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Free-Ranging Dogs and Cats on the Oak Ridge Reservation: Situation and Solution

C. H. Greenberg

Environmental Sciences Division
Publication No. 3142

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**Free-Ranging Dogs and Cats on the Oak Ridge
Reservation: Situation and Solution**

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April 1989

Prepared for the

**Oak Ridge Reservation
Resource Management Organization**

Prepared by the

**Oak Ridge National Laboratory
Oak Ridge, TN 37831-6285
operated by
Martin Marietta Energy Systems, Inc.
for the
U.S. Department of Energy
under contract DE-AC05-84OR21400**

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ABSTRACT

The free-ranging cat and dog population on the Oak Ridge Reservation (ORR) was evaluated because of concern about the possibility of attacks on humans, the transmittal of disease, the impact on native ORR wildlife, and nuisance problems. Intensive trapping, scent-line transects, surveys of employee opinion at Martin Marietta Energy Systems, Inc., and reports of free-ranging dog and cat sightings revealed that (1) the greatest population concentration is near major roads and buildings; (2) no incidents involving attacks or disease transmission to humans were reported (although harassment of humans by dogs was reported); (3) most Energy Systems employees regard the free-ranging dog and cat population as a nuisance problem, and only 8.1% regard the situation as severe. Recommendations to reduce this problem include: make attractive sites (sanitary landfills) inaccessible; repair exclosures along the ORR boundary; inform pet owners of and enforce laws regarding free-ranging pets; and create a system for reporting sightings and incidents and designate a person(s) to be responsible for responding to such reports.

INTRODUCTION

The objective of this project was to assess the populations of free-ranging dogs (*Canis familiaris*) and cats (*Felis domestica*) on the Department of Energy (DOE) Oak Ridge Reservation (ORR) and to make recommendations to prevent and/or alleviate any problems relating to this population. The decision to make the assessment, which was supported by the ORR Resource Management Organization, was made after several complaints were lodged regarding the presence of free-ranging dogs and cats on the reservation. Concern was deemed warranted because (1) the potential exists for harm to humans from attacks by dogs, (2) free-ranging cats and dogs may carry diseases harmful to humans, (3) free-ranging cats and dogs may have an effect on native ORR fauna, and (4) the animals are a possible nuisance on the ORR. This study evaluates potential safety problems, employee attitudes, and the population status of free-ranging cats and dogs on the ORR.

The distinction between truly feral cats and dogs and free-ranging house pets is unclear because a continuum between these two extremes exists. The term "free-ranging" will be used in this report in reference to any cat or dog "running" without human guardianship.

Annual reports of dog bites in the United States exceed 1 million (Callaham 1980). Of reported animal bites, dog bites constitute over 80%; cat bites, about 10%; and other animals, the remaining 10% (Callaham 1980; Moore et al. 1977). The ownership of the biting dog is established in over 80% of dog-bite cases (even though owned dogs may be running loose); bites from stray dogs constitute less than 20% of reported cases (Beck 1981; Moore et al. 1977). Treatment costs of dog bites approximate \$12 million annually (Anonymous 1980b). Most animal bites requiring medical care are trivial; however, at least 10% require suturing and follow-up care, 1 to 2% require hospitalization, and a very small number result in death (Callaham 1980).

The Oak Ridge Police Department reported 38 animal bites in an Oak Ridge citizen population (27,700) in 1987. The Oak Ridge Police Department does not distinguish between owned and unowned animals apprehended. However, of 881 animals apprehended in 1987, only 23% were reclaimed by owners; the remaining were sold or destroyed (Oak Ridge Animal Control Program Statistics 1987).

Dog bites are the principal route of transmission of rabies to humans (Tierkel 1975); in recent years, cats have also become important in the transmission of the disease (John New, The University of Tennessee, College of Veterinary Medicine, Knoxville, personal communication, 1987). Other infectious organisms such as *Clostridium tetani*, *Pasteurella multocida* (Moore et al. 1977), and *Staphylococcus aureus* (Callaham 1980) can be transmitted by dog and cat bites; bacterial type DF-2 may also be transmitted by dog bites only (John New, The University of Tennessee, College of Veterinary Medicine, Knoxville, personal communication, 1987). Besides local wound infection, known complications of dog bite wounds include lymphangitis, osteomyelitis, meningitis, brain abscess, and sepsis with disseminated blood clots (Callaham 1980). Leptospirosis may be transmitted through urine of infected animals (Ferris and Andrews 1965; Andrews and Ferris 1966). Salmonella, as well as many internal parasites such as nematodes (roundworms and hookworms) and cestodes (tapeworms), are transmitted by feces of infected animals (John New, The University of Tennessee, College of Veterinary Medicine, Knoxville, personal communication, 1987). Cats additionally may carry *Eurytrema procyonis* (Carney et al. 1970) and toxoplasmosis (Frenkel 1973).

Only two cases of rabies were reported in Anderson County during 1982–87 (Bernard Toler, Anderson County Public Health Department, personal communication, 1987). Both cases involved rabid striped skunks (*Mephitis mephitis*) that had bitten dogs. The Public Health Department does not keep records of dog- or cat-transmitted diseases other than rabies.

Free-ranging dogs and cats may be carriers of diseases transmissible to other species of wildlife. In addition to those listed above, these may also include parvo virus, canine distemper, and feline panleukopenia (John New, The University of Tennessee, College of Veterinary Medicine, Knoxville, personal communication, 1987).

Hines (1985) dubs free-ranging dogs the “unnatural predator” because dog populations are not usually regulated by prey availability; instead, the diet of many free-ranging dogs (pets and hunting dogs) is supplemented by owners. In a 1974 survey of dog predation on wildlife across the country, most wildlife agencies reported that more damage to wildlife was done by free-ranging pets (usually in packs) than by stray or feral dogs. In this survey, the Tennessee Department of Conservation reported that about 90% of dog predation was by pets and only 1% by feral dogs (Gentry 1983).

Nationwide, the value of deer lost to free-ranging dog predation was estimated at \$835,000 in 1978 (Anonymous 1980a). A survey of ten southeastern states found that loose dogs were responsible for 6% of the total deer depletion of the area (Gentry 1983). He estimated that each year dogs were responsible for 37 deer deaths per 15,000 acres. This includes the indirect contribution of dogs to the death of healthy deer by running them into fences or onto highways, where they may be struck by cars. Because such deer-vehicle collisions might cause damage to vehicles or drivers, they are an issue of special concern to the ORR Resource Management Organization.

The Tennessee Department of Conservation reports canine predation on deer, rabbits, squirrels, and ground-nesting birds (Gentry 1983). Frequently, the loss of livestock and poultry (perhaps killed but not consumed) to predation is also attributed to free-ranging dogs (Gipson 1983; Gentry 1983). Dog-kill characteristics include slash and bite wounds all over the carcass of the prey (Gipson 1983).

Several studies indicate that free-ranging dogs are opportunistic feeders. Barnett and Rudd (1983) found that dogs' stomachs on Cerro Azul in the Galapagos Islands contained insects, grass and fern, trace quantities of dog, cat, finch, rat, and feral cattle (50%). Few successful cattle kills

were observed, but wounds inflicted during some observed attacks may have resulted in the subsequent death of cattle. Scott and Causey (1973) found that free-ranging dogs in Alabama ate primarily small mammals, as well as garbage and vegetable matter (including persimmon, cottontail, mouse, maggot, beetle, plastic, and aluminum foil) but found no evidence of significant predation on deer or livestock by dogs, contradicting popular opinion in the area.

W. George (1974) states, "rural cats probably rival in numbers all other large predators combined east of the Great Plains, west of the Sierra Nevada, and in various other localities." Several studies on the food habits of cats indicate that cats prey most heavily on rodents, less on rabbits, and only minimally on birds (Liberg 1984; Fitzgerald and Karl 1979; Llewellyn and Uhler 1952; McMurry and Sperry 1941; Coman and Brunner 1972). Pearson (1971) notes that 6 cats killed 4200 mice from a 35-acre plot in 8 months; Bradt (1949) notes that one farm cat killed 1628 mammals in 18 months. George (1974) reports that his 3 cats kill 483.5 vertebrates and 286.4 mammalian fetuses per year from 25 acres. George further calculates that if one-third of the nation's estimated 31 million cats (American Humane Association 1972) are rural and kill rodents at the same rate as his cats, then cats annually must remove 5.5 billion rodents and fetuses, as well as 2.5 billion other vertebrates, from a total of 26,000 mile² (continental United States). Pearson (1971) suggests that cat predation affects rodent populations.

George (1974) suggests that intense predation by cats on rodents presents severe competition for rodent-seeking hawks. This also may be the case for other rodent- and rabbit-eating raptors and carnivores. Similarly, Scott and Causey (1973) suggest that free-ranging dogs may compete with coyotes because of heavy niche overlap. In fact, this may well be the case in Italy, where feral dogs are competing with a dwindling wolf population for food, territory, and genetic supremacy (Boffey 1985). Competitive effects could be felt by other populations of carnivores as well. Close contact between free-ranging dogs and coyotes may result in hybridization (Gipson 1983; Gentry 1983) or predation of dogs and coyotes on one another (Bider and Weil 1984).

Kitchings and Story (1984) state in the DOE ORR Resource Management Plan for wildlife management, that "feral animals (dogs and cats) are frequently a nuisance, especially in plant facility areas, where they come in contact with employees who feed and try to make pets of them. Feral dogs become more of a danger than a nuisance when they form packs. . . ." Employee attitudes toward free-ranging cats and dogs were assessed and will be discussed in this study.

STUDY AREA

The ORR, located approximately 28 km west of Knoxville, Tennessee, is operated by Martin Marietta Energy Systems, Inc. Its 35,664 acres (14,440 ha) contain a diversity of vegetation community types. These include both natural and managed yellow pine forests, eastern red cedar barrens, oak-hickory forests, bottomland hardwood forests, northern hardwood forests, and old fields, as well as several developed facilities for energy research and production. The Tennessee Valley Authority's Melton Hill Reservoir and Watts Barr Lake, which border the reservation on the west, south, and east, and numerous streams and springs throughout the area provide an abundance of wetland habitat and water for a variety of wildlife species.

The geology of the reservation is characteristic of the Southern Appalachian Ridge and Valley Province. Parallel southwest-northeast-oriented ridges separated by valleys (elevation ranging from 226 to 413 m above sea level) lend additional diversity to the landscape.

The ORR was protected from hunting and trapping from the time of its purchase in 1942 until 1985, when managed hunts for whitetail deer (*Odocoileus virginianus*) were permitted. This protection, in combination with the diversity of habitat types, creates ideal conditions for an abundance and variety of animal species.

METHODS AND MATERIALS

Scent Lines

To obtain an index on the relative abundance and distribution of free-ranging cats, dogs, and other furbearers, scent lines were established in a variety of habitats throughout the ORR (Fig. 1). Following the standardized method developed by Richards and Hine (1953) and refined by Wood (1959) and others, seven scent lines were established, each consisting of ten stations per line, spaced at 0.2-mile intervals. Stations were prepared by removing debris from a circle 1 m in diameter and sifting a thin layer of lime over the area. A cottonball scented with 1 to 3 drops of fatty acid scent was placed in the center of each station on a tongue depressor. Scent lines were prepared one day and checked for animal tracks the following day.

Tracks were identified with the aid of *A Field Guide to Tracks* (Murie 1974). Any number of tracks by a single species at a station was recorded as a single visitation. An index of relative abundance was calculated by dividing the total number of visits per species by the total number of operable stations and multiplying by 100 (Table 1). Scent lines were successfully run five times between July 1986 and June 1987; on two occasions, all stations were destroyed by rain.

Scent lines were located in a variety of habitat types and were evenly distributed around the ORR (see Fig. 1). Scent-line locations include

- A. New Zion Patrol Road (NZP): mature loblolly pine plantation. All stations on dry, upland sites.
- B. Poplar Creek Road: bottomland hardwood forest (30-year, second-growth forest) along East Poplar Creek floodplain.
- C. Freels Bend Road: primarily pastureland along Melton Hill Lake.
- D. Old Bethel Valley Road: an unused paved road bordered primarily by cedars and pastureland.
- E. Gum Branch Road: mixed hardwoods, including white oak, red oak, yellow poplar, and hickory, with some pine-hardwood mixtures.
- F. Midway Turnpike Road: primarily loblolly and shortleaf pine plantations, interspersed. This line borders a residential area, and was selected because it may be a major entry point for cats and dogs, because only a chain link fence having several holes separates the residential area and the ORR.
- G. Grubb Island Road: mixed hardwood forest with white pine plantations, bordered by the Clinch River.

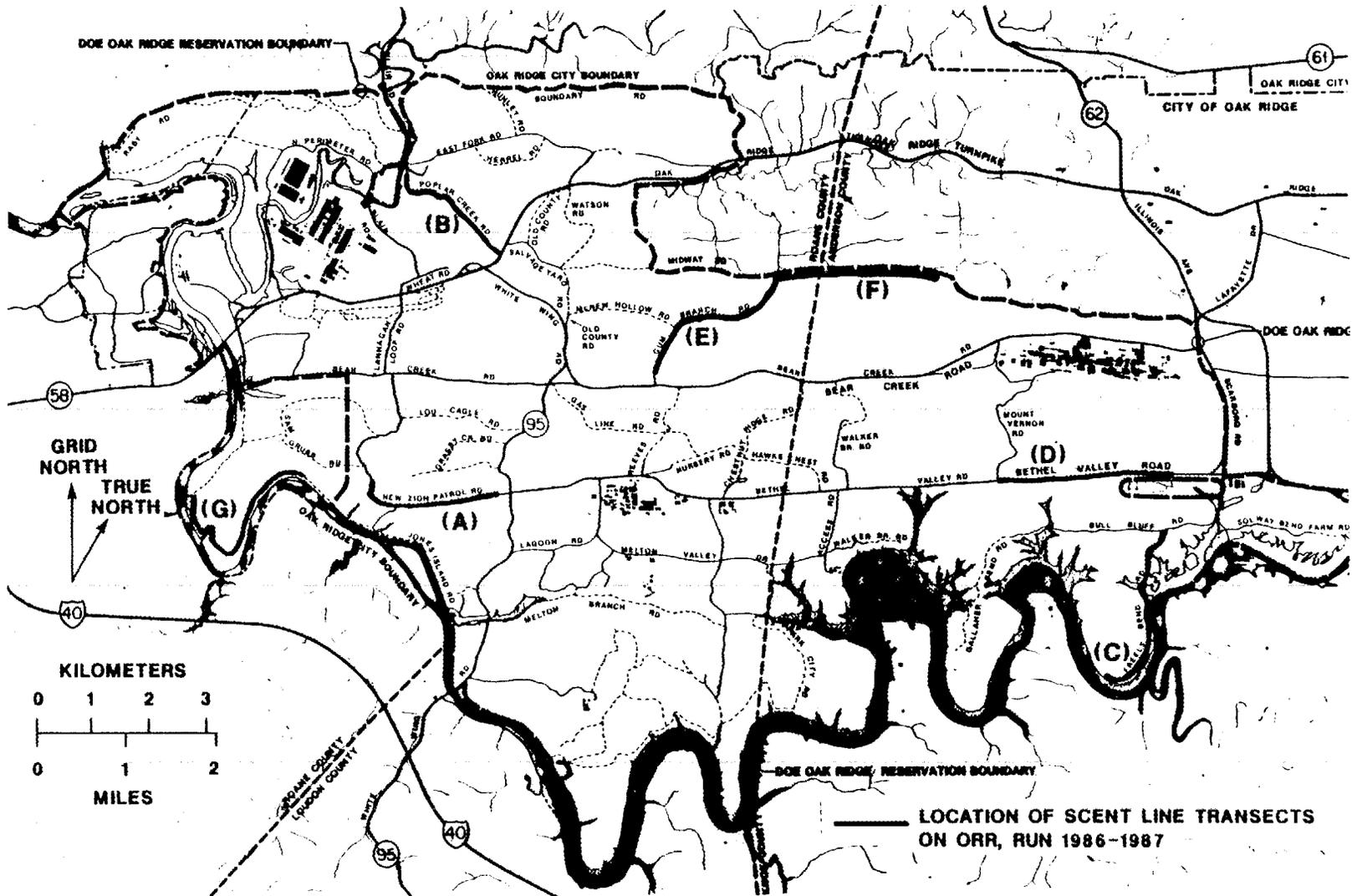


Fig. 1. Location of scintillation line transects on the Oak Ridge Reservation: (A) New Zion Patrol Road, (B) Poplar Creek Road, (C) Freels Bend Road, (D) Old Bethel Valley Road, (E) Gum Branch Road, (F) Midway Turnpike Road, and (G) Grubb Island Road.

Table 1. Species, total visitations, and index of relative abundance (IRA) for scent-line transects (A-G) run July 1986–June 1987 on the ORR

Species	A	B	C	D	E	F	G	Total	IRA
Dog	0	0	0	0	0	0	0	0	0
Cat	0	0	0	0	0	0	0	0	0
Raccoon	2	2	0	1	2	0	3	10	3.12
Gray fox	5	6	4	5	3	1	4	28	8.75
Red fox	1	0	0	0	2	0	0	3	0.93
Bobcat	0	1	1	0	0	1	2	5	1.56
Opossum	2	2	3	5	1	2	3	18	5.62
Striped skunk	0	0	1	2	0	0	0	3	0.94
Rabbit	0	2	2	2	0	0	0	6	1.88
Deer	0	0	0	0	1	0	1	2	0.63
Number of species	4	5	5	5	5	3	5	8	
Number of visits	10	13	11	15	9	4	13	75	
% total visits	13.3	17.3	14.7	20	12	5.3	17.3		

Trapping

Populations of free-ranging dogs, cats, and other furbearers were censused on the ORR by trapping between September 1986 and June 1987. Trapping was conducted almost nightly between 5 September and 3 October 1986 (641 trap nights); 5 March and 17 March 1987 (115 trap nights); 7 June and 19 June 1987 (181 trap nights), using No. 1.5 Victor Soft Catch leg-hold traps. Staked dirt-hole sets (with variations) were used primarily; occasionally drags were employed. Several attractants were used, including fox urine, fox gland lures, pork cracklings, fish oil, and muskrat oil. Traps were concentrated within the National Environmental Research Park (NERP) on an area of about 4 km along dirt roads and powerlines.

Questionnaires, Surveys, and Interviews

To obtain information about the distribution, source, and severity of the problems caused by free-ranging cats and dogs, survey forms were made available and interviews were conducted.

A survey form was designed to obtain information on (1) observations of free-ranging cats and dogs within the past year on the ORR and (2) attitudes of employees at Martin Marietta Energy Systems, Inc., toward the free-ranging cat and dog situation (see Appendix). Those reporting were asked to state the date and location of sightings, the number of dogs or cats observed, a description of the animals, and the type of incident that occurred (human contact, animal foraging, etc.). Respondents were also asked to rate the free-ranging cat and dog situation on the ORR as "no problem," a "nuisance problem," or a "severe problem." Survey forms were distributed to security personnel at the Oak Ridge Gaseous Diffusion Plant (ORGDP), the Oak Ridge Y-12 Plant, and Oak Ridge National Laboratory (ORNL). A notice to all ORNL employees was put on the "Inside Line" of the ORNL PDP-10 computer and in the Energy Systems newsletter (*Energy Systems News*), and survey forms were made available to all persons responding.

Interviews with key personnel who are frequently in the field were also conducted.

RESULTS AND DISCUSSION

For 7 scent lines (320 scent stations) run between July 1986 and June 1987, no dog or cat visitation was recorded. Visitation was recorded for the following species: raccoon (*Procyon lotor*);

gray fox (*Urocyon cinereoargenteus*); red fox (*Vulpes vulpes*); opossum (*Didelphis virginiana*); cottontail rabbit (*Sylvilagus floridanus*); striped skunk; and white-tailed deer. See Table 1 for relative visitation of species by transect location; see Table 2 for relative visitation of species by date.

Table 2. List of species and number of visitations registered for each date that scent-line transects were run

Species	7/29/86	9/28/86	12/5/86	4/11/87	6/22/87	Totals
Dog	0	0	0	0	0	0
Cat	0	0	0	0	0	0
Raccoon	5	4	0	1	2	12
Gray fox	2	7	11	4	2	26
Red fox	0	1	0	0	3	4
Bobcat	3	0	0	2	0	5
Opossum	6	3	1	5	2	17
Striped skunk	0	1	0	0	2	3
Rabbit	5	0	0	0	1	6
Deer	<u>0</u>	<u>0</u>	<u>1</u>	<u>0</u>	<u>1</u>	<u>2</u>
Total	21	16	13	12	13	75

No free-ranging dogs or cats were captured during any of the trapping periods (937 trap nights total). Species captured include raccoon, red fox, gray fox, opossum, striped skunk, woodchuck (*Marmota monax*), and coyote (*Canis latrans*) (see Table 3 for numbers caught). Note that three species of canids were trapped (coyote, gray fox, and red fox). This indicates that lures employed were attractive to canids; perhaps the absence of dog captures is truly indicative of a low occurrence of free-ranging dogs within the trapping area. It is also of interest that no cat species were trapped (i.e., bobcat); it is possible that attractants used were inappropriate for cats, which have inferior olfactory abilities. Bobcat visitation at scent stations could be explained by the visual stimulus provided by the lime, tongue depressor, and cottonball at those sites; again, domestic cat visitation was conspicuously absent.

Table 3. Capture data and an index of relative abundance (IRA) for all species trapped in 937 trap nights on the DOE NERP, 1986-1987

Species	No. captured	IRA
Dog	0	0.0
Cat	0	0.0
Raccoon	14	1.49
Red fox	6	0.64
Gray fox	15	1.60
Opossum	17	1.81
Striped skunk	8	0.85
Woodchuck	2	0.21
Coyote	<u>2</u>	0.21
Total	64	

Ninety-eight survey forms and 12 personal observations reported 54 sightings of free-ranging dogs (there were 11 additional reports of "several" dogs and 2 reports of dog tracks) on the ORR during 1986–87 (Fig. 2). Of those people who reported cat sightings, 22 (73.3%) regarded free-ranging cats and dogs to be "no problem" and 8 (26.6%) regarded them as a "nuisance problem." In contrast, 13 (39.4%) of those reporting dogs regarded free-ranging dogs and cats as being "no problem," 14 (42.4%) regarded them as a "nuisance problem," and 6 (18.2%) considered them a severe problem. Of those reporting no dog or cat sightings, 9 (82.8%) regarded the free-ranging dogs and cats as "no problem" and 2 (18.2%) as a "nuisance problem" (see Table 4). It is apparent that individuals observing free-ranging dogs are more likely to regard the situation as a "nuisance" or "severe" than those reporting cats or no observations.

Most cat observations were near buildings (7 cats reported in the Building 7000 area; 38 plus "several" in the main ORNL area; 4 plus "several" near the Y-12 Plant) (see Fig. 3). A low return of surveys from ORGDP and the Y-12 Plant area may have biased results. Jim Rogers (ORNL, personal communication, 1987) reported a cat problem (both wild and tame) near ORGDP, especially near the trailers, where some employees fed the animals. He noted that cats became such a nuisance that an average of 6 to 10 were live-trapped and taken to the Oak Ridge Animal Shelter every few months. Bill Scheib (ORNL, personal communication, 1987), who conducted live-trapping of cats intermittently for several months about 18 months ago, reported trapping "a family" of cats, including three juveniles, one adult male, and five adult females within one week. He noted that cats were especially abundant near Building K-1001 at ORGDP. Scheib indicated that the problem had diminished since the removal the trailers in the fall of 1986. Only five reports were received about cat observations away from buildings. Two were reported along Midway Pike (along the northern ORR boundary, adjacent to a residential area) and two others (plus "several") near the intersection of Highway 95 and Bethel Valley Road. The remaining reports did not specify locations.

Of cat reports, 16 (plus 2 reports of "several") cats were thought to be wild. Four people reported evidence of cat breeding. The evidence includes the sighting of (1) wild kittens of all ages primarily west of 3rd Street and north of Central Avenue, with dens located underneath Buildings 2013 and 2018; (2) a wild adult male and female with three kittens near the south dock of Building 2026, ORNL; (3) one female with two kittens at the north end of Building 9764; (4) five kittens, unspecified location. Scheib (personal communication) also reported significant breeding activity in the ORGDP area and noted that the feeding of cats by employees probably encouraged and enabled breeding to occur.

Only two observations of hunting activity by cats were reported. One report indicated "apparent" hunting activity; another reported a cat attacking a baby rabbit near ORNL. One observer commented that cats near buildings might serve a useful function in keeping mice and rat populations at a low level.

Growth in the population of free-ranging cats probably results in part from pets entering the reservation, pet abandonment, and by breeding of permanently established free-ranging cat residents.

Dog observations were not as closely associated with developed areas but, instead, were frequently reported along roads (see Fig. 2). Jay Story (ORNL, personal communication) indicated that dogs were frequently seen several years ago at the sanitary landfill at the Y-12 Plant (possibly attracted by garbage); although no recent reports have been received, this may still occur. Within the past year, most dogs reported were of mixed breed (90); of those, 22 were thought to be wild, 2

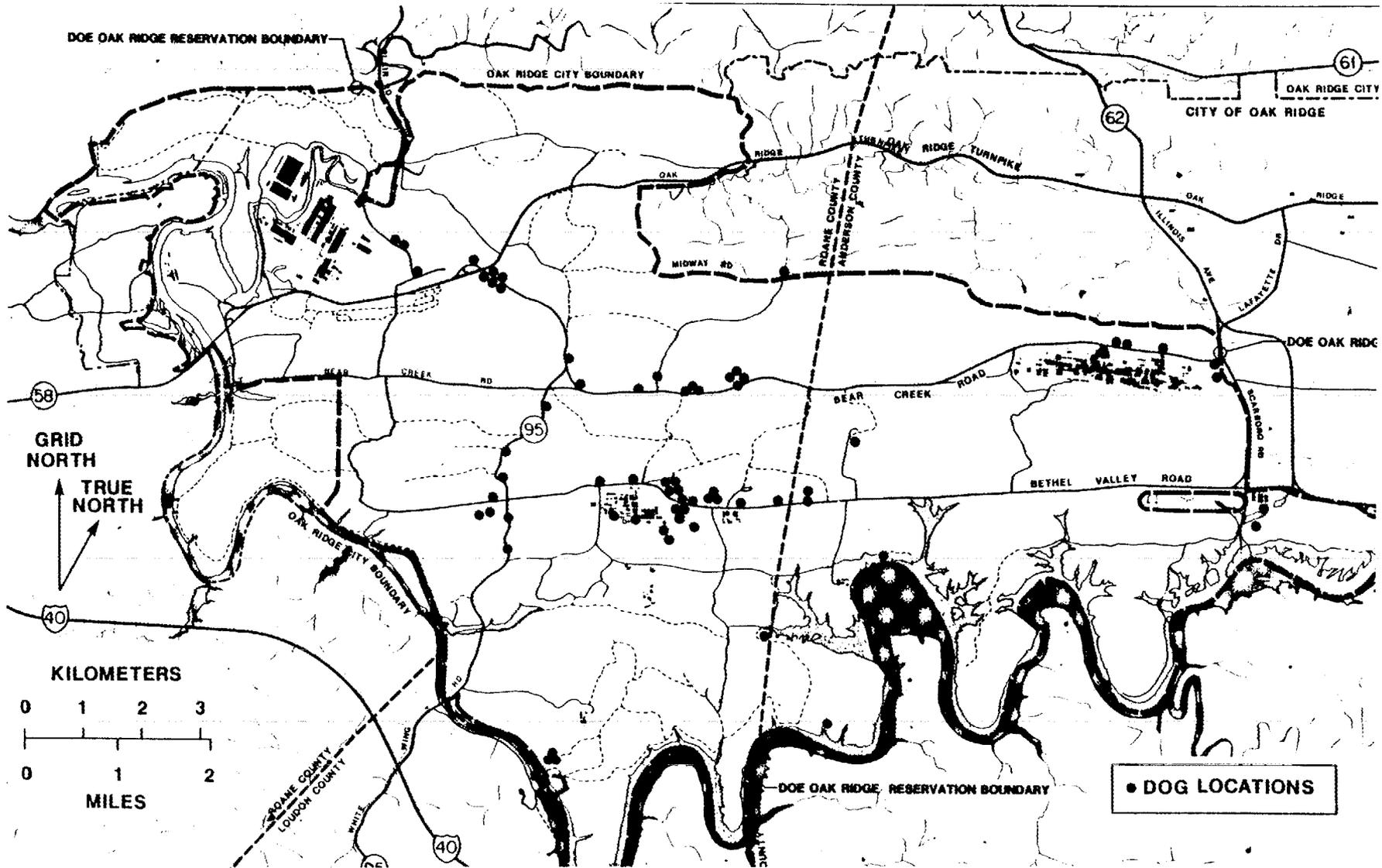


Fig. 2. Locations of free-ranging dogs sighted on the Oak Ridge Reservation.

Table 4. Attitudes of employees at Martin Marietta Energy Systems, Inc., toward the free-ranging cat and dog situation, grouped according to observation type

Observation type	No problem	Nuisance problem	Severe problem
No sighting	9	2	0
Cat sighting	22	8	0
Dog sighting	13	14	6

were apparently abandoned puppies, and the ownership status of the remainder was unknown. Reports of purebred dogs included six hunting hound dogs and one Doberman, all bearing collars, as well as one hound and one German shepherd not wearing collars and reportedly wild. Finally, seven dogs thought to be free-roaming pets were also reported (Table 5).

Only 15 (14.1%) dogs observed were solitary, in contrast to 91 dogs (85.8%) in 37 groups ranging in size from 2 (18 groups or 48.6% of groups observed), 3 (14 groups or 37.8%), 4 (2 groups or 5.4%), and 5 (1 group or 2.7%), as well as 2 groups (5.4%) of unspecified size. Some error may be involved in duplicate reporting.

Of solitary dogs, only two (13%) were apparently engaged in hunting activity. One (a hound) was thought to be chasing wildlife, and one was observed killing and eating a woodchuck.

Of the dogs in groups, three (collared hounds, group size unspecified) were observed chasing deer across the Clinch River but no kills were reported. Dogs chasing deer (or other animals) may be an indirect cause of deer mortality. Jay Story (ORNL, personal communication, 1987) reported an incident occurring near Edgemore Road about 5 to 6 years ago involving hound dogs chasing a deer into the road. Both the deer and dogs were killed by oncoming cars.

Three groups of dogs were observed hunting and attacking or killing animals. One incident involved a pair of dogs (a German shepherd and a hound) attacking a woodchuck; they fled when the observer pulled up in his vehicle. Another incident also involved a pair of dogs (a Doberman and a mixed breed) killing a woodchuck. The third incident involved a group of dogs that has been repeatedly reported as being a "true" pack (regularly seen together). The pack consists of a brown pit bulldog (apparently the pack leader), and four intermittent members, including two black dogs (about 45 lb), one hound, and a collie-mixed dog. This pack (then consisting of the pit bull and the two black dogs) reportedly attacked and killed a goat at the Comparative Animal Research Laboratory (now the Scarboro facility) on 24 September 1986. This pack has also been observed near the trailers at Building 6000 (15 June 1987) and near ORNL (also, 15 June 1987). Other groups of dogs were not thought to be true packs, although their status is difficult to ascertain.

No direct attacks by dogs on humans were reported in the survey. However, Jay Story (ORNL personal communication, 1987) noted that over the past several years he has been chased by dogs on numerous occasions while he was picking up carcasses of road-killed deer (on which the dogs were feeding). Another individual, Pat Parr (ORNL, personal communication, 1987) had to return to her vehicle when a pack of dogs approached her research site near ORGDP a few years ago.

Whether or not dogs thought to be wild are truly wild (e.g., obtaining their food exclusively from the wild and breeding in the wild) or simply homeless strays is undetermined. Several maintenance workers reported a male and female pair of dogs raising puppies under an old abandoned homesite near Mount Vernon Cemetery 3 to 4 years ago. This is the only known report

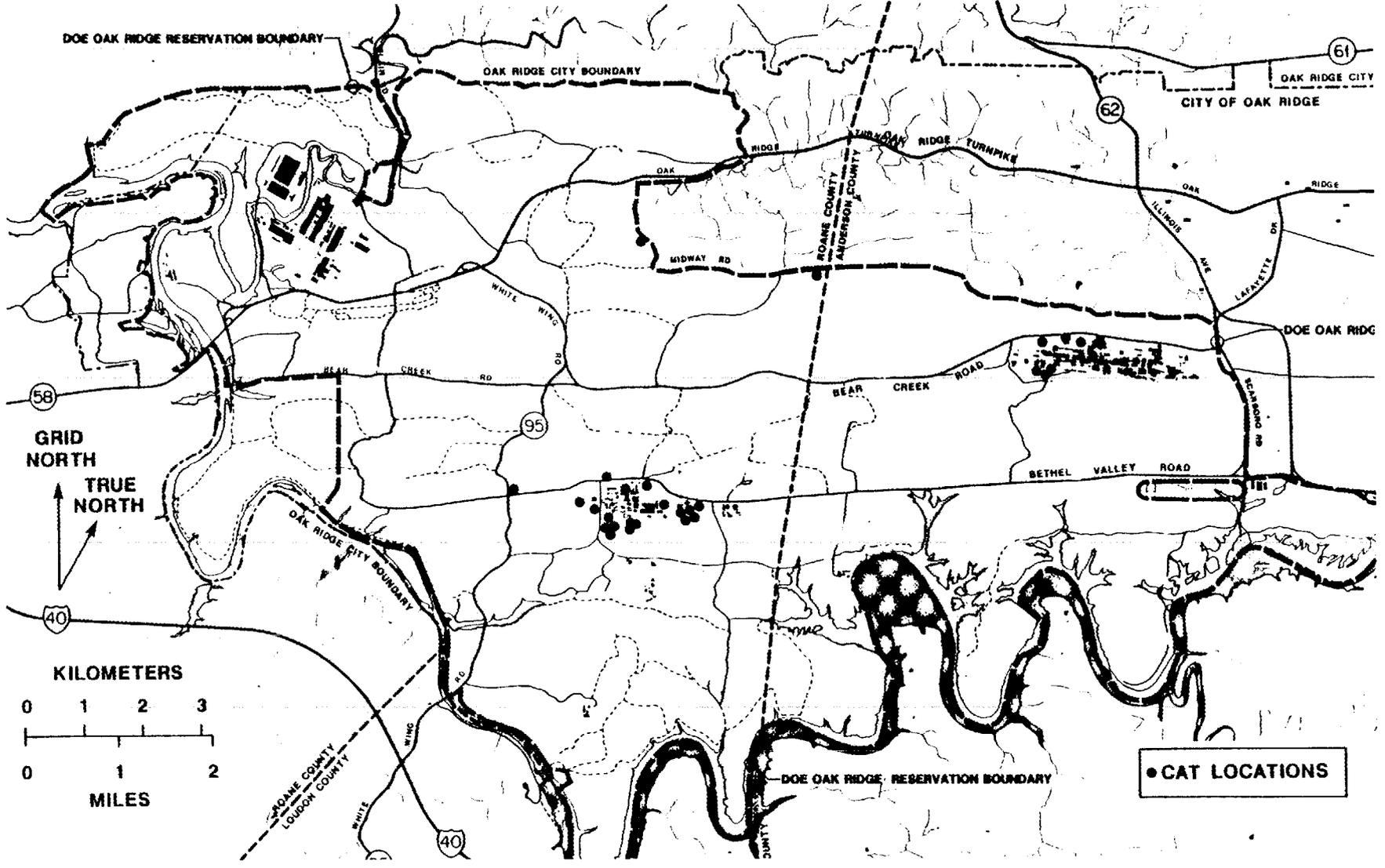


Fig. 3. Location of cats sighted on the Oak Ridge Reservation.

Table 5. Breed and ownership status of reported free-ranging dogs on the ORR

Breed	Collared	Uncollared (Status unknown)	Wild (Presumably)
Pure ^a	7	0	2
Mixed	7	61	22
Pet	7		

^aAll were hunting hounds except one collared Doberman and one wild German shepherd.

of dogs breeding on the ORR. (Jim Evans, ORR Tennessee Wildlife Resources Agency [TWRA], personal communication, 1987).

Evans (ORR TWRA, personal communication, 1987) suggests that recruitment of free-ranging dogs is probably from three major sources. First, hunting dogs (hounds) may enter the reservation from the outside or stray from illegal hunting parties on the ORR. Because hunting dogs are valuable, they are usually claimed. Second, pet dogs may enter the reservation from adjacent residential areas, such as Sugar Grove Valley or the area adjacent to Midway Pike. These animals may harass as well as pose potential danger to wildlife. Third, feral dogs may be permanent residents on the ORR. A fourth and likely prevalent source of free-ranging dog recruitment is from abandonment by owners on the ORR. This may explain the high incidence of reports of dogs along major roadways. Randy Kepplinger, Animal Control Supervisor, Oak Ridge Police Department (personal communication, 1987), noted that the problem of free-ranging dogs near the Y-12 Plant was far greater in the past; he attributes the improvement to (1) closing of Bear Creek Road to public access and (2) increased security.

CONCLUSIONS

Trapping and scent-line data (0 captures in 1986–87) indicate that the ORR free-ranging cat and dog population is probably low to nonexistent away from major roads and buildings. Survey results also indicate that the problem is not severe. Almost 92% (of 74 replies) of people reporting view the situation as no problem or merely a nuisance problem; only 8.1% regard the situation as severe. In addition, although numerous sightings of cats and dogs were reported, no attacks on humans, no diseased animals or illness resulting from the presence of such animals, and only a few cases of harassment or hunting of ORR wildlife were reported.

However, even a small amount of hunting or harassment of native wildlife may be unacceptable in certain situations. Both dogs in groups and solitary dogs could pose a possible hazard to humans (joggers present an especially vulnerable group) and wildlife. In addition, the risk of diseased animals infecting humans or wildlife remains. Finally, the nuisance factor of free-ranging cats and dogs near the workplace cannot be discounted.

Several Tennessee codes (TC) are relevant to the free-ranging cat and dog situation on the ORR. Tennessee Code 44-8-108 states that it is unlawful for any dog owner to allow his dog to run at large (except for dogs on a hunt or a chase or in transit). Violation of this code is considered a

misdemeanor, and persons found guilty shall be fined not less than \$2.00 and not more than \$50.00 (TC 44-8-109). Tennessee Code 44-8-110 states that owners are required to confine bitches in heat for 24 d during the time she is proud (violation punishable by a fine of \$2.50 to \$5.00); damage or destruction of a free-ranging bitch in heat is legal (TC 44-8-111). Tennessee Code 39-3-113 states that members and agents of humane societies and societies for the prevention of cruelty to animals may destroy abandoned or diseased animals if such status is sufficiently established by two reputable witnesses.

The following measures are recommended to the Oak Ridge Reservation Resource Management Organization for improved monitoring and control of the free-ranging dog and cat populations on the ORR:

1. All garbage dumps, sanitary landfills, or other areas especially attractive to dogs and cats should be made inaccessible, doors of all dumpsters should be kept closed at all times, and areas around dumpsters should be kept clean. This will not only deter dogs and cats from entering these areas (and perhaps the ORR) but also prevent dense groupings of dogs, cats, and native wild animals that could promote the spread of disease.
2. A simple standardized system should be implemented for employee (including security and other field personnel) reporting of sightings and incidents related to free-ranging dogs and cats. Reports could be in the form of a telephone contact, computer messages, standard forms, or discussion with a supervisor, who would then be responsible for channeling this information to a specific safety committee member. Such a system would enable the Resource Management Organization to be aware of the degree and severity of the situation.
3. A specific person should be responsible for handling incidents involving cats or dogs, as the situation warrants. Problems should be reported to the Oak Ridge Animal Shelter.
4. Residents along ORR boundaries should be educated about the possible consequences of allowing their pets to roam freely. If the pet or hunting dog of a specific owner is consistently found on the ORR, legal measures should be considered.
5. If it is determined that the cat or dog population is too dense in any given area, trapping (using live box traps) should be conducted. Animals may be taken to the Oak Ridge Animal Shelter. Control of population density is important in controlling the incidence and spread of disease. It is especially important where dogs and/or cats come into contact with other species of wildlife.
6. Holes in the fences bordering the ORR or adjacent to residential neighborhoods (for example, several along Midway Turnpike) should be repaired to prevent stray pets from wandering onto the reservation.
7. Employees should be informed of the potential health and other hazards of the presence of free-ranging cats and dogs and be encouraged not to feed these animals.

ACKNOWLEDGMENTS

I would like to express my sincere appreciation to Pat Parr for her helpful ideas and the time and effort she spent assisting me in this study. I am also grateful to TWRA officer, Jim Evans, for

assisting in establishing and running the scent lines and for his advice and suggestions. Thanks also to H. A. Longmire, who spent many hours teaching me how to trap, and to Dr. J. New for his advice on animal disease. I also thank my major professor, Dr. Mike Pelton, for his advice and suggestions. Finally, I wish to extend my sincere thanks to all those people who took the time to complete and return the surveys. Research was sponsored by the Oak Ridge Reservation Resource Management Organization, Martin Marietta Energy Systems, Inc., under contract DE-AC05-84OR21400 with the U.S. Department of Energy and coordinated through the Oak Ridge National Environmental Research Park, Environmental Sciences Division, Oak Ridge National Laboratory. Publication No. 3142, Environmental Sciences Division, ORNL.

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APPENDIX

FREE-ROAMING DOG OR CAT SURVEY FORM

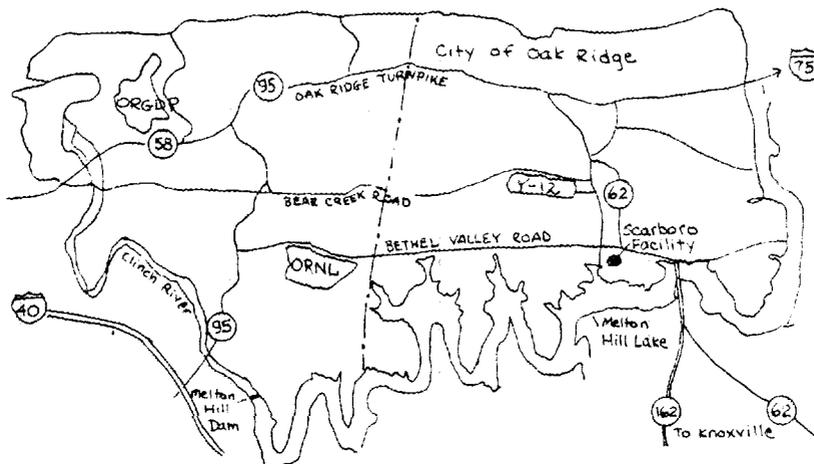
Free-Roaming Dog or Cat Survey
 Katie Greenberg
 University of Tennessee

This survey is intended to help in assessing the feral dog and cat situation on the Oak Ridge Reservation. If you have seen free-roaming dogs or cats on one or several occasions within the past year, please complete one form per occasion. Your time is greatly appreciated. Please return questionnaire to one of the following locations: Brenda Angel, Building 2500, X-10; Sam Thompson, Building 1652, Room 150, K-25; Ken Grissom, Building 9710-2, MS-1, Y-12; Pat Parr, Building 1505, MS-038. Thank you.

Observer Name _____ Phone _____

1. Have you seen or encountered any free-roaming dogs or cats on the Reservation? (check one)
 2. Date _____ (approximate if you do not remember exact time)
 3. Location of sighting (also, mark on map): _____
 4. Number observed: _____
 5. Describe briefly: size, color, collared, tame or not, etc.
 6. Was an incident involved? Yes No
 If so, did it involve apparent hunting activities
 human/animal interactions other. Please describe.
-
7. Do you consider feral dogs and/or cats to be a problem on the ORNL Reservation?
- No problem Nuisance problem Severe problem

Please mark on map the approximate location of sighting.



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