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# ATTITUDE CHANGE TOWARD VERTEBRATE PEST CONTROL

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# ATTITUDE CHANGE TOWARD VERTEBRATE PEST CONTROL

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**ABSTRACT:** Attitudes of students enrolled in courses on wildlife damage control at two universities were surveyed at the beginning and end of the semester. Attitudes toward wildlife and acceptance of various damage control methods were quantified and compared to responses obtained from the general public in previous surveys. As a result of the class, both groups of students generally became more accepting of current vertebrate control practices, including toxicant use. Student attitudes, as a result of knowledge gained, came to be more realistic and practical. We believe that persons, when presented factual information about wildlife damage and its control, will develop beliefs that are more accurately in tune with the real world. With such information and attitudes, persons will be more supportive of the need to conduct wildlife damage control using today's methods and materials.

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## INTRODUCTION

In our democracy, the will of the citizenry often is instrumental in making changes in public policy. Vertebrate pest control, particularly involving damage caused by predators, is a controversial subject. Policies governing the Federal-Cooperative animal damage control program have been influenced by both public opinion and political considerations ever since the program was established over 60 years ago.

If decisions regarding vertebrate pest control are to have a sound basis in wildlife management, then it is important for persons providing input to have factual, realistic information regarding these biological and economic problems. In the absence of accurate information, policies and practices may potentially be misdirected, counterproductive, and wasteful. Further, persons who conduct or need wildlife damage control are apt to be frustrated when bad policy, influenced by uninformed opinion, governs their actions.

We believe that one way to improve the status of vertebrate pest control is to teach courses on this subject at colleges and universities. Such courses have been described elsewhere (Timm 1982). In this paper, we demonstrate that two such undergraduate courses substantially changed students' attitudes about various aspects of vertebrate pest control.

## SURVEY TECHNIQUE

We administered attitude surveys on wildlife damage control to our students at the beginning and at the end of two courses on wildlife damage control. The courses were taught during the spring semester, 1987, at the University of Nebraska-Lincoln and at New Mexico State University, Las Cruces. Data reported here are responses of students who completed questionnaires both at the beginning and end of the

semester.

Our survey was formulated to allow certain comparisons with previous surveys of public opinion on the same topic (Kellert 1979, Arthur 1981). The survey questionnaire is included as Appendix 1. Students were individually identified, but we assured them that their course grades would not be affected by survey responses. Sample sizes were 15 (Nebraska) and 23 (New Mexico). We did not attempt to coordinate course content, but both courses involved lectures, guest speakers, reading assignments, written assignments, and examinations covering the basic principles and practices of wildlife damage control: rodents, birds, predators, and damage control techniques. Both courses used the volume Prevention and Control of Wildlife Damage (Timm 1983) as a required text. Students at Nebraska also read the book Nature and Animal Welfare: Both Are Misunderstood (Howard 1987) as an assignment.

## RESULTS AND DISCUSSION

Questions 1 through 5 deal primarily with the students' demographic backgrounds, and these data are not discussed here. Question 6 asked the students whether cost, specificity, or humaneness was their most important concern in wildlife damage control. The students, asked to make this choice in the broad area of all wildlife damage control, chose specificity as their top priority both before and after the course (Table 1). Prior to the course, humaneness was the second highest priority of most students. Following the course, cost had displaced humaneness as the second highest priority for both classes.

The general public, when asked this question in Arthur's survey (1981) solely in the context of coyote control, considered humaneness of primary concern. This response did not reflect a particular affinity for this species, as they listed the

Table 1. Responses to Question #6: A ranking of three considerations in evaluating wildlife damage control techniques. (In percentage)

	UNL		UNL		NMSU		NMSU		PUBLIC*	
	pre-class		post-class		pre-class		post-class		priority	
	1st	2nd	1st	2nd	1st	2nd	1st	2nd	1st	2nd
Cost	6	26	6	47	13	36	13	43	7	13
Specificity	73	26	73	26	78	23	78	26	26	60
Humanness	20	47	20	26	9	41	9	30	65	26

\*Arthur (1981) presented this question to the public as follows: Three important questions in evaluating coyote control methods are:

- (1) How much they cost.
  - (2) How specific they are; that is, do they kill only coyotes that have killed sheep and lambs?
  - (3) How humane they are; that is, how little pain and suffering is caused the coyotes killed?
- Which of the three do you feel is most important?  
Which of the two remaining are more important?

coyote 16th of the given 17 species when asked to state which animals they liked best. Wildlife students, because of their education, may have an overriding concern for the health and well-being of animal populations and thus be more attuned to the need for control methods to be selective. Information they received in the class apparently caused them to give more consideration to the real-world problem of economics.

Table 2 details both the public's and the students' responses to four possible methods for dealing with coyote predation on sheep. These questions had also appeared on Kellert's (1979) survey. Both classes tended to regard shooting or trapping coyotes for population reduction as a more appropriate solution than did the general public. This may be a result of the students' knowledge of wildlife management principles and their overt acceptance of hunting as a legitimate activity, as compared to the public (see Table 6). Wildlife students at both universities exist in a strongly pro-hunting and trapping environment and are more likely to have engaged in these activities than the general public.

Students' initial acceptance of selective hunting of sheep-killing coyotes was favorable and similar to that of the public. After the course, both classes were nearly unanimous in preferring this approach.

While the public favored capture and relocation of coyotes as a solution, student opinion of this approach was initially mixed. By the course's end, both classes showed considerable opposition to this control technique, no doubt because of receiving information on its impracticality and ineffectiveness. While students initially were not as favorable as the public toward reimbursing sheep producers for losses in lieu of killing the depredating coyotes, both groups primarily opposed this idea. Some Nebraska students (13%) who initially favored this approach no longer did so following the class.

Five of the next six solutions for coyote predation problems were presented to the public by Arthur (1981), who asked respondents to rate each solution on a numerical scale of 0 (unacceptable) to 10 (extremely acceptable). Student responses were converted to the same numerical scale, and the mean values for each class are reported in Table 3.

Arthur's survey indicated that the general public looks unfavorably upon all of the control techniques posed as solutions. The students' initial responses were more favorable than the public's in each instance. As a result of the classes, students became more favorable toward every control method, with the single exception that Nebraska students became slightly less favorable toward "humane" poisons. It is noteworthy that the Nebraska students' opinions changed from primarily unfavorable to primarily favorable toward denning, aerial hunting, and poisons which kill in a few hours. Upon completion of the course, both classes found all of the solutions to be acceptable, with one exception: New Mexico students opposed use of poisons which kill in a few hours. Students initially chose "humane" poisons as one of the most acceptable solutions. On this basis, it can be speculated that the public, had they been given this option, would have found this a more acceptable solution than most of the others listed. Unfortunately, this choice was not offered in Arthur's survey. Predation by eagles upon sheep represents a difficult management problem, compounded by a current absence of any legal, effective solutions (O'Gara 1981). We were somewhat surprised to find that the general public was more accepting of farmers killing predating eagles than were our students (Table 4). This may be due, in part, to students' training in wildlife management, leading toward a greater concern for and awareness of threatened or endangered species. We think the general low acceptance of this solution also may result from the students' concern that control of a sensitive species might be conducted by individuals untrained in wildlife damage methodology. It should be noted that following the course, students were less inclined to be strongly against this solution, and were more inclined to be strongly in favor of it.

Questions about toxicants as an appropriate damage control method against various species revealed differences of opinion among students and between students and the public (Table 5). Citizens questioned by Kellert (1979) favored poison use only against one type of animal (rats) and were evenly divided concerning toxicant use against bats. Nebraska students initially favored poisons against only blackbirds, rats, and bats, while New Mexico students initially opposed toxicant use only in the case of eagles. Nebraska students demonstrated a major shift in their opinion of toxicant use, opposing poisons only for use against eagles at the class' conclusion. Even in that instance, their views had moderated considerably, with fewer individuals strongly opposed to poisoning of eagles. The New Mexico data show similar percentages of students in favor versus opposed to toxicant use for the listed species both before and after the class. However, a considerable moderation of these views occurred. At the class' conclusion, fewer students were strongly opposed to toxicant use than before.

Table 2. Responses to Question #7: Some ranchers claim substantial economic loss because coyotes kill their sheep. Which methods would you approve of using to correct this situation? (In percentage)

	UNL pre-class				UNL post-class				NMSU pre-class				NMSU post-class				PUBLIC**					
	agree		disagr		agree		disagr		agree		disagr		agree		disagr		agree		disagr			
	*str	sli	sli	str	str	sli	sli	str	str	sli	sli	str	str	sli	sli	str	str	sli	sli	str		
Shoot or trap as many coyotes as possible.	7	60	13	20	33	27	20	20	30	43	13	13	30	48	9	13	10	15	13	12	25	24
	\	/	\	/	\	/	\	/	\	/	\	/	\	/	\	/	\	/	\	/	\	/
	67%		33%		60%		40%		74%		26%		78%		22%		38%				62%	
Whenever possible, hunt only individual coyotes known to have killed livestock.	46	26	13	13	87	13	0	0	56	22	17	4	74	17	9	0	20	36	14	5	13	11
	\	/	\	/	\	/	\	/	\	/	\	/	\	/	\	/	\	/	\	/	\	/
	73		27		100		0		78		22		91		9		71				29	
Capture and relocate coyotes away from sheep ranches, though this is a very expensive solution.	26	26	20	26	6	6	33	53	4	4	52	39	0	4	30	65	17	32	18	6	15	12
	\	/	\	/	\	/	\	/	\	/	\	/	\	/	\	/	\	/	\	/	\	/
	53		47		13		87		9		91		4		96		67				33	
Avoid killing coyotes but pay ranchers for their sheep losses out of general tax revenues.	0	20	46	33	0	7	43	50	0	4	22	74	0	4	30	65	3	10	11	13	38	23
	\	/	\	/	\	/	\	/	\	/	\	/	\	/	\	/	\	/	\	/	\	/
	20		80		7		93		4		96		4		96		25				75	

\*responses categorized as "strongly agree," "slightly agree," "slightly disagree," "strongly disagree."

\*\* responses obtained by Keller (1979) from that segment of the public which he defined as being "informed" about the issue of coyote predation upon livestock.

In only two instances did students' opinions shift toward less acceptance of toxicant use: New Mexico students became less willing to accept use of toxicants against eagles and bats. For eagles, the shift was not significant. Their opinion on bats showed a shift away from being strongly opposed to poison use, while more students slightly disfavored poison use than initially. Use of toxicants for bat control is a controversial subject, and the difference between changes in the classes' opinions may reflect a difference in the information they received. Some authorities believe toxicants to represent an efficient and appropriate damage control method, while others believe toxicant use may increase the potential for contact between bats and humans or other animals, thus increasing the risk of a bite from a rabid bat. Further, toxicant use may jeopardize existence of some threatened or endangered bat species.

The answers given to this set of questions is undoubtedly influenced both by people's general knowledge about the various toxicants used in animal damage control and their affinity for the particular species. We believe that the students' general willingness to accept toxicants as an appropriate damage control tool is derived from a greater knowledge of the damage these species can do, as well as an understanding that particular toxicants can be used selectively and humanely.

Our students favored legal hunting to a far greater degree than the public (Table 6). This likely is due to their background, to a large degree, as most were wildlife biology majors, and many of our students tended to choose this field of study because of positive personal experiences as hunters or trappers. It is interesting that the class experience caused Nebraska students to be even more strongly favorable toward hunting than they initially were.

Students' initial opinions about the right of landowners to kill individual, damaging animals were similar to those of the general public. Some shifts in opinion occurred during the semester, with Nebraska students coming to be either more strongly in agreement or more inclined to slightly disagree with this sentiment. New Mexico students at the same time became more strongly in agreement with the landowner's right to kill. Students initially were less accepting than the public of an individual's right to kill animals of the same species to prevent future damage. While Nebraska students' opinions shifted only slightly toward favoring this action, New Mexico students came to resemble the general public's view. In doing so, there was some polarization, with more students both strongly favoring and opposing this right.

Our students demonstrated themselves to be considerably more knowledgeable than the general public about coyotes (Table 7). They knew that coyotes are numerous, are

Table 3. Responses to Question #7 (continued): Some ranchers claim substantial economic loss because coyotes kill their sheep. Which methods would you approve of using to correct this situation? (10 = strongly approve; 0 = strongly disapprove)

	UNL* pre-class	UNL* post-class	NMSU* pre-class	NMSU* post-class	PUBLIC**
Use poisons that kill coyotes in less than a minute	6.7	8.2	8.0	9.6	4.3
Use poisons that kill coyotes in a few hours	2.9	6.2	2.7	4.1	1.3
Use poisons that are thought not to cause the animal pain or distress	8.2	7.6	7.4	8.6	***
Shoot coyotes from air-planes or helicopters	3.8	6.4	6.5	8.9	2.5
Trap coyotes with steel leghold traps	4.4	7.1	7.1	8.3	1.6
Locate coyote dens and kill the pups	2.2	7.1	5.1	6.4	2.3

\*These values were calculated from student responses as follows: A response of "strongly agree" was given a value of 10, "slightly agree" = 6.67, "slightly disagree" = 3.33, and "strongly disagree" = 0. The mean value for each set of respondents is given.

\*\*Arthur (1981) presented these questions to the public as follows: "I'm going to read you a list of methods currently used to kill coyotes. On a scale of '0' to '10', tell me how acceptable each method is to you where '0' means not acceptable at all and '10' means extremely acceptable. Of course, you can choose any number between '0' and '10.' How acceptable to you is: ..."

\*\*\* Neither Arthur (1981) nor Keller (1979) asked this question of the public.

found throughout North America, and that coyotes can be sheep-killers. Their certainty about these facts increased during the class. The students also clearly knew that coyotes are not endangered. The public appeared much less certain about this, although a direct comparison is difficult because Arthur (1981) asked this question in the context of several other endangered species; the public's knowledge about coyotes is in this case confounded by their perceptions of the other species.

The public and students initially strongly agreed that coyotes help control rodent populations (Table 7). New Mexico students still held this opinion at the semester's end, but Nebraska students had considerably shifted their view, with a majority (64% post-class, vs. 7% pre-class) now disagreeing.

Finally, students were asked to express an opinion on the level of federal funding devoted to coyote control (Table 8).

Table 4. Responses to Question #8 from the survey. (In percentage)

	UNL pre-class		UNL post-class		NMSU pre-class		NMSU post-class		PUBLIC*	
	agree str	disagr sli str	agree str	disagr sli str	agree str	disagr sli str	agree str	disagr sli str	agree str	disagr sli str
8. Farmers should be allowed to shoot golden eagles if the eagles are killing their sheep	0 7%	7 93%	7 14%	7 86%	0 26%	9 74%	4 22%	17 78%	3 35%	14 61%

\* responses obtained by Keller (1979) from the general public, in response to the statement: "I see nothing wrong with farmers shooting golden eagles if the eagles kill their sheep."

Table 5. Responses to Question #9: Poisoning can be an effective way of protecting agricultural land and livestock from damage caused by wildlife. However, some persons object to poisons because they can kill other animals besides those causing the problems. Indicate the animals on which you would approve of using poisons, even if this resulted in killing a small number of nonendangered animals (of another species). (In percentage)

	UNL pre-class				UNL post-class				NMSU pre-class				NMSU post-class				PUBLIC*					
	agrec	disagr	agrec	disagr	agrec	disagr	agrec	disagr	agrec	disagr	agrec	disagr	agrec	disagr	agrec	disagr	agrec	disagr	agrec	disagr		
	str	sli	sli	str	str	sli	sli	str	str	sli	sli	str	str	sli	sli	str	str	sli	sli	str		
Squirrels	6	13	47	33	27	40	13	20	8	61	17	13	17	56	26	0	1	4	11	12	35	36
	✓		✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	/	✓	/	✓	/
	20%		80%		67%		33%		70%		30%		74%		26%		16%		84%			
Rabbits	6	27	33	33	20	33	33	13	22	48	17	13	26	48	22	4	1	7	10	11	32	37
	✓		✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	/	✓	/	✓	/
	33		67		53		47		70		30		74		26		19		81			
Foxes	0	6	60	33	20	40	27	13	4	52	21	21	13	48	30	9	3	8	10	10	31	38
	✓		✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	/	✓	/	✓	/
	7		93		60		40		57		43		61		39		21		79			
Raccoons	0	27	53	20	27	53	13	6	4	56	26	13	17	52	26	4	1	5	10	11	35	36
	✓		✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	/	✓	/	✓	/
	27		73		80		20		61		39		70		30		17		83			
Blackbirds	28	50	7	14	67	33	0	0	26	52	13	8	65	26	9	0	6	12	16	12	25	27
	✓		✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	/	✓	/	✓	/
	79		21		100		0		78		22		91		9		35		65			
Eagles	0	0	13	87	0	0	53	47	0	9	18	73	0	4	17	78	1	3	5	6	31	53
	✓		✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	/	✓	/	✓	/
	0		100		0		100		9		91		4		96		9		91			
Rats	60	27	13	0	100	0	0	0	61	21	8	8	96	4	0	0	32	28	10	5	8	15
	✓		✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	/	✓	/	✓	/
	87		13		100		0		83		17		100		0		71		29			
Bats	20	40	20	20	40	40	20	0	17	56	13	13	17	48	26	9	17	21	11	10	16	25
	✓		✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	/	✓	/	✓	/
	60		40		80		20		74		26		65		35		49		51			

\* responses obtained by Kellert (1979) from that segment of the public which he defined as being "informed" about the issue of coyote predation upon livestock, in response to the question: "Poisoning can be an effective way of protecting agricultural land and livestock from damage caused by wildlife. However, some object to poisons because they can kill other animals besides those causing the problems. On which animals would you approve of using poisons even if this resulted in killing a small number of nonendangered animals?"

The majority of students believed funding level should remain essentially the same, as did the general public surveyed by Arthur (1981). While New Mexico students' opinions appeared not to change as a result of the class, Nebraska students became more inclined to agree that the level of funding should be maintained or increased. It should be noted that the figure given for federal expenditures, \$5 million, is an approximation of funding for federal fiscal year 1976 when Arthur conducted her survey, and it does not accurately reflect recent federal funding levels.

## CONCLUSIONS

It has been our purpose and desire to present students with factual, current information regarding vertebrate pest control. We did not encourage students to adopt our personal opinions about specific practices or beliefs, but we did encourage students to have open minds and to use this new knowledge to develop informed opinions. To the degree that our students came to have beliefs and opinions that we consider more realistic, we believe we succeeded. We also believe that our students retained a high degree of their idealism, in that they would seek better solutions to many

Table 6. Responses to Questions #10 through #12 from the survey. (In percentage).

	UNL				UNL				NMSU				PUBLIC*					
	pre-class		post-class		pre-class		post-class		agree	disagr	agree	disagr	agree	disagr				
	agree	disagr	agree	disagr	agree	disagr	agree	disagr										
str	sli	sli	str	str	sli	sli	str	str	sli	sli	str	str	sli	str				
10. In general, do you agree it should be legal to hunt wildlife? (Assume that when necessary, hunting game animals is regulated by use of seasons and limits on number of animals taken.)	67	26	7	0	93	7	0	0	91	9	0	0	96	4	0	0	55%	45%
11. If a wild animal kills a farmer's or rancher's livestock or poultry, the person has a right to kill the depreddating animal.	20	40	33	7	28	28	43	0	18	54	14	14	39	35	13	13	73	27
12. The farmer or rancher should have the right to kill other animals of the same species to help prevent future losses.	7	13	47	33	0	28	50	21	0	35	39	26	9	35	22	35	43	57

\* responses obtained by Arthur (1981) to the following questions: In general, do you tend to approve or disapprove of legal hunting? If a wild animal kills a farmer's cows, sheep, or chickens on his property, do you think the farmer should have the right to kill that animal? Do you think the farmer should have the right to kill other animals of the same type to help prevent future losses?

Table 7. Responses to Questions 13 through 17 from the survey. (In percentage)

	UNL				UNL				NMSU				PUBLIC*					
	pre-class		post-class		pre-class		post-class		agree	disagr	agree	disagr	agree	disagr				
	agree	disagr	agree	disagr	agree	disagr	agree	disagr										
str	sli	sli	str	str	sli	sli	str	str	sli	sli	str	str	sli	str				
13. Coyotes are an endangered species in North America.	0	0	60	40	0	0	0	100	4	0	4	91	0	0	0	100	62%*	26%*
14. Coyotes are numerous in North America.	47	40	13	0	100	0	0	0	87	9	0	4	91	9	0	0	50**	50**
15. Coyotes are found only west of the Mississippi River.	0	0	53	47	0	0	0	100	9	0	4	86	4	0	4	91	47**	53**
16. Coyotes help keep rodent populations under control.	60	33	7	0	7	28	28	36	52	43	4	0	56	35	9	0	89**	11**
17. Coyotes sometimes kill sheep.	33	67	0	0	100	0	0	0	83	17	0	0	91	9	0	0	92**	8**

\*response obtained by Kellert (1979) from the following question: Timber wolves, bald eagles, and coyotes are all endangered species of animals.

Table 8. Responses to Question #18: At the present time, the Federal Government is spending about 5 million dollars each year on coyote control to reduce livestock losses. Do you think the government should continue to spend about the same amount, less, or more on coyote control in future years?

	UNL pre-class	UNL post-class	NMSU pre-class	NMSU post-class	PUBLIC*
more	7%	43%	30%	30%	20%
same	60	43	60	60	51
less	33	14	10	10	29

\*responses obtained by Arthur (1981)

problems and wish to make contributions toward improving the status of wildlife damage control.

Although we did not survey a similar "control" group of students who were not enrolled in our classes, we believe the changes of opinion and attitude which occurred are real, and that these changes resulted in large part from the students' participation in the classes. We do not think that students' opinions would change so drastically as a result of information they might obtain from other sources while enrolled in the course. Further, where significant shifts of opinion occurred, they almost always occurred in the same direction in both the Nebraska and New Mexico classes. Where opinion shifted in directions that differed between the two classes, we believe it was largely due to one class receiving information or emphasis that the other class did not. Undoubtedly, such divergence will reflect the instructor's personal beliefs and opinions to some degree. Our classes' differing response to the question of whether coyotes control rodent populations (Table 7) may be such a case. For classes in wildlife damage control to adequately prepare students for their careers, instructors must be knowledgeable and have practical experience regarding vertebrate pests and damage control. Unfortunately, too few of today's teachers of wildlife science have such preparation. Instructors who are uninformed in this area are likely to perpetuate incorrect and misleading information and opinion.

It is our belief that students or other persons who are

relatively open-minded, when presented with factual information regarding vertebrate pest control, will develop attitudes and beliefs which are more accurately in tune with the real world. With such information, persons will be more capable of finding and supporting realistic solutions to wildlife damage problems.

We therefore support the inclusion of a course in vertebrate pest control as a required part of any wildlife biology major's curriculum. Further, we believe that the American public, if presented factual information about wildlife damage and its solutions, would be more supportive of realistic, effective programs for vertebrate pest control.

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APPENDIX 1. ATTITUDE SURVEY

Name: \_\_\_\_\_

1. What is your class standing: FR SO JR SR GradStu (circle one)
2. What is your major? \_\_\_\_\_
3. Where did you grow up? (town & state; if more than one location list primary locations) \_\_\_\_\_
4. Have you ever lived... (check one or more)
  - in a city or town
  - on a farm or ranch
  - in the country, but not on a farm or ranch
5. Since the age of 12 (but not including your years as a college student), have you primarily lived... (check only one)
  - in a city or town
  - on a farm or ranch
  - in the country, but not on a farm or ranch

6. Three important considerations in evaluating wildlife damage control techniques are:

- 1) cost (including labor and materials)
- 2) specificity (do they kill only the target animals or species, or are additional species or individuals likely to be affected?)
- 3) humaneness (is pain or suffering caused to the target animal?)

Which of the three do you feel is most important? Of the remaining two, which is the more important?

7. Some ranchers claim substantial economic loss because coyotes kill their sheep. Which methods would you approve of using to correct this situation?

	Strongly Agree	Slightly Agree	Slightly Disagree	Strongly Disagree
Shoot or trap as many coyotes as possible.	—	—	—	—
Whenever possible, hunt only individual coyotes known to have killed livestock.	—	—	—	—
Capture and relocate coyotes away from sheep ranches, though this is a very expensive solution.	—	—	—	—
Avoid killing coyotes but pay ranchers for their sheep losses out of general tax revenues.	—	—	—	—
Use poisons that kill coyotes in less than a minute.	—	—	—	—
Use poisons that kill coyotes in a few hours.	—	—	—	—
Use poisons that are thought not to cause the animal pain or distress.	—	—	—	—
Shoot coyotes from airplanes or helicopters.	—	—	—	—
Trap coyotes with steel leghold traps.	—	—	—	—

Locate coyote dens and kill the pups.    —    —    —    —

8. Farmers should be allowed to shoot golden eagles if the eagles are killing their sheep.    —    —    —    —

9. Poisoning can be an effective way of protecting agricultural land and livestock from damage caused by wildlife. However, some persons object to poisons because they can kill other animals besides those causing the problems. Indicate the animals on which you would approve of using poisons, even if this resulted in killing a small number of nonendangered animals (of another species).

	Strongly Approve	Slightly Approve	Slightly Disapprove	Strongly Disapprove
Squirrels	—	—	—	—
Rabbits	—	—	—	—
Foxes	—	—	—	—
Raccoons	—	—	—	—
Blackbirds	—	—	—	—
Eagles	—	—	—	—
Rats	—	—	—	—
Bats	—	—	—	—

10. In general, do you agree that it should be legal to hunt wildlife? (Assume that when necessary, hunting game animals is regulated by use of seasons and limits on number of animals taken.)

11. If a wild animal kills a farmer's or rancher's livestock or poultry, the person has a right to kill the depredating animal.

12. The farmer or rancher should have the right to kill other animals of the same species to help prevent future losses.

13. Coyotes are an endangered species in North America.

14. Coyotes are numerous in North America.

15. Coyotes are found only west of the Mississippi River.

16. Coyotes help keep rodent populations under control.

17. Coyotes sometimes kill sheep.

18. At the present time, the Federal Government is spending about 5 million dollars each year on coyote control to reduce livestock losses. Do you think the government should continue to spend about the same amount, less, or more on coyote control in future years?

- more
- about the same
- less

