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# Poster Session Abstracts

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# FURBEARER TRAPPER-HUNTER EDUCATION IN KANSAS

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Since 1972, the Cooperative Extension Service of Kansas State University has conducted a number of educational programs related to fur harvester education, including: Fur Harvester Camps, Raccoon Hunter-Trapper Camps, Youth Fur Fairs, Evening Trapping Schools, and Coyote Hunter Schools. These programs were conducted with the help of the Kansas Fur Harvesters Association, the Kansas Federation of Houndsmen and the Kansas Fish and Game Commission. Our fur harvester education efforts are just one phase of an overall youth-education program on wildlife that now includes six projects on birds, mammals, reptiles and amphibians, fish, fur harvest and wildlife habitat improvement. Trapping license sales in Kansas have increased nearly 7-fold in the past 10 years, primarily because of increases in fur prices. The Kansas fur harvester education programs are designed to provide young or inexperienced trappers or hunters with the knowledge they need to avoid making mistakes which might lead to needless suffering or nonselective capture of animals. Instruction includes numerous demonstrations as well as discussions of regulations, ethics, furbearer biology and management, selectivity, trapping systems, care of furs, humaneness, and history and heritage of fur harvest. The major objectives of the programs are to encourage selective, ethical, safe and humane trapping and hunting of furbearers while improving understanding of wild animals and their environment.

# A FLOW CHART FOR HOUSE MOUSE CONTROL

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House mice are a major pest in homes, farms, food and feed processing and storage facilities, and other human environments. Any person desiring to control house mice has a variety of techniques at his disposal and may be confused in choosing those best suited to the situation.

This flow chart enables a person to answer "yes or no" questions about the particular situation and thereby determine the most appropriate control methods. In selecting control methods, the following questions are considered: Can food and shelter of the mice be reduced or eliminated? Are the mice numerous? Is a quick population reduction needed? Will dead mouse odor cause a problem? Can the structure be safely fumigated? Will the use of a rodenticide be hazardous? And, do some mice remain following use of a rodenticide? Answers to these questions determine the sequence and choice of the various control methods, which include acute and chronic rodenticides, fumigation, habitat modification, and traps.

This flow chart does not consider factors such as differential cost of control methods and regulations which prohibit rodenticide use in certain locations. The main purpose of this chart is to inform persons of available control methods and assist them in choosing appropriate techniques. It has been widely distributed in Nebraska's Cooperative Extension Service "NebGuide" entitled "Controlling House Mice".

# BIRD DAMAGE CONTROL AND DISPERSAL RECORDINGS

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Bird damage control often involves dispersing birds from areas where they cause problems. Dispersal techniques have been used at airfields, rural and urban bird roosts, livestock facilities, fruit orchards, grain fields and other situations. Individual dispersal methods have met with limited success and it appears that a combination of management techniques is the most effective strategy. Certain avian vocalizations have evolved as alarm or distress calls, and these calls could be exploited as a means of dispersing birds. The behavioral response to such calls varies. Certain species may disperse with the appropriate call, whereas others show little or no reaction. The efficacy of this technique is presently unknown, but its potential for development as a management tool seems great. Currently, bird dispersal recordings are scattered among many different research facilities. Our goal is to assemble all available recordings and to survey their potential usefulness as a bird dispersion tool.

# GROUND SQUIRREL CONTROL IN NEWLY PLANTED GRAIN FIELDS

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Thirteen-lined ground squirrels (Spermophilus tridecemlineatus) and other rodents damage corn and other grains by digging and consuming newly planted seeds. Recently this problem has grown with the increase in various forms of minimum tillage. In Nebraska, poisoning with strychnine baits is the most common method of controlling these rodents. However, the future status of strychnine use is uncertain. Currently, all above-ground uses are undergoing rebuttable presumption against registration (RPAR) by the Environmental Protection Agency (EPA). Strychnine's use in minimum tillage fields has resulted in concern over potential hazards to non-target species. The University of Nebraska is testing two chemicals, methiocarb {3,5-dimethyl-4-(methylthio) phenol methylcarbamate} and thiram (tetramethylthiuram disulfide), for efficacy in repelling ground squirrels from eating newly planted corn seed. These repellents may offer a new control for ground squirrel depredation in newly planted grain fields. We are seeking information on the extent of rodent damage to newly planted grain in other areas and on control methods used.

# WOODPECKER DAMAGE TO HOUSES AND ITS PREVENTION

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Woodpecker damage to houses is not a new occurrence. In fact, it is becoming very common in urbanizing environments which are spreading into wooded ecosystems. A phenomenon that has increased during the last five years or so, is the building of homes with cedar siding and/or trim. I believe this to be the main reason why woodpeckers are increasingly damaging homes. Woodpeckers seem to be attracted to the cedar siding for three reasons: food, nesting, and "drumming". When searching for food, woodpeckers are usually going after insect larvae that are in the wood. When nesting, or attempting to nest, woodpeckers do the most damage to homes. These holes may also provide access to attics, or other voids where squirrels and birds, like starlings, can live. "Drumming" can leave damage behind; but, normally on homes, metal objects are preferred over wood. Control techniques include sticky repellents, fake owls and snakes, pie tins and strips of aluminum foil, penta (a wood preservative), plastic netting, wooden base rat snap-traps, and shooting. Plastic netting is the least harmful to the woodpeckers, is inexpensive, and is 100% effective in preventing damage. Even though trapping is effective and safe to use in residential areas, shooting is the method turned to as a last resort by most homeowners, usually without the proper authorization. One promising note is a new Masonite, wood-style, type of siding. Because of its smooth surface, woodpeckers seem to be prevented from landing on it.

# BIRD-PROOFING STRATEGIES AT AN OUTDOOR/INDOOR THEATER

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Since its establishment as a National Park for the performing arts, pigeons and starlings have been roosting and nesting inside the 3,434 seat theater complex at Wolf Trap Farm Park near Washington, D.C. Deposition of feces on chairs and concert-goers before and during performances is a continuing problem. The extra work required to clean up droppings, nesting materials, and dead birds on a year-round basis and possible airborne pathogens are of concern. Additionally, perched and flying birds during concerts are visual and auditory distractions.

Past attempts to alleviate the bird problem by repellents and trapping were unsuccessful. Efforts are now underway to eliminate or modify roosting, perching and nesting sites caused by construction flaws and structural designs in the theater. Many ledges and cavities have been successfully "removed" using common exclusion or habitat alteration techniques - attaching sheet metal at 45$^{0}$ angles, ½ inch mesh hardware cloth and "porcupine" stainless steel wires (Nixalite®[1]). However, these methods were not appropriate for 20, 3 inch diameter roof support cables located above theater seats, where pigeons frequently perched. Pigeons have been discouraged from using these cables by stretching a 25 gauge (0.059 inch diameter) music wire along the length of this suspension cable. This wire was placed 3 inches above the cable and is attached to an "L" bracket and held to the cable by hose clamps.

These and other habitat modification efforts are aimed at making the theater unattractive to pigeons and starlings. This strategy not only provides a long term solution to nuisance bird problems, but also is acceptable to the public.

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[1]The use of a trade name in this abstract is for information and convenience. Such use does not constitute an official endorsement or approval by the U.S. Department of the Interior or the National Park Service of any product to the exclusion of others that may be suitable.

# THE 1080 TOXIC COLLAR

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Coyote predation on sheep and goats has long been a major problem. In Cooperation with the Texas Department of Agriculture and the U.S. Fish and Wildlife Service, the Texas A & M University System presently is conducting research to evaluate the efficacy of the 1080 toxic collar in protecting sheep and goats from depredating coyotes. When coyotes attack the throat of a collared animal, they usually puncture the toxicant-filled pouches on the collar and thereby receive a lethal dose of Compound 1080.

Effective targeting of coyotes towards collared animals usually involves either placing a target group of 15 to 25 collared animals in a pasture by themselves, or placing collared kids or lambs with uncollared adult sheep or goats.

Benefits derived from using the toxic collar may include: (1) selective removal of killer coyotes, (2) possible removal of coyotes which are wary of traps, snares or M-44's, (3) little, if any, possibility of poisoning non-target species, and (4) the 1080 toxic collar may be used safely by ranchers.

Disadvantages of using the 1080 collar include: (1) the need to sacrifice collared animals in order to take depredating coyotes, (2) the loss of collared animals to coyotes which attack elsewhere than on the neck, (3) the relatively high cost of collars (presently $16 each), and (4) the cost of labor, travel, time, etc. needed to check and periodically adjust the collars on target animals.

The 1080 toxic collar is not a panacea nor the answer to solving coyote predation on sheep and goats. Instead, it offers an additional tool which may be used in conjunction with other predator control methods to help alleviate coyote depredation problems.

The major objective of the present 1080 toxic collar research program is to develop information essential to registration of Compound 1080 by the Environmental Protection Agency for use as a predacide in the toxic collar.

# NOTORIOUS *RATTUS NORVEGICUS* THE ZOONOTIC DISSEMINATOR

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Norway rats have a bad reputation. That image is not improved by a review of medical literature (human and veterinary). *Rattus norvegicus* have been implicated with more than seventy organisms silently lurking to affect people or animals. Transmittal involves bites, urine, feces, vermin, saliva, nasal and ocular secretions. Examples include Bacterial, Rickettsial, Mycotic, Viral, Protozoan, Cestodes, Nematodes and Trematodes. In 1977 yersinia (bacterial) was isolated from 6 of 6 Norway rats in Washington, D.C. Rats are the only known reservoir of spirobacillary rat-bite fever. A person does not have to be bitten to acquire it. Leptospirosis (seventeen serovars) is a widespread spirochaetal zoonosis. Urine may remain infective for over a year. Q fever with its 104 degree fever is an example of rickettsiosis carried by Norway rats. *Trichophyton mentagraphytes*, a fungi causing ringworm in man was isolated from 13.9% of rats in one 1980 New Zealand study. Norway rats are incriminated in carrying deadly pseudorabies virus to swine by feed contamination. Taxoplasmosis may cause mental retardation. Rats are chronic carriers of oocysts of this protozoan. A 1980 report from Kansas University indicated *Toxoplasma gondii* isolated from 12.5% of *R. norvegicus* in Costa Rica. Contamination of food by rat feces containing *Hymenolepis nana* (cestodes) may cause eosinophilia in man. Norway rats are the principal transient hosts of capillary liver worms (nematodes) which affect man's liver and lungs. Eleven percent of 45 rats harbored *Paragonimus westermani* (trematodes), the cause of paragonimiasis.