

*Wildlife Damage Management, Internet Center for
Wildlife Damage Management Conferences –
Proceedings*

University of Nebraska - Lincoln

Year 2000

History and future of wildlife damage
management conference

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The Ninth Wildlife Damage Management Conference
Proceedings. Edited by Margaret C. Brittingham,
Jonathan Kays and Rebecka McPeake. Oct 5-8, 2000
State College, PA USA

Invited Presentations

Looking Back, Looking Ahead

History and future of wildlife damage management conference

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Abstract: The Eastern Wildlife Damage Management (EWDM) Conference was developed (1st conference held in 1983) to focus on people-wildlife interaction issues occurring in the eastern U.S. Developed as a Renewable Resources Extension Act activity, the purpose of the conference was to improve wildlife resource management and increase outputs of agricultural and forestry commodities. A primary planning issue for the 1st EWDM Conference was whether to represent the conference focus as wildlife damage "control" or "management." Control was selected initially, but the title evolved since then to be replaced by "management," reflecting the central role of wildlife conflict mitigation in wildlife management. The EWDM Conference series has provided a forum for professional discourse on emerging wildlife problems, technologies to address problems, and mitigation efforts. Both biological and human dimensions aspects of wildlife damage management have been featured. Six important traits of the EWDM Conference series include: (1) impact-focused, outcome-oriented management; (2) community-based management (co-management); (3) technology development; (4) integration of biological and human dimensions; (5) showcase for collaborative effort; and (6) wildlife damage management positioned as an essential component of comprehensive wildlife management.

KeyWords: Eastern wildlife damage management conference, people-wildlife conflicts, people-wildlife interactions, wildlife damage management

The Eastern Wildlife Damage Management Conference series, now in its 9th production, was the brainchild of Jim Miller. A familiar name and long time friend and colleague of many of us in wildlife extension work, Jim had seen the benefits of two other conference venues focused on wildlife damage issues and concerns—the Vertebrate Pest Control Conference and the Great Plains Wildlife Damage Control Conference—both of which predated the eastern conference series. Jim identified the need for a similar conference series with a focus on eastern wildlife damage management concerns, and served as a catalyst to initiate the conference series and subsequently as an enduring source of support for it.

Cornell had a long history of a fairly energetic wildlife damage management program with people like Bill Hamilton, Bob Eadie, and Jim Caslick working in this area of research and outreach for many years. That tradition continued during the late 70s and early 80s under the leadership of Dr. Jim Caslick, with me in a supporting role, so Jim Miller approached us with the idea of launching the 1st Eastern Wildlife Damage Conference. As we considered the suggestion to undertake a major conference focusing on wildlife damage management in the East, Jim Caslick and I turned to extension colleagues John Kelley and Gary Goff to help out, and the four of us, together with Jim Miller, became the conference committee for the

1983 event. Since then Jim Miller has been a constant leading figure in these conferences.

EWDM conference objectives and precepts

The 1st EWDMC, conducted in 1983, was developed as a Renewable Research Extension Act (RREA) program activity, so it will come as no surprise that we described the purpose of the event in terms of RREA objectives:

- Improving wildlife resource management
- Increasing outputs of commodities (agriculture and forestry)

We also declared that there would be two key precepts for the 1st EWDM Conference. We worked with the belief that increasing the effectiveness of wildlife damage control:

1) Is a core objective of wildlife resource management.

2) Is a positive force in improving our nation's economy, the quality of life, and maintenance of healthy wildlife populations.

Others shared this view, demonstrated by their participation as sponsors or cooperators on the program committee and other functions to make the conference a success: USDA—Extension Service, USDA—Forest Service, USDI-Fish and Wildlife Service, NYS—Department of Environmental Conservation, SUN Y--College of Environmental Science and Forestry, Cornell University—College of Agriculture & Life Sciences and Cornell Cooperative Extension.

Planning issues: 1st EWDM conference

Among the heady issues of the day, one in particular stood out in our deliberations when planning the conference. The question we deliberated was, do we call the conference damage "control" or damage "management". Essentially, this concerned the legitimacy of wildlife damage management in the wildlife profession. We had some pretty intense discussions about what image would be projected by the name of the conference, focused around the control versus management wording. I was among the staunch proponents of "management," but others felt as strongly that "control" was the familiar term that would resonate with those actively engaged in wildlife damage mitigation work. That school of thought won the day, but as the current name of the conference demonstrates, we have come around to the thinking that if the wildlife damage control work was really part of management, then why don't we simply and straightforwardly label it as such?

I think the name change reflected how many of us view what we have been trying to do through our research or practices on the ground—be an integral part of the wildlife management process. We certainly worked hard at the 1st conference to legitimize the wildlife damage aspect as central rather than peripheral to wildlife management. We may not have used "management" in the conference title in the early days, but we sure worked on the message. Our first three speakers were selected to help set the tone in that regard: Herb Doig, assistant commissioner for natural resources, NYSDEC; Jack Berryman, executive director of IAFWA; and Dale Jones, president of TWS and director of fisheries and wildlife, USDA

Forest Service. These three gentlemen represented mainstream wildlife agencies and professional organizations of the mid 1980s. Here's a sample of their comments....

In his welcome to participants, Herbert E. Doig (1983:1) said: "We ... recognize the mandate to assure a balanced interaction between wildlife and people and have ... expressed this concern in one of the fish and wildlife program's primary goals: i.e., to manage fish and wildlife resources so that their numbers and occurrence are compatible with habitat capability and the public interest."

Jack H. Berryman gave the following comments in his presentation: "The first Eastern Wildlife Damage Control Conference provides a unique opportunity for all of us to constructively influence the future direction as well as the professional and public perception of this important wildlife management activity" (Berryman 1983:3).

"First, we must continue to express and defend the philosophy that wildlife damage prevention or control is a function of wildlife management" (Berryman 1983:4).

"Wildlife management must be more than a noble crusade. It must include a willingness to deal with the less attractive side of wildlife management and acknowledge that there are times and situations when wildlife becomes detrimental - sometimes even dangerous - to the interests of society" (Berryman 1983:4).

"Wildlife damage control cannot be separated from the practice of wildlife management or the conduct of wildlife research nor from the other functions of state and

federal fish and wildlife agencies" (Berryman 1983:4).

"We sorely need to improve the status, stature, and prestige of those engaged in wildlife damage control work; and, to accord them the same respectability that those engaged in other aspects of wildlife management now enjoy" (Berryman 1983:4).

Dale A. Jones (1983:13) summed up his talk with the comments: "Common to each of these examples is the clear link between wildlife damage control and sound wildlife management. They demonstrate, if further demonstration is needed, the inseparability of wildlife damage control from wildlife management."

In addition to the "control" versus "manage" issue, we had some other, perhaps lesser concerns. Two that I recall clearly were the following:

- 1) Role of "private" wildlife damage control crowd—are these folks legit? Are they professionals like the traditional agency and university types? Since the private sector was actively engaged in animal damage control work and the industry was growing, we decided to embrace them.

- 2) Biology versus human dimensions aspects of wildlife damage management—do we want to deal with critters and techniques, or with the reasons there's even a concern about wildlife damage management—impacts on people? We included human dimensions research. In fact, this conference series has proved an excellent venue for reporting many cutting-edge human dimensions studies.

1st EWDM conference characterization

We eventually got past the planning issues and had a fine conference. Lots of people participated, and our evaluations indicated participants thought the conference was a good idea that should be continued. Here are some statistics to characterize the conference:

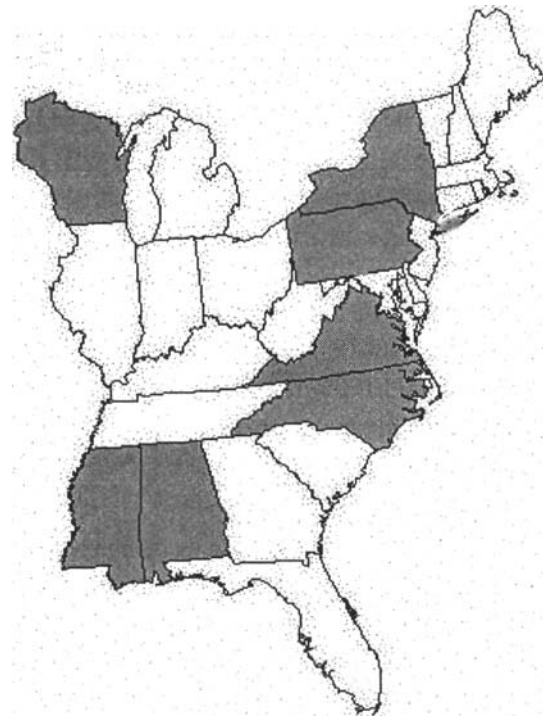
- >80 papers presented
- >100 authors involved
46 agencies and institutions
9 private sector entities
- 225 participants (attendees)
- 31 states and 4 Canadian provinces

Evaluation of 1st EWDM Conference included an immediate post-conference (on-site) inquiry and a 10-month mail follow-up (82% response). We generally found that attendees valued the professional interaction - networking and communication among attendees - that occurred. In addition, attendees reported that a lot was learned and much of it put to use after the conference. The conference has now been held 9 times in 7 states (Figure 1).

A quick look at some of the wildlife species that were the focus of presentations at the 1st EWDM Conference reveals a familiar cast of characters: white-tailed deer (*Odocoileus virginianus*), black bear (*Ursus americanus*), beaver (*Castor*), coyote (*Canis latrans*), and Canada geese (*Branta canadensis*). We were concerned then about isolated or "emerging" problems with these animals. In the interim the problems have grown to capture broad public and professional interest. Some problems, like those associated

with black bear and deer, seem to be growing exponentially in many locales. Participants in this conference series were anticipating such problems.

Figure 1. Shaded areas indicate states east of the Mississippi where the nine Eastern Wildlife Damage Management Conferences have been held.



Although suburban and urban wildlife issues were being addressed by people in wildlife damage management (Gary San Julian spoke to this issue at the 1st conference), early on "mainline" wildlife management professionals did not generally consider those problems to be of legitimate

research and management concern. Today they are headline grabbers all across the East, and the professional and scientific literature is filled with papers addressing such concerns. The EWDM Conference was a leader in bringing suburban and urban wildlife damage management issues into professional dialogue.

We had a panel at the 3rd EWDM Conference at Gulf Shores, Alabama, in 1987 dedicated to controversies in wildlife damage control. In that session, I described suburban deer management as an *emerging* controversy. Well that one blossomed during the intervening decade of the 1990s! I raised questions about how the profession will deal with the development of alternatives to hunting in many developed areas—that story is still unfolding. For example, however unpopular urban/suburban deer management was among wildlife agencies in the 1980s, many have taken the bull by the horns and are addressing these concerns as part of comprehensive approaches to deer management. In addition, states have invested in research and pilot projects applying new technologies such as fertility control in mammals, usually in combination with some form of public hunting or government culling of deer. This conference has been vital to sharing ideas and experiences for dealing with such vexing wildlife management problems and solutions.

In that same panel at Gulf Shores, Mike Conover, then with the Connecticut Agricultural Experiment Station, spoke about the situation with Canada geese. He raised the point that the origins of that problem were much of our own creation. Though he didn't use the term 'stakeholder,' he spoke about the way some stakeholders reap the benefits from wildlife while others bear the costs. He called

for a system of accountability where those who benefit compensate those who are harmed by damage-causing wildlife. Despite Mike's suggestions, that inequity prevails yet today, and of course Canada geese problems also grew over the last decade.

So for some people-wildlife conflicts, the conference has been a harbinger of things to come, though we have not foreseen the magnitude of all issues on the horizon. For example, the implications of growing black bear populations had not been fully addressed in the conference series, yet today we have some serious situations developing in black bear country.

The future for EWD conference series

Looking to the future, I think a key idea that needs further development in the conferences is that the focus of wildlife management should be on influencing the impacts of wildlife on people. That is, we need to be sure we keep an eye on the target—outcomes couched in terms of human values. We should focus on benefits of wildlife management to people, whether these are reduction in problem aspects of people-wildlife interactions or enhancement of positive aspects of people-wildlife interactions. Ultimately, the outcomes of concern to wildlife damage management are exactly the same as for any other aspect of wildlife management—benefits to people and to the sustainability of wildlife resources and their habitat.

In summary, as I look to the future for this conference series, I would hope that it continues to be a forum that leads the way in several aspects of wildlife management. Six

important ones I have identified are:

- 1) Impact-focused, outcome-oriented management,
- 2) Community-based management (co-management),
- 3) Technology development,
- 4) Integration of biological and human dimensions,
- 5) Showcase for collaborative effort, and
- 6) Wildlife damage management is an essential component of comprehensive wildlife management.

Conclusion

Major conferences such as the Eastern Wildlife Damage Management Conference can play an important role in exploring new conceptual, technical, and philosophical developments in areas of a profession such as ours. My assessment is that this series of conferences has accomplished that. But its contributions—your contributions—if important in the past will become even more significant in the future. Wildlife abundance is a great challenge to wildlife management. The emphasis of this conference series places it in a vital position as a forum for the development of the profession in the area of people-wildlife interactions. Living with wildlife has entered a new era for modern North Americans. It will take the scholarship and skills of people in this room and many others to meet the challenges this new era presents. This Wildlife Damage Management Conference should be the premiere forum where such people regularly congregate to create the

solutions society will need and expect of the wildlife profession.

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A history of wildlife damage management: twelve lessons for today

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Abstract: The history of wildlife damage management in the United States, beginning with the roots of the federal Biological Survey, is examined. Selected lessons are drawn from history and applied to today's situation, in the hope that they will be useful to those who guide this profession in the 21st Century.

Key words: history, wildlife damage management

"Those who cannot remember the past are condemned to repeat it" (Santayana 1905). I suspect we've all heard that quotation from philosopher, poet, and novelist George Santayana. Perhaps one reason for the conference planning committee's desire to look at the history of wildlife damage management is to learn what we can from the past, in order that we collectively gain wisdom that we can apply in the future. In a more cynical moment, Santayana also said "History is a pack of lies about events that never happened told by people who weren't there." While at times I share his cynicism, I do think there is value in taking a look at the history of wildlife damage management.

John F. Kennedy is quoted as having said: "Change is the law of life, and those who look only to the past or the present are certain to miss the future." While we as wildlife damage professionals sometimes hark back to times when regulations were rare, and traps, toxicants, and other tools were plentiful, I don't think we dwell on "good old days" to the point of obsession. Rather, we're all painfully aware of the rate at which change occurs in today's world. In this fast-paced world of instant communication, hectic schedules, and multiple demands on our time, I suspect we seldom take the time we should, collectively or individually, in order to take stock of where we are and where we're going.

So, as wildlife damage management professionals, perhaps we can gain from taking stock of where we've come from during the 20th Century, in order to better define where we're going in the 21st. There may be some lessons learned by our predecessors that will serve us well. By recognizing current trends, perhaps we'll be even better prepared to face those changes that will confront us in the coming decade.

Given the time available in this morning's program to consider the history of wildlife damage management, I've decided to selectively point out a few lessons from history that strike me as being particularly useful to us. I would encourage you, however, to take time to read 2 excellent, recent summaries of the history of our profession: The first is an historical account of the Texas Wildlife Damage Management Program authored by Donald Hawthorne and Gary Nunley, which contains much information on the evolution of the federal wildlife damage program (Hawthorne and Nunley 1998); the second is a paper entitled "Historical Perspective of Wildlife Damage Management," written by Jim Miller and presented at the 6th Annual Conference of The Wildlife Society in September 1999 (Miller 1999). I thank these authors from whose publications I have drawn heavily while preparing this presentation.

The first lessons from history come from accounts of an "ingenious and unusual man," C. Hart Merriam, who founded the predecessor to today's federal USDA Wildlife Services program. Fascinated by wild animals, by age 5 he spent much of his time collecting all sorts of them. His father, a congressman from New York, eventually introduced him to Spencer Baird, head of the Smithsonian Institution, who invited him to join one of the early Geological Survey expeditions to Wyoming. In 1884, he was appointed chairman of the American Ornithology Union's committee on bird migration. Merriam was greatly interested in the geographic distribution of birds, and his committee took on a national bird count and collected a tremendous amount of data on the distribution and migration of various species—so much so that he needed additional funds to help analyze the data. He turned to Congress, and as part of his justification stated that the information would be of value to farmers. He received \$5,000 (by the way, that's \$90,000 in today's dollars) and was soon invited to organize an Ornithological Office as part of the Entomology Division of the U.S. Department of Agriculture. This new section of Economic Ornithology prospered, was highly popular with farmers and politicians, and grew to be a separate division that encompassed the study of both birds and mammals. **Lesson One is that it's good to tie your request for funding scientific studies to practical needs that politicians recognize.**

Merriam, as chief of the new division, continued to lead numerous field collecting trips. Of one such trip, Vernon Bailey (Merriam's brother-in-law) wrote, "Merriam killed a big wild cat last night and we had it cooked for breakfast and dinner. He says it is delicious, but it is horribly catty. I can't eat it and Knowlton won't. The rest say it is good. Merriam had a skunk cooked down at the canyon, but I would not help him eat it. Skunks and cats are his favorite meat and he is

especially fond of eagle. He is a queer.. .chap, but a splendid fellow to camp with, always does his share, and never shirks the dirty or hard work" (Hawthorne and Nunley 1998). **Lesson Two is even if you're a bit eccentric, work hard and you'll earn the respect of others.**

Merriam's unit, formalized in 1888 as the "Division of Economic Ornithology and Mammalogy," continued to prosper and see its budget increased by Congress over the years. Its role encompassed the study of life histories, and increasingly the economic status, and means of control, of noxious mammals as well as birds. Officially named the "Bureau of Biological Survey" in 1905, considerable field research had been accomplished on such species as ground squirrels (*Citellus armatus*), pocket gophers (*Thomomys talpoides*), prairie dogs (*Cynomys*), jackrabbits (*Lepus californicus*), bobolinks (*Dolichonyx oryzivorus*), blackbirds, and English sparrows. It was said that Merriam's dedication to field surveys never wavered even though it brought him into constant conflict with various Congressmen who did not see the practical value of investigating animals in Canada and Mexico. However, Merriam insisted that the information was needed to help the farmers. Nevertheless, his agency was known in some circles as the "Bureau of Extravagant Mammalogy," and in 1907 the matter came to a head and Congress made an effort to abolish the Survey's appropriation. In the end, the funds were restored, thanks in part to the efforts of President Theodore Roosevelt, who was a friend of Merriam. Roosevelt expressed his pleasure at the outcome with a characteristic note to Merriam that read "Bully for the Biological Survey" (Hawthorne and Nunley 1998). **Lesson Three is when things get rough, it's good to have friends in high places to speak on your behalf.**

At the turn of the century, the livestock interests throughout the West expressed the sentiment that it was unfair to collect grazing fees from any owner whose stock grazed a forest heavily infested with wolves and coyotes. The federal government had a large interest since much of the vast areas of the West were forest lands and public domains. Between 1905 and 1907, the Forest Service and the Biological Survey investigated the predator-livestock problems, and each had publications that described approved and familiar methods of shooting, trapping, poisoning, the development of den hunting, and wire fencing, to control wolf and coyote damage. As a result, Vernon Bailey reported in 1907 that more than 1,800 wolves and 23,000 coyotes were killed with an estimated \$2 million savings in livestock. In 1914, Congress finally gave in to the pleading of stockman and sportsmen's clubs. As a result, Congress made a small appropriation for experiments and demonstrations to control predatory animals, mainly to see what could be done. In 1915, the first sizeable appropriation for predator control, \$125,000 (that's \$2 million in today's dollars), was made. It also ordered the destruction of wolves, coyotes, and other animals injurious to agriculture and animal husbandry on National Forests and public domains. Nine districts were formed in the western states and Predatory Animal Inspectors were appointed. Organized predator control efforts at the state level then followed. In 1916, a rising epidemic of rabies in wild animals, particularly in coyotes, increased the appropriation by \$75,000. This caused an increase in the number of government hunters, primarily in the hardest hit areas of northern California, Oregon, Nevada, and Idaho. Also, for the first time, funding for rabies work and predator control within the Biological Survey exceeded that spent for food habits studies (Hawthorne and Nunley 1998). **Lesson Four is money talks, and the combination of wildlife damage to resources coupled to a public**

health risk can be quite persuasive.

In 1946, Assistant District Agent J. R. Alcorn with the Biological Survey in Fallon, Nevada published an article in the May issue of the *Journal of Mammalogy* entitled "On the Decoying of Coyotes." Thus, predator calling became a tool in the program. Mr. Alcorn also described how to use a howl or a siren to locate coyotes before using the call (Hawthorne and Nunley 1998). **Lessons Five and Six are: some of the best ideas are developed by people who have practical field experience; and, if you want others to find out about your idea, publish it.**

On the subject of publishing, it's interesting to note that the main reasons for the founding of the oldest and most successful wildlife damage management conference, the Vertebrate Pest Conference, was the recognized need for publishing materials related to animal damage. I quote from the recollections of Dr. Walter E. "Howdy" Howard, the conference's founder:

"During 1960 it became apparent that the current information pertaining to vertebrate pest control was mostly couched in in-house reports of the DWRC [Denver Wildlife Research Center] and other organizations, hence not available for general use or for citing. To make this information more available, it was obvious that new cooperative efforts were essential, and one method I proposed was to hold conferences. But to do this we had to organize so we could sponsor such conferences. All the involved individuals were affiliated with some state or federal organization; hence it was going to be difficult and time-consuming to attempt to obtain 'official' sponsorship of such conferences. After considerable discussion, it was decided the way around this was to establish an unofficial working committee which would organize and direct the conference" (Howard 1982).

I recall having heard Howdy recount how the first efforts at getting this group together foundered— initial invitations to participate in such a group went unanswered. No one wanted to be the first to venture out into these uncharted waters, especially in a field that at the time was quite unpopular within some academic departments and agencies. Finally, Howdy hit upon a strategy that couldn't **fail**: he wrote letters to each person, congratulating them on their appointment to this newly-formed committee, setting the meeting date and time, and stating that if they could not participate, they should have their immediate superior submit a letter stating the reason for their inability to attend. With that kind of invitation, no supervisors wanted to risk having *their* people out of the loop. **Lesson Seven: if you have a good idea, don't give up.** Also, a little creativity, and some political savvy, can help. The first Vertebrate Pest Conference was held in 1962 and with the exception of 3-year intervals between the second, third, and fourth conferences, it has been held every 2 years since that time. The 20th VPC is scheduled to be held in Reno, Nevada in March 2002. The Proceedings from the first 19 Conferences contain nearly 1,000 publications—a wealth of practical science and management information that continues to be widely cited.

Jim Miller points out in his historical summary that coinciding with the advent of the wildlife profession as we know it, wildlife damage management information began to be provided to landowners in the late 1930s by Cooperative Extension Service (CES) specialists and agents as well as by some state wildlife agencies. As opposed to the federal operational animal damage control program, the programs of Extension specialists and agents were primarily educational in nature and designed to teach private landowners how to solve their conflicts with wildlife in a safe and effective manner. Miller notes that in many

areas CES personnel, state agencies, and the federal agencies initiated cooperative agreements, sharing information and working together to help landowners to alleviate wildlife damage (Miller 1999).

The Great Plains Wildlife Damage Control Workshop was conceived at a meeting between Extension trappers from Kansas, South Dakota, and Arkansas, according to the chairperson of the first workshop's planning committee, F. Robert Henderson, Extension wildlife specialist at Kansas State University (KSU). The basic purpose of the workshop was to bring together Extension specialists and research workers from across the Great Plains states to discuss coyote damage control (Henderson 1973). Held under the auspices of the Great Plains Agricultural Council, this conference first occurred in December 1973 and was held again at 2-year intervals through April 1997 (switching from a December to an April schedule beginning in 1987). The subject matter of this meeting broadened from solely predator-related to include rodents and birds in 1979.

By the 1970s, then, many state Land Grant Universities and CESs employed wildlife specialists, most having significant program emphasis in the area of wildlife damage. States employing such specialists published a variety of short bulletins on management of the most troublesome species, recommending methods that landowners and citizens could use in dealing with such problems in both rural and urban settings. Also during this period, Bob Henderson compiled the first of several editions of the reference handbook *Prevention and Control of Wildlife Damage*. This binder full of compiled information was primarily a tool to assist Extension agents at the county level within the Great Plains states in having immediate access to practical, easily understood information on wildlife damage

problems which they in turn could pass along to landowners. Its subsequent editions have been widely used by Extension and other agencies, and the 1994 edition of this publication was broadened to include chapters on all relevant species throughout the United States. **Lesson Eight: if landowners and citizens have a desire to solve their own wildlife problems, basic educational efforts toward that end can be very successful and can multiply your efforts.**

But the question arises, on what basis should our educational efforts and materials lie? What of that emerging part of the public that seems to be skeptical of traditional management methods, of agencies and institutions, and of philosophies that differ from their own? Indeed, the past 3 decades have seen significant challenges to the wildlife profession that, without such questioning, might have continued about the business of management with traditional methods and philosophies. The roots of such questions can be seen as early as in the writings of the founder of the discipline of wildlife management, Aldo Leopold. I quote from his essay "Thinking Like a Mountain":

"Only the ineducable tyro can fail to sense the presence or absence of wolves, or the fact that mountains have a secret opinion about them. My own conviction on the score dates from the day I saw a wolf die. We were eating lunch on a high rimrock, at the foot of which a turbulent river elbowed its way. We saw what we thought was a doe fording the torrent, her breast awash in white water. When she climbed the bank toward us and shook out her tail, we realized our error: it was a wolf. A half-dozen others, evidently grown pups, sprang from the willows and all joined in a welcoming melee of wagging tails and playful maulings. What was literally a pile of wolves writhed and tumbled in the center of an open flat at the foot of our rimrock.

"In those days we had never heard of passing up a chance to kill a wolf. In a second we were pumping lead into the pack, but with more excitement than accuracy: how to aim a steep downhill shot is always confusing. When our rifles were empty, the old wolf was down, and a pup was dragging a leg into impassible slide-rocks.

"We reached the old wolf in time to watch a fierce green fire dying in her eyes. I realized then, and have known even since, that there was something new to me in those eyes—something known only to her and to the mountain. I was young then, and full of trigger-itch; I thought that because fewer wolves meant more deer, that no wolves would mean hunters' paradise. But after seeing the green fire die, I sense that neither the wolf nor the mountain agreed with such a view." (Leopold 1949)

One might define the first philosophical challenge to the federal operational animal damage control program as the 1963 appointment of an "Advisory Board on Wildlife Management" to investigate the federal program. This board's 1964 report, *Predator and Rodent Control in the United States*, is more commonly known as the "Leopold Report," (Leopold et al. 1964) so named for its chairperson, A. Starker Leopold, University of California-Berkeley wildlife professor who was also Aldo Leopold's son. While this committee's report was very critical of the federal program and charged it with indiscriminate, non-selective, and excessive predator control, it noted that sodium fluoroacetate (Compound 1080) meat baits are an effective and humane method of coyote control, with very little damaging effects on other wildlife. It also concluded the steel trap to be damaging to wildlife in its lack of selectivity when used for coyote control in the western U.S. (Wade 1973). Changes wrought by this report within the Interior

Department's program, which had come to be named the "Division of Wildlife Services," were substantial and altered the agency's entire guiding philosophy. Then-Director John Gottschalk noted "This has been no simple reorganization or policy redirection. What has really been at stake is a fundamental change in the conservation movement—a change in the way we view and deal with animals that become troublesome..." (Gottschalk 1965).

In the early 1970s, the swift rise of national environmental awareness, coupled with activism on the part of a number of conservation and humane groups, again found a target in the federal animal damage program. Prompted by lawsuits from the Defenders of Wildlife, Sierra Club, and Humane Society demanding compliance with the newly-enacted National Environmental Protection Act (NEPA), the Secretary of the Interior together with the newly formed Council on Environmental Quality (CEQ) formed a task force which came to be known as the Cain Committee. The committee conducted a very hurried review of the program and produced a report that was even more critical of the federal operational program. There were 2 portions of the report: one was on the recommendations for changing the program, and the other was the supporting data (Cain et al. 1972). When read closely, the report showed that there were numerous contradictions between the 2 portions. Some time after publication of the report, it was noted that a deal was made with the environmentalists that if the government would ban predacides, the lawsuits would be dropped. An accusation was also made that the recommendations of the committee were given to them before they ever met (Hawthorne and Nunley 1998). What is obvious is that some of the Cain Report's major conclusions were in direct opposition to those of the Leopold Report. For example, the Cain Committee stated that the use of chemicals for predator control is likely to be inhumane and non-

selective and recommended that landowners be trained in the use of steel traps as a major method of coyote control (Miller 1999, Wade 1973, Cain et al. 1972). As a result of the Cain Committee's recommendations, or perhaps rather in concert with them, President Richard Nixon in 1972 signed Executive Order 11643 banning the use of toxicants for the control of predators in federal programs or on federal lands. The EPA then canceled the registrations of Compound 1080, strychnine, and sodium cyanide. **Lesson Nine is that the formulation of policy through the appointment of committees of presumed experts, particularly with the interjection of political pressures, is a poor way to make wildlife management policy.** As a footnote, an even poorer method of making wildlife management policy has been discovered in recent years: by vote of the entire populace through an initiative measure on a statewide ballot.

Most of us who have been active in the wildlife damage management profession over the past 20 or so years are well aware of the subsequent political and organizational changes that have affected the federal operational animal damage control program, including its transfer from the Department of the Interior back to the Department of Agriculture, which occurred in 1986. This transfer, although controversial at the time, was probably the salvation of the federal program, which if it had remained in Interior likely would have withered and died of neglect and lack of administrative support. We are also aware of the ways in regulatory actions by both federal and state agencies, including the Environmental Protection Agency (EPA), have impacted the availability of tools and techniques, particularly chemicals, that are useful in wildlife damage management. For a detailed review of these recent events, I again refer you to Jim Miller's 1999 paper, as well as his keynote address at

The Ninth Wildlife Damage Management Conference Proceedings. Edited by Margaret C. Brittingham, Jonathan Kays and Rebecka McPeake. Oct 5-8, 2000 State College, PA USA
the 7th Eastern Conference in 1995. (Miller 1995).

The more interesting changes that have affected our profession in recent years are, I think, both positive and negative. On the positive side is the extent to which wildlife damage management has come to be recognized as a legitimate part of wildlife biology within the wider ranks of our profession. Conversely, I am concerned about the extent to which the public's attitude toward managing human-wildlife conflicts has continued to move further away from reality.

In my graduate student days during the 1970s and even for some years after that, I heard reports from colleagues that their manuscripts on wildlife damage management research were often rejected by the *Journal of Wildlife Management* and the *Wildlife Society Bulletin* simply because the subject of the research was deemed inappropriate. On behalf of The Wildlife Society's ad hoc committee on Wildlife Damage Control, the precursor to the current Working Group, I conducted a survey in the late 1980s to determine the extent to which wildlife damage course topics were being incorporated into wildlife management curricula in colleges and universities (Timm 1994). I found that only 15% of wildlife departments taught courses in wildlife damage management. Colleges not having such courses often stated the reason was because they had no faculty with interests or expertise in this area, or because of lack of administrative or departmental support. The survey question that elicited the strongest responses was this: "If a class [in wildlife damage management] were to become a requirement for new graduates seeking to become certified... by The Wildlife Society, would your college or university be more inclined to offer such a course for the first time, or more frequently?" Nearly half of the respondents, most of whom were department

heads or teaching faculty, answered "no," and in some cases it was a very strong "no" indeed. For example, here a few replies to this question:

"I personally do not believe it is an area worthy of 3 to 5 hours of academic credit. Even if I were to emphasize it in my wildlife biology class, I could cover the basic principles along with examples and case histories in 2 to 4 lectures." "I can think of 100 equally suitable 'required' courses—who is to decide among special interest groups? I would object vigorously to such a requirement." "Very low priority." "Even a 1-credit course would be too much emphasis on animal damage control." "As a member of the Certification Review Board for The Wildlife Society, I feel that there are any number of courses more apropos for students in wildlife." "The Society is frequently out of touch with the educational priorities and possibilities of universities." "Outrageous requirement"; and "This is a ridiculous suggestion."

For comparative purposes, I also surveyed the most likely employers of new wildlife management graduates—principally state and federal agencies—to see how they valued education and training in wildlife damage management. Fully half of these employers responded that a course in wildlife damage management would be as important as a course in wildlife research techniques, and more than half said it would be as important as a class in mammalogy or ornithology. Two-thirds of responding employers said a wildlife damage course would be as important, or more important, than a class in resource policy, environmental law, or land-use planning.

I think we've seen major changes in the past 10 to 15 years in the way wildlife professionals, particular academics, have

come to view wildlife damage. I would like to think that teaching and research faculty have come to recognize that students need training and exposure to this area, not only because potential employers seek it, but because it is a legitimate sub-discipline within any wildlife curriculum. This new recognition has certainly been aided by the creation of the Berryman Institute at Utah State University. The Eastern, Great Plains, and Vertebrate Pest Conferences and their respective proceedings have also been effective in demonstrating the professionalism within our sub-discipline. And today within The Wildlife Society's present working structure, the Wildlife Damage Management Working Group, with more than 250 active members, is now the largest of some 15 working groups. **Lesson Ten is that the diligent efforts of dedicated individuals can succeed in bringing deserved recognition within our larger profession.**

But back to this issue of changing attitudes within our society: this is a disturbing trend, perhaps first recognized by Aldo Leopold a half-century ago when he wrote:

"There are two spiritual dangers in not owning a farm. One is the danger of supposing that breakfast comes from the grocery, and the other that heat comes from the furnace.

"To avoid the first danger, one should plant a garden, preferably where there is no grocer to confuse the issue. To avoid the second, he should lay a split of good oak on the andirons, preferably where there is no furnace, and let it warm his shins while a February blizzard tosses the trees outside. If one has cut, split, hauled, and piled his own good oak, and let his mind work the while, he will remember much about where the heat comes from, and with a wealth of detail denied to those who spend the week end in town astride a radiator" (Leopold 1949).

In addition to having become removed from personal experience in agriculture or natural resources management, today's citizens have been bombarded for most of their lives with images of animals that share all of the characteristics of humans— animals that know what we know, think what we think, talk to each other and to us— in brief, animals that are our equals. Some would refer to this as the "Disney Syndrome," but today with some people it goes to the extreme of believing that animals have more of a right to life than do humans. Such attitudes, I think, go well beyond Leopold's recognition that there was in the animal something mysterious, something mystical, something unknown, as he saw the green fire die in the old wolf's eyes. Today's suburbanite is more likely to think about the *individual* animal, not the health or well being of a population. Given these pervasive attitudes, it is no surprise that voters favor abolition of traps and toxicants and almost all other lethal means of controlling animal damage. *Until*, of course, they experience first-hand the effects of wildlife damage. Leopold was right— to avoid this spiritual danger, one *should* plant a garden, and then have the responsibility of contending with the pocket gopher, the mole, the woodchuck, the rabbit and deer, and finally the birds that wait to peck the grapes or the plums on the day they ripen. Today's suburbanite gardener has the option of looking in the Yellow Pages and finding a Nuisance Wildlife Control Operator who, for a fee, will come solve the problem for you, perhaps with a "humane" live trap. I suggest that we, as a society, have become so successful, so affluent that we have the luxury of applying anthropomorphic thought to not only our pets, but to wild animals as well, even to species which 2 generations ago would have been branded "pests" or "vermin." **Lesson Eleven: for a reality check, try making a living in a Third World country for a year or two, without any outside support.** Come to think

of it, let's wave a magic wand and drop you into the middle of, say, Bangladesh, or Ethiopia, with only the clothes on your back. (It's sort of like what a raccoon experiences when it's cage-trapped in a lush suburb and then translocated to the next county, dumped off on a convenient block of public land which is already at or beyond carrying capacity for your species.)

In conclusion, I look forward to what other speakers in this morning's session may offer us in terms of direction for our future. I close with some words from Jim Miller's address to this assembled audience in 1995—words from the history of the Eastern Wildlife Damage Management Conference, which I name as *Lesson Twelve* for today:

"We should remember that wildlife damage management is likely to be an area of wildlife management that will always be controversial and complex— it is not a new problem or issue. It always has been, and probably always will be a vital concern in the protection of human interests, needs, and desires; it rarely lends itself to simple and easy answers; it will not disappear or go away if we ignore it; and if not addressed by professionals, it is likely to force the landowner, manager, or community to take action that may result in chaos, environmental 'train wrecks,' wasted resources, health hazards, or habitat elimination for many species." (Miller 1995)

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