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Wildlife Damage News, Volume 4, Spring 1993

Wildlife Damage NEWS

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Lyme Disease and Norway Rat Control on Monhegan Island, Maine

by Marsha Barden, USDA-APHIS-ADC (reprinted from Northeast Association of Wildlife Damage Biologists Technical Notes Vol.1, No. 2, Winter 1993)

Marsha Barden, New Hampshire ADC Biological Technician, and Ed Butler, ADC State Director in Maine, are working on a project to reduce or eliminate Norway rats (*Rattus norvegicus*) on Monhegan Island, Maine. The project was undertaken at the request of Dr. Peter Rand, researcher for the Maine Medical Center Lyme Disease Project.

Monhegan presents a particularly interesting and valuable scenario. Lyme disease is caused by the spirochete *Borrelia burgdorferi* and transmitted by the *Ixodes dammini* tick. The usual host of the juvenile tick in the Northeast is the white-footed mouse (*Peromyscus leucopus*), which is absent from Monhegan. In fact, Dr. Rand reports that extensive trapping has turned up no evidence of mammals smaller than rats on the island. Yet, since 1985, there has been a steady rise in both the number of ticks and the tick infection rate on the island, with the current tick infection rate now equaling that in some areas of Connecticut, where Lyme disease is a serious human health problem. In 1991, it was confirmed that the Norway rat serves as the primary host for the juvenile stage of *I. dammini* on Monhegan, new and disturbing information, given the close association of rats and humans in urban areas.

Monhegan is a small island 12 miles from the mainland and accessible only by ferry. It is a picturesque island that depends heavily on the tourist industry for income. As many as 800 tourists per day visit the island during the peak season. Monhegan Island could therefore represent the area of greatest risk for contracting Lyme disease in the state of Maine; such notoriety could have adverse effects on the tourist economy.

Marsha Barden visited the island in December 1992 to familiarize herself with previous rat surveys implemented by Dr. Rand, and to talk with the island's residents about trapping, rodenticides, and techniques for rat habitat modification. The public's reaction to the meeting was enthusiastic and cooperative.

In late February, zinc phosphide was applied using PVC-tube bait stations outside the village. This effort was coordinated with snap-trapping and the use of cholecalciferol within dwellings. ADC provided technical assistance to residents who carried out measures within the village. The goal of this project is to reduce the rat population in an attempt to interrupt the life cycle of the tick. This is the first attempt to control the spread of Lyme disease by elimination of the primary host of the juvenile tick. If successful, the project would be beneficial for the residents of Monhegan Island, and could contribute important new information about management of Lyme disease.

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This is a quarterly publication of the Cornell Cooperative Extension Wildlife Damage Management Program.

Number of Deer Killed by Motorists in New York Increases in 1992

Motorists reported 11,822 vehicle-killed deer in New York State in 1992, an increase of 844 animals from the 1991 total. Erie County recorded 732 vehicle-killed deer, the highest total for any county in the state. Monroe County was second again in 1992 with 693 reported accidents. Other counties with high numbers of collisions included Oneida (687), Oswego (615), St. Lawrence (524), Steuben (471), and Onondaga (442).

These totals are based on deer-carcass tags issued to motorists involved in a deer-related accident who wish to keep the deer for personal consumption. Tags are issued by many law enforcement agencies and reported to the New York State Department of Environmental Conservation. A Cornell University study in Tompkins County indicated that 4.5 to 6.0 deer may be hit by vehicles for every vehicle-killed deer reported. Therefore, the actual number of deer-vehicle collisions in New York State during 1992 may have ranged from 53,000 to 71,000. With the average cost for repairs resulting from a deer-vehicle collision equaling about $1,000, this estimated total number of accidents may have resulted in $53 to $71 million in vehicle damage for New York motorists in 1992.

Several factors influence these figures including the size of the human population and resulting traffic volume, the size of the deer population, and geographical area of the county. In Monroe, Erie, Oneida, and Onondaga counties, where high human populations and traffic volume are combined with limited hunting pressure, the result is undesirably high deer populations and numbers of deer-vehicle collisions. In St. Lawrence County where deer densities are lower, high numbers of reported deer-vehicle accidents reflect the county's large land area.

This publication is also available on the CENET Damage News Bulletin Board.

The best way to reduce your risk of being involved in a deer-vehicle accident is defensive driving. Motorists need to identify "high risk" times of the day and year. Deer are most active each day shortly before sunrise and after sunset. When driving a vehicle at these times, drivers should be especially alert. Also, about two-thirds of deer-vehicle collisions reported annually occur during October through December--the breeding season and peak in movements for deer. Deer usually travel in family groups, and if you see one, others are likely to be nearby. Many vehicles are actually hit in the side by deer attempting to rejoin family members that may have crossed the highway a few moments earlier. It's best to slow down whenever you see deer along the roadside. With this basic understanding of deer behavior, you can lower the likelihood of striking a deer with your vehicle.

Meetings of Interest

Enhancing Biodiversity in the Northeast through Management of Early-Successional Forests, July 14-16, 1993, Sheraton Inn and Conference Center, Ithaca, New York. A technical session contains presentations including: Integration of Timber Production, Wildlife Habitat, and Landscape Ecology Principles into Land Management Practices; Forest Management and Early-Successional Forest Songbirds; and Stewardship and the Forest Stewardship Incentive Program. Field trips are planned to Cuyler Hill State Forest, Connecticut Hill Wildlife Management Area, and Finger Lakes National Forest. For more information, contact: Stacey Molinich, Cornell Cooperative Extension, Department of Natural Resources, Room 108, Fernow Hall, Ithaca, NY 14853-3001, (607) 255-2127 (or fax 607-255-2815).

1st International Wildlife Management Congress, Hotel Cariari, San Jose, Costa Rica. Includes a session on Conflicts Between Man, Agriculture, and Wildlife. For more information contact: IWMC Secretariat Director, The Wildlife Society, 5410 Grosvenor Lane, Bethesda, MD 20814, (301) 897-9770.

6th Eastern Wildlife Damage Management Conference, October 3-6, 1993, Asheville, North Carolina. The conference theme is Wildlife Damage Management in the 90's: Balancing the Needs of Society. Authors interested in presenting a paper should send a 1-page abstract for review by the Program Committee before June 1 to: Dr. Michael King, Department of Forestry, Wildlife, and Fisheries, P. O. Box 1071, Univ. of Tennessee, Knoxville, TN 37901, (615) 974-2706. For more information contact: Ann Coughlin, 6th Eastern WDM Conf., North Carolina State University, College of Forest Resources, Box 8001, Raleigh, NC 27695-8001, (919) 515-3184.

Symposium: Contraception in Wildlife Management, October 26-28, 1993, Sheraton Hotel, Denver Tech Center, Denver, Colorado. Conference topics will include population management, theories and biology of contraception, delivery systems, potential applications, public attitudes, policy, and regulations. For more information contact: Diana L. Dwyer, USDA-APHIS Denver Wildl. Res. Ctr., P. O. Box 25266, Denver, CO 80225-0266, (303) 236-7874.

1st Eastern Nuisance Wildlife Control Operators Short Course, February 21-23, 1994, Holiday Inn South, Lexington, KY. Technical sessions will include Basics of Wildlife Management, Basics of Animal Damage Control, Working with Wild Animals, Basics of Wildlife Disease, Miscellaneous Concerns, and a Trappers School. The primary audience will include nuisance wildlife control operators, private pest control operators, and cooperative extension staff. Contact: Tom Barnes, University of Kentucky, Department of Forestry, Lexington, KY 40546-0073.

16th Vertebrate Pest Conference, February 28-March 3,1994, Westin Hotel, Santa Clara, California. Concurrent sessions will be held to maximize information exchange and cover all topics in vertebrate pest management (i.e., birds, rodents, predators, urban wildlife, etc.). Presentations range from practical management to more technical papers concerning research or new methodology. Contact: Robert Schmidt, Department of Fisheries and Wildlife, Utah State University, Logan, UT 84322-5210.

11th Great Plains Wildlife Damage Control Workshop Highlights

by Paul Curtis, Cornell Cooperative Extension, Department of Natural Resources

The 11th Great Plains Wildlife Damage Control Workshop was held in Kansas City, Missouri, from 26-29 April. Approximately 170 professionals from across the United States and Canada attended field trips and technical sessions covering a variety of wildlife damage management topics. A few of the presentations which are especially pertinent for professionals in the northeastern U.S. are listed below. For additional information, or to order a copy of the proceedings, contact: Robert Henderson, Kansas State University, Call Hall, Room 128, Manhattan, KS 66506 (913-532-5654).

Kurt VerCauteren and Scott Hygnstrom, University of Nebraska-Lincoln. *Habitat selection of white-tailed deer does relative to deer damage.—*

During 1989, deer (*Odocoileus virginianus*) caused an estimated $32 million in damage to crops in the midwest. High densities of deer appeared to be associated with dense cover near agricultural fields. Twenty-eight adult female deer with cornfields within their home range were selected for radio-tagging. After crops were harvested, these deer moved an average of 157 m farther into permanent cover and expanded their home range size. About 21% of the deer showed migratory tendencies, so it may be possible to adjust the harvest to remove the portion of the herd responsible for damage. The greatest corn yield reduction occurred when deer damaged ears during the silking-tasseling stage. It may be possible to significantly increase corn yields by using frightening devices during the 1.5-week period when corn ears are at this stage.

Rosemary Heinen, Lonnie Hansen, and Jeff Beringer, Missouri Department of Conservation. *Use of dogs to reduce damage by deer to high dollar crops.—*

Three 5-acre plots were each planted with 5,000 white pines to resemble a commercial Christmas tree farm. Three treatments were evaluated: (1) monthly applications of Hinder, (2) 2 dogs enclosed by Invisible Fencing, and (3) an untreated control. During 1991, browsing damage by deer was evident on 97% of trees treated with Hinder, 40% of trees protected by dogs, and 98% of trees in the control plots. In 1992, 39% of trees treated with Hinder, 5% of trees in dog-protected plots, and 32% of trees in control plots sustained deer damage. In 1993, 10% of trees treated with Hinder, 2% of trees in dog-protected plots, and 55% of trees in control plots sustained deer damage. Hinder cost $830 the first year and $730 each year thereafter ($152/acre/year). Dogs cost $2,300 the first year and $400 annually for maintenance ($207/acre/year). By comparison, a 6-strand electric fence was estimated to cost $2,700 for 5 acres ($180/acre/year). For small acreages, the costs for dogs and electric fencing are comparable. Dogs would potentially be more cost-effective than electric fencing in larger fields or orchards. However, the upper amount of acreage that 2 dogs can effectively protect has not been determined.

Editor's Note— A pilot study in Oswego County, New York indicated 2 dogs may protect 50 or more acres of orchard from summer and fall damage by deer. During severe winters with >40 inches of snow, the effective area that dogs can protect may be 5-10 acres. Additional orchard trials are currently underway.

Rex Marsh, University of California. *Test results of a new snake repellent.—*

Dr. T's Snake-Away was registered by the Environmental Protection Agency as a snake repellent in 1991. The active ingredients in this product are naphthalene and sulphur. Both of these compounds have been independently tested in previous studies and have been shown to have no apparent snake repellency. Trials with this new product were conducted in a room with a 10x20-foot concrete floor. A 1-foot-wide band of repellent was used to divide the room into 4 sections. Twelve gopher snakes (*Drymarchon corais*) were observed for at least 1 hour in the room. All snakes crossed the barrier at least once per hour (avg. 2.7 crosses/hr), and the material showed little gopher snake repellency. One rattlesnake (*Crotalus* sp.) was also tested, and this snake crossed the barrier twice in 3 hours. This product appears to be ineffective for snake control.

Editors Note— In outdoor trials in Nebraska, snakes crossed a Dr. T's barrier immediately to get back to their home site. However, snakes did not cross the barrier if they had no apparent motivation. In outdoor pen trials in Guam, this material was not aversive to brown tree snakes.

Bill Andelt, Colorado State University. *Effectiveness of pyrotechnics, flashing lights, and Scary-men for deterring heron predation at fish hatcheries.—*

It was estimated that approximately 75 black-crowned night herons (*Nycticorax nycticorax*) and 13 great blue herons (*Ardea herodias*) removed about 60,000 rainbow trout (*Salmo gairdneri*) from a single fish hatchery in Colorado each summer. Losses occurred during the heron breeding season, mid-April through September. The hatchery manager was interested in developing a nonlethal approach for reducing fish losses. Wires and netting were considered to be impractical due to the physical size of the hatchery and problems with operating equipment with the physical barriers in place.

Flashing strobe lights gave the hatchery a "disco" appearance, but had little effect on heron foraging behavior. Scary-men, human effigies designed to pop up in synchrony with an exploding sound, worked well for four nights. However, herons soon realized this device produced little real danger, and they quickly habituated to the sight and sound. Pyrotechnics provided the most effective heron control. During 8:00-10:00 pm bird bangers were used, and shots were

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(11th Great Plains Highlights cont.)

directed at individual birds or groups of herons. From 10:00 pm until early morning, screamer shells were fired at herons attempting to return to the hatchery to forage on fish. It took two weeks of intensive firing to encourage herons using the hatchery to find alternative feeding sites. Twenty-two days after treatment the number of herons using the hatchery had increased only slightly from levels observed during pyrotechnics use. The primary disadvantages of pyrotechnics were the costs of labor and time involved in monitoring the site during the night.

Paul Gorenzel, University of California. *Biosonics for urban crow roost control.—*

Concentrations of roosting crows are scattered across the United States, usually during the months of September through January in the south. Problems occur when roosts are located above businesses or other areas frequented by humans, because large amounts of crow droppings can accumulate causing a very unattractive situation. Although roost sizes vary, it is not uncommon to find >3,000 crows occupying a roost each night. Crows often congregate in pre-roost staging areas each evening, entering the actual roost well after dark (8:30-11:00 pm). Pellets of indigestible foods are usually regurgitated at actual roost locations, separating those site from staging areas.

The "*Death of a Crow*" cassette tape (Johnny Stewart Co., Inc., Texas) elicits a mobbing response in crows when played during the day. However when played at night, crows become agitated, leaving the traditional roost to find another site. The tape must be played at an individual roost at least three consecutive nights to train the crows. Thereafter, the site should be monitored and the tape used as needed to reinforce the stimulus. During field trials, the tape was played for five consecutive nights at 11 occupied crow roosts in one town, and nine roosts were displaced. Only a few crows remained the two sites that were not completely abandoned. This has proven to be a very cost-effective method for crow roost control in urban areas.

The Wildlife Society Wildlife Damage Management Working Group Forms

by Paul Curtis, Cornell Cooperative Extension, Department of Natural Resources

Working groups are subunits of The Wildlife Society (TWS) that are composed entirely of TWS members and defined by professional interests. They support TWS's objectives within the various disciplines of the art and science of wildlife management. Working groups have no geographic boundaries and international participation is encouraged. Working groups are formed by petition to TWS Council of at least 15 active members of TWS. Upon Council's approval, the petitioners have two years in which to organize a viable working group.

On 21 March 1993, TWS members interested in wildlife damage management met at the North American Wildlife Conference in Washington, D.C., and discussed formation of the Wildlife Damage Management (WDM) Working Group. Areas of mutual interest included communications and networking, human dimensions of WDM activities, curriculum development, policy analysis and formulation, methods evaluation and development, improvement of management strategies, and professionalism. This discussion led to an enthusiastic endorsement of this initiative and the conclusion that this working group could well serve as a focal point for professionals interested in resolving human-wildlife conflicts.

The WDM Working Group will act as a catalyst ensuring responsible, professional management of problem wildlife situations, and appropriate recognition of WDM activities within the wildlife management profession. The purposes of the WDM Working Group are to promote better understanding of the complexities of managing human-wildlife conflicts, and enhance future capabilities to respond to these challenges. The WDM Working Group will provide a networking and communication opportunity for professionals in all areas of the wildlife profession including management, research, education, law enforcement, and administration.

A formal petition for the formation of the WDM Working Group was made to TWS Council on 21 March 1993. At a special meeting on 22 March, Council approved interim status for the working group. We now have two years to develop a charter for Council's approval, elect officers, attain a minimum membership of 100 active TWS members, and provide evidence that the WDM Working Group is capable of making a substantial contribution to the wildlife profession. Knowing the professional capabilities and enthusiasm of many of you who are involved in WDM activities, I believe we can quickly achieve these goals. However, much work lies ahead, and TWS members interested in the WDM Working Group must make a personal commitment to ensure the success of this effort.

Paul Curtis has been designated as Interim Chairperson, and Rick Owens, Jay McAninch, Bob Schmidt, and Bob Wilson will serve as an Interim Executive Committee. Members of the Executive Committee will temporarily serve the functions of Secretary, Treasurer, Chair, and Vice Chair until the first elections can be held. The Executive Committee may also appoint specific committees to assist with the development of a charter, newsletter, membership, etc. The Executive Committee welcomes input from working group members and is searching for volunteers to help with these tasks.

It's obvious that much work lies ahead in order to carry through with the WDM Working Group concept. The Executive Committee invites you to join us in this exciting endeavor which will help shape the future of the wildlife damage management profession. Please share this information with professional colleagues who may be interested in supporting our efforts. Please forward requests for information to: Paul D. Curtis, Cornell Cooperative Extension, Department of Natural Resources, 109 Fernow Hall, Cornell University, Ithaca, NY 14853-3001 (fax #- 607-255-2815).

Teaching Materials for Wildlife Damage Management

by Robert Schmidt, Utah State University

Utah State University entered into an agreement in 1989 with the USDA-Animal and Plant Health Inspection Service's Animal Damage Control (ADC) program to develop an academic program that incorporates wildlife damage management at the most basic levels of education in fish and wildlife management. The program was established to: (1) develop an appreciation of the scope and role of wildlife damage management throughout the wildlife profession; (2) provide personnel suitably trained in the principles and practices of wildlife damage management for employment by ADC and other federal, state, and local agencies; and (3) create a public understanding of the way in which wildlife damage management meets the needs and promotes the values of the American people.

Among other activities, USU's Program in Wildlife Damage Management has developed a number of classes to supplement the conventional coursework recommended for a major in wildlife biology and management. These classes, designed for the quarter system, are:

USU Course No.	Course Title
FW 405	Urban Fish and Wildlife Management
FW 491/691	Management and Ecology of Exotic Species
FW 491/691	The Role of Gender in Natural Resources Management
FW 510	Principles of Wildlife Damage Management
FW 512	Techniques in Wildlife Damage Management
FW 520/623	Predator Management and Ecology
FW 635	Wildlife Damage Management Policy

Syllabi for these courses are available upon request for individuals interested in developing similar courses at other universities. In addition, I would like to hear from you if you have developed a similar course. Contact: Robert H. Schmidt, Department of Fisheries and Wildlife, Utah State University, Logan, UT, 84322-5210.

Coyote Urine Translocated by Flora

(reprinted from The Probe, *December 1992, Issue 128)*

Russ Mason, Dale Nolte, and Gisela Epple of the Denver Wildlife Research Center's Monell Field Station have been studying the effects of coyote urine. Mountain beavers, deer, and other mammalian herbivores are bothered by certain fractions within the urine.

Recent experiments have shown that when roots are immersed, plants will translocate aversive substances. Analytical chemistry is being utilized to uncover the identity of the translocated fractions. If the fractions can be identified, it may be possible to develop an effective, biologically-based, systemic repellent for mammalian herbivores.

Current Literature

C. L. Osmundson and S. W. Buskirk. 1993. *Size of food caches as a predictor of beaver colony size.* Wildl. Soc. Bull. 21:64-69.

Population estimates for beavers (*Castor canadensis*) have been based on aerial counts of caches throughout much of North America. Cache counts are converted to population estimates by multiplying by average colony size for geographic regions or habitat types. This assumes that each cache represents one colony, and mean colony size is known for the area of interest.

Other recent studies indicated that cache size and number of beavers in a colony were significantly correlated, and that indirect estimation of colony size could be made with this technique. Therefore, local estimates of population size could potentially be more accurate than those based on mean colony size for larger regions. This study was conducted to test this hypothesis.

Cache construction by beavers was initiated in mid-September, and size increased by 0.45 m^3/day. There was no difference in the number of beavers at colonies with caches that were initiated early compared to those that were initiated late. In this study, cache size was not correlated ($r = 0.16$, $n = 56$) with colony size. Also, cache size was not correlated with the surface area of the pond ($r = 0.02$, $n = 11$), perimeter of the pond ($r = -0.52$, $n = 11$), or the area of willows within 15.5 m of the pond ($r = 0.02$, $n = 11$). Six caches (17%) at 5 colony sites were abandoned. Abandoned caches tended to be small, whereas active caches were mostly medium and large. Six caches (11%) found during the ground search were not seen during the aerial survey.

Cessation of cache growth coincided with ice formation on the ponds. Growth rates did not differ with the date of initiation of cache construction. In this study cache size was not a reliable predictor of beaver colony size, contradicting some earlier re-

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(Current Literature cont.)

ports. Behavioral observations indicated adults were primarily involved in cache construction. If young beavers do not participate in cache construction, then the adults in a colony (which are relatively constant in number) would have to change their cache-building behavior based on the number of young animals in a colony to create a relationship between cache size and colony size. This behavioral response has not been reported for beavers.

Aerial observers saw 89% of caches found during ground searches, but correctly classified only 48% to size. Even where a relationship between cache size and colony size may occur, ground measurements of caches will still be needed. Aerial observers missed both active and abandoned caches. It's recommended that cache size be used to estimate beaver colony size only after additional testing of the relationship between these variables, and the behavioral mechanisms which underlay this relationship.

S. W. Gabrey, P. A. Vohs, and DeWaine H. Jackson. 1993. *Perceived and real crop damage by wild turkeys in northeastern Iowa.* Wildl. Soc. Bull. 21:39-45.

Wild turkey (*Meleagris gallopavo*) populations have risen dramatically in many areas of the United States due to successful reintroduction programs. Concurrently, reports of spring and fall turkey damage to corn, soybeans, alfalfa, and grapes are increasing in several states. Wildlife managers are in the position of managing a highly-valued game bird as a public resource on private lands where its presence may be considered potentially damaging to crops and personal income. Wildlife managers require biological and sociological data to effectively communicate with landowners and adjust hunting seasons when necessary. This study summarized results from a mail survey conducted to determine landowner attitudes towards wild turkeys and crop damage in Iowa.

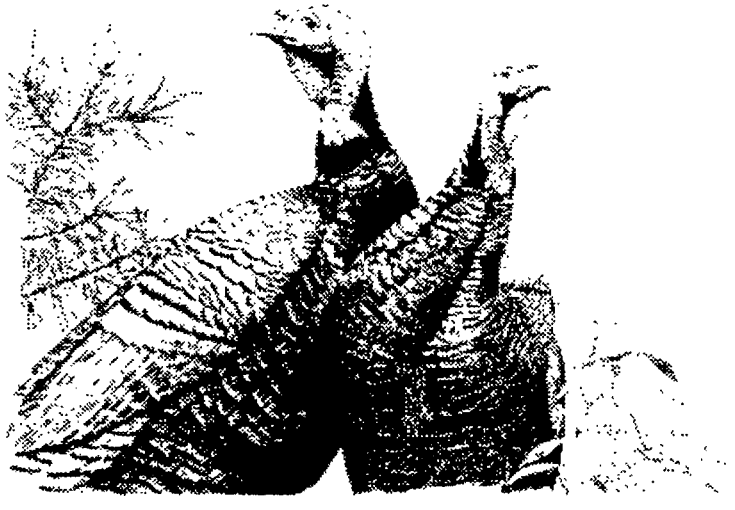
Eighty-two percent of the respondents ($n = 337$) had turkeys on their land, and 64% of these ($n = 276$) reported turkey damage. Turkeys reportedly damaged corn in the fall (31%), followed by oats (24%) and hay (13%) in the summer. Fifty-two percent of the 337 respondents reported no economic loss caused by turkeys, 43% estimated their losses to range from $1-500, and 5% estimated losses at >$500. Fifty-six respondents reported a gain from turkeys on their land, including such things as insect control, sport hunting, and appreciation of wildlife. Most respondents indicated they took no action to reduce turkey damage, and preferred an increase in harvest to reduce crop losses.

Wild turkeys were present in corn and oat fields 0.9% of the spring observation time in 1989 ($n = 227$ hr), and 1.3% in 1990 ($n = 192$ hours). When present, turkeys were observed pecking at the ground, but never appeared to scratch up seeds or seedlings or to directly graze on seedlings. Deer (*Odocoileus virginianus*) were observed grazing on both corn and oat seedlings. Gray squirrels (*Sciurus carolinensis*) also were seen uprooting several seedlings, leaving behind characteristic holes about 3.8 cm in diameter. In 1989, 0.6% of corn seedlings in sample plots was damaged by wildlife; in 1990, 0.4% of the sample plants were damaged. Losses could not be attributed to turkeys.

In October 1989, 3,206 mature corn ears were examined for damage. Seventy-four ears (2.3%) received damage by "turkeys and others"; 109 (3.4%) were damaged by deer. In 1990, 3,938 corn ears were examined. Thirty-four (0.9%) of these ears were damaged by "turkeys and others," 37 (0.9%) by deer, and 55 (1.4%) by raccoon (*Procyon lotor*). Ears damaged by "turkeys and others" had an average of 68% missing kernels in 1989, and 54% in 1990.

Losses reported by landowners should be interpreted cautiously, as "turkey damage" can easily be confused with that caused by blackbirds or squirrels. This confusion may be partly responsible for high landowner estimates of turkey damage, but low estimates based on field sampling. Presence of turkeys in the fields often causes farmers to attribute losses to them. The association between turkey presence and assumed turkey responsibility for all damage observed must be kept in mind when discussing perceived losses with growers. The results from this study suggest that spring damage attributed to turkeys was caused by other less visible wildlife such as squirrels or deer.

When questioned, none of the survey respondents indicated they would call the state wildlife agency or Cooperative Extension Service for advice related to turkey depredations. This suggests that farmers have little confidence that damage can be stopped, or that current levels of damage are insufficient to warrant preventative action. More than 95% of respondents allowed turkey hunting on their land, and seemed willing to cooperate with the state wildlife agency to encourage limited hunting.



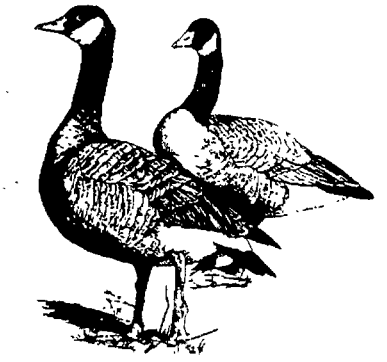
Goose Management in Urban Areas

by Paul D. Curtis, Department of Natural Resources

Canada goose (*Branta canadensis*) populations are growing in many parts of the United States, resulting in greater numbers of nuisance problems. Goose foraging on grass in landscaped areas, parks, backyards, and golf courses in and near urban areas is resulting in more complaints from residential landowners and property managers. Feces left by geese also lower the aesthetic value of these areas and may negatively impact water quality. Many of these urban goose flocks are nonmigratory, creating problems throughout the year.

Management of nuisance geese is a challenge for wildlife agencies and municipalities. Resolution of these problems often involves a cooperative approach by federal (USDA-APHIS-ADC), town, county, and state governments. The Department of Environmental Conservation has held early goose seasons in an attempt to target the nonmigratory birds causing much of the damage. However, hunting has not been a particularly effective method for reducing urban goose flocks, as many birds using parks and golf courses are not accessible to waterfowl hunters. Also, many towns have local laws restricting the discharge of firearms.

Biologists have also experimented with nonlethal alternatives (pyrotechnics, traps, or scare devices) for managing goose damage. The use of these techniques is limited in urban areas due to cost, effectiveness, or public acceptance of various methods. These limitations have increased efforts to develop chemical repellents for geese that are effective and economical; but are also safe for target and nontarget species. Methyl anthranilate (MA), a compound registered with the Food and Drug Administration as a human-safe food flavoring, has been shown to be extremely aversive to several avian species in pen trials. Procedures are also underway to register several MA formulations with the Environmental Protection Agency as nontoxic bird repellents.



In its pure form, MA is phytotoxic and cannot be sprayed on plants. New microencapsulated formulations have overcome this problem, and recent trials to repel geese from turf grass areas have been successful. Additional field trials to determine appropriate application rates and timing are warranted. To obtain specific information concerning the use of MA to repel birds, or suburban goose management in general, refer to the articles listed below:

Conover, M. R., and G. G. Chasko. 1985. Nuisance Canada goose problems in the Eastern United States. Wildl. Soc. Bull. 13:228-233.

Cummings, J. L., J. R. Mason, D. L. Otis, and J. F. Heisterberg. 1991. Evaluation of dimethyl and methyl anthranilate as a Canada goose repellent on grass. Wildl. Soc. Bull. 19:184-190.

Dolbeer, R. A., L. Clark, P. P. Woronecki, and T. W. Seamans. 1992. Pen tests of methyl anthranilate as a bird repellent in water. Proc. East. Wildl. Damage Con trol Conf. 5:112-116.

Williams, B. K., and R. Bishop. 1990. Perspectives on goose management in North America: challenges and oppor tunities for the '90s. Trans. North Amer. Wildl. and Nat. Resour. Conf. 55:283-285.

Vogt, P. F. 1992. ReJeX-iT™ brand bird aversion agents. Proc. Vertebr. Pest Conf. 15:134-136.

Two New Wildlife Damage Management Publications Are Available

Two new publications targeted at wildlife damage management professionals are now available. The first issue of *ADC: Animal Damage Control* appeared in February-March 1993. One of the primary goals of this magazine is to provide solid, usable information concerning how to resolve animal-people conflicts. Other objectives include promoting professionalism, enhancing public relations, creation of a positive public image, continuing education for ADC workers, and informing the public about wildlife ecology and management. ADC work includes a broad spectrum of activities, from capture and handling nuisance animals, to behavioral research on various wildlife species. This magazine may serve as a new channel of communication between trappers, biologists, administrators, educators, and others in the ADC community. To obtain more information about this publication contact:

Bob Noonan, Editor
ADC
P.O. Box 224
Greenville, PA 16125.

The Northeastern Association of Wildlife Damage Biologists has been active for about 2 years. Voting membership is available to any person holding a degree in wildlife management or a related field who has completed at least 2 years of college coursework, and who derives his/her livelihood by conducting professional wildlife damage control/management work within the Northeastern United States. Non-voting memberships are available for individuals or firms who provide animal damage control equipment or materials. During Fall 1992, the Association published the first issue of *Technical Notes*. The goal of this newsletter is to provide a forum for wildlife damage biologists in the Northeast to exchange ideas, philosophies, and management techniques. For more information about this organization contact:

James E. Forbes, President
RD 3, Box 33
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