



2010 SHARP-TAILED GROUSE HARVEST SURVEY

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ABSTRACT

A survey was completed to determine the number of people hunting sharp-tailed grouse, the number of days hunting, and the number of sharp-tailed grouse harvested in Michigan. In 2010, 2,571 hunters obtained a free sharp-tailed grouse stamp allowing them to hunt sharp-tailed grouse. About 15% of these people hunted sharp-tailed grouse (398 hunters). Sharp-tailed grouse hunters spent 1,429 days afield and harvested 217 sharp-tailed grouse ($\bar{x} = 0.5$ grouse/hunter). About 25% of the hunters harvested at least one sharp-tailed grouse. About 52% of hunters were either satisfied or somewhat satisfied with their hunting experience. Moreover, 89% of hunters reported that they were very likely or somewhat likely to continue hunting sharp-tailed grouse during the next two years.

INTRODUCTION

In 2010, Michigan bird hunters had an opportunity to hunt sharp-tailed grouse (*Tympanuchus phasianellus*) for the first time in 12 years. Hunters could hunt sharp-tailed grouse in portions of two counties in the Upper Peninsula of Michigan (Chippewa and Mackinac counties) during October 10-31 (Figure 1). About 17% of area open to hunting was publicly owned land (i.e., land owned by federal, state, county, or township governmental agencies). In order to hunt sharp-tailed grouse, hunters were required to obtain a small game hunting license and a free sharp-tailed grouse hunting stamp. Hunters could harvest up to two birds per day with a seasonal limit of six birds.

The Department of Natural Resources (DNR) and Natural Resources Commission have the authority and responsibility to protect and manage the wildlife resources of the state of Michigan. Harvest surveys are one of the management tools used by the DNR to accomplish



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its statutory responsibility. Estimating harvest, hunting effort, and hunter satisfaction are among the primary objectives of these surveys.

METHODS

Following the 2010 sharp-tailed grouse hunting season, a questionnaire was sent to 2,571 people that had obtained a sharp-tailed grouse stamp. Hunters receiving the questionnaire were asked to report if they hunted sharp-tailed grouse, number of days spent afield, and number of sharp-tailed grouse they harvested. Hunters also were asked to indicate whether they normally hunted with the aid of a dog, satisfaction with the hunting season, and the likelihood of hunting sharp-tailed grouse during the next two years.

Estimates were calculated using a simple random sampling design (Cochran 1977) and were presented along with their 95% confidence limit (CL). This 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. Estimates were not adjusted for possible response or nonresponse bias.

Questionnaires were mailed initially during mid-December 2010, and up to two follow-up questionnaires were mailed to nonrespondents. Although 2,571 people were sent the questionnaire, 47 surveys were undeliverable resulting in an adjusted sample size of 2,524. Questionnaires were returned by 1,732 people, yielding a 69% adjusted response rate.

RESULTS

In 2010, 2,571 people obtained a stamp to hunt sharp-tailed grouse. Men obtained most of these stamps (2,459). The average age of stamp buyers was 44 years (Figure 2), and nearly 6% (156) of the stamp holders were younger than 17 years old.

About $15 \pm 1\%$ of the people that obtained a stamp went afield to hunt sharp-tailed grouse (398 hunters, Table 1). These hunters most frequently hunted during the weekend (Figures 3 and 4). Hunters spent 1,429 days hunting ($\bar{x} = 3.5 \pm 0.2$ days/hunter), and harvested 217 sharp-tailed grouse ($\bar{x} = 0.5$ birds/hunter). About 25% of hunters successfully harvested at least one sharp-tailed grouse. About 10% of hunters took one grouse; 8% took two grouse, 4% took three grouse; 2% took four grouse; and about 2% took five or six grouse (Figure 5). Most of the harvested sharp-tailed grouse were taken on private lands, and hunting success was higher on private lands than public lands. In addition, most grouse were taken from Chippewa County.

Hunters most frequently hunted sharp-tailed grouse with the aid of a dog (Table 2); $62 \pm 3\%$ of the hunters used a dog. The proportion of hunters harvesting a sharp-tailed grouse was similar among hunters using a dog and hunters not using a dog (27% versus 23%); however, hunters using dogs appeared more efficient because it required less hunting effort to see or harvest a grouse than for hunters without a dog.

Of the estimated 398 people hunting sharp-tailed grouse in 2010, 52% of these hunters were satisfied with their hunting experience (Table 3). Nearly 22% of the hunters rated their

experience as neutral. About 22% of the hunters were dissatisfied with their experience. In addition, about 41% of hunters were satisfied with the number of grouse seen, and 23% were satisfied with the number of grouse harvested.

Among people that hunted sharp-tailed grouse in 2010, $89 \pm 2\%$ of the hunters were very likely or somewhat likely to hunt sharp-tailed grouse during the next two years. About $6 \pm 2\%$ of the hunters indicated that they were not very likely or not at all likely to hunt sharp-tailed grouse during the next two years. About 3% of the hunters were not sure whether they would hunt sharp-tailed grouse again during the next two years. Finally, 2% of the hunters failed to indicate whether they would hunt sharp-tailed grouse again.

ACKNOWLEDGEMENTS

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LITERATURE CITED

Cochran, W. G. 1977. Sampling techniques. John Wiley & Sons, New York, USA.

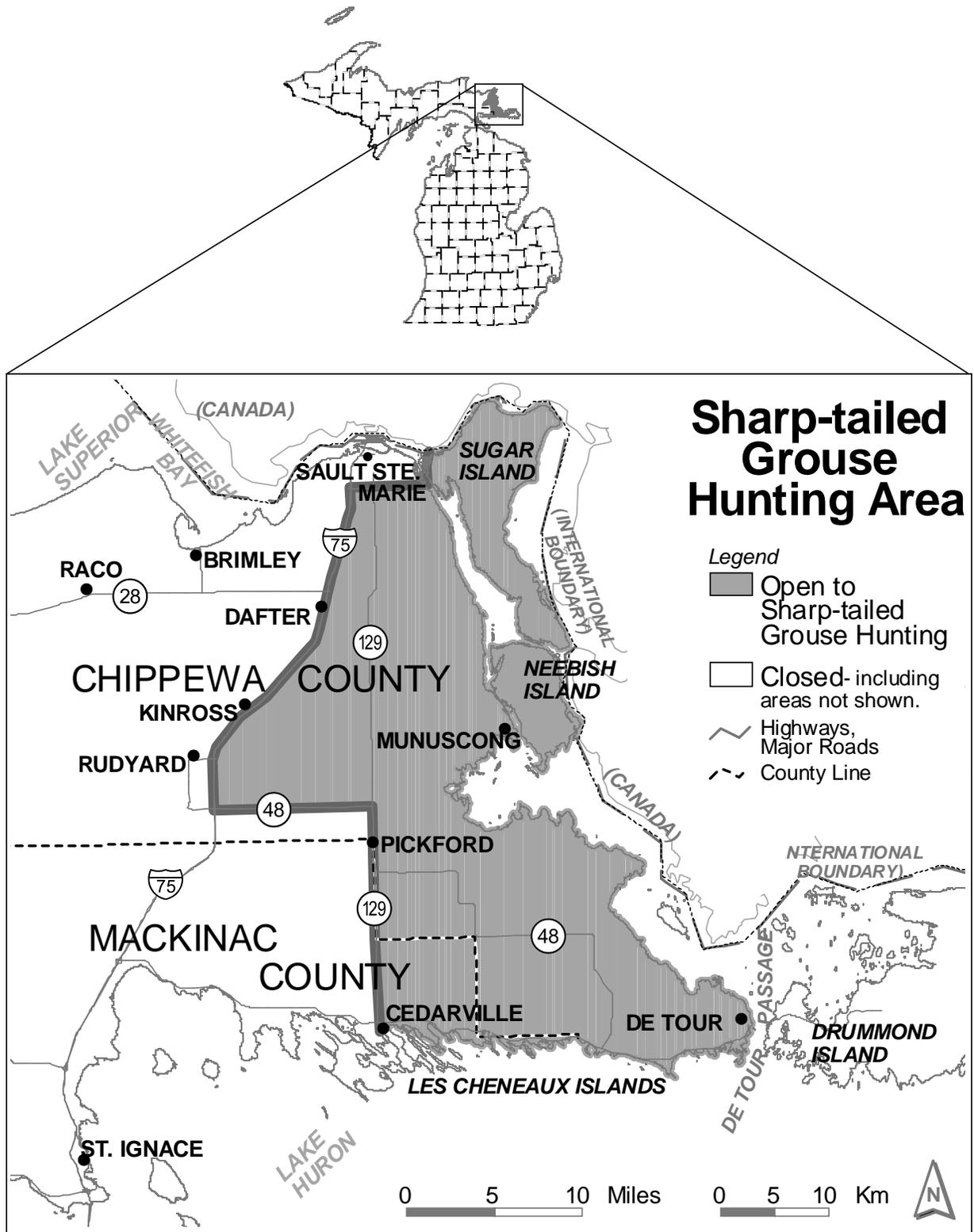


Figure 1. Area open for hunting sharp-tailed grouse in Michigan during 2010 hunting season.

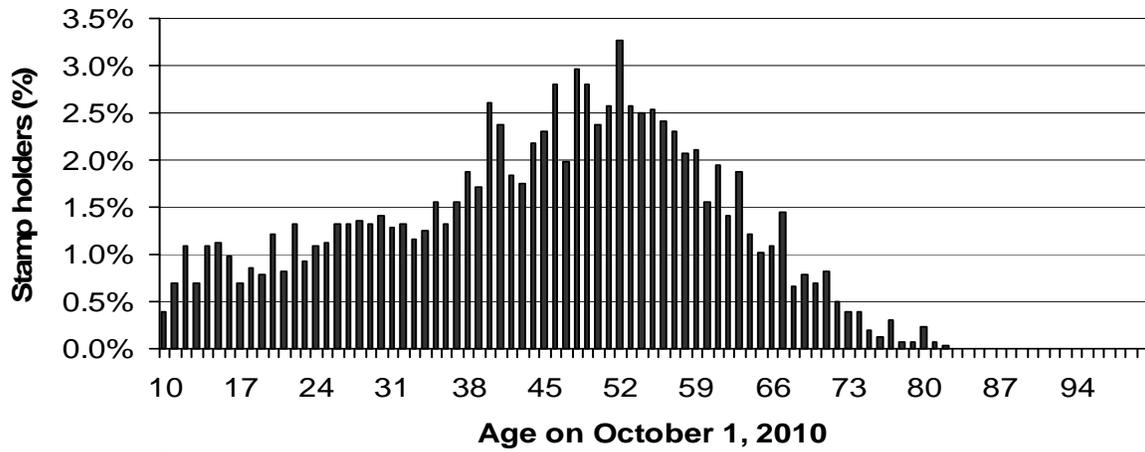


Figure 2. Age of people that obtained a sharp-tailed grouse hunting stamp in Michigan for the 2010 sharp-tailed grouse hunting season (\bar{x} = 44 years). Stamps were obtained by 2,571 people.

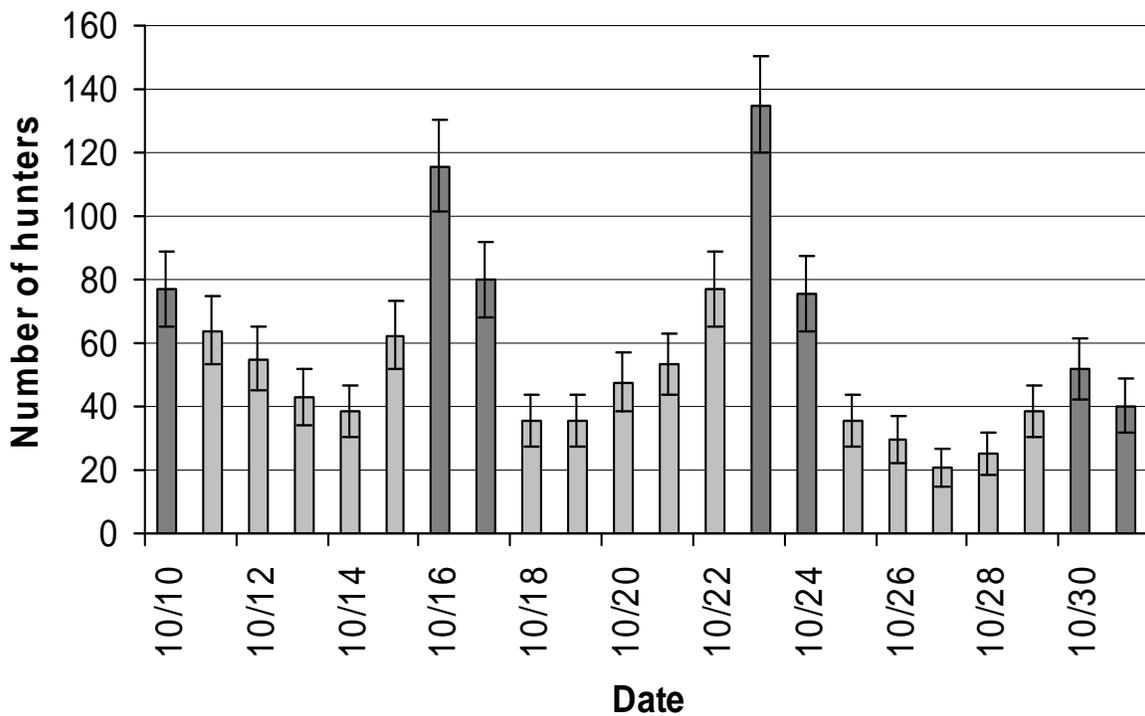


Figure 3. Estimated number of people hunting sharp-tailed grouse by date during the 2010 hunting season. Gray-shaded bars indicate weekends. Vertical bars represent the 95% confidence interval.

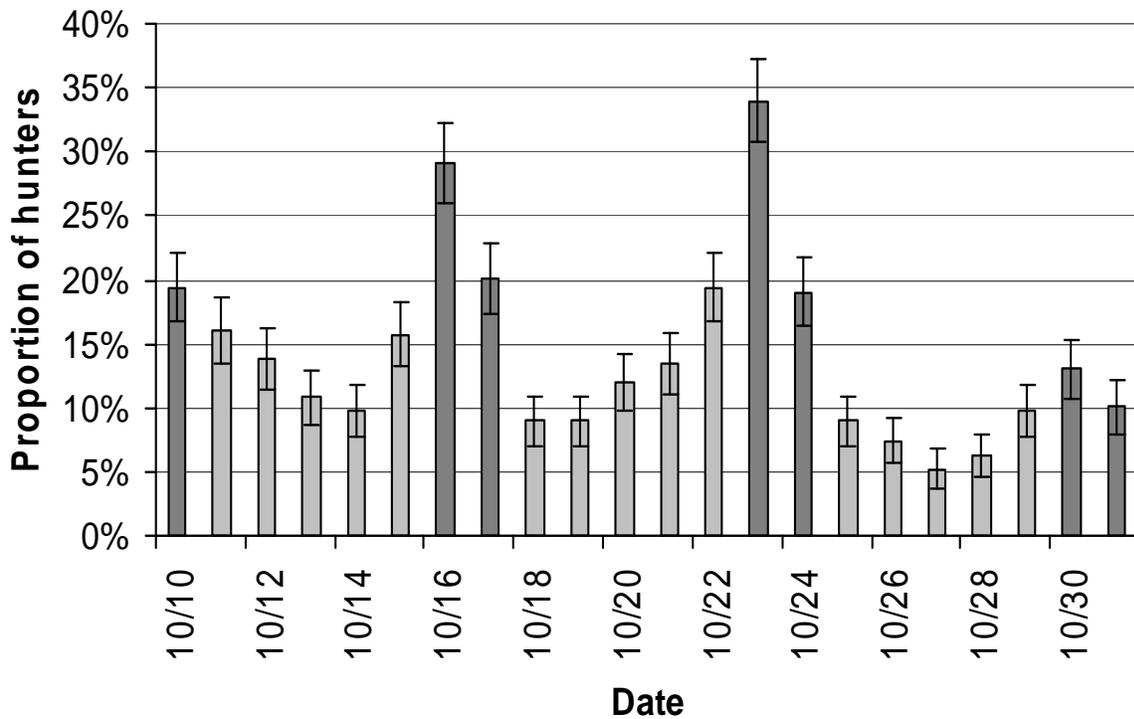


Figure 4. Estimated proportion of sharp-tailed grouse hunters afield by date during the 2010 hunting season. Gray-shaded bars indicate weekends. Vertical bars represent the 95% confidence interval.

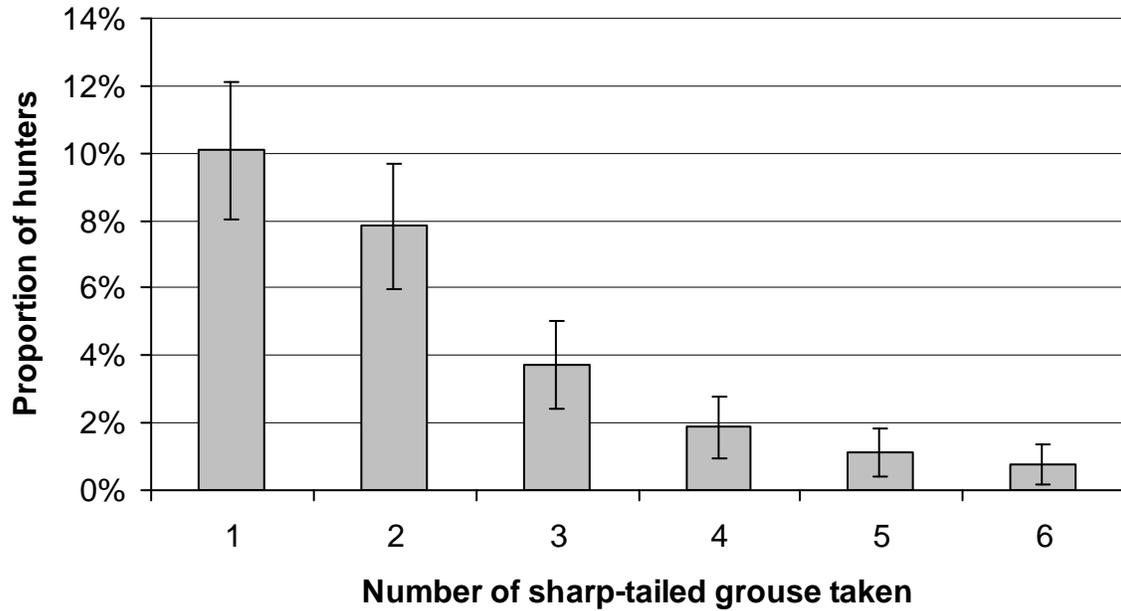


Figure 5. Estimated proportion of sharp-tailed grouse hunters that harvested one or more grouse during the 2010 hunting season, summarized by number of birds taken. Vertical bars represent the 95% confidence interval.

Table 1. Estimated number of hunters, hunting effort, sharp-tailed grouse seen, harvest, hunter success, grouse seen per hunter, and harvest per hunter during the 2010 sharp-tailed grouse hunting season in Michigan, summarized by county and land type where hunting occurred (private or public).

Area and land type	Hunters		Hunting effort (days)		Grouse seen		Harvest		Success ^a		Grouse seen per hunter		Harvest per hunter ^b	
	No.	95%	No.	95%	No.	95%	No.	95%	%	95%	No.	95%	No.	95%
		CL		CL		CL		CL		CL		CL		CL
Chippewa County														
Private lands	107	14	312	57	1,407	290	83	22	36%	6%	13.2	2.1	0.8	0.2
Public lands	88	13	278	55	202	105	10	4	12%	5%	2.3	1.2	0.1	0.0
Both lands	122	15	549	88	1,155	255	73	20	27%	6%	9.5	1.8	0.6	0.2
Unknown	4	3	19	15	46	50	3	3	33%	37%	10.3	11.0	0.7	0.7
Subtotal	321	23	1,158	117	2,810	399	169	30	26%	3%	8.8	1.1	0.5	0.1
Mackinac County														
Private lands	16	5	33	13	224	106	19	9	55%	18%	13.7	4.8	1.2	0.4
Public lands	34	8	82	21	95	42	18	11	17%	9%	2.8	1.1	0.5	0.3
Both lands	31	8	88	24	101	39	7	5	14%	9%	3.2	1.0	0.2	0.2
Unknown	4	3	10	7	0	0	0	0	0%	0%	0.0	0.0	0.0	0.0
Subtotal	86	12	212	35	420	120	45	15	22%	6%	4.9	1.2	0.5	0.2
Unknown County														
Subtotal	16	5	59	29	53	25	3	3	9%	10%	3.3	1.1	0.2	0.2
All areas														
Private lands	125	15	347	59	1,637	308	102	24	38%	6%	13.1	1.9	0.8	0.2
Public lands	117	14	389	66	319	115	28	12	13%	4%	2.7	0.9	0.2	0.1
Both lands	148	16	662	96	1,281	260	83	21	25%	5%	8.6	1.5	0.6	0.1
Unknown	10	4	31	19	46	50	3	3	14%	16%	4.4	4.8	0.3	0.3
Grand total ^c	398	25	1,429	128	3,284	416	217	34	25%	3%	8.3	0.9	0.5	0.1

^aPercentage of hunters harvesting at least one sharp-tailed grouse.

^bThe season bag limit was six birds.

^cNumber of hunters does not add up to statewide total because hunters can hunt in more than one area.

Table 2. Estimated number of hunters, hunting effort, sharp-tailed grouse seen, harvest, hunter success, grouse seen per hunter, and harvest per hunter during the 2010 sharp-tailed grouse hunting season in Michigan, summarized by primary hunting method (used dogs or no dogs used).

Primary hunt method	Hunters		Hunting effort (days)		Grouse seen		Harvest		Success ^a		Grouse seen per hunter		Harvest per hunter ^b	
	No.	95% CL	No.	95% CL	No.	95% CL	No.	95% CL	%	95% CL	No.	95% CL	No.	95% CL
Used dog	248	20	736	80	2,063	346	135	26	27%	4%	8.3	1.2	0.5	0.1
Did not use dog	148	16	693	103	1,220	239	82	22	23%	5%	8.2	1.3	0.6	0.1
Unknown	1	2	0	0	0	0	0	0	0%	0%	0.0	0.0	0.0	0.0
Total	398	25	1,429	128	3,284	416	217	34	25%	3%	8.3	0.9	0.5	0.1

^aPercentage of hunters harvesting at least one sharp-tailed grouse.

^bThe season bag limit was six birds.

Table 3. Hunters' level of satisfaction with the number of sharp-tailed grouse seen, grouse harvested, and overall hunting experience during the 2010 sharp-tailed grouse hunting season.

Index	Satisfaction level							
	Satisfied ^a		Neutral		Dissatisfied ^b		No answer or not applicable	
	%	95% CL	%	95% CL	%	95% CL	%	95% CL
Grouse seen	41%	3%	19%	3%	32%	3%	8%	2%
Grouse harvested	23%	3%	26%	3%	33%	3%	18%	3%
Hunting experience	52%	3%	22%	3%	22%	3%	4%	1%

^aIncluded hunters who were "very satisfied" or "somewhat satisfied."

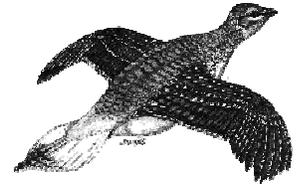
^bIncluded hunters who were "somewhat dissatisfied" or "strongly dissatisfied."

Appendix A. The questionnaire sent to a sample of sharp-tailed grouse hunters in this study.



2010 SHARP-TAILED GROUSE HARVEST REPORT

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



It is important that you complete and return this questionnaire even if you did not hunt or harvest any sharp-tailed grouse in Michigan during 2010.

1. Did you attempt to hunt sharp-tailed grouse in Michigan during the 2010 season?

- ¹ Yes ² No, Skip to question number 6.

2. If you attempted to hunt sharp-tailed grouse during the 2010 season, please complete the following table. Sharp-tailed grouse could be hunted only in portions of Chippewa and Mackinac counties, and you could harvest a maximum of 6 grouse during the entire season.

COUNTY HUNTED <i>(List each county that you hunted)</i>	NUMBER OF DAYS HUNTED <i>(maximum= 22 days)</i>	TYPE OF LAND	NUMBER OF SHARP-TAILED GROUSE SEEN	NUMBER OF SHARP-TAILED GROUSE HARVESTED <i>(maximum= 6 grouse)</i>
		¹ <input type="checkbox"/> Private ² <input type="checkbox"/> Public ³ <input type="checkbox"/> Both		
		¹ <input type="checkbox"/> Private ² <input type="checkbox"/> Public ³ <input type="checkbox"/> Both		

3. Using the adjacent calendar, please circle [O] the days that you hunted. Circle only the days you actually went afield to hunt sharp-tailed grouse in Michigan.

October 2010						
S	M	T	W	T	F	S
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31						

4. Did you normally use a dog to hunt sharp-tailed grouse in Michigan during 2010?

- ¹ Yes ² No

Questions continued on next page.

5. Please indicate how satisfied or dissatisfied you were with the following for the 2010 sharp-tailed grouse hunting season in Michigan:

(Select one choice per item.)

Very Satisfied	Somewhat Satisfied	Neutral	Somewhat Dissatisfied	Strongly Dissatisfied	Not Applicable
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- | | | | | | | |
|---|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|----------------------------|
| a. Number of sharp-tailed grouse you saw. | 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. Number of sharp-tailed grouse you harvested. | 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. Your overall sharp-tailed grouse hunting experience. | 1 <input type="checkbox"/> | 2 <input type="checkbox"/> | 3 <input type="checkbox"/> | 4 <input type="checkbox"/> | 5 <input type="checkbox"/> | 6 <input type="checkbox"/> |

6. How likely is it that you will hunt sharp-tailed grouse in Michigan in the next 2 years?

- 1 Very likely
 2 Somewhat likely
 3 Not very likely
 4 Not at all likely
 5 Not sure

7. Do you have any comments or suggestions about sharp-tailed grouse management in Michigan?

*Please return questionnaire in the enclosed postage-paid envelope.
Thank you for your help.*