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THE HUMAN ELEMENT IN WILDLIFE DAMAGE SITUATIONS

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ABSTRACT: The field of prevention and control of wildlife damage is changing and evolving along with clientele needs, pressures from user and non-user groups, and other factors. A theoretical overview of the field may offer an action model regarding changing trends and potential responses. I propose that three things happen every time a wildlife damage problem occurs: 1) A human activity, desire, or need is interfered with, 2) the experience fosters an opinion about a wild animal - usually negative, and 3) a decision is made to tolerate the situation or to control it. If control is selected, availability and effectiveness of prevention and control techniques become feedback mechanisms that may affect tolerance of damage; threshold levels at which control is initiated; and opinions about damage control, wild animals, and natural systems. Wildlife damage professionals might use these concepts in responding to enhance the public understanding and professional image of the wildlife damage field.

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INTRODUCTION

Wildlife damage problems range from slight nuisance situations to serious economic losses. They occur globally in rural and urban areas and they affect businesses, governmental entities, and individuals at all economic levels. Wherever people and wildlife occur together, the potential for wildlife damage situations exists. The field of prevention and control of wildlife damage faces increasing pressures for safe, effective, and low-impact (environmentally safe, acceptably humane, target specific) solutions to damage problems. These pressures come from both user and non-user groups. Users often prefer nonlethal controls where feasible and some non-users actively oppose lethal controls or those they consider to be inhumane (Brooks 1988, Schmidt 1989). Yet people with a variety of problems and a variety of opinions need acceptable alternatives for problem solution. And users need alternatives for controls that have been removed from the market and for situations where no control technique exists.

A theoretical overview of the field may offer insights into these changing trends and the role of wildlife damage professionals in responding. Therefore, in this paper I propose that three things happen every time a wildlife damage problem occurs: 1) A human activity, desire, or need is interfered with, 2) the experience fosters an opinion about a wild animal - usually negative, and 3) a decision is made to tolerate the situation or to control it. If control is desired, availability and effectiveness of prevention and control techniques become a feedback mechanism that may affect tolerance of damage; threshold levels at which control is initiated; and opinions about damage control, wild animals, and natural systems.

Examples of damage problems that range from nuisance situations to serious economic losses may illustrate these three points. If a bird flies into a window, it may cause concern about disturbance inside, concern for the window, concern for safety of the bird, or all of these. The situation may foster a negative opinion about birds near buildings or a positive, caring opinion about safety of the bird. For some people, the situation may pass as an incident not worth any control efforts. Others may believe a bird/window strike to be quite serious, particularly if it occurs frequently. Businesses would need to consider clientele opinions, which may necessitate control in a way that stops the disturbance but also protects the bird.

House sparrow (*Passer domesticus*) droppings on garden tools may require clean up, and a nonpoisonous snake in the backyard may repel people. Both of these are also generally nuisance situations but they may foster strong negative opinions about the house sparrow or snake and a desire to control them. Alternatively, some people may consider the presence of house sparrows or nonpoisonous snakes in the backyard a desirable situation and not a problem at all.

Large bird roosts adjacent to homes cause odor, noise, and potential health problems, and may prevent outdoor activities. Near a business, bird roosts may deter customers and result in complaints to health officials. Such bird roosts may foster strong negative opinions about bird flocks and possibly about the trees where the birds roost. The decision will usually be to control the situation, possibly by dispersal or repellent techniques or possibly by vegetation removal. The situation may affect future decisions about planting trees.

When coyotes (*Canis latrans*) kill sheep, they reduce the producer's income and require additional, often costly, procedures to protect the sheep. For producers, each sheep kill likely reinforces negative opinions about coyotes and a strong desire to control the problem. On the other hand, nonproducers unfamiliar with coyotes except through television or similar, often one-sided sources may have only positive opinions about coyotes. This latter group of people may oppose coyote control and may express strong negative opinions about it.

Structural and other damage caused by Norway rats (*Rattus norvegicus*) and house mice (*Mus musculus*) is a serious problem in both rural and urban situations. These commensal rodents and the associated damage usually generate strong negative opinions and a desire for control efforts. Generally, there is little opposition to control, even to lethal control using poisons or traps (Kellert 1979), in part because commensal rodents may seriously affect almost anyone, not just agricultural production. The universal nature of commensal rodent damage may offer a link for communication and understanding between urban and rural audiences on a variety of damage situations.

THE DECISION TO CONTROL

A decision to control a damage situation will result in either effective or ineffective outcomes. As used here, effective means that the control solved the problem to the

satisfaction of the person with the problem. Thus, an outcome might be considered effective by one person but ineffective by another. If the control is effective, it will bring relief from the problem but it also may bring disapproval from people who are opposed to techniques used. If the control, however, is ineffective, then there are two options: attempt other controls or tolerate the damage situation.

Other controls attempted might be legal or, in some cases, illegal, particularly if the problem is perceived as serious and options are limited. Legal controls with effective outcomes will result, as above, in relief from the problem, and possibly in opinions, positive or negative, about the source of control information. Useful, accurate, and objective information is usually appreciated and helps establish a trust relationship for communication about philosophies of wildlife damage, wildlife enhancement, or other biological information. We should ask ourselves whether as wildlife biologists we are attempting to find safe, effective, and acceptable solutions.

Another, although unlikely, outcome from attempts at other legal controls might be discovery of a new technique. A more likely outcome is unnecessary destruction of natural habitats used by the problem species, a technique that usually has little public opposition but that also affects nontarget animals and people. For example, complete removal of urban trees and woodlots to control bird roosts is usually unnecessary because trimming or thinning techniques disperse the roost but leave the trees intact. Removal of windbreaks to prevent bird damage to corn or sunflowers is unlikely to affect damage (Johnson and Beck 1988) but may occur because it provides visual satisfaction that something has been done.

Other controls attempted may be illegal, and again can be effective or ineffective. If effective, the user will have relief from the problem, but there will be trade-offs. Illegal control efforts risk enforcement against the user, and, when product misuse occurs, against the product registration. There is also risk of nontarget damage, which may or may not be of concern to the person desiring the control. And there is a possibility for lower self-opinion or other attitude changes when a person feels it necessary to take illegal action to solve a problem. Finally, success with an illegal technique is likely to invite continued misuse of the technique until a better alternative is found.

A DECISION NOT TO CONTROL

There are three reasons for deciding not to control a damage situation. First, the perceived magnitude of the problem may not be severe enough to pursue control. Because perceptions vary, a given problem may warrant control by one individual but not another. Second, there may be insufficient information on alternatives. Lack of information about control options available or uncertainty about potential outcomes and trade-offs of various options may result in procrastination and/or no action at all. For example, a mouse in the house may raise questions about whether to use traps or poisons or to call a professional pest control operator. A woodpecker damaging the side of the house may raise questions about frightening techniques, necessity of control, damage prevention, or permit regulations. A raccoon in the chimney might raise questions about whether a fire in the fireplace will solve the problem or compound it, whether raccoons are dangerous to deal with, or whether a professional is necessary.

Third, there may be a decision not to attempt control because no acceptable technique is available. Acceptability likely varies with perceived effectiveness, cost, concern about environmental trade-offs, animal welfare aspects, or other points. For example, house sparrows on farms consume livestock feed, contaminate buildings and feed with droppings, damage blown-on ceiling insulation, and cause other nuisance or economic problems (Johnson and Timm 1987). However, control efforts may not be attempted because the control options available may not be satisfactorily effective, are often not simple, and may be costly and/or time-consuming. In other situations, individuals may avoid control if the technique is lethal or perceived to cause environmental trade-offs or discomfort to animals. In this latter case, the problem as perceived is insufficient to warrant using the known techniques.

CONTROL TECHNIQUES AS A FEEDBACK MECHANISM

When a damage situation occurs and control is desired, but the necessary control information is unavailable, the result may include both monetary and psychological costs. A serious damage problem that cannot be prevented is likely stressful and frustrating. Such emotions may develop or reinforce negative opinions about the damaging animal, other wildlife, natural habitats used by the damaging animal, and competence of science in finding solutions.

Opinions may impede wildlife enhancement activities or cause avoidance of natural areas, and associated exposure to land and life cycles. For example, landowners may not enhance habitat for game animals or songbirds if they're concerned that coyotes may increase and result in livestock losses. People may not venture into natural areas if they're concerned about zoonotic diseases such as rabies, plague, or Lyme Disease. A biologist familiar with damage may not recommend bird feeding activities in areas where black rats (*R. rattus*) may use the feeders.

A related question is: if a damage situation occurs and there is an effective and acceptable control available, will tolerance of the damage situation or species change? For example, although prairie dogs are a serious problem in certain rangeland areas, some ranchers indicate that a few prairie dogs would be desirable if spread to other areas could be prevented. However, with no clear alternative, the decision may be to control all prairie dog towns to avoid spread. Similarly, in Nebraska, some people like seeing thirteen-lined ground squirrels (*Spermophilus tridecemlineatus*) in their backyards but they don't want them to damage the garden. This attitude of tolerance for some ground squirrels has resulted in part because these animals are fairly easy to control should they become a problem.

Reported trends in cockroach (Family Blattidae) control offer insights to relationships between effectiveness of controls and attitudes. The Wall Street Journal (June 13, 1989; pA1, A12) reports that roach control products are becoming so highly effective that users have altered opinions away from wanting to spray roaches and see them die. Now with more highly effective products, people appear to have a more objective view of the situation. They may still not want roaches in the house, but the desire to watch them die is fading, apparently as the result of techniques that solve roach problems in an effective way. Consider this point of reduced frustration in view of a native vertebrate animal that causes

damage but has obvious beneficial aspects; roach benefits are not widely recognized. Tolerance for the native animal may increase if techniques to prevent the damage are available. On the other hand, many people have low tolerance for even one snake in the backyard or one coyote near sheep. In such situations with native animals, nonlethal control techniques might provide a way to solve the damage problem, yet avoid unnecessary impacts on wild vertebrates or complaints from people concerned about damage techniques.

TRENDS AND IMPACTS

Currently, only about 2% of the U.S. population live on farms (U.S. Dept of Agric. 1988). The remaining 98% often lack first-hand exposure to land and natural cycles. Aldo Leopold (1966, p6) 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." People who live on farms commonly see death and rebirth, and experience it first-hand. They eat animals and know it, and probably observe predation and seasonal population cycles of wild animals. People who do not live in farm areas may never witness animal death, population cycles, predation, or similar events. Their encounters may often be with individual animals or those perceived as individuals - the cardinal that comes to the feeder, the robin nesting in the backyard, the baby bird that falls from its nest, the rabbit in the garden, the squirrel that lives in the backyard tree, and animal rescue efforts. Other sources of wildlife information include television and acquaintances, both of which may provide one-sided viewpoints. The balance of exposure to positive or negative experiences with wildlife appears often to differ from reality, because first-hand experiences are limited and negative experiences such as damage receive little media attention. One result of this imbalance is that people may tend to view wildlife in relation to themselves and as individuals instead of as populations (e.g., Kellert 1976, Schmidt 1989). The more important animals are perceived to be cuddly, colorful, or majestic or to have other characteristics that are admired. If all encounters with wildlife were negative for one person but positive for another, what would their respective opinions about wildlife in general be?

A ROLE FOR WILDLIFE DAMAGE

There is a role for wildlife damage control in responding to these trends and impacts. An understanding of wildlife damage control includes an understanding of life cycles, including death of individuals but with population viability. There is an understanding about effects of transporting an individual animal, such as a squirrel captured in an urban area, into an established rural population. The understanding includes the low chance of survival for the released animal; the potential impacts on the established population, including possibilities for parasite or disease transmission; and the high monetary cost of capturing and transporting animals. Further, there is understanding of differential effects of various pesticides on various animals. These examples represent situations whereby people have opportunities to learn more about natural systems and wildlife management or control.

Wildlife damage affects many people. Almost everyone has experienced a problem of some type with a house mouse, a Norway rat, a mole (e.g., *Scalopus aquaticus*) in the lawn, a squirrel (*Sciurus* spp.) in the attic, a rabbit (*Sylvilagus* spp.) in the garden, a snake in the backyard, or a bird roost near

their home or in their town. When a damage situation occurs that is serious enough to warrant control, it cannot be easily ignored. On the other hand, wildlife enhancement activities can usually wait for a convenient time or be ignored altogether. Because wildlife damage affects so many people even in small ways, it offers an opportunity to teach the realities of natural systems.

It appears that the benefits and costs of control are often relative depending on the opinions of people. There are increasing needs for effective, environmentally safe, humane, and nonlethal control techniques (Schmidt 1989). This does not mean we should not have lethal controls - they are needed and indeed are critical in many situations. However, we should put additional emphasis toward finding and developing nonlethal controls, particularly where needed for native species. Development of new and innovative methods requires research and information sharing among people involved with damage control.

There is also a need for education on techniques for prevention and control of wildlife damage and on alternatives available. It should include the scope and philosophy of the subject field and objective information on damage control, trade-offs, costs, and positive aspects of target animals. This information should be available to individuals who use damage techniques, to university students through courses (Timm and Schemnitz 1988), and to schools and clubs, and should be included wherever other wildlife management information is made available.

In the damage control field, we need to be proactive to issues and trends and we need to publicize the positive things we are doing with regard to issues (Miller 1987, San Julian 1989). For example, damage control will likely be important in development of sustainable agricultural systems as it has been with conservation-tillage farming (Johnson 1986). Other issues include damage prevention in relation to aquaculture development, urban wildlife and acreages, and others. How are we helping move the positive parts of these systems forward? Predator control is an important part of some endangered species recovery programs and of some waterfowl production systems. An understanding is needed of what the profession is about, including an appreciation of the knowledge, professionalism, and thought that goes into control actions. We need to concern ourselves with issues of importance in the scientific community as well as with clientele experiencing a problem.

As conflicts between wildlife and people become more intense with increased pressures to use the same space and resources, appropriate, thoughtful control strategies will be increasingly important. An overview of what happens each time a damage problem occurs indicates opportunities for meaningful communication with many people. We should work to develop new and innovative control techniques, communicate damage control concepts and integrate appropriate concepts with other wildlife management information, and maintain a proactive and helpful position in relation to critical issues. Making these ideas and concepts an integral part of our operating mode will do much to ease tensions and enhance the professional stature of the wildlife damage field.

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