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## KEYNOTE ADDRESS—THE ROLE OF EDUCATION IN VERTEBRATE PEST CONTROL

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**ABSTRACT:** Lack of adequate information is emphasized as a major problem in attaining effective control of damage by vertebrate pests, and it is stressed that the problem is widespread in all elements of the public, including those directly involved, like producers and government officials, as well as those only indirectly involved, like the average citizen. A number of specific examples are cited to illustrate the problems of uninformed or inadequately informed publics.

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First I would like to thank you for inviting me to speak to this conference, for without the invitation I would not have been here, and I feel that it is a conference of great significance. We are witnessing and participating in an important development in wildlife management, and I am pleased to observe it at first hand.

You will recognize, I am sure, the reason for my selection of the title of my talk. It is so broad, and so vague, that it permits me to say almost anything, and it still falls within the bounds of the title. To make matters worse I must warn you that my definition of education in this context includes not only formal education in the schoolroom at all levels--primary, secondary, and tertiary--but research, and the public education and public service functions which we know as extension in the Land-Grant Universities, and I also include the mass media. All of these types of education are important in the control of vertebrate pest problems, as I hope to demonstrate by examples. In fact, with proper and adequate education, our vertebrate pest control problems would be more easily solved.

I am reminded of Samuel Butler's Hudibras, in which a Lord, with a certain amused contempt, asked one of his knaves who was astride his horse "Why are you wearing only one spur. Doesn't it seem a little stupid?", to which the knave replied, "Milord, I thought that if I could get one side of the horse started, the other would move too." If we could move the education side, I think the action side would move too.

At the heart of Vertebrate Pest Control is the fact that it is a Public Problem. Any problem is Public if its solution affects in one way or another a great many people who are not directly involved. Vertebrate Pest Control is doubly or triply public for several other reasons. Wildlife is considered legally the property of the people, but unfortunately the people are usually unwilling to accept responsibility for damages caused by wildlife. It will take public funds, and many public laws and regulations to solve Vertebrate Pest Control problems. From any vantage point Vertebrate Pest Control is a public problem.

Public problems are not easily solved. We all know that, but are we really aware of the time, and effort required, and of the steps that are essential? Here I draw upon the experience of a bureaucrat friend who recently left Washington to join our University faculty. To illustrate the time required to solve a public problem, he uses among others the Green Revolution for which Dr. Borlaug recently received a Nobel Award. The man on the street would guess that it might take two or three years, instead of the 28 it actually took, after the basic scientific information was available. And this was a public problem which was relatively non-controversial.

Among the reasons for the long lead time are the steps which are essential before there is a solution. Let us consider six steps. Perhaps you would add some, or combine some, but these six seem to me as minimum essentials. First is recognizing that something is wrong, that a problem exists. Second is developing a proposed solution. Third is the political hassle period. Fourth the decision, fifth the final design, and finally, implementation of the solution which has been selected and approved. Any of these steps could take several years, even under favorable circumstances, and at every step effective education is required.

We excell in the first step, recognizing that something is wrong, and complaining about it. Complaints are normal. They require very little intelligence or thought. The mass media thrive on them. They are socially approved.

But the second step, which involves assessing the importance of the problem, judging its nature and its causes, and designing a suitable practical solution for serious consideration--this is another matter. This requires creativity, experience, leadership, education of a very high level, and persistence, because those able to create a proposed solution worthy of serious consideration are outnumbered by those busy finding fault at least a hundred to one. To be a Creator is not easy, as even the Lord concluded when He set aside the seventh day for a much needed rest.

The "political hassle period" is essential when public decisions are being considered. It will be longer or shorter depending upon many circumstances and factors, high among them education, and the way it is handled.

The predator problem provides us good examples. The Leopold Committee which reported in 1964 and the Cain Committee (1972) were both appointed to assemble information which would help solve the public problem of controlling livestock losses to predators. Both committees consisted of recognized wildlife authorities. In retrospect one wonders if it would not have been useful to include also some recognized livestock authorities. More effective education might have been accomplished, and the political hassle period, which is still in progress, might have been shortened.

In Colorado we had, during the same period, a smaller scale but similar situation, handled differently. Governor John Love appointed a Committee to advise him on state policy and legislation needed in the predator control area, but he considered it advisable to represent the livestock interests (with Nick Theos, then President of the Colorado Woolgrowers Association), and the citizen environmental organizations (with Mrs. Vim Wright, then President of the Colorado Open Space Council and a member of the Board of Directors of the National Audubon Society). Nick Theos and Vim Wright both said they learned a great deal from the other, and publicly agreed that if Nick would join the Audubon Society Vim would join the Woolgrowers Association, which I am told they did. At any rate, the report to Governor Love was a constructive report, containing workable compromises which neither of these two members would have approved until after their many face to face discussions in the committee meetings. Unfortunately, the recommendations in the report were never implemented for reasons which are not clear, but it is true that John Love left the Governor's chair too soon after receiving the report to do much about it himself, and the legislature would doubtless have needed the same process of education which the committee had had before they could wind down the political hassle period.

Though it occurred many years ago, one of the best examples of the importance of effective education in solving a controversial public problem in wildlife management involved the states of Michigan and Wisconsin and their over-populations of white-tailed deer beginning in the 1930's. Michigan employed a professional deer biologist in 1926 and soon had accumulated an impressive array of scientific data to prove that many portions of Michigan had serious deer over-populations and excessive starvation and habitat destruction, and that harvesting of antlerless as well as antlered deer was essential to bring the herd down to carrying capacity of its range. It was not able to convince the legislature, however, for about 20 years, despite the best scientific basis in the country.

Wisconsin, by contrast, approached the public education problem much more aggressively, and effectively. Immediately after employing a deer biologist in 1940 they began to use his data and experience in educating the public, and the legislature. They emphasized having people see with their own eyes the condition of the deer herd and of the deer yards in late winter and early spring. Their Citizens Deer Committee, which Aldo Leopold helped organize, took hundreds of skeptical sportsmen on snowshoes into the Wisconsin deer yards to find starved and dying deer by the hundreds. For those unable to go into the woods themselves there was prepared an hour-long film "Starvation Stalks the Deer" which brought out eloquently the stark reality of deer starvation and deer yard destruction. Wisconsin had 60 prints of this film available so that any group wishing or willing to see it could do so without delay. As a result in a few years they convinced the public, the Conservation Commission, and the legislature that antlerless deer harvesting was essential, and brought the political hassle period to a close in a small fraction of the time it took Michigan. Michigan had the better scientific base, but Wisconsin had the better educational program.

The other three steps, of decision, final design, and implementation, though essential, are so much easier than the previous two, that there is no real need to elaborate on them now. I'd rather use the time for some other ideas.

There are several common types of human behavior involved in solving public problems which are nonproductive or so counter-productive that we should keep them in mind. Any of you could add to this list. I'll give only a few examples. The important thing is to remember that none of us are immune to these tendencies. It is human nature to fall into these traps:

1. Setting goals which are superficial, instead of probing to the root of the problem; e.g., control the coyotes, or control the blackbirds, instead of controlling the damage. (And recognizing that sometimes, but not always, controlling the damage requires controlling the animal.)

2. Setting goals which are absolute; e.g. eradicate the gypsy moth, or the fire ant, or the coyote. Such absolute goals are almost always nonsense.

3. Oversimplifying the problem. One of the commonest is underestimating the number of publics involved. The State of Michigan in its deer problem and the U.S. Department of Interior in appointing the Leopold and the Cain Committees seem, in retrospect, to have done this. They apparently felt that they could solve their problems by accumulating an impressive mass of scientific data.

One common contemporary oversimplification is to feel that if it came out of a computer it must be o.k. It always brings me back to earth when I pass the door of the computer room in our graduate student corridor where some perceptive graduate student has scrawled "To err is human; if you really want to louse it up, try a computer."

4. Then there is the whipping boy syndrome. If something goes wrong, it is much easier to blame someone than to delve deeper into the causes and look for real solutions. Hitler blamed the Jews and Joe McCarthy and many others blamed the Reds for every conceivable thing that seemed wrong. But aren't we all too often guilty of this same whipping boy syndrome which polarizes us and interferes with communication, education, and solutions.

5. Finally I must mention the sporting event syndrome. Americans as dedicated spectators of sporting events, especially on TV, were portrayed well in a recent New Yorker cartoon in which the husband staggered in from the TV room, somewhat bleary-eyed, and the wife looked up from her knitting to say, "Oh, hello, dear. Is the football season over?"

In watching a sporting event we quickly pick a side, and root for it to win, and we are strongly inclined to do the same in approaching a political decision--being more concerned about our side winning than what is really in the public interest. This syndrome is also characterized by the cliché -- "Don't confuse me with the facts. My mind is made up." This emotional and other-than-rational approach is a poor basis for an important political decision. But we must remember that it is very difficult to keep an open mind. We tend to see what we want to see and hear what we want to hear, and this already strong tendency is reinforced by our habit of talking, and associating, in meetings like this, with people who think as we do.

California has provided us a harmless example of this principle that we believe what we want to believe in the return of the swallows to the Mission San Juan Capistrano, which as you know, invariably occurs on March 19th, St. Joseph's Day. Those birds which arrive before the 19th of March, like the ones we saw there last week, are scouts which have gone ahead to "clear the way" for the main contingent. Some years the scouts are more numerous than the main contingent, which embarrasses no one. Last week on our visit to the famous Mission, I asked to meet Bill Smith (A.B., A.M., Litt.D.) the publicist who drafts the annual announcement and releases it to the waiting press, but was told that he would not be arriving himself until March 16, which is one good way to avoid seeing too many scouts.

There have been some developments in the last few years which have been very important to the role of education in Vertebrate Pest Control. One is to have ASTM (American Society for Testing Materials) enter this field. Since most of you were here yesterday, I need say no more except that as individual public decisions are being considered, the background work of ASTM can be very helpful in reducing the political hassle period.

Another is the entry of natural resource controversies into the era of litigation and the founding of the Environmental Defense Fund in the East and the Pacific Legal Foundation here in the West. Legal tactics in the courts, though ostensibly intended to represent the public interest, tend to illustrate our sporting event syndrome. They pick a side, and do

all they can to see that their side wins. Sometimes the public interest suffers in the process, but it does require the decision makers to think through the bases for their decisions more thoroughly than before. The EDF has usually been anti-government and sometimes anti-agriculture, and has often mustered the legal talent to win its cases, so perhaps it is good that the Pacific Legal Foundation has taken a different stance. If, as it seems, many of our public decisions on natural resources are going to be decided in the courts, then it is in the public interest that in a court battle both sides are adequately represented. Precedents in the courts are often based upon misinformation, but they may nevertheless have a strong effect upon future cases.

Another development which seems very important to me is the effort of both the USDA and the USDI to seek information in much greater depth upon the magnitude of the livestock losses to predators. Formerly the sources of such information were solely routine reports from the growers themselves, and these were usually rejected by urban-based environmentalists as nothing but self-serving exaggerations. The recently completed intensive study of sheep mortality on a western Montana ranch was therefore of outstanding importance. Contracted by the Fish and Wildlife Service to the University of Montana, it involved an 8400 acre sheep ranch on which no predator control was conducted for the first 7 months, and only private nonprofessional trapping and hunting of coyotes for the next 5. Predators, mostly coyotes, killed 21% of the original herd of sheep and 29% of the 1974 lamb crop that was exposed to predation. (117 lambs had been stillborn or died soon after birth in the lambing sheds.)

I'd like to conclude this discussion with just a few examples of subjects which are particularly important for education in the Vertebrate Pest Control area. They are poorly understood or misunderstood because information is lacking, or because it has not been delivered effectively, which is the job of the educator, a role we must all play at times.

One is the question of humane treatment of wild animals. Cleveland Amory would have us believe that direct control by shooting, trapping, or poison is always inhumane, that all he is seeking for wildlife is opportunity for, as he puts it, a "decent death." I wish he could see Guy Connolly's stark motion pictures of a coyote killing a sheep, taking 20 minutes in the process, chewing away at the throat the whole time. It is important for us and the public and even Cleveland Amory to understand that the natural death of wild animals is quite different from our image of a "decent death" attended in a hospital by angels of mercy and protected by Blue-Cross - Blue Shield.

Another topic is animal population dynamics. Both those in favor of control and those opposed to it should understand more fully the reproductive potential of the animals causing damage, and their compensatory mechanisms so that reducing the number of predators not only makes it easier for the remaining ones to survive, but stimulates them to a higher breeding rate and larger litter size. This principle applies, of course, to other predators such as foxes, raccoons and bobcats which are sometimes caught in traps set for coyotes. The accidental taking of such non-target organisms, even in small numbers, is often the basis for opposing predator control, but this is as illogical as it would be to prohibit the automobile because thousands of people die in traffic accidents.

The final example I shall mention involves the importance of food production in the U.S., not only to us Americans, but to the world. Only a few countries, primarily the U.S., Canada, and Australia, are able to produce enough food to export it in quantity. The world at large really depends to a great extent upon us for its sustenance. And we depend upon our agricultural exports for a large part of our economy. Agricultural products are by far the greatest type we are able to export, and ruminants, primarily cattle and sheep, comprised in a recent year 43% of all cash receipts for agricultural commodities.

So those who take an anti-agricultural stance are opposing the very life blood of the nation and the world. Unfortunately there actually are a great many people as poorly informed as the little old lady in Brooklyn who was quoted as saying, "Why do I need all those farmers and ranchers? I get my food from the corner grocery store." There is a whole chain of important facts that the voting public understands poorly, if at all, but which are very important indeed. Those who understand that more efficient food production in the United States is increasingly important to us and the rapidly increasing world population may not understand as yet the importance of the contribution to American food production of our rangelands, and the fact that on the western range the control of livestock damage by predators is essential to successful meat production.

Any of you could add to this list of educational problems in the area of Vertebrate Pest Control, but I hope that this brief list of examples has proved the point that if we can get the educational side moving the action side will move too.