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September 1998

## The Probe, Issue 192 – September 1998

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"The Probe, Issue 192 – September 1998" (1998). *The Probe: Newsletter of the National Animal Damage Control Association*. 38.  
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# The Role of "Preventive Control" in Coyote Damage Management

*Mark Collinge, NADCA Vice-President - West, Boise, Idaho*

The term "preventive control" carries a somewhat different connotation today than it did back in the decades when toxicants were widely used to control coyote populations on western rangelands. Nonlethal control practices commonly used today to protect livestock from predators would be considered preventive control, in that their use is aimed at preventing future losses. Use of fencing, guard dogs, frightening devices and other nonlethal control practices to prevent future losses is not generally as controversial as lethal removal of coyotes. This article deals with the more controversial practice of lethal preventive control.

Lethal preventive control, as practiced during the late 1940s through the late 1960s, consisted largely of broad-scale, regional efforts to materially reduce coyote populations through the use of various toxicants. Robinson (1948) documented his findings from 10 years of research on the use of thallium and compound 1080 large meat bait stations for coyote control in parts of Colorado, Wyoming, Idaho, and Nevada. He concluded that both toxicants were equally effective in dramatically reducing coyote populations, but 1080 was the preferred toxicant because of lower cost, greater availability, and ease of application.

These studies were carried out on the assumption that there was a correlation between coyote population density and the level of predation losses inflicted by coyotes, and Robinson's follow-up with sheep ranchers in these areas did suggest a dramatic decline in predation losses to coyotes. This conclusion was echoed by many sheep ranchers during that period, as evidenced by the narratives included in some of the old annual reports from the U.S. Fish and Wildlife Service's Predator and Rodent Control program (USDI 1946, 1947, 1948). Range lambing was the typical practice back then, and most of the sheep producers reported losing very few or no lambs to coyotes in the areas where bait stations had been placed.

Wagner (1988) reviewed a variety of evidence and suggested that in the long term, lethal preventive control aimed at region-wide population suppression actually resulted in little reduction of losses. But Wagner also acknowledged that there was strong evidence suggesting a relationship between coyote densities and sheep losses (Wagner and Pattison 1973, Shelton and Klindt 1974, Robel

et al. 1981, Stoddart and Griffiths 1986). Some of what Wagner suggests seems contradictory, but his book on predator control and the sheep industry is thought provoking and an excellent reference for those involved in this type of work.

Although it has always been somewhat controversial, there did not appear to be as much resistance to the idea of broad scale, prophylactic coyote control back in its earlier years. With changing social values and an increasing public concern over the environment, however, the practice of preventive control, particularly with the use of toxicants, came under increasing criticism. The Cain Report, released in 1972, recommended discontinuing the use of all toxicants in predator control operations. President Nixon signed Executive Order 11643 shortly thereafter, banning the use of toxicants on Federal lands and in Federal control programs, and the Environmental Protection Agency (EPA) subsequently canceled the registrations for predacides. Howard and Schmidt (1984) provide an excellent review of the politics involved in this series of events.

With the temporary cancellation of toxicant use for predator control, the emphasis of Federal predator control efforts shifted toward increased use of aerial gunning, particularly during the winter months. Studies were conducted in several western states during this period to assess the effectiveness of winter-time aerial hunting in reducing sheep losses.

The results of these studies suggested that aerial hunting could be used to keep losses to an *acceptable* level, but it was much more expensive than a similar level of control conducted with toxicants. Packham (1973) concluded that in spite of the increased expense, preventive control work using a helicopter was still economically feasible. Funding for Federal predator control programs was sufficient during this early transitional period to maintain a program of preventive control using helicopter aerial hunting as a primary control tool. Budgets did not keep up with increasing costs, however, and the amount of helicopter aerial hunting gradually declined in most areas. At the same time there was an increasing emphasis on the part of Fish and Wildlife Service policy-makers to shift away from a preventive control mode and toward more of

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Continued from page 1, col. 2

## **“Preventive Control” in Coyote Damage Mgmt.**

a corrective control mode. It was much easier for policy makers to defend the practice of lethal predator control if it was directed primarily at confirmed offending individuals or local populations.

This brings us to the present situation, where lethal preventive control typically involves removing coyotes from specific local areas with a history of documented losses, and where losses might reasonably be expected to occur in future. It might actually be more appropriate to refer to this practice as “delayed corrective control.” The rationale for this practice differs little in principle from holding controlled hunts for deer and elk in certain areas where agricultural damage has been an historic problem. By reducing the number of deer near agricultural fields, or the number of coyotes near a herd of sheep, the likelihood of damage is reduced. This practice is routinely used to protect migratory herds of sheep in the Intermountain West where livestock are grazed on Forest Service high mountain grazing allotments during the summer months. Helicopter aerial hunting efforts are directed toward those specific allotments where coyote predation has been a problem in the past. Sheep producers request which allotments they want flown and contribute monies to help pay for the flying. The helicopter work typically occurs sometime between January and March, and the sheep arrive on the grazing allotments in June or July to graze for the next several months. The work is conducted during winter because deep snow cover provides an opportunity to track coyotes and the white background makes them easier to see and more vulnerable to hunting. Coyote populations are also at their seasonal low during this period, and removal of coyotes at this time has the most pronounced effect on coyote densities.

Lethal preventive control continues to be one of the most controversial aspects of coyote damage management, but several studies have been completed in recent years that further

support the logic behind this strategy. Till and Knowlton (1983) documented that the coyotes most likely to kill sheep are adult, territorial pairs raising pups. Gantz (1990) documented that adult, territorial coyotes maintained year-round territories on high mountain grazing allotments, and concluded that removal of these coyotes during the late winter period would likely reduce the amount of predation on sheep during the following summer grazing season. Wagner (1997) conducted a 3-year study in Utah and Idaho and compared sheep losses in similar areas with and without aerial hunting. In addition to a significant reduction in the amount of coyote predation on those allotments where aerial hunting had been

Continued on page 7, col. 1

## **CALENDAR OF UPCOMING EVENTS**

**September 22-26, 1998: 5th Annual Conference of The Wildlife Society, Buffalo, New York.** Includes a 1/2-day symposium “Public Health and Safety, and Wildlife in Conflict?” (11 papers); a full-day symposium “Managing Abundant White-tailed Deer Populations in the Eastern U.S.” (21 papers); a full-day workshop “The Status and Future of Wildlife Fertility Control” (19 presentations, \$55 fee); and a session “Wildlife Damage and Policy” (6 papers). For information, see the Society’s web page at

<<http://www.wildlife.org>> or phone (301) 897-9770.

**Oct. 5-9, 1998: International Conference on Rodent Biology and Management, Beijing, China.** Organized by Instit. of Zoology, Chinese Academy of Science, and CSIRO Div’n. of Wildlife and Ecology, Australia. For additional information and mailings, contact: Zhibin Zhang, Secretary General, Int’l. Conference, 19 Zhongguancun Road, Haidian District, Beijing 100080, P.R. China, or e-mail: <[zhangzb@panda.ioz.ac.cn](mailto:zhangzb@panda.ioz.ac.cn)>

**December 6 - 9, 1998: 60th Midwest Fish and Wildlife Conference, Hyatt Regency Hotel, Cincinnati, Ohio.** Conference theme: “Reflections on a Century of Accomplishments.” For further information, contact Dave Risley at (614) 265-6331, or see web site:

<<http://www.dnr.state.oh.us/odnr/wildlife/workshops/midwest>>

**January 31 - February 3, 1999: Fifth Annual Wildlife Control Technology (WCT) Instructional Seminar, Imperial Palace, Las Vegas, NV.** For further information, contact Lisa at (815) 286-3039.

**March 17, 23, & 25, 1999: Vertebrate Pest Control Workshops, California (Salinas, Ontario, and Sacramento, respectively).** Co-sponsored by Vertebrate Pest Council and Pesticide Applicators Professional Assoc. (PAPA). Three one-day workshops providing basic information and pesticide applicator certification credits, covering bird, rodent, and predator damage control techniques. For further information, contact Dr. Desley Whisson at (530) 754-8644, or visit web site <<http://www.davis.com/~vpc/welcome.html>>.

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Your contributions of articles to *The Probe* are welcome and encouraged. The deadline for submitting materials is the 15th of the month prior to publication. Opinions expressed in this publication are not necessarily those of NADCA.

# NADCA Member Has Syndicated Wildlife Column

Andrea Kitay, Camarillo, California

While working towards my graduate degree under Brian Murphy at Texas A&M in the early 90s, I volunteered at a wildlife rehabilitation facility in Houston, where I often manned the phones. Most calls came from people wanting to know how to “coexist” with an animal, or what they should do with an injured or orphaned animal.

I was amazed at the helplessness in people’s voices, and how little most of them knew about common wildlife species. Most notable, however, was the lack of information available in the popular press which might help these homeowners resolve their creature conflicts. Soon after, I began writing a column in my “hometown” paper called “Living with Wildlife.”

Several years later I moved to California and began writing a similar column for the *L.A. Times* with the same title. After my first, kickoff story titled “Bogus Critter Ridders,” I received almost 200 letters from homeowners with complaints

about wildlife damage in their homes or gardens. I receive roughly 40 letters from each question & answer column.

Since the *L.A. Times* column has been such a success, I was approached by a syndicate—Inman News Features—to run my column across the country. This column, called “Backyard Critters,” is written for a national audience.

Inman is in the beginning stages of marketing the column idea to small and large papers, and it will appear on their Internet news feed which is sold to both companies with Intranets and individual web sites.

The difficulties I’m having aren’t new to anyone in this field who has dealt with the public. Despite the fact that most homeowners are willing to accept whatever fix, lethal or non-lethal, that I recommend, I also get letters and calls to my editor from outraged people who don’t like my advice.

I take a decidedly middle-of-the road approach, so I get calls from both “animal rights” people and “kill-em if it walks” types. For instance, I got a letter from a reader who, despite evidence to the contrary, insists deer whistles work. And many readers were terribly

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*The difficulties I’m having aren’t new to anyone in this field who has dealt with the public. Despite the fact that most homeowners are willing to accept whatever fix, lethal or non-lethal, that I recommend, I also get letters and calls to my editor from outraged people who don’t like my advice.*

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upset that I recommended kill-trapping a gopher, saying the damage they create isn’t bad enough to warrant trapping. (I happen to disagree, having had several myself recently.) Another woman was livid about the whole concept of wildlife damage management, claiming it’s “disheartening.” On the other side of the coin, people write to tell me I’m using “animal rights’ mantras” in my column. One e-mail said “why don’t you just advise that guy to shoot the pigeons off the balcony instead, or is that not politically-correct?” (Obviously, that would have been unsafe and illegal in downtown Westwood Village, an L.A. suburb.)

The majority of my readers have been extremely supportive, although I can see folks are still undereducated about the wildlife in their neighborhoods, and how to successfully live near, but not with, these animals.

Because my readership is so large, roughly two million in the Los Angeles area alone, I’m being forced to maintain

the highest level of professionalism. As my column is placed in more papers across the country, I hope my peers in NADCA will let me know how I’m doing, provide criticism when necessary, and keep me abreast of relevant local information. So I’m relying on extension folks, NWCOS, researchers, etc. to keep me on the cutting edge. Tell me where I’m failing, and how I can improve.

Many thanks, and you can reach me at:  
[andrea@livingwithwildlife.com](mailto:andrea@livingwithwildlife.com).

Editor’s Note: Our apologies for not crediting Ms. Kitay’s *L.A. Times* article as being the source for the story “Bogus Gizmos and Gadgets” that appeared in the July 1998 Probe (p. 7).

## Wildlife Columnist Looking for Photos, Drawings

I’m looking for photos of damage to homes/gardens, and black and white drawings of animals, that are good enough quality to put into the “Homeowners Guides” I’m developing. Might NADCA readers might have some you’d be willing to share?

Contact me by email at  
<[andrea@livingwithwildlife.com](mailto:andrea@livingwithwildlife.com)> ,  
or by mail at P.O. 2489, Camarillo, CA 93011.

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# Promoting Barn Owls to Control Rodents is Deception

Rex E. Marsh, Department of Wildlife, Fish, and Conservation Biology,  
University of California Davis

It seems that every 10 years or so there is a renewed interest in increasing avian predation by promoting barn owl, *Tyto alba*, nest boxes for rodent control. There is a failure to recognize that most of our pest rodents have an enormous propensity to reproduce, thereby compensating for normal predation. How else could these indigenous predator and prey species have coexisted for thousands of years? It is not surprising that those promoting this particular biological control approach are generally not well versed in the principles and concepts of vertebrate pest management and, in particular, lack a good grasp of predator/prey relationships. Often, those most dedicated to the promotion of owls for rodent control are also deeply committed to sustainable or alternative agriculture, or have a strong anti-pesticide philosophy. Others are seeking any approach that they believe may assist in fulfilling IPM (Integrated Pest Management) goals.

The motivations behind this attempt at promoting biological control are most understandable and not in question. What I find objectionable is the promotion of a biological control approach that lacks scientific data to support its effectiveness or validity. This goes against all principles of good science, upon which effective pest management is based. In my opinion, the promotion of this concept is outright deceit and must be challenged.

When the promoters are confronted with the fact that they have no data to support their assertion that pocket gopher and vole populations in orchards or vineyards are controlled by the installation of barn owl nest boxes, they counter with the further assertion that "it needs more study". The studies conducted thus far fail to support the validity of this biological control approach for rodent control anywhere in the United States. No one expects biological control to eradicate a pest but, at the very least, the approach should significantly reduce the pest population or, better yet, demonstrate a measurable reduction in pest damage and associated economic losses.

The use of barn owls in an attempt to control pest rodents is not new but dates back more than 100 years. The erroneous notion held worldwide by many – that predators categorically reduce their prey numbers to a low level – has led to not only the promotion of native predators but also to the introduction of a number of exotic predators. Barn owls seem to have been the favorite avian species to both encourage in their normal range and introduce onto islands where they did not naturally occur (Long 1981). For example, barn owls have been introduced on the Seychelles, Hawaiian Islands, Isle Platt, and the Lord Howe Island for the expressed purpose of controlling rats. Other avian predators have also been explored. For example, the

masked owl, *Tyto novaenollandiae*, and the spotted owl, *Ninox* sp., were also introduced on Lord Howe Island. An attempt was made to establish the pied crow, *Corvus albus*, on the Mauritius Island for rat and mouse control. The marsh harrier, *Circus aeruginosus*, was introduced on the Society Islands about 1885 for rat control.

Decades have passed since these avian predator introductions occurred; yet we cannot point to a single success story relative to their ability to control pest rodents. Only a brief glimpse at past history illustrates that the concept of biological control utilizing avian predators is not new. It is only new to those promoting this approach without the benefit of knowledge of past events.

There are those who state, "well, it can't hurt" to install owl nest boxes in orchards in the hope of increasing the barn owl population and thereby achieve gopher control, in spite of no data to support their effectiveness. Aside from the "hurt" inflicted by the economic cost, there are several other reasons why this is not true.

1.) Those advisors to the growers that spend much of their time promoting nest boxes are wasting the time they could be using to promote proven control methods.

2.) Growers who are convinced by a supposed pest management authority that nest boxes are the solution may forego all other control measures and, as a result, suffer irreparable losses from gopher or vole damage.

3.) Numerous nest boxes tend to elevate the owl population in orchards and vineyard and, therefore, may subject these owls to unnecessary risks. Assuming these orchards are not all organically certified and that pesticides are used in a prudent manner, even on a limited scale, to control weeds, diseases and insects, the owls using the area in close proximity to the orchard may be placed at a potentially greater pesticide risk. Also, if the grower temporarily foregoes gopher or vole control, only to find the rodent population has gotten out of hand, then the amounts of rodenticides needed to bring them under control will likely be 10 times or more than would have been needed for routine maintenance gopher control and a hundred times more for remedying a serious vole infestation. This, too, elevates the risk to barn owls of rodenticide exposure from consuming poisoned rodents, even though minor.

4.) Even an incidental barn owl death, if it occurs in a number of orchards, may be enough to trigger a reevaluation, cancellation, and subsequent loss of an otherwise safe and useful pesticide. The results of fostering unnaturally high barn owl populations are an increase in their vulnerability and the odds of

*Continued in col. 2, page 6*

# TWS Response to NADCA Proposal for Certification\*

The National Animal Damage Control Association (NADCA) proposed a national model nuisance wildlife control operator's (NWCO) certification program in January 1998. The Wildlife Damage Management Working Group of The Wildlife Society was asked to comment on the proposal. An ad-hoc committee was established and was chaired by Tom Barnes. He solicited comments from committee members and the following members responded to the query: Patrick Martin, Judy Loven, Mike Dwyer, and Bob Bluett. The following is a summary of the remarks made by committee members.

The WDMWG committee applauds NADCA for beginning a dialogue concerning the education and training requirements for NWCOs. We believe this is an excellent first step in the development of national standards regarding NWCO training and education requirements. While it is a good beginning, the committee recognizes significant problems exist with the draft program. The first of which NADCA is promoting calls for a national NWCO Certification program. This in fact is not a certification program and the WDMWG does not endorse a certification program for NWCOs. The recommendations offered by NADCA are guidelines for licensing and the WDMWG concurs with NADCA by requiring minimum licensing standards that include educational material relevant to the NWCO business. Second, the WDMWG does not believe it is NADCA's role to write draft regulations regarding oversight of NWCOs. As evidence of particular problems with drafting regulations, Bluett pointed out, "the sale, trade, barter...is prohibited, etc." should not be included in any regulations because of potential problems with capturing more animals than the offending animals, etc. Martin pointed out the New York Dept. of Environmental Conservation would not support that woodchucks could be controlled by burrow fumigation—prior approval from a district biologist is required before wildlife are relocated, etc. The WDMWG recommends the following as a protocol for developing minimum national licensing standards: State wildlife agencies should provide administrative oversight of NWCO programs within their jurisdiction. As a part of this oversight, state agencies should require all NWCOs to complete an application for licensing and that a fee be assessed to cover the cost of implementing the NWCO program at the state level. NWCOs should possess a "valid" NWCO license but depending on state statutes. They would not be required to have a "valid" hunting or trapping license because the NWCO would be a "special" license.

Furthermore, state agencies should require NWCOs show evidence of knowledge, training, experience and expertise in the handling of nuisance wildlife situations through completion of an educational program and examination prior to licensing.

While it would be desirable to have NWCOs pass a trapper education and hunter education course, the WDMWG does not believe it should be required. The committee recommends that the International Association or another representative organization develop a comprehensive NWCO educational manual and self-study guide wherein the NWCO could study the manual and study guide. The study guide would contain 400 possible examination questions, and NWCOs would be advised that 100 examination questions will be randomly selected from the possible questions for the closed book test. States would be allowed to modify the manual to include local variances in procedures and laws. State agencies would also determine the level of competency required (example 70 or 80% correct) prior to issuing a license. Topics that would be included in the manual would include:

- *State and Federal Laws Related to Wildlife Management*
- *Population Biology and Natural History of Selected Species*
- *Principles of Integrated Wildlife Damage Management Focusing on Solving Problems*
- *Wildlife Diseases*
- *Humane Treatment of Animals*
- *Euthanasia Techniques*
- *Professionalism & Ethics*

State agencies should also require NWCOs to keep complete and accurate records regarding the numbers of each species captured and the disposition of those animals, the condition of animals captured, and any other important information. States should conduct a criminal background check prior to issuing a license to a NWCO. State agencies develop a group of interested stakeholders (an advisory committee) to consider the needs and desires of all parties when drafting and implementing licensing requirements and standards.

Finally, the WDMWG recommends that states consider (but not require) proof of financial responsibility (surety bond or liability insurance) prior to issuing a license to protect the state agency, the NWCO, and NWCO's clients.

*\*This report was submitted by Tom Barnes to the TWS Wildlife Damage Management Working Group newsletter, Vol. 5(3) - Summer 1998. It is reprinted with the permission of the author and the WDMWG Newsletter Editor, Art Smith.*



*The Editor thanks the following contributors to this issue: Tom Barnes, Mark Collinge, Paul Curtis, Andrea Kitay, and Rex Marsh. Send your contributions to The PROBE, 4070 University Road, Hopland, CA 95449.*

# Position Announcement: Wildlife-Communications Specialist

DEPARTMENT OF NATURAL RESOURCES  
NEW YORK STATE COLLEGE OF AGRICULTURE AND  
LIFE SCIENCES  
CORNELL UNIVERSITY

## POSITION:

Extension Associate II, 12-month position, non-tenure track

**STARTING DATE:** By October 15, 1998

**LOCATION:** Department of Natural Resources, New York State College of Agriculture and Life Sciences, Cornell University, Ithaca, NY 14853

## RESPONSIBILITIES:

The successful candidate will provide assistance with state-wide extension (100%) efforts directed at reducing conflicts between people and wildlife in agricultural, forested, and suburban landscapes. The individual will be responsible for assisting the Wildlife Damage Management Program Coordinator with planning, implementing, and evaluating an extension program that addresses important ecological and economic issues related to vertebrate pest species. Team participation in Natural Resources extension programs, and development of Cornell Cooperative Extension (CCE) inservice educational materials, events, professional conferences, and workshops is expected. Programming will be developed in cooperation with the appropriate CCE Statewide Program Committees and external collaborators. Key audiences will include professional resource managers at local and state levels, and CCE county educators. Fostering collaborative programming with state and federal agencies, and other Cornell departments is encouraged. Design of computer web pages and preparation of extension publications is expected. Some in-state travel will be required. Initial appointment will be for 2 years, with reappointment based on satisfactory performance and continued funding.

## QUALIFICATIONS:

Masters Degree in wildlife biology, management, or natural resource communications (required).

Effective speaking and writing abilities, and skills with electronic media (required).

Demonstrated excellence in adult educational programs, including the principles of wildlife damage management (preferred).

Experience with, and knowledge of, the Cooperative Extension System (preferred).

## SALARY:

Competitive and commensurate with background and experience. An attractive fringe benefits package is available.

## APPLICATION:

Applicants are to submit a letter of application, resume, publication samples, and the names and addresses of three references to: Dr. Paul D. Curtis, Search Committee Chair, Department of Natural Resources, Fernow Hall, Cornell University, Ithaca, NY 14853.

Application deadline is September 15, 1998.

*CORNELL UNIVERSITY IS AN AFFIRMATIVE ACTION-EQUAL OPPORTUNITY EMPLOYER*

*Continued from page 4, Col. 2*

## **Barn Owls to Control Rodents a Deception**

incidental pesticide mortality. Barn owls are, for no supportable reason, being deliberately put in harm's way. Integrity in the field of vertebrate pest management and advances in biological control come from basing our methods and techniques on sound scientific and biological principles supported by adequate data. To do otherwise denigrates all that has gone on in the past to advance this field as a credible and integral part of wildlife management. It is time to put an end to the promotion of such deceptive and disingenuous practices.

## **Reference:**

Long, J.L. 1981. *Introduced Birds of the World*. David and Charles, London. 528pp.

*Let us establish nest boxes for the benefit and conservation of the barn owls, but let's not deceive the growers and public into thinking they are effective for rodent control. Many enjoy seeing barn owls around, for they are interesting predators and add to the biological diversity of an area. Nest box placement should be selected with care and forethought, preferably away from areas of high pesticide use, and in relatively close proximity to the owl's preferred hunting habitat of open fields, which support moderate to high populations of rodents year-round.*

*Rex E. Marsh*

## Preventive Control in Coyote Damage Management

employed, the amount of time and effort required to address predation problems the following summer was also greatly reduced. This reduction in the need for corrective control efforts during the summer months is a significant additional benefit because some of the methods employed during the summer months, such as traps and snares, are less selective for target species than is aerial hunting. The reduced hazard to nontarget species becomes increasingly important in areas where threatened or endangered species may exist. In the Northern Rocky Mountains where wolves and grizzly bears might be encountered, for example, there are restrictions on the use of traps, snares, and M-44s in Federal predator control programs. Without winter-time preventive control with the helicopter in these areas, it would be difficult to maintain the desired level of live-stock protection.

Wagner (1997) and Collinge and Maycock (1997) showed that in spite of the relatively high costs involved in using a helicopter to conduct preventive control, it could still be cost-effective. While preventive control (through the use of aerial hunting) offers the advantages of cost-effectiveness, reduced losses, and greater selectivity, the amount of this work being conducted today is determined largely by availability of funding.

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## ADC in the News

### Plague Found in Captive Texas Prairie Dogs

Prairie dogs captured by an exotic animal dealer in Texas were found to be infected with bubonic plague. Approximately 75 prairie dogs in Texas were euthanized and incinerated after the US Centers for Disease Control and Prevention (CDC) in Atlanta confirmed that three animals from the same group had died due to plague.

Bubonic plague is caused by the bacteria *Yersinia pestis*, which is carried by fleas that feed on infected animals, such as rats or ground squirrels. The disease can be transmitted to humans or to pets by the bite of a rodent flea, and it often proves fatal unless correctly diagnosed and treated.

About 500 prairie dogs were captured by an exotic animal dealer in the Texas Panhandle in April and May of 1998. After more than 300 were shipped to a broker in another part of the state, a large number of the animals died and three were tested at the Texas Veterinary Medical Diagnostic Laboratory in Amarillo. The laboratory notified the Texas Department of Health, and the CDC plague laboratory in Fort Collins, Colorado, confirmed plague on May 22nd.

"The incident highlights the danger inherent in removing wild animals from their environment for sale as pets or research subjects, placing them in close contact with humans," according to the report.

—excerpted from an article by Reuters

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## Membership Renewal and Application Form

### NATIONAL ANIMAL DAMAGE CONTROL ASSOCIATION

Mail to: Grant Huggins, Treasurer, Noble Foundation, P.O. Box 2180, Ardmore, OK 73402

Name: \_\_\_\_\_ Phone: (\_\_\_\_) \_\_\_\_ - \_\_\_\_ Home

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Additional Address Info: \_\_\_\_\_

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Please use 9-digit Zip Code

Dues: \$ \_\_\_\_\_ Donation: \$ \_\_\_\_\_ Total: \$ \_\_\_\_\_ Date: \_\_\_\_\_

Membership Class: Student \$10.00 Active \$20.00 Sponsor \$40.00 Patron \$100 (Circle one)

Check or Money Order payable to NADCA

Select one type of occupation or principal interest:

- |   |   |
|---|---|
| <input type="checkbox"/> Agriculture                        | <input type="checkbox"/> Pest Control Operator  |
| <input type="checkbox"/> USDA - APHIS - ADC or SAT          | <input type="checkbox"/> Retired                |
| <input type="checkbox"/> USDA - Extension Service           | <input type="checkbox"/> ADC Equipment/Supplies |
| <input type="checkbox"/> Federal - not APHIS or Extension   | <input type="checkbox"/> State Agency           |
| <input type="checkbox"/> Foreign                            | <input type="checkbox"/> Trapper                |
| <input type="checkbox"/> Nuisance Wildlife Control Operator | <input type="checkbox"/> University             |
| <input type="checkbox"/> Other (describe) _____             |   |