

DEPARTMENT OF THE INTERIOR AND RELATED AGENCIES APPROPRIATIONS FOR 1984

HEARINGS

BEFORE A

SUBCOMMITTEE OF THE COMMITTEE ON APPROPRIATIONS HOUSE OF REPRESENTATIVES

NINETY-EIGHTH CONGRESS

FIRST SESSION

SUBCOMMITTEE ON THE DEPARTMENT OF THE INTERIOR AND
RELATED AGENCIES

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PART 5

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DEPARTMENT OF THE INTERIOR AND RELATED AGENCIES APPROPRIATIONS FOR FISCAL YEAR 1983

THURSDAY, NOVEMBER 4, 1982.

DEER CONTROL PROGRAM

WITNESSES

PHILLIP S. HUGHES, UNDER SECRETARY, SMITHSONIAN INSTITUTION
DAVID CHALLINOR, ASSISTANT SECRETARY FOR SCIENCE
THEODORE H. REED, DIRECTOR, NATIONAL ZOOLOGICAL PARK
CHRISTEN WEMMER, CURATOR IN CHARGE, CONSERVATION AND RE-
SEARCH CENTER, NATIONAL ZOOLOGICAL PARK

Mr. YATES. Mr. Reporter, show the hearing as coming to order.

Mr. Hughes, would you introduce yourself and your coterie for the record?

Mr. HUGHES. I will, indeed. Thank you very much, Mr. Chairman.

I am Phillip S. Hughes, the Under Secretary of the Smithsonian. On my left is, as you know, Ted Reed, the Director of the Zoo. On my immediate right is Dr. Chris Wemmer, who will be further introduced by Mr. Challinor, who is on the far right, and whom you also know well.

Mr. Chairman, we do welcome this chance to set forth the history and the facts with regard to this situation, and to set forth the reasoning that has underlain our position with respect to it. We have taken this matter rather seriously, very seriously, from the beginning, because we want first of all to fulfill our statutory responsibilities with respect to the care of the valuable and exotic animals and birds which are in our charge, while at the same time we do want to give all possible consideration to the rather strongly divergent views of a wide range of interested parties and other concerns.

The State of Virginia is obviously involved. There are other Federal agencies. We want to be mindful of the white-tailed deer themselves and of the concerns about them. The residents of the area are frequently overlooked as we in Washington consider these matters. And of course we are mindful of the interest and the concerns of our friends and sometimes supporters, some but not all of whom differ with us in our reasoning on this particular matter.

But we do welcome the chance to set forth our position. Dr. Challinor will introduce Dr. Wemmer.

Mr. YATES. Okay.

Mr. CHALLINOR. Thank you, Mr. Chairman. I would like to introduce today Dr. Christen Wemmer, curator in charge of the Smithsonian's research center at Front Royal. He received his Ph.D. in zoology from the University of Maryland, and has specialized in animal behavior, ecology, and physiology. He was originally employed by the Brookfield Zoo in Chicago as curator of small mammals and carnivores, and after he left Brookfield in 1974 he came to Front Royal as head curator. There he has administered the center's research program and continued his own personal research, comparative reproductive physiology of hoofed animals. He has written more than 40 articles and co-edited a major book entitled "The Biology and Captive Management of Pere David's Deer."

Dr. Wemmer also has worked extensively overseas on other groups of deer, and has supervised a number of graduate theses in this area. In recognition of his contributions to this field, he has recently been nominated as a member of the prestigious deer specialist group of the International Union for the Conservation of Nature and Natural Resources. And now I would like to present Dr. Wemmer.

Mr. YATES. Okay. Dr. Wemmer, we are very glad to have you as the principal witness for the Smithsonian. Your statement and biographical sketch may be made a part of the record.

[The prepared statement of Christen Wemmer follows:]

STATEMENT BY

DR. CHRISTEN M. WEMMER

CURATOR IN CHARGE

CONSERVATION & RESEARCH CENTER

NATIONAL ZOOLOGICAL PARK

SMITHSONIAN INSTITUTION

Thank you, Mr. Chairman.

I appreciate very much this opportunity to appear before you and the Subcommittee today and to describe policies and programs for the management of wild white-tailed deer at the Conservation and Research Center, a rural extension of the Smithsonian Institution's National Zoological Park.

The Center occupies 3,150 acres in the foothills of the Blue Ridge two miles south of Front Royal, Virginia. The property was originally established in 1907 as part of the horse and mule remount depot for the United States Cavalry, and subsequently became the Beef Cattle Research Station of the U. S. Department of Agriculture. It was initially occupied by the Smithsonian in 1974, and transferred to the Institution in 1975 under Federal excess property procedures.

The land ranges from 800 feet to 2,000 feet in elevation, and lies 80 miles west of Washington, D. C. Slightly more than half of the Center's acreage embraces steep or inaccessible second growth woodland inhabited by a variety of small game and white-tailed deer. Its pastures lie on relatively thin and often sloping granitic soils that were cultivated by homesteaders in the latter part of the 18th century.

The mission of the Center is the conservation, propagation, and study of selected species of birds and mammals, particularly those which are rare, endangered, or threatened. About 500 acres of the land consist of enclosures, barns, and buildings that house 350 mammals and 370 birds. Twenty species of mammals include brow-antlered deer, sable antelope, European bison, lesser pandas, and Golden Lion Tamarins. There are also

twenty species of birds which include Darwin's rheas, cranes, small Bali mynahs, giant coots, and argus pheasants. The Center's stock is valued at \$1 million. Breeding and research animals at the Center are owned by the National Zoological Park or by other zoos that conduct co-operative breeding programs and related projects there. The Center has become one of the leading breeding centers for exotic animals in the world and is internationally recognized for its zoological research and captive management programs. In addition, it has served as a training center for both U.S. and foreign biologists interested in the management of wild and captive animals and has been host to several international conferences. The most recent of these was in August of this year and its subject was the biology and management of the entire deer genus.

The Center's staff consists of 34 permanent and 26 temporary personnel. The budget for the Center totaled \$1.7 million in FY 1982.

The Center's property is divided by U.S. Route 522. Approximately 2,100 acres of the Center lie between that highway and Virginia route 55. Another 1,000 acres are located south of 522, and are bordered by Virginia route 604 on the west. Bordering other parts of the property are two fruit growers and numerous private landowners living in four growing subdivisions, the Warren County School Board, the U. S. Customs Service Dog Training Center, a 4-H Center, and Shenandoah National Park, as well as the Appalachian Trail which runs along the south boundary for 2 1/2 miles.

White-tailed deer are a widespread indigenous species in the Commonwealth of Virginia and were resident on the property when the

Smithsonian Institution occupied the land eight years ago. These deer and other game had been hunted by employees of the previous occupying organizations and by other citizens of the area. However, in order to fulfill the mission of the Center and to protect the rare and valuable species entrusted to our care, a decision was made in 1975 to prohibit further hunting on the land. In addition, a perimeter fencing program was undertaken to contain the large exotic mammals in case of escape from their primary enclosures. The perimeter fence also assists in restricting access by trespassers and poachers.

Construction of the fourteen miles of fencing that now surrounds the Center's property began in October 1977, and was completed in September 1980, at a cost of \$750,000. Ten miles of the fence are 8 feet high, and the remaining 4 miles are 6 feet high. The 6-foot high sections are in areas that have no significant impact on our exotic animals or farming operations at this time and are designed to permit the natural movement of deer in remote, outlying areas. Town officials had expressed concern to us about this matter prior to construction of the fence.

White-tailed deer are usually reluctant to jump 8-foot high fences, but 12-foot high fences are required to deer-proof completely an area. Even then, because of rugged terrain, it would be difficult to construct fences that would span creeks and ravines while preventing deer from crawling beneath them.

The deer made no significant impact on native vegetation, alfalfa production, or our exotic species until 1979 when it became apparent that the white-tailed population had grown to a level which endangered the health of our exotic animal collection and impeded our farming activities.

Alfalfa is an important forage for many exotic hoofed animals as well as for domestic livestock. In the past we have cultivated approximately 45 acres in alfalfa, enough to yield about 75 tons under optimal conditions. Deer depredation has affected the quality as well as the quantity of the crop over the years by allowing grass and weeds to inundate the overgrazed fields. Fermented blood meal was initially, but unsuccessfully, used as a deterrent. In 1979 alfalfa production was only 45 tons. In 1980 it was 9, and in 1981 it fell to zero.

Also in 1979 the clincial outbreak of lungworm (Dictyocaulus viviparus), believed carried by the deer, was discovered in the Bactrian camels. Lungworms breed in the air passages of the lungs. Larvae pass up the trachea, are swallowed, and are passed with feces. Animals ingest larvae when feeding on pasture. One breeding male camel, valued at \$4,500, was euthanized in a very debilitated condition and found to have a heavy infestation of lungworm.

At this point we decided it was essential to determine the size of the deer population. In 1980 we initiated line-transect counts of the white-tails in order to estimate their population, and we left wire cages in the alfalfa field to assess the magnitude of foraging on the crop. These methods verified the presence of a population that exceeded the carrying capacity of the habitat.

Close cooperation and consultation was pursued with State game biologists in Virginia and with national and international game management experts who visited the Center. There was general agreement that culling

would be necessary in order to manage properly the population of white-tailed deer.

Beginning in February 1981 discussions were held over several months between Center personnel and officials of the Virginia Commission of Game and Inland Fisheries about the most appropriate management techniques for reducing the deer population. In April 1981 it was agreed to hold a controlled deer hunt involving participation by the public in the fall of that year.

Subsequent meetings between Center personnel and Commission employees led to other actions as well. In August 1981 two fences were completed which isolated the central 700 acres from invasion by deer from adjacent Center woodlands; double-length cattle guards were installed on roads passing through the fence; and the fence was increased so that the central area was completely surrounded by 8-foot high fencing. A deer drive was then conducted, using Zoo employees, and 99 deer were driven from the 700-acre central area into the Center's northwest section. Evidence that some deer re-entered the area by crossing the cattle guards led to installation of gates at those locations in February 1982.

Late in the summer of 1981 research permits were issued to the Zoo to take 12 deer. The deer were shot in the vicinity of the alfalfa

field and necropsied by Zoo biologists to develop data collection procedures for the fall hunt.

A controlled public hunt was advertised in three local newspapers in the first part of September 1981, and 456 applications were received. A lottery selected 270 hunters (90 bow hunters and 180 shotgun hunters) to participate in the hunt. Throughout the planning and execution of the hunt, staff of the Center and other Smithsonian units worked closely with State biologists, game managers, and administrators to ensure the safety of the participants and of the exotic animals under our custodianship.

Hunters were required to attend an orientation meeting and to pay a \$10 fee which entitled them to hunt for two days. There were 54 hunting stands — trees with numbered aluminum plaques — on the property. The stands were at least 200 yards apart and the hunters, who were required to wear fluorescent orange, were also required to remain within a 30-yard radius of an assigned stand. Three trucks were used to transport hunters to their stands beginning at 6:00 a.m. and pick-ups were made at two-hour intervals throughout the day. A questionnaire survey of the hunters revealed that bow hunters had an average age of 31.5 years and an average of 16.4 years of hunting experience. Shotgun hunters averaged 35.7 years of age and 17.8 years of hunting experience. The hunt resulted in the harvest of 126 deer.

The harvested deer were officially registered for the State at a check station on the property, and information on age, body size, parasites, and physical and reproductive condition was gathered. The hunters' fees

paid for supplies used to process the biological material and for microscopic preparation of reproductive tissues.

Three additional deer drives were conducted in March 1982. Members of the public participated in the first of these; the others included only Smithsonian staff. A total of 159 deer were evacuated in the three drives from the central 700-acre area and with the permission of the Warren County School Board were driven onto its adjacent unfenced 100 acres.

The size of the deer population on the Center's land was estimated to be 571 after the drives in March 1982. The density of deer differed in various areas. There were 69 deer per square kilometer in the northeast section, 122 deer/km² in the northwest section, and 30 deer /km² on the south side of route 522 at the time of the census last spring. Since then we estimate that an additional 400 deer were born from May until August, making the total population now about 1,000.

Most female deer (does) produce their first young at the age of 2 years, and first births are usually single young. Older females in good physical condition often produce twins, and sometimes even triplets. They continue to breed until they are 12-14 years old. We estimated the number of newborn deer by multiplying the estimated number of breeding females (300) by the average number of young born to a female (1.5).

Based on information from Virginia Polytechnic Institute it is believed that the Center's property is capable of sustaining a population of about 130 deer, or 10 deer/km² without deterioration of the habitat. An annual increase of approximately 110 could be expected and would have to be routinely removed.

The overpopulation of deer at the Center has had a marked impact on trees, shrubs, and other vegetation. When a natural balance exists between the numbers of predators and of deer there is, under normal conditions, adequate vegetation to feed the deer. In the absence of predation, however, such as occurs within the Center, deer populations increase until they consume all the nutritious food in their habitat. The leaves and branches of low-hanging tree limbs then appear to be clipped to a uniform height. This corresponds to the height of the tallest deer. Fawns and yearlings cannot reach the so-called "browse line" and, therefore, they are the first to starve when ground cover dies in the winter. Browse lines exist throughout the Center, indicating heavy utilization of preferred foods by resident white-tailed deer and forecasting further serious damage to the habitat for other wildlife species.

In the summer of 1982, the deaths of six reindeer were attributed to another parasite harboured by white-tailed deer, the meningeal worm (Parelaphostrongylus tenuis) which is carried by terrestrial gastropods such as snails and slugs. This parasite was identified in the tissues of white-tailed deer killed during the 1981 hunt. It is an axiom of parasitology that the frequency and intensity of parasites are determined primarily by the relative population level of the host. White tailed deer eat the snails on vegetation, and in the digestive tract the parasitic larvae leave the tissues of the snail, pass to the deer's spinal cord, and after transformation into adult worms, migrate to the brain. The parasite is usually not fatal to the white-tailed deer, but it is fatal to some other species of hoofed animals. The deaths of one male bongo antelope and one female scimitar-horned oryx in our care were also attributed to meningeal

worm. The market value of all of these animals at the time of death was approximately \$36,000.

The overpopulation of deer has also led to an increasing number of collisions with automobiles as deer cross the highway that bisects the property, and their high visibility has brought about illegal entry onto the Center's property as well as the shooting of deer from nearby roads.

A situation that has taken seven years to develop cannot be resolved after only one year of sustained effort. While we have been successful in reducing the deer population in our alfalfa-growing areas, the number of deer in adjacent areas remains high, and earlier this year required us to review again the alternatives for reducing the deer population.

There is no habitat available outside of the area which could accommodate a large number of deer evacuated from the Center's land. Thus to drive the deer from the Center would place the overpopulation problem into the backyards of others. We are advised by both the Park Service and the Forest Service that nearby lands within their respective jurisdictions are fully occupied and cannot accommodate any additional animals. Furthermore, a drive in the northeast section of the Center would require about 200 people in a mile-long line. Even with the use of two-way radios the major difficulty would be in maintaining an orderly progression and equal spacing of people in a situation where good visibility is lacking because of a maximum altitudinal range of 1,200 feet, barbed wire to be crossed, and steep hillsides covered with large areas of stones and rubble. A drive is not cost-effective and can be extremely dangerous for the deer and for the people involved if panic overtakes the animals and they try to breach the line. Panicked deer also do not recognize barriers

and can kill or maim themselves by colliding with trees and fences.

Should, in fact, it be possible to drive out most of the deer, the fence would not prevent their re-entry. Extending the existing fence to a height of 12 feet would be required, and it is estimated this would cost about \$350,000 and take more than a year to construct. I might point out that even if the fence originally had been constructed at the 12 foot height, the problem of overpopulation would remain because of natural reproduction and the necessity for culling would still exist.

Translocation of deer would create special problems in their capture, in locating a new site and providing holding areas there to permit the deer to recover from shock and injury, and in maintaining the social organization of the animals. It also would require substantial additional resources of time, money, and manpower, and would place the burden for the deer on those who are less equipped and concerned than we are for their welfare. Furthermore, the experience of other wildlife management agencies with translocation programs raises serious questions about the ultimate success of these endeavors.

A controlled public hunt, a technique widely recognized and utilized by professional wildlife managers and the public as an efficient and humane solution to the problems of overpopulation, was again determined to be the most responsible approach for the Center to take.

Game may be harvested in Virginia by rifle, shotgun, and bow. For reasons of lower noise levels and personal safety to hunters, residents of the Center, passing motorists, neighboring landowners, and the captive animals themselves the Center's staff decided to limit weapons to the

bow and the shotgun. The bow season in Warren County extends from October 9 to November 6, and the shotgun season is from November 15 to 27. Two deer may be taken per season, one per day. Either sex may be taken by bow hunters, but shotgun hunters can take does only on the last day. Bow season therefore makes it possible to remove a greater number of females from the population.

The hunt would be monitored by Center staff and the local State game warden. It would not be a disorganized, shooting free-for-all involving hordes of hunters milling about. Rather, it would be, as in the past, a finely-tuned professionally-designed culling in which deer would be taken in order to preserve the remaining population over the winter and reduce disease, crop damage, and habitat loss.

Advertisement of the hunt was made in three newspapers September 9-14, 1982. From 1,500 applicants, 400 hunters (150 bow hunters and 250 shotgun hunters) were drawn by lottery, the number of hunting stands having been increased from 54 to 74. Hunter orientation meetings were held on October 15 and 16. In view of the Subcommittee's request to postpone the hunt until after this hearing, the bow hunters have been notified that this element of the hunt has been cancelled.

We are cognizant of the concerns of the Subcommittee and of the wide range of public opinion that surrounds the issue in general, and this event in particular. Insofar as possible, we have tried to accommodate the concerns that have been expressed. However, it must be emphasized that white-tailed deer are not exotics and are not threatened with extinction. On the contrary, they are extremely abundant because of the

wildlife management program that exists in Virginia and which employs methods such as controlled public hunts to assure their viability.

Our primary responsibility is the care, maintenance, and propagation of exotic animals whose numbers have dwindled to the point where their only hope is in survival centers such as we have established at Front Royal. The loss to science and to the community of these rare animals would have far-wider and longer-term ramifications than the slight but effective reduction of a more plentiful species.

A decision such as this is never made lightly. Nonetheless, in consideration of an overall program of zoological conservation and animal preservation we believe it is the only reasonable decision that can be made.

CURRICULUM VITAE

CHRISTEN MARCHER WEMMER

- PRESENT APPOINTMENT:** Curator-in-Charge (Sup. Wildlife Biol. GS 14)
(1975 to present), Department of Conservation
Conservation and Research Center
National Zoological Park
Smithsonian Institution
Front Royal, Virginia 22630
- PAST APPOINTMENT:** Curator of Small Mammals and Carnivores
Chicago Zoological Society, 1972-1974
- Supervisory Mammalogist (Sup. Wildlife Biol. GS 12/1)
Office of Animal Management, 1974-1975
Conservation and Research Center
- PERSONAL:** Born July 6, 1943; San Antonio, Texas
Married, two children
- PRIVATE ADDRESS:** Conservation and Research Center
Front Royal, Virginia 22630
- ACADEMIC DEGREE:** 1972 - Ph.D., University of Maryland
(Zoology)
- 1967 - Master of Arts, San Francisco State
College (Biology)
- 1965 - Bachelor of Arts, San Francisco State
College (Biology)
- TEACHING EXPERIENCE:** 1965-67, Teaching Assistant, San Francisco
State College (Vertebrate Natural History,
Mammalogy)
- 1967-70, Graduate Assistant, University of
Maryland (First year undergraduate Zoology
courses, Invertebrate Zoology, Ecology)
- FIELD EXPERIENCE:** Mt. Orizaba, Veracruz, Mexico,
June-August, 1964
June-August, 1965
Nepal, January-February, 1974
March-April, 1980
April, 1981
September 1-10, 1981
Indonesia (Java and Sulawesi),
October-November, 1978
October-November, 1979
September-October, 1980

- RELATED EXPERIENCE: 1967 Zoological preparator, Division of Mammals, National Museum of Natural History (summer)
- 1968 Animal Keeper, Scientific Research Department, National Zoological Park (summer)
- FELLOWSHIPS OR GRANTS AWARDED: 1970-71 Smithsonian Predoctoral Fellowship, National Zoological Park
- 1978-80 Grant titled "Biology and Distribution of the Sulawesi Civet" (with Larry Collins), Smithsonian Scholarly Studies Program (Total costs for 3 years, \$11,916, FONZ Research Grant, \$12,000)
- 1979-80 Grant titled "Animal communication" (with J.F. Eisenberg, E.S. Morton, K. Ralls), Smithsonian Scholarly Studies Program (Total costs for 3 years, \$131,826)
- Sub- Grant proposal titled "Comparative reproductive physiology of exotic ungulates" (C. Wemmer and M. Bush), Smithsonian Scholarly Studies Program (Total request for 2 years \$83,371)

PUBLICATIONS:

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- 1971 Wemmer, C. Birth, development and behavior of a fanaloka Fossa fossa at the National Zoological Park, Washington, DC. International Zoo Yearbook, 11:113-115.
- 1974 Wemmer, C. and Fleming, M.J. Ontogeny of playful contact in a social mongoose, the meerkat, Suricata suricatta. American Zoologist, 14: 415-426.
- 1974 Ewer, R.F. and Wemmer, C. Behaviour of the African civet (Civettictis civetta) in captivity. Zeitschrift für Tierpsychologie 34:359-394.
- 1974 Wemmer, C. Design for polar bear maternity dens. International Zoo Yearbook, 14:222-223.
- 1974 Wemmer, C. The small feline house-habitats for small cats. Brookfield Bandarlog No. 41:3-13.
- 1975 Eisenberg, J.F., Collins, L.R. and Wemmer, C. Communication in the Tasmanian devil (Sarcophilus harrisii) and a survey of auditory communication in the Marsupialia. Zeitschrift für Tierpsychologie, 37:379-399.
- 1975 Wemmer, C. and Fleming, M.J. Management of meerkats, Suricata suricatta, in captivity. International Zoo Yearbook, 15:74-77.
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- 1976 Wemmer, C. and Johnson, G. Egg-breaking behavior in a yellow-throated marten, (Martes flavigula, Mustelidae; Carnivora). Zeitschrift für Säugetierkunde, 41:48-60.
- 1976 Wemmer, C., von Ebers, M. and Scow, K. An analysis of the chuffing vocalization in the polar bear (Ursus maritimus Phipps). Journal of Zoology, 180:425-439.
- 1977 Wemmer, C. Comparative ethology of the large-spotted genet, Genetta tigrina, and related viverrid genera. Smithsonian Contributions to Zoology, No. 239, 98 p.
- 1977 Wemmer, C. and Scow, K. Communication in the Felidae with emphasis on scent marking and contact patterns, pp. 749-766, In How Animal Communicate (Chapter 29). T. Sebeok, ed.
- 1977 Wemmer, C. Can wildlife be saved in zoos? Captive breeding for survival. New Scientist, 75(1068):585-587.
- 1978 Wemmer, C. and Collins, L.R. Communication patterns in two phalangerid marsupials, the gray cuscus (Phalanger gymnotis) and the brush possum (Trichosurus vulpecula). Säugetierkundliche Mitteilungen, 26(3):161-172.
- 1979 Wemmer, C. The saber tooth syndrome and social organization in carnivorous mammals. Säugetierkundliche Mitteilungen, 27:127-132.
- 1980 Wemmer, C. and Murtaugh, J. Olfactory aspects of rutting behavior in the Bactrian camel (Camelus bactrianus ferus), pp. 107-124, In Chemical Signals in Vertebrates and Aquatic Animals. D. Müller-Schwarze and R.M. Silverstein, eds. Plenum Press.
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- 1981 Wheeler, J., Ayorinde, F., Wemmer, C. and Murtaugh, J. Volatile components of the occipital gland secretion of the Bactrian camel. Journal of the American Chemical Society.
- 1981 Mishra, H., Wemmer, C., Leyrat, J.C. and Maskey, R.M. On chemical immobilization and capture of Rhinoceros in Nepal, pp. 466-472, In Wild is Beautiful. T.C. Majupuria, ed. S. Devi, Gwalior, India.
- 1981 Mishra, H. and Wemmer, C. Capturing wild rhinos: a personal experience. Das Tier.
- 1982 Wemmer, C. and Wilson, D.E. Structure and function of hair crests and capes in African Carnivora, In Behavior and Ecology of Mammals. J.F. Eisenberg and D. Kleiman, eds. Amer. Soc. Mammal. Special Pub. No. 7.

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or in Press

Wemmer, C., Collins, L., Beck, B., and Leja, B. Ethogram (Chapter 8), In The Biology and Captive Management of Pere David's Deer. B. Beck and C. Wemmer, eds.

Wemmer, C. Morphological characteristics and systematic position, In The Biology and Captive Management of Pere David's Deer. B. Beck and C. Wemmer, eds.

Wemmer, C. Social behavior, social structure, and implications for management, In The Biology and Captive Management of Pere David's Deer. B. Beck and C. Wemmer, eds.

Wemmer, C. Idiosyncratic calls in the domestic Asiatic elephant. Mammalia.

Wemmer, C., West, J., Watling, D., Collins, L. and Lang, K. The external characters of the Celebes palm civet, Macrogalidia musschenbroeki. Journal of Mammalogy.

Wemmer, C. and Watling, D. Eye color polymorphism in the babirusa pig. Malayan Nature Journal.

Wemmer, C., and West, J. The dermal shield of the lesser mouse deer, Tragulus javanicus. Malayan Nature Journal.

BOOKS

In prep The Biology and Captive Management of Pere David's Deer. Edited by B. Beck and C. Wemmer. Noyes Publishers.

SYMPOSIA

The Biology and Management of the Cervidae. Scheduled for 1-5 August 1982, and to be published in the Proceedings of the National Zoological Park.

FILMS

1975 Wemmer, C. and LaFrance, L. Play behavior in the meerkat, Suricata suricatta (Viverridae, Carnivora). Encyclopedia Cinematographica (Göttingen, DBR).

PUBLISHED ABSTRACTS

1971 Scent-marking and anointing: parallel evolution of mammalian behavior. Amer. Zoologist, 11(4):623 (Abst. No. 26).

BOOK REVIEWS

Kummer, H. Social organization of Hamadryas baboons, a field study. Journal of Mammalogy, 51(1):208-209.

BOOK REVIEWS (continued)

Skirk, P. and Swank, W. African antelope. Smithsonian Magazine, August, 1971, p. 62.

Schaller, G.B. The Serengeti Lion. Field Museum Bulletin, November, 1972.

Kruuk, H. The spotted hyena, and Schaller, G.B. The serenget' lion. Journal of Mammalogy, 1973, 54(2):553-554.

Rudnai, J.A. The social life of the lion. A study of the behaviour of wild lions (Panthera leo massaica Newmann) in the Nairobi National Park, Kenya. Quarterly Review of Biology, 1975, 50:357.

Lopez, B.H. Of wolves and men. Smithsonian Magazine, 1978, 9(8): 194-195.

Gauthier-Pilters, H. and Dagg, A.I. The camel, its evolution, ecology, behavior and relationship to man. Science, 214:653-654.

SUPERVISION OF GRADUATE STUDENTS

Postdoctoral Programs:

Richard Yahner (Ph.D., University of Ohio): The function of barking in Reeve's muntjac (Muntiacus reevesi).

Joel Berger (Ph.D., University of Colorado): Ontogeny of play and combat in onagers (Equus hemionus) and Grant's zebras (Equus burchelli).

Sharon Pfeifer (Ph.D., University of Colorado): Mother-calf interaction and development in the scimitar-horned oryx (Oryx dammah).

Ph.D. Programs:

Hemanta Mishra (Ph.D. program, University of Edinburgh): Social organization and use of space in the axis deer (Axis axis) in Royal Chitawan National Park, Nepal.

James L. David Smith (Ph.D. program, University of Minnesota): Dispersal studies of Tiger in Royal Chitawan National Park, Nepal.

Masters Programs:

Frank Kohn (MA, Connecticut College, New London, Connecticut): Olfactory communication in the binturong, Arctictis binturong; (Carnivora: Viverridae)

CURRENT RESEARCH

Growth and development of the binturong (Arctictis binturong).

CURRENT RESEARCH (continued)

Lactation, growth and social development of the Bactrian camel (Camelus bactrianus).

Reproduction in the meerkat (Suricata suricatta).

Reproductive correlates of ungulate mating systems.

PROFESSIONAL ACTIVITIES

American Society of Mammalogists
Society for the Study of Evolution
Animal Behavior Society

PAPERS PRESENTED AT MEETINGS

- 1967 Cooper Ornithological Society, Western Division Meeting, Berkeley, California.
Paper: Impaling behavior in the loggerhead shrike.
- 1970 American Society of Mammalogists Annual Meeting, College Station, Texas.
Paper: Predatory behavior of the genet, Genetta tigrina, in captivity.
- 1973 American Society of Zoologists, Annual Meeting, Houston, Texas
Symposium: "Social Play in Mammals".
Paper: Ontogeny of playful contact in the meerkat, Suricata suricatta.
- 1973 13th International Ethology Conference, Washington, D.C.
Paper: Comparative ethology of genets and civets (family Viverridae).
- 1974 Discussant at the 2nd International Conference on the Ecology and Conservation of the World's Cats. World Wildlife Safari, Winston, Oregon.
- 1974 Deutsche Säugetier Gesellschaft Annual Meeting, Erlangen, Germany.
Presented meerkat film.
- 1974 Animal Behavior Society Meetings, University of Illinois, Urbana-Champaign, Illinois.
Paper: An analysis of the chuffing call in the polar bear (Ursus maritimus Phipps). (with K. Scow and M. von Ebers.)
- 1974 3rd International Conference on the Ecology and Conservation of the World's Cats, Seattle, Washington.
Paper: The does and don'ts of breeding small cats.

PAPERS PRESENTED AT MEETINGS (continued)

- 1974 Animal Behavior Society, Annual Meeting, Champaign-Urbana, Illinois.
Symposium: "Levels of nervous control of instinctive motivated behavior".

Paper: A review of predatory behavior of carnivores.
- 1975 14th International Ethology Conference, Parma, Italy. Roundtable
organizer: Vocal communication in mammals.
- 1976 American Association for the Advancement of Science, Boston, Massachusetts. Symposium: "Zoos and Wildlife Conservation".

Paper: A long range breeding program for ungulates at Front Royal.
- 1978 American Society of Mammalogists, 58th Annual Meeting.

Paper: Reproduction in the binturong (Arctictis binturong).
- 1979 American Society of Mammalogists, 59th Annual Meeting.

Paper: Rutting behavior in the Bactrian camel (Camelus bactrianus).
- 1981 American Society of Mammalogists, 61st Annual Meeting.

Paper: Observations on the Celebes civet (Marcogalidia musschenbroekii) in the wild. (with J. West, D. Watling, L. Collins, K. Lang).
- 1981 International Union of Directors of Zoological Gardens, Annual Meeting, National Zoo, Washington, D.C.

Paper: Captive management of the brow-antlered and Pere David's deer.

SPECIAL SERVICES

A. Smithsonian Institution Service

1. Alternate Committee Member: Committee for Evaluation of Professional Achievement (1981).
2. Scientific Consultant (Project Manager as of 1982): Nepal Tiger Ecology Project.
3. Committee Member (Environmental Sciences): Academic Program Committee (graduate and post-doctoral fellowships).

B. Editorial Reviewing and Consulting

Journal of Mammalogy
Animal Behavior
National Geographic Society
Bioscience
Quarterly Review of Biology
Smithsonian Magazine
Carnivore

C. Grant Reviewing

National Science Foundation
National Geographic Society
Guggenheim Foundation

Mr. YATES. I noticed, I think it was on page 5, you said:

Beginning in February 1981 discussions were held over several months between Center personnel and officials of the Virginia Commission of Game and Inland Fisheries about the most appropriate management techniques for reducing the deer population. In April 1981 it was agreed to hold a controlled deer hunt involving participation by the public in the fall of that year.

As I read the statement, I wondered why, among the options that were not discussed—I assume it was considered, but at least in your statement it was not discussed—I wondered why you did not discuss an option of tranquilizing the deer and just transporting them to another place, for example. Or tranquilizing the deer and just slaughtering them based upon your research as to which was diseased and which was not diseased.

As I remember my conversation with Dr. Challinor, he told me that one of the reasons—and your statement affirms this—one of the reasons for Smithsonian's concern is the possibility of some of the parasites that infect the deer being transported to some of your other exotic animals at your center who are among various endangered species.

Would you discuss that in connection with your statement? What were the various techniques that you reviewed with the officials of the Virginia Commission of Game and Inland Fisheries, and what else did you review in connection with coming to this decision?

Mr. WEMMER. Yes, sir. With regard to tranquilization, there are several methods for tranquilizing deer, or for that matter any large game animal or large mammal.

One method that has been used with a limited amount of success is to mix tranquilizer with a bait, and the deer then come and eat the bait, and become dopey, and can then be captured or at least attempts could be made to capture the deer. The problem is that it is difficult to get the deer to take a full adequate dosage under these circumstances, because they can often taste the tranquilizer. So what happens is you will have a deer who is not completely tranquilized who stumbles off into the woods. And where these attempts have been used most extensively, in the State of Illinois, the Crabtree Orchard area, in southern Illinois, the problem was that the semitransquilized deer were subject to harassment by feral dogs.

Mr. YATES. I do not know these various techniques. This is one that you explained. The ones I see in the television documentaries are of the people with the guns who shoot the darts at the deer—at the animals, put them to sleep, and then they do whatever they have to do.

Mr. WEMMER. Yes. This is another technique. We have attempted to use this technique at the center in connection with some of our studies of white-tailed deer, and we have also used this technique in Nepal, where we carried on studies of some of the native ungulates there. The problem with that technique is that it is a very time-consuming method. It essentially involves waiting in a stand for a deer to pass, and then shooting it with the tranquilizing gun. Tranquilizer guns do not have the range of a firearm, a high-powered rifle, so you have to wait for the deer to pass at a fairly close distance in order to tranquilize it.

One more problem is involved in this method, and that is once the deer is hit with the tranquilizer it tends to run away. Then you

have to find the deer in the woods. And deer are ruminants. They have a large compartment which is essentially a fermentation vat in the stomach, and when the head goes down the contents can run up the esophagus and they can actually choke on their own stomach content. So there is a risk involved in any kind of tranquilization attempt with ruminant animals.

Mr. YATES. Was this a technique you considered in connection with what the Smithsonian was going to do?

Mr. WEMMER. We did not consider it seriously, because we knew what our success rate was involving deer, involving many, many long hours of waiting. The techniques now involve using the cannon net and Stephenson box traps. These are more effective and quicker methods for catching deer.

Mr. YATES. Well, did you consider capturing them and transporting them?

Mr. WEMMER. Yes, we did.

Mr. YATES. What conclusion did you come to?

Mr. WEMMER. We concluded that we simply did not have the financial resources to undertake this kind of attempt.

Mr. YATES. How much would it cost?

Mr. WEMMER. According to the literature, and we have done a careful review of capture costs, it can cost anywhere from \$150 to \$1,000 a head. It is going to depend upon the amount of time it takes to capture the animals. At certain times of the year trapping, by the way, is a fairly effective way to catch animals. But the times of the year are limited. One time is in the early spring, and then also in the late summer. Deer have a very strong salt hunger because they are molting their coats. And at this time of the year you can bait them with salt very effectively. At other times of the year they are less prone to come to baits, because there is plenty of forage available for them. In the wintertime when there is snow on the ground it is also easy to get them to take baled alfalfa, for example. However, as soon as the snow melts and enough ground is exposed, there are leaves and grass available again, and they prefer this food to the baits that are offered.

Mr. YATES. Have you considered dealing with the problem at other times of the year rather than in November and December during the hunt season?

Mr. WEMMER. We have considered other times of the year, and the major problem that you face is that if, for example, you were to capture deer during the spring months, say April, females are heavily pregnant and would be especially prone to trauma during capture. They give birth in late May and early June and continue—there are several birth peaks for white-tails in our area—they continue to give birth into August. We can tell this because there is quite a size variation in the fawns that you see at this time of the year. And of course during this time of the year if you capture the mother there is no guarantee that you will also capture her fawn, and the fawn is dependent upon her for nutrition, because it is suckling at that time. So if you separate them, you are essentially leaving the youngster to starve in most cases, if it is young. They begin to depend heavily on solid food when they are about 6 weeks old.

Mr. YATES. When you discussed alternatives with the Virginia Game Commission, what did you discuss? What alternatives did you discuss other than the hunt?

Mr. WEMMER. We asked them essentially what were the options available to us to control these deer. And in fact we discussed the problem with a lot of visitors, scientists, who come through the National Zoo and visit the center specifically.

Mr. YATES. I should bring up first that care of the deer is under the game laws of the State of Virginia, is it not?

Mr. WEMMER. Yes, it is.

Mr. YATES. Is that true even on Smithsonian property?

Mr. WEMMER. Yes, it is.

Mr. YATES. Is it their decision fundamentally you have to comply with?

Mr. WEMMER. We cannot do whatever we please with the deer. Even to trap deer we have to have a permit from the game commission. We could not, for example, trap and remove deer without their consent.

Mr. YATES. Do you need their permission to conduct the hunt?

Mr. WEMMER. To conduct a hunt?

Mr. YATES. Yes. How did you undertake starting this whole business of the hunt?

Mr. WEMMER. We met with the game commission. We told them what our problem was. We took them to the areas where the deer population was large. We showed them that we were suffering from damage to our crops. The more recent information that is in this testimony came out this last year, since we first got in touch with the game commission.

Mr. YATES. Your statement indicates that the hunt—that the deer were in this area long before the Smithsonian assumed ownership of the Front Royal enclave.

Mr. WEMMER. This is true.

Mr. YATES. And that the hunt took place with the approval of the Virginia Game Commission for a number of years prior to your taking the ownership of the enclave.

Mr. WEMMER. Yes.

Mr. YATES. When Smithsonian took ownership of the Front Royal property, I think you terminated the hunt on Smithsonian property, which indicates to me that you could, if you wanted to, not hold the hunt on Smithsonian property. Is that correct?

Mr. WEMMER. Yes.

Mr. YATES. Okay.

Then last year Smithsonian again gave its permission for the hunt to take place on the Smithsonian property. Now, how did you come to that conclusion? Why did you change your mind?

Mr. WEMMER. When we met with the commission we discussed the various options for controlling the deer. We discussed trapping and removal, we discussed driving the deer off of the property, and we discussed a controlled hunt. We also discussed other options such as a damage control permit which would allow Zoo personnel to go in and shoot a number of deer and thereby bypass the hunting season option. The Commission advised us on the feasibility and practicality of the various methods, and in fact we did go by its advice in conducting a series of drives which were successful in

eliminating white-tailed deer from the central 700 acres of the property.

Mr. YATES. When was this?

Mr. WEMMER. We had our first drive in August 1981. And we had a series of three drives last March.

Mr. YATES. How many deer were killed?

Mr. WEMMER. There were two deer killed during the drives as a result of collisions.

Mr. YATES. How many were killed during the 1981 hunt?

Mr. WEMMER. During the 1981 hunt there were 126 deer that were killed by hunters. We also record deer that were hit on the highway, and we found some carcasses of dog-killed deer. We found some deer which had probably been shot by passers-by on the highway. We do have statistics on those deaths, also.

Mr. YATES. Well, those may go into the record at this point.

[The information follows:]

SUMMARY—WHITE-TAILED DEER CONTROLLED HUNT, CONSERVATION AND RESEARCH CENTER, NATIONAL ZOO, FRONT ROYAL, VA.

I. *Numbers of hunters participating and percentage that checked in deer:*

Total: 262 (47.7 percent).

Public: 211 (43.6 percent).

Employee: 58 (56.8 percent).

Bow: 89 (28.1 percent); public: 78 (25.6 percent); employee: 11 (45.4 percent).

Shotgun: 186 (53.7 percent); public: 133 (54.1 percent); employee: 53 (52.8 percent).

II. *Numbers of deer killed/sex ratio (buck: doe):*

Total: 171 (123:48).

Damage permits: 12 (5:7).

Bow killed: 28 (20:8); hunter claimed: 26 (18:8); crippling loss: 2 (2:0).

Shotgun killed: 105 (88:17); hunter claimed: 103 (86:17); crippling loss: 2 (2:0).

Other killed: 30 (10:16:4); dog killed: 1 (1:0); hung in fence: 3 (0:3); hit by car: 6 (4:2); poached: 10 (2:8); unknown: 6 (3:3).

III. *Kill by land area:*

Area	Total (sex ratio) ¹	Bow	Shotgun	Other
Central	54 (38:16)	6 (3:3)	30 (27:3)	² 18 (8:10)
South	78 (58:20)	14 (11:3)	54 (44:10)	10 (3:7)
NW	31 (23:8)	9 (6:3)	21 (17:4)	1 (0:1)
Highway	8 (4:4)	8 (4:4)

¹ Bucks: does.

² Includes deer killed by damage permit.

IV. *Wounding/crippling losses:* ¹

Shotgun hunters—121 respondents (65 percent of all shotgun hunters):

Missing shots ² (n=37)..... 57.0

By successful hunters (n=21)..... 20.0

By unsuccessful hunters (n=16)..... 29.0

Wounding shots (n=10)..... 10.0

By successful hunters (n=8)..... 8.0

By unsuccessful hunters (n=2)..... 2.0

Estimated crippling loss ³..... 18.0

By successful hunters..... 11.0

By unsuccessful hunters..... 7.6

Bow hunters—47 respondents (53 percent of all bow hunters):

Missing shots (n=23)..... 31.0

By successful hunters (n=7)	9.0
By unsuccessful hunters (n=16)	22.0
Wounding shots (n=7):	
By successful hunters (n=1)	1.0
By unsuccessful hunters (n=6)	6.0
Estimated crippling loss	26.0
By successful hunters	1.4
By unsuccessful hunters	24.3

¹ Based on questionnaire returns.

² Unsuccessful shotgun hunters made significantly more missing shots than successful hunters (Chi² one sample test; $\chi^2 = 5.197$, $df = 1$, $p < .05$).

³ Estimated crippling loss was determined by calculating the number of the deer wounded by successful and unsuccessful hunters as a percentage of the questionnaire respondents in each group. These percentages were multiplied times the remaining number of hunters in each group who did not respond to the questionnaire. The reported wounding and estimated wounding for non respondent hunters were then added together.

Total estimated crippling loss (shotgun and bow hunters), 44.

V. Hunter evaluations of their hunting experience:

RATING

Hunter group	Excellent	Good	Fair	Poor	Totals
Killed deer	85	13	1	0	99
Did not kill	52	23	4	2	81
Totals	137	36	5	2	180
Percent age response	76.1	20	2.7	1.1	

The fair and poor categories were combined for statistical testing. A chi-square test was performed to determine if hunters rated their experience differently depending on whether or not they killed a deer. The 2 groups differed significantly, $\chi^2 = 12.52$ ($df = 2$), $p = < .01$. Unsuccessful hunters rated their experience lower than successful hunters.

Mr. YATES. So in 1981 you decided to hold it again. It resulted in the deaths of approximately what—would you say 200 deer?

Mr. WEMMER. Close to 200; 126 were actually harvested by hunters.

Mr. YATES. Okay. And the problem of overpopulation still continued. One problem is there is not enough food for the deer, as your statement indicates; is that correct?

Mr. WEMMER. There are several problems. The basic problem is that the population is crowded and that it has exceeded the carrying capacity, the ability of the habitat, to support the deer.

Mr. YATES. That is indicated in very picturesque detail by the exhibit that bears no name, but I assume was prepared by the Smithsonian.

Mr. WEMMER. Yes.

Mr. YATES. This may go into the committee files. That indicates that at various places along roads and in fields, there is what you call a browse line, which is the line that is established about the height of the tallest deer in reaching up and eating; is that correct?

Mr. WEMMER. That is correct.

Mr. YATES. And the deer that are small or medium-sized cannot get at it; is that right? So they are in trouble immediately.

Mr. WEMMER. Well, they do have the food, the grass on the ground available to them. But in the wintertime, for example, if we were to have a heavy snow, and the snow were to freeze and ice over as it did 4 years ago for a period exceeding 2 months, the

large deer would still be able to nip off buds and twigs. The small deer would not be able to reach this, and they would not have the grass and the leaves available on the ground. And they would be the first to suffer.

Mr. YATES. Okay. What about the option of what is resorted to in the West during the winter where the cattlemen drop bales of hay or grass to their cattle? Is this an option which is feasible for feeding a larger number of deer, so you do not have to kill as many?

Mr. WEMMER. It is an option. You can continue to feed this population. And the population will continue to reproduce. But the problem of overcrowding and the problem of potential disease and spread of parasites would remain and would in fact increase, because of the increased density of the population.

Mr. YATES. Okay. You are going to have that every year, are you not?

Mr. WEMMER. We would have to control the animals every year, as long as there is a resident population.

Mr. YATES. So that depending on what your decision is, every year from now on you are going to have to be concerned with having to take some kind of action that would control the growth of the deer. Your statement points out that the population increases every year, that one, two, or three offspring may be born from the deer. And so they continue to replenish, and the size of the herd continues to grow.

Well, you hold the hunt this year. Does this mean you are going to hold a hunt every year if this is the choice you have?

Mr. WEMMER. Yes. It would take about 5 years, anywhere from 3 to 5 years based on previous experience with similar situations in other parts of the United States to probably reduce this population to a level where it is compatible with the habitat where it is living, that is, where it is not overutilizing the food resources there.

Mr. MURTHA. Would you say that again?

Mr. WEMMER. What I am saying is that it would generally take more than 1 year in order to remove the surplus deer and bring the population down to a level compatible with maintaining a healthy habitat.

Mr. MURTHA. How does that compare to the rest of Virginia?

Mr. WEMMER. I am not familiar with the deer population in the rest of Virginia. If there is a crowded situation such as we have, and it were possible to go in and remove a very large number of deer, it could be done in 1 year. It depends on the number of deer which are removed and specifically the number of female deer which are removed from the population.

Mr. YATES. Page 7 indicates, "Based on information from Virginia Polytechnic Institute it is believed that the Center's property is capable of sustaining a population of about 130 deer, or 10 deer/km² without deterioration of the habitat."

Your herd is about 1,000 deer at the present time. The herd. It is not your herd, is it? The herd is about 1,000 at this time. So that if you were to achieve the optimum level, you would—there should be about 130 deer in the area.

Mr. WEMMER. Yes.

Mr. YATES. Well, that requires killing off a tremendous number of deer.

Mr. WEMMER. Yes, it does.

Mr. YATES. And you are going to have that same problem year by year. Would it not be to the Smithsonian's advantage to have no deer on your compound at all? I do not mean to kill them off, necessarily. But from what I can gather from your statement, you are primarily concerned about the survival of your exotic animals who are threatened, who are part of threatened species. As far as you are concerned you would just as soon the deer were transported some other place.

Mr. WEMMER. If the deer were entirely absent from the property, there would be no need to regulate the population any longer.

Mr. YATES. That is correct. Obviously. That is like Calvin Coolidge's famous statement, "When people are out of work, unemployment results."

Mr. WEMMER. One problem is recolonization, which would be difficult to prevent. But then those animals could also be removed in the future as well.

Mr. YATES. All right. Assuming—this of course is the optimum solution for the Smithsonian.

Mr. WEMMER. To remove the deer and to remove the risks, yes.

Mr. YATES. Have you considered that? What would this entail? Have you considered the possibility of moving the entire herd?

Mr. WEMMER. Well, yes, we have. We have considered removing the herd, and what it would require would essentially be to make the fence around the property deerproof, and we estimate that this would be at a cost of about \$350,000 and it would take over a year, but probably less than 2 years, to complete. This is based on our own fencing experience from the past.

Mr. YATES. Deer can jump the fences you have now.

Mr. WEMMER. Yes.

Mr. YATES. You have a six-foot fence and an eight-foot fence at various parts of your perimeter.

Mr. WEMMER. Yes; 10 miles of the property are surrounded by an eight-foot fence, and there are four miles of the property surrounded by a six-foot fence. We had originally planned to fence the property with eight-foot fence, but there was concern expressed in the town of Front Royal that we would be enclosing a deer population which would no longer be available to sports hunters, because the people in the area know this population moves on and over the property.

So what we did, even though we knew deer could breach an eight-foot fence, we did put in six-foot sections which, of course, is much easier for them to jump over. Not all deer can jump an eight-foot fence. But some deer can.

Mr. YATES. They would be Olympic contenders.

Mr. WEMMER. A 12-foot fence is required to completely deer-proof an area.

Mr. YATES. Well, if the committee were to approve an appropriation for the higher fence, would that eliminate your problem?

Mr. WEMMER. It wouldn't eliminate the problem, for example, of risk to the hoofed stock of parasitism because there is a deer population which completely surrounds the Center, and there is also a population in the Shenandoah National Park. In addition, there

are small numbers of individuals who live along the highway that passes right through the Center.

There is no way of excluding from the property the intermediate host which for the worm is a snail or slug. Parasites can still be transferred into the property to contaminate our animals, but the risk would be a very small risk. Even if the population within the property were reduced to 130 to 150 deer, the risk would be a small one with which we could live.

Mr. YATES. Are you ever going to get down to 130 deer?

Mr. WEMMER. I think we can get down to 130 deer.

Mr. YATES. How do you do that?

Mr. WEMMER. By an intensive removal of deer.

Mr. YATES. You mean killing them off.

Mr. WEMMER. Killing them, by whatever means. You could also try and trap and remove them. But the most cost-effective way is to simply kill the deer.

Mr. MURTHA. We have a very successful hunting program in Pennsylvania. It has developed over the years. I know it is successful and worthwhile, because even there, where they have a good hunting season, one day riding through the rural area we found six deer that had been killed by automobiles, just lying along the side of the road.

So there is no question in my mind they would starve to death or be killed by cars if we didn't have some sort of a program. I don't understand what the major objection to hunting the deer in this area is. What is the difference in hunting the deer here in this area versus hunting the deer in the regular programs like we have in Pennsylvania?

Mr. WEMMER. I think the objection is against hunting deer and I think the specific objection is against a zoo being involved in a program which involved killing of animals. That is as I understand it, the specific objection.

Mr. YATES. It is because the Smithsonian is in the picture. If it were the State of Virginia or state owned land, we would not be holding this hearing. That is up to the State of Virginia. The question is should the Smithsonian be a part of this kind of activity? Smithsonian's activity is primarily the protection and development of certain kinds of exotic and endangered species of animals.

The problem is that its property is a traditional deer area. And it is said the deer, before the Smithsonian came here, could wander up and back across Smithsonian's property and into the Shenandoah National Park.

The deer ranged there. The question is—it becomes the State of Virginia's problem, then, with all these people who are interested, if a fence is constructed. You then have to worry about the few slugs that might come in. But that is all you can hope for as long as you continue to occupy this property.

The problem will always be there. But it will be a minimal problem by comparison to the way it is now.

Is that correct?

Mr. WEMMER. Yes.

Mr. YATES. All right.

So the question that you and I and the committee have to decide, as I understand what the thrust of his question is, is one, let them

hunt on the Smithsonian property year after year after year, unless you have a mammoth kill or dispersal such as you have described, and unless the committee provides the \$350,000 that is necessary to enclose the property with a high enough fence.

Mr. WEMMER. Mr. Chairman, may I add one thing also in connection with——

Mr. YATES. Is that a correct statement of your problem?

Mr. WEMMER. Yes, it is. But in connection with——

Mr. MURTHA. Could I ask a clarification?

Mr. WEMMER. I just want to point out one thing in connection with fencing the property and excluding the deer. There is an important maintenance cost which also has to be considered. And that is that much of this fence is in very remote sections of the property on very steep hillsides.

During a winter with heavy snow you may have snowdrifts accumulating between the fence and the uphill side of the mountain, which deer can walk across once it hardens, and jump over, a shorter fence than 12 feet high.

Mr. YATES. I am sure your plans would take this into consideration. There are about 1500 acres of your property that is pasturable or susceptible to feeding the deer, and 1500 in woods and ravines.

Mr. WEMMER. Yes.

Mr. MURTHA. Are you proposing that you hunt the deer and then put the fence up? Is that the idea? Exactly what is the proposal?

Mr. YATES. I don't think they have a proposal. They were going to go though with the hunt. They had arranged with the State of Virginia to go with the hunt, and then I interfered. That is the problem in a nutshell.

Mr. MURTHA. What is the \$350,000?

Mr. YATES. That is their estimate.

Mr. WEMMER. To deer-proof the property, if the deer were to be completely removed from the property.

Mr. YATES. Smithsonian then is out of the picture and we are out.

Mr. MURTHA. You have to get rid of the deer when you build the fence.

Mr. WEMMER. First, the fence must be built.

Mr. YATES. Then the deer are herded and excluded out of the property.

Mr. MURTHA. Herded or hunted?

Mr. HUGHES. It could be either way, Mr. Murtha. Our plan, obviously, has been a controlled hunt of the deer. The option, as the chairman in his questioning, I think, has brought out, is the removal of the deer by some means. My understanding is that it is difficult for a variety of reasons, which we can get into, to simply drive them out.

The viable alternative probably is trapping them out to some suitable location which would have to be identified by the State.

Mr. MURTHA. Is the density of the deer in this enclosure higher than the surrounding area? For instance, say you herded the deer into the surrounding area, then you built a fence that would keep them out completely, are you then talking about disposal through a much larger area? Could the surrounding area handle the increased density of deer?

Mr. WEMMER. The deer population surrounding us is much less than what we have on the property.

Mr. MURTHA. And the fence is the main reason for that?

Mr. WEMMER. The fences do not prevent the deer from moving in and out. But what you have is essentially groups of deer which consider the property home, and they have reproduced. And deer live in a social group which is essentially a matriarchy.

You have mothers and daughters, you have grandmothers, daughters and children, living within a group of home ranges. There is dispersal, but the males tend to be the dispersing sex in deer.

So what happens is even though some deer may move off the property, the majority of them are staying there as long as the habitat conditions are good.

Mr. MURTHA. These deer would be much easier to hunt because there is a dense population and they are enclosed. Is that the major objection to hunting them there?

Mr. WEMMER. This is one objection that has been raised. It has been said it would be like shooting fish in a barrel.

Mr. MURTHA. Is that true?

Mr. WEMMER. I have never shot fish in a barrel. I can say this: The success rate of hunters would be greater because the density of the deer is greater. However, these deer do not walk up to you and lick your hands. They are wild deer.

But they are acclimated in certain areas to traffic, and for example, if you drive along the Ridge Road in the property, you will see many white-tailed deer. You can even get out of the car and start to walk towards them. At that point, they will raise their tails and run off into the woods.

Incidentally, that particular section of property would not be hunted, because we do have a study going on right now in that area.

Mr. MURTHA. How much are you talking about, if it were successful, if you wanted to drive the deer out of there, would that be a very expensive proposition?

Mr. WEMMER. It costs us about \$2,000 to drive one drive operation using our own staff.

Mr. MURTHA. \$2,000?

Mr. WEMMER. That was on 700 acres of land. We removed a total of 159 deer from that section, over a period of three drives. And, of course, it is a case of diminishing returns. You get most of them the first time, you get a few the second, and the last time you get a few stragglers.

I would venture to say that it would be very difficult to remove every last deer using that method. The problem on the rest of the property, and this is in the testimony, is that it is extremely rugged terrain. I am not saying it is impossible.

I am saying it would be very difficult and perhaps not particularly practical, because the altitudinal ranges are from 800 to 1200 feet. In some areas, the spice bush is so thick it is difficult for a man to walk through.

So there are practical difficulties to driving deer through these areas.

Mr. MURTHA. And hunting there, even through it is denser, it would still be considered difficult. You would have to go out and work in order to shoot a deer.

Mr. WEMMER. We placed the stands in areas where the hunter would be able to maximize his chances. We place them in areas where there is deer movement. So the success rate was good last year. It was about 50 percent overall average. If this average could be maintained, of course a fairly large number of deer could be removed.

Mr. MURTHA. How many years would it take to get down to the 130 level?

Mr. WEMMER. This would really depend upon the exact statistics for each year. It is hard to predict. It would reduce with time.

Mr. MURTHA. Will it be less than 50 percent this year because of the hunt last year?

Mr. WEMMER. I don't think it would be less this year, because this year in Warren County there is a two-deer bag limit which did not exist last year. We allow hunters to come and hunt for two days. If they took a deer the first day, they could come back a second day.

The other problem with driving the deer off is we are surrounded by a number of housing developments, several orchards.

Mr. YATES. Why don't you describe that?

I think we ought to have a description of the property, where it ought to be fenced, what the problems are going to be.

Mr. MURTHA. Are there any farms around that area?

Mr. WEMMER. Yes. There is farmland around the area. (Pointing to a map.)

This is a farm here with livestock. And this is an estate with a large number of houses, a subdivision, essentially. The Appalachian Trail has about two and a half miles of easement along the side of the center's property. The 4-H Center is located here. National Park Service is here. The U.S. Customs Dog Training Center is located here.

Another section of National Park Service lands, Shenandoah National Park, abuts the property along Route 522. If we were to drive deer into the National Park Service, we would have to close this road for about six hours to drive deer across the highway.

There is an orchard on this side of the fence. I am not sure whether it is a producing, active orchard right now. And this is the water district property here in the town of Front Royal, just a little bit down the road here. This is about less than a mile from the town right here.

Warren County School Board property—originally part of the USDA Beef Cattle Research Station—is where we did drive the deer with permission from the school board this past year.

What we found, or we suspect strongly is that the deer moved up and came back into the property on both this side and this side, because our population counts for these two sections increased after the drive. Some of the deer probably did stay in the school board property.

Mr. MURTHA. Are there vegetable farms in this general vicinity?

Mr. WEMMER. There is an orchard here in Harmony Hollow. There is an orchard here. There are lots of private gardens of the people in the subdivisions.

Mr. MURTHA. Did you get any complaints from the farmers in the area once you drove the deer out of there?

Mr. WEMMER. There has been now. The aftermath of this particular issue has brought a number of letters to the editors of the local newspapers. There have been complaints by the people living in this area about damaged fruit trees, and also about road-killed deer.

Mr. MURTHA. We get a lot of complaints in Pennsylvania, in the rural areas, about deer. Of course, they can shoot them on their own property. But there are a lot of problems farmers have with deer, when there are too many.

Mr. YATES. Smithsonian wouldn't get that. It is not your problem. It is the State Game Commission that would get the complaints.

Mr. HUGHES. It is fair to say it is to some extent our problem. To offload the problem, if we could, on the neighboring territory, would, it seems to me, still leaves us with a problem of relationships within the community, relationships that we very much want to maintain.

Mr. YATES. Does that mean you want to maintain the hunt?

Mr. HUGHES. Our plan is to maintain the hunt, Mr. Chairman. But we are here listening very carefully to you and to the other witnesses.

Mr. YATES. Your plan is to maintain the hunt this year. You intend to go on year after year after year doing the same thing?

Mr. HUGHES. I don't know.

Mr. YATES. David says yes, and you don't know.

Mr. HUGHES. I don't know. I think we have not yet heard an entirely—within the limits of our resources—practical answer to the question. I should point out that the cost of deer removal from the property is far more than the \$350,000 for the fence. For trapping and transportation to an appropriate area, and we have to get the permission of some area to bring them there, we must capture them and we must pay that cost.

Mr. Wemmer mentioned rather a wide range, from \$150 to \$1,000 a deer, depending on what kind of luck we had. But if we are talking about the removal of as many as 800 or 900 deer, the cost of trapping and transportation will be very high.

Mr. YATES. What is it going to cost you to kill that number?

Mr. WEMMER. It costs us about \$5,000 for processing the hunters in order to remove the deer. We collect a \$10 fee from the hunters. This year we would essentially balance our cost by the hunter's fees.

Mr. YATES. You want to get down to the level of 130 deer—two deer to an acre? A herd of 130.

Mr. WEMMER. 10 deer per kilometer.

Mr. YATES. How do you get down to a level of 130 except by killing most of the herd?

Mr. WEMMER. We would have to remove large numbers of deer.

Mr. YATES. Is that proposed this year?

Mr. HUGHES. No.

Mr. WEMMER. We cannot remove them all this year, given the length of the season.

Mr. YATES. How many do you propose to kill this year?

Mr. WEMMER. We estimate that we could kill about a third of the population. We could do a little better, we could do worse. It would depend.

Mr. YATES. As I understand it, your bow and arrow hunting portion of it has been discontinued for the season.

Mr. WEMMER. Yes.

Mr. YATES. So the does will be free this year. You are not going to kill any does.

Mr. WEMMER. Does can be killed on the last day of the gun hunt.

Mr. YATES. I thought I read somewhere it is in the newspapers or some other place that the does could only be killed by the bow and arrow hunters.

Mr. WEMMER. Does can be killed by bow and arrow hunters any day of the bow and arrow season. By employing bow and arrow hunting you increase the number of does that can be killed. It is not a large increase, because bow and arrow hunters are not as successful as gun hunters. Shotgun hunters can only kill does on the last day of the season unless they have antlerless deer permits, which we have requested. These allow a shotgun hunter to kill an antlerless deer other than on the last day.

Mr. YATES. If you intend to kill as much as a third this year, that would reduce your population then to 600. Then you have deer being born early next year, which increases the herd to what? What would your estimate be?

Mr. WEMMER. You could completely replace the herd in one year's time if there was maximum recruitment within the female population. It could be somewhat less than that.

Mr. YATES. How do you get down to your level of 130, then?

Mr. WEMMER. By taking large numbers of breeding females from the population on successive years. This is only the second year. We are not old hands at doing this. We have attempted to do it as best we can, in as professional a manner as possible. But in most cases it requires several years to remove a problem it took six years to develop.

Mr. YATES. With a herd of 130, does your problem of protecting your other animals still exist?

Mr. WEMMER. The problem would be significantly reduced.

Mr. YATES. Reduced mathematically of course. Is that a better condition to have than fencing off your property?

Mr. WEMMER. Personally, I don't believe that the risk to our animals from the parasites and the disease would be significantly different if the population were eliminated or if it were maintained at a low level, because as I mentioned, there are populations outside. If epizootic hemorrhagic disease were to break out in the Warren County deer population our exotics would be subject to that disease even if there were no deer on the property. The risk is still there; but it would be a much reduced risk.

Mr. YATES. Mr. Wemmer, what else should you be telling us that you have not told us? I must say in all honesty my own feeling is you should build a fence, and get the Smithsonian out of the hunting business. I respect Mr. Hughes' statement that he wants to get

along—the Smithsonian wants to get along with its neighbors all around the property. I don't know that you require hunting during November and December to get along with them.

But it seems to me that your primary goal is to reduce to the minimum the possibility of disease to the animals who are at Front Royal. And from what Mr. Wemmer says, that is achieved in one of two ways. It is by achieving the 130 level or by putting the fence up. And if the fence is up, then the Smithsonian is out of the hunting business.

Mr. HUGHES. Not until we remove the deer, Mr. Chairman.

Mr. YATES. All right.

Mr. HUGHES. One way or another, the deer population has to go.

Mr. YATES. I agree. You have to clear your compound of the deer. All right. How many deer do you have there now?

Mr. WEMMER. About a thousand.

Mr. YATES. On your property? Or is that in the whole area?

Mr. WEMMER. In the 3,000 acres, there are about a thousand deer.

Mr. YATES. It must mean the total herd is much more than that.

Mr. WEMMER. There are about 1,000 deer on our property.

Mr. YATES. What about the deer in the Shenandoah National Park?

Mr. WEMMER. There are thousands there.

Mr. YATES. And in the Jefferson National Forest, which is a couple of hundred miles away, there are probably thousands at least there, too.

Mr. WEMMER. Yes.

Mr. YATES. Are there other deer in the surrounding area?

Mr. WEMMER. There are deer virtually everywhere in Front Royal and the surrounding area.

Mr. YATES. Mr. Murtha.

Mr. MURTHA. Mr. Chairman, I seldom ever disagree with the Chairman, very seldom. In this case, I would have to respectfully disagree with the Chairman. I can see the concern of the Smithsonian, and I see the concern of the Chairman. But our hunting program has been so successful in Pennsylvania, I just don't see a problem. I see why the Smithsonian would be concerned, with your ultimate mission being entirely different. But it just seems to me this is a reasonable way to reduce the herd.

Mr. HUGHES. With regard to the local situation, Mr. Chairman, I don't know whether there are witnesses from the area here or not. There is——

Mr. YATES. There are lots of witnesses from the area here. Including Congressman Robinson who is very patiently waiting to testify.

Mr. HUGHES. There certainly is the view in the area that these deer are a natural resource, and that they to some extent belong in the area and they are in the nature of a crop, subject to harvest. We are aware of that, along with other views which sharply diverge.

Mr. YATES. You and I don't agree. I don't see the goal of the Smithsonian or the function of the Smithsonian being to participate in this kind of activity.

Mr. HUGHES. Nor do I. I quite agree with that.

We are looking for a practical way to solve our problem.

Mr. YATES. So are we. We are looking for a practical way to solve the Smithsonian's problem, and find some way of getting the deer off your property. Then let the state of Virginia do what it wants to do respecting the harvesting, the hunting.

I think we ought to just let you sit here, if we may, because you probably know as much or more than most of the other people about this problem. And let me call Mr. Robinson up to testify, if I might.

Mr. Robinson, we are very glad to welcome you to our committee. You are an old friend and a colleague on the Appropriations Committee. We recognize the importance of the problem to the people whom you represent. We would be very glad to hear what you have to say.

THURSDAY, NOVEMBER 4, 1982.

WITNESS

HON. J. KENNETH ROBINSON, A REPRESENTATIVE IN CONGRESS FROM THE STATE OF VIRGINIA

Mr. ROBINSON. Thank you very much, Mr. Chairman. I appreciate your courtesy.

I have a formal statement which I would ask be made part of the record.

Mr. YATES. It may be made part of the record.

[The statement of Mr. Robinson follows:]

TESTIMONY SUBMITTED BY HON. J. KENNETH ROBINSON OF VIRGINIA'S SEVENTH CONGRESSIONAL DISTRICT BEFORE THE HOUSE APPROPRIATIONS SUBCOMMITTEE ON INTERIOR

Mr. Chairman and Members of the Subcommittee: I have the privilege of representing Virginia's Seventh Congressional District, in which is located the National Zoological Park Conservation and Research Center.

In that capacity, I am here to express strong support for the position taken by responsible authorities of the Smithsonian Institution; its curator-in-charge of the center, Mr. Chris Wemmer; the Virginia Commission on Game and Inland Fisheries, and others familiar with sound wildlife management practices, including experienced hunters.

It is my firm expectation that information brought forward at this hearing will emphasize conclusively that there is no other feasible or cost-effective means to control the white-tailed deer population at the center than by allowing the carefully-controlled deer hunt, that had been scheduled there, to proceed without further delay.

The fact is inescapable that the white-tailed deer herd at the center has proliferated to a dangerous degree that threatens *all* of the animals there, domestic and rare species alike. The herd is infested with parasitic worms that can kill the endangered species, and its growing numbers are eating up the alfalfa crop required for the survival of the exotic species.

Unless the herd is thinned prudently, it is clear that all of the animals at the site face an increasing threat of disease or starvation—a cruel fate that no one concerned about this matter could possibly welcome.

Entirely well-intentioned people have suggested that the domestic deer population be reduced by herding the deer from the preserve, or by trapping the animals and transporting them deep into the wilderness.

But it would be impractical to herd the deer from the preserve, because the surrounding area includes fruit farms and homes where the deer would cause environmental damage, and where they would be certain to be destroyed.

Even if the wild animals could be trapped and transported—a very iffy proposition—the experts tell us that the prospects for their successful relocation would be minimal. Wild animals are not easily relocated from their home terrain. They are driven off by resident animals protective of their forage and bedding areas. The newcomers remain refugees, forced to wander from place to place.

I would remind this panel that when concerned organizations sought to rescue endangered wild deer in the Florida Everglades area earlier this year, they were able to capture only 18, before abandoning their effort.

Seven of the 18 were adult deer, and eleven were fawns. I have been informed by an official of the Florida Fish and Wildlife Commission that of the 18 captured deer, only one adult and five fawns remain alive. The others died from injuries sustained during capture, or from disease, or because the bewildered animals dashed themselves to death against their unaccustomed enclosures. It is believed that the surviving fawns are alive only because they've been bottle-fed.

It should be understood that officials of the Smithsonian have gone to great lengths to find a responsible way to reduce the excess white-tailed deer population at their preserve in Virginia. Their specialists and wildlife biologists have concluded there is no other practical way to reduce the herd than by conventional hunting techniques.

In the long run, it is the most humane course.

I should like to emphasize this as well: The deer hunt that had been scheduled on the preserve was in full accordance with Virginia's hunting laws applicable to that region. Hunters have already paid a fee to participate, and I have no doubt that some of them count heavily upon the hunt to provision their winter larder for their families in this period of excessive unemployment.

It would be an injustice to them to interfere further with their lawfully obtained right to participate in the deer hunt scheduled by the Smithsonian.

I also wish to emphasize that my Congressional office has received letters or petitions from approximately 1,641 constituents protesting interference with the hunt, and only three letters from constituents expressing disapproval of the hunt.

Mr. ROBINSON. I would just make a few brief remarks following Dr. Wemmer's comments.

The relationship of the Smithsonian with the surrounding territory in Warren County has been very good. They have been excellent neighbors. On the basis of the number of petitions which I have received, which number, to be exact, 1641 in favor of continuing the hunt, I feel that that relationship might not be as cordial if the hunt is discontinued without a reason that I have not heard cited here this morning.

Because as has been pointed out, the hunt occurred before the Smithsonian took over, and has only just been reinstituted.

Secondly, the comment was made that the deer do have to be removed. There is no way that you are going to be able to simply drive a thousand deer out into the surrounding countryside and expect that they will be absorbed gratefully or even in good conscience—when you look at the map of the surrounding territory.

As you may or may not know, Mr. Chairman, my background is that of a farmer and an orchardist. I know those people that have those apple orchards around there. I know firsthand what an excessive deer population can do to an orchard. They can practically destroy it, particularly where there are young trees.

I live on a farm myself at the present time and have to contend with deer 25 miles from where this site is located at the present time. They are a constant problem. And the farther you get back into rough country, the more of a problem they become.

Those property owners are not going to be happy if those deer are pushed out just beyond the perimeter. They are going to stay there close by, because that is home to them, and as has been said, they are animals that have a range and they are going to return if

it is at all possible, they will be right up against this fence any place they can get up against it, and wherever it can still be jumped they will jump it and come back in.

The third point I would like to make, as a property owner in that area, and one that is familiar with the problem, is that the white-tailed deer is certainly not an endangered species by any stretch of the imagination.

Mr. YATES. That is true.

Mr. ROBINSON. They are more numerous probably than they were when the original settlers landed on these shores. The herds have been well looked after by proper game management practices, and a controlled hunt is considered to be a proper game management practice.

I acknowledge that the Smithsonian does not want to get into this as a business. It is a circumstance which they inherited. And I don't think that it can be just pushed aside and forgotten, even under the circumstances that they face in this instance.

The transportation of those deer is going to be a very difficult problem. That has been tried in the past. And I am sure that the record will reflect instances where it was used, where there was someplace that they got permission to take the deer.

Number one, a lot of deer were destroyed in the process, because they get so hyper, of course, and—in the transportation. They are not used to being driven around the countryside.

And number two, they don't adapt to the new surroundings. They are used to things as they are right there. And that is the problem that we face.

I mentioned that I had received from citizens, not all of them hunters, I might add, that are in that area, some 1600 requests that the hunt be continued. I have received only three from people that feel in the name of being human, of protection as far as the deer are concerned, that the hunt should not be held.

Mr. YATES. Mr. Robinson, it is the tradition for members of Congress to refer letters they receive from residents of other congressional districts to the congressman for that district. I have a file here of about 600 letters I would be very glad to transport to you.

Mr. ROBINSON. I can assure you if you refer them to me, they are going to get answered.

Mr. YATES. Okay. They will, too. Go ahead.

Mr. ROBINSON. Those essentially are the comments that I wanted to make in addition to the ones that are in my statement.

Mr. YATES. I think they are both pertinent and important.

Mr. ROBINSON. I do want to reflect on the fact that this is not something I have picked up as a cause because these people are constituents. I have lived in that area all my life. It is only 25 miles from my own home. And I know the territory. And I know the problems that deer can cause. And I just want to assure you that it is not going to be acceptable to simply put down the fence and drive the deer out and forget about them.

Mr. YATES. Okay. I can understand that. Suppose they were transported 200 miles away to the Jefferson National Forest?

Mr. ROBINSON. I am not sure, Mr. Chairman, you are going to find anyplace in Virginia, permission to just dump that many deer, because of the problems that are going to occur wherever that is

done. They are going to inevitably, it seems to me, be spread around. You are going to be talking to people from the Virginia Fish and Game Commission later today, I presume.

Mr. YATES. Yes. They are on the agenda.

Mr. ROBINSON. I am sure they will be able to answer that question much more accurately.

Mr. YATES. Thank you.

Thanks for a very good statement.

Mr. ROBINSON. Thank you very much, Mr. Chairman.

THURSDAY, NOVEMBER 4, 1982.

WITNESSES

ANNE COTTRELL FREE

SENATOR VANCE HARTKE

JOHN GRANDY, THE HUMANE SOCIETY OF THE U.S.

CLEVELAND AMORY, THE FUND FOR ANIMALS

CHARLES YATES

JACK KASSEWITZ, NATIONAL WILDLIFE RESCUE TEAM

Mr. YATES. At this time we will hear from the next panel.

Senator Hartke, ladies and gentlemen, you have heard the statements of the Smithsonian, who have a problem. You heard the, I thought, very cogent statements of Congressman Robinson. How do we dispose of this problem?

Senator Hartke, or Ms. Free?

Senator HARTKE. Mr. Chairman, first we want to express our appreciation for the fact that the hearing is being held, and we are given a chance to at least air this problem. I do have a written statement.

Mr. YATES. That will be made part of the record.

Senator HARTKE. I think that the chairman has quite carefully and very intelligently demonstrated the problem.

Now, when this first was brought to my attention by Ms. Free, who is a widely recognized author and received numerous awards on wildlife, we decided to go out to the place and see for ourselves. The peculiar thing, which should have alerted everyone to some problems, is the fact we were instructed immediately we could talk to none of the personnel on the premises.

Mr. YATES. You mean the Smithsonian personnel?

Senator HARTKE. They sent two public relations people from Washington, D.C. They told us from the very beginning unfortunately they could answer no questions for us whatsoever. Ms. Free had her tape recorder going. They said if we taped the conversations we could not even make the trip. So finally we decided we would like to at least see the alfalfa fields so widely talked about, and we put the tape recorder away.

We went on up on top of the hill. I think you ought to go out there and see the place. It is a beautiful spot, absolutely wonderful. But we went up to look for the alfalfa fields. And I thought maybe we were going to see a wide expanse, sort of like we do in the Midwest, of cornfields. Well, they are in strips. I asked the public rela-

tions man how many acres there were in alfalfa. He said, "I don't know."

My own estimate is if there are 40 to 50 acres of alfalfa, that probably is a very generous statement as to how much alfalfa is out there. The strips are about a hundred, maybe a little more than a hundred feet wide, maybe 500 feet long. There are about four. They are all contained in this area. The little pink area up there in the left corner, that is all there is in alfalfa.

Now, the alfalfa is lush. I do not know whether they do not know about alfalfa or not. In other words, deer are not particularly attracted to alfalfa. It is not something they especially like. They will browse around its edge. They tried to tell us that the alfalfa had been grazed. But if it had been, it was grazed with a mower. Everything was level. But the fields were all at different heights. And where the mower could not reach in the corner, where the bales of hay were, unfortunately, at that place the alfalfa was taller, which would be the natural places where the deer, if they were going to, would go ahead and eat.

We looked for tracks. Now, the ground was soft. Your feet, wherever you walked in the fields, would be indented. We did find one track in one field. We looked for droppings all over. Ms. Free and I walked quite extensively over it, looking for droppings.

Mr. YATES. Carefully I hope.

Senator HARTKE. You know, I am not Congressman Robinson. I come from the country. When you step in it, I know what happens. I understand that.

I thought to myself, maybe the deer constrained themselves when they were out there in the alfalfa field. But there were no droppings there.

Now, the question—they said something about they had trouble last year. Everyone had trouble in this area last year with alfalfa. It requires an awful lot of rain, and we had a drought.

Mr. YATES. Senator, what point are you coming to?

Senator HARTKE. They have three points: alfalfa, parasites and deer reduction. I will stop with the alfalfa.

Now, I will do the parasites. They say there are a thousand deer there. I don't know. They say they are easily seen. They probably are confined, and they are somewhat like pets. No question about that. They are not afraid of people, because they see them all the time. On the other hand, last December, according to their own statement, they had 359 deer there. I don't know how they got from 359 to a thousand.

But let's assume they had a thousand. The fact of it is if you are going to have a hunt, and want to eliminate parasites, you don't go ahead and say that the hunter will only shoot an animal that has a parasite. By the same token, if one of the animals has a parasite, and infects these exotic animals, then they ought to be removed. There is really no explanation for this whole thing.

The Smithsonian ought to get rid of the animals from that territory, reserve it specifically for the animals like exotic animals and birds, and then you are rid of the problem. That deals with the parasites.

Now, you deal with the herd size. As I said, there is no answer to that other than get rid of them. They are not starving out there.

There is hay all over the place, there is grass. But the fencing, according to their own written statement, a copy of which is attached to mine, says they purposely and intentionally left a 6-foot fence there for the purpose of permitting deer to come and go from the property.

Now, let's assume they got out and kill, what did he say, 300? Killed 129 last time. So they kill 300. There is nothing to keep 300 more coming on in, if it is such an attractive nuisance, that that is what it amounts to in legal terms, 300 more come in. Because there are a lot of deer in Virginia. They killed 53,000 last year. Fifty-three thousand deer were killed in Virginia last year. They are in the area. We are not dealing here with the question of deer population in Virginia. We are dealing here with a noble institution called the Smithsonian Institution, dedicated to the preservation and showing of the quality of life, and a national zoo which is protecting endangered species and exotic animals which otherwise are in danger of something happening to them.

Now, the fact of it is that this thing is a private hunting ground in the typical fashion of a Robin Hood operation for the benefit of these employees. That is what it is.

Mr. YATES. Do these employees hunt?

Senator HARTKE. Yes. This is the fact. Last year they had 30 employees who killed 29 deer. And they were permitted to hunt, not just two days, like everyone else; they were permitted to hunt for as long as was necessary for them to kill a deer. And 29 out of the 30 got a deer, took it home. As a Federal employee on Federal property, shot a deer, took it home for his own privileged self.

I think that is wrong. I think it is dead wrong. The rest of the hunters had two days. This was nothing more than to calm their fears.

As far as the fence is concerned, these animals should be removed from there. This little private game they have got, this is not a game. Before the game starts it is all over. This is a private operation for them to go ahead and have these employees hunt. They say they killed some of the deer for experimental purposes.

The National Zoo is not in the experimental purposes on deer; they are not endangered species.

Then they talked about another situation. They looked at the reproduction procedures for a deer. I don't know if they understand a stag and a doe produce a fawn.

These are all excuses. There has not been one single thing. They talk about alfalfa. That is not true. They talk about parasites. It is obviously—if you have a thousand kids that have measles and you remove 300 from the room, you have 700 others spreading the disease. That is elementary. The third thing is the fact of the deer population. If you have a deer population problem, Shenandoah National Park tells us they have a study ongoing on this. This is their business. If you have overpopulation of deer, that is somebody else's business. That is not the business of the Smithsonian and the National Zoo, these people which should be interested in doing the fine things of life.

This controversy should be eliminated. What should be done? The Secretary of the Smithsonian ought to cancel this hunt imme-

diately. If he doesn't, GAO ought to go in there and find out exactly what is going on.

I want to show you something on the fencing. I would like for somebody to correct me if I am wrong on the fence. Here are the alfalfa fields. In other words, this is an 8-foot fence constructed across there. Am I right? I want somebody to tell me.

Mr. WEMMER. Yes.

Senator HARTKE. According to your own statement it took you half a day to put that in there. Is that right?

Mr. WEMMER. I never made a statement like that.

Senator HARTKE. That is an 8-foot fence. This is an 8-foot fence. This is an 8-foot fence. This is an 8-foot fence.

Mr. WEMMER. Yes.

Senator HARTKE. There, there, there, there.

Mr. WEMMER. It is surrounded by an 8-foot fence.

Senator HARTKE. The alfalfa fields are surrounded by 8-foot fence. In their own statements they say that a deer can jump an 8-foot fence, but only when pushed. That is their own words, not mine. That is from the Smithsonian.

This territory over here, as far as that is concerned, there is nothing there except fields. There is no alfalfa, no animals. They talk that they have to have the employees hunt in this area. That is where the employees are supposed to hunt. The reason? Because they might get ahead and shoot one of the Eld's deer penned up in here.

This distance from here to here——

Mr. YATES. What kind?

Senator HARTKE. E-l-d-s. These are all in pens. There are not many pens out there. An awful lot of territory, which should be used but it is not. These are in pens here. Here is the administration building. The rest of the pens are down here. There is nothing over here at all. The area in—they just have no problem.

Mr. Chairman, all I can say is that, you know, free venison station, and shooting with bow and arrows may be the game—if you have a tame animal. But it is like going out in my cowfield and shooting one of my cows with a bow and arrow in order to eliminate the herd. I think that is awful.

[The statement of Senator Hartke follows:]

TESTIMONY OF

The Honorable Vance Hartke

United States Senator, retired

I am Vance Hartke and I am here today to testify concerning a proposal by the National Zoo that deeply concerns me and every other person with an interest in animals. The National Zoo proposes to authorize the hunting and killing of white-tailed deer who presently live in a fenced area near Front Royal, Virginia.

The Zoo wants us to believe their plan to hunt and kill deer is a sporting event, a game and the only solution to a problem. But there is not sport in their plan. The game is over before it is has begun and the Zoo officials are not solving a problem, they are creating one.

The major portion of the facility is open fields. There are only six fenced yards for different animals and birds. There are four barns for housing animals. The administration building, garages, barns and personal residences occupy a minimal part of the enclave. Elds Deer are in one fenced area and in one barn.

The balance of the enclave is in woods, pasture and hay fields. The alfalfa hay fields are in narrow strips. The major part of the enclave in which the alfalfa strips are located is fenced with an eight (8) foot chain link fence including an eight (8) foot fence which traverses the property on the Front Royal side. A three (3) strand barbed wire fence is on top of the eight foot chain link fence. (See attached map). In a letter dated May 4, 1982, by Margaret C. Hird, Special Assistant to the Secretary, they state that the alfalfa "crop is surrounded by an eight foot high fence." (Attachment A).

Although this is not true, it is true that only a very short section of eight foot fence is needed to provide enclosure of the alfalfa field and the zoo officials admit that deer will not try to jump an eight foot fence unless pushed. (Attachment - B).

The Zoo officials propose to permit zoo employees to hunt on the premises until they kill a deer, whereby they can then use the meat and horns for their own private purpose. The Zoo proposes to issue licenses to a limited number of private hunters. The reason publicly stated by the Zoo for conducting the hunt is:

- (1) Reduce Herd Size.
- (2) Reduce consumption of alfalfa.
- (3) Control parasites.

The purpose of the facility is for use of animals which are for exhibition and for use of the zoo. It is a place for exotic animals and birds. It is a place for endangered species of animals. It is a place of conservation.

The property involved in this situation is a part of the National Zoo. It is an area to be used as a supplemental aid to the Zoo.

- It is not open to the public.
- It is not a hunting ground.
- It is not a wildlife refuge.
- It is not a hunting preserve.
- It is not a conservation reserve.
- It is not special property for employees' hunting.
- It is not a resource for the private use of the employees of the National Zoo.
- It is not a place for testing the life habits of the white-tail deer.
- It is not a place to study disease or parasites of the white-tail deer.
- It is not a place to study the reproductive anatomy of the white-tailed deer and its functions.
- It is not to be a place to maim and cripple deer which have been treated as pets.

A basic requirement in this situation is the truth. To the degree that false or inaccurate information or premises are employed, the decision may be in error.

In order to have some of the facts first hand, Mrs. Ann Cottrell Free, Jack Studebaker and I made a visit to the National Zoo compound at Front Royal. We went to get the facts from the personnel on the scene. However, the National Zoo administration detailed two public relation individuals from Washington to take us on a tour. None of the Front Royal personnel were permitted to talk to us. The secretive manner in which we were treated is evidence alone to tell us there is something terribly wrong here. The two young public relation men told us they had instructions to tell us nothing and not to answer our questions.

However, we were able to take a jeep ride to the alfalfa fields. I asked them how much acreage was in alfalfa. They said they did not know. My own observation revealed about four strips about 100 feet wide and about 500 feet long. In all I estimate there was no more than 40-50 acres in alfalfa.

All the exotic animals zoo animals are contained in pens or barns. The impression has been left that the white-tailed deer mingle freely with the exotic zoo animals. This is not true. The white-tailed deer are in the open areas of the enclave and they can not get into the pens and barns with the zoo animals. The alfalfa fields are not close to any of the pens or barns in which the exotic animals are kept.

RE: REDUCTION OF HERD SIZE

If the purpose is to reduce the deer herd size, the facts deny the purpose.

The National Zoo admits that a six (6) foot high fence was intentionally constructed in order to permit the deer to go on and off the property. (See Attachment C). If the deer can come and go as they please, then killing one hundred deer will be totally without a reason to reduce the total herd size when additional deer from the area can quite easily replace those that are killed. The number of deer in the area is extremely large. The deer killed in Virginia in 1981 was 78,000. Therefore, the killing of 100 deer on the Zoo property has nothing to do with the deer herd reduction.

RE: ALFALFA FIELDS

The argument about the alfalfa fields is not substantiated by the facts. The alfalfa fields are lush and of even height, as Mrs. Free's photographs show. There were no deer droppings visible in or near any of the alfalfa fields. We saw one deer track, even though the ground was soft and would easily show the track of any other deer on the alfalfa tracts. It is obvious from observation, that the deer are not materially damaging the alfalfa fields, contrary to the claim of Zoo officials. Even given the proposition that the deer were hurting the crop, which we believe is unsupported, without appropriate fencing more deer will come in and eat the alfalfa--- like leaving the hay barn open and wondering why the cows eat it. Furthermore, the alfalfa fields are so small that fencing them would not be difficult nor extensive. Most of the area is already fenced with an eight foot fence.

RE: DISEASE

If the purpose of the proposed kill is to eliminate disease to reindeer by white-tail deer parasite, then to kill off some of the deer and leave only one deer would defeat this purpose. Surely, the National Zoo experts do not want one to believe that only parasite infected deer would be killed or that the killers would kill only parasite infected deer.

If the deer are a problem for the preserve (which is open to debate) then the thing to do is remove the deer from the preserve and build the fence high enough to restrain deer or other unwanted wildlife out of the preserve. This is not an unsurmountable task and is far more reasonable than a private shoot-out in a protected endangered species preserve.

A hunt without logical reasoning and research as to its necessity is exactly opposite the very purpose of its existence.

An impression is being conveyed that the Zoo is dealing with the total deer situation in Virginia.

We are not discussing deer hunters, or sportsmen. In Virginia, deer are available in large numbers for the legitimate sportsman in designated areas. Hunting is not allowed in the Shenandoah National Park; hunting should not be allowed in the National Zoo.

As I said, 78,000 deer were killed in Virginia last year by sportsmen. We are not discussing deer hunting for the general public in designated areas. We are not discussing the merits or reasons for public deer hunting. We are protesting the nonsensical annual private-pet deer slaughter conducted by the National Zoo for the primary benefit of the National Zoo employees. The National Zoo employees are the recipient of venison for their food lockers at taxpayers' expense. The whole scheme is a reincarnation of the old feudal hunt.

If Zoo employees want to hunt deer, let them do like all other sportsmen and get their license and hunt where others hunt. Why should employees of the National Zoo be given preference over other hunters, especially in an animal sanctuary, by allowing them to shoot tame deer until they kill one while the general public is given two day hunting whether they kill a deer or not. (Last year out of 30 employees, 29 hunted until they killed a deer - such a record has never been equaled by public hunters in the wild.)

If the Zoo claims the right to control the deer in the enclave, then all deer killed should become the property of the United States. Certainly, any deer killed by an employee on the U. S. government on U. S. property belongs to the U. S. government, not the employee of the Zoo.

There are other questions which the promoters of the proposed white tail deer hunt by shotgun and bow and arrow need to answer:

1. Since white-tail deer are not bred, studied and cared for at the conservation center, why is it that the staff spends a great deal of time netting and trapping the deer that are then collared with radio transmitters? The deer are tracked. Who tracks these deer? Why? Is it possible that this is used to locate deer mostly for the hunter. Who authorized the spending of federal employees' time for white-tail deer projects? Has it ever been authorized? If so, by whom? What purpose does such study of the white-tail have to do with the preservation of endangered species that is the sole purpose of the conservation center?

2. The Zoo admits that these deer move back and forth to and from the Shenandoah National Park. There are many gates and the 6 foot fence can easily be negotiated by the deer. Is it possible that the gates are opened and the deer lured into the preserve to raise the deer population so as to justify at least in their mind the necessity of the hunt?

3. If they can be lured into the preserve areas, why can't they be lured out - back to the park from whence they came?

4. In regard to the contention that the alfalfa fields are being ravaged by the deer; is it not true that the fields are lush, normal and full? Is it not true that deer only partake of alfalfa sparingly?

5. How much time does the staff devote to the deer situation? How can the zoo justify the expenditure of funds for a private hunt on federal property?

6. Has this hunt ever been authorized by the Congress? Does the zoo have the discretionary powers to authorize such a hunt?

7. When did the National Zoo get in the business of selling hunting licenses and is this in keeping with the objective of the National Zoo?

8. How may "dry run kills" have been made this year? Why is it necessary and under what authority do they have a veterinarian study the reproductive anatomy of the white-tail unendangered deer? If population control is one of the objectives, does the Zoo need information from an expert that a buck mates a doe and she produces fawns as offspring?

9. Will killing 100 deer stop the thousands in the area from starving? Will not more deer just come into the facility, replacing those killed and the problem be the same yearly for the preserve under this method? Will not the remaining 900 on the property, mate and produce the same condition next year?

10. Will killing 100 deer out of the 1000 that they claim are on the property eliminate any parasite in the remaining 900?

As a former United States Senate Committee Chairman I believe one should always go to the root of a problem. Otherwise the problem will return again and again. I am simply saying that this is no accident, nor mistake, nor misunderstanding. This emergency last minute slaughter was planned over a year ago and I ask the Committee to investigate this so it will not happen yearly.

Secondly, we are put in the position of dealing with a "last minute, no alternative, but slaughter" situation. This is the opinion made by these same Zoo officials that did not want to stop the kill and still don't. Therefore, let me first of all correct the common mistaken sentence that there is no alternative. Again, I served as a Senator eighteen (18) years and I never once saw a "no alternative problem". Granted they may require same thinking and research, but you can not just throw up your hands every year and say well let's get the guns out.

The special privilege that the National Zoo employees have extended to themselves is shameful for the Smithsonian Institute and the National Zoo. Not since Robin Hood did the government have their own private hunting ground. It is elementary that a special hunting privilege is being planned, staged and arranged for the employees of the National Zoo. This is not a satisfactory explanation for the proposed hunt. Somehow those in charge have lost sight of their responsibility to be operating a National Zoo and have taken a course of action without authority and without concern for the public good.

In an effort to make their scheme acceptable to the legitimate game hunters, a select few were permitted to join in their proposed annual slaughter of deer which they had lured into a protected enclave and that they admit will continue to be lured into the enclave each year.

They offered excuses today, but when we were at the site we were told that we would be provided with no answer. If they had nothing to hide why were their P.R. representatives, sent special from Washington, instructed to answer no questions, and to give us no facts.

The United States has a justifiable pride in the Smithsonian Institute and National Zoo. Both deserve credit for the fine work they have accomplished.

It is sad that this dark cloud of controversy now threatens their good name. It need not be. The proposed shotgun and bow and arrow hunt should be cancelled. The best first step would be for the Secretary of the Smithsonian, to voluntarily cancel this hunt. If this is not done, then the General Accounting Office should conduct a complete investigation of the situation and report to the Congress of the United States.

This hunt is nothing more than a special privilege for certain zoo employees to hunt "pet" deer. All of the rest of the supposed reasons to support it are nothing more than weak excuses to retain this "privilege".

This hunt, at the taxpayers' expenses, is simply to provide a venison feast for zoo employees.



SMITHSONIAN INSTITUTION

Washington, D.C. 20560
U.S.A.

May 4, 1982

Honorable John W. Warner
805 Federal Building
Norfolk, Virginia 23501

Dear Senator Warner:

Your letter of March 15, 1982, to the National Park Service, on behalf of Mr. C. F. Yates of Front Royal has been forwarded to the Smithsonian Institution for response because the Conservation and Research Center of the National Zoological Park, also at Front Royal, is a unit of the Smithsonian Institution.

The Institution took formal custody of the Front Royal property in 1975, and has developed it into a facility offering a last chance to the world's vanishing wildlife species. At the Conservation Center, rare and endangered exotic animals live in natural social groups and benefit from conditions similar to their native habitats. Breeding to sustain these species is complex and requires space and natural conditions often not found in a conventional zoo setting.

Deer control has become a problem at the Conservation Center. We have suffered alfalfa crop losses because of deer depredation resulting from an over-crowded and restricted population, even though the crop is surrounded by an eight-foot high fence. When available, the alfalfa is used for animals at the Conservation Center as well as for those at the Zoo in Rock Creek Park here in Washington. As you might well imagine, the ability to supply our own needs, rather than making substantial purchases in the market, is a source of substantial savings that are applied to other pressing needs at the Center and at the Zoo itself.

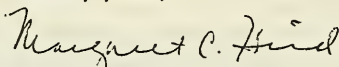
All of our planning for deer control has been communicated to and coordinated with representatives of the Virginia State Commission of Game and Inland Fisheries, the members of which thoroughly understand deer control and controlled hunting, as well as our concern for the safety of the exotic animals in residence.

The operation last winter was carried out with the assistance of the Commission and its suggestions and comments will be carefully considered should it be necessary to have another controlled deer hunt.

With respect to posting signs on 522 South, we have contacted the State Department of Highways which advised that it was the prerogative of the sheriff of the Front Royal area to advise the department on such matters before it reaches a final decision.

Dr. Theodore H. Reed, director of the National Zoological Park, or Dr. Christen M. Wemmer, Curator-in-charge of the Conservation and Research Center at Front Royal would be happy to meet with you or your representatives to provide any additional information you may require, and we would all welcome the opportunity of showing you the Center and the extraordinary work that is being pursued there.

Sincerely yours,

A handwritten signature in cursive script, reading "Margaret C. Hird".

Margaret C. Hird
Special Assistant to the
Secretary



National Zoological Park Smithsonian Institution Washington, D.C. 20008

Conservation and Research Center
Front Royal, VA 22630

January 8, 1982

C.F. Yates
331 W. 10th St.
Front Royal, VA 22630

Dear Mr. Yates:

The following information is provided in response to the questions you asked about the recent controlled deer hunt at the Conservation and Research Center during your visit to my office on 6 January 1982. For the sake of the record I will repeat in writing what I communicated to you verbally and present a few other facts.

- 1) Perimeter Fencing. The purpose of the chain link perimeter fence is to contain exotic animals within the Center's property should they escape from their enclosures. The fence is 6 or 8 feet high. We intentionally used 6 foot fence in areas where there was sign of large amounts of white-tailed deer traffic between the Zoo's land and adjacent property. The reason for this was we did not want to impede habitual movements of white-tailed deer to and from the property and thereby jeopardize the hunting of deer off the property. By the way, it is known that white-tailed deer can jump over 8 foot fences; however, they are usually hesitant to do so unless pushed. Jumping a 6 foot fence requires less effort and is readily accomplished by adult deer. The enclosed map shows the location of six foot segments of fence.
- 2) Deer Drive. A deer drive was carried out on 28 August using about 70 people. A total of 99 deer were excluded from the central post and alfalfa field areas. A breakdown of 40 bucks, 38 does, and 21 fawns was recorded by two hidden observers. The deer were driven into the Slate Hill (north-west sector) of the property and a fence was completed that afternoon to prevent their re-entry. The map shows the drive strategy. We considered the reduction of the central area population by 99 deer to be a significant achievement.
- 3) Deer Hunt. The purpose of the controlled hunt was to reduce the number of deer on the property to minimize their impact on alfalfa production, to reduce automobile and deer collisions on Route 522 S, and to maintain herd size within limits compatible with its good health. The details were worked out through a series of meetings with employees of the Virginia Game Commission. A xerox of the newspaper advertisement is included for your information as well as a list of our hunting rules and regulations, and the Northern Virginia Daily clipping of 3 December 1981 on the results of the hunt. Major points concerning the hunt are summarized below:

- a. Controlled hunting of white-tailed deer was permitted during the regular deer season in the central, NW, and S sections of the property. Public hunting was permitted on the NW and S sections. Center employee hunting was permitted in the central area.
- b. One deer (buck or doe) will be allowed per hunter.
- c. A call for hunter applications was advertised in the Winchester Evening Star, Warren County Sentinel, and Northern Virginia Daily (see attached). Over 500 applications were received. Two hundred sixty nine hunters were selected by lottery and paid to hunt.
- d. Thirty stands were designated for public hunters and 30 for employees. Public hunters were permitted 2 days to hunt. Staff hunters were allowed to hunt until they killed one deer.
- e. All hunters were required to pay a \$10.00 processing fee.
- f. Application to USFWS was made to deputize Linwood Williamson and Chris Wemmer as game wardens.
- g. Dr. Pat Scanlon (VPI) agreed to review reproductive tract anatomy with us on several kills in early fall. This served as a dry run before the season.
- h. Dr. Dick Montali (the Zoo pathologist) agreed to sample tissues for parasites, particularly lungworms.
- i. Of 120 deer killed by hunters 61 were taken from the south area, 30 were taken from the northwest area and 29 were taken from the central area. Four deer are unaccounted for because the hunter stand was not recorded on the data sheet.

- 4) Deer Population Censuses. The following figures summarize deer counts made on a routine basis the first 10 days of the month.

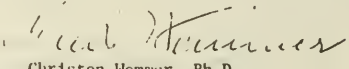
	Total	Females	Males	Juveniles	Unknown/yg of year	
May	152	85	21	29	17	---
June	76	48	14	2	12	---
Aug	156	87	31	31	7	---
Sept	374	180	69	88	37	---
Oct	332	155	33	126	18	---
Nov	468	235	72	152	9	---
Dec	382	172	36	---	18	156

You will notice that the total number differs each month. I have included this to point out to you the difficulty in accurately estimating deer populations. Visibility due to season, weather, and seasonal changes in deer

behavior all affect the number of deer seen. This explains why more deer are seen in November and December.

You may also be interested to know that a hunter orientation and safety meetings were held for all hunters. The purpose of using specific stands (i.e. restricted hunting areas) and requiring shotguns rather than rifles was to maintain a high standard of safety. Given the location of stands, and the density of vegetation in many areas we felt it was in the best interest of safety not to drive deer. Furthermore this would require further time and effort to organize. As I pointed out the other day there is more than one way to hunt deer; which way is best depends on the circumstances. Incidentally the majority of hunters told us in our questionnaire that the hunt was well organized; most ranked their experience as excellent or good whether or not they killed a deer. However, we still feel there are improvements to be made and will carefully consider any suggestions you wish to offer.

Sincerely,


Christen Wemmer, Ph.D.
Curator-in-Charge

CW/ch

Enclosures

cc: Congressman Robinson



SMITHSONIAN INSTITUTION

Washington, D.C. 20560
U.S.A.

October 19, 1982

Mr. John A. Hoyt
President
The Humane Society of the United States
2100 L Street, N. W.
Washington, D. C. 20037

Dear Mr. Hoyt:

Secretary Ripley has asked me to respond to your letter of 15 October concerning the proposed controlled deer hunt at the National Zoo's Conservation and Research Center at Front Royal, Virginia.

The Smithsonian and the National Zoo have a major responsibility for the conservation and propagation of highly endangered species that are entrusted to our care. We do not take this obligation lightly, but rather devote considerable energy and resources to achieving this objective. As a result, we are extremely concerned about any real or potential health threat to our collection.

The present population of white-tailed deer at the Conservation Center is estimated to be approximately 1,000 animals. White-tailed deer were present when the property was acquired by the Zoo in 1975 and had been hunted by the employees of the U. S. Department of Agriculture (the previous landholders of the Center) and other citizens of the area. In order to protect the very valuable and rare species, which the Zoo brought to the new reserve at Front Royal, a fencing program was undertaken to restrict access by unwarranted individuals and to prevent exotic animal escapes. Coupled with this action was a decision to prohibit any hunting on the land.

The first indication of deer overpopulation was destruction of alfalfa and trees. In order to mitigate this circumstance, fermented blood meal was unsuccessfully used as a deterrent. Fencing of alfalfa lands was also considered, but proved to be economically unfeasible. It was also noticed at this time that the high visibility of the large population brought about illegal entry onto the Zoo property and shooting of deer from an adjacent state road. In addition, numerous deer-automobile collisions have taken place.

Following these illegal incursions on our property and the killing of a rare Eld's Deer, valued at \$6,000, Center scientists consulted with State Game Commission biologists to remedy the situation. The biologists suggested placing a fence in the immediate vicinity of the crop and driving out the resident deer. In a series of four drives, the population was significantly reduced.

During the period of the hunting prohibition, Center staff regularly assessed the population in order to examine the potential impact of native wildlife on alfalfa production and on the exotic species. We also began to monitor deer depredation on the alfalfa using small enclosures. From this we learned that the white-tailed deer population had grown to a level which endangered the health of our exotic collection and our farming activities.

The transmission of two parasites, lung worm and meningeal worm to our exotic hoofstock was noted in the period between 1979-1982. This summer the Center lost six reindeer, including our only two breeding males, as a result of meningeal worm infestation. As you are aware, this herd has traditionally been the focus of the Christmas Pageant on the Ellipse. The shedding of white-tailed deer parasites has dictated the need for intensive and costly programs for screening and treatment of lung worm.

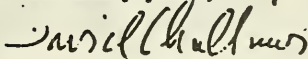
The controlled hunt by lottery was instituted in 1981, after the aforementioned alternatives were found to be less than satisfactory for all areas inhabited by deer at the Center. The proposal to conduct a hunt was thoroughly scrutinized and approved by the Virginia Game Commission. As you know, this Commission regulates the use of all native non-migratory wildlife in the State regardless of land ownership. The 1981 hunt was successfully carried out in a manner that protected the exotic animals, and insured the safety of the individual hunters. All deer were necropsied and age, reproduction, condition, and parasite data were recorded. Lung worm was reconfirmed in this deer population.

The Institution has drawn on the extensive experience of its scientific staff with not only exotic but native species of deer in addressing this problem. Our considerable experience indicates that in order to properly manage an enclosed population of white-tailed deer, culling will be necessary. It is unrealistic to maintain that in the near future this problem will disappear because the deer population is abundant in the surrounding area. Recognizing this fact, the Smithsonian has utilized a technique widely recognized by wildlife managers and the public to regulate the size of the herd in a manner which does not impinge on our primary charge to care and protect our exotic collection. It is, in our opinion, the most rational and humane solution to the problem. To suggest driving the population out or capture and translocation is merely placing the burden for these deer on individuals who are less equipped and concerned than we are for the welfare of this species. Additionally, we do not believe that a solution is apparent by use of sharpshooters. If we are to take these deer, we must abide by regulations established by the Virginia Game Commission that stress the mandate given to them by the Virginia legislature to share natural resources fairly with the citizens of the State.

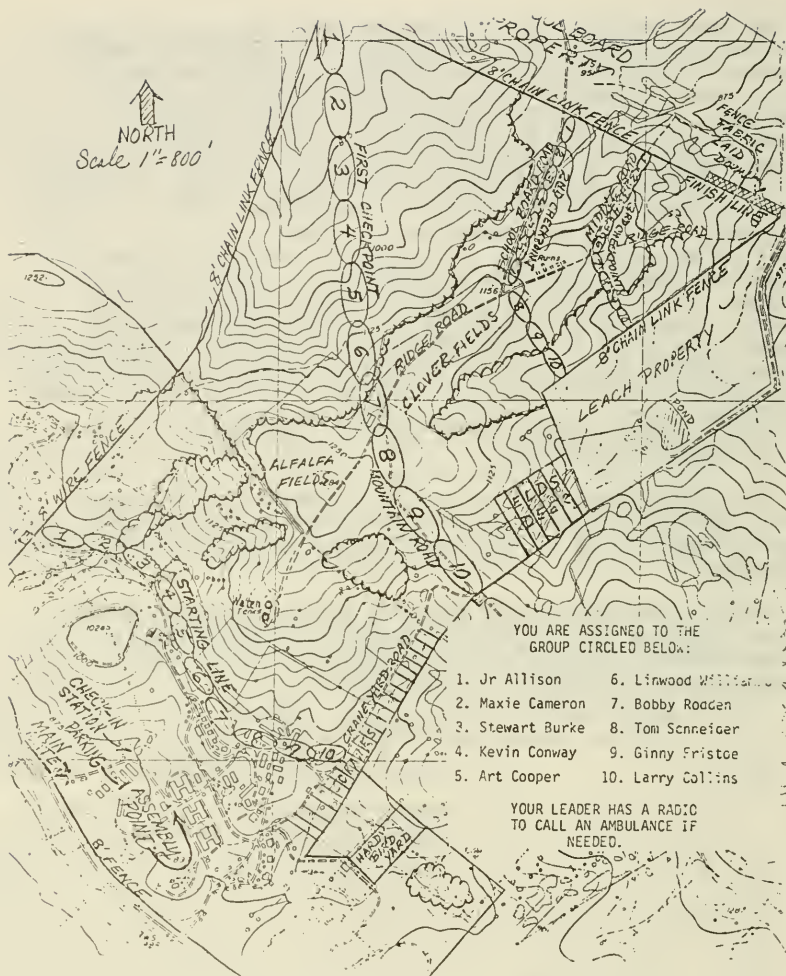
Let me reemphasize that what we are undertaking at Front Royal is not a new nor isolated phenomenon, but rather a proven practice currently undertaken on private, state and federal lands throughout Virginia and the nation.

We appreciate the concerns raised by you and your constituency, and wish to assure you that having reviewed the alternatives, we sincerely believe our actions are responsible and in the best interests of all animals which are in our care.

Sincerely yours,



David Challinor
Assistant Secretary
for Science



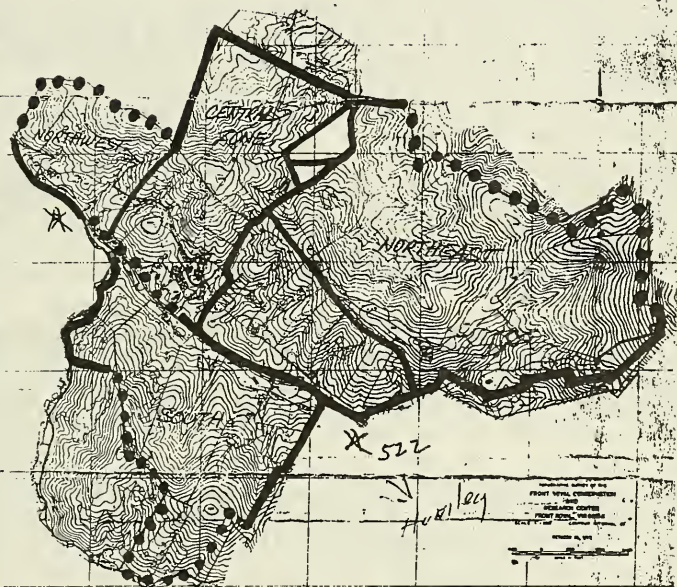
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|------------------|-------------------|
| 1. Jr Allison | 6. Linwood Waller |
| 2. Maxie Cameron | 7. Bobby Rodden |
| 3. Stewart Burke | 8. Tom Schneiger |
| 4. Kevin Conway | 9. Ginny Fristoe |
| 5. Art Cooper | 10. Larry Collins |

YOUR LEADER HAS A RADIO
TO CALL AN AMBULANCE IF
NEEDED.

#700,000

TRONT 7 Regal

57' 6"

to reduce impact on
outcrop

— = 8' fence
 = 6' fence

Senator HARTKE. Now, I would like for Ms. Free—let me say something about Ms. Free. I cannot say enough about her.

Mr. YATES. You have to, because we have a time limitation.

Senator HARTKE. All right. She is great.

Mr. YATES. Fine.

Ms. FREE. Thank you, Mr. Yates, for calling this hearing. I will try to abbreviate my statement. I am a writer of long tenure in Washington, and also a native Virginian. Animal welfare and the environment is my specialty.

First, let me point out, Mr. Chairman, as a founding member and a life member of the Friends of the National Zoo, my testimony is given both in sorrow and puzzlement. Perplexity as to how the Smithsonian ever got itself into this hideous mess.

Before analyzing the Smithsonian's arguments point by point, let me present the alternative, to my mind, to the hunt. Very simple. Drive or lure out the deer over a period of about 1 year into adjacent territory. I would say that territory there—especially into the Shenandoah National Park, from whence many of them came. They are going back and forth all the time, sir.

I have photographs taken back in the woods the other day. I will hand them to you.

Mr. YATES. What are you going to do with Congressman Robinson's statement, saying they have enough deer out in that area now, the farmers, the applegrowers?

Ms. FREE. I am not saying that a bit. I think the farmers and the local people will be tickled pink to have the animals out there. Right next door, on the far side, on the 8-foot side, the people would be absolutely thrilled to have these deer, because they have an archery club. Here is a picture of a deer right there where they have all the little wounds where they would shoot it. They come back and forth. That is the 8-foot part. They would be tickled pink to get them on the outside.

Mr. Wemmer himself says in a letter written to Mr. Yates, January 8, "We intentionally use the 6-foot fence in areas where there were signs of large amounts of white-tailed deer traffic between the zoo's land and the adjacent property. The reason we did this, we did not want to impede habitual movements of the white-tailed deer to and from the property."

My typist left off accents here, so I had to put the dots.

"The reason for this . . . and thereby jeopardize the hunting of the deer off the property." These deer go back and forth all the time. This is the name of the game. And don't you let anyone tell you differently.

I discovered about this thing, going out there as an endangered species writer—I stepped out of the van to take a picture of a white-tailed deer. I walked closer and closer. Almost like near to you. I have the pictures here. Then someone let the cat out of the bag. They are going to have the forthcoming hunt. I protested then. I protested well into the next day, with all the Zoo authorities in Washington I could find. And I said you have a couple of days before you send these notices out. For heaven's sake avoid this thing. It is out of keeping for the wonderful Smithsonian Institution. They said, "If you don't tell, nobody will know." I said, "I'm

sorry." I opted for the deer and not the establishment's fun and games.

So further, I want to say this is not a hunting question, as the National Rifle Association would have a lot of people believe. It is strictly a question of the propriety of the Smithsonian.

Let me get briefly into the population problem. This is poppycock. I have numbers here, if you want to take time reading my arithmetical quantum jumps, that 70 percent increase each year, and you start at a base number, and you have to take that as sort of an arbitrary number. Okay. In a sense, if you work this formula out, you would have even after the hunt and the drives almost 2,000 deer. So that makes the 1,000 deer look silly. I am giving them more deer than they have. But they say they only have a thousand. I can show maybe they have 2,000, which is a bunch of stuff, too.

Could those missing deer have gone back over to the National Park, all that surrounding area—I have maps from the Appalachian Trail people. I have material coming out of my ears, all over my house, too. There is the whole thing. There is the name of the game.

Mr. YATES. What do you mean?

Ms. FREE. The name of the game is down here. See that green? I went down there. One of these pictures shows the end of the fencing. All of this, Appalachian Trail, Shenandoah Park, some private land, it is sort of wilderness, really, sir. And that is where they are coming from.

The pictures I am going to show you, and leave with the committee. You can show they open the gates and probably entice them in. At the other hand I have a report that oats were found, bags of oats where deer had been lured in on one side.

Mr. YATES. Lured into the Smithsonian property?

Ms. FREE. At one point lured out. God knows, this is the kind of thing—I'm not going on hearsay. That is very dangerous. I am a reporter. But what I am saying, there is enough hearsay, if I had had enough time and resources, like The Washington Post with Watergate, I would have tracked it down. I think that you can track it down, or GAO can track down these things.

The Smithsonian, as I understand it, has even had its own inspector general in there on some of this.

I said, "Where do some of those deer go?" They went back to the park. But I would not be a bit surprised if some of them didn't land unwillingly in the deep-freezes, out of season, you know—barbecues and ovens. That's the number's game.

Then the alfalfa. I think that has been covered very well by Senator Hartke. I will jump that and go on quickly to saying let us not weep for the alfalfa, but for the reindeer. And this might sound like I'm being cute, or looking for a laugh, but not really. Those reindeer, they mean a lot at the Christmas pageant. But they didn't want them down at the Zoo during the off-season. So they stored them up there. Dead, six of them, I understand. I don't know whether it is Donner, Blitzen, or who. They ingested the small snail you just heard about—it has a long name—the meningeal

worm, from the droppings of the Virginia white-tailed deer. It is very common to the range.

I will not repeat what Dr. Wemmer said. I think he is substantially correct on that point, that the worm goes behind the head and comes down to the lungs. But what bothers me, since it is so common, Mr. Yates, to the Virginia white-tailed deer, that studies have been made like crazy on this subject, "Diseases and Parasites of the White-Tailed Deer," by the Southeast Cooperative Wildlife Disease Study, Department of Parasitology, University of Georgia Medical School.

But more than that, in my Merck Manual for Veterinarians, it is on page 641, under a little different name. I had a young vet student call me the other day. He said he knew all about it, and he is not even a vet. What I want to tell you and emphasize, these books, every study from the most complicated and highbrow to the simplest say never, never put reindeer or moose near the Virginia white-tailed deer. And what I want to know is after these animals got sick, they were mystified. Dr. Wemmer told the Friends of the National Zoo the veterinarians—what could this be—including the director of our institution, who is a veterinarian, Dr. Reed. So all of this is right in here.

What I want to say is why didn't they know this elementary fact, that this parasite jumps to reindeer and moose and maybe it might go to some other ungulates. So I think you must determine the ultimate responsibility of the deaths of the reindeer, and the decision of sending them to Front Royal. Dr. Wemmer told me in my initial interview with him, when I was very much interested in just everyday endangered species, out of the blue he said he didn't want the reindeer, Dr. Reed had pushed them on him. So I hold Dr. Wemmer blameless on this.

Mr. YATES. What do you say about Dr. Reed?

Ms. FREE. About Dr. Reed? Other people in this room, there is a reporter right over there who was along. He brought it up on his own, that Dr. Reed in a sense, I have to paraphrase, pushed or foisted those—ask Dr. Reed about it, "he pushed those reindeer on me." He didn't talk about disease.

Mr. YATES. The point is the reindeer should not be at Front Royal.

Ms. FREE. Of course not, because the Virginia white-tailed deer harbors this parasite. It is so commonplace it is in textbooks. And any veterinarian anywhere should know this simple fact.

Mr. YATES. Okay.

Ms. FREE. That is all the point I am making. You don't put those two species together, ever.

Mr. YATES. And possibly the other hoofed animals?

Ms. FREE. No. I have talked to these educated people down here at the University of Georgia who are really working on this study. I asked them about pack camels, they said there were no recorded cases. There is always the chance it could go to some of the hoofed stock ungulates. But so far the big thing is caribou, and maybe some other forms of deer.

I am terrified to think it might go to the Cervidae deer. But we don't have time to go into that. So what is really left to discuss

other than the fact this was an absolute shocking thing to bring those reindeer out there.

Mr. YATES. Ms. Free, isn't the substance of your testimony, then, that Smithsonian should not be in Front Royal? Because if the white-tailed deer are there, and the white-tailed deer are going to be there——

Ms. FREE. Not if you put up higher fences. You can get these deer out from whence they came with drives, and put up—they have already priced it out.

Mr. YATES. \$350,000.

Ms. FREE. Something like that.

Mr. YATES. For the fence, itself.

Ms. FREE. Make it a bit higher. Maybe you can do it cheaper. Let me go. I will do a bit of bargaining for you.

Anyway, you can get those fences higher over a series of drives. You can disperse them. I don't say send that so-called thousand back in right away. You have to do it over a period of time.

The time may come you might have to do some selective culling. There is nothing against that. There is no law against it.

Mr. Cross, Executive Director of the Virginia Game Commission, sent me the Virginia code, saying—if the game warden says there is any damage, you can get rid of them, cull them.

So the deer drives have been successful, all except that one messy one, which was, I guess, to get them over there so the hunters can get another shot at them.

Mr. YATES. What do you mean by a deer drive? You mean picking them up and taking them another place?

Ms. FREE. No, sir. A deer drive is a group of people, people; a lot of them would be hunters.

Mr. YATES. You mean like the cattle drives up the Chisholm Trail?

Ms. FREE. You push behind them; you come behind them. Dr. Wemmer——

Mr. YATES. You push them where?

Ms. FREE. You take down the fence, down at the bottom.

Mr. YATES. You move them to another area.

Ms. FREE. Yes. They would disperse out. But you would only do it over a period of time, sir. And I have talked to the Shenandoah National Park.

Mr. YATES. What are you going to do with Congressman Robinson and his orchards?

Ms. FREE. You are not pushing them that way. You are pushing them back there where nobody lives. You are going back into the park.

Mr. YATES. You mean Shenandoah?

Ms. FREE. Yes. Listen, I am a reporter. All my life. It has been very interesting to find every door slammed in my face when I wanted information.

Sure, they let the cat out of the bag. They even have the Park Service set up to say they didn't want the deer. But I came in around the back door and find out they can take those deer. Don't tell me they cannot.

Mr. YATES. I won't tell you.

Ms. FREE. In other words, sir, there is the whole thing. I contend that skillfully handled drives on the south side of the property next to and close to the park, the deer can be driven out who mainly rather than forcing frightened deer to jump a 6-foot fence and perhaps injuring some of the younger ones, take down the fencing in that area for a short while, get them out, put them back up, and then schedule another one. You will get them out.

Back once again into the reindeer bit. You surely have got to get the deer out. Because you cannot have one Virginia white-tailed deer left in the property if you are going to have reindeer.

Mr. YATES. Thank you.

Ms. FREE. I think in general that is what I have to say.

Mr. YATES. Your prepared statement will be part of the record.
[The statement of Ms. Free follows:]

NOVEMBER 4, 1982

TESTIMONY BY ANN COTTRELL FREE

INTERIOR SUBCOMMITTEE OF THE HOUSE APPROPRIATIONS COMMITTEE

REP. SIDNEY R. YATES, CHAIRMAN

My name is Ann Cottrell Free. I am a writer on wildlife, animal welfare and the environment. Attached to my testimony, a page of credentials as to my qualifications to address the subject of the Smithsonian-National Zoological Park proposed November deer hunts at its Front Royal, Va. facility.

First, as a founding member of the Friends of the National Zoo, my testimony is given in both sorrow and puzzlement -- perplexity as to how the Smithsonian ever got itself into such a hideous mess.

Before analyzing and rebutting Smithsonian's arguments point-by-point, let me present the alternative to the hunt. As you will see the solution is simple: Drive -- or lure out -- the deer over a period of about a year into adjacent territory -- especially the Shenandoah National Park area from whence many of them came. Then, erect higher fences to keep them out permanently. The Park is not over-populated by deer. Within its 194,000 acres, (300 square miles) according to a Park spokesman, there are probably as few as 8,000 deer. The Park can absorb -- or reabsorb, the Zoo deer that go back and forth anyway.

Let me prove this point by the very words of the Zoo Center's Curator-in-Charge, Dr. Christen Wemmer. In a letter (attached) to Charles Yates on January 8, 1982, he discussed the six and eight foot perimeter fencing for which, I believe, this committee appropriated \$750,000.

We intentionally used 6 foot fence in areas where there was sign of large amounts of white-tailed deer traffic between the Zoo's land and adjacent property. The reason for this was we did not want to impede habitual movements of white-tailed deer to and from the property. . . .

I discovered the proposed bow and arrow and shotgun hunts by members of the public and Zoo employees on a visit on October 12, 1982 to the Zoo's Conservation and Research Center to view the rare and endangered animals. (I have written a great deal on endangered species -- even a book, with the locale in the National Zoo.) After I photographed some remarkably tame Virginia white-tailed deer, a Zoo official mentioned the forthcoming hunt.

I had two courses of action: Protest or keep quiet. My protests -- even pleadings -- to Washington authorities of the Zoo well into the next day brought an adamant refusal to postpone or cancel the hunt. I warned of a public relations disaster. But when asked not to "go public" I had to say "No." I opted for the deer, not the Establishment's fun and games.

Before further examining the Smithsonian's rationale for the hunt, please bear in mind that the issue today is not one of anti-hunting vs. hunting as the National Rifle Association contends. Rather, it is the issue of the propriety (or impropriety) of the Smithsonian sponsoring such a hunt on Federal property dedicated to the propagation and preservation of animals.

Now for the Smithsonian's chief argument, from which all of its alleged troubles supposedly stem. It is called "overpopulation." (The only "pop" there is in "poppycock!") The population count is a numbers game -- even a shell game. The Zoo people say that at the last sighting of December, 1981 there were 571 deer. Since then, birth increases have brought the population up to around 1,000 deer. In short, a 70 percent increase.

Let us look back to 1977 when fencing began and say there were 400 deer. With a 70 percent annual increase, there would be 680 in 1978; 1,156 in 1979; 1,965 in 1980; 3,340 by 1981. Due to the 1981 hunt, killing 124 deer, and several drives sending out 300 deer, this would leave 2,916 deer nearly three times the number claimed to be there presently.

Now where did those 1,916 deer go? Could those missing deer have jumped back into the Shenandoah National Park area (as we know the fence is low enough, and there are lots of gates), or did they, unwillingly -- dead from out-of-season killing -- land in deep freezes, barbeques and ovens?

The numbers game, Mr. Chairman, is a subject of a legitimate investigation, as may be other reports of questionable goings-on at the Front Royal Center.

Next, the Zoo's contention that the alfalfa is being consumed in vast quantities by the deer. What are the facts? In the central 700-acre area, where there is a small acreage of alfalfa, there are by Zoo admission only 40 deer. There is sufficient browse and other vegetation, much preferred by deer. The alfalfa has been cut several times this summer. Currently, after the September 1 mowing, it is growing quite evenly to about eight or 10 inches. No signs of grazing by deer, for this would mean uneven growth as the deer moved about. Also, no signs of deer droppings in these long narrow, lush fields. The taller alfalfa within wire enclosures, you may have seen on T.V., show no signs of being mowed. It grows like a bush. A photograph is attached. Were these enclosures a set-up should anyone question alfalfa depredation? Or were they placed there to show maximum growth if the fields were not harvested? Only in one poorly established field did Senator Hartke and others with us on October 27 see any signs of deer tracks. To back up our observations and somewhat surprised conclusions that deer damage amounts to almost nothing, I contacted the U.S. Department of Agriculture agronomist specializing on alfalfa production, Dr. James Elgin. He said, "deer are not a great threat to alfalfa." When they do eat it, they usually graze around the edges -- scarcely more than one inch off the top, he told me.

There is plenty of alfalfa there, Mr. Chairman. If deer were a real threat, the funds could probably be obtained from this committee to fence that acreage in. In fact, one Smithsonian official wrote Virginia Senator John W. Warner that this had been done. On May 4, 1982 Mrs. Margaret Hird, special assistant to the Secretary of the Smithsonian wrote:

We have suffered alfalfa crop losses because of deer depredation resulting from over-crowded and restricted population, even though the crop is surrounded by an eight foot fence.

What she meant to say, no doubt, was that the 700-acre section of which the crop takes up only a small part was protected by eight foot fencing. But it is only in part,

because the diagramic map will show that the deer can enter straight up from the Park and Appalachian Trail of privately held areas, crossing Route 522, to reach the alfalfa. Eight-foot fences might restrain them, but instead the barrier is only six-foot high. But as said before, alfalfa is not really their favorite dish.

So let us not weep for the alfalfa, but instead for the reindeer. Six of the thirteen stored at Front Royal between Christmas White House-Ellipse pageants are dead. Gone, two breeding males. Donder and Blixen? And four females. Dancer? Prancer? Vixen? Cupid?

They ingested a tiny snail that picks up a parasite known as *Parelaphostrongylus tenuis*, or the meningeal worm, from the droppings of the Virginia white-tailed deer that could have jumped into their pasture-paddocks. This worm travels up the spinal cord and lives behind the brain. Its larvae, now called the lung worm, migrates down into the lung, making the animals quite dizzy and ill, finally killing them.

Now here is the important point. This parasite is fairly common to the Virginia white-tailed deer throughout its range, but with no harm to itself. It is known only to be especially harmful to two species: the reindeer and the moose. This is common veterinary knowledge. Page 641 of my Merck Veterinary Manual told me about it. A veterinary student assistant told me that his basic manual said that these species being close to one another is a "no, no." But to be absolutely sure of my facts I checked it out thoroughly with some of the world's authorities on the subject: Dr. Annie Prestwood (DVM and Ph.D.) and Dr. Victor Nettles (DVM and Ph.D.). They are at the University of Georgia School of Veterinary Medicine and have been members of a special wildlife disease study team. (Material from them is available to the Committee.)

I ask you why were Zoo veterinarians, including its number one, the Zoo director, stumped by the strange behavior and deaths of the reindeer? Dr. Wemmer said they were mystified. Don't they read the textbooks?

I ask the committee to determine the ultimate responsibility for the death of the reindeer by the decision to store them at Front Royal. Dr. Wemmer was opposed, he told me, to Dr. Reed's insistence on sending the reindeer to Front Royal. (This is the same Dr. Reed who forbade me to make a return visit to the Center on October 27. Permission would have to come from Assistant Secretary Dr. David Challinor. I was never given a real okay. I just went.)

What to do about the reindeer and the deer? Certainly, the reindeer or any moose should never be sent there, because just a trimming of the so-called white-tailed herd -- as the Zoo hunts intend to do -- would not eradicate the deer and their meningeal worm.

So, what is left to discuss? The answer: "Public relations." That is the heart of the matter. Zoo employees wanted to hunt within their Center during the hunting season. They knew that from outside areas such as the Park -- where there is no hunting -- had come what one hunter described as "finest blood line trophy deer."

Staff employees and their friends belonging to the adjoining hunt clubs (one being the Twin River Archery Club), could see the deer in the Zoo Center over the eight-foot fences on that side and they wanted a shot at them.

Could not ^{the} scenario have gone like this: After building up a case for the hunting -- the alfalfa "problem," the probable enticement of deer into the park -- the staff employees went all out for a hunt hoping to cut in their pails in the community? Zoo officials -- who once reportedly resisted, gave in.

The Virginia Game Commission went along with them all the way. In fact, Richard Cross, executive director of the Virginia Game Commission, told me on October 13 that "we encouraged a public hunt -- good public relations in the community."

But Mr. Cross did tell me, under questioning, that under Virginia law -- 29-145.1 -- that the Zoo Center leaders could rid themselves of any deer by selective sharp-shooting culling after obtaining agreement from the game warden that the animals were damaging property. (Alfalfa, for example?) Did they ever ask the game warden for an okay?

The Zoo elected not to take that more humane and scientific route -- if there was ever need to trim the deer herd. So the hunt was held last year, and according to one local newspaper, it was "an unheard of success rate": 270 hunters killing 124 deer. Of course, the kill was high because the unsuspecting deer were given little chance to escape over those six-foot high -- or even eight-foot -- fences. The stands were placed in such a way that the deer-slayers waited for the trusting deer to come to them. For 124 deer, some surprise! (Some local hunters referred to this as "shooting fish in a barrel.")

A word about deer starvation -- that dread specter the valiant hunters conjure up. There have been no cases of starvation in that area. We all know that deer adjust most of the time within our National Parks. Just let their natural predators, the bobcat, handle this. Let the bobcat make a comeback. Animal populations adjust to food supply. There may be fewer twins, for example. So let us not get into this old wrangle. Keep our eye on the ball: the propriety of public and employee bow and arrow and shotgun hunts sponsored by the Smithsonian.

One more subject. Deer drives of which there have been four -- all admittedly successful, save one. The latter, using the public to make noises, waving, shouting -- only ended in driving deer into a chain link fence, bloodying their heads and injuring one so badly that its throat had to be cut to put it out of its misery.

But drives do not have to be that way. I contend that skillfully handled drives on the south side of the property, (next to and/or close to Park property) that deer can be driven out humanely rather than forcing frightened deer to jump the six-foot fence and perhaps injuring some of the younger ones. Take down the fencing in that area for a short while and then immediately put back a higher fence. This can be done at intervals until they are all out. I have walked in these woods and I would be glad to take the chairman and members of the committee to the very spots.

The cost for this solution would be relatively slight -- including perhaps 10 or 12 foot fencing around the entire perimeter, just extend higher what is already there.

The price, Mr. Chairman and members of the Committee, would be far less than the dreadful cost a strangely stubborn Smithsonian Institution has already incurred in loss of face and loss of faith among its many admirers and supporters.

Thank you for your kindness in hearing my testimony.

ANN COTTRELL FREE, BETHESDA, MD.

- PROFESSIONAL:** Washington editor, *EnviroSouth Quarterly* last five years; Contributor, *Washington Post*, *Washington Star*, *North American Newspaper Alliance*, *McClure and Bell syndicates*, *Defenders Magazine*, *Ethics and Animals*, etc.
- Journalist:** Former staff member: *New York Herald Tribune*, *Chicago Sun-Times*, *Newsweek Magazine*, the *Richmond Times-Dispatch*. Foreign correspondent for four years, *Asia* and *Europe*.
- Author:** *Forever the Wild Mare* (Dodd, Mead) the story of an endangered species, *Equus Przewalski* (Mongolian wild horse), scene laid in *National Zoological Park*. *Animals, Nature and Albert Schweitzer* (1982) published by consortium of national Schweitzer and animal welfare organizations. (Editorial services donated.)
- HONORS:** Recipient *Albert Schweitzer medal*, *Animal Welfare Institute*. Recognition by *Department of the Interior* for role in establishing the *Rachel Carson National Wildlife Refuge*, *Maine*. Writing awards: *Boy Scouts of America*, *Boys Clubs of America*, *Dog Writers' Association*, Awards, several *Washington metropolitan area humane groups*. Recipient, 1982, grant from the *National Press Foundation*.
- ORGANIZATIONAL:** Founding board member, *Friends of the National Zoo*; Director *Albert Schweitzer Fellowship*; Consulting expert, the *Rachel Carson Council*; member, *Society of Woman Geographers*, the *Washington Press Club*.
- EDUCATION:** B.A. degree, *Barnard College*, *Columbia University*.
- PERSONAL:** Born in *Richmond, Va.* Married, one daughter.





National Zoological Park Smithsonian Institution Washington, D C 20008

Conservation and Research Center
Front Royal, VA 22630

January 8, 1982

C.F. Yates
331 W. 10th St.
Front Royal, VA 22630

Dear Mr. Yates:

The following information is provided in response to the questions you asked about the recent controlled deer hunt at the Conservation and Research Center during your visit to my office on 6 January 1982. For the sake of the record I will repeat in writing what I communicated to you verbally and present a few other facts.

- 1) Perimeter Fencing. The purpose of the chain link perimeter fence is to contain exotic animals within the Center's property should they escape from their enclosures. The fence is 6 or 8 feet high. We intentionally used 6 foot fence in areas where there was sign of large amounts of white-tailed deer traffic between the Zoo's land and adjacent property. The reason for this was we did not want to impede habitual movements of white-tailed deer to and from the property and thereby jeopardize the hunting of deer off the property. By the way, it is known that white-tailed deer can jump over 8 foot fences; however, they are usually hesitant to do so unless pushed. Jumping a 6 foot fence requires less effort and is readily accomplished by adult deer. The enclosed map shows the location of six foot segments of fence.
- 2) Deer Drive. A deer drive was carried out on 28 August using about 70 people. A total of 99 deer were excluded from the central post and alfalfa field areas. A breakdown of 40 bucks, 38 does, and 21 fawns was recorded by two hidden observers. The deer were driven into the Slate Hill (north-west sector) of the property and a fence was completed that afternoon to prevent their re-entry. The map shows the drive strategy. We considered the reduction of the central area population by 99 deer to be a significant achievement.
- 3) Deer Hunt. The purpose of the controlled hunt was to reduce the number of deer on the property to minimize their impact on alfalfa production, to reduce automobile and deer collisions on Route 522 S, and to maintain herd size within limits compatible with its good health. The details were worked out through a series of meetings with employees of the Virginia Game Commission. A xerox of the newspaper advertisement is included for your information as well as a list of our hunting rules and regulations, and the Northern Virginia Daily clipping of 3 December 1981 on the results of the hunt. Major points concerning the hunt are summarized below:

- a. Controlled hunting of white-tailed deer was permitted during the regular deer season in the central, NW, and S sections of the property. Public hunting was permitted on the NW and S sections. Center employee hunting was permitted in the central area.
 - b. One deer (buck or doe) will be allowed per hunter.
 - c. A call for hunter applications was advertised in the Winchester Evening Star, Warren County Sentinel, and Northern Virginia Daily (see attached). Over 500 applications were received. Two hundred sixty nine hunters were selected by lottery and paid to hunt.
 - d. Thirty stands were designated for public hunters and 30 for employees. Public hunters were permitted 2 days to hunt. Staff hunters were allowed to hunt until they killed one deer.
 - e. All hunters were required to pay a \$10.00 processing fee.
 - f. Application to USFWS was made to deputize Linwood Williamson and Chris Wemmer as game wardens.
 - g. Dr. Pat Scanlon (VPI) agreed to review reproductive tract anatomy with us on several kills in early fall. This served as a dry run before the season.
 - h. Dr. Dick Montali (the Zoo pathologist) agreed to sample tissues for parasites, particularly lungworms.
 - i. Of 120 deer killed by hunters 61 were taken from the south area, 30 were taken from the northwest area and 29 were taken from the central area. Four deer are unaccounted for because the hunter stand was not recorded on the data sheet.
- 4) Deer Population Censuses. The following figures summarize deer counts made on a routine basis the first 10 days of the month.

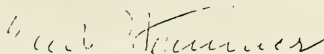
	Total	Females	Males	Juveniles	Unknown/yg of year	
May	152	85	21	29	17	---
June	76	48	14	2	12	---
Aug	156	87	31	31	7	---
Sept	374	180	69	88	37	---
Oct	332	155	33	126	18	---
Nov	468	235	72	152	9	---
Dec	382	172	36	---	18	156.

You will notice that the total number differs each month. I have included this to point out to you the difficulty in accurately estimating deer populations. Visibility due to season, weather, and seasonal changes in deer

behavior all affect the number of deer seen. This explains why more deer are seen in November and December.

You may also be interested to know that a hunter orientation and safety meetings were held for all hunters. The purpose of using specific stands (i.e. restricted hunting areas) and requiring shotguns rather than rifles was to maintain a high standard of safety. Given the location of stands, and the density of vegetation in many areas we felt it was in the best interest of safety not to drive deer. Furthermore this would require further time and effort to organize. As I pointed out the other day there is more than one way to hunt deer; which way is best depends on the circumstances. Incidentally the majority of hunters told us in our questionnaire that the hunt was well organized; most ranked their experience as excellent or good whether or not they killed a deer. However, we still feel there are improvements to be made and will carefully consider any suggestions you wish to offer.

Sincerely,



Christen Wenauer, Ph.D.
Curator-in-Charge

CW/ch
Enclosures
cc: Congressman Robinson

The following deer hunt announcement will appear in the Tiger Talk sometime next week and applies to all Zoo employees:

The Conservation and Research Center in Front Royal, Virginia is planning a controlled deer hunt for the 1982 Virginia season. CRC employees and NZP Rock Creek employees may apply to hunt with the public as public individuals or they may apply to hunt as employees restricted to 700 acres surrounding the alfalfa production area and Eld's deer compound. Selected applicants will be required to attend a hunter orientation program, pay a \$10 fee, and have a current Virginia hunting license. Archery season will be November 1-6 and Shotgun season will be November 15-27. Mail your letters with name, address and telephone number to either "Public Hunting" or "Employee Hunting", Conservation and Research Center, Front Royal, Virginia 22630. Hunters will be selected by a random drawing and if drawn, notified by October 15, 1982. DO NOT send any fees with your letter. You may apply for either area, but will only be drawn for one. Deadline for receipt of applications is 5 PM Thursday, September 30, 1982.

section, it shall be unlawful and constitute a Class 2 misdemeanor for any person to hunt game in the counties of Goochland, Louisa, Prince William and Richmond with a rifle of a caliber larger than twenty-two one hundredths or with a shotgun loaded with slugs.

F. Notwithstanding the provisions of subsections A, B, C and D of this section, it shall be unlawful and constitute a Class 2 misdemeanor for any person to hunt in the county of Lancaster with a rifle of a caliber larger than twenty-two one hundredths. Provided, however, that this subsection shall not be construed to prohibit any person from shooting groundhogs with a larger rifle, except during the general open season for hunting game animals with firearms. (1976, c. 443; 1977, cc. 20, 377; 1978, c. 303.)

Cross reference. — As to punishment for Class 2 misdemeanors, see § 18.2-11.

§ 29-145: Repealed by Acts 1962, c. 520.

§ 29-145.1. Killing of deer or bear damaging fruit trees, crops, livestock or personal property or creating a hazard to aircraft. — Whenever it is found that deer or bear are damaging fruit trees, crops, livestock or personal property in the State, the owner or lessee of the lands on which such damage is done shall immediately report such fact to the local game warden for investigation. If after investigation the game warden finds that deer or bear have so injured the fruit trees, crops, livestock or personal property of such owner or lessee as to cause damage, he shall authorize in writing, the owner, lessee or any other person designated by the game warden to kill such deer or bear when they are found upon the land upon which the damages occurred.

Whenever it is found that deer are creating a hazard to the operation of any aircraft or to the facilities connected with the operation of aircraft, the person or persons responsible for the safe operation of such aircraft or facilities shall report such fact to the local game warden for investigation. If after investigation the game warden finds that deer have so created such hazard, he shall authorize such person or persons, or their representatives, to kill such deer when they are found to be creating such a hazard.

The carcass of every deer or bear so killed may be awarded to the owner or lessee by the game warden, who shall give such person a certificate to that effect on forms furnished by the Commission of Game and Inland Fisheries. Any person awarded a deer or bear under this section may make use thereof as if the same had been killed by him during the season therefor. (1948, p. 326; Michie Suppl. 1948, § 3305(36c); 1954, c. 686; 1956, c. 684; 1958, cc. 315, 609; 1960, c. 129; 1962, c. 229; 1970, c. 79; 1980, c. 271.)

Code Commission note. — This section was amended by Acts 1973, c. 471. The 1973 act, which was made effective July 1, 1974, and provided that it should expire at midnight on that date unless earlier reenacted, was repealed by Acts 1974, c. 96, effective March 22, 1974, and therefore never went into effect.

The 1980 amendment inserted "or bear" in three places in the first paragraph and in two places in the third paragraph, substituted "fruit trees, crops, livestock or personal property" for "fruit trees or crops" in the first and second

sentences of the first paragraph and, in the third paragraph, substituted "may be awarded to the owner or lessee by the game warden" for "shall be delivered by the owner or lessee to the local game warden, who shall deliver it to such charitable institution or hospital as designated by the Commission of Game and Inland Fisheries; provided, however, that any deer so killed in any year shall, upon request, be awarded by the game warden to the owner or lessee."

Miscellaneous Publications

TALL TIMBERS RESEARCH STATION

*Miscellaneous Publication No. 7
of Tall Timbers Research Station
Tallahassee, Florida
1981*

Diseases and Parasites of
WHITE-TAILED DEER

Edited by

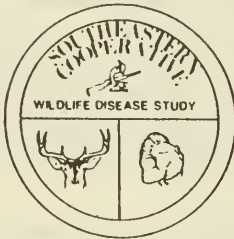
WILLIAM R. DAVIDSON

with

FRANK A. HAYES

VICTOR F. NETTLES

FOREST E. KELLOGG



Southeastern Cooperative Wildlife Disease Study
Department of Parasitology
College of Veterinary Medicine
University of Georgia
Athens, Georgia 30602

21 Lungworms

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White-tailed deer of North America harbor two major groups of lungworms which are often considered primary pathogens or substantial debilitating agents. In the first group are *Dictyocaulus* spp. (Nematoda: Trichostrongyloidea). These helminths have direct life cycles and are found in the larger air passages of a variety of wild and domestic ruminants and horses. The Metastrongyloidea is represented in deer by members of *Parelaphostrongylus*, *Protostrongylus*, and *Varestrongylus*. These helminths utilize gastropods as obligate intermediate hosts. The first-stage larva of most Metastrongyloidea generally has a short undulating tail often with a dorsal cuticular spine near its tip, whereas the larva of *Dictyocaulus* has a conical tail ending in a simple point. Members of *Protostrongylus* and *Varestrongylus* are located within small bronchioles. In contrast, adult *Parelaphostrongylus* spp. dwell in extrapulmonary sites but larvae pass to the outside by means of the respiratory system and the alimentary tract. This genus contains helminths of major significance to game management.

DICTYOCAULOSIS

INTRODUCTION

This disease is associated with two species of *Dictyocaulus* (Trichostrongyloidea: Dictyocaulidae), viz., *D. viviparus* and *D. filaria*. Both species are worldwide in distribution and occur in a variety of domestic and wild ruminants. In North America, hosts of *D. viviparus* include white-tailed (*Odocoileus virginianus*), black-tailed and mule deer (*O. hemionus*), moose (*Alces alces*), wapiti (*Cervus canadensis*), American bison (*Bison*

bison), reindeer and caribou (*Rangifer tarandus*), and cattle (*Bos taurus*). The sheep lungworm, *D. filaria*, is known from white-tailed and black-tailed deer and sheep (*Ovis aries*) in North America.⁵ Adult and immature *Dictyocaulus* are found in the trachea, bronchi and bronchioles, and pathologic manifestations are associated primarily with the respiratory system. The disease in livestock is sometimes known as "husk" or parasitic bronchitis.

ETIOLOGIC AGENTS

Dictyocaulus viviparus is the most commonly encountered species of the genus found in white-tailed deer (Figure 21.1). There are a few observations of *D. filaria* in this host but they are rare and probably represent accidental infections.^{53,113,142,162}

At one time the species of *Dictyocaulus* found in wild ruminants was considered distinct (*D. hadweni*), but study of specimens from wild and

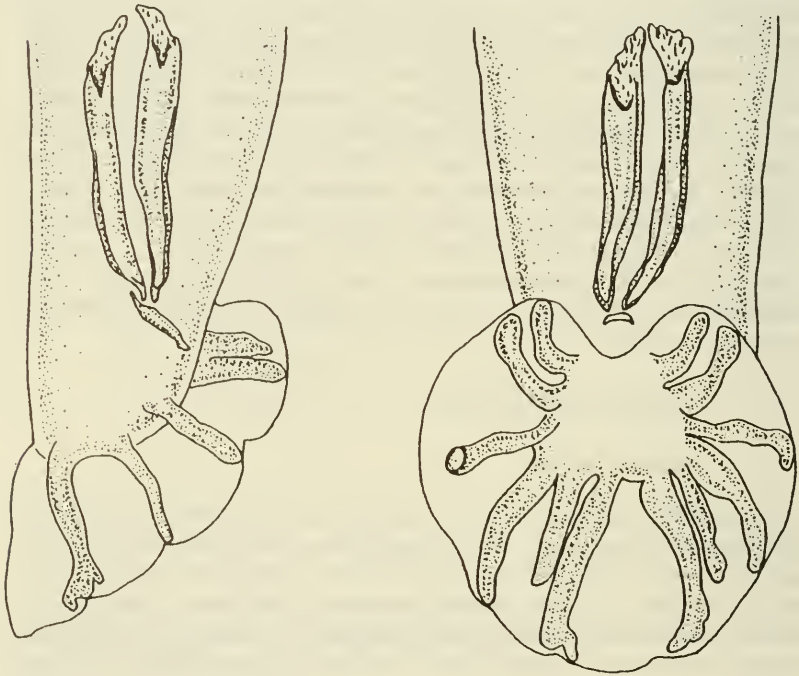


Figure 21.1 *Dictyocaulus viviparus*, caudal end of male, lateral and ventral views (Original).



Figure 21.21 Third stage larva of *Parelaphostrongylus tenuis* (After Anderson⁷).

logic disturbances caused by *P. tenuis* have been reported in goats (*Capra hircus*) in New York,¹⁰⁴ Angora goats in Texas,⁸¹ and the disease has been produced experimentally in kids.^{23,24} Kids given large numbers of infective larvae frequently developed a fatal necrotizing colitis and peritonitis apparently associated with migration of larvae through the gut.²³ There are no reports of parelaphostrongylosis in bovines although worms may reach the central nervous system and die there in an early stage of development (R.C. Anderson, unpublished data).

Wild Ungulates

Cervids such as moose, caribou and reindeer, wapiti, red deer, mule and black-tailed deer, mule deer-white-tailed deer hybrids, and fallow deer (*Dama dama*) are highly susceptible to infection by *P. tenuis* and readily develop neurologic signs which may culminate in paralysis and death.

The severity of the neurologic signs in unusual hosts seems to be related to several factors, namely: (1) worms tend to be unusually active in the neural tissue and coil upon themselves, inflicting considerable damage to surrounding tissue; (2) some worms fail to leave the neural

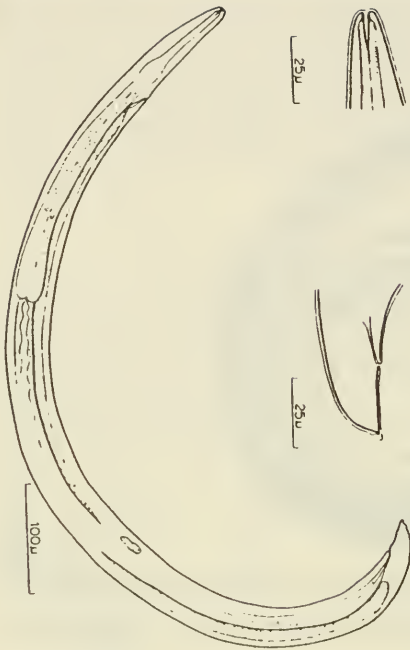


Figure 21.22 Third Stage larva of *Parelaphostrongylus andersoni* (After Prestwood¹²³).

parenchyma before 40 days and, as growth continues normally, considerable tissue damage is caused by the large worms which persist in the neural parenchyma; (3) worms tend to invade and damage the ependymal canal; (4) many ungulates (e.g., moose, caribou) seem unusually susceptible to neural invasion and ingestion of even small numbers of infective larvae can bring about a fatal neurologic condition; and (5) worms which have left the spinal neural parenchyma and matured in the subdural space may invade the brain or spinal cord and deposit eggs.

In the past century the parasite has spread extensively as white-tailed deer have expanded their range in response to man-induced environmental changes such as deforestation, agriculture, and burning.^{14,15,29} Thus, the disease has spread with its host into the ranges of such animals as moose and caribou in fairly recent times and has had serious local impact on these animal populations. Moreover, the disease can negate or minimize the success of introductions of susceptible cervids such as wapiti, reindeer, or black-tailed deer into enzootic areas.

Moose

Neurologic disease was observed in moose many years before its etiology was elucidated.^{8,10,11,38} The disease in moose occurs only in areas

where the range of this cervid overlaps that of white-tailed deer in eastern North America, i.e., Maine,^{74,97} Nova Scotia and New Brunswick,^{28,29,39,58,92,144,146} southern Ontario and Quebec,^{11,117,140,151} Minnesota,^{56,67-71,86,87,96,103,111,151,157-159} and southern Manitoba.^{98,99} Infected moose display a variety of neurologic signs including lumbar weakness, ataxia, torticollis, circling, blindness, fearlessness, depression, paresis, paraplegia, and death. Careful necropsy of such animals will generally reveal small numbers of fifth-stage worms in the brain, spinal cord or subdural space accompanied by traumatic lesions, eggs, and larvae on the meninges or in the neuropil.

Moose apparently acquire infection by ingesting infected gastropods while grazing or feeding on forbs and low shrubs.¹⁷ There is evidence that moose sometimes survive the initial phase of the infection involving growth and development in the neural parenchyma.¹¹ Adult worms in the subdural space may subsequently invade the neuropil and cause death of the host; this phenomenon explains the appearance of clinical cases in the winter months when transmission is impossible.¹¹ Infected moose may, if they survive, shed small numbers of first-stage larvae in their feces. There is, however, no evidence the parasite can establish itself in populations of moose, in part because the parasite frequently causes death of the host.

Localized moose populations may persist in enzootic areas provided they are ecologically isolated from infected deer during the transmission period (spring, summer and fall). In some localities ecologic isolation is related to snow depth and crust conditions which excludes deer populations from elevated moose habitat as in parts of Nova Scotia,^{29,149-151} New Brunswick,⁹² and Maine.⁷⁴ In other regions deer and moose select separate habitats during the transmission periods, and small moose populations may persist because of spatial and temporal isolation.^{88,90} Younger animals leaving the maternal refuge generally succumb to cerebrospinal parelaphostrongylosis. The spatial or temporal separation of deer and moose is, however, dependent upon considerable habitat diversity and where such diversity is absent the moose is liable to local extinction. This apparently has occurred over substantial areas of eastern North America in the past half century.

A number of authors have noted that parelaphostrongylosis in moose is related to deer density and that deer population declines may be followed by increases in the range and size of moose populations.^{74,86,87} Declines in deer populations are often associated with repeated severe winters but they also may be the result of natural maturing of the forests which creates a less suitable environment for deer. Moose may respond

by increasing since the pressure of parelaphostrongylosis has been removed with the demise of the reservoir host.

Moose population densities in northwestern Ontario have been related to prevalence of *P. tenuis* larvae in the feces of deer, and in places where prevalence was high, moose populations densities were low and visa versa.¹⁴⁰ Parelaphostrongylosis may have, therefore, a more serious impact on populations of moose than would be indicated by the finding of a few clinically sick animals in the field.

Managers of moose on the southern range of its distribution in eastern North America must consider the problem of parelaphostrongylosis. Refugia moose populations could be nuclei from which to build larger populations of moose if adjacent deer populations decline. Programs to restock areas with moose should consider the current status of deer and parelaphostrongylosis in the area and the long range plans for the region.¹⁴⁴ Attempts to increase both moose and deer populations in an area are probably contradictory.

Caribou and Reindeer

Experimentally, *P. tenuis* is highly pathogenic to woodland caribou,²² and a caribou placed on an island in Maine acquired the disease from deer.²⁸ Reindeer from Norway placed on Great Cloche Island, Georgian Bay, Ontario were killed or permanently disabled by the disease.¹³ Cerebrospinal parelaphostrongylosis was reported in woodland caribou placed on range inhabited by white-tailed deer on a commercial game reserve in Wisconsin.¹⁵⁴ Failure of an attempted major introduction of caribou into Cape Breton Highlands National Park, Canada during 1968–1969 has been attributed to parelaphostrongylosis.⁵⁰

Parelaphostrongylosis has been a major factor in the failure of several other attempted introductions of caribou and reindeer into enzootic areas over the past 70–80 years. The disease may have had a significant role in the decline of caribou in areas where there are deer although this point has generally been overlooked by wildlife specialists interested in caribou ecology. Caribou may be particularly susceptible to infection because they feed close to the ground and are liable to acquire infected gastropods.

Wapiti and Red Deer

Neurologic disturbances have been noted in wapiti of Michigan and Virginia for many years¹⁸ and were recently related to *P. tenuis* in Michigan.⁶⁶ Larvae indistinguishable from those of *P. tenuis* were found in feces of wapiti in Minnesota.⁸⁵ Neurologic disease was produced experi-

mentally in young wapiti; one animal died of paralysis 54 days postinfection and another developed only slight signs and larvae appeared in its feces 92 days postinfection.⁷⁸ Wapiti transferred from the Wichita mountains to parts of Oklahoma where the parasite occurs in white-tailed deer developed the disease.⁴¹

Parelaphostrongylosis was reported in wapiti, red deer and their hybrids on a game preserve in Pennsylvania, which also harbored large numbers of white-tailed deer.^{110,163,164} The disease was diagnosed in 12 of 15 animals found dead on the preserve, and it was suggested the mortality associated with the disease could limit the growth of wapiti herds living near infected white-tailed deer.¹⁶⁴ Parelaphostrongylosis has probably been a significant factor in limiting the success of introductions of wapiti into eastern North America since the extinction of the eastern race over a century ago.

Mule, Black-tailed and Fallow Deer

Fatal neurologic disease occurred in a mule deer infected experimentally with *P. tenuis*;¹⁸ these preliminary findings have been confirmed by additional experimental infections.¹⁵⁵ Naturally occurring neurologic disease was reported in black-tailed deer introduced into Hambleton County, Tennessee¹⁰⁷ where the disease was a major factor in failure of the attempted introduction. The disease was produced experimentally in a hybrid deer.¹⁰⁷ These observations give grounds for concern because of the possibility that *P. tenuis* might spread westward with white-tailed deer into traditional mule deer range. There is no evidence that the disease is a factor in the decline of mule deer in such areas as southern Manitoba but such a possibility cannot be discounted.

Neurologic disease associated with *P. tenuis* has been reported in free-living and captive fallow deer in contact with infected white-tailed deer.^{94,108,164} The implications for zoological gardens are obvious.

Miscellaneous Animals

Guinea pigs exhibit considerable resistance to infection with *P. tenuis* but third-stage larvae migrate to the central nervous system and develop to the subadult stage.^{19,148} Similarly cottontail rabbits (*Sylvilagus floridanus*) and laboratory rabbits (*Oryctolagus cuniculi*) are relatively resistant to infection.¹⁰⁶

A single female *P. tenuis* was recovered from the neuropil of an eland (*Taurotragus oryx*) which drowned in an enclosure at a zoological garden near Atlanta, Georgia. This animal previously had exhibited incoordination and locomotor disorder.¹²⁴ Neurologic disease due to *P. tenuis* has also been reported in a herd of captive llamas in Texas.³⁵

Severe neurologic signs were produced experimentally in a pronghorn antelope (*Antilocapra americana*) (G.V. Tyler and C.P. Hibler, personal communication.)

Parelaphostrongylus andersoni Prestwood 1972
(Muscleworm)

Adult *P. andersoni* are located adjacent to or partially within blood vessels in musculature of the hindbody of white-tailed deer.^{105,123} The life cycle is similar to *P. tenuis* in that females deposit eggs into the venous circulation which are carried to the lungs as emboli. Developing eggs lodge within alveolar capillaries of the lungs where they hatch. First-stage larvae traverse the bronchial tree and pass to the outside in the mucous coating of the feces. They penetrate the foot of various terrestrial snails and slugs in which development to the third or infective stage takes place. Deer acquire the parasite when they ingest infected gastropods on vegetation. Infections become patent within 56 to 67 days (\bar{x} = 60) after deer ingest infected gastropods.^{105,123}

EPIZOOTIOLOGY

Intermediate Hosts

The following species of gastropods have been experimentally infected with *P. andersoni*: *D. laeve*, *M. infectus*, *M. thyroidus*, *M. perigraptus*, *T. albolabris*, and *T. vannostrandii*.^{105,123,124} Natural infections have been found in a *Mesodon* sp.¹²⁴ The infective stage is reached in approximately 3 weeks depending on ambient temperatures. Once infected, snails apparently remain infected for life since third-stage larvae have been digested from snails exposed 1 year previously. Intensity of infection in gastropods apparently decreases with time.¹²⁴

Distribution

P. andersoni is widely distributed in white-tailed deer of the eastern United States including parts of the southern pine, the deciduous and deciduous-coniferous biomes and ecotones. It has been found in such widely divergent vegetative types as Appalachian oak, oak-hickory-pine, pocosin, southern mixed, and southern floodplain. State locality records include Alabama,¹²⁷ Arkansas,¹²⁷ Florida,¹²⁷ Georgia,¹²⁷ Louisiana,¹²⁷ Mississippi,¹²⁴ New Jersey,¹³³ North Carolina,¹²⁷ South Carolina,¹²⁷ and Tennessee.¹²⁴ The range of *P. andersoni* is incompletely known since the discovery of this helminth is relatively recent and its presence outside the Southeast has not yet been sought. It may be widely distributed,

Ms. FREE. I would like to say a consortium called Monitor, they have sent a letter to you signed by the Society for Animal Protective Legislation, headed by Ms. Stevens, the ASPCA, the Washington Humane Society, the American Humane Association, the International Fund for Animal Welfare, and the organization called Let Live, and People for the Ethical Treatment of Animals, saying what I have said to you today.

THURSDAY, NOVEMBER 4, 1982.

DEER, THE HUMANE SOCIETY OF THE U.S.

WITNESS

JOHN GRANDY

Mr. GRANDY. I just want to follow up on a couple of questions you have asked and present fairly briefly, I hope, what we believe to be an alternative.

I am the Vice President of the Humane Society. I am also the President of the Monitor Consortium. We appreciate the opportunity to testify here and appreciate what you have done.

First, to address Mr. Robinson's concern, Mr. Wemmer said earlier that the deer inside the impoundment are at or slightly above carrying capacity, though we would not know that.

The next thing he said was that the density of deer outside of the impoundment is substantially below the density of the deer inside the impoundment, meaning they are not at carrying capacity, and meaning in fact that the habitat of the National Park and other areas can support the deer.

The other point that has been made here today that I want to address, and was made I think, inadvertently in effect by yourself and others, is the idea that this area is controlled and governed by the laws of the State of Virginia. Federal laws, as the courts have long found, are pre-eminent on federal land. No one in wildlife law seriously contends to the contrary. The courts have consistently found that to be the case.

Mr. YATES. I think as a matter of comity the Federal Government defers to the Game Commission.

Mr. GRANDY. As a matter occasionally of tradition. But certainly not as a matter of law. And certainly not with respect to an area owned by the National Zoo.

Mr. YATES. Yes. That is clarified.

Mr. GRANDY. As the foregoing analysis has made clear, not only has the Zoo failed for many years to adopt a plan which is compatible with the mandate of the zoo, compatible with the animals that they have there, and for the endangered and other species, but even in the current instance they have failed to enunciate a rational goal for the management of the area. The only goal, it seems to us, that makes any sense whatever in terms of their overall responsibility is the one which you yourself mentioned, that is to get the deer out of there, eliminate the deer once and for all. This current idea of kind of having a hunt this year, reducing the population a little bit, having the problem, parasites and disease transmission

again next year, only prolongs the problem ad infinitum. And, in fact, my guess is it violates their own responsibilities—certainly in the reindeer which they claim are dying. All due to the presence of the white-tailed deer. There is not going to be any other way to take care of the problem except to get the deer out of there.

Clearly they ought to be in the business of dealing with endangered species. You yourself suggested rather implicitly the \$350,000 for increased fencing is not the world's largest number. There are other sources.

Mr. YATES. The Smithsonian has spent more.

Mr. GRANDY. From time to time, every year, according to my reading of their budget.

There is the need for a carefully articulated plan to do this, and carefully implemented. No one here, as I understand it, is suggesting that we turn out 1,000 deer, if that is indeed the number, out on the surrounding territory willy-nilly. It ought to be done, my guess is, over a period longer than a year, in small groups, providing adequate notice on the highway, closing parts of the highway if that becomes necessary, providing adequate notice in the surrounding community of what is going on. Do this in a carefully implemented way with a straight-forward goal which will get the Zoo out of the business once and for all. And this is all that we are doing.

Thank you.

[The statement of John W. Grandy follows:]

TESTIMONY OF

Dr. John W. Grandy
Vice President
for
Wildlife and Environment
Humane Society of the United States

My name is John W. Grandy. I am Vice President for Wildlife and Environment for the Humane Society of the United States (HSUS), President for the Monitor Consortium of Animal Welfare and Environmental Groups, and Treasurer for the American Committee for International Conservation. I appreciate the opportunity to testify before you at this hearing on behalf of the HSUS and its 200,000 members and constituents.

The HSUS has been deeply distressed by the proposal of the National Zoological Park (National Zoo or Zoo) to allow public hunting of semi-tame deer which reside at its endangered species breeding facility in Front Royal, Virginia. This 3,000 acre facility, which by its very nature is dedicated to the conservation and wise stewardship of animals, is a completely fenced area located nearly adjacent to the Shenandoah National Park. For the reasons detailed below, we believe that a public hunt, utilizing bows and arrows and shotguns, is grossly inhumane to the deer, and inappropriate both for the facility itself and the integrity of the National Zoo. We are also opposed because we believe that the hunt is unnecessary to insure the welfare of the deer themselves or to protect the facility itself. Finally, we believe that a realistic alternative exists which is compatible with the legitimate responsibilities of the National Zoo for its endangered species facility.

I. A Hunt Is Contrary to the Purpose of the Zoo

The National Zoological Park is a facility dedicated--by its very nature--to the preservation and wise stewardship of animals. In everything that zoos do--from education and outreach programs, to exhibit design, to the disposition of nuisance animals that find their way into the facility--zoos should be instilling in the public the respect that wild animals deserve and an appreciation for the essential contributions that those animals make to the planet's ecosystems. For these reasons, the National Zoo has, for the most part, been supported by the Humane Society of the United States.

However, in advocating a public hunt as the only solution to its alleged white-tailed deer problem, the Smithsonian Institution and the National Zoo pervert their primary functions and demonstrate instead an insensitivity toward wild animals. Indeed, the Zoo's wildlife conservation and research facility has selected the most primitive and ecologically unsound method of animal control available.

We would have expected a more enlightened and progressive approach from a major zoological institution, especially one with a directive to promote wildlife conservation, and most particularly, this nation's only National Zoological Park.

Instead, the National Zoo chose to address its purported problem in a manner which condones cruel and inhumane treatment of wild

animals. This is hardly the type of behavior that the public expects from its zoos--institutions entrusted with the perpetuation of species and the welfare of wildlife.

II. The Hunt Would Be Inhumane

One of the most distressing aspects of this hunt is the fact that the National Zoo is allowing this kill to be accomplished in the most inhumane manner possible. If the only solution were to kill deer, an assertion which we vigorously deny, the National Zoo has a responsibility to see that it is done in the most humane manner possible.

However, instead of proposing even humane destruction, the Zoo and the Smithsonian have concurred on the most inhumane--albeit expedient--solution available: bows and arrows. While bows and arrows are generally acknowledged to result in 4 to 6 times as much wounding and crippling as rifle hunting, Fish and Wildlife Service figures show that bows and arrows can cause 14 times the number of cripples. In our view, it is a disgrace that our nation's only National Zoological Park should condone that kind of inhumanity.

The use of shotguns by people who are less than experts, while not as inhumane as arrows, clearly is unacceptable as well. It is not disputed that killing of deer by the general public

using shotguns will result in more wounding and crippling than would killing of deer--if necessary at all--by expert marksmen. Zoos--most particularly the National Zoo--have a premier responsibility in this society for teaching respect and appreciation for life. To knowingly, and at its own insistence, subject semi-tame deer to the inhumanity of public slaughter would make a mockery of this responsibility.

III. The Hunt Is Unnecessary for the Reasons Proffered

Officials at the Front Royal facility and at the Smithsonian allege that the hunt is necessary because: (1) there are (may be) too many deer and they are eating the alfalfa; (2) the deer have (may have) disease transmissible to the endangered species; and (3) the deer may starve, if they are not shot. Finally, Zoo officials imply that this pending public spectacle is required under the laws of the Commonwealth of Virginia.

On analysis, all of this purported rationale can be seen for what it is: ex post facto rationalization designed primarily to support a preconceived decision to allow the inhumane public slaughter of captive deer.

First, no one seriously believes or contends that the federal government does not have legal control over the area. It is the federal government's responsibility to manage the land and to protect the wildlife. The federal government, in particular in

this case the Smithsonian Institution, cannot seriously allege that it lacks the power to protect, in the best manner possible, land and wildlife it holds in trust for the public.

Second, while managing a wild animal population for its own health is a legitimate concern, the supposed main problems for the Front Royal facility are the overeating of the alfalfa and the possible transmission of disease to the exotic animals. Elimination of the problem animals, by driving out, live trapping, or culling, would appear to be necessary. However, elimination of the deer is not even the intention of the Zoo. Rather, Zoo officials report that they plan just to reduce the population by 20 to 35 percent, which would insure only that the same problems would still conveniently exist at the time of next year's hunting season. Furthermore, these alleged problems (too many deer, alfalfa eating and disease), if they existed at all, have existed for months or years--they did not suddenly spring upon the facility in the past few weeks. If the National Zoo is serious about the need for control, the control efforts should have begun months--indeed years--ago in a good-faith effort to eliminate the "problems" through acceptable means. Clearly, the Zoo's failure to correct these alleged problems indicates that the hunt is unnecessary.

Finally, in the October 19, 1982, Washington Post, Zoo and Smithsonian officials unabashedly suggested to the press and public that if the deer are not shot, they will starve. However,

a call to Dr. Wemmer, the director of the Front Royal facility, revealed that no deer has ever died of starvation at the facility and none is expected to die this year. Clearly, this reason, like the other publicly offered reasons for the hunt, is nothing more than a meaningless smokescreen designed to placate the public while captive deer are inhumanely destroyed with arrows and shotguns.

Indeed, that the hunt is unnecessary and poorly conceived is evident from the fact that the reasons offered for the hunt are mutually inconsistent. For example, problems of "too many" deer or deer starvation may, to some extent, be reduced through simply reducing the number of deer inside the compound. While this goal could easily be accomplished by driving deer out, it is also presumably one of the goals of the proposed public hunt.

In contrast, however, elimination of alfalfa eating, and protection of the endangered species, reindeer, and camels from diseases transmitted by native white-tailed deer demands that white-tails be eliminated from the compound. The hunt, as planned, would be an annually recurring event, that would perpetuate the problem of disease transmission. Thus, not only is the hunt unnecessary, but under the Zoo's current plans, Zoo officials would even fail to uphold their minimal responsibility--disease elimination--to the very valuable endangered species which are there for captive breeding.

IV. Alternative Plan

As the foregoing analysis makes clear, not only has the Zoo failed--failed for many years--to adopt a plan which is compatible with the mandate of the Zoo to preserve and provide stewardship for animals, the Zoo has obviously failed to develop or adopt a responsible goal for the management of white-tailed deer which has any relation to the welfare of the endangered and other species which are purposefully maintained at the facility.

Thus, providing a clear, consistent goal for the management of the deer in the facility is the first and most basic element of developing an alternative plan for handling the white-tailed deer.

GOAL

Based on our analysis, the only goal which is compatible with the purposes of the Zoo, and compatible with insuring the welfare of the endangered species and other species for which the facility is operated, and which will solve the alleged problem(s) once and for all is to eliminate the deer from inside the facility.

The National Zoo has claimed and continues to claim that white-tailed deer present a substantial risk of transmitting disease to the captive animals maintained at the facility. Elimination of this threat is indeed a worthwhile goal given the high value of these animals and their precarious status as rare and endangered species. This risk of disease transmission will, however, only be eliminated when the deer have been eliminated from the facility.

Reducing the deer herd, as the Zoo proposes, will not eliminate disease or the threat of its transmission to the captive, rare and endangered species. Reducing the deer numbers will not stop the remaining deer from eating alfalfa hay. Reducing the numbers of deer in 1982 will not stop these alleged overpopulation problems from occurring next year or thereafter.

Thus, the only solution to the problems is to get the deer out of the facility; in other words, to carefully develop and implement a plan which will: (1) let the deer out of the facility and into their adjacent suitable habitat and (2) prevent their return.

While, at this juncture, the details of such a plan have obviously not been addressed, elements of the plan would include, but not necessarily be limited to the following:

- 1) Deer should be driven in small groups from the compound. According to Dr. Challinor's attached letter to HSUS dated October 19, 1982, this has been successfully accomplished in the past and has succeeded in reducing the deer population "significantly." A carefully developed and implemented plan to repeat these drives successively, throughout the facility should be the cornerstone of a plan by which deer would be eliminated from the area.
- 2) As small groups are eliminated, notice would be provided in the community and along adjoining roads to eliminate any problems which would occur while the deer were dispersing.

After the first drive, succeeding drives would not be held until the just-released deer had dispersed.

3) The height of the fence surrounding the facility must be increased to prevent deer from entering the facility by jumping the current fence. This must be done as deer are being eliminated. Money for this project can come from the normal operating and construction budget of the Zoo, a special congressional appropriation (which we would support), or special private funding sources (i.e., FONZ reportedly gave \$650,000 to the National Zoo last year).

4) If all deer cannot be driven out, live trapping or tranquilizing, and moving the deer should be conducted.

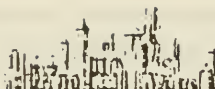
While the various elements of this plan will need to be carefully developed and implemented, their elements represent logical steps toward achieving the National Zoo's legitimate goal of eliminating the white-tailed deer from the facility in order to protect, to the maximum extent possible, the endangered and other animals from the threat of disease.

By contrast, and for whatever reasons, the National Zoo's plan to allow inhumane destruction of these white-tailed deer fails to meet even the minimal responsibility of the Zoo to manage the facility properly and to protect the endangered and exotic animals which are under the Zoo's care.

We, therefore, urge this subcommittee, in the exercise of its oversight responsibility, to direct the National Zoo to abandon the hunt and to embark upon a plan such as we have outlined to provide wise stewardship both to white-tailed deer and the captive species under its care.

Respectfully Submitted,

Dr. John W. Grandy



SMITHSONIAN INSTITUTION

Washington, D.C. 20560
U.S.A.

October 19, 1982

Mr. John A. Hoyt
President
The Humane Society of the United States
2100 L Street, N. W.
Washington, D. C. 20037

Dear Mr. Hoyt:

Secretary Ripley has asked me to respond to your letter of 15 October concerning the proposed controlled deer hunt at the National Zoo's Conservation and Research Center at Front Royal, Virginia.

The Smithsonian and the National Zoo have a major responsibility for the conservation and propagation of highly endangered species that are entrusted to our care. We do not take this obligation lightly, but rather devote considerable energy and resources to achieving this objective. As a result, we are extremely concerned about any real or potential health threat to our collection.

The present population of white-tailed deer at the Conservation Center is estimated to be approximately 1,000 animals. White-tailed deer were present when the property was acquired by the Zoo in 1975 and had been hunted by the employees of the U. S. Department of Agriculture (the previous landholders of the Center) and other citizens of the area. In order to protect the very valuable and rare species, which the Zoo brought to the new reserve at Front Royal, a fencing program was undertaken to restrict access by unwarranted individuals and to prevent exotic animal escapes. Coupled with this action was a decision to prohibit any hunting on the land.

The first indication of deer overpopulation was destruction of alfalfa and trees. In order to mitigate this circumstance, fermented blood meal was unsuccessfully used as a deterrent. Fencing of alfalfa lands was also considered, but proved to be economically unfeasible. It was also noticed at this time that the high visibility of the large population brought about illegal entry onto the Zoo property and shooting of deer from an adjacent state road. In addition, numerous deer-automobile collisions have taken place.

Following these illegal incursions on our property and the killing of a rare Eld's Deer, valued at \$6,000, Center scientists consulted with State Game Commission biologists to remedy the situation. The biologists suggested placing a fence in the immediate vicinity of the crop and driving out the resident deer. In a series of four drives, the population was significantly reduced.

During the period of the hunting prohibition, Center staff regularly assessed the population in order to examine the potential impact of native wildlife on alfalfa production and on the exotic species. We also began to monitor deer depredation on the alfalfa using small exclosures. From this we learned that the white-tailed deer population had grown to a level which endangered the health of our exotic collection and our farming activities.

The transmission of two parasites, lung worm and meningeal worm to our exotic hoofstock was noted in the period between 1979-1982. This summer the Center lost six reindeer, including our only two breeding males, as a result of meningeal worm infestation. As you are aware, this herd has traditionally been the focus of the Christmas Pageant on the Ellipse. The shedding of white-tailed deer parasites has dictated the need for intensive and costly programs for screening and treatment of lung worm.

The controlled hunt by lottery was instituted in 1981, after the aforementioned alternatives were found to be less than satisfactory for all areas inhabited by deer at the Center. The proposal to conduct a hunt was thoroughly scrutinized and approved by the Virginia Game Commission. As you know, this Commission regulates the use of all native non-migratory wildlife in the State regardless of land ownership. The 1981 hunt was successfully carried out in a manner that protected the exotic animals, and insured the safety of the individual hunters. All deer were necropsied and age, reproduction, condition, and parasite data were recorded. Lung worm was reconfirmed in this deer population.

The Institution has drawn on the extensive experience of its scientific staff with not only exotic but native species of deer in addressing this problem. Our considerable experience indicates that in order to properly manage an enclosed population of white-tailed deer, culling will be necessary. It is unrealistic to maintain that in the near future this problem will disappear because the deer population is abundant in the surrounding area. Recognizing this fact, the Smithsonian has utilized a technique widely recognized by wildlife managers and the public to regulate the size of the herd in a manner which does not impinge on our primary charge to care and protect our exotic collection. It is, in our opinion, the most rational and humane solution to the problem. To suggest driving the population out or capture and translocation is merely placing the burden for these deer on individuals who are less equipped and concerned than we are for the welfare of this species. Additionally, we do not believe that a solution is apparent by use of sharpshooters. If we are to take these deer, we must abide by regulations established by the Virginia Game Commission that stress the mandate given to them by the Virginia legislature to share natural resources fairly with the citizens of the State.

Let me reemphasize that what we are undertaking at Front Royal is not a new nor isolated phenomenon, but rather a proven practice currently undertaken on private, state and federal lands throughout Virginia and the nation.

We appreciate the concerns raised by you and your constituency, and wish to assure you that having reviewed the alternatives, we sincerely believe our actions are responsible and in the best interests of all animals which are in our care.

Sincerely yours,



David Challinor
Assistant Secretary
for Science

THURSDAY, NOVEMBER 4, 1982.

DEER, THE FUND FOR ANIMALS

WITNESS

CLEVELAND AMORY

Mr. AMORY. I am Cleveland Amory, President of the Fund for Animals. I come to you this morning on a rather unusual circumstance. We fought for the last four weeks in Detroit a very difficult and sad case of the killing of three Siberian tigers. We saved the fourth. It is not going to be killed under the guise of the fact they didn't have the proper genetic pool, that they were not this, they were not that. They had about eight reasons for killing them, none of which in my judgment were valid. Zoos are very strange today, is what I am talking about here. The Director of that particular Zoo suggested that from now on all zoo animals not be named; that the public takes too much of an interest in zoo animals that are named. So I am going home now and tell my cat Polar Bear he is no longer Polar Bear, he is number 5.

I believe seriously, sir, that the Smithsonian, an organization highly respected throughout this country, that I travel broadly and consistently, with a beautiful magazine, almost must reading for all interested in animals, for this institution to be involved in such a horribly cruel thing that a bow hunt is, it is a horribly cruel thing. I could stand here for four hours and tell you the stories I have seen with my own eyes at bow hunts. I believe that the animal—your friend from Pennsylvania there, I would like to talk to him about the Pennsylvania Game Commissioner that stood and looked at a bow hunt with me, and wouldn't do one darned thing to help. And I want to tell you that the Pennsylvania Game Commission, I am certain if their mother was on four legs, they would shoot her, too. And I think she probably was.

My point, sir, is that the bow and arrow, as a coup de grace weapon, ranks somewhere above a hacksaw or a chisel and well below a hatchet or a blow gun. It is the worse. I have seen animals in such incredible misery from bow hunts. I don't blame the hunters for this. They thought years ago they were going to even the odds and go back to the Indians and make it more nice. Well, as usual it was worse. When you try to do—maybe they tried in the beginning to do something nice.

But for the Smithsonian, this organization, to have any part in such an outrageous hunt, I submit to you will be the most expensive thing the Smithsonian ever did. There isn't an animal person in this country who will subscribe to that magazine, who will read it, if the you go ahead with this. Whatever they pay for the fencing, whatever they pay for drives, although why it costs \$2,000 to drive, I don't know. We would be glad to drive the deer out. We have had some success with drives, as you know, sir, in a great many areas. I believe for them to be involved in this is an outrage. And I commend you for holding these hearings.

Thank you.

[The statement of Cleveland Amory follows:]

STATEMENT OF CLEVELAND AMORY, PRESIDENT

THE FUND FOR ANIMALS

Mr. Chairman, and Members of the Committee:

On behalf of our almost 200,000 members across the United States, I want to thank and commend you for holding these hearings. We very much appreciate the opportunity to appear before this Committee to express our views in opposition to the proposed deer hunt at the National Zoo's endangered species breeding facility in Front Royal, Virginia.

Not only do we believe that the hunt is totally unnecessary, we also find it remarkably inappropriate for the Smithsonian Institution and the National Zoo to be engaged in encouraging, organizing, and promoting the cruel slaughter of wildlife for the amusement of a few of its employees and local hunters. This is especially so in light of the extremely inhumane methods adopted to eliminate the deer.

There are numerous other agencies and organizations engaged in promoting and defending the recreational killing of wildlife, such as the Interior Department, especially its Fish and Wildlife Service; we don't need another hunting and gun oriented agency in government, especially one whose ostensible purpose, role and philosophy include promoting, through public education, the proper care, display and conservation of animals.

Regardless of one's views on "sport" hunting - - and we have been quite critical of many aspects of it - - the National Zoo and the Smithsonian simply have no business promoting hunting, an activity that, we are sure, is opposed by many if not most of the members of Friends of the National Zoo and the Smithsonian. But as the Zoo and Smithsonian officials have been forced to defend this hunt, they have adopted the broader position of defending and promoting hunting in general, including bow-and-arrow hunting. We are distressed to see the National Zoo and Smithsonian becoming propaganda arms of the NRA.

There are various alternatives to the killing of these deer, as you will hear in detail today from several other knowledgeable witnesses who oppose this hunt and who are much more familiar with the specifics of this particular situation than am I. If indeed a problem of deer overpopulation and potential starvation does exist (and we have seen no evidence of this), there are other ways of dealing with this situation without inflicting such slaughter and suffering upon the deer. The most obvious alternative is skillfully driving out the deer in order to relocate them in the Shenandoah National Park, which is adjacent to the Zoo's facility, and where there has never been any suggestion that overpopulated deer are causing problems.

One thing we cannot understand, and consider to be most indefensible, is one method proposed to help "cull" the deer herd, namely bow-and-arrow hunting. In my book Man Kind? Our Incredible War on Wildlife, I describe in detail how this form of hunting is so cruel, wasteful, and inhumane as to be indefensible, especially for an agency supposedly dedicated to protecting wildlife. In bow hunting, the crippling and wounding role is enormous, and is much higher than other forms of hunting.

I have observed bow hunting many times and in many parts of the country. I have learned first hand that the bow, as a coup de grace weapon, ranks somewhat above a hacksaw or a chisel but well below a hatchet or a blowgun.

Chicago Tribune columnist Bob Cromie has written that archery hunting is "a sport for sadists," and has described what happens when the arrow hits the deer's flesh: "It makes an ugly, cutting wound like a knife. An animal struck by a well-placed arrow bleeds to death."

As Dave Harbour wrote in the May 1973 issue of Sports Afield, (a strongly pro-hunting magazine):

Not one bow-hunter out of ten that I know can hit a deer in the spine or put his arrow through the heart or lung of even a standing deer every time, even at reasonable bow ranges -- and these are the only conventional arrow shots which are likely to drop a deer quickly. When a deer crouches or jumps, and when the hunters' hands are shaking and his heart is pounding, a quick-killing hit with a conventional arrow is even more unlikely. What bow-hunter can really call himself a sportsman and enjoy trailing stumbling, suffering deer for long periods? This is exactly what too many of us bow-hunters are doing today.

Another account of bow hunting comes from an article entitled "Butchers With Bows and Arrows," which appeared in True magazine and was written by former bow hunter Clare Conley. Conley presents an indictment against bow hunting that could only come from one who has participated in it, and he concludes that:

The sport should not be allowed. There is no way to kill a deer instantly with a bow... Archers knowingly commit each living thing they hit to lingering agony... Far from being sporting, it is cruel and inhuman.

Conley goes on to describe a bow hunt conducted by him and three friends:

Well, four of us were hunting together last fall, spread out in a line about 20 yards apart. We jumped a doe that ran across in front of the line. One of the men in the center whipped up his bow, drew and shot. He made a perfect—and lucky—hit. The arrow went through the doe's neck. We all saw it strike, and we all saw it sticking out both sides as she bounded away.

The blood was easy to find, but we waited the customary hour for her to lie down and stiffen up so that we could approach her a second time. We followed the scar-

let trail for most of another hour, expecting to find her dead momentarily, but going doggedly on when we did not.

We came to several pools of blood with prints of her knees beside them, where she had gone down to hang her head and bleed in the bright sun. We saw spots where she had stumbled. But still her life blood ran, and still she went on.

At last we found her. She was dying. She was on her knees and hocks. Her ears, no longer the wonderful, alert

warning system to detect any danger, were sagging. Her head was down. Her nose was in her blood. We could hear her breath bubbling in the warm blood.

We paused, then silently separated so as to come at her from four directions. The archer who had hit her first approached her head. At a range of 15 feet he drew his bow and released another arrow . . . and missed! He had tried to hit her in the brain at 15 feet, and though he held an Expert A rating in the National Field Archery Association, his arrow slipped between her ears and thudded into the ground beyond.

Somehow the doe lurched up. Stumbling, bounding, crashing blindly into the brush, she managed to reach the rim of a plateau we were on and disappear. None of us was able to hit her again. We ran to the edge of

the steep, brushy slope below. She was nowhere in sight!

Her trail was plain enough where she had slid and stumbled down the first steep pitch, however. We took it, but now there was no more blood. The original arrow had broken off somewhere along the way and the two wounds had closed. We followed her halting tracks carefully in the dust and rock, but soon they were lost among a maze of deer tracks. We fanned out and combed the hillside. We failed.

Altogether, we lost four wounded deer on that one hunting trip, but the doe that I saw dying stayed with me.

Her heartbroken, dulling eyes haunted me. At odd moments I'd see her, wild and free, then dying in the sun, her breath choking in a pool of blood. I resolved never again to shoot any living creature with a bow.

When Kentucky's Lexington-Bluegrass Army Depot was opened to bow hunting, at least 40 deer were "arrowed" but uncollected by hunters. "I saw one doe," an eyewitness reported, "her right shoulder arrowed and swollen, still leading her half-grown fawn." And a report issued by the U.S. Department of Interior showed that the results of its October, 1965 bow-and-arrow hunt on the Chincoteague (Maryland) National Wildlife Refuge were 34 deer killed and 33 "crippled", a term including only those deer that died, not those that were wounded, maimed, or crippled and survived, or which later died but were never found and counted.

Nor do we think the use of bullets and buckshot to kill these deer would be defensible either. We fail to see what is particularly challenging or "sporting" about walking up to these relatively tame and docile deer -- which have long been inside the Zoo's fenced enclosure and can be approached much more easily than most wild deer -- and gunning them down. We agree with the way a local resident and hunter Charles Yates characterized the hunt: "like shooting fish in a barrel."

I could go on and on, but I think what I have already cited is sufficient to demonstrate the callous indifference to the welfare of animals that has been demonstrated by the National Zoo and Smithsonian officials in promoting a bow-and-arrow hunt at the Front Royal facility.

If the taxpayers' hard-earned money is being used for such obviously inappropriate activities, then perhaps the time has come for Congress to consider cutting back on the funding for the Smithsonian and the National Zoo. Not only is their enormous budget a burden to the taxpayer, it's becoming quite a heavy burden for the animals to carry as well.

May I also observe that the reading of the wonderful publication of this agency, Smithsonian magazine, would certainly lead one to gather that concern for the protection and well-being of wildlife are major concerns of the group. The current issue has a delightful article on chipmunks. Does Smithsonian advocate hunting them with bows and arrows too, in order to prevent possible overpopulation and spread of disease at Front Royal?

That completes my statement, Mr. Chairman. I'd be glad to try and answer any questions you might have; and, again, thank you for the opportunity to appear here today.

THURSDAY, NOVEMBER 4, 1982.

DEER

WITNESS

CHARLES YATES

Mr. CHARLES YATES. Mr. Chairman, fellow Americans, I will read my statement.

My name is Charles Yates. I am a hunter with 54 years of hunting experience. I am not opposed to deer hunting. I have killed many deer. I was against last year's Smithsonian Conservation Center's deer hunt because of discrimination. Conservation Center employees were given preference and allowed to hunt until they killed a deer. I am here today to again oppose the Smithsonian deer hunt scheduled for this year. My reasons are as follows:

1. The Smithsonian Institution is a great prestigious scientific organization financed to a large extent by taxpayers' money. They have better things for their great minds to do than to be concerned with an annual deer hunt that splits assunder their animal-loving supporters and which divides the hunting community of the Northern Virginia area.

2. The management at the Front Royal Conservation Center has made absolutely no progress at resolving their white-tailed deer problem. In fact they are making considerable progress in establishing the deer hunt as an annual necessity. They definitely say that all white-tailed deer will not be removed from their property. The herd is to be thinned. Thus the herd will continue to reproduce, which will call for grand hunts year after year. This in turn will generate yearly protests by a segment of their supporters, by the Humane Society of the United States, and by a large group of hunters—419 hunters and citizens signed a petition this year in protest of last year's hunting discrimination. Hunters protest because hunting deer in a confined area is no sport—it's like killing fish in a barrel. Taxpayers should not be called upon to finance a yearly uproar and division among hunters and citizens of the community.

3. This congressional committee annually appropriates a large sum of taxpayers' money for the Smithsonian Institution of which a considerable amount goes to operate their Conservation Center near Front Royal.

Mr. YATES. What do you mean by discrimination, Mr. Yates.

Mr. CHARLES YATES. May I use your map, sir?

Mr. YATES. Sure, you may.

Mr. CHARLES YATES. As mentioned briefly in this meeting here, this is the area that the Zoo Center employees hunted in.

Mr. YATES. Just Zoo employees?

Mr. CHARLES YATES. Just the employees. Thirty members of that group up there on the staff hunted, 29 of them killed deer. They were allowed to hunt until they killed a deer.

Mr. YATES. Why is that? Why this preference for the Smithsonian?

Mr. CHARLES YATES. That is what I mean by discrimination.

Mr. YATES. I see. Okay.

Mr. CHARLES YATES. This congressional committee annually appropriates a large sum of taxpayers' money for the Smithsonian Institution of which a considerable amount goes to operate their Conservation Center near Front Royal. About \$700,000 was spent to fence the 3,300-acre property. In a letter addressed to me dated January 8, this year, Dr. Chris Wemmer, curator-in-charge of the Front Royal Conservation Center, wrote, and I quote: "The purpose of the chain link perimeter fence is to contain exotic animals within the Center's property should they escape from their enclosures. The fence is six or eight feet high. We intentionally used six-foot fence in areas where there was signs of large amounts of white-tailed deer traffic between the Zoo's land and adjacent property." End quote.

I will pass these pictures to you gentlemen that I personally took myself. The North boundary adjoins the school board property. If I might point this out to you.

If this \$700,000 fence won't keep out the deer, and is not kept in repair, how will it keep the exotic animals in? Mr. Williamson, the Bird Master up there, at the meeting I had with the State Game Commission in April, asked me if I wanted to repair the holes in the fence. He was the representative at the meeting with the Game Commission.

4. The number of white-tailed deer making up that herd seems to be growing week by week. A few weeks ago the number was 650 according to news reports. Then a week or ten days ago, the report jumped the number to 1,000 head, and a couple of days later it went up to 1,100. The question is—just exactly how many deer are actually on the Conservation Center property? Last week Mrs. Ann Free, ex-Senator Hartke, and Mr. Studabaker, and myself visited the Center. Two of the Center's officials took us for a drive all about the north area of the property.

May I use your map, sir?

This area here went back to the school board property, and went out in this area, came back to the administration building. That is the area we visited.

We asked to see the white-tailed deer. With 1,000 deer located in a 2,000-acre section of the Center, that would be a deer for every two acres of land. They drove and drove and could not find one deer, not one white-tailed deer. Gentlemen, there are deer there, if you know where to look. You can't make me believe there are even 650 deer there. It is my opinion somebody is padding the figures in order to justify the hunt. Hunters drawing \$10 permits are confined to 30-yard perimeters. Of the 400 hunters allowed to hunt last year, according to Dr. Wemmer's letter, only 120 bagged a deer. Last year 30 perimeters were assigned to 30 Center employees and 20 employees got a deer.

That is the area I pointed out to you.

I certainly disagree with staff hunters given executive privileges and special areas to hunt, when they are familiar with the daily deer habits on the property. To me this is a form of discrimination, inasmuch that staff employees refused to participate to drive the deer out prior to the hunt on their day off.

Dr. Wemmer told me they refused because it was on their day off they were asked to do this.

Dr. Wemmer's letter made no mention of wounded deer by archery or gun, but did state that four deer were unaccountable. The question among hunters—who gets the choice 30-yard locations? The Center's employees? The archery club member? I oppose such discrimination.

5. Now gentlemen, I will tell you just what is at the bottom of all this uproar. You have heard about the tail wagging the dog. That is what we have here—the tail wagging the great Smithsonian Institution. There is the Twin-Rivers Archer Club's bow and arrow range along the north boundary of the Conservation Center property.

The school board has 125 acres here given to them by the government, with an easement from the conservation center—has an easement down here. I was told last week by a archery member he was upset because Mr. Wemmer and the Bird Master, Mr. Williamson, brought a guest down through the gate to this archery club.

Mr. YATES. Why would that upset them?

Mr. CHARLES YATES. Because I think they have a cardinal rule you are supposed to identify guest and get permission to bring a guest.

I was suprised. I went to the school board meeting. I was defeated 3 to 2, about allowing archery hunters to kill deer on the school board property which is adjacent to the Conservation Center.

There is the Twin Rivers Archery Club's bow and arrow range along the north boundary of the Conservation Center property. The club has approximately 1,000 members. A road leads from the Center's administration area directly to this 125-acre school board property which is used by this archery club. I am told that the Conservation Center's manager, Dr. Wemmer, and his Bird Master, Lynwood Williamson, are both members of this archery club, and maybe several other employees of the Conservation Center. Such membership would certainly be a conflict of interest.

Dr. Wemmer and Mr. Williamson should be animal lovers—but they are interested in killing—and to kill by the most cruel method, bow and arrow. Gentlemen, you can't make me believe other than that somebody purposely neutralized the effectiveness of that \$700,000 fence to allow white-tailed deer to enter. The unfenced 41 acres of expensive alfalfa and 1,200 acres of hay-making grass most certainly impedes the deers' habitual movements. Why should the deer move on? They get fat from all that luscious food. The Center's management begins to "cry" about the destruction of expensive alfalfa, which in turn necessitates the thinning of the herd each year by an annual deer hunt—a controlled hunt for the archeryman's delight.

6. The National Zoo should not be conducting cruel bow and arrow or even shotgun deer hunts annually at taxpayer's expense. It takes hundreds of hours by many employees for planning a controlled hunt. This valuable time could be used to repair the holes in the fence on the north boundary and for deer drives to humanely rid the white-tailed deer from the property. Consider the Shenandoah National Park, no type of hunting is allowed on their property ever, neither should hunting be allowed on National Zoo prop-

erty. It is my opinion that the tail that has caused this uproar—the archery boys, Dr. Wemmer and Mr. Willimason—are wagging the great Smithsonian Instituion.

Mr. YATES. Bird Master?

Mr. CHARLES YATES. Mr. Williamson coordinated the hunt.

Mr. YATES. Who is Mr. Williamson?

Mr. CHARLES YATES. He is Dr. Wemmer's assistant.

Mr. YATES. I see.

Mr. CHARLES YATES. He is the one that represented them. We couldn't understand why they sent the Bird Master down to represent the hoofed animals.

Now, they didn't expect to go this far today to drag the prestigious Smithsonian Institution up to the Congress of the United States. Gentlemen, I beg you to withhold the Smithsonian's appropriation of taxpayer's money until the Smithsonian Institution can assure you that they have an animal-loving manager and assistant in charge of their Front Royal property—a manager that can solve the white-tailed deer problem in a humane manner that will enable the National Zoo to get out of the deer slaughtering business once and for all time. Such a move would bring God-given peace and harmony among their own supporters and to the Front Royal hunting community.

I thank you.

THURSDAY, NOVEMBER 4, 1982.

DEER, NATIONAL WILDLIFE RESCUE TEAM

WITNESS

JACK KASSEWITZ

Mr. KASSEWITZ. I am Jack Kassewitz. I am Executive Director of the National Wildlife Rescue Team. I think you have been given some alternatives to the hunt. I think those considerations are by professionals.

I directed the 1982 deer rescue in Florida. There are alternatives. Don't just write them off.

Mr. YATES. I read only the newspapers and saw the documentaries. I had the impression from what I read and saw that your rescue attempt was not very successful.

Mr. KASSEWITZ. The rescue attempt that we had there was with very diseased animals. You have healthy animals here. The animals we had were very, very sick. They had been in water for months. We had a 90-percent success rate with fawns. We lost one of the fawns. We did very, very well with them.

My suggestion to you is that the erection of this fence is a lot better than to alienate the hunters and nonhunters, which this is certainly going to do. I can see the bumper stickers saying, "Boycott the National Zoo, I love Deer."

We would certainly be willing to place our staff up here during that period to help you all in terms of the disposal of the deer. We have a staff of 15 right now. We would be glad to send three or four to help you in any way we could. Very briefly, I would just

like to say that is what we would be glad to do for you if we could help you.

[The information follows:]

NATIONAL WILDLIFE RESCUE TEAM, INC.,
Miami, Fla., November 3, 1982.

To: Committee on Appropriations, Subcommittee on Interior and Related Agencies.
From: Jack Kasewitz Jr., executive director.
Subject: Removal of deer.

Today, there are always two or more answers to every question. Don't jump to the conclusion that the only way to save deer is to kill them. There are alternatives. Live trapping, darting, and artificial dispersal.

Live trapping probably would be the most advantageous to this specific situation. The cost runs from seventy-five dollars, \$75.00 per healthy animal to two-hundred fifty dollars, \$250.00 per diseased animal.

Our organization has the expertise and history to do such a rescue. We presently treat over fourteen thousand, 14,000, wild animals a year, and we directed the "1982 Florida Deer Rescue".

Any assistance that we could lend to this committee or the Smithsonian Institute or the National Zoo, need only be asked for. Our organization stands ready to help in any form necessary. Feel free to contact us at our Miami office.

Sincerely,

JACK KASEWITZ, JR.,
Executive Director.

Mr. YATES. Thank you very much. Thank you all very much.

THURSDAY, NOVEMBER 4, 1982.

WITNESSES

JACK W. RAYBOURNE, VIRGINIA COMMISSION OF GAME AND INLAND FISHERIES

ROBERT McDOWELL, NATIONAL BOWHUNTERS EDUCATION FOUNDATION
VIC HELLER, FLORIDA GAME AND FRESH WATER FISH COMMISSION

JACK BERRYMAN, INTERNATIONAL ASSOCIATION OF FISH AND WILDLIFE AGENCIES,

ROBERT DAVISON, NATIONAL WILDLIFE FEDERATION

BILL BROWN, ENVIRONMENTAL DEFENSE FUND

Mr. YATES. Next, the Virginia Commission of Game and Inland Fisheries, Jack Raybourne; National Bowhunters Education Foundation, Robert McDowell; Florida Game and Fresh Water Fish Commission, Vic Heller; International Association of Fish and Wildlife Agencies, Jack Berryman; National Wildlife Federation, Robert Davison; and the Environmental Defense Fund, Bill Brown.

If you have statements, they may be made a part of the record.

Mr. Raybourne, answer a question for me. Why do you support a bow and arrow hunt?

Mr. RAYBOURNE. Mr. Chairman, the bow, modern bow, at least, is a legal weapon in the State of Virginia. It is my understanding that that portion of the hunt has been cancelled.

Mr. YATES. Okay. But why was it permitted? Even if it is legal. Isn't a rifle or a shotgun a much—if you are husbanding, as the Smithsonian tells us, if you are in the process of taking care of your numerical needs in preserving the herd, why do you not, then, do it with a rifle, or with a shotgun. I am told by Mr. Amory at least that is a much more direct and humane weapon than the bow and arrow.

Mr. RAYBOURNE. That is true. If the sole purpose is to reduce the herd of any species for that matter.

Mr. YATES. That is the Smithsonian's purpose, I take it. Then why does—I will ask them that later. It seems to me that is kind of a barbaric approach to cutting down on numbers. Your statement may be made a part of the record. Go ahead.

Mr. RAYBOURNE. Okay.

Mr. YATES. Please don't read it all, but give us the essence of what you want us to know.

Mr. RAYBOURNE. Basically, our concern is one of jurisdiction. Under Title 29 of the Code of Virginia, as enacted by the General Assembly, our agency is, of course, given responsibility for providing for the welfare of all the fish and wildlife on the lands and inland waters of the Commonwealth.

Mr. YATES. Does that include Federal property?

Mr. RAYBOURNE. Yes, sir, in most cases it does. Unless the rights were specifically ceded to the Federal Government at the time of acquisition.

Mr. YATES. By the Commonwealth.

Mr. RAYBOURNE. Yes, sir.

Landowners own the habitat, of course. But the birds and animals that live thereon are held in trust for the citizens of the Commonwealth, and they are managed by our Commission to make sure their numbers stay in balance.

The Commission, quite frequently, in addition to its normal method of operations controlling the game species numbers from exceeding their carrying capacities on various lands throughout the Commonwealth, both private and public, in specialized situations in which the normal type of removal is impractical or impossible, particularly on high security military installations, munitions manufacturing sites, where obviously firearms would be very detrimental to that operation, and other high security situations, invariably protect their facilities with a large barrier, such as a cyclone fence in this case.

Inadvertently, an artificial situation often is created, particularly if the area is rather large, as in this case. Obviously within a very short period of time, without some removal, then the population is going to increase rapidly. It will reach the point inevitably that it will outstrip its ability to support all the members of the population and the population will crash from starvation or disease.

The case in point here at the Smithsonian; they contacted us in the spring of 1981. They had become aware of an increasing problem with an overpopulation of whitetailed deer and requested assistance as to how best to approach that situation.

We discussed, as Dr. Wemmer pointed out earlier, numerous alternatives. It has been our experience, as well as the experience of game and fish agencies nationwide, who, over the years, have tried many, many means of population control, that the only practical alternative in this particular situation, and reasonable alternative, was a controlled hunt.

Now, it can be accomplished in several ways. Normally, a controlled hunt has a restriction certainly on the area which is available, the number of people that are allowed in, the types and numbers, sex ratio; in other words, the sex and number of animals to be

removed in order to bring it in balance—they characteristically monitor—and many types of controls. But each area is unique.

Each particular situation that we become involved with is invariably unique, and requires its onset of guidelines. And often it is impossible to be able to set exact criteria at the first opportunity.

It requires some experience in order to be able to make some adjustment. It was the intent, after having examined the situation with the Smithsonian, that this was the only practical alternative.

We have approximately half a million deer in the Commonwealth. Our legal harvest last year was 79,000. We are expecting in excess of 80,000 this year. Landowner complaints are phenomenal. We issued 1,474 landowner permits alone last year. Fifty of those occurred in Warren County. We have already issued 90 in Warren County this year.

Mr. YATES. Hunting on their lands?

Mr. RAYBOURNE. To control crop damage of individual owners.

We maintain a number of biological parameters on deer herds in every county of the Commonwealth; in certain cases individual collections of herds within the Commonwealth. One major component that we routinely keep track of is the antlered buck harvest per square mile of forested range.

When we reach an area, a population harvest, of three antlered bucks per square mile of forest range, we are invariably in a fairly significant crop damage situation. When we reach a level of four antlered bucks per square mile of forested range in a harvest, we are generally at a point where we are increasingly aware and alert of disease potential, particularly epizootic hemorrhagic disease, or EHD disease, which is a very detrimental disease to whitetailed deer. Warren County is currently 4.5 antlered bucks per square mile of forested acreage.

Obviously, from the landowner permits that have been required in order to control damage, plus that of bucks harvested per square mile, plus the average hog-dressed weights of yearly bucks, which is a year-trend indicator as to the condition of the animal, whether or not the rates are increasing or declining over a period of years, antler development is correlated with herd condition in bucks.

If a buck is in poor condition, spiked antlers, or the typical unbranched antlers, occur. The higher number of spiked-antler deer you have, generally the poorer condition of the range.

We maintain all of those, a number of different indices, to arrive at a factor of whether or not that herd is in balance with the food supply or not.

And then, of course, decisions have to be made as to the appropriate seasonal bag limit type of hunt in order to bring it into reasonable relationship with the environment.

The Smithsonian contacted us with that point in mind. Our biologists and also the game wardens in that area met with them, and also gave them the benefit of some experiences in regard to some of the military bases in Virginia, particularly Woodridge, just nearby—a 600-acre installation inside a similar cyclone fence.

From the experience that we have had as to how best—

Mr. YATES. Is there hunting there?

Mr. RAYBOURNE. Yes, sir.

Mr. YATES. What kind of installations are those? Federal?

Mr. RAYBOURNE. Yes, sir. Army communications, if I am not mistaken. Of course—

Mr. YATES. I can understand hunting on an Army installation much more than I can on the Smithsonian installation.

Mr. RAYBOURNE. Our involvement became one at their request of technical advice and assistance, and how best to implement a controlled form of hunt. The decision obviously, since the Federal Government owns and controls that property—whether or not they have a hunt or what type of removal they have is basically their decision.

They have elected, after talking with us and considering all the alternatives, to go with the controlled form of deer hunt. And we support them in that decision.

I mentioned earlier there are several ways to have a controlled hunt.

One is to use professional marksmen, control it in that manner. Another is to use licensed hunters. Obviously, they were concerned about safety, not only for the animals that were involved in the facility, but also safety of any hunters.

And that is taken into consideration when the location of the various stands are placed. Hunters are not free to roam at will on the property. It is tightly controlled in that manner. I understand, and Dr. Wemmer can elaborate on this, they do have a rather rigorous indoctrination program for individuals who are successful in the drawing.

They also have a proficiency test that is required of both archers and firearms participants, to make certain that they are competent in the use of both types of weapons, and that they would be obviously better able to dispatch an animal quickly and humanely as possible.

I don't know if I have answered thoroughly your question.

Mr. YATES. Suppose Smithsonian were to decide to evict its white-tailed deer from its property, put a fence up so that it would no longer participate in the hunt. Would you have any objection to that?

Mr. RAYBOURNE. No, sir.

Mr. YATES. That is within their rights, isn't it?

Mr. RAYBOURNE. Exactly.

Mr. YATES. Would you have a decision or a say in where they would drive the whitetailed deer?

Mr. RAYBOURNE. Yes, sir. A permit would be required of us in order to handle any wild bird or wild animal in the Commonwealth.

Quite naturally, we would want to confer with the local board of supervisors to get the feeling of the general public in the areas. A meeting was held about a week ago in Front Royal, a town meeting, to discuss the matter, and it was quite evident from a number of those who were present that they were having what they felt were excessive deer crop depredation problems. That certainly is in keeping with the information that we have. No question about that.

Adjacent landowners is one problem.

Mr. YATES. If they were taken to the Shenandoah National Park and allowed to roam there, would you have any objection to that?

Mr. RAYBOURNE. We would have no objection, if the park were willing to accept them. I am very familiar with that park, by the way. It does not have the range, contrary to what you might think, to support that level of deer population, additional deer population. In fact, it does well to support its own now.

Mr. YATES. How many does it have now?

Mr. RAYBOURNE. Probably in the vicinity of 2,000; roughly 300 per square mile—the reason being various types of animals require different types of habitat. And you basically have one type of habitat in the Shenandoah National Park.

It is pretty to look at, but with the exception of squirrels, salamanders, a few insects, it is a biological desert. There is no new forest that certain creatures require—except the grassland along the edge of the drive. I know that area very well. I spent five years in that area. It is in very, very low and poor condition.

[Mr. Raybourne's prepared statement follows:]

TESTIMONY SUPPLIED TO A SPECIAL HEARING OF THE U.S. HOUSE OF REPRESENTATIVES' APPROPRIATIONS SUB-COMMITTEE FOR THE DEPARTMENT OF INTERIOR AND RELATED AGENCIES, CONGRESSMAN SIDNEY YATES, CHAIRMAN, NOVEMBER 4, 1982, REGARDING THE PROPOSED SECOND CONTROLLED DEER HUNT AT THE SMITHSONIAN INSTITUTE'S CONSERVATION AND RESEARCH CENTER NEAR FRONT ROYAL, VIRGINIA

Mr. Chairman, my name is Jack W. Raybourne. I am a Wildlife Biologist and am Chief of the Division of Game for the Virginia Commission of Game and Inland Fisheries. Our Executive Director, Mr. R. H. Cross, Jr., is also present and between us we shall attempt to answer any questions you may have relative to the responsibilities of the Commission of Game and Inland Fisheries to regulate fish and wildlife populations within the Commonwealth as well as our Agency's involvement with the Conservation and Research Center relative to their decision to reduce an over-population of white-tailed deer on Center property through controlled hunting techniques.

Under Title 29-11, 29-13 and 29-125 of the Virginia Game, Inland Fish and Boat Laws as enacted by the Virginia General Assembly the Commission of Game and Inland Fisheries is given the responsibility for the management of all resident wild birds and wild animals within the lands and inland waters of the Commonwealth, to enact regulations designed to perpetuate the well-being of wildlife resources and to enforce all laws and regulations pertaining to wildlife for the citizens of the Commonwealth. Landowners within the Commonwealth, whether public or private, own the habitat; however, the Commonwealth owns and manages resident wildlife, in trust, for the citizens of the Commonwealth. Landowners may take, or cause to be taken, resident wildlife on their properties within the framework as provided by laws and regulations.

The Commission frequently assists public and private landowners with specialized wildlife management problems in which general provisions or special conditions prohibit practical implementation of wildlife population control measures. Such landowners typically involve high security military areas, munitions manufacturing sites, and certain corporation lands and facilities. Such landowners who must provide perimeter security barriers soon recognize that they have created an artificial situation in which confined wildlife species may readily over-populate the available range to the point that control measures become necessary.

Over the years, State fish and wildlife agencies have experimented with a variety of control measures regarding specialized situations. Among others, such measures have included trap and transfer operations, chemosterilants, organized drives and various forms of controlled hunting techniques including professional marksmen and licensed sportsmen. Commonly the only practical means of manipulating wildlife populations on such areas is by means of controlled hunting by licensed sportsmen. Each area is typically unique with its own set of problems to be addressed, but all share specific restrictions on the number and sex ratio of a species to be taken, type of weapons to be allowed, designated areas where hunting may be permitted, specific location of hunters within an area, restrictions on the number of hunters participating, number of days of hunting allowed, biological monitoring of animal condition, etc.

The Virginia Game Commission provides technical advice and assistance to landowners, usually upon request, to evaluate a problem situation and to provide recommended solutions. In the Spring of 1981, the National Zoological Park's Conservation and Research Center near Front Royal, Virginia, recognized it had a developing problem and contacted our Agency for assistance. Hay crops were being decimated by expanding deer herds within the Center. The Center desired permits to destroy the offending deer and requested permission to utilize the carcasses for feeding the large carnivores at the National Zoo. Title 29-145.1 of The Code of Virginia provides for such permits; however, in the interest of public opinion we suggested an alternate approach in the form of a tightly regulated controlled hunt. After thorough discussion of the situation by all concerned, it was agreed that the only practical measure available for reducing the deer population to the ability of its habitat to support it was through a controlled hunt. The previous hunting ban on the property was removed and the mechanics of the hunt were developed by Center personnel with technical assistance from Game Commission Biologists and Game Wardens.

The proposed hunt was advertised in local papers by Center personnel who received over 500 applications from area hunters. A total of 262 hunters were drawn to participate in the planned removal of approximately 180-200 deer. The actual harvest was 171 deer and

the hunt was well received by local sportsmen.

The assistance of local volunteers was enlisted by Center personnel to drive additional deer from the area by removing a portion of the fence. Several attempts to remove additional deer in this manner were largely ineffective.

The concept of live-trapping and translocation was considered and rejected due to its extreme cost and its ineffectiveness in significantly reducing such a large wild population. Such efforts have been attempted on the Radford Army Ammunitions Plant near Dublin, Virginia, where firearms cannot be permitted, with very limited success. Costs typically range from \$350-500 per animal trapped or immobilized, excluding transportation, and any animals removed merely transfers the problem elsewhere.

Deer numbers have reached the saturation point in many areas of the Commonwealth including the western mountainous areas. Agricultural crop depredations are common in many areas of the State and only through public hunting have we been able to control deer populations. Deer numbers are presently in excess of 500,000 animals with the 1982 harvest expected to exceed 80,000 animals. Herds West of the Blue Ridge have expanded to the extent that the seasonal bag limit was raised from one deer per license year to two deer per license year effective the 1982-83 season. In 1981, 1,474 crop depredation permits were issued in Virginia, including nearly 50 permits in Warren County in which The Center is located. Over 90 permits have been requested this year to date.

In conclusion, the Virginia Commission of Game and Inland Fisheries supports the Conservation Research Center's decision to conduct a controlled deer hunt as the only practical means of regulating a confined deer population on its property. Furthermore, the Commission commends the Center for its action to act responsibly regarding the wildlife resource against an emotional, although popular, solution to the contrary.

documents and available to the public on request. (Michie Code 1942, § 585(84); 1944, p. 517.)

Cross reference. — As to rules and Inland Fisheries concerning motorboats, see §§ regulations of the Commission of Game and 62.1-172, 62.1-182, 62.1-183.

§ 29-8. Chairman and Executive Director. — The Commission shall elect one of its members as its chairman, who shall preside at all regular and called meetings of the Commission, and it shall appoint some other person, not a member of the Commission, as Executive Director. The Executive Director shall be the principal administrative officer of the Commission and, as such, it shall be his duty to carry out, or cause to be carried out, all orders, rules and regulations of the Commission, and to perform such other functions and duties, and exercise such powers, as are or from time to time may be conferred or imposed upon him by the Commission. The Executive Director shall devote his full time to the performance of his duties and shall receive such compensation therefor as may be provided in accordance with law for the purpose. (1942, p. 626; Michie Code 1942, § 585(84); 1944, p. 517.)

§ 29-9. To be sworn into office. — Each member of the Commission, before entering upon the discharge of his duties, shall be sworn into office in the manner prescribed in chapter 1 (§ 49-1 et seq.) of Title 49. The Executive Director shall be sworn into office in a similar manner and a certificate issued to him under the signature of the chairman. (1930, p. 634; Michie Code 1942, § 3305(3); 1979, c. 112.)

The 1979 amendment substituted, at the end of the first sentence, "in the manner prescribed in chapter 1 of Title 49" for specific provisions

as to the taking of the oath and the issuance of certificates.

§ 29-10. Bonds required. — Before entering upon the discharge of their duties, the chairman and Executive Director shall execute bonds, payable to the Commonwealth, in the penalty of five thousand dollars each, conditioned for the faithful performance of their duties, with surety to be approved by the Attorney General, which bonds shall be filed in the office of the Secretary of the Commonwealth or such other officer as may be designated by law to perform the duties of this office. The premium on such bonds shall be paid out of the game protection fund. (1930, p. 635; Michie Code 1942, § 3305(3).)

§ 29-11. General powers of the Commission. — In addition to the specific authority elsewhere herein conferred, the Commission shall have general power and authority to acquire by purchase, lease, exchange, gift or otherwise, such lands and waters anywhere in this State as it may deem expedient and proper; to establish and erect thereon and therein such buildings, structures, dams, lakes and ponds as it may deem necessary and proper, and to conduct and carry on such operations for the preservation and propagation of game birds, game animals, fish and other wildlife as it may deem proper to increase, replenish and restock the lands and inland waters of the State; to purchase, lease or otherwise acquire lands and waters for game and fish refuges, preserves or public shooting and fishing, and to establish such lands and waters under appropriate regulations; to acquire by purchase, lease, or otherwise lands and structures for use as public landings, wharves, or docks; to establish and erect thereon such structures or other improvements as it deems necessary; and to control the use of all such public landings, wharves or docks by appropriate regulation; to acquire and introduce any new species of game

birds, game animals or fish on the lands and within the waters in the State; to adopt such other means as it may deem necessary to restock, replenish and increase any depleted native species of game birds, game animals, or fish; to have educational matter pertaining to wildlife published and distributed; to hold exhibits throughout the State for the purpose of interesting school children, agriculturists and other persons in the preservation and propagation of the wildlife of this State; and to employ speakers and lecturers to disseminate information concerning the wildlife of the State and the protection, replenishment and propagation thereof; and to have and to exercise such other powers and to do such other things as it may deem advisable for the conservation, protection, replenishment, propagation of and increasing the supply of game birds, game animals and fish and other wildlife of the State. In addition to those powers already enumerated, the Commission may permit the educational television entities in Virginia to use land under the jurisdiction of the Commission for the site location of towers and other transmission equipment as required for the most efficient operation of their facilities. (1930, p. 635; Michie Code 1942, § 3305(4); 1944, p. 517; Michie Suppl. 1946, § 585(84); 1970, c. 254; 1979, c. 264; 1980, c. 301.)

Cross references. — As to jurisdiction of Marine Resources Commission, see § 28.1-3. As to duty of Commission of Game and Inland Fisheries to administer motorboat law, see § 62.1-168. As to transfer of control, etc., of landings, wharves and docks in the secondary system of State highways to the Commission of Game and Inland Fisheries by the State Highway and Transportation Commission or Department, see § 33.1-69.1.

The 1979 amendment combined the former first and second sentences into one and deleted the former last sentence, which vested the Commission with the powers and duties formerly conferred upon the chairman, secretary, Executive Director and other officers of the Commission.

The 1980 amendment inserted near the middle of the first sentence "to acquire by purchase, lease, or otherwise lands and structures for use as public landings, wharves, or docks; to establish and erect thereon such structures or other improvements as it deems necessary; and to control the use of all such public landings, wharves or docks by appropriate regulation."

Claytor Lake. — Chapter 415 of the Acts of 1950 conferred on the Commission of Game and Inland Fisheries jurisdiction over fish and fishing in Claytor Lake in Pulaski County. (Acts 1950, p. 760. See Division II, § L13-3.)

§ 29-11.1. Lease or contract respecting land or buildings. — The Commission is authorized, with the approval of the Governor, to enter into contracts respecting or to lease, upon such terms and conditions as deemed advisable by the Commission, any land or buildings leased or owned by it to private persons, corporations, associations, other governmental agencies, public authorities duly created by law or political subdivisions of the State, in a form to be approved by the Attorney General, when such action is not inconsistent with the powers, authority and responsibilities of the Commission. Any such lease or contract if for a term of more than five years shall be authorized only after a public hearing by the Commission. All amounts received pursuant to leases and contracts hereunder shall be deposited in the State treasury to the credit of the game protection fund. (1970, c. 406; 1972, c. 520; 1973, c. 4; 1978, c. 835; 1979, c. 140.)

Cross reference. — As to lease or contract for the development of minerals on lands owned or held by lease by the Commission, see § 29-238 et seq.

The 1979 amendment inserted "or contract" in the second sentence and added the third sentence.

§ 29-11.2. Acceptance of gifts, etc. — In addition to the authority granted the Commission by § 29-11 of the Code of Virginia, the Commission may receive gifts, grants, bequests, and devises of property, real or personal, and of money which, if accepted, shall be taken and held for the uses prescribed, if any, by the donor, grantor, or testator and in accord with the purposes of this title. The Commission shall manage such properties or money in such a way as to maximize their value to the citizens of Virginia. (1973, c. 191.)

§ 29-12. Forest and watershed areas. — The Commission is authorized to exercise full control of the hunting and fishing rights and privileges in and on all impounded water areas in this State resulting from power development; and in all forest and watershed areas in this State which are now owned, or which may hereafter be acquired, by the United States government, subject to the rights and powers of the United States department of agriculture therein. The Commission shall have the power to establish refuges, sanctuaries and public shooting and fishing reserves in such areas, under such regulations as it may deem proper. (1930, p. 635; Michie Code 1942, § 3305(5).)

§ 29-13. Enforcement of laws. — The Commission is vested with jurisdiction, power and authority to enforce or cause to be enforced all laws for the protection, propagation and preservation of game birds and game animals of this State and all fish in the inland waters thereof, which waters shall be construed to mean and to include all waters above tidewater and the brackish and freshwater streams, creeks, bays, including Back Bay, inlets, and ponds in the tidewater counties. (1930, p. 636; Michie Code 1942, § 3305(8); 1979, c. 264.)

The 1979 amendment deleted "sole" the section and "and all dog laws" at the end of preceding "jurisdiction" near the beginning of the section.

§ 29-14. Prosecutions. — The Commission shall prosecute all persons who violate such laws and shall seize and confiscate any and all wild birds, wild animals and fish that have been illegally killed, caught, transported or shipped. (1930, p. 636; Michie Code 1942, § 3305(8); 1962, c. 469.)

§ 29-15. Employment of other assistants. — In addition to the Executive Director the Commission may employ such other persons as may be necessary to the administrative requirements and designate the official position and duties of each. The Commission shall employ, and make available to local governing bodies on request, a person skilled in predatory control of all wild animals recognized as carriers of rabies. (1930, p. 636; Michie Code 1942, § 3305(8); 1954, c. 632.)

§ 29-16. Salaries of employees. — The salaries of all such employees shall be such as may be provided in accordance with law. (1930, p. 637; Michie Code 1942, § 3305(8).)

§ 29-17. Meetings of the Commission. — The Commission shall meet once every three months beginning July first of each year for the transaction of such business as may be brought before it, and other meetings may be called if necessary. The majority of the members shall constitute a quorum. In the event of unavoidable absence of the chairman, because of illness or other reason, the members present shall designate some other member to act in place of the chairman. Meetings shall be held in Richmond or at such other places within the

ARTICLE 1.

In General.

§ 29-125. Power of the Commission. — Having a due regard for the distribution, abundance, economic value and breeding habits of wild birds, wild animals, and fish in inland waters, the Commission is hereby vested with the necessary power to determine when, to what extent, if at all, and by what means it is desirable to restrict, extend or prohibit in any degree the provisions of law obtaining in this State or any part thereof for the hunting, taking, capture, killing, possession, sale, purchase, shipment, transportation, carriage or export of any wild bird, wild animal, or fish from inland waters and may upon its own motion or upon written petition of one hundred licensed resident landowners of any county propose regulations for such purpose. (1930, p. 646; Michie Code 1942, § 3305(34); 1952, c. 608.)

Code Commission note. — This section was amended by Acts 1973, c. 471. The 1973 act, which was made effective July 1, 1974, and provided that it should expire at midnight on

that date unless earlier reenacted, was repealed by Acts 1974, c. 96, effective March 22, 1974, and therefore never went into effect.

§ 29-126. Publication of proposed regulations or change therein; validation; evidentiary nature of publication. — (a) The full text or an informative summary of any proposed regulation or change in the regulations shall be published not less than fifteen nor more than thirty days before the same may be acted upon and shall name the time and place that the matters mentioned therein will be taken up, at which time any interested citizen shall be heard. Such publication, if the proposed regulation or change in the regulations be of local application, shall be made in a newspaper published in the county, or, if there be none such, in a newspaper in the adjoining county or section or in such other manner as may be convenient. However, such publication, if the proposed regulation or change in the regulations be of statewide application, shall be made in a newspaper in every county and city in which a newspaper is published. Also, a copy of such proposed regulation or change in the regulations, being of either local application or statewide application, shall be filed in the office of the Division of Legislative Services, where it shall be subject to inspection during office hours by any person. Such filing must not be less than fifteen nor more than thirty days prior to the day on which the public hearing on such proposed regulation or change in the regulations is to be held. All regulations or changes in the regulations published in accordance with this paragraph as amended are hereby validated.

(b) Prima facie evidence of any such regulation may be given in all courts and proceedings by the production of a certified copy of such regulation or regulations, which certification shall be made by the Executive Director of the Commission or his deputy. (1930, p. 646; Michie Code 1942, § 3305(34); 1956, c. 178; 1960, c. 539; 1962, c. 478; 1974, c. 56.)

Code Commission note. — This section was amended by Acts 1973, c. 471. The 1973 act, which was made effective July 1, 1974, and provided that it should expire at midnight on

that date unless earlier reenacted, was repealed by Acts 1974, c. 96, effective March 22, 1974, and therefore never went into effect.

§ 29-127. Adoption of regulations. — If the Commission is satisfied that the proposed regulation, or any part thereof, is advisable, such regulation, or any part thereof, in the form in which it was filed or as amended as a result of the

section, it shall be unlawful and constitute a Class 2 misdemeanor for any person to hunt game in the counties of Goochland, Louisa, Prince William and Richmond with a rifle of a caliber larger than twenty-two one hundredths or with a shotgun loaded with slugs.

F. Notwithstanding the provisions of subsections A, B, C and D of this section, it shall be unlawful and constitute a Class 2 misdemeanor for any person to hunt in the county of Lancaster with a rifle of a caliber larger than twenty-two one hundredths. Provided, however, that this subsection shall not be construed to prohibit any person from shooting groundhogs with a larger rifle, except during the general open season for hunting game animals with firearms. (1976, c. 443; 1977, cc. 20, 377; 1978, c. 303.)

Cross reference. — As to punishment for Class 2 misdemeanors, see § 18.2-11.

§ 29-145: Repealed by Acts 1962, c. 520.

§ 29-145.1. Killing of deer or bear damaging fruit trees, crops, livestock or personal property or creating a hazard to aircraft. — Whenever it is found that deer or bear are damaging fruit trees, crops, livestock or personal property in the State, the owner or lessee of the lands on which such damage is done shall immediately report such fact to the local game warden for investigation. If after investigation the game warden finds that deer or bear have so injured the fruit trees, crops, livestock or personal property of such owner or lessee as to cause damage, he shall authorize in writing, the owner, lessee or any other person designated by the game warden to kill such deer or bear when they are found upon the land upon which the damages occurred.

Whenever it is found that deer are creating a hazard to the operation of any aircraft or to the facilities connected with the operation of aircraft, the person or persons responsible for the safe operation of such aircraft or facilities shall report such fact to the local game warden for investigation. If after investigation the game warden finds that deer have so created such hazard, he shall authorize such person or persons, or their representatives, to kill such deer when they are found to be creating such a hazard.

The carcass of every deer or bear so killed may be awarded to the owner or lessee by the game warden, who shall give such person a certificate to that effect on forms furnished by the Commission of Game and Inland Fisheries. Any person awarded a deer or bear under this section may make use thereof as if the same had been killed by him during the season therefor. (1948, p. 326; Michie Suppl. 1948, § 3305(36c); 1954, c. 686; 1956, c. 684; 1958, cc. 315, 609; 1960, c. 129; 1962, c. 229; 1970, c. 79; 1980, c. 271.)

Code Commission note. — This section was amended by Acts 1973, c. 471. The 1973 act, which was made effective July 1, 1974, and provided that it should expire at midnight on that date unless earlier reenacted, was repealed by Acts 1974, c. 96, effective March 22, 1974, and therefore never went into effect.

The 1980 amendment inserted "or bear" in three places in the first paragraph and in two places in the third paragraph, substituted "fruit trees, crops, livestock or personal property" for "fruit trees or crops" in the first and second

sentences of the first paragraph and, in the third paragraph, substituted "may be awarded to the owner or lessee by the game warden" for "shall be delivered by the owner or lessee to the local game warden, who shall deliver it to such charitable institution or hospital as designated by the Commission of Game and Inland Fisheries; provided, however, that any deer so killed in any year shall, upon request, be awarded by the game warden to the owner or lessee."

Mr. YATES. Thank you very much, sir. I appreciate your excellent statement.

Who is next?

Mr. McDOWELL. My name is Robert McDowell.

Mr. YATES. Your statement may be made part of the record.

Mr. McDOWELL. I am an adviser to the National Bow Hunter Education Foundation.

My reason for being here obviously is to talk about bowhunting a little bit, since it has been somewhat controversial in this particular issue. But I think more important than that, I think that we as the National Bowhunter Education Foundation, and the American Archery Council, and the National Field Archery Association, and the nation's bowhunters, wish to voice their support for modern-day wildlife management.

We consider the fact that many considerations have been made on this particular facility, a hunt designed by a wildlife biologist, trained by our nation's universities to do this type of thing, have made certain recommendations about the numbers of deer and the methods that should be taken from the population, and we would like to support that and say that we think that wildlife management should be in the hands of those people professionally trained to manage our nation's wildlife.

I think also the track record of wildlife management is pretty good, and that the health of our country's wildlife population stands as a good example as to how wildlife can be managed.

Regardless of whose land or what land it is on, the principles of wildlife management work. And most of the game animals in this country are near or at the carrying capacity of their environment, and their populations are maintained with various types of hunting seasons, which includes both firearms and bows and arrows.

I think some of the considerations that have been brought up here regarding the effectiveness of a bow and arrow should be addressed.

In my home State of New Jersey, where I work for the New Jersey Division of Fish, Game and Wildlife, we have conducted many surveys using the most modern techniques we can on lands that probably have the heaviest firearm and bow hunting pressure in the country. And we find no significant difference in the crippled loss, wounding loss, or unretrieved kill, whatever you want to call it, between bow hunting and firearms.

I think it is important that we understand that modern archery equipment, with the types of bows that are being used, the types of broad heads, killing agent on the end of the arrow that is being used, and in particular the involvement of the bowhunter as an educated sportsman, makes a very effective killing system.

We have run surveys where we examined deer that were killed by firearm hunters subsequent to the bow season. We looked for wounds; we looked for pieces of arrows, and all kinds of other things in the animals, using metal detectors and other types of devices.

We found less than one percent of the animals examined showed any evidence of wounds by bowhunters.

So we think that the statements made about the bowhunters and their effectiveness in terms of killing a deer that we have seen re-

garding this hunt should be reviewed in terms of what the data says, what the information says.

I think another thing we need to talk about is just the basic philosophy regarding hunting. The basic philosophy behind bowhunting obviously is quite similar. We don't think that somebody going out there, enjoying themselves hunting, shooting a deer and taking it home and eating it, is a moral sin. And there is no real difference between shooting a deer and eating it or eating a McDonald's hamburger or a pound of beef. They all come from the ecosystem, regardless of whose fence it is behind.

I would think that the group out today, when they bite into a McDonald hamburger, would remember it had a pulsating heart, just like a lot of deer. And regardless of the terms you wish to use—euthanasia, culling, harvesting—we are killing the animal for man's particular purpose.

We feel any regulations by a government body based upon philosophical differences of groups are highly discriminatory. If the consideration here has to be made about whether to use bows and arrows, whether to use firearms, or to hunt at all, it should be based on the needs of the wildlife population we are dealing with, not philosophical needs.

Mr. YATES. I think really it is a question of whether the Smithsonian should be part of it, not whether or not there should be hunting in the State of Virginia.

Mr. McDOWELL. I understand that. But our concern is that deer population should be treated as a deer population anywhere in the country, and it should be managed properly, for the deer, themselves, and the deer outside.

As sort of an aside, I would also say that our experience in New Jersey with using the methods of driving deer, and I know some people here are going to talk about it, also, they are very ineffective in terms of limiting or controlling deer populations.

And if we think that we are just going to simply drive these deer out of this fence, and everybody is going to be happy, and we are going to transport them over to some sort of deer land, we have a mistake. We ought to consider that. In fact, looking at the data of the Smithsonian, they crippled as many deer trying to drive them out in a friendly manner as they did during the bow season.

Mr. YATES. It is not like driving up the Chisholm Trail.

Mr. McDOWELL. Yes. And the other consideration is if this population is under stress. Stressed animal populations have a greater incidence of parasites and disease, that is a biological fact. If that is true, what kind of considerations are we making then, transporting those parasites and disease over to another wild deer population?

I think that is a very important consideration.

I think another thing that was brought up was whether bowhunting was safe. I think the way the hunt is designed, as I see it, it is about as safe as you could possibly get. I don't think it offers any threat to the citizens of the surrounding area, nor does it offer a threat to the hunters, themselves.

Mr. YATES. I think probably safer than shooting with rifles. You don't have the range a rifle has.

Mr. McDOWELL. Right. In terms of bow effectiveness, I think we have to think of it in terms that the shotgun is to the rifle as the bow is to the shotgun.

We are talking about limits of range. Once the animal is struck with a particular missile, then we have to talk about it in terms of cripple loss and wounding loss, or unretrieved kills, whichever terms you wish to use.

Regardless of that, in our State and many other States, like Missouri, New York, surveys have been run, and when you go out into the field, and look for these deer, with various types of equipment and stuff, you find an extremely low rate of animal loss to bows, and also with firearms. In our State they are about the same.

Also, I think, to sum it up, I don't think that our wildlife resources, regardless of where they live, should be victims of emotionally based unscientific views of wildlife management.

We think that the hunt that has been designed can effectively, over a period of time, control deer populations. It has been proven at the Great Swamp National Wildlife Refuge in New Jersey; it has been proven on almost every military reservation in our State, Picatinny Arsenal, and many other military and other types of government land which does and does not have fences in some cases—large parcels of land which are quite comparable to this area.

Deer herds are under control in most of our States because of, and with the aid of, sport hunting, including both bows and firearms.

[Mr. McDowell's prepared statement follows:]



NATIONAL BOWHUNTER EDUCATION FOUNDATION

STATEMENT OF THE NATIONAL BOWHUNTER EDUCATION FOUNDATION, THE AMERICAN ARCHERY COUNCIL AND THE NATIONAL FIELD ARCHERY ASSOCIATION, BEFORE THE HOUSE APPROPRIATIONS SUBCOMMITTEE ON INTERIOR AND RELATED AGENCIES, NOVEMBER 4, 1982 BY ROBERT MCDOWELL, NATIONAL BOWHUNTER EDUCATION FOUNDATION, ADVISOR.

MR. CHAIRMAN: I am Robert McDowell. I am an advisor to the National Bowhunter Education Foundation. In addition, today I am representing the American Archery Council and the National Field Archery Association. In this capacity, I represent the views of our nation's 1.5 million people who hunt with a bow and arrow.

I am a wildlife biologist with the New Jersey Division of Fish, Game and Wildlife. I have studied bowhunters, bowhunting success on white-tailed deer, and the attitudes, economics and demographics of bowhunter families. In addition to my professional training and experience, I have bowhunted for 20 years. I am intimately familiar with bowhunting equipment and its effectiveness.

Mr. Chairman, the organizations I represent are supporters of modern wildlife management, and we believe that our country's wildlife populations should be managed by those people trained by our universities to understand wildlife populations, their environmental needs, the factors that control the health of wild animals and the methods best used to control wildlife numbers. The successful record of professional wildlife management speaks for itself. Most game animal populations are near or at the carrying capacity of their environments throughout North America.

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INTERNATIONAL BOWHUNTER EDUCATION PROGRAM

Their health and numbers are maintained with hunting seasons utilizing both firearms and bows and arrows. This method of managing white-tailed deer has been proven successful many times in all states on both private and government owned land. We think the same programs will work at the Smithsonian Institution's Conservation and Research Center.

In our view the question: "Should bowhunting be allowed?" has four considerations regardless of who owns the land. I will address these four areas. Are bowhunters and their equipment effective and humane? Is it right philosophically? Is it conservation? And is bowhunting safe?

Bowhunters and their equipment are a humane and effective hunting system. For the purpose of our discussion, we will consider as unrecovered kills those animals which are shot and die but not found by the hunter. Also, we will consider wounding loss, those deer which are shot but do not die. In studies conducted on deer deaths by the New Jersey Division of Fish, Game and Wildlife, a 3-5 percent rate of unrecovered kills is reported. This is a percentage of the deer legally harvested by bowhunters. The data on unrecovered kills was derived by conducting dead deer searches utilizing metal detectors and other methods to determine the agent causing the deers' death. These searches were conducted on both private and public lands which have the heaviest bowhunting pressure in the country. Surveys and hunts conducted in New York and Missouri reported similar data. In a recent survey conducted by the Wildlife Management Institute, 24 of 29 states reported that unrecovered kills from bowhunting were less than, or no more than, those which occur from gun hunting.

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To shed some light on wounding loss, the New Jersey Division of Fish, Game and Wildlife conducted surveys at deer checking stations during firearm seasons. A total of 3,367 deer were examined for arrow wounds by trained biologists. Only one percent of the deer showed any evidence of arrow wounds. All of the deer examined were in healthy condition and showed no prolonged effects from the encounter with an arrow.

The bowhunter is an efficient harvester of deer. In fact, bowhunters are more efficient than a mountain lion which allows 22 percent of its prey to escape after attack. (Mr. Hornocker, 1970). In many states, bowhunters have success rates equal to firearm hunters. The effectiveness of bowhunters is due to aggressive education programs carried out by our state wildlife agencies. These are based on the education program designed and distributed by the National Bowhunter Education Foundation.

Is it right philosophically? We believe, it is. We feel that bowhunting is a healthy outdoor sport. Further, we feel that killing a deer and taking it home and eating it, is no different than eating beef or any other animal. There is no difference between eating a pound of beef or a pound of venison; both are produced by the ecosystem. We do not feel that the sport of bowhunting should suffer because there are people who do not believe as bowhunters do. We further believe that sport hunting is not a moral sin. We feel that laws or government action that suppresses the activities of one group solely because of philosophy is discriminatory.

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Is it conservation? Yes, we think it is. Conservation is the wise use of natural resources and bowhunting for deer conforms to this idea. Bowhunting produces over 9 million man-days of recreation for 1.5 million people nation-wide annually. Nowhere is bowhunting reported to threaten any wild animal population. The license monies collected are used by state agencies to carry on wildlife management programs. This amounts to over 5 million dollars each year. In addition, federal legislation provides an 11 percent tax on archery equipment sales with the monies going to the federal aid to wildlife fund. This will amount to over 14 million dollars this year. These funds are given back to state wildlife agencies to conduct wildlife research and management. Thus, the bowhunter pays his way, and gains the benefits of recreation provided by bowhunting seasons established by trained wildlife biologists. And these seasons do not threaten deer or other wildlife populations.

Is bowhunting safe? To our knowledge, there have been few fatalities of bowhunters in 40 years of bowhunting. There has never been any bystander involved in a reported bowhunting accident. Remember, this involved 9 million man-days and 1.5 million people annually. The normal bowhunting accident is a self-inflicted one and consists of cuts, bruises, and falls that can be incurred in any outdoor activity. Bowhunting is safer than many other human activities such as taking a bath or walking down the basement stairs.

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In summary, the National Bowhunter Education Foundation, the American Archery Council, the National Field Archery Association and our 1.5 million bowhunters believe that bowhunting conforms to the concept of conservation and that, through licensing and taxes, bowhunters benefit the wildlife resource. Bowhunting is a humane sport and does not result in large numbers of wounded and maimed deer. In fact, bowhunters may be more humane and efficient than nature's methods of harvesting deer. Bowhunting is safe and poses no threat to bystanders. The benefits of recreation and using our deer resource wisely far outweigh any threat to people.

On the other hand, the 'no hunt, let nature take its course' philosophy of wildlife conservation expressed by some people has resulted in damage to the deer resource and its habitat. In my state, the long delayed Great Swamp Deer Hunt is an illustration of the consequences of this philosophy. Prior to the first hunt, conducted in December 1974, deer were starving and in poor health. The does produced fewer and weaker fawns, and the habitat for other wildlife species was being consumed by too many hungry deer. Today, after many successful hunts, the body weight and the reproduction rate of the deer have dramatically increased. The habitat is recovering. The harsh winters since the hunts began in 1974 further illustrate the wisdom of hunting deer. There have been no deer found dead of starvation in the Great Swamp Refuge. I cite this example to show the benefits of deer hunting as opposed to the hazards of the anti-hunting philosophy.

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We now have a new example of the problems associated with a protectionist approach to wildlife management in the recent fiasco in Florida. We bowhunters do not feel we, or our wildlife resources, should be the victims of an emotionally biased, unscientific view of wildlife management.

Mr. Chairman, thank you for the opportunity of appearing before your Subcommittee today. I will be happy to answer any questions.

Respectfully submitted,

Robert McDowell
National Bowhunter Education
Foundation Advisor

Mr. YATES. You have a different problem here. You have other animals who might be affected. The Smithsonian has animals under care who are in danger of extinction. The impression I have in my own mind is that the farther away you can keep the deer with their parasitic problems, I think the safer and the greater the possibility is of the Smithsonian carrying out its fundamental mandate.

Mr. McDOWELL. The nature of the parasites and diseases they are talking about, in my opinion, are such that we are not talking about hundreds of feet. We are talking about miles in terms of proximity of keeping the deer away.

Mr. YATES. Presumably the fence would help.

Mr. McDOWELL. I don't know about the susceptibility of some of the endangered and rare species they have to something called epizootic hemorrhaging disease. I know whitetailed deer die in great numbers of it.

And a stressed population like the one I feel is in this area is more susceptible than deer that are currently under some sort of scientific management program.

They would have to answer whether those animals are susceptible, also. I suspect some of them are.

Mr. YATES. Thank you, Mr. McDowell.

Let's take a two-minute break.

[Short recess.]

Mr. YATES. Our next witness is Mr. Heller.

Mr. HELLER. My name is Vic Heller, Florida Game and Fresh Water Fish Commission. Before that, I served two years as wildlife biologist in the Florida Everglades, and was instrumental in developing the deer management plan in that area.

Mr. Chairman, on behalf of Colonel Grantley, I want to thank you for the opportunity to present this agency's views on the management of white-tailed deer on the Smithsonian Institution's Front Royal property.

We present our views as a professional wildlife agency with considerable experience in the management of overpopulated deer herds and with very recent experience in the intervention from animal rights groups in our management regimes and programs.

As a consequence, we wish to bring to your attention the adverse impact outside intervention may have on the ability of the resource agency to responsibly manage wildlife populations and relate this to the unfortunate situation that has developed at the Front Royal Center.

In June 1982, last summer, the water levels in the Everglades Wildlife Management Area suddenly rose to intolerable limits for deer, pushing herds from 500,000 acres onto very sparse remnants of high ground. Our management policy calls for emergency hunts in these situations due to the fact that in a very short time the deer on these areas can consume the food plants on those islands and disease problems start.

We proposed these hunts. Almost immediately they were opposed by animal rights groups in courts, and we went through three Florida courts before we were finally given the go-ahead to hunt a portion of the Everglades.

Mr. YATES. By the court.

Mr. HELLER. Yes, sir.

Finally, as a last-minute arrangement between the Florida Game and Fish Commission and animal rights groups, in order to keep them from appealing to higher courts, further postponing the emergency hunts which were needed, we made an agreement.

They would be allowed to hold a catch or rescue attempt on the northern portion of the Everglades. All of this talk sounds very familiar. We agreed to let them to do, and we would be allowed to go ahead and conduct the emergency hunt on the southern portion of the area.

The agreement was that the animal rights groups would have two days in order to demonstrate their capacity to actually remove deer from the area. After two days, if they would catch 100 deer, they would be allowed to continue their operation, and we would not hunt the area.

If unsuccessful, we would go ahead and stage a hunt.

After one and a half days, the rescuers discontinued their operation, admitting that it was impossible to capture enough deer to benefit the herd.

Mr. YATES. The reason given this morning was that the deer were diseased.

Mr. HELLER. That is not altogether true.

Mr. YATES. Tell us the truth then.

Mr. HELLER. 19 deer were captured in that rescue operation in two and a half days. To date, only seven of those deer remain alive, six of which are being maintained intensively, cared for daily by Mr. Jack Kassevitz's very responsible institution in Miami.

However, 89 percent of the deer captured and released onto semi-natural areas have died. Types of death include nutrition-related problems, inability to adapt to new forage, new range, and especially injury-related maladies associated with the capture effort and with being held in confinement.

These can be substantiated by Dr. Frank Hayes, who performed the autopsies on all of those deer. They were badly bruised in many cases. I personally witnessed the capture and rescue operation.

I saw deer being hauled around upside down. Again, Dr. Wemmer said the stomach, runs down the esophagus, back into the lungs. It made me, having been around deer all my life, somewhat disgusted.

Even more disgusting perhaps is the way that after the hunt we have seen deer on the area dying—due to the fact that the court delays plus the capture attempt delayed our chances to hunt the northern area. We canceled the hunt on that portion of the area because habitat conditions there had gone beyond the point where they could support deer.

They were destroyed.

Since that time, we have monitored the area carefully, and have documented that 250 deer have died. Assuming we found one out of every three or four deer that have died, which is probably fair, we can assume that 66 percent of that entire population is lost to starvation. And I must admit that the ways that I have seen deer dying out there from starvation, parasitism, is far from humane.

And I can certainly attest to the fact when the arguments come up about which is more humane, dying from a bullet or dying otherwise, that the bullet is much quicker and starvation, the duration of starvation and apparent suffering involved with the starvation cases is certainly more prolonged.

Mr. YATES. Do we know—I don't know whether we do—do we know what the starvation conditions are for the deer in this area? Do we know that?

Mr. WEMMER. I don't think we would have starvation or much starvation this year, if the population is unchecked. I think the probability of starvation next year would be much higher.

Mr. YATES. What is your estimate as to what the population would be next year?

Mr. WEMMER. Well——

Mr. YATES. If you had no hunt.

Mr. WEMMER. If we have a thousand animals present on the property now, and if we assume the sex ratio is one male to two females, that means about 600 of those deer would be females, and if each of the females gave birth to just one young, and in this population we have good evidence they give birth to more than one young, then you would be adding another 600 animals to the population.

1,600 to 1,750, about.

Mr. YATES. Okay. Go ahead.

Mr. HELLER. On the southern portion of the Everglades area, we were allowed to go ahead and hunt.

Mr. YATES. In the Everglades National Park?

Mr. HELLER. No, sir. The Everglades Wildlife Management area, two distinct areas.

During those hunts, we harvested 723 deer, and monitoring there has again been intensive since the hunt. We have only found 48 dead deer following the hunt. If you run the same assumptions, you found one out of ever three or four deer, then only 4 percent of that population has died.

Combining that even with the deer that died in the hunt, we see only a 22-percent herd reduction. We have 66 percent as opposed to 22 percent. Our hunt alternatives are perpetuating deer herds in that area.

The point is, the espoused alternatives to controlling overpopulated deer herds have been proven to be undefendable, ineffective, logistically impractical, and economically prohibitive.

They claimed they could do it, and they didn't. As a consequence, we saw a deer herd die.

Mr. YATES. Would that deer herd have died if neither of you had taken any action? Suppose you had not had your hunt, and they had not had their rescue. What would have happened?

Mr. HELLER. Probably a massive deer die-off would have occurred over the whole area. Instead it was limited to the northern area.

I wish to make one point, that wildlife are renewable living resources, they cannot be stockpiled. They must be managed at levels that are compatible with the ability of the area to support them.

With good management, plant and animal populations can continually occur on areas, and healthy populations still provide significant levels of recreation, food and fiber for people.

The key is proper management. I did want to comment briefly on a few of the things I have heard.

I do have fairly extensive experience in working with deer. As you mentioned, it is pretty tough to have a Chisholm Trail of deer out of thick habitat. We have tried to get deer out of habitat, having drives, extensive trapping programs, at Cape Canaveral, where we tried to bring the population down there in order to minimize auto accidents on the facility.

We trap and trap and trap, and every year it is the same thing. We move a lot of deer out. By the way, we have discontinued that operation, because there are no longer any places in the State of Florida where we have habitat that is void of deers, that we can justifiably move deer to that area, where it is good habitat lacking in deer.

I strongly suspect it is that way over much of the Southeast. If trapping is going to be considered an alternative, or driving, whatever control method you use, it is going to have to be considered an annual event. You are never going to get them all out at one time.

Mr. YATES. What if you were to fence it off?

Mr. HELLER. You fence it. You are still not going to get your deer out. You still have to get your deer out.

Mr. YATES. Out of the enclosed area?

Mr. HELLER. Yes. You can try, once you get your good fence built, try to move the deer out of the area. But you are not going to do it. I have worked with deer too long, and see them just hold steady, loop back around people, duck under brush. They are smart. You may get a good chunk of them out.

But when the snow falls, they will come back, when the snow falls. Those deer were born and raised in that area, and they have a very strong site fidelity.

If you drive them——

Mr. YATES. What do you mean by site fidelity? Kind of like a homing pigeon?

Mr. HELLER. Right. And deer do have, most deer are born, raised and die within one square mile of where they are born. We have turned them loose on the Everglades 9 miles away and had them take a straight course right back to home.

Once deer are moved out of the area, say into—I am not familiar with the surrounding area—let's say they go to the Shenandoah National Park, if they cannot get back home, they are going to hunt out the best food sources. Every deer does it.

Alfalfa is a strongly-preferred, highly-preferred food for deer—I want to correct the record—so are apples in orchards. And they will find them.

I just wanted to point out those are some problems you are going to be possibly looking at. It is going to be an annual affair. Regardless of which alternative you select, it is going to have to be year after year after year.

Mr. YATES. I think we will ship most of them to Florida, providing we can get hold of them.

Mr. HELLER. We do not do that any more with any large animals due to the possibility of transporting disease and parasites around the State which we have documented. We just don't do it any more. It is too expensive.

Mr. YATES. Thank you, Mr. Heller.

[The following was provided for the record:]

Statement of the Florida Game and Fresh Water Fish Commission before the House Appropriation Subcommittee on Interior and Related Agencies, November 4, 1982.

By: Victor J. Heller, Assistant Chief, Bureau of Wildlife Land Management, Florida Game and Fresh Water Fish Commission.

Mr. Chairman, on behalf of Col. Robert M. Brantly, Executive Director of the Florida Game and Fresh Water Fish Commission, I want to thank you for the opportunity to present this agency's views on the management of white-tailed deer at the Smithsonian Institute's Conservation Center, Front Royal, Virginia. We present our views as a professional wildlife agency with considerable experience in managing overpopulated deer herds and as an agency having recent experience with outside groups opposing deer hunting and legitimate deer management policies. As a consequence we wish to bring to your attention the adverse impacts outside intervention may have on the ability of a resource agency to responsibly manage wildlife populations and relate this to the unfortunate situation that has developed at the Conservation Center.

The Commission has recently been through a dilemma similar to the one currently facing the Smithsonian Institution. In July 1982, animal rights proponents challenged the Commission in three different Florida courts in an attempt to halt proposed emergency deer hunts in the Everglades Wildlife Management Area. They too claimed that alternatives to hunting could provide a solution to the high density deer situation.

Emergency deer hunts were scheduled when abnormally heavy rainfall caused water levels in the Everglades to suddenly rise, concentrating large numbers of deer on small patches of high ground. Deer numbers drastically exceeded the ability of the sparse high ground areas to provide food and cover. Given the predicted duration of high water levels, we knew from previous experience food plants would quickly be exhausted and deer die-offs would begin.

The purpose of scheduled emergency hunts was:

1. to allow utilization of animals that would be wasted if allowed to die from starvation;
2. to reduce the magnitude of the deer die-off by reducing competition for food and cover among unharvested deer and by reducing disease and parasite transmission potential;
3. to assure that an adequate number of deer survived to rebuild the herd; and
4. to protect the habitat from overutilization and damage by deer.

Those opposing the hunt claimed they could basically accomplish the same objectives using a massive deer capture and relocation effort and petitioned the courts to stop the proposed hunts. Following defeat in three courts, animal rights groups threatened further appeal to higher courts. Meanwhile, deer were eating themselves out of their habitat.

Deer and habitat conditions were deteriorating rapidly. In a last minute effort to expedite the emergency hunt, the Commission and opposing groups came to a mutually acceptable agreement. The Commission would proceed with the scheduled emergency hunt on the southern portion of the area and hunt opponents would be allowed to conduct a "deer rescue" on the northern area.

One and a half days after the rescue operation began rescuers halted their efforts, admitting that it was impossible to capture enough deer to help the herd. Despite earlier claims that 100 deer could be captured and relocated from the northern area in two days, only 19 deer were captured. One of those deer was killed in the course of being captured and another's leg was broken. Since the rescue attempt, 12 (63 percent) of the 19 deer have died. Most died from stress, nutritional problems and injuries received while being captured or held in confinement. Of the seven deer remaining alive, six are fawns which are being fed and cared for intensively. Eighty nine percent (11) of the deer released in semi-natural facilities have died.

When contacted about the expense of the rescue operation, Jack Kassewitz, coordinator of the operation reported the expenditure of \$8,000 or \$421 per deer captured. He further emphasized that the costs of maintaining the sick fawns in captivity has reached well over \$500 per animal. Given the survival rate of "rescued" deer, 34 percent, and the cost of the operation, \$8,000, the expense of the surviving seven deer is \$1,142 each.

Following delays caused by the court proceedings and the rescue operation, the Commission determined that habitat in the herd reduction from an emergency hunt would not give the remaining deer any significant chance of survival. The advantages created by a timely herd reduction had been lost.

Since that time, the area has been intensely monitored. Two hundred and fifty dead deer have been found by Commission personnel. Assuming that we found one out of every three or four dead deer than as much as 66 percent of the population (estimated at 1500) may have died.

The emergency hunt on the southern portion of the area was held on schedule and 723 deer were harvested from a herd estimated at 4000. The south area was also intensely monitored after the hunt. Only 48 dead deer have been found. Again, if we assume that one out of every three or four dead deer were found, only about 4 percent of the herd in the south area has died from natural causes. Combining this natural mortality with the hunter harvest, only 22 percent of the herd was lost. Besides losing a lower percentage of deer than on the non-hunted northern area, the southern area's habitat is in better condition and prospects are good for herd recovery. These results compare favorably to those we documented in September 1981 when the Commission held its first emergency hunt in another portion of the flooded Everglades. However, after the September 1981 hunt, no subsequent natural mortality was observed and the operation was considered a complete success.

Animal rights groups protested these hunts on the basis that it was cruel to shoot deer in these overpopulated situations. They contended that the alternative of a rescue effort was more humane while providing an equally effective solution to the overpopulation problem. Yet the rescue attempt was woefully unsuccessful and the subsequent deaths of captured deer was hardly humane. Even less humane was the way we later saw deer dying from starvation, stress and parasitism in the Northern area. Although we are unable to quantify the relative amounts of suffering involved in death from a bullet and death from starvation, we can certainly testify that the duration of apparent suffering is clearly much longer in starvation cases. We have numerous photographs that clearly depict the disgusting and inhumane conditions deer go through when animal rights groups intervene in or delay needed resource management decisions or actions, thus allowing animals to starve.

The dilemma that was faced last summer relates directly to the one now facing the Smithsonian. A deer herd has overpopulated its range as they often do in the absence of natural predators. At this overpopulated level, deer not only compromise or eliminate agricultural production but actually destroy their own habitat. Because deer herds continue to grow rapidly despite annual reduction efforts, the most reliable, efficient and economical method must be used to keep the population at levels the habitat can safely support.

Epoused alternatives (other than hunting) to controlling overpopulated deer herds have proved undependable, ineffective, logistically impractical and economically prohibitive. If they were not we are convinced that reputable, competent resource managers such as the Smithsonian Institute and wildlife agencies nationwide, would recognize their value. Instead, hunting is usually recognized as an effective and reliable method of providing long-term control of deer populations. Hunting provides the public with food and a legitimate form of outdoor recreation, both of which are very much in demand. Hunting is certainly no less humane than animal deaths which result from high mortality rescue missions or a lack of proper population regulation. Resident game animals belong to the people of the state and residents have the right to accept or refuse the opportunity to utilize these resources.

Renewable, living resources cannot be stock piled. They must be managed at levels which are compatible with the ability of the area to support them. With good management, plant and animal populations can continually occur in healthy populations and still provide significant levels of recreation, food and fiber for people. The key is proper management and wise utilization.

We very much appreciate the opportunity to present these data and our views on this important subject. We have additional detailed data and published material that corroborate our position. These may be made part of the record at your request. I am prepared to answer any questions you may have on this issue at any appropriate time.

Mr. YATES. Mr. Berryman?

Mr. BERRYMAN. Mr. Chairman, I will submit my statement for the record.

The International Association of Fish and Wildlife Agencies really appreciates the opportunity to be here on this emotional and controversial, but really significant issue. And additionally, Mr. Rex Resler of the American Forestry Association asked me to indicate to you that he endorses our statement. And I have left his statement with you, which we strongly endorse.

Mr. YATES. It is received for the record.

[The statement follows:]



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Subcommittee on Interior
Committee on Appropriations
United States House of Representatives

A Statement By

Rexford A. Resler
Executive Vice President
The American Forestry Association

November 4, 1982

Mr. Chairman, being unable to attend this hearing, I request that this statement be introduced into the record. I wish to endorse the statement of Mr. Jack H. Berryman, Executive Vice President of the International Association of Fish and Wildlife Agencies, as accurately representing the policies of The American Forestry Association and my own personal and professional opinions.

I have been concerned about the controversy generated relative to a planned deer hunt by the Smithsonian Institute's National Zoological Park Conservation and Research Center near Front Royal, Virginia. I have had the opportunity to study the white-tailed deer management plan developed by the Conservation and Research Center and have consulted with wildlife management specialists.

I wish to state my professional background upon which my opinions are based. I am a graduate forester and have spent over 30 years as a professional land manager with the Forest Service prior to my assuming this position with The American Forestry Association in January 1979. I worked with wildlife biologists and other specialists in habitat management in the several federal agencies and the state departments of fish and game across the country. Based on my study of the current controversy, I find nothing unique about the white-tailed deer management problem facing the Center nor anything illogical or unprofessional in their proposed solution except for the glare of publicity which has been generated and the strenuous opposition to the methods proposed for the reduction of deer numbers at the Center.

It is clear that the Conservation and Research Center maintained by the Smithsonian Institution's National Zoological Park has a very

clear and important function, that is, to advance the conservation of selected species of birds and animals and to serve as a breeding center for exotic animals. There seems to be little disagreement with the Center's conclusion that over-population of the native white-tailed deer is creating serious problems for the Center and thwarting its primary objectives. The controversy turns on the methods to be used to reduce surplus populations. The proposed control method is the issue which I wish to address.

Mr. Chairman, I have witnessed the decimation of deer herds by starvation as a result of destruction of habitat from over-population, coupled with severe winter storm conditions. There is no worse fate for any species of the animal kingdom and no more inhumane action, or failure of action, man can pursue.

I have had some experience in capturing deer for research purposes but it is a time-consuming, costly, and relatively unfruitful exercise seldomly justified except for research purposes or for relocation of breeding stock.

The most logical solution is to reduce surplus numbers by hunting. The white-tailed deer is a prized game animal. I believe that the taking of game animals by gun or bow is a necessary tool of wildlife management and of population control.

I have confidence in the professionalism of the biologists employed by the Smithsonian Institution and the Virginia Department of Game and Inland Fisheries. They have studied the situation, have made sound recommendations, in my judgment, and should not be deterred from the implementation of sound resource management plans by emotional appeals based on opposition to the taking of wild animals.

It is my hope and recommendation that the carefully controlled deer hunt may proceed under the careful guidance of wildlife management professionals.

Mr. BERRYMAN. I believe you are aware that our association is composed of the States and Federal agencies of the U.S., Canada and Mexico. And most of the States have deer management programs.

One of our objectives is a professional, rational use of fish and wildlife resources. That is one of the main reasons for our being here.

Speaking for the organization, and as a wildlife professional, it is my considered judgment that the Smithsonian Institution has made a sound and necessary management decision to reduce the deer population at the center by means of a controlled hunt.

It is a management practice that our Association fully supports.

Mr. YATES. May I ask you a question?

Were you the Smithsonian, and subscribed to that conclusion, would you control the hunt with professional marksmen or open it to the public?

Mr. BERRYMAN. I would open it to the public under very careful screening and guidelines to be certain that they were all qualified hunters or archers.

I personally would resist the use of professional marksmen because unless it is a security situation, some of the alternatives put deer in the category of a pest that must be wiped out and eliminated instead of a resource that should be used.

Mr. YATES. What do you mean by a resource that should be used?

Mr. BERRYMAN. Well, I think hunting provided the most efficient, economical means of reducing the population, and provides a lot of good outdoor enjoyment and pleasure, and puts the end product, the game, to real beneficial use.

Mr. YATES. If you had professional marksmen, presumably you could use the food for distribution to people of lower incomes.

Mr. BERRYMAN. Well, professional marksmen are used. I just think—

Mr. YATES. But you don't get the enjoyment.

Mr. BERRYMAN. I formerly served as an associate professor in the Wildlife Resources Department at Utah State University, and was employed by the Utah State Department of Fish and Game, with direct responsibility for deer management.

Now, when you are evaluating a situation of this kind, I think there are a number of principles that have got to be considered. One is the competence of the people to make the kind of a decision or judgment that is necessary. Number two, is real damage occurring? Number three, is a reduction in numbers necessary? And number four, is the method appropriate?

And the answer is affirmative on all counts.

Even the opponents of the hunt don't question that the numbers need to be reduced.

Now, I have worked with the Smithsonian scientists and those of the Virginia Commission for 17 years. I can vouch for their competence, integrity and dedication to the well-being of the animals that they are spoken for.

The management techniques that we have been talking about this morning have been tested in various situations over the U.S.,

as a whole for decades. And there are real limitations to the alternate methods that have been proposed.

I think this situation is unique only because it is the National Zoo, and because the Smithsonian Institution has a high degree of national exposure. A controversy involving deer has emotional appeal.

Thus, the situation provides an immediate and national fishbowl forum for those who are opposed to hunting, and they are seizing upon this as an opportunity for yet another public outcry.

And the gang of TV cameras out in the hall attests to that fact. Furthermore, the issue has significance for all States, because of management and public hunting. And we think it is significant that the professional competence and integrity of the Smithsonian itself are being challenged.

Mr. YATES. It has been my experience, even the Smithsonian makes mistakes sometimes. Occasionally.

Mr. BERRYMAN. The preoccupation with alternatives serves to divert attention from the real issue.

Mr. YATES. Not very often, though.

Mr. BERRYMAN. No.

Mr. YATES. Okay.

Mr. BERRYMAN. But in this case, hunting is not the tool of last resort. It is not hideous. It is not an ignoble act to be employed only when all else fails. Rather, hunting is the preferred method. And for the reasons we discussed just a moment ago, it has distinct advantages.

The alternatives ought to be employed only when there are compelling reasons why hunting cannot be employed. And no such reasons have been mentioned with respect to the property, the facilities or the center's objectives.

And to employ some of the alternatives, such as sterilizing, is to treat the white tail as a pest rather than a game animal.

Mr. Chairman, except for the emotion being fanned by the opponents, we are confronted with a very simple exercise in land management and game management. We believe the resource professionals of the Smithsonian Institution together with those of the Zoo, in cooperation with the Virginia Commission, have studied the situation carefully and in our judgment have made a very sound decision, although obviously unpopular with a very vocal minority.

It is our hope and recommendation that your committee will see fit to permit the responsible officials to implement their decision. Since preparing this statement, I have been advised that the 17 Fish and Wildlife agencies of the Southeast Association of Fish and Wildlife Agencies together with cooperating organizations meeting in Jacksonville, cast a unanimous vote in support of the Smithsonian decision.

If I could add one more personal note, Mr. Chairman, during the severe winter of 1948 and 1949, I was employed by the Utah Fish and Game Department.

We had deer down in Salt Lake City in the residential areas, and the cemeteries, and the business district, and we attempted to lasso and hogtie and move and trap and transplant, we attempted to drive them from poor range to good range.

We hauled them back up on the foothills. I stayed bruised and cut all winter long. We fed them with produce, Christmas trees, and alfalfa hay. And it was all to no avail. This happened because there was a public resistance to a herd reduction. And the end result was we lost 60 percent of those herds and hauled them away by the truckloads.

We think that what is being proposed is good, sound wildlife resource management, and we think that the Smithsonian is not above good land management and good wildlife management practices.

Thank you, sir.

[The statement of Mr. Berryman follows:]

STATEMENT OF THE INTERNATIONAL ASSOCIATION OF FISH AND WILDLIFE AGENCIES
BEFORE THE HOUSE APPROPRIATIONS SUBCOMMITTEE ON INTERIOR AND RELATED
AGENCIES, NOVEMBER 4, 1982, BY JACK H. BERRYMAN, EXECUTIVE VICE PRESIDENT

Mr. Chairman, thank you for the opportunity of presenting the views of the International Association of Fish and Wildlife Agencies on this emotional, controversial, yet very significant issue.

Mr. Rex Resler, Executive Vice President of the American Forestry Association, has asked me to indicate the endorsement of the Association of this statement; also to deliver for the record the American Forestry Association's statement, which we fully endorse.

I think you are aware that the International Association is a voluntary organization consisting of the state, federal and provincial fish and wildlife managing agencies of the United States, Canada and Mexico. All fifty states are members. Most have active deer management programs. One of the Association's objectives is the encouragement of professional, balanced, rational fish and wildlife resource management, which is the main reason for my appearance before your committee. Speaking for the organization, and as a wildlife professional, it is my considered judgement that the Smithsonian Institution has made a sound and necessary management decision to reduce the deer population at the Conservation and Research Center by means of a controlled hunt. It is a management practice this Association fully supports.

I have served as Executive Vice President of the International Association for the past three years. I am a Wildlife Biologist, certified as such by the Wildlife Society, the society of professional wildlife workers. I am a Past President of that Society. I formerly served as an Associate Professor in the Department of Wildlife Resources of the College of Natural Resources at Utah State University. Prior to that time I had direct responsibility and experience in deer management programs in Utah where I was employed by the Department of Fish and Game and later in the eight southwestern and 11 midwestern and lake states as an employee of the Fish and Wildlife Service, working cooperatively with the states in a federal aid program. I retired from the Fish and Wildlife Service in 1978, having served as Chief of the Divisions of Wildlife Services and Technical Assistance and the Office of Extension Education.

When evaluating a situation of this kind there are several key principles to consider. It is necessary to determine whether those making the decision are professionally competent to render such a judgement; is real damage occurring; is a reduction in numbers necessary; and, is the proposed method appropriate. The answer is affirmative on all counts; and, even the opponents of the hunt do not question that damage is being done and that deer numbers need to be reduced.

I have worked with the scientists, research and resource personnel of the Smithsonian Institution for the past 17 years. I can vouch for their competence, integrity and dedication to the well-being of the animals for which they are responsible. I also have faith in the competence of the personnel of the Virginia Commission of Game and Inland Fisheries.

Further, I personally have had field experience and have knowledge of deer management and of the workability of the alternatives to hunting when it is necessary to reduce deer numbers. Deer management techniques have been tested and experimented with in various situations over the United States as a whole for a number of decades. There are limitations to the alternate methods which have been proposed or which might be attempted.

This situation is unique only because the National Zoo and the Smithsonian Institution have a high degree of national exposure. A controversy involving deer has emotional appeal. Thus, the situation provides an immediate and national "fish-bowl" forum for those who are opposed to hunting and they are seizing upon this as an opportunity for yet another public outcry. For that reason this issue has significance for all of the states insofar as management and hunting are concerned. It is also of significance that the professional competence and integrity of the Smithsonian Institution itself are being challenged.

Trapping, herding and sterilization all have rhetorical appeal but they are not practical, efficient or even human alternatives. Trapping has been tried in virtually every situation. It is useful only when the objective is to obtain seed stock, not to reduce an overpopulation and it begs the question as to where the animals are to be relocated. Capturing, sterilization and release, if practical, might limit future herd numbers but it does little to solve the present overpopulation which threatens the habitat of the native deer and the food for the exotic species. Deer do not respond well to herding, are difficult to move from their occupied territory and usually attempt to return. If it was possible, however, it would simply be a case of herding or moving the problem to another location where the deer would await the same fate, but without the controlled conditions which will be required at the zoo property.

Mr. Chairman, during the severe winter of 1948 and 1949 while I was employed by the Utah State Department of Fish and Game on big game management, deer came down from their mountain habitats in Salt Lake City to the residential areas, the business district, and in the cemeteries eating ornamental plants and shrubbery. We trapped and moved, we lassooed, hog-tied and moved deer from the residential and cemetery areas back to the foothills. Most of the time they beat us back to town. Mr. Chairman, those "poor, weak little fawns and does" kept us cut and bruised all winter long. We herded to move deer onto more favorable range. We fed alfalfa hay, Christmas trees and produce. All of this was to no avail and the end result was that we lost as high as 60 percent of some herds by starvation. Their carcasses were hauled away by the truckload. This was all because it came at a time when there was resistance to needed deer herd reductions—even worse—before the deer were lost they had virtually destroyed they own habitat, thereby reducing the carrying capacity for many years into the future.

The zoo situation is comparable to the recent deer reduction effort in the State of Florida. Here the controversy surrounded the efforts of the Florida Game and Fresh Water Fish Commission to reduce deer numbers by a controlled hunt in the Everglades area where their habitat was reduced by flooding. The hunt was delayed by a challenge by animal rights organizations. By the time the court ruled in favor of the State, it was too late to conduct the hunt on one unit and a very high percentage of the deer were lost to starvation. Additionally, there was damage to the habitat and the food supply which will take years to repair or recover. This is a classic example of the consequences of permitting emotional concerns, no matter how well intentioned, to take the place of or halt a needed and sound resource management program.

The preoccupation with alternatives serves to divert attention from the real issue. Hunting is not the tool of last resort—to be employed only when all else fails. Rather hunting is the preferred method. Is is not an ignoble act, not hideous. It is efficient and economical; it provides a wholesome outdoor experience; it results in a beneficial use of the game. Alternatives should be explored and employed only when there are compelling reasons why hunting cannot be employed. No such reasons have been mentioned, with respect to the Smithsonian property, facilities, or the Center's objectives.

To employ some of the alternatives, i.e., sterilizing, use of a sharpshooter, is to treat the white-tail as a pest rather than a game animal. Mr. Chairman, except for the emotion being fanned by the opponents, we are confronted with a very simple exercise in game management.

The resource professionals of the Smithsonian Institution, including those of the National Zoo, in cooperation with those of the Virginia Commission of Game and Inland Fisheries, have studied the situation carefully and, in our judgement, have made a sound decision—although obviously unpopular with a very vocal minority. It makes little difference, Mr. Chairman, whether it is Smithsonian property or that of a western rancher. Wildlife management techniques and requirements remain the same. Deer numbers must be managed, in this instance reduced. It is our hope and our recommendation that your committee will see fit to permit the responsible officials at the Smithsonian Institution to implement their decision at the earliest possible moment.

Thank you for this opportunity.

Mr. Chairman, since preparing this statement I have been advised that the 17 States of the Southeast Association of Fish and Wildlife Agencies and cooperating organizations, meeting in Jacksonville, Fla., earlier this week, cast a unanimous vote in support of the Smithsonian decision.

Mr. YATES. That is a very good statement. I can understand the enormous difficulties inherent in trying to clear the Smithsonian land of the deer once and for all, because the deer will try to get back, as one of the earlier witnesses said.

The deer have their instincts apparently like homing pigeons or salmon.

Mr. BERRYMAN. They will beat you back, they will race you.

Mr. YATES. But what if you have a fence there? Assuming you can get them out. What if you have a fence there whereby they cannot come back in? The Smithsonian's prime mission here is not to take care of the deer. The Smithsonian's prime mission is to take care of the animals for the Zoo, including exotic animals and endangered species.

And they are threatened by the presence of the deer, according to the testimony of the witnesses—by the parasites that are in the deer. Therefore, the impression I have is it is to the advantage of the Smithsonian in carrying out its fundamental mission to put the deer out as far as they can.

Mr. BERRYMAN. I surely cannot comment on their mission, though I believe I understand it. But in this case, their mission requires that they are the land managers and owners of some 3300 acres, and as such, they have an obligation at least in our judgment to employ the best practices in keeping with their mission.

Now, if for one moment it interfered with their objective, or threatened those animals, we would be the first to suggest immediate control measures to eliminate the deer in order to protect the mission.

Mr. YATES. If you controlled the deer as you indicate, that would assume there would still be some deer on the property, a lesser amount. And presumably a lesser danger. But, nevertheless, a higher danger than were the deer excluded by way of fence as I see it.

Perhaps I am wrong. At any rate, I think we ought to explore this.

I think the testimony this morning has been very good on all sides. I think it really presents a problem that is occurring all over the country. We have this problem in another form. We have it out west with our herds of wild horses and burrows.

Public land managers don't know what to do about it. They keep multiplying. People can adopt only a few of them. The ranchers are distraught. They say they are eating up all the forage, and there is nothing left for their cattle.

Unfortunately, we don't know what the answer is, because we haven't had any recommendations from the other side.

Mr. BERRYMAN. We think, Mr. Chairman, the things you have mentioned, and we are much aware of it, is an increasing protectionist attitude across the country. The wild horses are a good example. They should not be killed, they must be adopted, and all of this, at the expense of native animals as well as domestic animals.

We believe that this is one of the things here in Virginia, as it was in Florida. It has manifested itself in a number of ways. We certainly don't take issue with the people who don't believe in hunting. That is their prerogative.

But what we do suggest is that good wildlife management can preserve those species and can do it in a way that is ethical and sportsmanlike and where we can really have multiple use. And we think the wild horse is overprotected. I am sure you have heard many statements on that. Thank you.

THURSDAY, NOVEMBER 4, 1982.

WITNESS

ROBERT DAVISON, NATIONAL WILDLIFE FEDERATION

Mr. YATES. Mr. Davison.

Mr. DAVISON. Mr. Chairman, I am Robert Davison, Legislative Representative for the National Wildlife Federation.

Mr. YATES. Your statement may be made a part of the record.

Mr. DAVISON. I appreciate this opportunity to present our views. The National Wildlife Federation is a strong advocate of responsible land stewardship. I think that is very much at issue here. We believe that requires sound professional management of wildlife resources. We believe further that sound management includes the wide utilization of those resources through regulated sport hunting.

Wildlife's greatest threat comes not from the legal use of the gun or bow, neither of which we believe are cruel, but from the degradation and loss of habitat necessary to support healthy and diverse populations of wildlife.

Before joining the Federation, I spent six years at Utah State University studying the effects of hunting on wildlife populations and later I taught courses in wildlife management and dynamics of wildlife populations at South Dakota State University.

Based on that teaching and research experience I think there are a number of questions that are relevant to the center's control of the hunt. One is, is there a need to reduce the number of white-tailed deer at the center. I think we have heard amply on that. The question is clearly yes.

The second, more important question is, if the number of deer needs to be reduced, is that a one time situation in fact, or will it be a continuing need? And I think the answer is that it will be a continuing need regardless of what is done.

Third, what is the most efficient method of reducing the number of deer?

Mr. YATES. Continuing need, perhaps, but not by the Smithsonian possibly. If you fence it off, it will be the job of either the Park Service or of the Virginia State Game Commission.

Mr. DAVISON. I believe it will be a continuing need even within the center.

Mr. YATES. Why?

Mr. DAVISON. Because I don't believe it will be possible to remove the deer completely from the center. It may not even be possible to

remove a large proportion of the deer. I think that is very much in doubt. And to keep them out.

I think the third question that is relevant here is that what is the most efficient method of reducing the number of deer. That is, what method is the most effective for a given cost. Here we have information that indicates, a study that indicates that public hunting is the most efficient method.

The fourth question that might be relevant is the most efficient method one that is appropriate, one that is compatible with the mission of the center. I believe that the public hunting is compatible with the mission of the center. I think last year's experience with controlled hunting indicates that.

Mr. YATES. Of course you had four years before that where there was no hunting, and that is compatible with the mission of the center, too.

Mr. DAVISON. But we had a substantially lower deer population four years before that.

Mr. YATES. But you had hunting even before that with even lower deer populations. So I don't think that statistics mean anything one way or the other.

Anyway, proceed.

Mr. DAVISON. I think the fifth question is, will the removal method provide the maximum benefits to the white-tailed deer populations and to the people of the area? And I think public hunting will provide a maximum benefit to the populations of white-tailed deer and to the people.

These conclusions I have reached are based on a recent inspection I made of the center. They are based on my review of the available data, relevant scientific literature.

The first point, the number of white-tailed deer, needs to be reduced substantially—the center estimate would put the density of deer at about 200 deer per square mile. That is more than seven times the estimated number of deer in surrounding areas.

You have already heard more than ample evidence that the ability of the habitat to support the deer numbers has been exceeded there. I won't go any further with that.

The second point that I made was the white-tailed deer numbers will need to be reduced on a continuing basis. I say that because the center's property is approximately a 50-50 mixture of second growth woodland and mowed pasture, that is highly attractive and productive for deer.

So that any efforts to remove and/or exclude deer are only going to influence when, not whether future reductions will be necessary.

None of the methods talked about are capable of removing all of the deer, in my opinion. Methods such as deer drives or fencing that attempt to remove and exclude deer completely from the center are I think not only unrealistic and inefficient, as well as expensive, but more importantly, they also only postpone the time when further reductions are going to be necessary. These management strategies encourage large oscillations in the size of the herd and periodic recurrences of the present problems.

In contrast, methods such as controlled hunts, although likely to be needed annually, will keep deer numbers roughly static from year to year and within the carrying capacity of the center. Con-

trolled hunts are, in our opinion, a permanent solution to the problem.

My third point was the controlled public hunts are the most efficient technique. In a recent study the Wildlife Society Bulletin found that trapping, shooting by trained personnel; that is marksmen, immobilizing by drugs, and netting every deer, were all significantly more costly per deer removed; that is, less efficient than public hunts.

The study concluded that the primary advantage of the public hunt was that it placed a great many persons in the area for a short time for the specific purpose of removing a large number of deer at no additional cost to the U.S. Fish and Wildlife Service except in supervisory personnel. This is a very analogous situation of a NASA facility that had a similar kind of problem with excess deer.

The experience of federal and state wildlife agencies in many similar situations is evidence that public hunting is the most effective and least costly technique of managing white-tailed deer, and we believe that where compatible with other uses, it should be the method of choice, not a tool of last resort.

My fourth point was controlled public hunting is an appropriate method to reduce the number of deer on the center's property. Working with the Virginia Commission on Game and Inland Fisheries, the center personnel conducted a study, rather a hunt, last year that removed 126 deer, that provided recreation for 270 hunters, and that posed no threat to the center's captive animals.

We believe when carefully controlled, public hunting is not only compatible with the center's mission, it is highly appropriate means of achieving needed reductions. And it also serves as a means of monitoring the health of the herd.

A final point. Public hunting removes deer from the center's property in a way that is best for the white-tailed deer's population and also in a way that provides the greatest benefit for the most people

Non-lethal removal methods such as trapping or driving only displace excess deer from the center to other habitats, and may create overpopulation problems in new areas.

Shooting by trained personnel is less efficient, that is more costly per deer removed, and it also deprives people of much sought-after recreation. This year the center had 1500 applicants for their recreational opportunity that they provided. So I think that is significant.

The situation as I see it before us today differs from deer hunts in other parts of Warren County and other parts of Virginia only in that it is more closely supervised. Even less difference exists between the center's controlled hunts and those on military reservations to my way of thinking. The center's actions are an example of responsible resource management, sound state-federal cooperation.

And I believe in providing recreation for 400 hunters this year the center is establishing itself as a good neighbor to surrounding local residents. And I think like it or not, the center is placed in the responsibility, as long as there are residents at this property, a responsibility of being good stewards of that land.

And I think good stewards of that land means not trying to recreate an artificial island where you try to keep deer completely out of it, but to try to manage those resources in a way that does not harm the center's primary mission.

Mr. YATES. Okay. Thank you.

[The statement of Mr. Davison follows:]



NATIONAL WILDLIFE FEDERATION

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**STATEMENT BY DR. ROBERT P. DAVISON, LEGISLATIVE
REPRESENTATIVE, ON BEHALF OF THE NATIONAL WILDLIFE
FEDERATION BEFORE THE HOUSE APPROPRIATIONS
SUBCOMMITTEE ON INTERIOR, NOVEMBER 4, 1982.**

Mr. Chairman, I am Dr. Robert P. Davison, Legislative Representative for the National Wildlife Federation's (NWF) Fisheries and Wildlife Program. I thank you for this opportunity to present the views of NWF on the controlled hunt at the Smithsonian Institution's Conservation and Research Center near Front Royal, Virginia.

NWF is the world's largest conservation-education organization with over four million members and supporters and affiliate organizations in each of the fifty states, Guam, Puerto Rico, and the Virgin Islands. NWF is a strong advocate of responsible land stewardship, which requires sound, professional management of wildlife resources. Furthermore, we believe that sound wildlife management includes the wise utilization of those resources through regulated sport hunting. Wildlife's greatest threat comes, not from the legal use of the gun or bow, but from the degradation and loss of habitat necessary to support healthy and diverse populations of wildlife.

Before joining NWF, I spent six years at Utah State University studying the effect of hunting on wildlife populations. I later taught courses in wildlife management and the dynamics of wildlife populations at South Dakota State University. Based on my research and teaching experience, I believe there are a number of questions relevant to the Center's controlled hunt.

First, is there a need to reduce the number of white-tailed deer on the Center's property? Second, if the number of deer needs to be reduced, is it a one-time situation or will it be a continuing need? Third, what is the most efficient method of reducing deer numbers, i.e., what method is the most effective for a given cost? Fourth, is the most efficient method one that is appropriate to the situation at the Center? And, fifth, will the removal method selected provide maximum benefit to the deer populations and people of the area?

From my on-site inspection of the present situation at the Center, and from my review of the available data and pertinent scientific literature, I believe the answers to these questions for the Center are as follows:

1. The number of white-tailed deer on the Conservation and Research Center property must be reduced substantially. Center personnel estimate that the present deer population size is approximately 1,000 animals--a density of about

200 deer per square mile and more than seven times the estimated density of deer in surrounding areas. There is more than ample evidence that the ability of the habitat to support present deer numbers has been exceeded. Throughout the Center's property, much of the palatable woody vegetation within reach of the deer has been removed. This overutilization of available foods is readily apparent as a "browse line" (i.e., a vertical line in the vegetation, below which most of the woody growth has been consumed by deer). Other signs that the Center's deer herd has exceeded the carrying capacity of the available natural habitat are: (1) the increased mortality of the captive, hoofed animals (e.g. reindeer) from deer-transmitted parasites; (2) the increased consumption and degradation of the alfalfa crop since 1978; and (3) the increased number of deer killed by automobiles on Route 522, which bisects the Center.

The most effective means of preventing long-term damage to natural habitats, reducing the probability of parasite contagion, and controlling crop depredation by deer is to keep animal numbers in balance with native food supplies.

2. White-tailed deer numbers will need to be reduced on a continuing basis. The Center's property is approximately a 50:50 mixture of second growth woodland and mowed pasture that is highly attractive and productive for deer. Therefore, efforts to remove and/or exclude deer this year may only be expected to influence when, not whether, further reductions will be necessary. Methods such as deer drives or fencing that attempt to remove and exclude deer completely from the Center are not only unrealistic, inefficient, and prohibitively expensive, but they also only postpone the time when deer numbers again will need to be reduced. These management strategies encourage large oscillations in the size of the herd and periodic recurrences of the present problems. In contrast, methods such as controlled hunts that successfully remove 10-20% of the population, although likely to be needed annually, will keep deer numbers roughly stationary from year to year and within the carrying capacity of the Center.
3. Controlled public deer hunts are the most efficient technique for removing deer from the Center. A recent study by Palmer et al. (1980) compared the efficiency of different management techniques used to control an enclosed population of white-tailed deer. Trapping, shooting by trained personnel, immobilizing by drugs and netting were all significantly more costly per deer

removed, i.e., less efficient, than public hunts. Palmer et al. concluded that "[t]he primary advantage of the public hunt was that it placed a great many persons in the area for a short time for the specific purpose of removing a large number of deer at no additional cost to the USFWS except in supervisory personnel." The lower cost per-deer-removed of controlled public hunts is of added significance because the other less efficient techniques of trapping and shooting by trained personnel would, like hunting, probably need to be used annually at the Center.

Center personnel also considered the possibility of driving deer off the Center's property and keeping them excluded with a \$350,000 twelve-foot fence. Clearly, not all of the deer could be removed and excluded by these efforts because over half of the area is steep or inaccessible second growth woodland. Perhaps not even a large proportion of the deer could be removed. In any case, this approach is extremely expensive and it is not a one-time solution to the Center's problem. Depending on the number of deer removed, additional efforts might be needed as soon as the year following completion of the drive and fencing.

In evaluating alternative deer reduction techniques, I believe we could benefit from an analogous experience at the 10,000 acre Seneca Army Depot in west-central New York. In 1947, the area was enclosed by a seven-foot fence. In the absence of predators and hunting mortality, the deer population grew in ten years from an estimated 20-40 animals to over 2,500. A trap and transfer program in the winters of 1954-55 and 1955-56 failed to reduce deer populations enough to prevent severe mortality in the winter of 1956-57, due to deterioration of forage resources. Long-term adverse effects on plant community composition and forage production resulted from the continuing high deer numbers. Subsequently, controlled public hunts were instituted and have been used effectively to maintain deer numbers within the carrying capacity of the Depot's habitat.

The experience at the Seneca Army Depot and the experience of state wildlife agencies in many similar situations are evidence that public hunting is the most effective and least costly technique for managing white-tailed deer. Where compatible with other uses, it should be the method of choice--not a tool of last resort.

4. Controlled public hunting is an appropriate method to reduce the numbers of deer on the Center's property. Working with the Virginia Commission of Game and Inland Fisheries, Center personnel conducted a controlled public deer hunt in 1981 that removed 126 deer, provided satisfying recreation for 270 hunters, and posed no threat to the Center's captive animals. Hunters were required to

attend a safety orientation meeting and were restricted to hunting within 50 yards of an assigned stand. As a further precaution, hunters were escorted to and from their designated hunting spot. Similar procedures were initiated this year for 400 selected applicants (150 bow hunters and 250 shotgun hunters). When carefully controlled in this manner, public hunting is not only compatible with the Center's mission, it is a highly appropriate means of achieving needed reductions in deer numbers and monitoring the health of the herd.

5. Public hunting removes deer from the Center's property in a way that is best for the white-tailed deer populations in the area and that provides the greatest benefit to the most people. Non-lethal removal methods, such as trapping or driving, only displace excess deer from the Center to other habitats and may create overpopulation problems in new areas. Shooting by trained personnel is less efficient and deprives local residents of sought-after opportunities for recreation and food. This year, for example, 1,500 people applied for the recreational opportunity provided by the Center--more than three times the number who applied in the controlled hunt's first year.

In authorizing controlled deer hunts, the Center has acted responsibly and no differently than any other state or federal agency charged with conservation of wildlife and natural habitat. The situation before us today differs from deer hunts in other parts of Warren County and other parts of Virginia only in that it is more closely supervised. Even less difference exists between the Center's controlled hunts and those on military reservations in Virginia.

The Center's actions are an example of responsible resource management and state-federal cooperation. Moreover, in providing recreation for 400 hunters, the Center is establishing itself as a good neighbor to surrounding local residents. I urge you to support their efforts.

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THURSDAY, NOVEMBER 4, 1982.

WITNESS

BILL BROWN, ENVIRONMENTAL DEFENSE FUND

Mr. YATES. Mr. Brown, do you agree with him?

Mr. BROWN. In substance.

Mr. YATES. May I accept that as your statement?

Mr. BROWN. Yes.

Mr. YATES. And I will put your statement in the record.

Thank you, your statement may be made a part of the record.

Thank you.

[The statement of Mr. Brown follows:]

BEFORE THE
SUBCOMMITTEE ON INTERIOR
COMMITTEE ON APPROPRIATIONS
UNITED STATES HOUSE OF REPRESENTATIVES

STATEMENT OF DR. WILLIAM Y. BROWN
ENVIRONMENTAL DEFENSE FUND

NOVEMBER 4, 1982

Mr. Chairman and Members of the Subcommittee:

The Front Royal Conservation and Research Center of the National Zoological Park (Center) has a purpose and it has a problem.

The fundamental purpose of the Center is the preservation of endangered animal species through captive breeding. Just last month, this Congress restated our Nation's commitment to the survival of jeopardized animal and plant species through reauthorization of the Endangered Species Act of 1973. Wildlife conservation has no challenge of higher priority.

Captive propagation is an important element of this effort. Research on captive stocks can provide valuable information on physiology, sociobiology and population biology. The endangered golden lion tamarin, bred at the Front

Royal Center, is one such species best known from study in captivity.

Captive stocks can be used to re-establish species in habitats from which they have vanished. For example, American bison (Bison bison) from the Bronx Zoo were used to restock empty ranges in Oklahoma, Montana and South Dakota early in this century, and European bison (Bison bonasus) bred in European zoos were used to return that species to nature after the last individual in the wild had been killed in 1921. The European Bison is among the species bred at the Front Royal Center.

Captive stocks also can be kept to prevent ultimate extinction of a species when its natural habitat has been destroyed. The Pere David deer (Elaphurus davidianus) is one such species and is bred at the Front Royal Center.

The problem, one of many, now confronting the Front Royal Center is too many white-tailed deer (Odocoileus virginianus). At the current density, the deer apparently pose a threat to the health of the captive stocks of endangered species, through transmission of meningeal worms, lung worms and other disease-causing organisms. The deer also eat thousands of dollars worth of alfalfa grown on the Center to feed exotic stocks. It would seem that the deer population is significantly hindering and jeopardizing the maintenance and

propagation of endangered stocks by the Center.

Unless the breeding of endangered animal stocks is to be subordinated in some degree to other purposes, the number of white-tailed deer on the Center's land must be reduced. In the opinion of the Center's chief curator, this reduction must be from some 1000 deer to about 130.

The deer population can be reduced by driving deer from the Center's property or by hunting. Both methods have been tried over the last two years. Driving was reasonably effective in removing deer from the central 700 acres of the Center, but would appear to be difficult and dangerous, if possible at all, in at least half of the Center's property where the terrain is rugged. As Dr. Wemmer's testimony indicates, driving in areas where possible also poses immediate danger to the deer and drivers and a very uncertain future upon removal. Although individual deer will survive longer if driven out than if shot, the land beyond may be a poor refuge from mortality.

The ability of the Center to cull deer on its property is circumscribed by the laws of the State of Virginia. Two basic mechanisms are available. The Center may allow lawful public hunting on its property during seasons authorized by the Virginia Commission of Game and Inland Fisheries and subject to additional conditions that are necessary to prevent interference with the breeding of endangered species on the

Center. The Center employed this alternative in 1981 and has proposed to do the same in 1982.

A second mechanism is for the deer to be hunted pursuant to a special permit issued under the authority of the Code of Virginia, Sections 29-145.1 or 29-145.2. The latter provides for special permits to hunt and kill antlerless deer. The Center apparently is seeking, or will seek, authorization under Section 29-145.2 to kill some 45 animals. If such a permit were issued, I understand that Dr. Chris Wemmer would be the permittee and would, through subpermits, have the actual hunting done by only one or two individuals. I also understand that a small number of subpermittees would be capable of taking a substantially larger number of deer.

Properly implemented, both of these methods probably offer the means to reduce the deer population size to about 130 animals. Neither method apparently would interfere significantly with the propagation of endangered species at the Center. An antlerless deer permit may somewhat better ensure against disturbance of the Center's work, and I think that the National Zoological Park would be well advised to consider greater emphasis, or even complete reliance on this method. Given objections to bow hunting that have been raised on humane grounds by the public constituency of the National Zoo, I also think that the Center would be wise to restrict hunting to

guns, which should be as or more effective than bows. Whichever means are used, the reduction should be quick and substantial so that the need for the hunt is satisfied.

Although some may so frame it, Mr. Chairman, I would not have you find in this inquiry a referendum on the science of wildlife management or on the humanity of hunting. If wildlife management would be a science, and not a dogma, than it cannot be proven and must accept, with other science, the uncertain lot of conjecture and refutation.

The legislation of hunting will no doubt be debated for some while and only codified in grudging accomodations. We should welcome that debate because it is a symptom of the diversity, freedom, spirit and, ultimately, the strength of our society. Yet we must not become paralysed in our work to remedy the threats that we have brought to other kinds of life on earth.

THURSDAY, NOVEMBER 4, 1982.

WITNESS

NORMAN KRUSE, MEMBER, SMITHSONIAN ASSOCIATES

Mr. YATES. All right. Our next witness is Mr. Kruse.

Mr. KRUSE. In light of the preceding discussion, I will condense my remarks.

I am a member of the Smithsonian Associates. I have an interest in the organization. I come from a somewhat farm background. So I see meat animals in the same light, whether they have brown eyes and they are cows or they have brown eyes and they are deer.

So in that light, I would like to read this to you: India supports a large number of sacred cows which contribute to the poverty of the lower class.

Mr. YATES. That is already in the record. Why do you want to read it?

Mr. KRUSE. I am going to read this portion and then comment:

These deer are not directly eating the food in Virginia of humans. If these deer were not sacred and were harvested in a normal manner, even more good, flavorful and nourishing meat would be available in our area.

I have participated in a controlled hunt on a federal goose refuge. The problem at the refuge, which is a completely isolated area, it is an island. It would seem to be isolated from the surrounding deer population. The herd there had increased to such a degree that they ate the majority of the grain which was intended for the geese prior to the geese arriving from Canada. They did not have enough remaining forage for the geese; soybean, corn, et cetera, to winter over the geese, which resulted in the geese being driven off the refuge and into the surrounding hunting areas, defeating the purpose of the refuge.

For that reason, they had their first controlled hunt. And I participated in it. I was not too enthusiastic at first, because as has been said here, I thought it was shooting fish in a barrel. Believe me, it wasn't.

First of all, deer do swim, with vigor and enthusiasm. At the sound of the first shot, the deer fled the island in great numbers.

Mr. YATES. So it became an uncontrolled hunt.

Mr. KRUSE. My companions and I, four of us, saw one deer from dawn to dark, on an island which was overrun with deer. They had left. The hunt was continued for 14 days and did not achieve the population reduction that was intended.

The population recreated itself two weeks later when the season opened on the mainland, and the water was again full of deer swimming back to the refuge. Every year since then they have continued to have controlled hunts. They have through a very careful management system determined the number of hunters, and the number of days necessary to control the food supply of that island so that the geese have sanctuary.

Thank you very much.

Mr. YATES. Thank you, Mr. Kruse.

[The statement of Mr. Kruse follows:]

PREPARED STATEMENT OF NORMAN KRUSE, MEMBER, SMITHSONIAN ASSOCIATES

India supports a large number of sacred cows, which contributes to the poverty of the lower class by consuming vegetable crops upon which they depend for their life. We seem to be proposing that we create sacred deer in Virginia. These deer are not directly eating the food of humans, but to the extent the forage of the zoo farm is replaced by purchased corn and alfalfa, a segment of the bottom of the food chain is diverted, reducing the output of cows for meat in Virginia, increasing the cost of meat for rich and poor alike. Certainly, if these deer were not sacred, and were harvested in a normal manner, even more good, flavorful and nourishing meat would be available in our area.

It is possible, of course, that this Sub-Committee will conclude that these deer are not sacred. Then the crux of the question is "are these deer wild animals or tame, like sheep, goats or cows. If the deer are tame, and subsist principally on crops raised by the zoo for feeding zoo animals, the deer should be harvested by the zoo and fed to the carnivores which abound only 100 miles away in Washington. This would serve to reduce the number of tame cows that are currently killed each week for the proper nutritious meal of the lions and tigers the zoo keeps.

If on the other hand, the deer are wild, and as wild animals commit depredations of the crops the zoo raises to feed their animals, the zoo does not have the right to harvest the deer for their own use, and must comply with state and county law in controlling these wild animals. This control can be accomplished either by having game agents kill the deer and turn the meat over to state agencies for human food, or by controlled hunt by local sportsmen, who would also utilize the meat for human consumption.

Controlled hunts take place regularly on many Federal and State Wildlife Sanctuaries to control the ratio of animals to food supply for the overall health of the animals, or to prevent one species of wildlife from crowding out another which is not as competitive for the food supply.

I have participated in a controlled hunt at a Federal Waterfowl Sanctuary where deer were consuming the corn and soybeans while young and green as well as mature. This resulted in the geese being forced off the Sanctuary to search for food and defeating the purpose of the Sanctuary.

The deer on the Sanctuary demonstrated that they were not tame deer in an isolated and protected environment by fleeing the property in large numbers at the sound of the first shot, and spread out into the surrounding woodland until regular season opened. Then the migration reversed, and the goose sanctuary was again filled with deer. The hunter success during the special sanctuary season was very poor, and two weeks of hunting did not harvest the desired number of deer, principally because the deer had temporarily left. My hunting companions and I saw only 1 deer all day.

Former Senator Vance Hartke's proposal that the bucks be live trapped and castrated so that reproduction of the deer would be stopped and the population reduced ignores the wide ranging nature of deer. For this approach to be effective, not only the 500 or so bucks among the estimated 1,000 deer on the zoo property would have to be hunted, trapped, castrated, tagged, and released, but 500 or 1,000 more bucks from the surrounding parkland and private forestland. The cost of mounting such a comprehensive sweep of the area, and the trauma to the deer population captured and castrated is appalling to contemplate. Hundreds of men would be required to carry out a sweep of this magnitude, and weeks or months of time. On the longer term, deer hunting in the surrounding area would deteriorate as the castrated bucks roamed to new areas.

I would suggest that The Honorable Vance Hartke offer us a realistic cost estimate for his program, and an environmental impact analysis of the effect on the surrounding area and its hunting productivity. In the meantime, I urge that the zoo make every effort to efficiently harvest this valuable food resource, and do so at the least possible cost to the taxpayer.

Thank you.

THURSDAY, NOVEMBER 4, 1982.

WITNESSES

JACK LORENZ, IZAAK WALTON LEAGUE

LONNIE WILLIAMSON, WILDLIFE MANAGEMENT INSTITUTE

DALE A. JONES, THE WILDLIFE SOCIETY

CAROL PORTER, WILDLIFE LEGISLATIVE FUND

Mr. YATES. Next we have the Izaak Walton League, Wildlife Management Institute, the Wildlife Society, and the Wildlife Legislative Fund.

Can I take your statements, and can you shorten your statements, telling me who you agree and disagree with? I know it is unfair to you. But we have just about run out of time.

I think we have covered it pretty adequately, do you not?

Ms. PORTER. My name is Carol Porter. I represent the Wildlife Legislative Fund of America. We are a nonprofit organization whose purpose is to protect the heritage of the American sportsmen to hunt and fish, and to help assure scientific wildlife practices.

To be very, very brief I might say that hunting as proposed by the Smithsonian officials is the only practical solution to the present problem. Hunting is a proven wildlife management tool. It is effective and does not impose a financial burden on the Smithsonian. The alternatives proposed are ineffective and would represent significant diversion of scarce resources for no valid reason.

Mr. YATES. Thank you very much.

[The prepared statement of Carol Porter follows:]

STATEMENT
OF
CAROL A. PORTER
LEGISLATIVE LIAISON
WILDLIFE LEGISLATIVE FUND
OF
AMERICA

Mr. Chairman and Members of this Distinguished Committee:

My name is Carol Porter, I represent the Wildlife Legislative Fund of America. The Wildlife Legislative Fund of America (WLFA) is a non-profit organization whose purpose is to protect the heritage of the American sportsman to hunt, to fish and to trap, and to protect scientific wildlife management practices. The WLFA provides legislative lobbying and legal defense services to sportsmen and wildlife management organizations throughout America. The WLFA, on its own initiative and on behalf of its associated members has repeatedly been involved in controversies such as the one before the Committee today.

This controversy concerns a decision made by the wildlife professionals of the Smithsonian Institution to conduct a regulated harvest of overpopulated deer within the boundaries of the National Zoological Park Conservation and Research Center for rare and exotic animals. Without this hunt, the deer herd will continue to threaten the more exotic animals at the Center by their destruction of valuable crops, overgrazing, and the transmittal of disease. Officials of the Smithsonian are testifying today in detail as to the specifics of the situation, and there is no need to repeat the facts here, except to say, in our opinion, the Smithsonian has made a correct and professional judgement in dealing with this problem.

The Smithsonian officials, after considering various methods, decided that the standard wildlife management tool of reducing excessive wildlife populations by controlled hunting is the most efficient and cost effective means of resolving the problem. I believe it must be emphasized, the Smithsonian did consider other alternatives in addition to the proposed hunt. These alternatives, including many being suggested here today by those opposed to the hunt, have either been tried and found ineffective, or considered and discarded as impractical by wildlife professionals.

The underlying source of the controversy here, as in many other such situations, is a passionate opposition to hunting. This emotional reaction overrides any other aspect of the situation, including the welfare of the animal populations involved. Opposition to hunting arises, as in many other cases, regardless of whether the hunting is primarily for recreational or wildlife management purposes; regardless of the type of hunting implement involved; and regardless of the consequences for the animals if hunting is not permitted. This latter point cannot be overstressed - it is opposition to hunting, not concern for the welfare of the animals, that motivates those opposing the hunt. Those who speak loudest against the supposed evils of hunting are generally unwilling to accept it as a sound wildlife management tool and are more willing to accept widespread death by disease and starvation among the wildlife populations rather than see a small number of animals taken by hunters.

One recent example of this occurred in Florida, which received a considerable amount of media coverage. However, what the news media did not report, and what should be of interest to the Committee, are the final results of those efforts to "protect" the deer from the controlled harvest.

Florida officials are here to give you the specific details, but it is worth noting, that in the particular area where hunting wasn't permitted, the deer herds suffered widespread death by disease and starvation. However, in the much larger portion of the deer's range open to hunting, far fewer animals died from starvation or disease.

In light of the recent controversies, there continues to remain a tremendous amount of confusion and a lack of understanding among the media and the public about hunting and wildlife management. Some background might be in order, starting with terminology.

Conservationists are those who believe in the wise use of renewable resources. From a wildlife perspective, they follow in the footsteps of Theodore Roosevelt, Gifford Pinchot and Aldo Leopold. Conservationists are aware of both the recreational values associated with hunting and the value of hunting as a wildlife management tool.

Sportsmen are the original conservationists. Until very recently, virtually all of the wildlife conservation laws on the books - from the Lacey Act through the Pittman-Robertson and Dingell Johnson Acts, Duck Stamps Act, the Fish and Wildlife Coordination Act, and the Sikes Act - have either been initiated by, or strongly supported by sportsmen. The financial underpinnings of our wildlife conservation programs throughout the nation are financed, at their own insistence, by sportsmen through license fees, excise taxes and special stamps and permits.

Indeed, without the success of the sportsmen-initiated and financed wildlife restoration programs, we would not have the present controversy. It is little remembered, and less appreciated, that today's popular game species were largely non-existent east of the Mississippi at the turn of the century. Unrestricted commercial hunting, a lack of conservation ethic and wildlife management principles, along with alteration of the land for agricultural purposes, had decimated wildlife populations since the arrival of the European settlers. Game species, and predators, were largely gone, except in a few isolated areas.

Since that time, sportsmen and wildlife managers have been very successful in bringing game species back. Deer, turkeys, grouse and quail have been largely restored to their original range in the East. Elk, antelope and wild sheep have been restored in the West. New species such as pheasants have been introduced, and waterfowl populations, largely decimated during the droughts of the 30's, have been restored throughout the country.

Deer in Warren County, the site of the Conservation Center, are a classic example. In 1947, the earliest year for which figures are available, the deer population was so low that the hunting season was only 2 days, and only 12 deer were taken. By 1964 the population had increased to the point that the present 2-week season was instituted, and 375 deer were taken. By last year the population had increased further, to the point that 793 deer were taken during the two-week period. This year, the allowable take per hunter is being doubled, from one to two per person, as a result of the drastic increase in deer population.

In the process, sportsmen have paid over \$3 billion into wildlife conservation and habitat acquisition programs. Private sportsmen's groups, such as Ducks Unlimited, have contributed millions more.

The same cannot be said of those opposed to hunting. They are not conservationists, nor do they support the programs and management systems that have been responsible for restoring our wildlife populations.

The present controversy is a classic example of this. In their enthusiasm for stopping hunting, they are willing to expose valuable rare species to fatal diseases, and at the same time condemn the deer in the Conservation Center to death by starvation. Nor do they appear to consider the financial considerations. Replacing alfalfa eaten by deer, to say nothing of the

various costly alternatives to hunting being offered, forces a diversion of resources from the clearly more important objective of preserving and expanding the population of rare species at the Conservation Center.

Hunting as proposed by Smithsonian officials is the only practical solution to the present problem. Hunting is a proven wildlife management tool, it is effective, and does not impose a financial burden on the Smithsonian. The alternatives proposed are ineffective and would represent a significant diversion of scarce resources for no valid reason.

We urge the Committee to support the judgement of wildlife professionals and take no action to interfere with this situation.

Mr. LORENZ. I am Jack Lorenz.

I toured the facility twice in the last year. I was very impressed with the management practices going on there. We have about 150 members in Warren County, the Izaak Walton League. Three years ago we purchased a mountain called Paddy's Mountain, not far from Front Royal, which is approximately 611 acres, and saved that as wildlife habitat. I would say that rather than concern ourselves with the hunt in this particular area, which I feel is much needed, and so do our members, I think we ought to be concerned about seeing additional habitat purchased and supplied for wildlife in this State. For example, we paid \$130,000 for that 611 acres. A \$350,000 fence would buy approximately 1,700 acres at that rate. I would like to see all of us in this room support additional funds from the Land and Water Conservation Fund to be used to acquire additional habitat.

[The prepared statement of Jack Lorenz follows:]

STATEMENT OF
 JACK LORENZ, EXECUTIVE DIRECTOR
 IZAAK WALTON LEAGUE OF AMERICA
 TO THE
 SUBCOMMITTEE ON INTERIOR
 HOUSE COMMITTEE ON APPROPRIATIONS
 November 4, 1982

Dear Mr. Chairman:

Thank you for the opportunity of presenting our views on the Smithsonian Institution's plan to reduce the number of white tail deer at the Front Royal Conservation and Research Center.

The Izaak Walton League is a 60-year-old national conservation organization with 50,000 members. We have 2,000 members in Northern Virginia alone. League members have taken part in both the 1982 deer drive and the 1981 hunt carried out at the Conservation and Research Center. I have visited with our members about the experience and last year had the pleasure of touring the facility along with other members of the Izaak Walton League. I came away highly impressed with the Center's objectives, personnel and management practices.

The vast majority of our members hunt and fish as well as gain great satisfaction from from viewing and photographing wildlife. The dominant use of dozens of Izaak Walton Conservation properties nationwide, including many in Virginia, is as wildlife refuges. Often there is no hunting allowed on these lands in order to offer resident wildlife populations special areas where they may rest, protected from the increasing pressures of development.

The League views hunting as a legitimate wildlife management tool, yet we do not act as a "rubber stamp" for all proposed hunts. Where we determine that a hunting plan is not in the best interest of the resource we will ask either that adjustments be made in the plan and/or that the hunt be postponed.

This is clearly not the case with the Smithsonian Institution's plan. We find it to be designed with great sensitivity and concern for public safety and the rare species in the center's charge.

At the national level, the League's six decades of action on behalf of wildlife have led to the establishment of many of the nation's most significant wildlife enhancement programs and the preservation of prime habitat. Just three years ago, the League acquired 611 acre Paddy's Mountain in Northwest Virginia, not far from Front Royal. We made the purchase in order to add it and its abundant wildlife population to the public domain for all time. Paddy's Mountain is now a part of the George Washington National Forest.

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Years of close observation of wildlife management programs across the United States have taught us a great deal about what is sound and what is unsound management of our wild living resources. The words "wildlife management" do not guarantee our approval of a particular management plan. Each case is reviewed on its own merits and where we think a methodology is wrong, we will say so.

After examination of the arguments on both sides of the Smithsonian's plan, we have concluded that the proposed hunt is the only practical solution to the problem. It is one that may have to be used in succeeding years unless other measures are taken to keep white-tail deer from gaining access to the property.

The management decision by the Smithsonian Institution was not made without a great deal of concern for the neighbors of the facility, as well as the species being reared on the Front Royal property. Passing motorists, endangered by too many deer in the area and citizens who pay for the care of the animals at both zoo facilities were also rightly considered.

One of the most wondrous sites on the 3300 acre property is the small herd of Pere David's deer, a magnificent animal now all but extinct in the wild. These stately animals will be increasingly endangered by the growing numbers of native white-tails, which have been proven to carry several diseases that can be transmitted to the Pere David herd and other exotic species. We understand that animals have already died as a result of infection, infection caused by the large white-tail deer population.

Who is more responsible? Those who wish to care for endangered species or those who wish to gamble the health of those same animals by using ineffective methods to remove the threat of disease.

Mr. Chairman, we have gone over the plans for this hunt and find them to be excellent in every respect. The way the hunters are instructed, the care that is taken to assure hunter safety, the way the carcass is handled, the research data this is produced and recorded--every feature of the plan speaks well of the zoo and Smithsonian officials. Curator Dr. Christen Wemmer and his staff are to be commended for their sensitivity as well as their professionalism. Those who made this decision are under tremendous pressure. They knew the possible alternatives and would not have made the decision they did without being sure they were right.

My ten years with the Izaak Walton League, the last eight as its Executive Director, have given me many opportunities to work closely with biologists on a wide range of wildlife issues. No group of professionals has impressed me more than those responsible for the Front Royal facility. It is sad to see their integrity being challenged.

As much as alternative schemes appeal to some who are opposed to the Smithsonian plan, herding, sterilization and trapping won't do the job. At best, the overpopulation problem is often simply transferred to other locations. Rather than fight against this plan, I

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would urge its opponents to fight for reestablishment of a viable Land and Water Conservation Fund so that we might provide much needed habitat for white-tail deer and dozens of other species. The Izaak Walton League has not made a single purchase in Virginia, or any other state, since the Land and Water Fund was slowed to a trickle by the Administration.

Before I close, Mr. Chairman, I wish to relate one piece of history which touches on the matter we are discussing today.

In the winter of 1923-24, the Izaak Walton League, then just two years old, started a National Elk Fund to save the dwindling herd of the Jackson Hole region. Ranchers pushing westward had cut the hay from the Valley floor to feed their cattle. Forced into the surrounding mountains by this all-consuming development pattern, the elk had no choice but to return to the Valley floor in the winter. As in the mountains, they found no forage, only snow and ice, and hundreds died of starvation, a cruel and painful death.

The Izaak Walton League, stirred by this tragic set of circumstances, started a National Elk Fund that produced more than \$35,000 in less than four months. League representatives traveled to Jackson, Wyoming, where they negotiated with local ranchers and purchased several thousand acres to serve as a refuge for the elk. The League then bought hay and fed those elk for the next three winters. In 1927, we sold our Izaak Walton Elk Refuge to the federal government for \$1 dollar. That land is now the core of the 25,000 acre National Elk Refuge. The decision to buy Jackson Hole was vastly different than the one we face today. It was dictated by a lack of food, food we could buy and place where it would do the most good. More alfalfa won't solve the problems in Front Royal. It would only exacerbate the difficulty. The facility was never meant to serve as a feed lot for white-tails and it should not be now. To provide more food for native species, herd them out, sterilize them or kill them, employing sharpshooters, serves only one purpose--to make the best plan less acceptable. Hunting is not only an acceptable form of wildlife management, it, as in this case, is often the most sensible method of control. If we felt it were not the best course, we would say so.

The Smithsonian plan was developed by eminent resource management professionals. Let's get out of their hair and let them get on with the job.

Mr. WILLIAMSON. I am Lonnie Williamson, Mr. Chairman. A suggestion that has not been broached here this morning, with regard to the endangered animals threatened by the lungworm infections. These animals, in the first place, have to be completely isolated from the wildlife. This could be done in my opinion by building a relatively small deerproof compound within the center's perimeter fence and removing all the deer from that compound.

Another safeguard, with regard to the snails that are the infectious source, you would have to construct some kind of a barrier. I am thinking in terms of a gravel strip around the compounds. Possibly some sort of chemical agent. If you have ever seen what happens to a slug when you put salt on it——

Mr. YATES. What happens to a slug?

Mr. WILLIAMSON. It dissolves. Hooved animals, the way these things become infected, is by eating snails off the grass.

Mr. YATES. So you are going to put salt all around?

Mr. WILLIAMSON. Now, they are not going to trap them out, they are not going to get them out with the dart guns or the capture guns.

Mr. YATES. Tell me why. If you shoot them with darts, why do you not just pick them up and haul them out?

Mr. WILLIAMSON. Because a deer has a big reluctance not to stand there while you shoot him with a dart. He has a tendency to leave. Unlike you see on television.

Mr. YATES. Like you and me.

Mr. WILLIAMSON. Unlike you see on television, where the elephant crumbles as soon as the dart hits him, this is not true in real life. If it was that strong, it would kill the animal. It takes several minutes for it to work. And they are gone.

As far as driving them, I have been involved in that, too. It would be extremely difficult. These scars on my forehead, arms, and back attest to the fact they will turn around and run over you when you start crowding them.

As far as shooting them, that would seem to us to be the best alternative. The question of using professionals, the way you become a professional deer shooter is to hunt deer. That is what they are doing, bringing deer hunters in. It does two things. You have people that are considered competent, and they are used to doing it.

The reason we support this decision, I might say, Mr. Chairman, shooting the deer by using this public hunt would reduce the number of deer to an acceptable level. It would result in essentially the same fate of the deer as the other techniques we have talked about, assuming that these techniques would work.

It also would accomplish the task expeditiously and would not cost anything, because the fees would cover the cost. Just as importantly, in my opinion, it would provide a source of legal, traditional, and publicly acceptable recreation for taxpayers.

Thank you.

Mr. YATES. Thank you very much.

[The prepared statement of Lonnie Williamson follows:]

WILDLIFE MANAGEMENT INSTITUTE

Dedicated to Wildlife Restoration
WIRE BUILDING, WASHINGTON, D. C. 20005

Statement of Lonnie L. Williamson
before the
Subcommittee on Interior
House Committee on Appropriations
November 4, 1982

Mr. Chairman:

I am Lonnie L. Williamson, secretary of the Wildlife Management Institute, which is headquartered in Washington, D.C. Established in 1911, the Institute's sole purpose is restoration and improved management of wildlife and related natural resources in North America.

Since our position on this issue is based on past experience as well as biological and ecological fact, the subcommittee may wish to know a bit about WMI personnel in order to better assess our comments. The Institute's headquarters staff and fieldmen are required to have at least an M.S. degree in wildlife ecology. Several have Ph.Ds. Also, all of our professionals have worked for state and/or federal resource management agencies before joining the Institute. I hold A.B. and M.S. degrees in journalism and wildlife ecology respectively, and completed two years of post-graduate study in natural resource economics. Before coming to the Institute almost 13 years ago, I was employed at the University of Georgia College of Veterinary Medicine, and for five years performed wildlife disease research and diagnostic services for 13 southeastern states (including Virginia), the U.S. Fish and Wildlife Service and the U.S. Department of Agriculture.

We support the Smithsonian Institution's decision to conduct a tightly controlled public hunt for reducing the number of white-tailed deer in the Conservation and Research Center near Front Royal, Virginia. In our view, such a hunt is the least costly and most beneficial way to ease a pressing problem.

I recently visited the Center specifically to assess the reported white-tailed deer problem. After inspecting the property, I am convinced that the Smithsonian's assessment of the situation is correct. There are too many deer inside the Center's perimeter fence, as evidenced by browse lines in the natural habitat and heavy grazing on alfalfa and orchard grass hayfields. That certainly is not surprising considering that Center personnel estimate the deer population to be approximately 200 per square mile. The Virginia wildlife biologists with whom I discussed this problem consider the ideal population of deer in that area to be around 30 per square mile. This is not to say that the area could not support more deer. The reasons for holding the population in check in the Front Royal area is in part to prevent excessive crop and orchard damage and to reduce vehicle-deer collisions which of course are a public safety hazard, causing extensive property damage, human injury and threats to human life. In 1981, there were 2,381 such collisions on Virginia's highways.

The Center's white-tailed deer are extremely numerous because the banquet table has been set with alfalfa and orchard grass, and because a sufficient number of deer has not been removed from the area in recent years to control the population. Left unchecked, the deer eventually will reproduce themselves out of house and home and most of them will die from starvation and disease. I do not see that happening in the immediate future, however, as long as the Center keeps serving-up the alfalfa and orchard grass.

It is our understanding that the Center's main purposes are to produce hay for animals in the National Zoological Park in Washington, D.C. and to breed and raise endangered animals from around the world. This being the case, excessive numbers of wild deer create two problems...damage to hayfields and parasite transmission to the endangered animals quartered on the area.

The hayfield damage is obvious to anyone who looks. The parasite transmission threat also is real. The Center already has lost several valuable animals from meningeal worm and lungworm infections transmitted by the deer.

Two things must be done to solve these problems. First, the endangered animals threatened by meningeal and lungworm infections should be completely isolated from the wild white-tailed deer. This could be done by building a relatively small deer-proof compound within the Center's 14-mile perimeter fence and eliminating all the deer from that compound. Another safeguard would be to construct some kind of barrier, such as a gravel strip and possibly some sort of chemical agent, to prevent snails and slugs from entering the compound. Snails and other terrestrial gastropods are the intermediate hosts for meningeal worms and carry the infectious larvae. Hoofed animals become infected by incidentally ingesting the snails that are attached to forage plants. The lungworm, on the other hand, is a "direct life cycle" parasite (no intermediate host) and simply removing the deer from the compound likely would solve that problem. Also, captive animals can be treated for lungworm infections.

The other action that should be taken at the Center is to reduce the number of wild deer outside the compound but inside the perimeter fence to decrease alfalfa and orchard grass damage to an acceptable level. I do not believe that a "one time" reduction operation will suffice because the perimeter fence is not deer proof and probably could not be made deer proof due to steep terrain, snow drifts and damage from falling trees. All deer probably could be eliminated from the area with great effort, but some would return. Thus a deer reduction program likely will be a fact of life that the Center will have to contend with henceforth.

Apparently the most controversial aspect of the situation at the Center involves the population reduction technique to be used. In my opinion, there are but four alternatives to consider...trap, drive, drug or shoot.

I do not believe trapping is the best choice because of the time and expense involved. I recall many years ago when the State of Maryland attempted to control the deer on the Aberdeen Proving Ground by live trapping. Crews trapped deer on that area for two months each year and were never able to reduce the number. The herd produced as many young as were trapped each year. Consequently, officials permitted public hunting in order to reduce and control deer numbers.

Driving deer out of the Smithsonian area is a less desirable alternative than trapping. The terrain appears too steep and the second-growth

timber stands too dense to permit a successful driving operation. Without doubt some deer could be removed from the property by driving, but it would take literally hundreds of people and huge sections of fencing would have to be removed. It would be expensive and time consuming. Furthermore, I have been involved in many such operations in years past. And I can say from experience that a drive of the magnitude needed at the Center would probably injure and kill a number of deer and could result in injury to some of the drivers. I have a few scars on my forehead, arms and back as well as two lumps from broken ribs that attest to that fact.

Drugging and removing the deer also would be costly and would take a lot of time in such terrain and vegetation where deer have abundant escape cover. The deer would be difficult to locate after they were drugged. It takes several minutes for the available drugs to take effect and deer do not always stay put after having been struck with a fast-moving syringe. Also, anyone drugging the number of deer we're talking about here is bound to kill a few with overdoses. Again, Mr. Chairman, let me say that this opinion comes from personal experience. The so-called capture gun or dart gun was invented and patented by three men in Georgia. One was my professor in school, one was my boss at work and the other was and is a personal friend. Since I offered cheap student labor, I was conscripted to do some of the early field testing of the gun and potential drugs to use in capturing deer and other wild animals. There have been considerable advances in the guns and drugs used since that time, but real-life animals still do not keel-over when darted like they do on TV.

A basic unanswered question with regard to trapping, driving and drugging is what happens to the deer when they are driven off the Center or captured. Those driven off would create excesses outside the fence perimeter where orchard damage already is a problem, such as in Harmony Hollow, which is just up the road from the Center. Certainly the excess animals would be killed by hunters and automobiles or shot under permits by landowners to prevent orchard damage. Any trapped or drugged animal would cause similar disposal problems. No state that I'm aware of needs deer for restocking purposes. Certainly Virginia does not. All available white-tailed deer habitat is filled already. Wherever they would be released they would likely be excess.

The deer problem at the Center is not a unique situation in or out of Virginia. It exists to my knowledge in numerous places throughout the eastern U.S. There are several similarly restricted areas in the Old Dominion near Washington, D.C. where deer populations have escalated to unacceptable levels. The Virginia Commission of Game and Inland Fisheries has tried trapping, driving, drugging and hunting to reduce deer numbers in these fenced areas. It has found that a controlled public hunt is the most effective and least expensive way to get the job done. Such hunts, for example, now control deer populations at Dulles Airport and Harry Diamond Laboratory properties near Woodbridge.

Thus the reason we support the Smithsonian's decision to conduct a public hunt is clear. In the first place, it unquestionably would reduce the number of deer to an acceptable level. It would result in essentially the same fate for the deer as the other techniques, assuming those techniques would work. It also would accomplish the task expeditiously and would not cost anything because fees paid by the hunters would cover the Smithsonian's expenses. And just as importantly, it would provide a source of legal, traditional, and publicly acceptable recreation for several hundred license-buyers and taxpayers who help pay the bills for conserving all of Virginia's wildlife as well as the valuable specimens in the Center and the National Zoological Park.

Mr. Chairman, Smithsonian's Conservation and Research Center is a part of the Front Royal community and as such has a certain responsibility to contribute to that community. Residents there view things a bit differently than some of their big-city neighbors. They do not understand why Congress is preventing them from an appropriate and enjoyable deer hunt. Frankly, we do not understand either.

Mr. JONES. I am Dale Jones.

Mr. YATES. Your statement may be made part of the record.

Mr. JONES. I am president of the Wildlife Society. It is an organization of approximately 8,000 professional biologists within the field of wildlife management. I am not going to bore you with my statement. I had three points I would like to discuss.

One, it seems to me that if you do need or the Smithsonian needs 100-percent assurance against any of the meningeal worm problem with their exotic species, you only have the two alternatives, and I think Lonnie mentioned one, and the other one is totally fence them out and try to remove the deer. However, if they are willing to go with a lower possibility of having any of those diseases, then I think the institution has really come up with a plan that will work.

I would like to also bring out to you moving deer out of an area, we maybe feel pretty good about helping the Smithsonian with their problem by moving deer out. But if we think or kid ourselves we are really helping the deer out, then I think we need to take another look at it. Because we are putting deer into a habitat that they are competing with the other deer. As a matter of fact, from a humane standpoint, I think that would be one of the toughest things we would do to the deer, is just move them into another occupied habitat.

The other thing I would like to bring out, and it has not been discussed today, and that is the possible role of the Smithsonian in the demonstration area, this thing we are carrying on as a hunt that reduces the population every year. We went out there and took a look at it, and from a quality standpoint, it would really do a lot to get away from a lot of the people that have objections to hunting—they have done a very quality job of lining up a hunt that would not have a great number of people and yet would do the management job. They also are doing something that most land-owners are trying to do today, and that is demonstrate an incentive of user fees. Even the Federal Government has been talking about this—OMB wants fees and everything.

Mr. YATES. I am not sure Mr. Smithson had this in mind when he gave the money to the Federal Government originally.

Mr. JONES. That is something I have no knowledge of, what he was thinking. But they are able to handle this deer harvest out there, and do it with the hunters' fees.

Mr. YATES. Thank you very much. I appreciate your brevity. And I appreciate the force of your arguments, particularly you Mr. Williamson. I will remember the scars.

[The prepared statement of Dale A. Jones follows:]

STATEMENT OF DALE A. JONES, President of The Wildlife Society
Before the House Subcommittee on Appropriations for
The Department of the Interior
and Related Agencies

November 4, 1982

Mr. Chairman and Members of the Committee:

The Wildlife Society appreciates the opportunity to appear before you today concerning the National Zoological Park's proposal for white-tailed deer management at the Conservation and Research Center, Front Royal, Virginia.

The Wildlife Society is a nonprofit organization of about 8,000 professional wildlife biologists, managers, administrators, and educators, dedicated to the wise management and conservation of the wildlife resources of the world. The foremost objective of the Society is to develop and promote sound stewardship of wildlife resources and of the environments upon which wildlife and humans depend. To help the Committee evaluate this best, I have attached a copy of TWS conservation policies. It is in this capacity that the Society reviewed the National Zoological Park's plan for white-tailed deer management at the Conservation and Research Center, including an inspection trip to the Center on October 26.

On my visit to the Center, I found their mission to be one of rearing threatened and endangered species of birds and hoofed mammals. During this trip, I observed the condition of deer habitat, reviewed the impact of the deer population on the Center's operation, and assessed alternatives to alleviate the problem of an overpopulation of deer.

Most wild animal populations produce more animals than their habitat can support. Surplus animals are removed by mortality factors that regulate population numbers within limits of the habitat. In this instance, deer populations were unmanaged (hunting was prohibited) from 1974 (when the Smithsonian Institution occupied the land) to 1981, when the initial effort at herd control was undertaken by means of controlled hunting. (The property was fenced between 1977-1980 primarily to contain large exotic animals such as European bison and camels, in case of escape from their enclosures. Although not "deer proof," these fences restrict movement of deer on or off of the property.)

The deer population at the Center apparently expanded to almost 600 deer in March 1982. Herd size today is estimated at about 1000 animals; uncontrolled and barring an excessive loss, the projected population can be expected to nearly double in 1983. As a result of the existing population, I observed evidence of heavy grazing pressure on alfalfa and browsing of shrubs and hardwood trees; "browse lines" caused by heavy deer use were observed throughout the wooded areas. Center records show that alfalfa production has been substantially reduced because of deer grazing.

If, in the absence of dispersal, other factors are not limiting, many vertebrate species in suitable habitats, including deer, will continue to grow in population density until the population degrades its own habitat. All animals must go through the birth-life-death process, which seldom ends humanely. Overpopulation of deer usually means dispersals, accompanied by high mortality, or die-offs from starvation, predation, and disease. (The fenced enclosure at the Center effectively prevents normal dispersal, accelerating adverse impacts on the herd and its habitat.) When this state is reached, most of the individuals die prematurely and the number which suffer is much greater than if the population density had been managed by man.

Alternatives proposed by opponents to the Center's white-tailed deer management plan appear prohibitively expensive and are not without significant hazard to the animals themselves. Live-trapping is costly, time consuming, and of only limited effectiveness. Driving deer off the fenced property would be difficult because of the steep terrain, 1200-foot difference in elevation, and dense cover. Live-trapped deer could be transported far enough away from the property before release to minimize their likelihood of return, but significant numbers of deer driven outside the fence could be expected to return unless the fences were made deer proof, an expensive alternative. In both instances, the displaced deer would be introduced into occupied habitats; habitats already at carrying capacity. Such animals would be exposed to excessive predation, including mortality caused by feral dogs which are common in the area and competition from the animals present in transplanted site. Further, they would still be subject to harvest by hunting. These alternatives, if carried out effectively on an annual basis, might help regulate deer numbers, alleviate forage damage, and reduce the risk of disease and parasitism to the exotic animals at the Center, but merely transferring the problem of herd reduction to adjacent areas would appear to serve no useful purpose and certainly not solve the concerns about their being hunted.

The relatively low effectiveness of transplanting is documented in a similar situation in California. The State of California, in August 1981, transplanted deer from Angel Island in Marin County to a site in nearby Mendocino County to alleviate an overpopulation of deer on Angel Island. Fifteen transplanted deer were radio-collared to monitor the success of this operation. By the end of September 1982, 11 of the 15 deer had died. The causes of this mortality were automobile accidents and predation. I realize that these are black-tailed deer, however, it does illustrate what often happens from the stress of introducing animals into habitat that is already occupied.

The Wildlife Society recognizes that control of animal damage to crops and/or threats to public health or to the health of other wild or domestic animals is a necessary goal in wildlife management. Essential to programs of animal control are assurances that the damage and/or threats to public or animal health has been accurately assessed, that the techniques for control are acceptable both biologically and humanely, and that the control measures employed will effectively mitigate the assessed damage.

The Society believes that hunting can be used safely and effectively to remove surplus animals when herd density exceeds the carrying capacity of the available habitat. Hunting also is one of the most efficient, safe, economical, and humane methods available to control depredating wild animals.

Therefore, we believe the Center's plan to use hunting, under carefully regulated conditions, and to provide herd management on a regular basis offers a sensible, environmentally sound, and socially acceptable solution to the problem.

Use of a user fee system at the Center offsets costs of hunt management and helps support valuable studies of deer condition, incidence of diseases and parasitism, etc. Acceptance of this management practice is demonstrated by hunter response - 456 hunters applied for permits in 1981 and 1,500 in 1982.

Following the recommendation of the Division of Game, Virginia Commission of Game and Inland Fisheries, and in consultation with the Commission, the Conservation and Research Center developed a plan for a controlled hunt in 1981 to remove excess deer. Among features to assure safe and efficient harvest, the plan required that hunters remain within 50 yards of their assigned station. Stations were spaced about 200 yards apart and were located away from fences. This plan was successfully implemented in 1981, without incident, and resulted in removal of 126 deer. The result was a modest reduction in herd size and in crop depredations. In addition, a valuable resource was harvested and utilized.

In summary, The Wildlife Society found that there is a population of deer on the property which, if unmanaged, poses a threat both to the herd and its habitat and increases the risk of transmission of diseases and/or parasites to the exotic species maintained at the Center. The Society believes that the Conservation and Research Staff has accurately assessed the problem and that they have developed a sound, practical, and effective plan to alleviate damage problems and threats to the exotic species at the Center. Alternative schemes merely transfer the problem of an overpopulation of deer to the adjacent property owners. These alternatives are expensive and appear to serve no useful purpose as they merely move the harvesting of surplus deer by hunters off the property. Thus, we support the National Zoological Park's proposal for white-tailed deer management at the Conservation and Research Center.

Mr. Chairman, this concludes my prepared remarks. Thank you for this opportunity to present the views of the Society representing wildlife professionals. I would be happy to answer any questions the Committee may have.

THURSDAY, NOVEMBER 4, 1982.

WITNESS

FORREST W. TRIPLETT

Mr. YATES. Mr. Triplett.

Mr. Triplett, I am going to limit you to 2 minutes. I am sorry, because I know you have been waiting patiently. I am going to put your statement into the record and listen to you for 2 minutes.

Mr. TRIPLETT. Thank you, Mr. Chairman.

I am Forrest Triplett, from Front Royal, Va.

Since the inclusion of the statement in the record, I will very briefly go down and call attention to points already mentioned—except one point was not mentioned—the number of openings left in the fences around the perimeter of the zoo center, totaling 57. And that was pointed out particularly to Mr. Williamson on April 8, 1982.

Mr. YATES. I have been pressing the Smithsonian to fix the holes in their roofs. I think they have been concentrating on that, rather than the fence. Okay. But I will get Mr. Wemmer on the fence, too.

Mr. TRIPLETT. There has been no drives projected on the south side of 522, which joins the national park and Skyline Drive. Why?

Mr. YATES. Show me the area, Dr. Wemmer. Why no drive there. He is asking you a very good question.

Mr. WEMMER. First of all we do not have any alfalfa growing there right now. Second of all we have the National Park Service, U.S. Customs, and private landowners, 4-H center, and we would want to touch base with them before we do anything.

Mr. TRIPLETT. All right. Going on down, over 700 acres were enclosed in that special section to the north, where special treatment was given to the employees.

Mr. YATES. Of the Smithsonian.

Mr. TRIPLETT. Yes, sir. Now, what do you do with an overpopulation of animals in the District of Columbia and/or the National Zoo. Do you have a lottery to hunt there?

Mr. YATES. No. We give them to other zoos. But you have white-tailed deer all over the country.

Mr. TRIPLETT. White-tailed deer may be in some parts more than others.

Going on down to number 5, where the zoo employees were permitted to draw the lottery numbers, but did not use a neutral arbiter—when other organizations like McDonald's, Safeway, do not permit their employees and employees' families to participate in their own lotteries.

And I believe the record will show the employees did quite well as compared to the others on the first lottery of 1981. This was an unfair discrimination under preferential treatment given to employees, and I would like to see a copy of last year's lottery drawing list and this year's to make a comparison.

If the time spent last year had been used to prepare for a drive instead of a hunt, the zoo center could have driven the deer out humanely with people who would volunteer to remove the deer and

enclose the areas to prevent their return. There would be no excuse to have the alfalfa farm being used as a crutch.

Mr. YATES. We heard the other witnesses say you cannot drive the deer out. I do not know if the farmers could do better than trained people in that respect.

Mr. TRIPLETT. There is one particular point I want to bring up, number 8, who collects the rent from the noncenter people or others who reside there? What accounting is made available to the public on a public facility? What has happened to all the money received from the deer hunt? Who got it? This calls for a U.S. General Accounting Office audit. And most of all, a full congressional investigation above the levels of the committees concerned should be instituted and all funds pertinent to the Smithsonian should be withheld until proper accounting measures are taken.

Mr. YATES. All right, Mr. Triplett, thank you very much.

Mr. TRIPLETT. There is one item in number 12, I made a typographical error.

Mr. YATES. We will correct it.

Mr. TRIPLETT. The year instead of 1909 was 1907.

Mr. YATES. Thank you very much.

[The prepared statement of Forrest W. Triplett follows:]

NOTES AND QUESTIONS
ON NATIONAL ZOOLOGICAL CONSERVATION CENTER
DEER HUNT

FORREST WYNN TRIPLETT, Author and Testator

1

An outside perimeter fence for the entire Center was built to a height of eight (8') feet on most of the entire length at a cost of \$750,000. There were openings of six (6') feet or less, numbering fifty-seven (57) total left, not counting all the holes on the north boundary as shown to Zoo employees and particularly Mr. Williamson, second in charge, on April 8, 1982.

This information was given during a meeting at the Virginia Gentleman Restaurant, Front Royal, Virginia.

Those attending this meeting included personnel from THE ZOO CENTER, two members of the Virginia Game Commission, Mr. Cross and Mr. Raybourn and others not noted by name. Mr. Cross admitted mistakes had been made in dealings with the ZOO CENTER, all of which were listed on a tape made at this meeting.

What has the Virginia Game Commission done to correct these mistakes within the elapsed time during the year?

2

The ZOO CENTER continues to voice cries of deer consuming alfalfa. Why have there been only four (4) drives to remove the deer in two years? One of the four (4) drives was inhumane with deer being driven into the perimeter fence. The other three were performed by ZOO CENTER employees, who, incidentally, prior to the first hunt last year, refused to drive the deer out on their day off. Why were there no such drives on the south side of U.S. 322, which area eventually joins the National Park and Skyline Drive area?

Why were the employees all allowed to hunt until they each killed a deer in a 700 acres enclosed section where the fence was eight 8') feet high or better for ninety (90%) percent of the length, and the lottery selectees were allowed only two days at TEN DOLLARS (\$10.00) per person, whether they each killed a deer or not?

3

As for the cries of danger to the Zoo animals by the public hunting the area, it is my opinion that the nearest Exotic Animal Cage is approximately one and one-half ($1\frac{1}{2}$) miles from the boundary of the Warren County School Board property, which is along the Leach property line and being the east boundary of the ZOO CENTER property.

4

Why were the ZOO EMPLOYEES permitted to draw lottery numbers, without a neutral arbiter (non-partisan), when other organizations such as McDonald's, Safeway, and other national chains do not permit their employees and employees' families to participate in their own lotteries?

5

I believe the record will show that the ZOO EMPLOYEES did quite well as compared to non-employees selected by lottery for the first hunt of 1981. Why were they given preferential treatment? In my opinion this is unfair discrimination!

6

If the time spent since last year had been used to prepare for a drive instead of a hunt, the ZOO CENTER could have easily driven the deer out humanely with people who will gladly volunteer to help remove the deer from the areas of farming and help to permanently close all the holes to prevent the deer returning to the alfalfa areas. THERE WOULD

BE NO EXCUSE FOR USING THE ALFALFA FARM AS A CRUTCH.

7

How many permits has the Virginia Game Commission issued to the ZOO CENTER in the past two years for experimental purposes? How many fur-bearing animals were traoped and reported to the Virginia Game Commission? How many were trapped in the last two years?

8

Who collects the rent from the NON-CENTER people or others who reside there? What accounting is made available to the public on a public facility? What has happened to all the money received from the deer hunt? Who got it? THIS CALLS FOR A U. S. GENERAL ACCOUNTING OFFICE AUDIT!

9

Why do all high level officials have special keys to enter the CENTER at random from either the Warren County School Board property on the north or from U.S. 522 south at two entrances?

10

It is my understanding that Mr. Williamson and Dr. Wemmer of the ZOO CENTER are members of the Twin-Rivers Archery Club. They traffic across the School Board property at their random will and claim special executive privileges not accorded to law enforcement officials (Sheriff's Department or others of the same nature) who have observed unlawful activity but could not enter. Could these executive privileges cause a conflict of interest between national, state, and county holdings?

11

Congressman Kenneth J. Robinson:

You were sent a petition signed by four hundred nineteen (419) individuals this year in the early part of the year. Some of them listed their phone numbers. Why have you not responded, since some of those individuals who listed phone numbers were also former employees with a bird's-eye view of the situation in the ZOO CENTER? What will it take to clear the air?

12

I have been aware for many years of the uses made of the facility. It was first used as an Army Remount Station from the year of ~~1909~~, 1907 with others succeeding after World War II and gravitating to its present status. Being an old Army service-man, I never expected to see the area become a slaughter pen and slaughter house for wild animals.

THURSDAY, NOVEMBER 4, 1982.

DEER, PETA

WITNESS

SHARON JONAS

Ms. JONAS. I am with People for the Ethical Treatment of Animals.

Mr. YATES. Do you agree with the other witnesses?

Ms. JONAS. Which ones?

Mr. YATES. About the controlled hunt?

Ms. JONAS. No, I do not.

Mr. YATES. What would you do?

Ms. JONAS. First of all, the deer are a problem or they are not. If they are, they need to be relocated, or in the most humane way destroyed.

Mr. YATES. What is that way?

Ms. JONAS. Well, certainly not bow and arrow hunting. Dr. Wemmer said himself the success rate of the shotgun hunting is 50 percent. So my question is what happens to the other 50 percent that are maimed, injured. This is certainly not a humane approach.

He also mentioned the social structure is a matriarchal structure, and they are intent on killing off as many does as possible. And there again you are leaving fawns starving.

I wanted to quote Wayne Evans, Assistant Director of the Fish and Game Commission of the State of New Mexico. "Hunting has never been a necessary adjunct to population control and it is highly dangerous to assume that hunting can act as a substitute for any mortality factor. It produces its onset of population characteristics distinct from any natural mortality factor." The white-tailed doe is a much better controller of its population than the National Zoo. Under good browse conditions they will bear two fawns a year, under browse shortage, she will bear only one. If population levels are beyond the carrying capacity of a given range, she will fail to ovulate. If the deer herd is killed, she will breed to capacity, and the problem is not solved.

We heard this could go on for 3 to 5 years, at least, to get any kind of preferable number. This still does not solve the problem.

The deer are not starving, and there is no evidence that there is that threat to them, nor are they sick. They are not a danger to themselves or others. At worse they are an inconvenience to the Zoo. To resolve the matter of the captive deer herd by raffling off chances for employees and other people to slaughter them with bows and arrows and guns is an atrocity that I don't think can be tolerated.

Mr. YATES. All right. Thank you.

Ms. JONAS. I would like to mention the issues—what is the problem. As far as the meningeal worms, they are a problem for the reindeer. And even a hundred percent removal of the white-tailed deers will not eliminate that problem.

Mr. YATES. We would have to move the reindeer.

Ms. JONAS. That seems to be the simplest solution to that problem. The alfalfa field crop damage is questionable. If that is especially threatened, then why can't that area be fenced off with the highest fences?

And if it is found that hunting, which we don't accept at all—but if it is found that the "killing", harvesting, whatever, of the animals is the necessary approach, this should not be done by any person off the street who has a gun license without any proved marksmanship. It should be done by a skilled marksman who can kill the deer in the most humane way possible.

The U.S. Government is responsible for the wildlife and it has the responsibility.

Mr. YATES. Your statement will appear in the record.

Ms. JONAS. Okay. I think that is it. The real point here is that animal life have value, and every effort should be made to keep such life from being destroyed without a real purpose.

[The information follows:]

STATEMENT OF INGRID NEWKIRK
PEOPLE FOR THE ETHICAL TREATMENT OF ANIMALS

IN OPPOSITION TO PROPOSED NATIONAL ZOO DEER HUNT

Mr. Chairman, and Members of the Committee:

Thank you for the opportunity to express the views of our membership in the matter of the proposed hunt of deer at the National Zoo's Front Royal, Virginia facility.

Although this is not the first time the policies of the National Zoo have been out of accord with public feeling, we continue to be disturbed by the brazen lack of consideration for animals and the supporting taxpayer demonstrated by the Zoo administration's promotion of this 'sporting event'.

We believe that this time Zoo officials have gone too far. If there is justification for killing the deer at Front Royal, and we believe you will determine there is not, the zoo has exposed its true callousness by choosing methods of killing that are neither efficient animal control nor reasonably free of pain and stress to the animals.

Zoo officials are understandably now casting about, drawing on their ample informational resources, to seek and distort data with which to mask their true intent and laissez-faire attitudes.

Either the deer are a problem or they are not. If they are, they must be relocated. If they are not, they should be left alone. Hunting and culling is not an appropriate solution in any event. It is the inception of an ongoing practice that leads to population growth, for deer attempt to swell their thinned herds after culling, leading to more hunting and so on.

Wayne Evans, PhD, Assistant Director of the Fish and Game Commission of the State of New Mexico, puts it this way, 'Hunting has never been a necessary adjunct to population control and it is highly dangerous to assume that hunting can act as a substitute for any mortality factor. It produces its own set of population characteristics distinct from any natural mortality factor.'

Writing in the January, 1974 issue of the 'Smithsonian', Jack E. Hope noted, 'Even in the unusual case of white-tailed deer, which now exist in far greater numbers than in the 18th century, the concept of the hunters' 'harvest' as a conservation and population control measure has only contrived, short-term validity.'

The white-tailed doe is a much better controller of population than the National Zoo. Under good browse conditions she will bear two fawns a year. Under a browse shortage, she will bear only one. If population levels are beyond the carrying capacity of a given range, she will fail to ovulate. If the deer herd is culled, she will breed to capacity.

These deer are not starving, nor are the sick. They are not a danger to themselves or to others. At worst, they are an inconvenience to the zoo. To resolve the matter of the captive deer herd by raffling off chances for grown men to slaughter them with bows and arrows, and guns, is an atrocity we must not tolerate. It teaches us that a problem of our own creation may properly be resolved by killing the victims.

To touch on the arguments against the deer herd's continued existence at Front Royal:

Firstly, if meningeal worms, which are harbored harmlessly in the white-tailed deer, are truly a life-threatening hazard to reindeer at Front Royal, even 100% removal of the captive white-tails will not eliminate the threat. White-tailed deer grazing on adjacent property will continue to pose transmittal risk to the reindeer. A cull, therefore, serves no remedial purpose whatsoever in this regard. The only solution is to move the reindeer. Their original placement at Front Royal was inappropriate and will continue to jeopardize their health.

Secondly, the evidence of alfalfa crop damage is extremely weak upon close examination. Deer are not fond of alfalfa and there is no shortage of good browse that would compell them to eat the crop above other foodstuffs. It would appear from the slides that mowing machines, not deer, have taken a toll on the alfalfa crop. Deer do not graze as evenly, and in the long, sweeping strokes that are evident from the photographs. Regardless, it can be shown that the zoo has badly misrepresented the acreage involved.

In 1942, the U.S. Supreme Court declared, "Wildlife is held in trust for all citizens." That means that government must be responsible for the protection of wildlife for the benefit of all citizens. The Smithsonian Institute must be preserved as an educational entity which teaches respect for the interaction of all life on this planet and lend itself to the doctrine of animal protection. It must police the Zoo by eliminating the rhetoric and cover-up and compelling an intelligent, understanding, responsible action to the matters of the Front Royal deer.

The zoo has already demonstrated its ability to chemically immobilize part of the deer herd in its radio-collar program. Now, if the deer population trapped within the fences at Front Royal is to be dealt with, the zoo must apply its resources to relocating not killing the deer. Herding, when approached methodically and gently, has been shown to be the most effective means of relocating deer populations in Europe and elsewhere.

When the deer are removed, the fences should ideally be replaced with ones much higher than six feet. This will keep other National Park deer from entering the Front Royal compound.

The real point here is that animal life has value - to animals if not to us - and every effort must be made to keep such life from being destroyed without real purpose. The Front Royal deer have a right to live out their lives in peace and with the protection of the United States government.

Thank you for hearing our members through this statement.

THURSDAY, NOVEMBER 4, 1982.

DEER

WITNESS

NANCY CHERRY

Mrs. CHERRY. I am against the killing. I think to implement Mrs. Free's suggestion is not bad. I don't think this suggestion has been made, but there are people who care about this deeply. And with regard to the financing, I think if an official program was established, that a lot of people would be interested in contributing.

Mr. YATES. Okay. Your statement may be made part of the record.

Mrs. CHERRY. Yes. And also I would like to say this. I think if they thin the herd out, I am afraid it will hurt both financially and also public support for the organization.

[The information follows:]

I urge that the inhumane destruction of the Front Royal deer be halted and that a carefully planned program be implemented to return these deer unharmed to their natural environment.

To assist in the financing of the above-suggested proposal, I suggest that a financial program be established and made open to the public at large, to concerned wildlife committees and organizations, to Friends of the National Zoo, the Humane Society of the United States and to any other interested or concerned outfit.

I am of the opinion that the proposed deer kill, if carried out, would result in considerable financial loss and loss of public support for the organization proposing it. It is not unreasonable to believe that if this cruel hunt is not halted, similar undertakings in other localities could endanger our wildlife.

NANCY CHERRY.

THURSDAY, NOVEMBER 4, 1982.

DEER

WITNESS

HAROLD CLARK

Mr. YATES. Mr. Clark, I am going to give you two minutes, too. Your statement may be made part of the record.

Mr. CLARK. Thank you.

Chairman Yates and gentlemen, my firm belief is that the situation was created because the fence trapped the deer in the area. It seems logical to me to take the fence down in a certain area and let the deer freely flow out of the park and the natural amount of deer killed by hunters should eliminate the problem within a period of two or three years. But you cannot trap deer and make a home of an area, and then say we have a problem, because you have created the problem.

I respect the deer and also I respect the hunter, because I am a hunter. But to say that you are hunting in an area that is completely enclosed, and you can see 30 deer within your stand is not hunting. That is like going down to the Zoo here in the monkey cage and shooting a monkey through the fence and say you have been monkey hunting. To me it is not hunting at all.

Of course, the special favors shown employees, that happens in every organization, so I will not get into that. But one thing I would like to find out is the money that the U.S. Government and the American people are spending—why is not the general public allowed to go into this Center and tour the Center, and to enjoy the exotic animals and see the white-tailed deer?

Mr. YATES. I have the impression they are. Are they not?

Mr. WEMMER. The Center is not open to the public.

Mr. CLARK. We are spending taxpayers' money, and we have a private area.

Mr. YATES. I think the reason is because they are animals that are being carefully husbanded, because they are an endangered species. And the contact with the public may for some reason jeopardize that mission.

Mr. CLARK. If that is true, we should not have any Zoos in the United States open to the general public.

Mr. YATES. They are not all endangered in the Zoos.

Mr. CLARK. That is my point. Which ones do they have up there that are exotic enough to be in the category of extinction?

Mr. YATES. We will find out and put it in the record.

Mr. CLARK. I just feel the animals have a right to exist, they have a right to be preserved by someone that cares. To just go in there and arbitrarily once a year kill a certain amount of deer to me is not a hunt. Anyone who says it is a hunt in my estimation is not a hunter. They are strictly there for the sport of putting the deer on the fender of their pickup truck and riding up and down the road to show how macho they are because they have a deer. A real hunter doesn't do that. He puts it in the back of his truck, he takes it home slaughters it and puts it in the freezer.

I would like to thank you very much.

[The information follows:]

POINTS TO BRING OUT AT MEETING

1. There would be no need for a deer hunt if the fence had not been put up and trapped the deer inside.

2. The problem could be solved by taking down 300 feet of fence on the south side of the property and drive the deer out. The fence could be taken down and put back up at not to much expense.

3. I would like to know why the general public is not allowed to take tours to see the animals. Most people would be interested I'm sure.

4. In my opinion this is not hunting when deer are fenced in and partly tame.

5. How much money are we as tax payers sending to keep this operation going, and is it worth it.

6. Why are the fences that connect up to the school board property in four or five places raised up so deer can enter the archery range area on the school board property.

7. Why are the employees shown special favor to hunt in the most heavily populated deer area. Why are game wardens and police not allowed to check with out being asked on the property to protect the deer.

8. Seems like to me if a fence was placed around the alfalfa field most of the problem they seem to be having with deer eating up the alfalfa would be solved.

9. We can never forget that animals have rights too. In my opinion this so-call hunt or taking of the deer makes a mockery of what the zoological center is supposed to represent in its development and protection of all animals.

Thank you.

HAROLD C. CLARK,
Riverton, Va.

Mr. YATES. Thank you, Mr. Clark.

That completes testimony from our scheduled witnesses.

Do any of the Smithsonian witnesses want to say something for the record in response to some of the points raised?

Mr. WEMMER. I can answer some specific questions brought up.

Mr. YATES. One of the questions brought up by Mr. Yates and Mr. Clark is why are the Smithsonian employees given special treatment?

Mr. WEMMER. Let me answer that question. We have explained this many times to people who have asked the questions.

Mr. YATES. I have only asked it of you once.

Mr. WEMMER. I have answered it many times in Front Royal since last year.

We have a central 700-acre area which you are all familiar with now. We also have an enclosure with about two dozen endangered Elds deer. They look very similar to white-tailed deer. And the reason we have restricted the area and allowed only employees into this area to hunt is because the employees are familiar with Elds deer and white-tailed deer and can tell the differences. During the last orientation meeting—

Mr. YATES. Are the Elds deer in a pen?

Mr. WEMMER. Yes.

Mr. YATES. The white-tailed deer are not?

Mr. WEMMER. They are not.

Mr. YATES. If they are in a pen, why do you have to be an employee to be able to recognize them?

Mr. WEMMER. We are very cautious about this, because in 1977 we had a hunter enter one side of the property, and he killed an Elds deer.

Mr. YATES. In the pen?

Mr. WEMMER. Yes.

Mr. YATES. Aren't the pens distinguishable?

Mr. WEMMER. A chain link fence is all they see. He looked across the chain link fence and saw a deer and shot it.

Mr. YATES. Can't you identify the pens better so that a hunter does not do that?

Mr. WEMMER. We do this. But the reason we have excluded the public from the area is because we don't want to take the chance of having somebody else wander off their stand. There is no way to enforce a hunter staying within the 30-yard radius of his stand and approach that area, see a deer, not be able to distinguish it, and shoot it. We simply cannot take the chance to let this happen again.

This was a \$6,000 deer. The value of these deer now is about \$12,000. It would be irresponsible for me to authorize a large number of public to go in there.

Mr. YATES. I don't understand that. Okay.

Mr. WEMMER. Let me explain.

Mr. YATES. Go ahead.

Mr. WEMMER. During the orientation meeting this year, we addressed this whole issue with the public hunters. What we did is we projected a picture of an Eld's deer on a screen. This was a transparency on a screen. We asked the hunters who were present if they recognized the animal. And the hunters nodded and vocal-

ized in agreement, yes, they recognized the animal. Then the next question was asked, how many of you have harvested this animal? And again, in unison, everyone agreed, yes, we have all harvested the animal—I got two last year—this sort of thing. Then we announced to the hunters, you have just killed an endangered species if you have harvested this animal. And they all turned to one another and grinned, because they could not tell from that the difference between a yearling and a doe. The picture was of a yearling and two doe Eld's deer. They could not tell the difference between the Eld's deer and the white-tailed deer.

The reason for excluding the public hunters is we don't have the time to take them around, show them exactly where the areas are.

Mr. YATES. Then you ought to exclude the Smithsonian hunters as well if you are not going to let the public hunters in.

Mr. WEMMER. The reason the Zoo employees were allowed to hunt there is because they can tell the difference between the two species, and we wanted to remove white-tailed deer from the area. It is true that a larger number of deer were taken by employees than the public. It was about 51 percent hunter success by employees versus 46.8 percent by the public. I am not sure the difference is statistically significant.

Mr. YATES. Here are the pens. And your Eld's deer are here in one of the pens. And this is where you hunt.

Mr. WEMMER. Yes.

Mr. YATES. Why do you allow hunting by anybody, your employees, the public included, when you are so close to the pens. Why didn't you construct the pens away from the hunting area?

Mr. WEMMER. The pens were there before we had hunting.

Mr. YATES. How much does it cost to build a pen? Why don't you move the pen over here where there is no hunting, or over there, so there is no danger to your very expensive Eld's deer?

Mr. WEMMER. There has been no danger because——

Mr. YATES. I thought a couple were shot.

Mr. WEMMER. When the Eld's deer were shot, they were kept here. And a hunter was on this side of the fence, and mistook the Eld's deer for a white-tailed deer and shot him. What we realize is that hunters have difficulty distinguishing between Eld's deer and white-tailed. That is why we decided it would be best to have people familiar and see these animals every day, our employees, remove the white-tailed deer in this area rather than let the public in.

Mr. YATES. The hunting season is 12 days. Is there no way of protecting the Eld's deer for 12 days while you conduct a hunt? Can you herd them out to another pen or some protective enclosure?

Mr. WEMMER. This would not be practical. Using this method we have used, which everyone finds distasteful, has been an effective way of protecting the Eld's deer.

Mr. YATES. It will still continue to be distasteful. Mr. Hughes wants to be a good neighbor. You are not letting Mr. Hughes be a good neighbor.

Mr. WEMMER. This year we have 40 white-tailed deer, we estimate, in this section of land, because we have driven most of them out, as I mentioned.

Mr. YATES. So you don't even have to shoot them.

Mr. WEMMER. They should be removed, because there will probably be another 30 added to the population next year. We can have further drives of these animals and drive them to adjacent property where somebody else will shoot them, or they can be shot on the property.

Mr. YATES. You are just shooting yourself in the toe. Mr. Yates is going to come back here next year and complain that the Smithsonian employees are stocking their deep-freezes with animals that the public has never had a chance to get to.

Mr. WEMMER. The public, if allowed to hunt here this year, would have a significantly reduced chance of killing a deer compared with any other area on the property, because the density of deer is so low here now.

Mr. YATES. Yes. But why give it to your employees? Why do you want to antagonize Mr. Yates over there?

Mr. WEMMER. I don't want to.

Mr. YATES. He is going to be antagonized.

Mr. HUGHES. Mr. Chairman, this is an aspect of this problem I haven't had any previous familiarity with. I assure you I will look into it, not just for good neighborliness but I am interested anyway.

Mr. YATES. Okay. All right. Now, what other questions would you like to reply to? One of the witnesses from PETA testified about Mr. Wain Evans' position. He has written a very thoughtful letter, dated October 27. Mr. Evans is the assistant director of the Department of Game and Fish of the State of New Mexico. He talks about the problems they have had in trying to control mule deer. What is the difference between a mule deer and white-tailed deer as far as controlling?

Mr. WEMMER. I am not sure. I am not familiar with mule deer management.

Mr. YATES. He says it is almost impossible.

Mr. WEMMER. I don't think there is good evidence it is almost impossible to control mule deer in the West. They are a game species out there. I am sure some of the experts here will be able to testify mule deer have been successfully controlled in the West. Perhaps in his area they have not been.

Mr. YATES. The letter may go into the record. He says:

In 1979, the Department faced a somewhat similar situation presently being faced by the National Zoo. The B Square Ranch near Farmington, New Mexico, a wildlife refuge in private ownership, requested our assistance in resolving a crop depredation problem created by a large concentration of resident mule deer. As the most feasible solution we suggested a limited deer hunt, but the owner of the ranch did not want the deer killed. Instead, he proposed that the population be reduced by capturing and transplanting animals into other areas. Since the owner was also an ex-governor we embarked upon a capture and transplant operation on a cost-share basis with him. However, we also decided to incorporate the capture-transplant operation into our ongoing long-term deer research studies.

Over a two-year period (1979-80), 96 mule deer were captured under drop nets on the B Square Ranch in mid-winter (the only time when drop nets are effective). Of the trapped animals, 87 were instrumented with radio transmitter collars equipped with mortality sensors. The trapped animals, including those with telemetry collars, were released into areas already occupied by sparse populations of resident (indigenous) deer of which 51 were instrumented as part of our deer research programs. All instrumented deer (transplants and indigenous populations) were monitored from aircraft for 15 months to determine relative rates of survival.

After 12 months of monitoring, 55 percent of the transplanted deer had died while only 15 percent of the indigenous animals died during the same period. Greatest

mortality to transplanted animals occurred within the first 2.5 months after release when they suffered an adjusted annual mortality rate of 82 percent (average life expectancy is 7.01 months at this rate). As time passed, the surviving transplanted animals exhibited declining mortality rates and after 9 months, the survivors assumed mortality rates statistically indistinguishable from indigenous populations.

From the economic standpoint, costs of capturing 96 deer on the B Square Ranch averaged \$153.70 per animal (excluding transportation costs to release sites). Considering the mortality during the 12-month introductory period on the transplant sites, the worth of a transplanted deer, once established, was \$359.90 (i.e., it cost \$359.90 to capture and release enough deer to allow the survival of one deer through the 12-month introductory period).

Although this may be one of the best documented studies of its kind, the results were neither surprising nor unusual in our experience. In other parts of the state we had transplanted smaller numbers of deer for research purposes and frequently suffered 100 percent mortality within 2-6 weeks after the release (which is why we began working exclusively with indigenous animals and recommended against the capture-transplant option to the owner of the B Square Ranch). In some cases, the transplant consisted of simply moving an animal from one side of a deer-proof fence to the other.

The agents directly responsible for the deaths of transplanted animals were extremely varied, but in general (based on our behavioral observations) were the result of the animal's unfamiliarity with the physical environment and, perhaps most important, being ostracized by the existing ridged (SIC) social organization of indigenous deer who do not like strangers. Denied the collective protection of the herd and the knowledge inherent in an animal intimately familiar with its surroundings, the transplanted animal was placed at a distinct, usually fatal, disadvantage.

This is not to say that capture and transplant operations have no place in wildlife management. This Department has conducted many such operations with rare, threatened or endangered species in efforts to repopulate historic ranges. However, the considerable expense of these operations required to give even marginal prospects of success can be justified only by the species tenuous status. These efforts usually include extensive preparation of the release area (i.e., paddock construction, predator control, fence removal, et cetera) prior to the introduction and during the introductory period.

In other words, the proposal to capture and transplant deer from the Conservation Center in lieu of a controlled deer hunt may be marginally feasible from a technical standpoint (i.e., the professional knowledge and equipment exists to give the operation a limited prospect of success). However, viewed in the context of our experience, unless the government or someone else is willing to assume the considerable expense of trapping and adequate preparation of the release site (possibly including elimination of predators such as wild dogs) the operation may be little more than a placebo for those opposed to the hunt option. In New Mexico it is our intent to reserve such expenditures of limited resources for those species in greatest need. Against this criteria neither mule nor white-tailed deer can qualify.

I hope these comments will be of help to the Subcommittee. In a situation such as yours there are no easy solutions. If I can be of further assistance, please let me know.

The reason I read this is because I had the idea when I came to the hearing that the thing to do is shoot the deer with a dart gun, put them in a truck, transport them out someplace to the national park or national forest. After listening to the witnesses I am not so sure, and after reading this letter I am not sure this is the best way of doing it. I think it is a very interesting letter. It may go into the record at this point.

[The letter from Mr. Evans follows:]

State of New Mexico

GOVERNOR
BRUCE KINGDIRECTOR AND SECRETARY
TO THE COMMISSION
HAROLD I. [unclear]

DEPARTMENT OF GAME AND FISH

STATE CAPITOL
SANTA FE
87503STATE GAME COMMISSION
EDWARD MUNOZ, CHAIRMAN
GALLUPJ. W. JONES
ALBUQUERQUEROBERT H. FORREST
CARLSBADBILL LITTELL
CINARRONJAMES H. KOCH
SANTA FE

October 27, 1982

The Honorable Sidney R. Yates, Chairman
Subcommittee on Interior Appropriations
Room B-308
Rayburn House Office Building
Washington, D. C. 20515

Dear Senator Yates:

I am writing you at the request of the National Zoo regarding their problems with white-tailed deer at the Conservation Center near Front Royal, Virginia.

Although I am only indirectly familiar with the deer problem at the Conservation Center, I understand there is general agreement upon the necessity of removing deer from the area. The controversy concerns the method of removal. The National Zoo is proposing a deer hunt and their opponents are proposing removal by capture and transplant. The National Zoo thought it appropriate that I summarize the experience of the New Mexico Department of Game and Fish in capture and transplant of mule deer.

In 1979, the Department faced a somewhat similar situation presently being faced by the National Zoo. The B Square Ranch near Farmington, New Mexico, a wildlife refuge in private ownership, requested our assistance in resolving a crop depredation problem created by a large concentration of resident mule deer. As the most feasible solution we suggested a limited deer hunt, but the owner of the ranch did not want the deer killed. Instead, he proposed that the population be reduced by capturing and transplanting animals into other areas. Since the owner was also an ex-governor we embarked upon a capture and transplant operation on a cost-share basis with him. However, we also decided to incorporate the capture-transplant operation into our ongoing long-term deer research studies.

Over a two-year period (1979-80), 96 mule deer were captured under drop nets on the B Square Ranch in mid-winter (the only time when drop nets are effective). Of the trapped animals, 87 were instrumented with radio transmitter collars equipped with mortality sensors. The trapped animals, including those with telemetry collars, were released into areas already occupied by sparse populations of resident (indigenous) deer of which 51 were instrumented as part of our deer

research programs. All instrumented deer (transplants and indigenous populations) were monitored from aircraft for 15 months to determine relative rates of survival.

After 12 months of monitoring, 55% of the transplanted deer had died while only 15% of the indigenous animals died during the same period. Greatest mortality to transplanted animals occurred within the first 2.5 months after release when they suffered an adjusted annual mortality rate of 82% (average life expectancy is 7.01 months at this rate). As time passed, the surviving transplanted animals exhibited declining mortality rates and after 9 months, the survivors assumed mortality rates statistically indistinguishable from indigenous populations.

From the economic standpoint, costs of capturing 96 deer on the B Square Ranch averaged \$153.70 per animal (excluding transportation costs to release sites). Considering the mortality during the 12-month introductory period on the transplant sites, the worth of a transplanted deer, once established, was \$359.90 (i.e., it cost \$359.90 to capture and release enough deer to allow the survival of one deer through the 12-month introductory period).

Although this may be one of the best documented studies of its kind, the results were neither surprising nor unusual in our experience. In other parts of the state we had transplanted smaller numbers of deer for research purposes and frequently suffered 100% mortality within 2-6 weeks after the release (which is why we began working exclusively with indigenous animals and recommended against the capture-transplant option to the owner of the B Square Ranch). In some cases, the transplant consisted of simply moving an animal from one side of a deer-proof fence to the other.

The agents directly responsible for the deaths of transplanted animals were extremely varied, but in general (based on our behavioral observations) were the result of the animal's unfamiliarity with the physical environment and, perhaps most important, being ostracized by the existing ridged social organization of indigenous deer who do not like strangers. Denied the collective protection of the herd and the knowledge inherent in an animal intimately familiar with its surroundings, the transplanted animal was placed at a distinct, usually fatal, disadvantage.

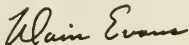
This is not to say that capture and transplant operations have no place in wild-life management. This Department has conducted many such operations with rare, threatened or endangered species in efforts to repopulate historic ranges. However, the considerable expense of these operations required to give even marginal prospects of success can be justified only by the species tenuous status. These efforts usually include extensive preparation of the release area (i.e., paddock construction, predator control, fence removal, et cetera) prior to the introduction and during the introductory period.

In other words, the proposal to capture and transplant deer from the Conservation Center in lieu of a controlled deer hunt may be marginally feasible from a technical standpoint (i.e., the professional knowledge and equipment exists to

give the operation a limited prospect of success). However, viewed in the context of our experience, unless the government or someone else is willing to assume the considerable expense of trapping and adequate preparation of the release site (possibly including elimination of predators such as wild dogs) the operation may be little more than a placebo for those opposed to the hunt option. In New Mexico it is our intent to reserve such expenditures of limited resources for those species in greatest need. Against this criteria neither mule nor white-tailed deer can qualify.

I hope these comments will be of help to the Subcommittee. In a situation such as yours there are no easy solutions. If I can be of further assistance, please let me know.

Sincerely,



Wain Evans
Assistant Director

rrs
Encl.

cc: Dr. Chris Wemmer
Conservation Center of the National Zoo

SURVIVAL RATES OF MULE DEER (*Odocoileus hemionus*)
ASSOCIATED WITH TRANSPLANTS IN NORTHERN NEW MEXICO

By Larry J. Temple and Wain Evans
New Mexico Department of Game and Fish
State Capitol
Santa Fe, New Mexico 87503

ABSTRACT

In the spring of 1979 and 1980, 96 mule deer (*Odocoileus hemionus*) were captured on the B Square Ranch near Farmington, New Mexico and released in 5 study areas in the northern part of the state. Of the transplanted animals, 87 were instrumented with radio telemetry collars prior to their release. The transplanted deer were released into indigenous populations of which 51 were also instrumented with radio telemetry as part of other ongoing studies.

The transplanted and indigenous instrumented animals were monitored from the air periodically, for a period up to 15 months to determine survival rates among the two groups. The results of this study indicated that the transplanted animals became "established" approximately 12 months after the release, but that only 45% of the released population would survive the introductory period. In contrast, 85% of the indigenous deer survived the same period.

The greatest mortality of transplanted animals occurred within the first 2.5 months following their release. Survival rates of those animals remaining alive improved as they gained experience and were not significantly different from indigenous deer after 9 months on the release area.

INTRODUCTION

The idea of using transplants of mule deer as a management technique to supplement low or declining populations of indigenous deer has been a subject of growing controversy in New Mexico for many years. In 1979, the New Mexico Department of Game and Fish initiated a study to investigate the survival characteristics of transplanted and indigenous deer occupying the same areas. Although this study succeeded in its basic objective, it should be pointed out that the results do not answer the question regarding the desirability of using transplants as a management tool. However, it does provide a factual base for further analysis and decision.

DESCRIPTION OF STUDY AREAS

Capture Site

B Square Ranch: The B Square Ranch is located in northwest New Mexico, on the east side of Farmington. The ranch is approximately 48 km² and consists of

riparian habitat along the San Juan River, pinyon pine (Pinus edulis) - juniper (Juniperus spp.) foothill habitat, and cultivated range and crop lands. The ranch is operated primarily for livestock production; however, tree farming, crop farming, and selective wildlife enhancement programs, are an integral portion of the overall ranch operation. The ranch has been designated as a State Game Refuge.

Release Sites

Middle Mesa: Middle Mesa is located in northwest New Mexico just south of the New Mexico - Colorado State line, and is bordered on the west by the Pine River and on the east by the San Juan River, which are dammed to form Navajo Lake.

Carson Forest: Carson Forest is located in northwest New Mexico just south of the New Mexico - Colorado State line, and is bordered on the west by the San Juan River.

Urraca: Urraca is located in north central New Mexico, approximately 17 km north of Questa.

Canadian River: Canadian River is located in northeastern New Mexico, approximately 10 km southwest of Roy, adjacent to the Canadian River Gorge.

Zuni Site 1: Zuni Site 1 is located in west central New Mexico on the Zuni Reservation, approximately 35 km south of Zuni.

Zuni Site 2: Zuni Site 2 is located in west central New Mexico in the Zuni Mountains, approximately 5 km southwest of Grants.

Zuni Site 3: Zuni Site 3 is located in west central New Mexico in the Zuni Mountains, approximately 15 km southwest of Grants.

MATERIALS AND METHODS

Telemetry equipment including radio receivers, scanners, and radio neck transmitters were designed and manufactured by Telonics (1300 West University Drive, Mesa, Arizona).

Deer were captured using a drop net (approximately 2.3 m² of 10.2 cm mesh nylon). The net is suspended from 9 support poles by nylon rope with blasting caps weaved into them and dropped by remote detonation. Capture sites were baited with green alfalfa hay, corn, apple pulp, and block salt. Drops were made when 7-15 deer could be captured. Captured deer were sedated with 150 mgm of xylazine for adults and 75 mgm for fawns. The sedation and partial immobilization that xylazine affords minimized handling and transport injury. Biological data including age, weight, and body measurements were taken from every captured deer. Deer were ear tagged and a number of them were collared with radio neck transmitters. Immediately after capture, mule deer were transported to their respective release sites in gooseneck game trailers.

Aircrafts were used in the monitoring of instrumented deer. A scanner was utilized to pre-program the transmitter frequencies and automatically scanned through all the frequencies at a rate of 1 every 2-5 seconds. The radio collar transmitters incorporated mortality sensors which alerted the researcher when an animal died. The mortality sensor was controlled by a motion sensing device. When placed on the animal and receiving motion from the animal, the radio transmitter transmits at a "clocking" pulse rate of approximately 75 Beats/Minute (BPM). Upon death of the animal, and after 2 hours of complete cessation of movement, the pulse rate switches abruptly to an "alarm" pulse of approximately 150 BPM - this change in pulse rate alerts the researcher that death has probably occurred. The 2 hour delay prevents false alarms which could result from short periods of movement cessation by the animal. If an animal's transmitter was operating in the mortality mode, ground personnel investigated the animal and determined cause of death when possible.

RESULTS

In 1979-80 personnel from the New Mexico Department of Game and Fish captured 96 mule deer on the B Square Ranch, owned by Mr. Tom Bolack, at a cost of \$14,756 which was shared by Mr. Bolack and the Department. These captured animals were transported to release sites in two groups; the first in April 1979 and the second in March 1980.

The April 1979 release included 45 deer trapped on the Bolack ranch and transported to five study areas (Table 1). Of this number, 37 of the deer were instrumented with radio telemetry and monitored periodically through August 1, 1980. At the termination of the program, 19 (51%) of the instrumented transplant population were known to be dead, 14 (38%) were known to be alive and 4 (11%) were unaccounted for (signal could not be received).

Table 1. History of radio collared deer transplanted from Bolack's ranch from April 1979 through August 1, 1980

Release Site	Released	Instrumented	Study Population		
			Known Alive	Known Dead	Unknown
Middle Mesa	10	8	1	7	0
Carson Forest	13	7	3	3	1
Urraca	10	10	4	5	1
Canadian River	7	7	5	1	1
Zuni Site	<u>5</u>	<u>5</u>	<u>1</u>	<u>3</u>	<u>1</u>
TOTALS	45	37	14	19	4

In contrast, at the time releases of transplanted animals were made, the Department had 51 instrumented indigenous (resident) deer in the vicinity of the release sites (Table 2). These animals were monitored concurrently with the transplanted population. At the termination of the program, 7 (14%) of the indigenous study deer were known dead, 41 (80%) were known to be alive and 3 (6%) were unaccounted for.

Table 2. History of the indigenous radio collared deer instrumented at release site of transplants from April 1979 through August 1, 1980.

Release Site	Instrumented	Known Alive	Known Dead	Unknown
Middle Mesa	12	10	2	0
Carson Forest	13	12	1	0
Urraca	9	5	2	2
Canadian River	8	7	1	0
Zuni Site	<u>9</u>	<u>7</u>	<u>1</u>	<u>1</u>
TOTALS	51	41	7	3

The instrumented deer released in April 1979 were surveyed from the air periodically at intervals of 2.5 months, 9 months and 15 months following the release (Table 3). Of the 37 deer instrumented and released, 11 (30%) were known to be dead after 2.5 months, 18 (49%) after 9 months and 19 (51%) after 15 months.

Table 3. Surveys of instrumented deer released in April 1979.

Months After Release	Known Alive	Known Dead	Unknown
0	37	0	0
0- 2.5	22	11	4
2.5- 9.0	11	7	8
9.0-15.0	14	1	4

In March 1980, 62 deer were trapped on the Bolack ranch and released in the Zuni Mountains (Table 4). Of this number, 50 were instrumented with radio telemetry and monitored periodically through August 1, 1980. At the termination of the program, 22 (44%) of the instrumented animals were known to be dead, 20 (40%) were known to be alive and 8 (16%) were unaccounted for. In contrast, there was no mortality among the instrumented indigenous deer in the Zunis during the same time period.

Table 4. History of radio collared deer transplanted from Bolack's ranch into Zuni Mountains from March 1980 to August 1, 1980.

Release Site	Released	Instrumented	Study Population		
			Known Alive	Known Dead	Unknown
Zuni Site 1	30	25	10	10	3
Zuni Site 2	<u>32</u>	<u>25</u>	<u>10</u>	<u>10</u>	<u>5</u>
TOTALS	62	50	20	20	8

Although the emphasis of this study was placed on developing data regarding rates of mortality and survival, the study team was able to classify 25 (61%) of the known deaths among the transplanted study populations (Table 5). Of the known mortality, 12 (48%) were due to predation by coyotes or mountain lions, 4 (16%) were human related, 5 (20%) were classified as trap related and 4 (16%) were attributed to accidents.

Table 5. Sources of mortality on instrumented deer transplanted in 1979-1980 from Bolack's ranch

	1979 Release	1980 Release	Total
Known Sources:			
Predator caused -			
Coyotes	3	0	3
Lion	<u>3</u>	<u>6</u>	<u>9</u>
Subtotal	6	6	12
Human caused -			
Legal Kill	1	0	1
Illegal Kill	<u>2</u>	<u>1</u>	<u>3</u>
Subtotal	3	1	4
Accidents	3	1	4
Trap Related	<u>4</u>	<u>1</u>	<u>5</u>
Known Source Subtotal	16	9	25
Unknown Sources	<u>3</u>	<u>13</u>	<u>16</u>
Total Mortality	19	22	41

The statistical analysis of these data was designed to define survival rates of transplanted and indigenous deer and to identify the sources of significant differences affecting them. The analysis is described in detail in the Appendix. The summary of the results were as follows:

1. The differences in survival rates observed among the 5 study areas involved in the 1979 release for either transplanted or indigenous deer were not significant. Consequently, the differences among overall mortality pressures among the study areas were not sufficient to establish any significance at the 95% confidence level.
2. Differences among factors affecting survival rates inherent in the classification of a deer as "transplant" or "indigenous" were sufficient to establish a significant difference at the 99.99% confidence level. During the 15-month study following the 1979 release, we can be virtually certain that transplanted and indigenous deer survived at different rates.
3. During the 15-month phase of the study following the 1979 release, the average survival rate of transplanted deer was 42.42% as compared with 85.42% for indigenous deer in the same general areas. This difference was established as significant at the 95% confidence level.
4. Examination of survival rates of transplanted deer during the intervals of 0-2.5 months, 2.5-9 months, and 9-15 months after their release, indicated significant changes in survival rates associated with the time an animal spent on the area. The average monthly survival rate 0-2.5 months after release was 76.32%; after 2.5-9 months the survival rate increased to 91.43% and after 9-15 it increased to 98.63%.
5. In comparison to the average monthly survival rate of indigenous deer during the 15-month portion of the study (99.68%), there was no significant difference between transplanted and indigenous deer after the surviving transplanted deer had been on the study areas 9 months or more.

From an economic standpoint, the cost of capturing 96 deer on the B Square Ranch was an average of \$153.70 per animal for a total cost of \$14,756. The release of the 96 deer into new environments will result in the establishment of an estimated 41 deer (42.42%). Consequently, the average cost of an established transplanted deer will be \$359.90. These data indicate that the transplant operation is cost effective if the value of a deer established in the release area is at least \$206.20 greater than the value of the same deer on the capture site.

DISCUSSION

Imagine yourself leaving home for work one day in a community in which you were born and raised. Suddenly, around the corner come several huge ugly monsters which throw a net over your head, knock you out with an injection and stuff you in a dark van from which there is no escape. When you wake up, you find yourself lying on a sidewalk of a huge city you have never seen before. You have no street map, no phone book, no yellow pages, no food and no money, and you do not know where to find any. Naturally, you decide to ask someone, so you accost the next passerby who responds by knocking you down and kicking your stomach. Not only are people unfriendly, they attack you on sight and you keep running and hiding until you get to the end of town where few people are walking about. By now, you are ravenously hungry and you begin going through every garbage can in sight, but there is new danger. You discover why nobody is walking around this end of town. Thugs, rapists and murderers abound and spring upon you from almost every shadow. You have only one defense, run and hide. What, under these circumstances, would be your life expectancy in this new and unfamiliar environment?

Our extensive experience, working with mule deer, indicates that this unpleasant situation is remarkably similar to the problems encountered by a transplanted mule deer introduced to an area with a free-ranging, wild, indigenous population. Aside from the problems of being unfamiliar with the locations of food, water and escape cover, the transplanted animal is ostracized by the resident animals and denied the advantages of collective group protection. Given sufficient time, the transplanted animal learns its way around and may earn a place in the existing social structure of the resident deer but, as this study indicates, relatively few are granted the necessary time.

The indigenous animals survive because of intimate familiarity with their surroundings learned from the moment of birth. They know the location of every bush, every feature of the terrain, every food source and every water hole, and they know the most advantageous routes between them. They know every deer they are likely to meet and they know their place in the social relationship with each of them. In short, the indigenous animal is part of a well-organized and highly structured community geared totally toward one end, survival.

These data indicate that approximately 12 months of experience in the new environment was required by the introduced deer to become assimilated into the indigenous survival system. Until the transplanted population becomes established, it will suffer a disproportionately high mortality rate when compared to the indigenous animals.

Defining the average life expectancy of an animal as the time required for half the population to die off under the prevailing mortality rate, the average life expectancy during the first 2.5 months after release was estimated at 2.56 months. During the period 2.5-9 months after release, the transplanted deer surviving the first period gained more experience and improved their average

life expectancy to 7.74 months. If an animal survived both the first and second periods, the experience gained enabled the animal to assume an average life expectancy of 4.18 years. The surviving transplanted animals, once established, will assume the average life expectancy rate of the indigenous deer estimated to be 5.13 years.

As these data indicate, most (54%) of the mortality on transplanted deer occurred in the initial 2.5 months on the release site. Those animals surviving the initial period have gained sufficient experience to improve their chances of becoming established. Initially, at the moment of release, the average probability of an introduced animal becoming established was approximately 38%. After 2.5 months in the new environment, the probability that the survivors will become established increased to 57%. If the transplanted animal survived the first 9 months on the release site, the probability that it will become established became 93%.

The most significant factor apparent in these data is the fact that the upper limit of survival rates experienced by transplanted deer is determined by the survival rate of indigenous deer. When the transplant survivors are assimilated into the indigenous survival system after approximately 12 months in their new environment, they assume the survival rate of the indigenous animals. There is no evidence apparent in these data to suggest that an established transplanted deer has a better chance of survival than the indigenous deer who were born and raised there.

CONCLUSIONS

1. Transplanted deer will require approximately 12 months in their new environment to become assimilated into the prevailing indigenous survival system which includes knowledge of the area, and knowledge of the indigenous deer in the area.
2. The introductory phase of the transplant prior to establishment is a period of accelerated mortality for the transplanted animals. Less than half of the transplanted deer in this study will survive to become established.
3. The period of greatest mortality pressure on the transplanted animals is within the first 2.5 months following release. In this study, the average life expectancy of a transplanted animal during this period was 2.56 months.
4. After the initial losses, the survival rates of the remaining transplanted deer rapidly improved and are not significantly different from indigenous deer after 9 months following the release.
5. Transplants of deer incur a significant "cost" in terms of fiscal expenditures and deer. Most of the deer lost during the introductory phase would have lived if they had not been transplanted and the cost to transplant was \$153 per animal. The costs in money and deer can be justified only if the "value" of a deer on the capture site is less than the value of a deer on the release site.

APPENDIX

ANALYSIS

The statistical analysis performed on these data was designed with two objectives:

1. To identify the factors which significantly affected the survival rates of deer on the study areas, and
2. To estimate the survival rates, within stated probabilities, of the instrumented animals during the course of the study.

Briefly, it should be clearly understood that statistics do not prove anything in terms of absolutes. Statistics is the study of probabilities due to random variation within data sets. For example, given two sets of data (i.e., survival rates of transplanted v. indigenous deer) the appropriate statistical test examines the difference between the data sets and provides an estimate in terms of the probability that the difference could be due to random variation which occurs in all data. Statistics cannot prove anything in absolute terms, because the probability that differences between data sets could be due to random variation can never be reduced to absolute zero. The possibility, however remote, always exists that the observed difference is a function of random variation rather than a function of the factors being tested.

In general, differences between data sets are termed "significant," when the possibility of the difference being due to random variation becomes remote. In most scientific work differences are termed "significant" when this possibility is reduced to 5% ($P=.05$) or less. In other words, the scientist will, in general, only term a difference as "significant" if he can be 95% certain of his statement--he will be wrong 5 percent of the time.

On the other hand, a "nonsignificant" difference where the probability that the difference could be due to random variation exceeds 5% ($P > .05$), should not be construed to mean that the difference observed between data sets is, in fact, due to random variation. "Nonsignificant" differences only mean that we cannot be 95% certain that a real difference exists.

The layman frequently views statistics with disdain, which gives rise to the statement "You can prove anything with statistics," but, as this explanation indicates, the reverse is actually the case, you can prove nothing with statistics. Statistics allow an objective appraisal of data, which can lead to conclusions--it will provide an estimate of how certain we may be that the conclusions are correct--but we can never be 100% certain of any conclusion.

Test 1. Effect of Study Areas on Survival.

In this test the data presented in Tables 1 and 2 was examined to determine if mortality pressures on either the transplanted or indigenous deer differed

significantly among the study areas (Table 6). Since a proportion of the animals could not be accounted for (classed as "unknown" in Table 1), the tests were performed under a "worst case assumption" (all unknowns are dead), a "best case assumption" (all unknowns are alive), and a "most likely assumption" (unknowns died and survived in the same proportion as the "knowns").

Table 6. Chi-square statistical test of survival rates of transplanted (released in 1979) and indigenous study deer among the five release sites under various assumptions regarding the fate of the "unaccounted for" deer. P = probability of difference could be due to random variation.

<u>Assumptions</u>	<u>Transplanted</u>	<u>Indigenous</u>
Unknowns counted as "alive"	P = .0782	P = .8946
Unknowns counted as "dead"	P = .1770	P = .2815
Unknowns excluded from sample	P = .1033	P = .2693

Under all three assumptions tested, the differences observed in "alive" and "dead" animals among the 5 study areas where deer were released in April 1979 were not sufficient to establish "significance" for either the transplanted or indigenous deer (all values of P were greater than $P = .05$). Consequently, in further analysis of the 1979 release, the data for transplanted and indigenous deer may be combined from all study areas because "study areas" have been eliminated as a "significant" factor affecting counts of "alive" and "dead" deer in these data.

Test 2. Effect of classification ("transplant" v. "indigenous") on survival.

The "totals" presented in Tables 1 and 2 were examined to determine if a deer's status as "transplanted" or "indigenous" included factors which affected their survival (Table 7). As in the previous test, the "unknowns" were treated as "best case," "worst case" and "most likely" assumptions.

Table 7. Chi-square statistical test of differences between survival rates of transplanted and study deer under various assumptions regarding fate of "unaccounted for" deer.

<u>Assumptions</u>	<u>P</u>
Unknowns counted as "alive"	.0001
Unknowns counted as "dead"	.0000
Unknowns excluded from sample	.0000

Under all three assumptions tested, the differences in total counts of "alive" and "dead" animals presented in Table 1 were sufficient to establish "significance" (all values of P were less than $P=.05$). In fact, for all practical purposes, we may be at least 99.99% certain that there are inherent differences between transplanted and indigenous deer which affected their survival rates over the 15-month period of this study. As a consequence of this significant difference, further analysis of these data must treat transplanted and indigenous deer as separate and distinct biological entities in discussions of their survival capabilities.

Test 3. Survival rates of indigenous and transplanted deer from April 1979 to August 1, 1980.

The purpose of this test, performed on the totals presented in Tables 1 and 2, was to establish survival rates of transplanted and indigenous deer under the "best case," "worst case" and "most likely" assumptions stated above regarding the fate of the "unknown" animals (Table 8). The estimates may be regarded as 95% accurate within the stated confidence intervals and stated assumptions. In other words, if the current study was precisely duplicated under precisely identical conditions, we can be 95% certain that the results of the second study would fall within the stated confidence intervals.

Table 8. Survival rates since 1979 releases of transplanted and indigenous deer under various assumptions regarding fate of "unknowns".

<u>Assumption</u>	<u>Transplant</u>		<u>Indigenous</u>	
	<u>S</u>	<u>95%CL</u>	<u>S</u>	<u>95%CL</u>
Unknowns counted as "alive"	.4865	<u>±.1643</u>	.8627	<u>±.0964</u>
Unknowns counted as "dead"	.3784	<u>±.1595</u>	.8039	<u>±.1112</u>
Unknowns excluded from sample	.4242	<u>±.1721</u>	.8542	<u>±.1022</u>

With this understanding, the highest probable survival rate of the transplanted deer was estimated to be $S = .4865 + .1643$ or 65%, while the lowest probable survival rate of indigenous deer was estimated as $S = .8039 - .1112$ or 69.27%. Not only do these results confirm the results of the previous test, which established a significant difference between the two classes of deer, but they also indicate that we can be at least 95% certain that transplanted deer suffered a lower survival rate than indigenous deer occupying the same general area during the same time period.

The "most likely" survival rates for the transplanted deer were estimated to fall between $S = .2521 - .5993$ while, for indigenous deer, the most likely survival rates were estimated to fall between $S = .7520 - .9564$.

Test 4. Survival rate of transplanted deer in the Zuni Mountains from March 1980 to August 1, 1980.

Up to this point in the analysis, we have only been concerned with the populations associated with the 1979 operation. In the case of the 1980 transplant operation, after approximately six months of study in the Zuni Mountains, the "most likely" survival rate of the transplanted animals was estimated to be between $S = .3221 - .6303$ with an estimated average of $S = .4762$ (Table 9). The survival rate of the indigenous deer instrumented in the Zuni Mountains during the same period was $S = 1.0000$.

Table 9. Survival rates of instrumented deer transplanted to the Zuni Mountains in March 1980 after 6 months.

Assumption	<u>S</u>	<u>95%CL</u>
Unknowns counted as "alive"	.5600	<u>+.1404</u>
Unknowns counted as "dead"	.4000	<u>+.1386</u>
Unknowns excluded from sample	.4762	<u>+.1541</u>

Test 5. Changes in survival rates of instrumented deer released on the study areas in April 1979 as a function of time since the release.

The purpose of this test is to examine differences in proportions of transplanted deer identified as "alive" and "dead" presented in Table 3 as a function of the time released deer remained on the study area (Table 10). In this case, the "most likely" assumption regarding the "unknown" animals was applied (unknown lived and died in the same proportions as the "knowns"). These data were converted to survival rates, S , for the periods indicated. Since the periods between surveys varied from 2.5 to 6 months, the period survival rates were converted to average monthly survival rates for purposes of direct comparison.

Table 10. Survival rates of instrumented deer released April 1979 at periods after release of 0 - 2.5 months, 2.5 - 9 months, 9-15.

Months After Release	Period Survival Rate		Average Monthly Survival Rate	
	<u>S</u>	<u>95%CL</u>	<u>S</u>	<u>Range 95%CL</u>
0 - 2.5	.6667	<u>+.1641</u>	.7632	.6838 - .6321
2.5 - 9.0	.6111	<u>+.2293</u>	.9143	.9690 - .8392
9.0 - 15.0	.9333	<u>+.1288</u>	.9863	1.0000 - .9574

The results of this test indicate with 95% certainty, that survival rates of transplanted deer improved significantly between the periods 0 - 2.5 months after release and 9-15 months after release. The confidence interval for the period 2.5-9 months after release overlapped with the other two periods, but the average monthly survival rates all indicate a trend toward higher survival as the time the transplanted deer spend on the areas increases. Consequently, we may be at least 95% certain that the mortality pressures affecting the transplanted deer changed significantly during the course of the study.

Test 6. Comparison of average monthly survival rates of transplanted deer to survival rates of indigenous deer.

The purpose of this test is to compare monthly survival rates of transplanted deer released in April 1979 to survival rates of indigenous deer (Table 11).

Table 11. Comparison of average monthly survival rates of deer instrumented and released in April 1979 to the overall average monthly survival rate of indigenous deer.

Months After Release	Average Monthly Survival Rate	
	<u>S</u>	Range of <u>95%CL</u>
0 - 2.5	.7632	.8838 - .6321
2.5 - 9.0	.9143	.9690 - .8392
9.0 - 15.0	.9863	1.0000 - .9574
Indigenous Deer	.9888	.9963 - .9798

The results of the test indicate that the average monthly survival rates of transplanted deer were significantly less than survival rates of indigenous deer during the first 9 months following their release, but that differences after 9 months were not sufficient to establish significance. Consequently, from the standpoint of these data, transplanted deer which survive the first 9 months of their release are no longer statistically distinct from the indigenous deer in terms of survival.

Mr. YATES. Now, before we close the hearing and the record, is there anything else you want to say for the record?

Some question was raised about expenses and what happens to the money.

Mr. WEMMER. Yes. The money that was collected was used to purchase materials for the processing of the deer, scalpel blades, plastic bags, formaline, containers for organ tissues. It is also used to pay for the sectioning of the teeth, so we could determine the age of the animals.

Mr. YATES. Is a strict accounting kept?

Mr. WEMMER. We can account for every cent we spend.

Mr. YATES. Your central accounting office has control of this. You and the accounting office are in constant communication?

Mr. WEMMER. Yes.

Mr. YATES. How much money do you collect?

Mr. WEMMER. It is \$10 a hunter. So this year, if it were 400 hunters, it would be \$4,000.

Mr. YATES. So that money is all accounted for.

Mr. WEMMER. Yes.

Mr. YATES. The next question. The parasites and the endangered species, in your testimony it appeared that the reindeer were the ones most susceptible.

Mr. WEMMER. Yes. But there are two other species we have had affected by this parasite.

Mr. YATES. If you are going to continue to keep the deer there, as you propose, under this controlled hunt, why don't you move your endangered species who are particularly susceptible? Why do you allow them at this place? Wouldn't it be better not to subject them to the possibility of this danger?

Mr. WEMMER. I think the threat could be greatly reduced by simply reducing the population. We know that in years gone by we had no incidents of contagion by this particular parasite. If the population were reduced to these earlier levels, probably the incidence of the infection would be much, much less, also.

Mr. YATES. You are not going to reduce that population level for a couple of years certainly to the level that you can get.

Mr. WEMMER. In the meantime we will have to practice prophylactic methods of preventing infection.

Mr. YATES. Can you do that? Can you protect them?

Mr. WEMMER. Yes. By isolating them close to barns and away from outlying areas visited by the white-tailed deer.

Mr. YATES. Okay.

The last question that comes to my mind is the one relating to the bow and arrow hunt. Mr. McDowell wants to hear this, I am sure. Why do you have a bow and arrow hunt as part of this? And why do you have your archery club so close to the hunting area?

Mr. WEMMER. First of all, with regard to the archery club, we have no control over the presence of the archery club. The property belongs to the Warren County School Board. The arrangement was made between the School Board and this archery club to rent the land. I am not a member of the club.

Mr. YATES. Okay.

Mr. WEMMER. The other part of your question?

Mr. YATES. Why do you have a bow and arrow hunt?

Mr. WEMMER. The reason we have had the bow hunt is because in of our effort to remove a large number of female deer. Employing bow hunting allows the hunter to take a doe any day of the season.

Mr. YATES. Under the rules established by the Commonwealth of Virginia?

Mr. WEMMER. Yes. By having the bow hunt we can do that. There are other options. If we receive antlerless deer permits, hunters can shoot deer with shotguns that are females, also. That would help as well.

Mr. YATES. You are discriminating against female here.

Mr. WEMMER. Yes, we are, very clearly.

Mr. YATES. Is there anything else you want to say before we close the record? We have answered specific questions. Your statements are in the record.

I think we have a decision to make. Let us think about what the record contains. We will try to be as quick as we can.

Mr. HUGHES. Mr. Chairman, I would simply like to say it is an educational hearing for me, and I suspect for some of the rest of us.

Mr. YATES. For me, too. It has been thorough. I am grateful—the witnesses have been first rate, including the Smithsonian. People who came from the Commonwealth of Virginia, and from Florida, and the other places I think have made a real contribution. I must say I am torn. I am not as convinced as I was when I first came in here. It is not an easy decision.

Mr. HUGHES. It is not an easy question, as Mr. Reed and Dr. Wemmer can testify. The only other thing I would like to put in the record is a formal expression of congratulations and our institutional appreciation for your re-election.

Mr. CLARK. Mr. Chairman, I have one question to ask. It seems like our white-tailed deer in the State of Virginia are harming his exotic animals. What harm is his exotic animals doing to our wild-life in the State of Virginia?

Mr. WEMMER. All the animals are quarantined before they are brought out to the land.

Mr. YATES. Thank you.

[Following are statements that were received by the committee for inclusion in the record:]

October 27, 1982

325 W. Main St.
Berryville, Va. 22611

Gentlemen:

I strongly support the proposed deer hunt in Front Royal, Va. I had written a much longer letter but on second thought decided to be brief and to the point.

Let Virginia's activities be controlled by Virginians. Allow the Virginia Game Commission to continue their very successful game management practices without interference from people not competent in this field.

I do not want the beliefs of Non-Virginians and non-hunters imposed on me. Hunting in rural Virginia by Virginians goes back to the roots of America. It is unfortunate that non-hunters can apply political pressure, receive great publicity and manipulate their will on other people by these means. The ways of the country are not the same as those of the city and cannot be understood by some people.

The Virginia Game Commission has done an excellent job of managing and increasing the White Tail Deer population of Virginia. Hunting under their guidelines has been an important part of this success. I ask you to let Virginians decide Virginia policy and let the Virginia Game Commission do their job. Do not let cries of protest change these proven practices.

Sincerely,

Wayne R. Whetzel

Rural Free Delivery
 Rileyville, Virginia 22650
 October 28, 1982

The Honorable Sidney R. Yates, Chairman
 Interior Sub Committee on Appropriations
 B-308
 Rayburn Building
 Washington, D. C. 20515

Dear Congressman Yates:

I am writing to express my concern for the welfare of the deer population in Virginia and for the right of Virginians to harvest this great abundant crop. I believe that a minority of people are attempting to restrain a large and dedicated group of deer hunting sportsmen.

As you may or may not know, the deer population was eliminated in the state of Virginia in the thirties. I spoke to a gentleman some 30 years ago that told of killing what he said was the last deer in Rockingham County. I'm convinced he was correct. The herd was eliminated for food during the Great Depression.

The same people that have restocked the deer to Virginia and who have nurtured its numbers to abundance are now in a position to harvest some of the fruits of their thirty some years of work. It is a shame that the group (National Humane Society) that now so unjustly protests were not available to help us these years. They would have then had a purpose. Now they need to rededicate their energy to a new and different cause.

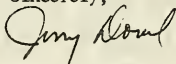
Upon speaking (also I have been advised by the Conservation Center that I will not be able to bow hunt this November 1) with officials from the game center and upon attending the meetings at the center, I believe that this center is doing an excellent job of handling the problem that we sportsmen and landowners have created. Also, the Virginia Game Commission agrees with this opinion.

About twenty years ago, we had a thriving and beautiful Elk herd in Virginia. They were primarily in and around the state correctional farm in Bland County. There no longer exists this herd. They were gut shot by the camp manager and permitted to drag themselves to the woods to suffer to death. This could be one answer to Front Royal's problems, but it would surely be another mistake. These people of the Smithsonian have a great solution - let Virginia's sportsmen and landowners, those of us who harvest excessive deer, hunt at the old remount station.

Times are hard. Our unemployment matches the Great Depression. It sure makes sense to let me enjoy the hunting of these deer, and if I'm successful, let my family enjoy the benefits of my harvest. It makes no sense to let these animals be destroyed or starve in a non-bountiful way.

The only way to perpetuate the deer of Virginia is by the time-proven procedures outlined by the Virginia Game Commission and as observed by Virginia sportsmen such as myself.

Sincerely,



Jerry A. Dovel

JAD/dbo

cc: The Honorable J. Kenneth Robinson
 Mr. David Challinor

STATEMENT OF THE NATIONAL RIFLE ASSOCIATION OF AMERICA
BEFORE THE HOUSE APPROPRIATIONS SUBCOMMITTEE ON INTERIOR
AND RELATED AGENCIES, NOVEMBER 4, 1982 BY WAYNE LAPIERRE,
DIRECTOR, GOVERNMENTAL AFFAIRS

MR. CHAIRMAN, THANK YOU FOR THE OPPORTUNITY TO PRESENT FOR THE WRITTEN RECORD THE VIEWS OF THE NATIONAL RIFLE ASSOCIATION INSTITUTE FOR LEGISLATIVE ACTION REGARDING THE SCHEDULED WHITETAIL DEER HUNT AT THE CONSERVATION AND RESEARCH CENTER NEAR FRONT ROYAL, VIRGINIA.

THE NATIONAL RIFLE ASSOCIATION, AND ITS 2.5 MILLION MEMBERS WOULD LIKE THE RECORD OF THIS HEARING TO REFLECT THAT AS ONE OF ITS PURPOSES AND OBJECTIVES WE PROMOTE AND DEFEND HUNTING AS A VALUABLE AND NECESSARY METHOD OF FOSTERING THE PROPAGATION, GROWTH, CONSERVATION AND WISE USE OF OUR RENEWABLE WILDLIFE RESOURCES.

FURTHER, SPORT HUNTING IS A TIME HONORED RECREATIONAL PASTIME IN ADDITION TO BEING A SCIENTIFICALLY SOUND METHOD OF ANIMAL POPULATION CONTROL. SPORT HUNTING IS OF INCREASING UTILITY DUE TO HABITAT REDUCTION AND OTHER PRESSURES INHERENT WITH DIMINISHING RESOURCES.

TO ARGUE THAT HARVESTING THROUGH HUNTING, SHOULD BE STOPPED ON MORAL GROUNDS REDUCES MAN TO A VEGETARIAN. CHALLENGING THE MORALITY OF HUNTING AS NOTHING MORE THAN A LEGALIZED "SLAUGHTER" IS AS UNFOUNDED AND AS SHORT-SIGHTED AS CONTENDING THAT ZOOS ARE IMMORAL BECAUSE THEY SEEK TO IMPRISON ANIMALS.

HUNTING AND ZOOS BOTH SERVE A BENEFICIAL AND CONSERVATORY PURPOSE RELATIVE TO THE WILDLIFE HUNTED OR CONTAINED.

REGARDING THE DECISION OF THE SMITHSONIAN INSTITUTION'S NATIONAL ZOOLOGICAL PARK NEAR FRONT ROYAL, VIRGINIA, THE NRA IS CONFIDENT THAT THE SMITHSONIAN'S PROFESSIONAL WILDLIFE MANAGERS HAVE BASED THEIR DECISION ON SOUND WILDLIFE MANAGEMENT PRACTICES.

THE LARGE NUMBER OF WHITETAIL DEER ARE JEOPARDIZING, THROUGH DISEASE AND CROP DAMAGE, OTHER SCARCE MAMMAL SPECIES LIVING AT THE CONSERVATION AND RESEARCH CENTER, THE CONSERVATION OF WHICH IS THE MISSION OF THE CENTER. THE NUMBER OF DEER NEED TO BE REDUCED TO STOP THE DAMAGE, AND THE SCHEDULED HUNT IS THE PREFERRED METHOD TO ACHIEVE THE REDUCTION IN NUMBERS REQUIRED.

THE MANAGERS AT THE CONSERVATION AND RESEARCH CENTER HAVE DETERMINED THAT HERDING IS BOTH INEFFECTIVE AND POTENTIALLY DANGEROUS TO THE PARTICIPANTS AND AUTOMOTIVE TRAFFIC IN THE IMMEDIATE AREA.

FURTHER, EVEN A SUCCESSFUL HERDING AND DRIVE OF THE DEER OFF THE CENTER'S PROPERTY ONLY SERVES TO RELOCATE THE PROBLEM AND DOES NOTHING TOWARDS ADDRESSING THE OVERPOPULATION PROBLEM IN THE IMMEDIATE GEOGRAPHIC AREA.

THE CURRENT HIGHLY EMOTIONAL ATMOSPHERE SURROUNDING THE SCHEDULED HUNT SIMPLY SERVES TO MAKE THE EXISTING PROBLEM WORSE BY CALLING INTO QUESTION THE PROFESSIONAL JUDGMENT OF THOSE INDIVIDUALS CHARGED WITH THE RESPONSIBILITY OF MANAGING THE CENTER. THERE IS SIMPLY NO INDICATION OF ANY REASON TO SUSPECT THE PROFESSIONAL INTEGRITY AND JUDGMENT OF THE CENTER'S STAFF. THOSE IN OPPOSITION TO THE SCHEDULED HUNT SIMPLY DO NOT AGREE WITH THE CENTER'S JUDGMENT. THE NRA, HOWEVER, BELIEVES THE PROFESSIONAL PERSONNEL OF THE FRONT ROYAL, VIRGINIA FACILITY ARE CLEARLY THE MOST QUALIFIED TO ASSESS THEIR FACILITY.

THE NATIONAL RIFLE ASSOCIATION OF AMERICA APPRECIATES THE OPPORTUNITY TO TESTIFY IN SUPPORT OF THE SCHEDULED DEER HUNT AND THE JUDGMENT OF THE PROFESSIONAL WILDLIFE MANAGERS EMPLOYED BY THE CONSERVATION AND RESEARCH CENTER, OF THE NATIONAL ZOOLOGICAL PARK IN FRONT ROYAL, VIRGINIA.



1319 Eighteenth Street NW Washington DC 20036 telephone (202) 467-5810

Subcommittee on Interior
Committee on Appropriations
United States House of Representatives

A Statement By

Bexford A. Resler
Executive Vice President
The American Forestry Association

November 4, 1982

Mr. Chairman, being unable to attend this hearing, I request that this statement be introduced into the record. I wish to endorse the statement of Mr. Jack H. Berryman, Executive Vice President of the International Association of Fish and Wildlife Agencies, as accurately representing the policies of The American Forestry Association and my own personal and professional opinions.

I have been concerned about the controversy generated relative to a planned deer hunt by the Smithsonian Institute's National Zoological Park Conservation and Research Center near Front Royal, Virginia. I have had the opportunity to study the white-tailed deer management plan developed by the Conservation and Research Center and have consulted with wildlife management specialists.

I wish to state my professional background upon which my opinions are based. I am a graduate forester and have spent over 30 years as a professional land manager with the Forest Service prior to my assuming this position with The American Forestry Association in January 1979. I worked with wildlife biologists and other specialists in habitat management in the several federal agencies and the state departments of fish and game across the country. Based on my study of the current controversy, I find nothing unique about the white-tailed deer management problem facing the Center nor anything illogical or unprofessional in their proposed solution except for the glare of publicity which has been generated and the strenuous opposition to the methods proposed for the reduction of deer numbers at the Center.

It is clear that the Conservation and Research Center maintained by the Smithsonian Institution's National Zoological Park has a very

clear and important function, that is, to advance the conservation of selected species of birds and animals and to serve as a breeding center for exotic animals. There seems to be little disagreement with the Center's conclusion that over-population of the native white-tailed deer is creating serious problems for the Center and thwarting its primary objectives. The controversy turns on the methods to be used to reduce surplus populations. The proposed control method is the issue which I wish to address.

Mr. Chairman, I have witnessed the decimation of deer herds by starvation as a result of destruction of habitat from over-population, coupled with severe winter storm conditions. There is no worse fate for any species of the animal kingdom and no more inhumane action, or failure of action, man can pursue.

I have had some experience in capturing deer for research purposes but it is a time-consuming, costly, and relatively unfruitful exercise seldomly justified except for research purposes or for relocation of breeding stock.

The most logical solution is to reduce surplus numbers by hunting. The white-tailed deer is a prized game animal. I believe that the taking of game animals by gun or bow is a necessary tool of wildlife management and of population control.

I have confidence in the professionalism of the biologists employed by the Smithsonian Institution and the Virginia Department of Game and Inland Fisheries. They have studied the situation, have made sound recommendations, in my judgment, and should not be deterred from the implementation of sound resource management plans by emotional appeals based on opposition to the taking of wild animals.

It is my hope and recommendation that the carefully controlled deer hunt may proceed under the careful guidance of wildlife management professionals.

Statement of
Randolph Garfield
Chairman of the
Maryland - D.C. Wildlife Conservation League

I am testifying both as an individual and as Chairman of the Maryland-D.C. Wildlife Conservation League to support the National Zoo's effort to save, not only, the major portion of the white tail deer population in the Zoo's Virginia preserve, but also to save endangered species of deer that share the area, to save other hoofed residents, and to preserve the habitat necessary to support all wildlife through this winter and years to come.

The problem is well defined -- overcrowding of the habitat by the very prolific white tail deer. The only solution is to reduce the population, which inevitably means the death of some of the deer. The only argument is the means.

If the Zoo is prohibited from acting, nature will, of course, reduce the severe overcrowding in its own fashion. Nature prescribes an agonizing death by starvation and disease, slowly destroying the weakest while weakening the entire wildlife population. The first casualties are pregnant does and fawns. Most likely, these would be followed by the related endangered species, for instance, the Pere David's deer which is already extinct in the wild, which are not as hearty and not as able to cope with the unfamiliar diseases white tails carry in overcrowded conditions.

While some may feel that allowing nature to take its course leaves us blameless, simply because we have not directly caused the deaths, it is certainly the cruelest method. Tying the hands of wildlife managers in a similar situation in the

Everglades resulted in mass starvation of the deer and long suffering for even those which survived. This is hardly humane.

Instead of inaction, others suggest driving the deer out. This would simply move the problem to the Shenandoah National Park where the deer population is now at its maximum level. Additionally, studies of similar "corrective" actions have shown that 90% of the relocated deer die in any case. And they die suffering. They cannot adjust, become disoriented and are ostracized by the resident population. This too can hardly be called humane.

Finally, others suggest that we pay to perform surgery and castrate the bucks and sterilize the does. This suggestion is simply not realistic, or cost effective. First, it does nothing to address the present and immediate problem. The area is now overcrowded. As a result, the habitat is being destroyed, the important understory is practically gone, the food supply is depleted and disease is spreading and taking hold. The area cannot support its present population and will not be able to support it this winter. Using surgical techniques does not reduce the population now so nature will per force take over and the animals suffer slow, painful deaths.

As a long-term solution, I would also argue that, in addition to not solving the problem, surgery is not humane. In this era of exceedingly tight budgets and increasingly limited resources, how can one justify cutting back funds for nutrition programs such as WIC, Women, Infants and Children,

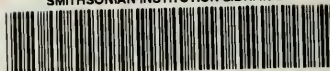
while approving expenditures for an ineffective and unnecessary procedure so that deer can die natural deaths; death not necessarily from old age, but natural nonetheless.

In contrast to the above suggestions, the National Zoo has approved a reasonable, inexpensive and immediate solution. Shooting the deer provides for the most humane reduction of the white tail deer overpopulation. The preserve is in Virginia and subject to Virginia oversight. The agreed upon method was a public hunt which, if one considers it, not only is most humane, but is most cost effective. Additionally, it provides a very real side benefit to the people of Warren County, many of whom depend on hunting as a source of food.

In closing, I would like to emphasize that overcrowding of the preserve is a very real problem and it is a problem which requires immediate attention. The only solution is to reduce the population. As we all know, one way or another the population will be reduced. The only question is at what cost in suffering to the animals, at what cost in viability to this habitat and at what cost to the taxpayer. Wildlife management is a science and I urge the Subcommittee to stand back from the emotional rhetoric and examine the facts. We have experimented with these other so-called "solutions" in similar situations and have witnessed the sorry results. A public hunt will solve the problem benefitting the wildlife, area residents and the taxpayer. I and my Association hope you will act favorably and quickly on the National Zoo's plan.

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