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diagnostic for but were consistent with a clinical diagnosis of heat stroke.¹⁰

A Clinical Case of Heat Exhaustion

A 2½-year-old male Doberman was presented to the ISU Small Animal Clinic on July 1 with a history of collapsing suddenly after vomiting while it was eating. The dog had been playing before it was fed. When it arrived at the Clinic it was ataxic and weak, and had a temperature of 102°F. The pulse rate was 120/minute and the respiratory rate was 40/minute. The dog was started on IV lactated ringers, and both corticosteroid and antibiotic therapy. Recovery was uneventful.

References

1. Beeson, P. B. and McDermott, W. (ed): *Cecil-Loeb Textbook of Medicine*. 12th Edition, Philadelphia, W. B. Saunders Co. 1967.
2. Ettinger, S. J. (ed): *Textbook of Veterinary Internal Medicine*, Volume 1, Philadelphia, W. B. Saunders Co., pp 394-395.
3. Hoskins, H. P., Lacroix, J. V., and Mayer, K. (ed): *Canine Medicine*, 2nd Edition, revised; American Veterinary Publications, Inc. 1962, pp. 708-712.
4. Kirk, R. W. (ed): *Current Veterinary Therapy VI*, Philadelphia, W. B. Saunders Co., 1977, pp 202-205.
5. Krum, S. H.: Heatstroke in the dog: a polysystemic disorder. *JAVMA* (1977) 170(5)531-535.
6. Lewis, S.: Effect of heat on canines and felines. *ISU Vet.* (1976)38(3)117-121.
7. Smith, Jones, and Hunt: *Veterinary Pathology*. 4th Edition, Philadelphia, Lea and Febiger, 1972, p 1126.
8. Spur, G. B. and Barlow, G.: Tissue electrolytes in hyperthermic dogs. *J. Appl. Physiol.*, 28:13-17, 1970.
9. Swenson, M. J. (ed): *Duke's Physiology of Domestic Animals*, 9th Edition, Cornell University Press, 1977, pp 688-693.
10. American Academy of Orthopedic Surgeons: *Emergency Care and Transportation of the Sick and Injured*. 2nd Edition, revised. 1977. George Banta Co., Inc. Menasha, Wisconsin.

Veterinary Care of Ferrets, Raccoons and Skunks

Elizabeth Thatcher*

Purpose and Introduction

The continuing tendency of people to desire unique pets and the availability of non-domestic animals such as ferrets, skunks, and raccoons from local pet stores make it important for the practicing veterinarian to have some knowledge of routine daily and specialized veterinary care for these animals. Pets are also made of young skunks and raccoons taken from the wild. It is necessary for the veterinarian to have some background in the housing and nutritional needs of these exotic pets as well as knowledge of recommended vaccinations, specialized veterinary procedures, and problems associated with the ownership of these non-domestic pets. It may

be the veterinarian's duty to help a client make the decision for or against choosing one of these animals as a pet.

More and more frequently, people are choosing non-domestic or exotic animals as pets. A decade ago, it was estimated that 10,000 persons annually take in skunks as pets.¹⁵ The incidence of raccoon ownership is also increasing²⁸ and most recently, ferrets have become popular as unusual pets. The reasons why people choose an exotic animal over a dog or cat vary greatly.² For some, it is merely keeping pace with current trends. Others are attracted to the idea of keeping a wild animal in the home as a type of personal biological laboratory allowing them to monitor the lifestyle and habits of a wild animal at their leisure. The continuing popularity of Walt Disney nature movies and

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books about pet wild animals such as Sterling North's *Rascal* leads others to desire the opportunity of experiencing the challenge and reward of raising an exotic pet. Some people only want a conversation piece and relish the idea of passers-by doing a double-take when they recognize that the animal on the leash is a skunk and not just a dog or cat. Finally, for some, the non-domestic pet is a status symbol, something that separates them from the multitude of ordinary pet owners.

For whatever the reason a person chooses to own one of these animals as a pet, it is necessary for the veterinarian to be prepared to deal with them when they are presented for either a regular health check-up or with a particular health problem.

Case History

On September 4, 1979, a six-month old male ferret was presented at Starch Animal Hospital in Des Moines. This animal and a second albino female had been purchased several days earlier from a pet store in Des Moines. The owner had noticed that the male ferret had become increasingly lethargic and had lacked any appetite for the past 24 hours. A physical exam showed that the animal was depressed, dehydrated, and in generally poor condition. Tarry feces were observed and examination of the ears showed ear mites. The albino ferret was examined and proved to be alert and active although it also had ear mites. Both animals were treated for mites with Cerumite^{®a} and the albino was sent home.

Fecal flotation showed no signs of parasitism and bacterial cultures were also negative. The ferret was hospitalized and treated for a non-specific enteritis, probably bacterial.

Upon admission, the treatment consisted of oral Kaopectate,^b subcutaneous dextrose to counter the dehydration, parenteral B-vitamin complex, Azium^{®c} IM, and finally, thinned chicken babyfood orally by syringe. The animal's condition did not vary much by day 2 although it began to eat chicken babyfood on its own. On both day 2 and day 3, the ferret received Kaopectate[®] orally,

^a Cerumite[®] (Evsco)-cerumene (squalane) and pyrethrins—mitocidal.

^b Kaopectate[®] (Upjohn)-kaolin and pectin-trtmt. of diarrhea/enteritis

^c Azium[®] (Schering)

^d Biosol-M[®] (Upjohn)-Neomycin sulfate, Methsco-

fluids subcutaneously, and Azium[®] IM. By day 4, the dehydration had improved and the stools were much less tarry. Kaopectate[®] was repeated on day 4. The ferret was much more active.

By day 5, the ferret appeared to have recovered enough to be dismissed. The stools were more normal, appetite was wholly returned, and the animal was increasingly active and alert. The owner did not return for the ferret until September 18. During this time, improvement continued and the animal's condition was much better than on presentation. Biosol-M^{®d} drops were prescribed at a dosage of 1/8 ml *bid* starting day 5 and continuing for a total of seven days. A multivitamin supplement, Lixotinic,^{®e} was also prescribed and sent home with the owner. The dosage was ½ teaspoon once a day in the animal's food. Before going home, the ferret became very active and aggressive to the point of biting a caretaker. It was vaccinated with DHLP before being released.

The owner was advised to keep the two ferrets separated as much as possible and to feed them separately. The diet was to be supplemented with Lixotinic.[®] There have been no further problems with either ferret.

Discussion

My exposure to the ferret as a pet, both directly from a clinical case and indirectly through seeing these animals available for purchase, led me to assess my own knowledge of these and other non-domestic pets. I feel it is important for a veterinarian to be qualified to deal with inquiries on proper care of such pets as well as being capable of treating health problems that arise. For that reason, I have covered basic information on housing, reproduction, and nutrition as well as possible veterinary procedures. Some general information is reprinted in Table I. The three species I chose to research are all carnivores. Ferrets and skunks are members of the *Mustelidae* family and the raccoon is a member of the *Procyonidae* family. As a group, their needs in some areas are quite similar and in others somewhat varied.

polamine bromide-Trtmt. of bacterial enteric infections

^e Lixotinic[®] (Beechum)-niacinamide, thiamin HCl, Pyridoxine HCl, cyanocobalamin, riboflavin, iron, copper, liver fraction-Trtmt. of vitamin and iron def.

Housing

All three species can be given the run of the house but, especially in the case of the raccoon, this may be impractical and troublesome. Most require some type of cage at least part of the time and, if given adequate care and attention, adapt quite well. A wooden framework covered with wire mesh works best for all three species. Dimensions vary depending on available space and the amount of time that the animal is to be caged. Table II shows minimum cage space requirements. Ferrets may be housed in a hutch-type cage, that provides areas for sleeping, eating, and exercise. Ferrets, skunks, and raccoons may be housed outdoors year-round as long as they have access to a snug nestbox filled with adequate nesting material (straw, wood shavings, excelsior), to protect them from exposure in extremely bad winter weather. In the summer, the cage must

be partially shaded for protection from the sun. Skunks must be kept on a cement floor or in an enclosure that extends at least two feet below ground since they are proficient at digging. Raccoons benefit from tree limbs to climb, hollow logs to crawl through, and swings or toys to play with. A cage designed for a raccoon must have a very secure lock or latch to prevent the animal from escaping.²⁷ Good sanitation is extremely important. By elevating the cage off the ground, urine, feces, and uneaten food fall to the ground and keep the cage cleaner. However, the wire flooring allows excessive claw growth in the skunk since they are unable to wear them down by digging. Ferrets, raccoons, and skunks can be trained to use a litterbox which helps in maintaining clean housing. Nesting material should be changed frequently and the entire cage disinfected at regular intervals.

TABLE I: General Information and Normal Values^{8,12,22,23}

	FERRET <i>Mustela putorius furo</i>	SKUNK <i>Mephitis mephitis</i>	RACCOON <i>Procyon lotor</i>
Lifespan	10-15 years	5-6 years	10-13 years
Adult Weight	300-2000 gm	3-10 lb	12-30 lb
Puberty	8-9 months	1 year	1 year or more
Breeding Season	Twice yearly	Late winter, Early spring	Jan.- March
Gestation	36-42 days	62-72 days	63 days
Litter Size	5-13	3-8	1-6
Gender Name ♂ ♂ young	"hob" "jill" "kits"	male female "kits," "pups"	"boar" "sow" "cub"
Normal temp.	101.6-102.4°F	100.0-101.0°F	100.6-102.0°F
RBC (× 10 ⁶)	11
Hb (mg/100ml)	10-11
PCV (%)	35-40	35-40	35-40
ESR (mm/hr)	1-3	1-3	1-3
WBC (× 10 ³)	9-13	12-15	13-16
Neutrophil	65%	47%	45%
Lymphocyte	35%	50%	49%
Monocyte	0	1%	2%
Eosinophil	0	2%	3%
Basophil	0	0	0
Recommended Vaccinations	Canine* Rabies Distemper	Canine/Feline Distemper* Rabies	Canine/Feline Distemper* Rabies
Anesthesia Ketamine HCl	20-25 mg/lb	5-15 mg/Kg	10-12 mg/lb

* Use killed virus vaccines especially for rabies

TABLE II: Minimum Cage Space Requirements²¹

Animal	Floor Space (sq. meters)			Height in meters
	1 animal	2 animals	Additional animals	
RACCOON	7.32	9.15	+ 1.8/animal	1.22
SKUNK	3.66	4.88	+ 1.2/animal	0.9
FERRET	2.74	3.66	+ 0.9/animal	0.61

Diet

The ferret, being a carnivore, requires a predominantly meat diet. A balanced diet can be provided using canned commercial dog and cat foods supplemented with mink pellets, chicken parts, eggs, milk, some table scraps and a multivitamin concentrate. Cod liver oil (3-5 drops daily) will help prevent or treat a dry hair coat. Approximately 4-5 oz. of food should be fed daily, preferably at night since the ferret will sleep immediately after eating. Uneaten food is hidden away and must be removed to prevent spoilage. Bilateral alopecia may be seen if raw chicken eggs make up greater than 10% of the diet. Avidin in the egg whites results in biotin deficiency and hair loss.³⁰ Clean water should be available at all times.

Skunks and raccoons will eat almost anything and do well on a balanced diet of both meat and vegetable material. Again, dry or canned commercial dogfoods make a good basis if supplemented with fruits and vegetables, ungreasy table scraps, codliver oil, vitamins and minerals. Skunks can have an occasional raw egg and should be fed once daily as much as they can consume in 15 minutes. Raccoons can be fed twice a day but no more than 10% of their body weight. Water should be readily available and the raccoon will often dunk or wash bits of food before eating. It is especially important to provide adequate calcium and phosphorus in the right ratio as well as vitamin D₃ in the diet to prevent bones from becoming weak and brittle which can lead to increased tendency of fractures.²¹ Adequate vitamin and mineral supplementation was shown to be necessary in treatment of alopecia in a pet skunk.²⁹ A multivitamin preparation containing vitamin A, vitamin D, thiamin, riboflavin, pyridoxine, nicotinamide, panthenol, vitamin B₁₂, and ascorbic acid plus vitamin D₃ and calcium/phosphorus capsules was used over several months to treat hair loss with good results. The condition recurred as soon as supplementation ceased. Obesity can be a problem in the skunk and raccoon, requiring intake to be carefully monitored.

Young of all three species can be raised on Esbilac[®] formula.⁸ Feeding must be done 4-6 times daily until the eyes open then gradually decreasing formula feedings while slowly introducing solid foods. High protein baby cereal can be mixed with the formula until

adult solid foods are introduced and the animal feeds itself.

Reproduction

Generally speaking, a pair of any of these non-domestic pets increases the problems in care by more than two-fold. It is possible, though far from practical, to try to successfully breed these animals. Sexually mature animals are more difficult to handle and cause additional problems.

Ferrets mature sexually at 9-12 months. Breeding season is twice yearly and litters range from 5-13 young. The female is seasonally polyestrous and ovulation is induced; therefore, estrus may continue up to 120 days if breeding does not occur. The female ferret also displays marked swelling of the vulva during estrus which the owner may find to be esthetically displeasing. Mating is long (1-3 hours) and violent involving the male ferret beating the female into submission.⁸ Multiple wounds and injuries often result. Gestation is 42 days. The male ferret should be removed from the female after breeding and the female should be left undisturbed after parturition to prevent her from killing her young.³⁶ Young are weaned at 6-8 weeks.

The skunk has a single estrus period usually in February or March. The female is receptive to the male until pregnancy or pseudopregnancy occurs at which time she will become quite aggressive and drive the male away. She will remain aggressive throughout parturition and weaning. Gestation is 62-72 days and litter size ranges from 3-8. Young remain with the mother until they are 3-4 months old in the wild.

Raccoons generally breed during January to March. Raccoons (and skunks) reach sexual maturity at approximately one year. Ovulation is induced. Estrus is evidenced in the female raccoon by swelling and thickening of the vagina and vulva and possibly by a bloody discharge.²⁷ Gestation is 63 days and litters range from 1-6 young. Newborn raccoons are helpless and develop very slowly. They should be left undisturbed for the first 2-3 weeks since mother raccoons may react aggressively and kill their young.

Veterinary Care

Non-domestic pets require specialized knowledge on the part of the veterinarian

about preventative medicine and treatment of disease. It is important for the veterinarian to know what health problems these animals are susceptible to in order to be able to diagnose and treat effectively.

Restraint

Non-domestic pets require more cautious restraint and handling than domestic pets. Although young animals and frequently-handled adults are generally tractable, there is always the danger of being bitten by a frightened or hurt animal. Since even hand-raised animals may bite without provocation, it is best to "handle with care." An adult ferret can be restrained by grasping it behind the neck and forelegs with one hand and holding the hindlegs with the other hand. Skunks can be restrained in a similar manner or if they are at all aggressive, nets, snares or squeeze cages can be used. Sedation or anesthesia may be necessary in treating an intact, adult skunk. Young skunks (less than 10 weeks old) are unlikely to spray but mature animals can accurately project the scent up to 13 feet. Holding a skunk by the tail neither prevents spraying nor biting. Serious bites can also be inflicted by pet raccoons. Raccoons trained to a leash or harness can be immobilized for an injection by being placed in a cage and pulled against the door. Nets, press frames, or squeeze cages can be used in less gentle animals. Snares can be tried but raccoons are adept at using their forepaws to remove the snare. If necessary, chemical restraint can be used in any of these pets that prove otherwise impossible to handle safely. Dosages of Ketamine HCl are listed in Table I.

Viral Diseases

All three species are susceptible to canine distemper, feline distemper, and rabies.^{26,7,30}

The ferret is very susceptible to canine distemper and if the virus is contracted, usually results in death. Symptoms include loss of appetite, mucopurulent discharge from the eyes and nose, increased temperature to 106°F, rash under the chin and in the inguinal region, and swelling and hardening of the footpads. Occasionally, a neurological form will follow the catarrhal phase at which time hyperexcitability, excess salivation, muscle tremors and convulsions may be noted preceding a final coma and death. Skunks with canine distemper will

exhibit many of the same signs.³⁴ In addition, they often contract a secondary pneumonia that complicates the problem.

Ferrets are also susceptible to colds and influenza viruses.^{24,30} For that reason, they are commonly used in cold virus research. The symptoms of influenza are initially like distemper: depression, listlessness, anorexia, fever, nasal discharge. Recovery is within a few days if supportive treatment (warmth, dry housing, rest) is provided. Susceptibility to colds increases with sudden changes in the weather, dampness, or an unbalanced diet.

Aleutian disease of mink also affects ferrets but infection is usually subclinical and seldom is treated.³⁰ Raccoons and skunks have been shown to be infected with infectious canine hepatitis virus although diagnosis is rare and treatment is not pursued.²⁰

Rabies is probably the most serious of the viral diseases infecting these species and demands the greatest amount of care in prevention and diagnosis. The likelihood that young skunks and raccoons taken from the wild harbor rabies is the strongest reason for opposing such animals as pets. Skunks especially have been shown to be inapparent carriers for up to 14 months. Infected animals may demonstrate the furious form but often show no signs of clinical infection other than lethargy.^{14,33}

Bacterial Diseases

Ferrets, particularly those raised commercially, have moderate susceptibility to botulism. Type D is most pathogenic, causing muscle incoordination and stiffness that progresses to respiratory muscle paralysis and death.³⁰ They are also susceptible to all three types of tuberculosis. Animals infected with mycobacteria show signs of emaciation and paralysis of all four limbs in the late stages of infection. *Streptococcus* and *Staphylococcus* infections are seen, introduced by bite wounds and injuries to the mouth from eating bones.

Raccoons and skunks are susceptible to Leptospirosis and seem to be reservoir hosts in the wild in some areas.¹⁶ Bronchopneumonia is seen in young skunks commonly secondary to some viral infection.

Vaccinations

Most sources recommend that pet ferrets, skunks, and raccoons receive preventative

vaccinations for canine and feline distemper and rabies. Understandably, only killed rabies vaccine should be used to guard against inadvertent infection with rabies virus. Rabies vaccinations should be given annually, beginning at 3 months in the ferret and raccoon and at 4 months in the skunk. Immune response to rabies vaccination differs widely between non-domestic species so vaccination does not guarantee complete immunity. Ferrets should also receive canine distemper vaccination at 10 weeks using MLV of chick embryo tissue culture origin. This should be repeated every other year. Raccoons and skunks can be protected against distemper by giving a killed virus vaccine at 10-12 weeks of age. There is some disagreement over the susceptibility of ferrets to feline panleukopenia. Most recent sources^{26,30} do not believe vaccination is necessary in the ferret, although the skunk and raccoon are both susceptible and require the protection.

Parasites and Fungal Infections

Fleas, lice, ear mites, ticks and intestinal parasites (hookworms, whipworms, tapeworms) are commonly found to infest non-domestic pets. These conditions can generally be treated as in the dog or cat. Table III shows antiparasitic drugs used successfully in these species. Dichlorvos (Task®) proves to be most effective against the more common intestinal parasites.²¹

Ferrets have been shown to harbor *Dirofilaria immitis* and should therefore receive preventative medication in regions where heartworm is a problem.²¹ Diethylcarbamazine liquid can be administered daily in the food during mosquito season at a dosage level of 1.25-2.5 mg/lb. body weight. Ringworm may be seen in the ferret and is caused by *Microsporum canis*. It may regress spontaneously but can be treated with Griseofulvin (25 mg/Kg).³⁰ Ferrets are also susceptible to coccidiosis, cryptococcosis, toxoplasmosis and actinomycosis which respond to guidelines of treatment used for cats.

Surgical Anesthesia

Both parenteral and inhalant anesthetics have been successfully used in non-domestic species. Ketamine HCl works most effectively for short surgical procedures and causes little risk to the animal. Suggested dosages are given in Table I for the ferret, skunk and raccoon. Halothane and methoxyfluorine can be used, as can ether, although ether can cause respiratory arrest.¹⁵ Induction can be done with halothane mask or in a catbox. Sodium pentobarbital can be used intraperitoneally at a dosage of 35 mg/Kg.³⁰

Descending

Nearly all pet skunks are descended when they are obtained; however, young animals from the wild or from a litter bred in captivity

TABLE III. Antiparasitic Drugs Used in Carnivores¹¹

DRUG	Effective against					Dosage (mg/Kg)
	Ascarids	Hookworms	Whipworms	Tapeworms	Coccidia	
a Piperazine	+++					100 oral
b Disophenol (DNP)		+++				7.5 SQ
c Glycobiarsol (Milibis V)			+++			200 oral
d Dichlorvos (Task)	++	+++	+++			25-35 oral
e Niclosamide (Yomesan)				+		150 oral
f Sulfa-dimethoxine					++	50 oral/inj
g Nitro-furazone					++	50 in food
h Mebendazole (Telmin)	++	++	++	++		15
i Diethyl-carbamazine	+++					10-60 oral
j Levamisol	+++	++				11 oral/SQ

a: repeat monthly in chronic cases

b: repeat in 3 weeks

c: daily for five days

d: ½ dosage on two days; caution if other organophosphates

e: safe, repeat if necessary

f:

g:

h: daily for two doses; NOT APPROVED

i: repeat as necessary

j: repeat as necessary

may need to be descented.^{10,15} The procedure is not too difficult especially in done in animals less than six weeks old. The scent glands are paired structures located laterally to the opening of the anus. The anesthetized skunk is positioned in ventral recumbancy with hindquarters elevated and tail tied out of the way.

Gentle pressure causes the gland papilla to protrude, allowing it to be grasped with a Kelly hemostat. A ligature can be placed below the hemostat with long ends left to use for traction. An incision is made circling the papilla with care taken to only penetrate the anal mucosa. A second ligature may be placed around the duct after the incision is made. Blunt dissection is used to separate the gland and duct from surrounding tissue. Since the gland is very white, it is relatively easy to isolate from the adjacent tissues. Removed glands can be placed in a jar of chlorine bleach. When both glands are removed, antibiotic ointment is placed in the incision sites. No closure is necessary. By minimizing trauma, post-surgical complications such as rectal prolapse and proctitis are lessened.

Removal of the scent glands can also be done in the ferret to minimize the characteristic musky odor that is most evident in the male. Such surgery does not solve the problem completely because some of the distinctive odor persists from skin secretions.³⁰ The technique is similar to that used in the skunk and should be done in the young animal.¹⁰ Ferrets do not have a papilla at the duct opening. Instead, multiple orifices open into furrows located lateral to the anal opening. An Allis tissue forceps is used to grasp and elevate the furrow epithelium as an elliptical incision through the anal mucosa is made. The procedure is completed by blunt dissection and removal of the duct and gland. Caution must be used since the tissue is more friable than in the skunk and can be easily ruptured.

Declawing

Claws of the ferret, skunk and raccoon are non-retractable and can result in much damage and injury due to scratching or digging. It is possible, though not highly recommended, to remove the claws surgically. Regular trimming may be the best

way to keep the animal from being too destructive.^{8,15}

Neutering

Castration of male ferrets and raccoons has been used to decrease aggressiveness and desire to roam. It is usually done when the animal is 6-8 months of age following the procedure used in the canine.^{30,31} Ketamine HCl can be used as anesthetic if the surgery is done rapidly. The animals generally recover uneventfully.

Female ferrets and raccoons can be difficult to deal with during estrus since ovulation is induced in both species.³⁰ Estrus can be prevented in the ferret by use of compounds containing megestrol acetate,¹⁸ but longterm therapy may lead to pyometra.⁶ Estrus can be terminated after ten days with parenteral injection of 1,000 USP units of chorionic gonadotropin. This may need to be repeated in one week if vulvar swelling persists.³⁰ Since estrus may persist up to four months in the unmated female ferret, ovariohysterectomy may be the procedure of choice. Inhalant anesthesia should be used and surgery done as a feline spay through a ventral midline incision. Excessive subcutaneous fat may cause some problems in surgery on the raccoon.

Pyometra

Pyometra in non-domestic species presents clinical signs similar to pyometra in the dog or cat.^{3,28} These signs include anorexia, depression, distended abdomen, polydipsia, polyuria, and purulent exudate from the vulva. WBC may be elevated or may be below normal with a significant left shift. Antibiotic therapy can be attempted and culture and sensitivity tests should be done to identify the causative organism or organisms. Ovariohysterectomy may need to be performed and is done through a ventral midline incision. Ovaries and the distended uterus are removed.

Other Medical Problems

Non-domestic pets are susceptible to many additional health problems. Enteritis, foreign bodies, pregnancy toxemia, lymphadenoma, diabetes mellitus, squamous cell carcinoma, and any of the infectious diseases may be encountered.³⁰ Treatment regimens can be

designed using canine and feline medicine as a basis.

Problems Associated with Non-Domestic Pets

One source defines a pet as "any animal that is kept for the enjoyment of its owner throughout the extent of the animal's natural life. [This] eliminates . . . animals kept for their usefulness to man . . . [and] such animals as the alligator, which is both an endangered species . . . and an impossible animal for the average householder to enjoy for its natural life."⁸ The non-domestic pet owner takes on responsibility for his chosen pet's physical needs including nourishment, adequate living conditions, and health care (cleaning, grooming, exercise, veterinary care) as well as responsibility for emotional and psychological needs. It is in this second area that problems arise, most understandably because the wild animal is not wholly adaptable to the captive life.

A common problem occurs when the lovable young pet reaches maturity. Adult animals become more aggressive and restless. Raccoons especially are difficult to keep much longer than a year. Young raccoons are clever and responsive animals, amusing to watch and play with. They tend to revert to the wild state and are no longer playful or cuddly. They dislike being handled, will frequently bite, and become increasingly independent. An adult raccoon is very strong and can be exceptionally destructive. Raccoons will explore anything and everything. One account²⁴ of a pet raccoon records the animal exploring every part of the house, gnawing a hole in a basement wall, prying open all the kitchen cabinets and their containers, getting into the refrigerator, hollowing out a nest in the boxsprings, swimming in the tub and toilet, taking fish out of the aquarium, climbing and tipping the Christmas tree, getting into the garden and destroying vegetables, and digging up flower bulbs. Mature skunks usually remain more docile but tend to be increasingly slow, placid and deliberate as they grow older. Naturally nocturnal, it is difficult to switch them to a different schedule.⁸ This results in a pet that spends most of its time asleep in an out of the way nesting place. Skunks are also curious and will attempt to investigate and burrow into things. As winter approaches,

skunks become more sluggish and may overeat in anticipation of a period of hibernation.

Ferrets are best adapted to the life of a pet. They have been used in Europe for centuries to exterminate rodents and hunt rabbits and can be considered domesticated in many respects. However, without frequent handling and contact with people from an early age, they too are aggressive and difficult to handle.²⁴

Another major problem is the known potential of skunks and raccoons as carriers of rabies. By far the greatest hazard is posed by the skunk. Many documented cases show that skunks may be inapparent carriers of rabies for months. In one instance, a skunk was captive for 14 months before it was shown to have rabies.¹⁹ Animals taken from the wild are clearly most likely to be infected but animals obtained from pet stores may have originated from sources where they could be exposed. Vaccination with MLV vaccines can also introduce rabies to pet wild animals.¹

Many pets are made of young skunks and raccoons that appear to be abandoned in the woods or near roadsides. In some instances, this is the case when the mother has been killed. Unfortunately, young wild animals are often left alone briefly while the adult searches for food or a new home.⁸ Even young that fall out of treetop nests will usually be cared for by their mothers. Baby skunks and raccoons that are old enough to follow after mother are generally old enough to fend for themselves.¹⁷ Injured young may need care and nursing but in many cases this is a difficult task. Young animals that are found in unusual circumstances (alone in broad daylight) may be ill and should be suspected as possible rabies carriers. In most instances, baby wild animals should be left alone since many "orphans" are in fact created by rescuers. It must also be realized that special permits or licenses must be obtained in many states to keep wild animals captive. State, county, and local regulations vary and should be investigated to prevent possible arrest and prosecution.

Other problems that develop when a wild animal is kept as a pet include: disinterest in the animal after an initial period of enjoyment, difficulty in finding knowledgeable veterinary care, and difficulty in leaving the animal behind during vacations or other time

away from home.²

The ultimate problem is what to do with a non-domestic pet that proves to be too difficult to keep or becomes unmanageable and dangerous. As stated previously, raccoons almost invariably revert to the wild when they reach sexual maturity. The best solution seems to be release to the wild. This is what happened to "Rascal" at the end of North's story and has been successful in other cases.^{8,17} If a "pet" raccoon is to be released to the wild, this must be the intention from the start. During the entire time the raccoon is kept, it is important to prepare it for life in the wild. The animal should not be kept too long and should not be encouraged to develop friendships with potential enemies such as dogs. An animal that has been declawed, descanted, or defanged cannot be released to the woods since it could not survive with its defenses removed. It is necessary to gradually accustom the animal to the wild before release to allow it to learn to find food and shelter in unfamiliar territory. This can be done by providing an open outdoor pen with food and water while allowing the animal to venture forth until it leaves spontaneously. Animals can be released in state parks or wildlife reserves but only with a warden's permission. Often unwanted wild pets are too domesticated to fend for themselves in the wild. Zoos can be contacted but are frequently unwilling to take former pets. In some cases, zoos are overcrowded and do not want to deal with sickly, neurotic wild pets. It is also impossible for them to accept animals that are physically altered (declawed, defanged, neutered) since such animals are unsuitable for display or breeding purposes. These pets are generally unable to associate with others of their kind successfully in any case.^{5,24,33} This leaves humane societies which, almost without exception, are also overcrowded and find it nearly impossible to place animals that have proven to be difficult. This leaves euthanasia as the final alternative for an unwanted pet. It is unfortunate but often remains the only solution to an animal that would have fared much better in the wild from the start.

Conclusion and Summary

The veterinarian is faced with the responsibility of deciding how to deal with the client that shows interest in or may already

have chosen a ferret, skunk, or raccoon as a pet. This discussion has covered health care of these animals in addition to nutritional, housing and reproductive information. Problems that are associated with these animals as pets have also been examined. It is now up to each veterinarian to decide what his or her attitude toward these non-domestic pets will be. At the 110th annual meeting of the AVMA House of Delegates, the following resolution was adopted: "The AVMA strongly opposes keeping of wild and exotic species of animals as pets and believes that all commercial traffic of these animals for such purpose should be prohibited."⁹ This resolution came after a measure was introduced to the AVMA by the association's Council on Public Health and Regulatory Veterinary Medicine and by the Council on Veterinary Service. This measure stated:⁹

People acquire skunks, raccoons, monkeys, alligators, and other exotic species as pets because they like to possess unusual pets or regard them as status symbols.

These exotic species create disease, diet and exercise problems different from those of domesticated pets (dogs and cats).

Since skunks consistently represent the greatest source of wildlife rabies, veterinarians should discourage the desecrating of skunks and inform the public of this serious rabies hazard. Disposing of an exotic pet can be a traumatic experience, with difficulty in relocating such pets. Therefore, veterinarians should exert their influence to discourage the keeping of wild or exotic species as pets.

If people are still determined to have an exotic pet, they should be encouraged to follow these guidelines:³⁷

- 1) Do research to find out as much as possible about the animal they intend to keep as a pet. This includes study of diet, environment, and habits.
- 2) Prepare quarters suitable to the animal's needs with emphasis on proper temperature, demands for exercise and companionship.
- 3) Realize that acquisition of a non-domestic pet is a commitment that cannot be easily broken.

An editorial in the AVMA Journal probably summarizes it best in saying that ". . . the veterinarian who recognizes the

potential harm to the people themselves, the many injustices to the animals, and the growing concern of humane organizations and municipal officials, will attempt to convince most people that their best chances for long and happy relationships with pets lie with those species that have shared man's company for so long that we call them domesticated."²

REFERENCES

1. Blender, D. C., "Skunks make dangerous pets—a continuous saga," *Today's Animal Health*, Vol. 9, No. 6, p. 9, Nov./Dec. 1978.
2. Block, Victor, "Wild pets could turn them off," *Today's Health*, Vol. 46, No. 12, pp. 56-57, Dec. 1968.
3. Boever, W. J., Warmbrodt, J., "Pyometra in a domestic Ferret," *Modern Veterinary Practice*, Vol. 55, No. 9, p. 717, Sept. 1974.
4. Brodie, Iain, *Ferrets and Ferreting*, Blandford Press, Dorset, Great Britain, 1978.
5. Churchill, Nancy, "Enjoy wild animals from a distance," *Today's Animal Health*, Vol. 9, No. 4, pp. 18-19, July/Aug. 1978.
6. Dash, J. D., Allen, P. S. C., "Spaying ferrets," *Veterinary Record*, Vol. 104, No. 15, p. 354, April 14, 1979.
7. Davis, J. W., Karstad, L. H., Trainer, D. O., *Infectious Diseases of Wild Animals*, ISU Press, Ames, Iowa, 1970, pp. 36-45.
8. Dolensek, E. P., Burn, B., *A Practical Guide to Impractical Pets*, The Viking Press, New York, 1976.
9. "Exotic animals as pets," *JAVMA*, Vol. 164, No. 3, p. 272, Feb. 1974.
10. Fowler, Murray E., "Descenting carnivores," *Zoo and Wild Animal Medicine*, W. B. Saunders Co., Philadelphia, 1978, pp. 623-625.
11. Fowler, Murray E., "Immunizing procedures," *Zoo and Wild Animal Medicine*, W. B. Saunders Co., Philadelphia, 1978, pp. 613-617.
12. Fowler, Murray E., *Restraint and Handling of Wild and Domestic Animals*, ISU Press, Ames, Iowa, 1978.
13. Gilbert, Bil, "Who could resist a raccoon," *Reader's Digest*, Vol. 114, No. 685, pp. 225-232, May 1979.
14. Gough, P. M., Niemeyer, C., "A rabies epidemic in recently captured skunks," *Journal of Wildlife Diseases*, Vol. 11, No. 2, pp. 170-176, April 1975.
15. Hamann, J. R., "Veterinary care for the pet skunk," *Veterinary Medicine/Small Animal Clinician*, Vol. 64, No. 5, pp. 409-411, May 1969.
16. Hartwick, M. A. W., Marcuse, E. K., et al., "Skunk rabies: the risk to man—or never trust a skunk," *American Journal of Public Health*, Vol. 63, No. 12, pp. 1080-1085, 1973.
17. Hickman, Mae, Guy, Maxine, *Care of the Wild Feathered and Furred: A Guide to Wildlife Handling and Care*, Unity Press, Santa Cruz, 1973.
18. Howard, J. W., "Control of oestrus in ferrets," *Veterinary Record*, Vol. 104, No. 13, p. 291, March 31, 1979.
19. "Inapparent rabies infection," *Oklahoma Communicable Disease Bulletin*, Vol. 74, No. 43, 1975.
20. Karsted, L., Ramsden, R., et al., "Hepatitis in skunks caused by the virus of ICH," *Journal of Wildlife Diseases*, Vol. 11, No. 4, pp. 494-496, Oct. 1975.
21. Kaufmann, Peter H., "Procyonidae and Mustelidae," *Zoo and Wild Animal Medicine*, W. B. Saunders, Co., Philadelphia, 1978, pp. 637-639.
22. Kirk, Robert W., editor, *Current Veterinary Therapy VI—Small Animal Practice*, W. B. Saunders Co., Philadelphia, 1977.
23. Lindeen, Michael, Hauptert, John, "The use of Ketamine HCl in wild birds, mammals, and reptiles," *ISU Veterinarian*, Vol. 36, No. 1, pp. 21-22, 1974.
24. Mathews, Richard K., *Wild Animals as Pets*, Doubleday and Co., Inc., Garden City, N. Y., 1971.
25. McCune, Phil, "Striped skunk—pet or threat," *ISU Veterinarian*, Vol. 35, No. 2, pp. 52-54, 1973.
26. *Norden Laboratories Vaccination Recommendations*, Jan. 1. 1974.
27. Paradise, Paul R., *All About Raccoons*, TFH Publications, Inc., Neptune City, N. J., 1976.
28. Patterson, R. J., "Pyometra in a raccoon," *VM/SAC*, Vol. 70, No. 5, pp. 580-581, May 1975.
29. Resnick, Samuel, "Alopecia in pet skunks," *VM/SAC*, Vol. 71, No. 10, pp. 1475-1478, Oct. 1978.
30. Ryland, L. M., Gorham, J. R., "The ferret and its diseases," *JAVMA*, Vol. 173, No. 9, pp. 1154-1158, 1978.
31. Speckmann, G., "Ketaset anesthesia for orchietomy on a raccoon (*Procyon lotor*)," *Journal of Zoo Animal Medicine*, Vol. 6, No. 1, pp. 31-32, 1975.
32. Starch, C. J., DVM, Starch Pet Hospital, Des Moines, Personal communication.
33. Van De Graaff, K. M., "What a veterinarian should know about skunks," *Minnesota Veterinarian*, Vol. 15, No. 2, pp. 27-30, June 1975.
34. Wade-Smith, Julia; M. E. Richmond, "Care, management and biology of captive striped skunks," *Laboratory Animal Science*, Vol. 25, No. 5, pp. 575-584, 1975.
35. Whitlock, Jan, "Know your exotics—raccoon," *ISU Veterinarian*, Vol. 37, No. 2, pp. 48-49, 1975.
36. Willis, L. S., M. V. Barrow, "The ferret (*Mustela putorius furo*) as a laboratory animal," *Laboratory Animal Science*, Vol. 21, No. 5, pp. 712-716, Oct. 1971.
37. Wiseman, Lori, "The tragedy of exotic pets," *Defenders of Wildlife News*, Vol. 48, No. 5, pp. 528-530, Oct. 1973.