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Wildlife Damage and the Iowa Farmer. The Influence of Perspective

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INTRODUCTION

Over 90% of Iowa's land base is privately owned and managed for agriculture. Less than 2% is publicly-owned and managed specifically for wildlife. Thus, virtually all of Iowa's 36 million acres (14.8 million hectares) has been altered. Some 70% of the forests have been lost, over 95% of the wetlands drained, and over 99.9% of the native prairies have been converted to agricultural, transportation, or other human uses. Such extensive alteration of habitats encourages the wildlife species that are ecological generalists to flourish. These species are also those that are most likely to come into conflict with humans, competing with us for food and other resources. At the same time, wildlife biologists have sought to increase populations of deer, turkey, and other game species. Thus, the potential for both nuisance and real damage to crops, buildings and other structures is high.

As humans continue to encroach upon extant wild areas, conservation professionals are called upon to answer citizen queries concerning .wildlife and to assist them in alleviating damage and nuisance wildlife problems. The values of conservation professionals may be in conflict with those of other citizens, placing them in a difficult situation in answering such complaints. Conversely, farmers and other citizens depend upon their ability to raise crops for income and desire to have them have high yields in a very risk-prone business.

Already at the uncontrolled vagaries of the weather and the markets, farmers desire to minimize any risks offered by wildlife.
In an effort to determine to what extent such differences in perspective exist, two surveys have been undertaken in recent years.

METHODS

Results from two different surveys are reported on in this paper: a survey of Iowa conservation and extension professionals and a survey of selected Iowa farmers.

In 1988, a poll was conducted concerning the frequency and types of wildlife damage calls to professionals. Four groups were mailed surveys: county Extension agriculturalists, county conservation board directors, state conservation offcers ("game wardens",) and state wildlife biologists from the Iowa Department of Natural Resources. Of the 400 surveys sent, 223 usable surveys were returned. Eighty of the extension agriculturalists, 78 of the county conservation directors, 46 of the conservation officers, and 19 of the wildlife biologists responded to the survey. Some 20 questions asked them to detail the types of calls received from the public, the frequency of such calls, and the wildlife species dealt with on these calls.

The 1991 survey was administered to a stratified sample of 1,118 farmers during

the summer of 1991. They were selected as a dichotomous sample from 56 of Iowa's 99 counties. Farmers were divided into two groups: "wildlife-oriented" and "non-wildlife-oriented" based on observation and selection of them by knowledgeable local conservation officials. "Wildlife-oriented" farmers were defined as those who readily put a variety of wildlife habitat practices on their farms. Conversely, "non-wildlife-oriented" farmers were those who, for one reason or another, do not put or maintain wildlife habitat on their land or may even be hostile to it. Approximately 20 farmers were selected from each of the 56 counties, 10 in each of the two categories. This dichotomous sample was chosen to enable identification of factors common to each group. One might view this sample as representing the two extremes of the normal curve of Iowa farmers.

The survey consisted of 25 questions on 10 pages (186 variables). Questions required respondents to check or circle most answers, with short blanks to fill in on only 3 questions. Likert scales were used on 2 questions regarding attitudes. One consisted of a 5-point scale, from "strongly agree" to "strongly disagree". Responses to several of the attitudinal questions related to wildlife damage are reported on here. Four questions specifically addressed wildlife damage and nuisance problems. Space was provided at the end of the survey for respondents to write any additional comments. Some 33% of respondents chose to do so. Additional details regarding the survey may be found in Pease, 1992.

Using the "total design method" (Dillman 1978), all 1,118 survey participants were mailed a cover letter, survey, postage-paid return envelope and a pencil (a "token" to encourage them to return the survey) in mid-June 1991. One week later they were mailed a postcard, reminding them of the survey and urging them to complete and return it.' Three weeks after the initial mailing, non-respondents were sent another letter, a survey, and a return envelope. At seven weeks after the initial mailing, a fourth and final letter, survey and envelope were sent to non-respondents. A total 479 "wildlife-oriented" and 343 "non-wildlife-oriented" farmers responded to the survey using this method. Farmers from all 56 surveyed counties returned surveys. A total of 822 farmers returned usable surveys. No attempt was made to assess non-response bias.

Data were recorded and summarized using the Excel 3.0 spreadsheet (Microsoft Corp. 1990) and statistically analyzed using Systat 5.1 (Wilkinson 1989) on a Macintosh SE/30 enhanced computer. Chi-square analysis was performed according to Steele and Torrie (1960). Pearson correlations with Bonferroni probability and multiple regression analysis were performed according to Wilkinson (1989).

RESULTS AND DISCUSSION

The 223 Iowa wildlife and extension professionals that returned the 1988 survey reported receiving over 7400 calls in the previous 12 months on nuisance and damage questions (Table 1.) (This total did not include the 500+ calls I received on these matters that year in addition.) While few maintained accurate written

records, these totals are considered to be minimal estimates. They demonstrate the extent of the problem in this state with a total population of only 2.9 million people. The categorization of the calls also demonstrates that the majority of the calls do not necessarily come from farmers: by far the species of greatest concern to Iowans is the mole. Significant agriculturally related pests–woodchucks, pocket gophers, beaver, coyotes, blackbirds, deer, ground squirrels, and dogs–are farther down the list. This is not to say that they are less financially significant; only that farmers did not call these professionals for assistance as often as one might expect in a state so dominated by agriculture. Homeowners, including farmers, seem to dominate the phone inquiries.

Conducted in part to determine the wildlife damage needs in the state on which we in Extension needed to concentrate, the survey could be misleading. Indeed, most of those answering the survey indicated that agricultural problems were not of major concern. The species they said they needed the most assistance with were primarily nuisance species, not necessarily financially significant. Their perception of the problem, based on what was reported to them, was that agriculturally damaging species were not of major concern in the state.

Since Iowa does not have a wildlife damage payment program, it is difficult to get specific dollar estimates on the degree of agricultural damage. Coyote damage to Iowa's sheep industry alone is estimated at S6 million per year (Terrill 1988.) Other livestock also sustain much damage. With the advent of an Iowa-based APHIS-ADC program in the state, we expect to accumulate more accurate statistics over the next year or two. Clearly, either farmers are taking care of the problems themselves or are ignoring it. For whatever reason, they certainly are not heavily contacting wildlife or extension professionals in the state.

Asked whether or not wildlife caused damage on their farms, 28-36% of the farmers chosen for the 1991 survey said "no" (Table 2.). A significantly greater proportion ($p<.05$) of farmers who were not wildlife oriented reported damage (72°/.) than those who were wildlife oriented (64%). Similarly, farmers not wildlife oriented estimated damage at $957 annually, nearly twice the dollar value of wildlife oriented farmers ($530.) Some farmers in both groups reported that damage was "not significant" and did not give dollar estimates. The statewide 1990 Iowa Farm and Rural Life Poll also included some wildlife questions. The mean estimate of wildlife caused damage in that poll was $636 per farmer (Lasley 1991.) Damage in both groups of farmers in the 1991 survey was reported primarily on field crops (corn, beans, oats, and alfalfa) with only 2% reporting livestock damage (Table 3.)

Farmers in the 1991 survey also rated species responsible for the majority of the damage in the state quite differently ***than*** the conservation and extension professionals. Deer were seen as clearly the number one culprit for agricultural damage in the state (Table 4.) Interestingly, despite research to the contrary, some farmers continue to blame turkeys for some crop damage. Also, relatively few farmers reported damage by canid predators (coyotes, foxes, dogs), even though some 45-48% of the respondents reported having livestock on their farms.

While some differences in dollar estimates between the two groups of farmers can be attributed to farm size, attitudes towards wildlife also influence their tolerance for damage and perhaps their dollar estimates. Contrasting attitudes were reflected on several questions on the survey regarding several wildlife issues (Table 5.) Wildlife oriented farmers differed significantly from their counterparts on 5 of the 6 wildlife issues presented here. No significant difference between the two groups was found on the economic question of whether farmers should be paid by the government to maintain wildlife habitat on private lands: about half of both groups agree or strongly agree. On the other five questions, however, significant differences between the two groups were found. Perhaps such attitudinal differences also translate into tolerance–or lack thereof–for wildlife damage to their crops and livestock. Regression analysis of the dollar estimates with other factors reveals that the most important contributing factors are the farm size and three of their attitudes regarding wildlife: existence value ("wildlife have as much right to exist on this land as I do"); illegal killing ("illegal killing of wildlife should be punished"); and habitat value ("wildlife habitat on my farm adds to its market value") (r2=.31).

CONCLUSIONS

There are wide differences between wildlife and extension professionals perception of wildlife damage and that of Iowa farmers. Both perceptions are based on the experience each group has with such problems. The vast majority of calls for assistance received by these professionals is related to nuisance wildlife problems that may or may not be agricultural in nature. Though an argument could be made regarding reasons that farmers don't call the state wildlife professionals, neither did they call extension agriculturalists with such problems. The perception of these professionals is logically one that few problems exist.

On the other hand, farmers are not in total agreement on the perceived need for wildlife damage control either. While they are in agreement on the species that cause them the most problems (especially deer), the dollar value they place on the damage is a function of both farm size and attitudes. It would appear that attitudes do indeed influence the perception of wildlife damage and the individual farmer's calculation of the extent of damage.

That does not, however, negate the need to somehow bring the two groups together. Differences in perceptions lead to different sets of priorities, both in one's daily duties and, more broadly, in the legislative agendas of both groups. The need for communication is clear. Without it, future conflicts are practically guaranteed. We must begin, at the least, in confronting the same set of data While attitudinal differences may never be overcome, there is a need for wildlife and extension professionals and people in agriculture to agree on the extent and nature of the wildlife damage problem. Only then can problems be solved.

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Table 1. Wildlife species most often involved in calls to 223 natural resource professionals' in Iowa.

Species	Number of calls reported in 1988
moles	1028
woodchucks	795
bats	678
rabbits	590
snakes	494
raccoons	468
pocket gophers	423
skunks	352
woodpeckers	284
beaver	272
mice	247
rats	214
sparrows	245
tree squirrels	202
coyotes	199
blackbirds	199
opossum	158
deer	146
ground squirrels	136
pigeons	128
shrews	96
dogs	85

'Surveys were returned from 80 county extension agriculturalists, 46 conservation officers, 78 county conservation board directors, and 19 wildlife biologists.

Table 2. Iowa farmers reporting damage by wildlife on a 1991 survey.
"If wildlife caused damage on your farm last year, estimate the total cost, including losses of stored grain, damage to buildings, consumption of livestock grain, damage to field crops, and damage to livestock."

	Wildlife oriented (n)	% Not wildlife oriented (n)
No damage caused by wildlife:	36% (167)	28% (92)
Had damage:	64% (300)	72% (239)
Estimated S damage:	$530 (240*)	$957 (177*)

*60 and 62, respectively, did not report amounts or said "minimal")

Table 3. Agricultursl damage due to wildlife from a 1991 survey of Iowa fanmrers.

	Wildlife oriented	Not wildlife oriented
Losses were Primarily in:		
damage to field crops	80%	85°/a
damage to trees	8	4
building damage	5	4
consumption of livestock feed	4	4
stored grain	2	2
damage to livestock	2	2

Table 4. Wildlife species reportedly responsible for agricultural damage on farms of two groups of Iowa farmers in a 1991 survey.

"What wildlife species do you think were mainly responsible for this damage?"

	Number of Wildlife oriented farmers Reporting damage by:	Number of Farmers not wildlife oriented Reporting damage by:
Deer	246	201
Ground squirrels/gophers	99	63
Raccoon	58	39
Beaver	3 8	3 5
Turkeys	34	36
Birds	23	25
Rabbits	23	7
Rats, mice, voles, muskrat	13	14
Canid Predators	8	8
Badgers	4	3

Table 5. Opinions of two groups of Iowa farmers on some wildlife issues from a 1991 survey.

"Please answer the following questions by circling the number that best corresponds to your opinion about wildlife." Percent answering: (Wildlife orientedNot wildlife oriented)

	Strongly A ee	Somewhat ee	Uncertain	Somewhat	Strongly
The presence of wildlife on my farm is important to me	78/40	18/41	1/10	1/5	0/4
Illegal killing of wildlife should result in stiff penalties	72/49	18/28	6/11	3!7	2/5
Wildlife have as much right to exist on this land as I do	55/24	29/34	6/13	6/13	3/14
Farmers should be paid by the government to save habitat for wildlife	32/32	31/24	19/22	10/10	7/10
Financial incentives would encourage me to do more for wildlife on my farm	31/18	33/24	19/31	9/12	7/11
Wildlife habitat on my farm adds to its market value	15/4	24/9	32/31	19/25	8/30