at our annual banquet, awards followed. Photos submitted to the newsletter during the past year were displayed and folks attending voted for the best - the photo of Myka and Zorn which appeared in Vol 34, Number 3 won. And the placque will be sent to Cris and Wolf Klose.

The "Reporter of the Year" for 1990 was presented to Lynn Culver for her continuing assistance to your Editor, not only for her articles which are always welcomed but for her help in producing the "Booklist" as well.

# CONVENTION - cont.

The 1990 Lottie was then presented to Gayle Schaecher. Gayle has been an active member since 1972. She has actively supported branch activities and been a major educator of many, always being available to help. She was a founding force in the Pacific Northwest Exotics Branch. **Over the years she has bred** ocelots, cougar, lynx and bobcats. Her name is a worthy addition to the list of Lottie recipients who have gone before her.

Presentations and a delicious dinner aside, we commenced with the auction. Those items donated to the sale table and not sold were put up for sale to the highest bidder. Auctioneer J.B. Anderson respendant in tux and cumberbun and assisted by Vanna (AKA Jeff Bellingham) cajoled us off our wallets and kept us thoroughly entertained as well. As usual, we raised over \$1,000, and enjoyed ourselves in the interim.

Sunday morning, over coffee and sweetrolls, we met one last time to say farewell until next year. Once again there were hugs, but no strangers as we were now all good friends - good friends we hope to see again next year in Las Vegas.

# A WORD FROM GAYLE

I am truly overwhelmed, the Lottie is really something very special, I am not. I would like to take this time to thank everyone who made it possible for me to become a member of such a unique group of people. The pride and honor I feel cannot be expressed. I truly feel I am no different than anyone, nor have I done anything so different to be granted this honor.

I do have a great love for these animals that have been placed in our care. And, where there is love, you do what you have to do to protect them and keep them safe for they are the truly special ones.

With my every breath I will protect the honor of the Lottie that has been placed in my care. Thank you all so very much.

Gayle Schaecher

# IMMIGRATION CONTROLS SUGGESTED

Most major problems now facing the United States and humanity as a whole become more difficult to solve as population increases. This is particularly true of environmental problems. The rapidly growing population of both the United States and the world is an important concern for wildlife conservationists. Defenders of Wildlife testified during hearings on a bill before Congress that would establish a more orderly immigration system. Defenders called for a goal of a stable U.S. population. The nation's population now stands at about 245 million. A net immigration of 1 million per year would swell this to 310 million within thirty years. Such an increase could not fail to have an adverse impact on already shrinking wildlife habitat.

# Hacífic M. HD. Exotico

playing with kittens and lunch.

# MEETING REPORT

Our August meeting was held at the home of Bill and Ann Donaca in Hillsboro.

Jerry Boyle and Gayle Schaecher reported to the membership on the happenings of the LIOC Convention in Boston.

We also reported as to where next year's convention was going to be and the membership all said that our Branch would help. Jerry told about the Lottie award and of course Gayle had it with her to show everyone.

Gavle presented Kathy Tesdal with a picture of a lynx as a small token of her thanks. The rest of the day was devoted to visiting,

The September meeting was held in the home of Steve and Don in Boring. It really isn't tho'. What a group we had! We did a head count and had 52 members and guests present. A lot of visiting was done before the meeting as everyone wanted to visit with all the animals. We had Steve & Don's 2 cougars and the new snow leopard baby there. There was also a chaus kid as well as a serval, and a bobcat/lynx kid present, and 4 half-chause hybrids.

Hope I didn't forget anyone. The first topic of business was the owning of the cats and not forgetting that we are here to help with any problems. We did again discuss problems that do happen. We also talked about breeders and the role they play in our area with new people. The importance of belonging to LIOC was stressed and that we had contacted a member to get information on a members cat that was having some problems.

We did sign up two new members for us and five for LIOC. It is our goal to have all our members sign up with LIOC as well.

The rest of our day was spent visiting, playing with the critters and having lunch. We did plan another trip to Bandon to visit the West Coast Game Park. for the first weekend in October.

Submitted by: Gayle Schaecher

# KNOW YOUR VET'S TELEPHONE NUMBER





The following come in response to the President's Perspective in the last issue.

### Dear LIOC

I really got upset when I read the last copy of your newsletter about the Editor being paid for the editing of the paper. And being paid \$10 per hour or with taxes of \$1,500. per year. WHY??? Many working people do not recieve this amount of money per hour who do jobs requiring more eduction, and they don not have the luxury of staying home and must pay for gas, parking or transportation. This job should be a labor of love and also for the betterment of the animals. Why should this amount of money be spent when it should be used to help the animals, laws, etc.?

If one person gets paid, others will soon follow suit. Where do you draw the line and how do you decide who's job is the most important? I'm sure there are others who run errands, make toll phonecalls, write letters, etc., all for the betterment of the animals. That is as it should be. A group of animal people working for the betterment of our wonderful exotic animal life so others can benefit from our labors of love and future generations will be able to enjoy what we are now enjoying. I have been Editor, typist and the person who mails out our club's newsletter for the past 10 years. I would never think of getting paid, in money, for my time. Our club is the World Pets Society and our newsletter is Fur, Fin and Feather.

I do agree with placing ads in your newsletter. The excuse for not placing ads, as a breeder, is not valid. Even if your paper only comes out every 2 months you can advertise when you see your animals breeding. It takes 60 to 90 days, depending on the species, for birth plus the time to handraise, so they remain tame. **KITTENS NEED TO BE SOLD YOUNG AND THIS WAY THEY ARE. Most** of the time my cubs are sold before they are born and others will be too. As for people advertising for animals they are looking for, there are a lot of people out there who do not know about our clubs, and others who do not want to belong to any group and prefer to be loners. So how could they advertise? Only members see the newsletter and not the general public.

Why not get outside advertisers to place ads for things pertaining to all types of animals? (I'm sure members have other pets like dogs, regular cats, pot-bellied pigs, etc.) like jewelry, cards, art or any other product that can be used by any animal owner? Members in different states could try to get advertisers from their areas to place ads. I, for one, am always interested in unusual animal products.

I guess I've sounded off enough for this time. This is the first letter I've written to you. Cass's letter got me angry and I had to let you know how I feel. I hope others feel the same. I, for one, will not pay \$3 to \$7 more per year to pay someone's salary. For the animal's help, yes.

Sincerely, Jan Giacinto

Ed. Note: We have for some time, allowed non-members to advertise services or goods in the Newsletter, however only members are allowed to advertise animals for sale. Also, please realize that the idea to pay the Editor came from a member and this exchange of dialogue can only be productive - currently this Editor has no intention of asking for or receiving reimbursement for doing these duties. ED.

more on page 22

LETTERS - cont.

### Dear Dr. Perry & LIOC:

If you're going to publish a letter out of its time context, it would be good to include the date. I wrote that one (President's Perspective, Vol 34 #3) way last year when it was more relevant, especially as Wendi was having difficulties with the job of getting out the newsletter.

I'd like to make it clear that I have no particular quarrel with Pat Hoctor or his ANIMAL FINDER'S GUIDE per se. In fact, I have reason to believe that he does try to screen the ads he accepts for his publication to some extent, which is a lot more than many would ever bother to do. Although the exotic animal biz has mainly to do with hoofed stock, enough cats are advertised therein that it has been worthwhile to list my own little magazine on wild/domestic hybrids in AFG; I wouldn't do so if I found it to be promoting practices harmful to exotic cats.

As little more context: at the time I wrote last year, I was disgusted by a booklet I'd ordered called BREEDING AND RAISING BOBCATS, which turned out to be for fur-farming. I daresay the pictures of bobs in those small, wire-bottomed cages would nauseate most of your membership as much as they do me. I'm also enclosing an article about the phony "safaris"...they do happen.

However, I do not mean to imply that Pat Hoctor condones these things in any way, or would knowingly accept ads involving such. I simply made a point about "source" vs. "affiliation" which I feel is still valid. That's all.

> Sincerely. Cassandra Nemzek

South and the start of the star

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# LIOC SPOTLIGHT ON: BEEJAY LESTER

BeeJay is best know in LIOC circles for her Margay Menagerie and Gigolo She's been a participating member since 1969 and frequent contributor to the Newsletter. The article below appeared in the Florida Times Union. BeeJay now shares her home with 2 margays and a clouded leopard Gemini. Of Gemini she says: "At three years of age Gemini is 75 pounds and is till tractable most of the time. He has "moments of madness" as I call t hem (so did my margay Gigolo). In the winter he sleeps with me and is better behaved. We both get cranky in hot weather! I've never hit him with my hand, but do use a loud vebalization and he responds most of the time. At other times nothing works except the flea spray.

There is a big difference (not just in weight) between the margay I loved so dearly and this clouded which I also love dearly. I really believe that the clouded has some kinship to the panthera - at times he acts just like one of t he "big guys". But...he is so smart, responsive, gorgeous and loveable that what Gemini wants, Gemini gets; ice cream, cottage cheese, whatever. His tastes are not as diversified as Gigolo's were.

\* \* \* \* \*

By Sybil Fix

BeeJay Lester, Atlantic Beach's animal control officer, might or might not be the first woman to have worn a bikini at the beaches. But she definately doesn't recall seeing anyone else flaunting the garment accompanied by a skunk.

"I had a black-and-white skunk then, and I used to walk it on the beach with my black-and-white bikini. I had long blond hair and I was real brown." she says peering out of her truck looking for a loose dog. "The kids would giggle, the men would ogle and the women would sneer. I thought it was funny."

"It was a dumb thing to do because they're nocturnal animals," she said. "I would never do it again, but then I didn'tknow better."

The skunk, Narcissus, was BeeJay's first real wildlife companion, the first partner of a lifetime affair with animals - like Goober, a capuchin monkey; Rotorooter, the piglet whose tail got bit off by a monkey; Beep-Beep, the peacock who ate tacos and tostados; and B.C. the boa constrictor.

From time to time, she even has cared for young wild cats, including leopards, at her Neptune Beach home.

"My whole life is animals. You get me started on wildlife, I'll never stop." Said Ms. Lester, 58, a talkative and agile woman with salt and peoper hair and hands hardened by manual work.

"I am awed by nature creating an elephant with 40,000 muscles and nerves in its trunk, or a giraffe with an 18-inch tongue and seven neckbones, the same as man," said Ms. Lester, w ho is also an oora buff, tennis player and ice skater. "I cannot figure out what fleas are for, but otherwise nature is in balance. All animals have a reason to be on this earth."

For years a secretary and once a r eporter, typesetter and production manager at several publications and print shops, BeeJay found her callin in the 1970's, when she became interested in wildlife.

She became the curator of education and the zookeeper of pachyderms and primates at the Jacksonville zoo - the zoo's first female zookeeper - and bought her first margay, Gigolo, who was her companion for 19 years.

During that time, Ms.Lester also worked on a wildlife farm for Robert Baudy, an exotic cat breeder, raising and taking care of the animals - clouded leopards, black jaguars, ocelots, bobcats, Siberian tigers.

Even now, Ms.Lester, who is permitted by the state to hand-raise and own certain types of small wild animals, periodically volunteers to humanize baby

# BEE-JAY - cont.

wildcats in her Neptune Beach home.

"She's a very dedicated person, very thorough, very compassionate," Baudy said. "She's very good at raising babies, which is more demanding than raising human babies"

Her knowledge of wildlife, she said, has helped her be a better animal control officer.

"She's got a tremendous job. Everybody and their brother expects BeeJay to solve their problems," said police chief David Thompson, her supervisor. "there's not a single doggie or kitty cat that doesn't break her heart."

Ms.Lester has spent the last three years returning pets to their owners, finding homes for stray animals, patrolling the beach for negligent dog owners, trapping raccoons, cats and opossums, and resconding to nuisance calls - at least 12 a day, she said - about dogs barking and cats digging up yards.

"I feel like I'm helping people," said BeeJay, getting out of her truck to answer a complaint. "If people took care of their animals, we wouldn't need a dog catcher."

# FLORIDA CHANGES WILDLIFE RULES

The State of Florida has made several regulatory changes affecting the sale of wildlife.

Lt. Thomas Quinn, a wildlife inspector with the Florida Game & Freshwater Fish Commission, said the Florida Administrative Code now makes it illegal to purchase wildlife from anyone who does not have a state permit.

Anyone who buys wildlife for eventual resale, must be able to prove they bought the animals from licensed sellers; Quinn said buyers should always get photocopies of the sellers' state permits for their files. Included in the rule are most mammals, all primates and venomous reptiles and some birds.

An exception to the minimum pen regulations now allows wildlife being held for sale or veterinary care to be housed for up to 60 days in sub-minimum caging provided animals are permanently marked to enable date of acquisition to be verified.



Articles and photos for the Newsletter are always needed .....Get the point?

# **TRANSLOCATION SUCCESS!**

By Mike Tews

We are about to complete a three year study on the use of translocation for ocelot recovery, and during May 1990, we discovered that the final objective was successfully achieved. This success has exited us about the potential usefulness of translocation as an important conservation tool for ocelots. First, there's a story to be told.....

Much of the time, the ocelot population on and around Laguna Atascosa National Wildlife Refuge appears to saturate the available habitat. Often aggression among ocelots and mortality is evident, suggesting the ocelot population is exceeding the carrying capacity of the habitat. As a result, many ocelots disperse into marginal habitats where mortality is high. Often these cats are hit on a road because of the lack of suitable habitat.

The translocation project had three goals: 1) to "save" the dispersing cats from being killed on roads, 2) to determine if the technology of translocation could be developed for ocelot recovery, and 3) to establish a new resident population with individuals that otherwise probably would die in the marginal habitats. At the same time we performed this research, we were hoping to establish a new subpopulation that would help stabilize the overall ocelot population of the Rio Grande Valley.

The value of translocation has been proven for endangered species. The few highly fragmented ocelot populations remaining in south Texas are susceptible to extinction by epidemics, genetic inbreeding, and natural catastrophes such as a powerful hurricane. Consequently, the threat of ocelot extinction could be reduced if translocation was used to establish new ocelot populations in other regions.

There are also limits. In most scenarios, translocation of ocelots onto tracts of brush in the Rio Grande Valley would not be feasible. There simply isn't enough optimal habitat available to sustain a viable population and provide space for their offspring. But there are other alternate sites in south Texas which may be appropriate for translocated ocelots in the future.

In 1988, we decided to translocate three ocelots. Through previous radiotracking, we identified ocelots in a "high risk context". These high-risk cats frequently crossed busy roads or were forced into marginal habitats. Radio-

collared ocelots neighboring those cats removed for translocation were also monitored to determine their response.

Several prime habitat tracts on the west side of the Laguna Atascosa Lake appeared unoccupied and isolated from the primary ocelot population by waterways and the large lake - ideal for establishing two or three resident ocelots. Also, ocelots that occupied poor habitats outside the refuge were moved back onto the refuge. This strategy further increased the protection of these cats.



# TRANSLOCATION - cont.

26

We decided to move one male and two females to the release site. This combination was most efficient because our previous studies revealed that a single male often courted two females at the same time. Additionally, this provided the best liklihood for young to be born while involving the minimum number of adult cats for translocation. Our criteriea for successfully establishing a new resident population by translocation was if the ocelots reproduced on the release site.

On March 6, 1988, the target female (F42) was captured and moved to the release site. F42 was successfully released later that day. Also later that day, we began trapping for the target male (M43). The strategy for rapidly releasing a pair of occlots at about the same time was to prevent a single occlot from becoming "lonely" on the release site and leave because of the lack of a potential mate.

Two days later the target male (M53) was captured and translocated to join F42. Continuous radio-tracking enabled us to assess their early, and most important movements. Two days following release of the male, both cats encountered each other. Based on the cats' subsequent movements, we suspect this encounter was aggressive.

The male, M53, dispersed from the area and roamed for several months, finally settling about seven miles from the refuge. During our trapping attempts to return M53 to the refuge, we caught and collared a new female ocelot that M53 was courting so we left them together. This new pair displayed movement patterns characteristic of denning in 1988 and 1989. Consequently, we believe they produced two litters.

Back to F42's story. We waited for F42 to stabilize her movements following her aggresive encounter with M53. A month later, the second target female (F97) was trapped and translocated. F97 occupied the release area for three days before radio-tracking indicated an encounter between both females. AGain, we suspect the encounter was aggressive.

The following day, the new female, F97, left the release site and performed a difficult trip returning to her original home range. This event marked the first documented case of homing behavior in a wild ocelot.

We decided to leave F97 in her original although croweded home range. She remained at her territory for a year. Then radio-telemetry revealed that she moved (possible was forced) into a neighboring home range. F97 died after a week at this new location. Puncture wounds and lacerations suggested F97 died from a fight, possibly from a neighboring, territorial female.



### TRANSLOCATION - cont.

Although the translocated male, M53, and the female F(&, failed to remain on the release site, we learned a treasure of information about potential characteristics and techniques for translocation. The originally translocated female, F42, has remaned on the release site since 1988. Earlier this year, we trapped a male ocelot that apparently found his way to the release site, possibly looking for a mate.

Thus, we have achieved the first two objectives - we probably prevented the premature deaths of one or two ocelots, and we gained considerable information about ocelot translocation.

Our third, and most important objective was achieved in May, 1990. Since this past May, the originally translocated female, F42, has displayed movements representing denning behavior. With her reproduction, we have fulfilled our original criteria for establishing a new resident subpopulation of ocelots. The third and final objective has been achieved.

Reprinted from Cat Conservation Newsletter.

NOTE: As with all research programs, funds for continued work, land and material are always needed. Contributions can be made- in any amount to: Feline Research Program, Caesar Kleberg Wildife Research Institute

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Over 100 pages of invaluable articles from past issues of the LIOC Newsletter, covering all aspects of exotic feline care and management, including information on different species, behavior, nutritional management of both adults and kittens, handling, first aid, infectious diseases, basic genetics, and diagrams for making basic equipment, plus much, much more. Available to LIOC members at \$20.00 US., send check to LIOC, 3730 Belle Isle Lane, Mobile, Al 36619,

# LIGHTS, CAMERA, ACTION!

Gotta videocamera? Know someone who does? Then you can contribute to LIOC's project on caging. Send a tape of your caging and we will use it in educating others. Be warned that if any flaws exist, they will be pointed out with comments on how they could have been improved.....but no names will be used. I'm sure many of you constructed cages only to think after all was said and done "why did I do that? It would have been better if....". Here's an easy way to help others avoid mistakes and benefit the cats as well.

So take that camera out now and start filming.

Send to: Jerry Boyle 10819 N.E. Wistful Vista Troutdale, OR 97060

# Asian leopard cat seized at Logan



LUCKY Spotted at airport

By Ralph Ranalli

A rare leopard cat was confiscated at Logan International airport August 16th, just days after we concluded our annual convention in Boston.

Dubbed "Lucky" by Franklin Park Zoo officials, the 15 pound female was en route from the Netherlands to the Midwest when its cage was spotted by a U.S. Customs agent, federal Fish & Wildlife Inspector Tim Santel said.

"The customs inspector colled me and said, 'I have something you may be interested in,' "Santel said. "It could have easily been mistaken for a common housecat. But this one's definately a fighter and a spitter - it charges the

cage and looks just like a wild leopard - only in miniature."

Leopard cats live in forests in much of Asia and are classified as a "threatened species" said MetroParks Zoos executive director Mark Goldstein. Because its fur was once popular for fur coats, the leopard cat species has only recently been upgraded from "endangered" status he said.

Santel would not say which airline Lucky arrived on, or her final destination, citing pending investigation. No one came to the airport to claim the cat or to file appropriate customs paperwork for a wild animal, he said.

Goldstein said Lucky would remain at the Franklin Park Zoo hospital until the case is resolved. She then probably will be shipped to another zoo elsewhere in the U.S., he said.

Condensed from the Boston Globe, contributed by Al Porges

# The Biology and Ecology of the Caracal Felis caracal in the northern Aravah Valley of Israel

# by Y. Weisbein and H. Mendelssohn Department of Zoology, Tel-Aviv University, Ramat-Aviv, Israel

The biology and ecology of the caracal (Felis caracal) have not yet been thoroughly studied in field conditions, hence the present work.

This work was devoted to a study of the spatial organization, activity patterns, feeding habits and reproductive behavior of the caracal in the northern Aravah Valley of Israel by means of radio-telemetry. The population studied consisted of 13 specimens (cubs, subadults and adults) that were caught, measured and tagged with a collar containing a radio transmitter, which made it possible to track them over 177 complete diurnal cycles and fractional periods between 1985 and 1988.

# POPULATION STRUCTURE AND COMPOSITION

The caracal population shows a pronounced sexual dimorphism. On the average, the females tend to be smaller than the males in all of the measured parameters, such as body weight, body length, tail length, ear length, hind foot length, canine tooth length, neck circumference, and paw diameter. For example, the average body weight is  $9770\pm1800$  g in males (N=6) and  $6150\pm750$  g in females (N=5); the average body length is  $777\pm38$  g and  $692\pm30$  g in males and females respectively.



Another difference between sexes concerns the number of captures. The number of males caught was nearly twice that of females (39 vs 21), although the calculated sex ratio was found to be learly 1:1. There was a pronounced seasonal effect on captures, more animals being caught winter than during the summer or fall, when captures tend to be few (1986-1987). The 13 animals caught in the course of the study were divided into three main groups on the basis of observations of specimens of known age in captivity, the domestic rearing of a male caracal including the plotting of a growth curve, the external physical condition and the dentition of the captured animal during the study:

- 1. Kitten: 0-1 years- 2
- 2. Subadult: 1-2 yrs 3
- 3. Adult: over 2 yrs 8

An exact determination of population density was not feasible because of preliminary ass<del>.</del>

# CARACAL - cont.

umptions which constitute basic conditions for any calculation of population density and run contrary to any research on large predators conducted in the field. At any rate, it can be stated that in areas comparable to the one covered by the present study, (firnges of farming areas near settlements), 20 or more caracals utilize an area of about 100 km<sup>2</sup>, with several of them ranting outside this **m**ea.

# FEEDING HABITS

Being a true predator, the caracal feeds usually on live prey, ranging from rodents and small birds to medium-sized mammals, such as gazelles. Treatment of the prey varies with its size. In most cases, rodents and/or small birds are eaten whole, whereas large birds are first plucked. The skull and parts of the skeleton of larger mammals are left uneaten, as is the case with the viscera in most cases.

The diet of caracals was studied in this work by analyzing scats, prey remnants, and stomach contents of specimens killed in road accidents in the research area and other parts of the country, as well as by direct observation of animals feeding in the wild.

The caracal feeds mainly on mammals (62%) and birds (24%). Its feces contain also some vegetable material (6.5%) and remnants of insects (1.4%) and reptiles (6.1%). It was found that the caracal takes a large variety of prey species, some of which have not yet been described in literature: Uromastyx aegyptius, Palestine mole rate Spalax leucodon ehrenbergi, desert hedgehog Paraechinus aethiopicus and Egyptian mongoose Herpestes ichneumon.

Though seasonal food preferences could not be established in this work, it seems to me that in early spring and winter, the caracal has a prediliction for food whose acquisition requires a relatively low energy investment (carcasses, trap baits and raids on animals reared in human settlements). The saved energy is spent on warming the body. Raids on animal sheds in settlements usually involves surplus killing, followed by consumption of a single animal, usually only part of it.

### REPRODUCTION

Reproduction is not seasonal in this species, and extends throughout the year. Rut last 5-6 days (N=3), during which the female copulates with a number of males in a mating order that seems to be determined by the age and body weight of the male partner. During copulation, other males stay nearby, awaiting their turn. In this study, males copulated at 42-48 hour intervals (N=9). Copulation begins after a brief courtship on the part of the male. It is intermittent throughout the diurnal cycle. It follows the behavioral pattern observed and reporte din other felines. In the course of the study, one female was found to have copulated with three different males during every estrus. The three male partners were the same each time, and invariably in the same sequence.

Gestation lasts about 78 days, according to data obtained in captivity. A litter of one to three cubs is reared in an abandoned burrow of another animal or in a natural rock crevice. Normally, there are two cubs, according to my field observations (N=5) and data from Tel-Aviv University Zoo (N=24). On the other hand, litters as large as five or six cubs have been reported in literature.

On reaching the age of three to four weeks, the young leave the refuge in which they were born with their mother. From now on, they begin to move with the mother to another refuge every day - invariably a place of dense vegetation, according to my observations. It is stated in the literature that the young are weaned at an age of 4 - 6 months, At nine or ten months of age, when they already have their definitive dentition, htey leave the maternal home range in search of their own.

# CARACAL - cont.

# HOME RANGES AND SPATIAL ORGANIZATION

A direct relationship exists between body weight and home range size. The greater the body weight, the larger the size of the home range. The opposite applies to the relationship between the availability of food in a given area and the size of the home range; the greater the food availability, the smaller the home range.

The present study indicated that males hold an average home range size of  $220.6\pm132.0 \text{ km sq. (N=5)}$  which is four times as large as that of females:  $57.3\pm55.0 \text{ km sq (N=4)}$ . Assuming polygamous reproduction in caracals, it is advantageous for a male to possess a larger home range. In this way, he can reach a greater number of females.

Similarly, the average 24 hour walking distance were found to be longer in males (10410±5168 m; N=40) than in females (6641±4141 m; N-37) No significant variation in walking distances was found between the months or seasons in the year. The diurnal walking distances of the caracal depends on the animal's nutritional status (hungy/satiety), sexual activity (fi it exists), and the rearing of offspring by the female. The diurnal walking paths vary, as do the sites of day-time rest, which are a function of the daily distance covered. A place with thick vegetation in a wadi is preferred for resting.

On the average, the home range stabilization curves in the males have an asumptotic course after  $10.25\pm2.36$ ; (N-4) 24 hour tracking periods (503 location points), whereas the females where the home range size was found to be smaller, this stage was attained after  $8.3\pm1.53$ ; (N=3) 24 hour monitoring periods (408 location points). A considerable overlap was found between the home ranges of different individuals. In the majority of males, the home range area was found to include the bulk of the home ranges of several females.

The overlap rate among males (about 50%) was nearly twice as large as among females (about 27%) - an indication that the male caracal may make some range sacrifices for the sake of mating. Females on the other hand, tend to defend their smaller and therefore, more easily safeguarded home ranges against encroachment by other females inorder to rear their offspring with greater success.

Most animals in the population studied (N=9) were permanent residents of the research area, while the minority (N=4) were found to be wandering about as temporary inhabitatnts (transients). Three of the latter were young individuals in the process of dispersal from the maternal home range to one of their own. The fourth was an old individual, who had already lost his home range.

According to a single observation made during this study, the young leave their maternal home range at the age of nine to ten months. The male of litter migrated to a location some 60-90 km to the south, whereas the female remained in the vicinity of her mother, to the extent that their home range overlapped.

Not all parts of the home range were frequented at the same rate. Farming areas and wadis near human settlements in the Aravah Valley were found to be favorite places for congregation, as was also the case with fish ponds and other water sources. Level to hilly terrains cut by wadis with savanna vegetation of acacia trees and gramineous plants near human settlements and farmed land were found to be preferred habitat in the current study.

In the case of a male caracal, it was found that the size or shape of the home range (which reflect in part it utilization) were not subject to seasonal variations in both size and shape because of the rearing of progeny.

# CARACAL - cont. ACTIVITY PATTERNS

Caracals are rather active throughout the year, displaying a clear-cut behavior pattern, which includes resting in dense vegetation, or in a natural rock crevice during the daytime, and activity at night (from dusk to dawn) and the early morning, thus, being able to capture prey active during different times of the diurnal cycle. (nocturnal/diurnal). The start of the diurnal activity cycle is subject to seasonal variations. It is latest in July (19.23±11; N=8) and earliest in December (14.52±0.29 N=7) Of all variables (onset time, temperature, relative humidity, the season and individual differences) examined with regard to their possible effect on the timing of diurnal activity in the caracal, it was found that sunset, daytime (or night) temperature, and the respective season played a significant role. Through interrelated, these factors are all essential to explain the start of diurnal activity on the respective day.

On the other hand, no significan correlation was found between one or more of the above variables and the average time when the diurnal activity ended on the respective day. This time ranged between 08.00 and 10.00 hours during the year, showing no clear-cut trend. For these reasons, a significant correlation was found between the daytime temperature and the overall duration of diurnal activity. In summer, with the average diurnal temperature rising, activity tended to start later so that its total duration was shorter. There is no clear cut correlation between the total net diurnal activity on one hand, and any of the variables examined on the other hand. Yet it became evident that the total duration of activity and the total net activity were rather close to one another for most of the year, except in the fall and winter. In late fall and during the winter, the avearge total diurnal activity of the caracal was much lower than the average toatl diurnal duration of activity during the same period. This indicates once again that the time diurnal activity of caracals does depend on climatic factors and also follows the diurnal activity patterns of prey species, which are affected by the same factors. During the said period, the average total net diurnal activity of caracals is lower, and the energy thus saved serves to warm the body during the cold winter nights of the desert.

Reprinted from CAT NEWS



Jean Hatfield reports twin geoffroy's born October 2nd. Since they are still with mom as of this reporting, they are unsexed.

Scarlett & Jeff Bellingham report a litter of servals with another litter due in November.

# REMEMBRANCES: THE MAKING OF CHANDAR

The Disney Cable channel has been running "Chandar", a story about a leopard, made some years ago. The Olympic Game farm and several LIOC members and cats worked on this film including John Paramore's Felix. Here are some remembrances John recently shared.

"Felix played a momma, and did pretty well except for the times he forgot to keep his tail down. Movies were fun do to. I really enjoyed the lunacy of it all....with some exceptions! I wasn't too nuts about the director we got on the last film. He scared the willy out of us once by arriving on-set in a helicopter (he wanted to show us how important he was at the studio.) When the copper came swooping in, a whole lot of leopards wanted to be somewhere else.... DESPARATELY! They were in wire holding cages, except for Felix who was chained to me, and they all behaved in a very leopard-like fashion. The ones in the cages bew out like they'd been caged in paper bags and tried. to kill and eat everything in sight...including each other, before taking to the woods and alfalfa fields. Felix merely attempted to murder me, since he didn't intend to die alone ... and I was so handy right at the other end of his chain! We spent the rest of the day recovering leopards from fields and other spots around Sequim. Lots of neat stuff! You track one of those hummers through a field until you get too close to a large spooky cat, and then you get the charge. Hair and teeth and evs and spots all coming at you a zillion miles an hour, then the cat breaks right or left and you check your shorts. About three of these, and the cat finally recognizes you and settles down. Certainly breaks up the day. Bill Hodge went to great lengths to even the score against this clod. His best effort came when the director said he needed to learn about elk for an uccoming movie. Bill took him to a corral containing a large bull elk. Bill told him he had to get Rocky's respect, and this was best accomplished by getting down on all fours and slapping his cowboy hat on the ground several times....at the third slap Rocky accepted the challenge and tried to stomp him to jello. I've never seen a man generate that much speed on hands and knees.....amazing!"





WE"RE ALL GOING TO

NEXT YEARS CONVENTION PLANNED FOR

# LAS VEGAS!

The dates of August 8th - 11th have been set for next year's gathering at the Flamingo Hilton,

right on the "strip" in Las Vegas.

In hopes of lowering airfares, we can obtain group rates <u>IF</u> we know in advance approximately how many will attend. Extra efforts are being made to insure quality speakers and of course Las Vegas provides it's own unique entertainment. Rumor has it efforts are underway to book a group to see Seigfreid & Roy and <u>perhaps</u> get a behind the scenes look at their white tiger.

So, if you are planning to attend, please contact Jerry Boyle, 10818 N.E. Wistful Vista, Troutdale, Or 97060....the more who go the better rates will be available to us!

# LET US HEAR FROM YOU NOW!

# LSU COMMITTEE DECIDES CAT SHOOTINGS ARE BENEFICIAL TO RESEARCH

A committee at Louisiana State University Medical Center has concluded that the school should NOT stop researchers from firing pellets into the brains of anesthetized cats. The project has been going on over the past 6 years at a cost to taxpayers of almost \$2.07 million. Over 700 cats have been shot in the research on how to treat brainwounded soldiers.

Dr. Neal Barnard of the Physician's Committee for Responsible Medicine said the primary conclusion by LSU researcher's is that respiration stops when the brain is injured - information that critics say had been documented for over 100 years. Ironically, LSU's mascot is a cat - the bengal tiger.

You may send letters of protest to Secretary of Defense Richard Cheney, Pentagon, Room 3E880, Washington, D.C. and let him know how you feel about the experiments being funded with your tax dollars.

### GOOD NEWS

Harrods, the world's most famous department store in London, announced that effective April it would stop selling furs. It's sales have been hard hit by the growing sentiment against killing animals for furs.

# NEW CAT NOT NEW?

Professor Dr. Paul Leyhausen takes issue with the suggestion that the Tshushima cat is a new discovery. He says he has seen and photographed six of these cats owned by a private collector in Tokyo. They were larger than the leopard cat and "clearly belonged to the subspecies Prionailurus b. manchuricus." Measurements of skulls of Korean and Tsushima specimens at the National Science Museum in Tokyo were completely alike.

Dr.Layhausen also comments that the Iriomote cat (F. iriomotensis) is not conspecific with the leopard cat, as has been suggested. He says that the claws of the Iriomote cat are incompletely sheathed and the toes are partially webbed as in the fishing cat (F. viverrina) and the flat-headed cat (F. planiceps). The calws protrude slightly even when comepletely retracted, which is not the case with the leopard cat and the rusty-spotted cat (F. rubiginosa) The skull of the Iriomote cat s-hares most characters with that of the leopard cat, but it also possess some traits linking it to the golden cats F aurata and F. termincki and marbled cats F. marmorata respectively.

"This is why I think it to be a relatively ancient species among felids whose preservation is more important even than that of the tiger," he adds. Reprinted from CAT NEWS

# Why would anyone want to own a mountain lion?

The tremendous appeal of the Star Wars adventures for both children and adults is largely due to the Ewoks, Yoda, Chew Bacca and all the other imaginary creatures from distant worlds who befriend and help the human protagonists. We seem to have a facination with the idea of communicating with alien intelligence. We are eager, both in our imagination, and in reality, to brave the cold emptiness of space in hopes of finding such intelligence. Yet right here on our own planet there exists a myriad example of intelligence as alien as any fr om another world. And there is no peace between us. They have all learned to fear us as the most terrible monster on this planet. We behave as if we were the alien invaders, wageing relentless genocidal war upon them all. Is this the attitude we will take with us to the stars?

I have made a friend among the aliens of this Earth. His name is Mercury. He is a mountain lion. We sit together in the twilight, watching the stars come out. He is teaching me to hear with the ears of a cougar, to see with the eyes of a cougar. I am teaching him the strange human custom of property ownership. He is my companion, he is my friend. The day is over. Another job well done. We have patrolled and marked our territory. He looks at me contentedly and actually hugs me. I think to myself THIS is Chew Bacca. But this is real....

Why would anyone want to own a mountain lion? Because it is the stuff dreams are made of.

