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## 2009 BEAR SURVEY OF LANDOWNERS IN PORTIONS OF THE RED OAK BEAR MANAGEMENT UNIT

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### ABSTRACT

*A study area consisting of portions of Alcona, Alpena, Montmorency, and Oscoda counties (study area) represented 5% of the area of the Red Oak Bear Management Unit (BMU), yet about 22% of the black bears registered from the Red Oak BMU were harvested in the study area. A random sample of landowners in the study area was contacted to determine landowners' perceptions about bear and bear management issues to help assess whether the study area should be managed independently from the remainder of the Red Oak BMU. Most landowners (58%) in the study area reported that bear were somewhat common in the area. Landowners most frequently indicated that the number of bear existing in the study was appropriate; only 16% of landowners believed there were too many bear. Nearly 14% of the landowners in the area reported their property was part of a hunt club. About 33% of the landowners reported damage from bears during the last five years, and bears damaging birdfeeders was most common problem (22% of landowners reported this problem). Landowners indicated bears were important and should exist in the area. Most landowners wanted to see and have bears on their property (55%). Most landowners also believed that bears were not dangerous to humans (71%), and bear problems usually could be prevented with simple precautions (75%). Most landowners (69%) believed that landowners should be responsible for preventing bear damage on their property; only 9% of landowners believed the Michigan Department of Natural Resources and Environment (DNRE) was solely responsible for preventing bear damage. However, most landowners (83%) believed regulated hunting was important for controlling bear numbers. The opinions of hunt club landowners were similar to the*



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*opinions of all landowners, although a higher proportion of the hunt club landowners wanted bears on their property (69% versus 55%). Furthermore, these landowners were more likely to want to hunt bears than all the landowners combined (77% versus 58%). Landowners most frequently indicated they were satisfied (48%) with management of the bear population by the DNRE, although 37% of landowners were neutral towards the management, and 15% of landowners were dissatisfied.*

## **INTRODUCTION**

Beginning in 1990, the Michigan Department of Natural Resources and Environment (DNRE) created black bear (*Ursus americanus*) management units (Figure 1), including the Red Oak Bear Management Unit (BMU), and limited the number of bear hunting licenses issued for each unit. The DNRE annually sets license quotas for each management unit and uses a preference-point drawing system to allocate licenses among eligible applicants.

During 2000-2008, nearly 22% of the black bears registered from the Red Oak BMU were harvested in the study area consisting of portions of Alcona, Alpena, Montmorency, and Oscoda counties (Figure 2). In 2008, this study area represented 5% of the area of the Red Oak BMU. Thus, the study area has been contributing disproportionately to the harvest within the Red Oak BMU. Furthermore, the proportion of bears taken from the study area has been generally increasing since 1990 (Figure 3).

The DNRE and Natural Resources Commission have the authority and responsibility to protect and manage the wildlife resources of the state of Michigan. Harvest and opinion surveys are some of the management tools used by the DNRE to accomplish its statutory responsibility. Our objectives were to determine landowners' perceptions about bear and bear management issues in the study area. This information will be used to help assess whether the study area should be managed separately from the remainder of the Red Oak BMU.

## **METHODS**

Lists of property parcels greater than five acres were obtained from the Alcona, Alpena, Montmorency, and Oscoda county equalization departments. The property tax records were organized by property parcel identification numbers, rather than by landowner names. Therefore, people owning multiple parcels were in the property tax records multiple times. Parcels owned by the same landowner were combined to create a list of landowners (without multiple parcels per landowner). As this list was compiled, publicly owned land and parcels within cities and villages were excluded. Parcels classified as industrial or commercial were also excluded. The final list of landowners in the study area consisted of 2,468 landowners.

A stratified sampling design was used to select landowners who received a questionnaire for the study (Cochran 1977). All properties that may have been part of a hunt club, based on contact information listed for the property, were selected to receive a questionnaire (82 landowners). Then a random sample of 1,162 additional landowners was selected from the remaining list of landowners (49% of the remaining landowners were included in sample).

People receiving the questionnaire were asked to report their opinion about bear numbers, damage caused by bears, and bear management issues in the study area (Appendix A). Some of the questions included on the questionnaire were similar to questions asked in previous surveys assessing opinions about bears in Michigan (Peyton and Grise 1995, Peyton et al. 2001). Estimates were calculated along with their 95% confidence limit (CL). Estimates were calculated for all landowners and also separately for landowners with property that was part of a hunt club. In theory, the CL can be added and subtracted from the estimate to calculate the 95% confidence interval. The confidence interval is a measure of the precision associated with the estimate and implies that the true value would be within this interval 95 times out of 100. Unfortunately, there are several other possible sources of error in surveys that are probably more serious than theoretical calculations of sampling error. They include failure of participants to provide answers (nonresponse bias), question wording, and question order. It is very difficult to measure these biases; thus, estimates were not adjusted for these possible biases.

Statistical tests are used routinely to determine the likelihood that the differences among estimates are larger than expected by chance alone. The overlap of 95% confidence intervals was used to determine whether estimates differed. Non-overlapping 95% confidence intervals was equivalent to stating that the difference between the means was larger than would be expected 995 out of 1,000 times, if the study had been repeated (Payton et al. 2003).

Questionnaires were mailed initially during late October 2009, and up to two follow-up questionnaires were mailed to nonrespondents. Although 1,230 people were sent the questionnaire, 59 surveys were undeliverable, resulting in an adjusted sample size of 1,171. Questionnaires were returned by 786 people, yielding a 67% adjusted response rate.

## **RESULTS**

About  $14 \pm 2\%$  of the landowners in the study area reported their property was part of a hunt club ( $346 \pm 46$  hunt clubs). Among these hunt clubs,  $29 \pm 6\%$  required their members to pay a membership fee ( $99 \pm 21$  hunt clubs).

Most landowners (58%) in the study area reported that bear were somewhat common, and 16% of landowners reported bear were abundant (Table 1). About 17% of landowners thought bear were rare or absent in the study area, and 8% of landowners were not sure or failed to provide an opinion about bear numbers. Landowners most frequently indicated that the number of bear existing in the study was appropriate (Table 2), and only 16% of landowners believed there were too many bear in the study area. Opinions about bear numbers in the study area among hunt club landowners were similar to the opinions of all landowners.

About  $33 \pm 3\%$  of the landowners in the study area reported damage from bears in the last five years. The most common problem was bears damaging birdfeeders; 22% of landowners reported this problem (Table 3). The next most common problems were bears rooting through garbage (9%), bears damaging buildings (8%), and bears damaging landscape and plants (7%). Landowners of hunt clubs more frequently reported damage to buildings by bears than

all landowners combined. Although nearly one-third of landowners experienced problems with bears, only  $1 \pm 1\%$  of landowners ( $23 \pm 14$  owners) reported problems with bears to the DNRE.

Landowners were presented 19 statements about bear management in the study area and asked whether they agreed or disagreed with these statements (Table 4). The 19 statements asked respondents to make a qualitative assessment of the desired number of bears in the area, as well as, to assess what level of bear damage they consider acceptable.

Most landowners indicated bears should be preserved for future generations (86%). Landowners derived satisfaction from knowing bear existed in the study area (82%); and they believed bears were an important and essential part of the ecosystem (81%).

Most landowners wanted to see and have bears on their property (55%). Most landowners also believed bears were not dangerous to humans (71%), and most bear problems could be prevented with simple precautions (75%). Most landowners (69%) believed landowners should be responsible for preventing bear damage on their property; only 9% of landowners believed the DNRE was solely responsible for preventing bear damage. However, most landowners (83%) also believed regulated hunting was important for controlling bear numbers.

The opinions of hunt club landowners were similar to the opinions of all landowners (Table 4), although a higher proportion of the hunt club landowners wanted bears on their property (69% versus 55%). Furthermore, these landowners were more likely to want to hunt bears than all the landowners combined (77% versus 58%).

Landowners were presented seven hypothetical events that might occur if bear numbers increased in the study area (Table 5), and they were asked whether they would support or oppose increased bear numbers in the study area if these events had occurred. Landowners supported increasing the bear population in the study area if it meant they would see a bear once during the year (77%). Furthermore, 55% of landowners supported increasing bear numbers to the level where bear were seen near their property more than once in a week. Most landowners opposed increasing bear numbers, however, if bear numbers increased to a level where they chased a neighbor's pet or a bear attempted to enter a home in the area. The opinions of hunt club landowners were similar to the opinions of all landowners (Table 5).

Landowners were presented three hypothetical events that might occur if bear numbers decreased in the study area (Table 6), and they were asked whether they would support or oppose decreased bear numbers in the study area if these events had occurred. Most landowners opposed reducing the bear population to a level where they would rarely see a bear near their property. Furthermore, most landowners opposed reducing bear numbers if they would have fewer opportunities to hunt bear near their property. The opinions of hunt club landowners were similar to the opinions of all landowners (Table 6), except a higher proportion of hunt club landowners opposed reducing bear numbers if it meant they would have fewer opportunities to hunt bear (77% versus 63% opposition).

About  $41 \pm 3\%$  of landowners ( $1,004 \pm 71$ ) in the study area had applied for a bear hunting license in Michigan and  $30 \pm 3\%$  had hunted bear in Michigan ( $730 \pm 65$ ). In contrast,  $60 \pm 7\%$

of hunt club landowners ( $208 \pm 37$ ) in the study area had applied for a bear hunting license and  $46 \pm 7\%$  had hunted bear in Michigan ( $159 \pm 32$ ).

About  $6 \pm 1\%$  of landowners ( $139 \pm 33$ ) in the study area had intentionally fed bears and  $13 \pm 2\%$  had fed turkeys ( $730 \pm 65$ ). In contrast,  $11 \pm 5\%$  of hunt club landowners ( $37 \pm 17$ ) had fed bears and  $18 \pm 6\%$  had fed turkeys ( $63 \pm 22$ ).

About  $48 \pm 3\%$  of landowners ( $1,176 \pm 72$ ) in the study area were satisfied (included “very satisfied” and “somewhat satisfied” responses) with management of bear populations by the DNRE in Michigan. Nearly  $37 \pm 3\%$  of landowners ( $916 \pm 70$ ) were neutral towards the DNRE’s bear management and,  $15 \pm 2\%$  of landowners ( $360 \pm 51$ ) were dissatisfied (included “very dissatisfied” and “somewhat dissatisfied” responses) with bear management. Levels of satisfaction were similar among all landowners combined and hunt club landowners ( $54 \pm 7\%$  satisfied;  $29 \pm 7\%$  neutral; and  $17 \pm 5\%$  dissatisfied).

## DISCUSSION

The DNRE commissioned surveys to determine the opinions of people in Michigan towards bear and bear management in 1994 (Peyton and Grise 1995) and 2000 (Peyton et al. 2001). These previous studies sought opinions from a broader population (included non-landowners) and throughout a larger geographic area than the current study. Thus, estimates from these studies may not be directly comparable to the current study, and any differences among estimates from these studies should be viewed cautiously.

In 2009, landowners were more likely to report bear numbers were at an appropriate level (42%) than reported for studies done in 1994 (25%, Peyton and Grise 1995) and 2000 (32%, Peyton et al. 2001) for the northern Lower Peninsula (NLP)(Figure 4). The proportion of people that reported too few bears in their area was highest in 2000 and similar in 1994 and 2009 (20% in 1994, 34% in 2000, and 18% in 2009). In addition, the proportion of people who believed bears were too abundant was similar among studies: 11% in 1994, 12% in 2000, and 16% in 2009.

Peyton and Grise (1995) reported 84% of people residing in the Upper Peninsula (UP) and NLP had an interest in seeing bear occasionally. In 2000, 53% of people from the NLP wanted to see bear occasionally in rural areas, and another 27% desired to see bear regularly (frequently) in rural areas (Peyton et al. 2001). In 2009, 77% of landowners supported having a bear population at a level where they would see a bear on or near their property once; however, only 55% supported a population where they would see bears near their property more than once in a week (Table 5).

In 1994, 3% of the people residing in the UP and NLP reported they would likely attempt to attract bear near their home for increased viewing (Peyton and Grise 1995). In 2009, 6% of the landowners in the study area reported they intentionally fed bears.

Peyton and Grise (1995) reported that 17% of people residing in the UP and NLP in 1994 believed bear were more a nuisance than benefit to people, while 68% disagreed with this

statement. These estimates were similar to those among landowners in the study area in 2009 (16% agree and 62% disagree, Table 4).

Peyton and Grise (1995) reported that 13% of the people residing in the UP and NLP during 1994 had experienced problems with bear. In contrast, 33% of landowners reported damage from bears in the study area in 2009. Despite the apparent increase in bear damage between 1994 and 2009, the estimates are not directly comparable because the 2009 estimates were from landowners only, while the 1994 study included non-landowners.

In 1994, 49% of the people residing in the UP and NLP believed that people who lived in areas with bears should not have to tolerate any property damage from bears (Peyton and Grise 1995). In contrast, 29% of landowners from the study area in 2009 believed they should not have to tolerate bear damage. Despite the apparent differences between studies, these estimates may not be comparable. Property damage was never defined in the 1994 study, while property damage for the 2009 study included damage to birdfeeders, rooting through garbage, and many other minor types of damage (see Appendix A for complete list).

Peyton et al. (2001) attempted to determine what events associated with bears would lead people in the NLP to request help from the authorities. These events ranged from seeing a bear in the area to a bear attempting to enter a home in area (i.e., increasing levels of risk to a person or pet with each event). In the current study, we evaluated whether landowners would support or oppose these same events occurring if the bear population increased in the study area. Although estimates from the two studies were not directly comparable, the relative ranking of events was similar (Figure 5). The events associated with the greatest risks to people or pets were most opposed (i.e., highest intolerance). In addition, estimates measuring opposition were generally greater than estimates of intolerance (Figure 6). These differences suggest that it requires more than opposition to prompt a person to become intolerant and to contact the authorities for many events, especially lower risk events. This is consistent with the differences between the proportion of landowners experiencing bear damage (33%) and the proportion that had contacted the DNRE to report bear damage (1%) in the current study. It appears that few landowners in the current study requested assistance from the DNRE for help with bear damage because people or pets were not threatened.

Peyton and Grise (1995) reported that 90% of people residing in the UP and NLP agreed that regulated bear hunting should be allowed to control bear populations, while Peyton et al. (2001) reported that 78% of people residing in the NLP supported regulated bear hunts. The proportion of landowners in the study area in 2009 that believed regulated bear hunting was appropriate (83%, Table 4) was similar to estimates from 1994 and 2000 (Figure 6).

Peyton and Grise (1995) reported that 43% of people residing in the UP and NLP during 1994 believed the DNRE did a good job managing bear hunting. Nearly 44% were neutral towards the DNRE's bear hunting management, and 13% were dissatisfied with bear hunting. In 2009, landowners were asked their satisfaction with management of bear population in Michigan by the DNRE. In 2009, 48% of landowners in the study area were satisfied with bear management by the DNRE, 37% were neutral, and 15% were dissatisfied. Although measures of satisfaction from the 1994 and 2009 studies were not assessing exactly the same programs, they were similar because bear hunting is a major component of the bear management

program. Thus, satisfaction with bear management by the DNRE in 2009 appeared similar to satisfaction reported in 1994 for bear hunting.

Despite the differences between previous studies and the current study, most of the comparisons between the studies suggest that opinions about bears and bear management have not changed greatly among periods.

The information from the current study will be used, along with other information (e.g., bear hunting success and hunter satisfaction), to help assess whether the study area should be managed separately from the remainder of the Red Oak BMU.

## **ACKNOWLEDGEMENTS**

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## **LITERATURE CITED**

- Cochran, W. G. 1977. Sampling techniques. John Wiley & Sons, New York. USA.
- Payton, M. E., M. H. Greenstone, and N. Schenker. 2003. Overlapping confidence intervals or standard error intervals: what do they mean in terms of statistical significance? *Journal of Insect Science* 3:34.
- Peyton, R. B. and L. Grise. 1995. A 1994 survey of Michigan public attitudes regarding bear management issues. Department of Fisheries and Wildlife, Michigan State University, Lansing. USA.
- Peyton, R. B., P. Bull, T. Reis, and L. Visser. 2001. An assessment of the social carrying capacity of black bears in the Lower Peninsula of Michigan. Department of Fisheries and Wildlife, Michigan State University, and Wildlife Division, Michigan Department of Natural Resources, Lansing. USA.



Figure 1. Bear management units open to hunting in Michigan, 2008.



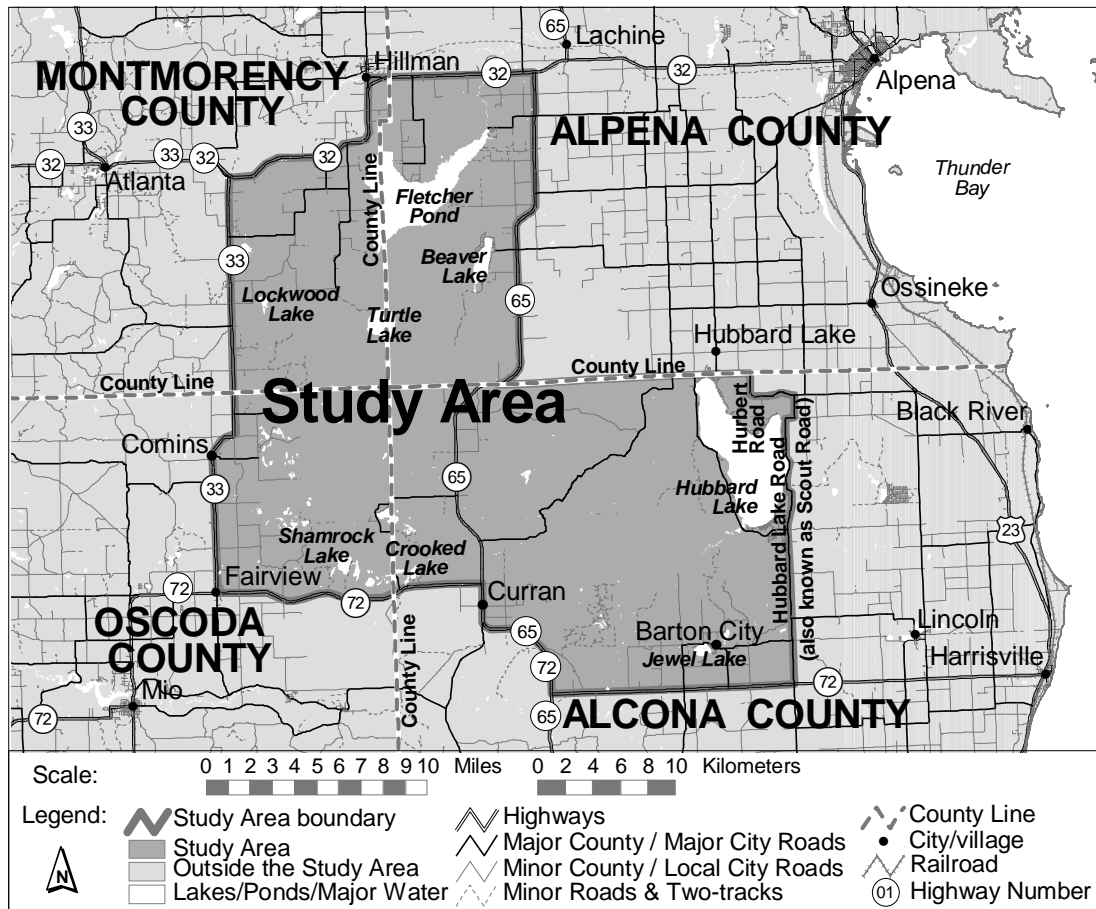


Figure 2. Study area (shaded) within the Red Oak BMU in Michigan.

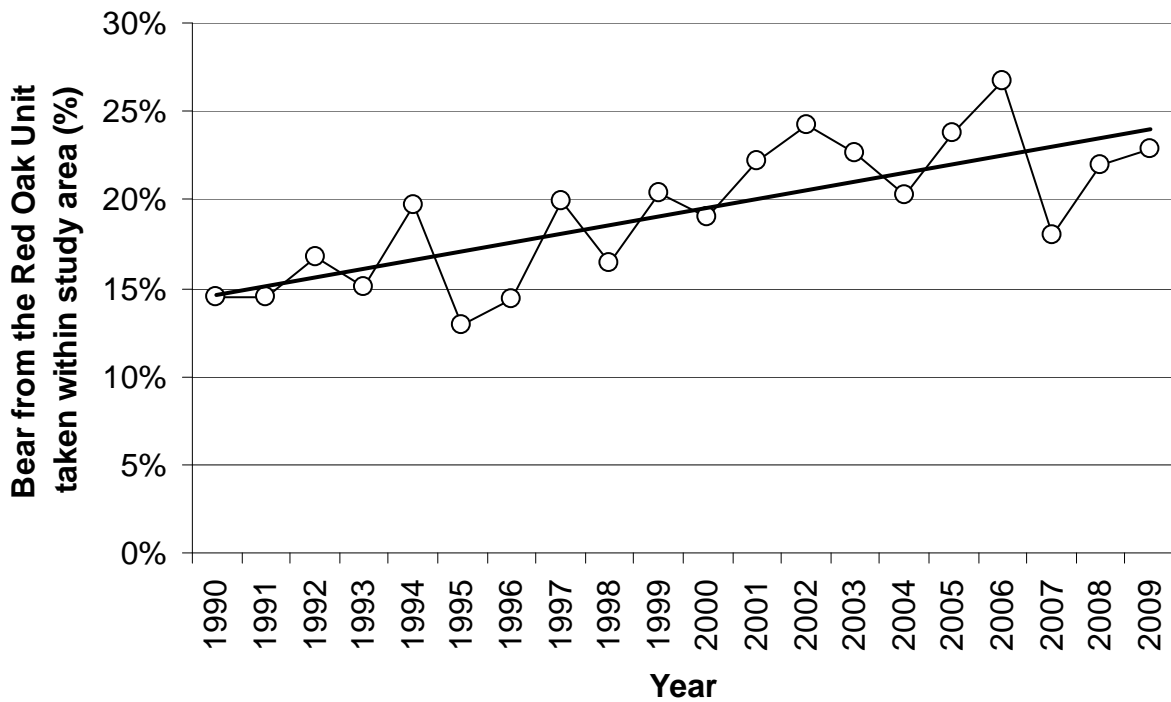


Figure 3. Proportion of bear taken in the Red Oak Bear Management Unit originating from the study area.

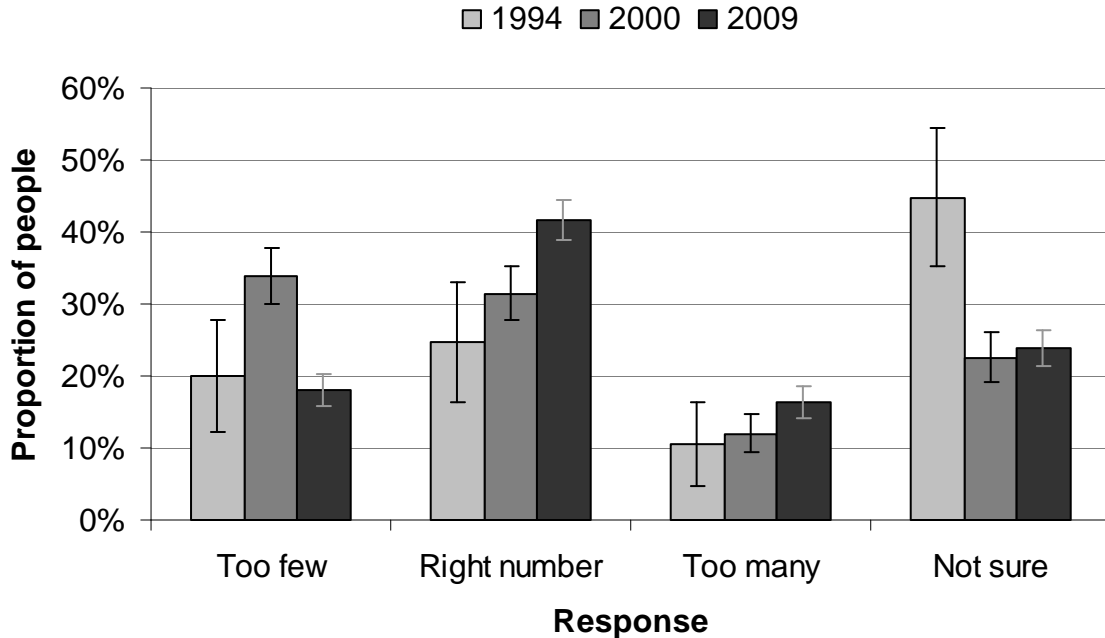


Figure 4. Opinion of people about bear abundance in Michigan. Estimates in 1994 from Peyton and Grise (1995), 2001 from Peyton et al. (2001), and 2009 from current study.

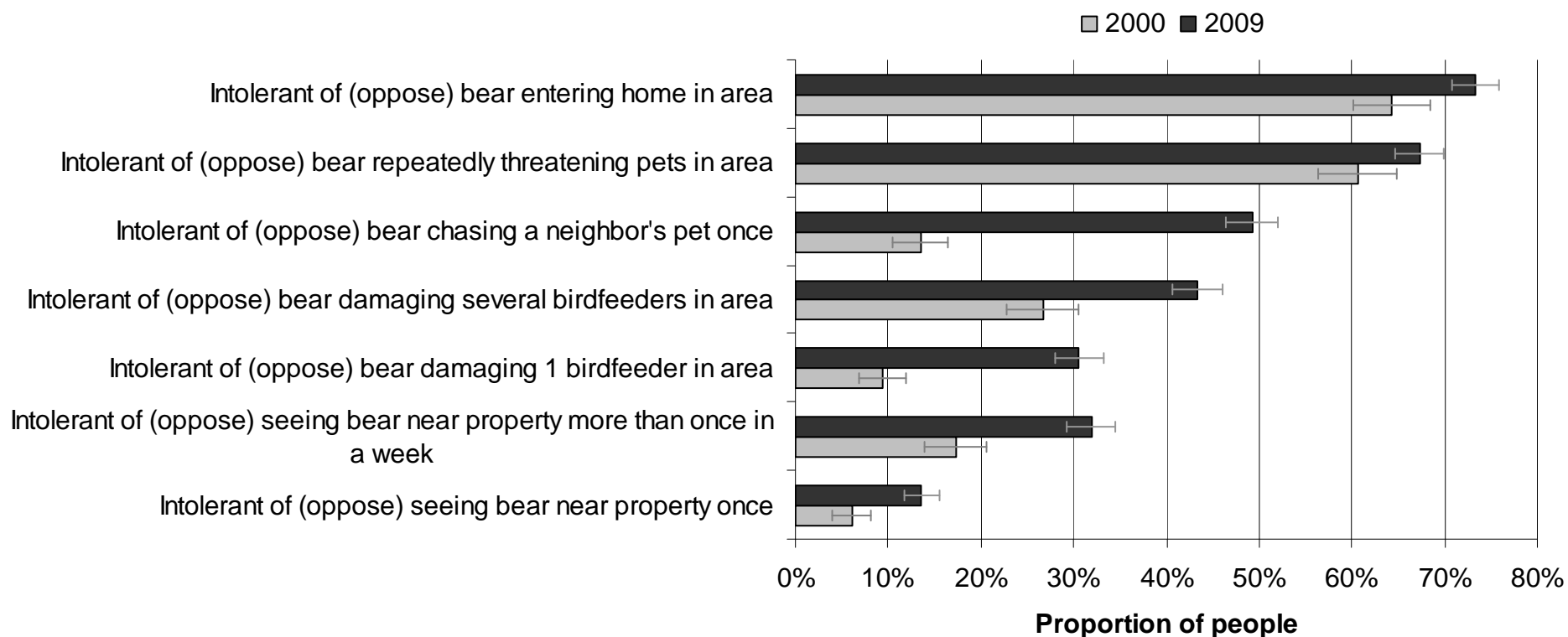


Figure 5. Proportion of people intolerant of (or opposed to) events associated with bear in Michigan during 2000 and 2009. Intolerance in 2000 was the point in which a person would request action from the authorities (Peyton et al. 2001), while landowner opposition in 2009 combined “oppose” and “strongly oppose” responses (current study).

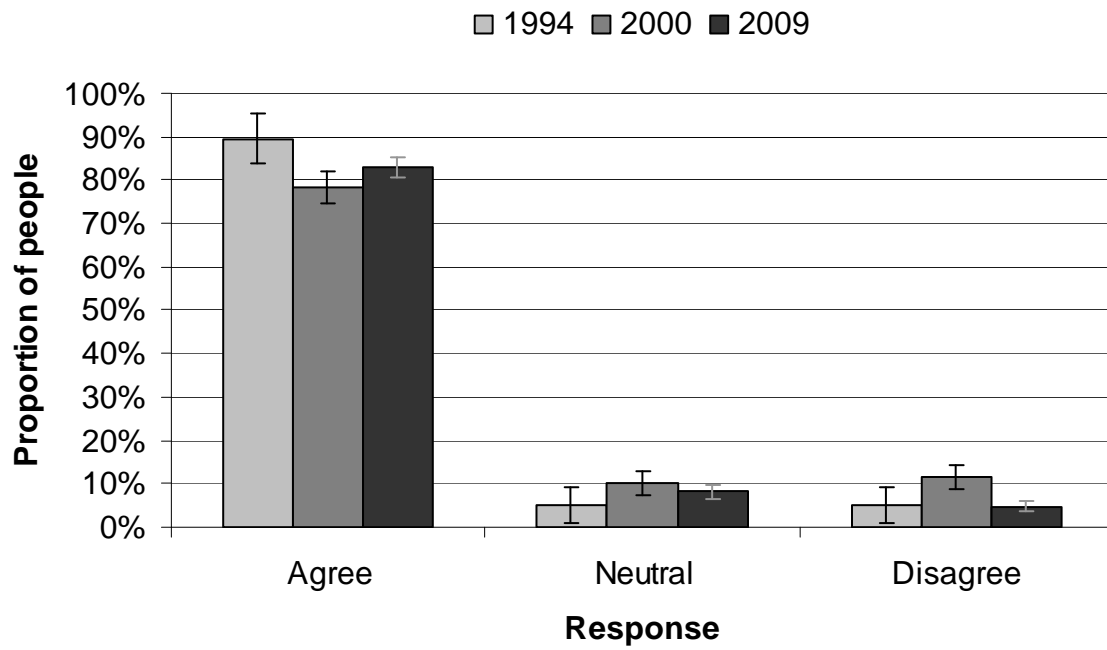


Figure 6. Opinion of people about whether regulated hunting was appropriate for controlling bear numbers in Michigan. Estimates from 1994 from Peyton and Grise (1995), 2001 from Peyton et al. (2001), and 2009 from current study.

Table 1. Opinions of landowners about how common bear were in the study area.

Level of bear abundance	All landowners				Landowners of hunt clubs			
	% <sup>a</sup>	95% CL <sup>b</sup>	No. <sup>a</sup>	95% CL <sup>b</sup>	% <sup>a</sup>	95% CL <sup>b</sup>	No. <sup>a</sup>	95% CL <sup>b</sup>
Abundant	16	2	394	50	24	6	82	22
Somewhat common	58	3	1,423	69	59	7	205	36
Rare	17	2	417	52	14	5	49	18
Absent	1	1	25	14	0	0	0	0
Not sure	8	2	193	38	3	2	9	9
No answer	1	0	17	11	0	1	2	2

<sup>a</sup>Column totals may not equal study area totals because of rounding.

<sup>b</sup>95% confidence limits.

Table 2. Opinions of landowners about bear abundance in the study area.

Level of bear abundance	All landowners				Landowners of hunt clubs			
	% <sup>a</sup>	95% CL <sup>b</sup>	No. <sup>a</sup>	95% CL <sup>b</sup>	% <sup>a</sup>	95% CL <sup>b</sup>	No. <sup>a</sup>	95% CL <sup>b</sup>
Too few bear	18	2	446	54	13	5	45	17
Right number of bear	42	3	1,034	69	50	7	173	33
Too many bear	16	2	392	51	22	6	76	22
Not sure	23	2	573	59	15	5	53	18
No answer	1	1	23	13	0	1	2	2

<sup>a</sup>Column totals may not equal study area totals because of rounding.

<sup>b</sup>95% confidence limits.

Table 3. Proportion and number of landowners in the study area experiencing problems with bears during the last five years.

Problem	All landowners				Landowners of hunt clubs			
	% <sup>a</sup>	95% CL <sup>b</sup>	No. <sup>a</sup>	95% CL <sup>b</sup>	% <sup>a</sup>	95% CL <sup>b</sup>	No. <sup>a</sup>	95% CL <sup>b</sup>
Damage to birdfeeders	22	2	549	58	15	5	52	19
Rooting through garbage	9	2	210	38	10	4	34	13
Damage to buildings	8	2	201	37	19	5	65	20
Damage to landscape, garden, or crops	7	1	168	35	8	4	28	13
Threat to humans	3	1	79	24	7	4	23	13
Threat to pets or livestock	2	1	60	22	2	2	8	7
Other problem	5	1	114	29	8	4	28	13

<sup>a</sup>Column totals may not equal study area totals because of rounding.

<sup>b</sup>95% confidence limits.

Table 4. Proportion of landowners agreeing or disagreeing with the following statements about bear management.

Statement <sup>d</sup>	All landowners <sup>a</sup>						Landowners of hunt clubs <sup>a</sup>					
	Agree <sup>b</sup>		Neutral		Disagree <sup>c</sup>		Agree <sup>b</sup>		Neutral		Disagree <sup>c</sup>	
	%	95% CL	%	95% CL	%	95% CL	%	95% CL	%	95% CL	%	95% CL
Want bears on their own property	55	3	23	2	16	2	70	6	23	6	6	4
Want bears in study area but not on own property	16	2	25	2	50	3	9	4	26	6	57	7
Uncomfortable with bears on own property	24	2	16	2	53	3	13	5	20	6	64	7
Uncomfortable with bears in study area	10	2	16	2	66	3	7	3	19	6	69	6
Bears more a nuisance than benefit to people	16	2	18	2	62	3	12	5	21	6	64	7
Bears dangerous to humans	8	2	15	2	71	3	3	2	21	6	73	6
Bears kill many livestock and pets	4	1	15	2	65	3	2	2	16	5	72	6
Should not have to tolerate bear damage	28	3	27	2	40	3	28	6	29	6	40	7
No need for bears in Michigan	4	1	7	1	86	2	0	0	4	3	93	4
DNRE solely responsible for preventing bear damage	9	2	11	2	73	2	10	4	9	4	78	6

<sup>a</sup>Sum of responses does not equal 100% because respondents not providing an answer or reporting they "Don't know" were not presented.

<sup>b</sup>Combined "strongly agree" and "agree" responses.

<sup>c</sup>Combined "strongly disagree" and "disagree" responses.

<sup>d</sup>Statement abbreviated to fit in column; see Appendix A for wording used in questionnaire.

Table 4 (continued). Proportion of landowners agreeing or disagreeing with the following statements about bear management.

Statement <sup>d</sup>	All landowners <sup>a</sup>						Landowners of hunt clubs <sup>a</sup>					
	Agree <sup>b</sup>		Neutral		Disagree <sup>c</sup>		Agree <sup>b</sup>		Neutral		Disagree <sup>c</sup>	
	%	95% CL	%	95% CL	%	95% CL	%	95% CL	%	95% CL	%	95% CL
Owner should be responsible for preventing bear damage	68	3	15	2	11	2	64	7	16	5	16	5
Direct relationship between bear numbers and damage	29	3	22	2	27	2	37	7	22	6	26	6
Most bear problems can be prevented with simple precautions	75	2	8	2	10	2	76	6	10	4	10	4
Use regulated hunting to control bear numbers	83	2	8	2	5	1	89	4	6	3	4	3
Derive satisfaction knowing bears exist in area	81	2	10	2	6	1	85	5	8	4	5	3
Bears important and essential	81	2	9	2	5	1	83	5	9	4	4	3
Would like to hunt bear	58	3	22	2	15	2	77	6	16	5	5	3
Landowners should be allowed to feed bears	28	3	24	2	43	3	36	7	28	6	33	7
Bears should be preserved for future generations	86	2	6	1	3	1	90	4	4	3	5	3

<sup>a</sup>Sum of responses does not equal 100% because respondents not providing an answer or reporting they "Don't know" were not presented.

<sup>b</sup>Combined "strongly agree" and "agree" responses.

<sup>c</sup>Combined "strongly disagree" and "disagree" responses.

<sup>d</sup>Statement abbreviated to fit in column; see Appendix A for wording used in questionnaire.

Table 5. Proportion of landowners that supported or opposed an increase in the bear population in the study area if the following consequences occurred.

Consequence	All landowners <sup>a</sup>				Landowners of hunt clubs <sup>a</sup>			
	Support <sup>b</sup>		Oppose <sup>c</sup>		Support <sup>b</sup>		Oppose <sup>c</sup>	
	%	95% CL	%	95% CL	%	95% CL	%	95% CL
Landowner sees a bear on or near their property once	77	2	14	2	78	6	14	5
Landowner sees a bear on or near their property more than once in a week	54	3	32	3	57	7	30	6
A bear damages one bird feeder in the area	49	3	31	3	39	7	38	7
A bear damages several bird feeders in the area	38	3	43	3	30	6	47	7
A bear chases a neighbor's pet once	28	3	49	3	22	6	55	7
A bear repeatedly threatens pets in the area	13	2	67	3	10	4	69	7
A bear attempts to enter a home in the area	10	2	73	2	10	4	74	6

<sup>a</sup>Sum of responses does not equal 100% because respondents not providing an answer or reporting they "Not sure" were not presented.

<sup>b</sup>Combined "strongly support" and "support" responses.

<sup>c</sup>Combined "strongly oppose" and "oppose" responses.



Table 6. Proportion of landowners that supported or opposed a decrease in the bear population in the study area if the following consequences occurred.

Consequence	All landowners <sup>a</sup>				Landowners of hunt clubs <sup>a</sup>			
	Support <sup>b</sup>		Oppose <sup>c</sup>		Support <sup>b</sup>		Oppose <sup>c</sup>	
	%	95% CL	%	95% CL	%	95% CL	%	95% CL
Landowner would rarely see a bear on their property during a year	24	2	67	3	23	6	72	6
Landowner would rarely hear about anybody seeing a bear near their property during a year	20	2	69	3	18	6	74	6
Landowner would have less opportunity to hunt bear near their property	19	2	63	3	13	5	78	6

<sup>a</sup>Sum of responses does not equal 100% because respondents not providing an answer or reporting they "Not sure" were not presented.

<sup>b</sup>Combined "strongly support" and "support" responses.

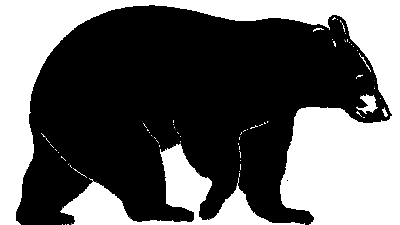
<sup>c</sup>Combined "strongly oppose" and "oppose" responses.

## Appendix A

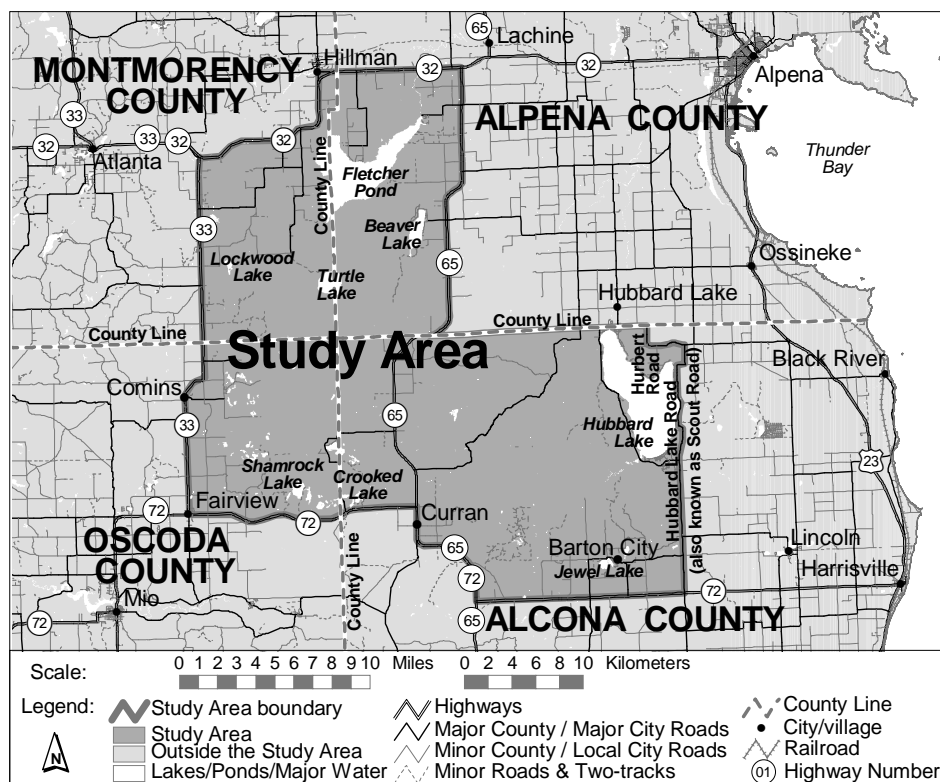
Questionnaire sent to landowners.

# BLACK BEAR SURVEY FOR LANDOWNERS

This information is requested under authority of Part 435, 1994 PA 451, M.C.L. 324.43539.



***This is a survey about how bears should be managed in Michigan—it is not a survey about hunting bear. You were selected to receive this survey because you own property in northern Lower Peninsula. For the purposes of answering the following questions, we want to find out how you feel about the bear population inside the study area that we have drawn on the figure below (portions of Alcona, Alpena, Montmorency, and Oscoda counties).***



1. **How common do you think bears are in the study area?** *(please select only one item)*

- <sup>1</sup> ☐ Abundant    <sup>2</sup> ☐ Somewhat Common    <sup>3</sup> ☐ Rare    <sup>4</sup> ☐ Absent    <sup>5</sup> ☐ Not sure

2. **In general, what do you think about the number of bears in the study area** *(please select only one item)*

- <sup>1</sup> ☐ Too few bear    <sup>2</sup> ☐ The right number of bear  
<sup>3</sup> ☐ Too many bear    <sup>4</sup> ☐ Not sure

3. **Have you ever experienced any problems involving bears during the last 5 years?**

- <sup>1</sup> ☐ Yes    <sup>2</sup> ☐ No; skip to question #8.

4. **If you experienced problems with bear, what types of problems did you have with bear on or near your property during the last 5 years?** *(Select all that apply.)*

- <sup>1</sup> ☐ Damaging birdfeeder    <sup>2</sup> ☐ Rooting through garbage  
<sup>3</sup> ☐ Threat to pets or livestock    <sup>4</sup> ☐ Damage to landscape, garden, or crops  
<sup>5</sup> ☐ Damage to buildings  
<sup>6</sup> ☐ Threat to humans (Please describe: \_\_\_\_\_)  
<sup>7</sup> ☐ Other (Please specify: \_\_\_\_\_)

5. **Did you contact the Michigan DNR to report the problem described in previous question?**

- <sup>1</sup> ☐ Yes    <sup>2</sup> ☐ No; skip to question #8.

6. **If you reported a problem with bear to the DNR, what response or services did you receive to resolve the problem?** *(Select all that apply.)*

- <sup>1</sup> ☐ Received advice / information over the phone at time of reporting    <sup>2</sup> ☐ None  
<sup>3</sup> ☐ DNR employee attempted to remove a problem bear by trapping or darting    <sup>4</sup> ☐ DNR employee visited my home / business to discuss the problem  
<sup>5</sup> ☐ Received a return call from a DNR employee to discuss the problem    <sup>6</sup> ☐ Received a brochure / video / information packet in the mail  
<sup>7</sup> ☐ Don't know  
<sup>8</sup> ☐ Other (Please specify: \_\_\_\_\_)

7. **How satisfied were you with the response or service you received from the DNR regarding the problem with a bear?** *(Select one.)*

- <sup>1</sup> ☐ Very Satisfied    <sup>2</sup> ☐ Somewhat Satisfied    <sup>3</sup> ☐ Neutral    <sup>4</sup> ☐ Somewhat Dissatisfied    <sup>5</sup> ☐ Very Dissatisfied

**8. Please indicate how strongly you agree or disagree with the following statements:**  
(Select one choice per item.)

	Strongly agree	Agree	Neutral	Disagree	Strongly disagree	Don't know
a. I want to see and have bears on my property.	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>	6 <input type="checkbox"/>
b. I want to see and have bears in the study area but not on my property.	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>	6 <input type="checkbox"/>
c. I feel uncomfortable about having bears on my property.	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>	6 <input type="checkbox"/>
d. I feel uncomfortable about having bears in the study area.	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>	6 <input type="checkbox"/>

**9. Please indicate how strongly you support or oppose an increase in the bear population in the study area if it meant....**  
(Select one choice per item.)

	Strongly Support	Support	Oppose	Strongly Oppose	Not Sure
a. You see a bear on or near your property once	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
b. You see a bear on or near your property more than once in a week	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
c. A bear chases a neighbor's pet once	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
d. A bear repeatedly threatens pets in the area	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
e. A bear damages one bird feeder in the area	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
f. A bear damages several bird feeders in the area	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
g. A bear attempts to enter a home in the area	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>

**10. Please indicate how strongly you support or oppose a decrease in the bear population in the study area if it meant....**  
(Select one choice per item.)

	Strongly Support	Support	Oppose	Strongly Oppose	Not Sure
a. You would rarely see a bear on your property during the year	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
b. You would rarely hear about anybody seeing a bear near your property during the year	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>
c. You would have less opportunity to hunt bear near your property	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>

**11. Please indicate how strongly you agree or disagree with the following statements:** (Select one choice per item.)

	Strongly agree	Agree	Neutral	Disagree	Strongly disagree	Don't know
a. Bears are more of a nuisance than benefit to people.	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>	6 <input type="checkbox"/>
b. Bears in Michigan are dangerous to humans.	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>	6 <input type="checkbox"/>
c. Bears kill many livestock and pets in Michigan.	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>	6 <input type="checkbox"/>
d. Landowners should not have to tolerate property damage from bears.	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>	6 <input type="checkbox"/>

11. (Continued) Please indicate how strongly you agree or disagree with the following statements: (Select one choice per item.)	Strongly agree	Agree	Neutral	Disagree	Strongly disagree	Don't know
e. There is no need for bears in Michigan.	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>	6 <input type="checkbox"/>
f. The DNR is solely responsible for preventing bear-related problems on my property.	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>	6 <input type="checkbox"/>
g. I should be expected to take actions to prevent bear-related problems on my property.	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>	6 <input type="checkbox"/>
h. There is a direct relationship between bear numbers and bear-related problems in my area.	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>	6 <input type="checkbox"/>
i. Most problems with bears in Michigan can be prevented by taking a few simple precautions, such as using bear-proof trash containers.	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>	6 <input type="checkbox"/>
j. Use regulated hunting to control bear populations in Michigan.	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>	6 <input type="checkbox"/>
k. Although I may never see one, I derive satisfaction just knowing bears exist in Michigan.	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>	6 <input type="checkbox"/>
l. Bears are an important and essential part of Michigan's ecosystem.	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>	6 <input type="checkbox"/>
m. I would like an opportunity to hunt bears in Michigan.	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>	6 <input type="checkbox"/>
n. Landowners should be allowed to feed bears.	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>	6 <input type="checkbox"/>
o. Bears should be preserved in Michigan for future generations.	1 <input type="checkbox"/>	2 <input type="checkbox"/>	3 <input type="checkbox"/>	4 <input type="checkbox"/>	5 <input type="checkbox"/>	6 <input type="checkbox"/>

12. Have you ever hunted bear in Michigan?

1 ☐ Yes      2 ☐ No

13. Have you ever applied for a bear hunting license in Michigan?

1 ☐ Yes      2 ☐ No

14. Is your property part of a hunting club?

1 ☐ Yes      2 ☐ No

15. If your property is part of a hunt club, do members pay a fee for membership?

1 ☐ Yes      2 ☐ No

16. Do you intentionally feed bears on your property?

1 ☐ Yes      2 ☐ No

17. Do you intentionally feed wild turkeys on your property?

1 ☐ Yes      2 ☐ No

18. Overall, how satisfied or dissatisfied are you with the management of bear populations in Michigan by the Michigan DNR? (Select one.)

1 ☐ Very Satisfied      2 ☐ Somewhat Satisfied      3 ☐ Neutral      4 ☐ Somewhat Dissatisfied      5 ☐ Very Dissatisfied

Please return questionnaire in the enclosed postage-paid envelope.